# Town Board of Trustees <br> Tuesday, November 22, 2022 at 7:00 pm <br> PLEASE SILENCE ALL CELL PHONE AND ELECTRONIC DEVICES. THANK YOU. 

## 1. Meeting Information

207 Muegge Way, Bennett, CO 80102
For a live stream of the meeting use the information below:
https://us02web.zoom.us/j/84285000718

Meeting ID: 84285000718

Passcode: 677682

One tap mobile
+16699006833
2. Call to Order

Royce D. Pindell, Mayor
a. Roll Call
3. Pledge of Allegiance

Royce D. Pindell, Mayor
4. Approval of Agenda

Royce D. Pindell, Mayor
5. Consent Agenda

Royce D. Pindell, Mayor
a. November 8, 2022 Regular Meeting Minutes

Attachments:

- November 8, 2022 Regular Meeting Minutes (November_8__2022_-_Reg ular_Meeting_Minutes.pdf)
b. Intergovernmental Agreement (IGA) Between Arapahoe County, Colorado and Town of Bennett for Law Enforcement Services
Resolution No. 946-22 - A Resolution Approving an Intergovernmental Agreement with Arapahoe County for the Provision of Law Enforcement Services

Attachments:

- Intergovernmental Agreement (IGA) Between Arapahoe County, Colo rado and Town of Bennett for Law Enforcement Services (0_-_2023_Ag reement_-_Arapahoe_Cty_Law_clean_.pdf)
- Resolution No. 946-22 - A Resolution Approving an Intergovernment al Agreement with Arapahoe County for the Provision of Law Enforce ment Services (1_-_Draft_Reso_No._Arapahoe_County_Law_Enforc_IGA_202 3.pdf)


## Public Comments on Items Not Scheduled for Public Hearing

The Board of Trustees welcomes you. Thank you for joining us for our Town of Bennett Board of Trustees Meeting. If you are not speaking, we ask that you please mute your microphone. For public comment please sign up on the provided sheet or in the chat box. If you are on the phone, once we get through the sign-up sheet and chat box we will call for any other comments for items not on the agenda.

Your comments will be limited to three (3) minutes. The Board may not respond to your comments this evening, rather they may take your comments and suggestions under advisement and provide direction to the appropriate member of Town staff for followup. Thank you.

## Regular Business

## 6. Public Hearing <br> Steve Hebert, Planning Manager

a. Case No. 22.02 Mundell Farms Planned Development - PD Zoning

Ordinance No. 762-22 - An Ordinance Zoning Property Annexed to the Town of Bennett and Known as the Bennett North Annexation and Approving an Outline Development Plan for Mundell Farms Steve Hebert, Planning Manager

## Attachments:

- Public Hearing Script (0_-_Public_Hearing_Script.PC.pdf)
- Staff Report Case No. 22.02 Mundell Farms Planned Development - P D Zoning (0_-_Mundell_Farms_ODP_BoT_staff_report_v3_2_.pdf)
- PowerPoint Presentation (1_Mundell_Farms_Zoning_BoT_Presentation_11_ 22_22.pdf)
- Applicant's Presentation (2_Mundell_Farms_Applicant_Presentation_ODP_ Hearings.pdf)
- Letter of Introduction (3_Letter_of_Introduction.pdf)
- Mundell Farms Outline Development Plan (ODP) (4_Mundell_Preliminary _ODP_18x24-9-29-2022.pdf)
- Mundell Farms Traffic Impact Study (5_MundellFarms-TIS_111522.pdf)
- Combined Staff and Referral Agency Comments (6_Combined_Referral_
- Ordinance No. 762-22 - An Ordinance Zoning Property Annexed to th e Town of Bennett and Known as the Bennett North Annexation and Approving an Outline Development Plan for Mundell Farms (7_Mundell _Farms_Zoning_Ord_762-22.pdf)
- Suggested Motion (8_-_suggested_motion.pdf)


## 7. Action/Discussion Items

a. Trustee Appointment Applications 2022

Royce D. Pindell, Mayor

## Attachments:

- Crow, Kat (Kat_Crow.pdf)
- Vittum, Larry (Larry_Vittum.pdf)
- Weller, Gerald (Gerald_Weller.pdf)
b. Change Order for Construction of Bennett Lower Arapahoe Aquifer Well LA-14
Daymon K. Johnson, Capital Projects Director


## Attachments:

- Staff Report Change Order for Construction of Bennett Lower Arapah oe Aquifer Well LA-14 (0_-_Staff_Report_-_CO-004_Hydro_Resources_Comp letion_of_LA-14_-_FINAL_-_11.16.22.pdf)
- Change Order No. 4, Construction of Bennett Lower Arapahoe Aquife r Well LA-14 (1_-_Proposed_Change_Order_4_-_Lower_Arapahoe_Well_LA-14 _-_11.16.22.pdf)
- Letter of Support from Jehn Water Consultants, Inc. (2_-_Recommenda tion_Letter_to_Bennett_LA-14_-Jehn_Water_-_11.17.22.pdf)
- Suggested Motion (2_-_suggested_motion.pdf)
c. Town of Bennett Water Reclamation Resource Recovery Expansion Project
Daymon K. Johnson, Capital Projects Director


## Attachments:

- Aqua Engineering Presentation (Bennett_Board_Update_Nov_2022_-_Rev _2_-_11.16.22.pdf)
d. Long-Term Land Lease with Discovery Time Kids Early Learning Center

Ordinance No. 763-22 - An Ordinance Approving a Lease Agreement with Discovery Time Kids Learning Center
Rachel Summers, Deputy Town Manager

Attachments:

- Staff Report Long-Term Land Lease with Discovery Time Kids Early L earning Center (0_-_daycare_staff_report-RS_redline_THredline.pdf)
- Long-Term Land Lease with Discovery Time Kids Early Learning Cent
er (1_-_Long_Term_Lease_Agreement_with_Discovery_Time_Daycare_clean_ .pdf)
- Ordinance No. 763-22 - An Ordinance Approving a Lease Agreement with Discovery Time Kids Learning Center (2_-_Ordinance_Approving_Da y_Care_Lease.pdf)
- Suggested Motion (3_-_suggested_motion.pdf)


## 8. Town Manager Report

Trish Stiles, Town Manager

## 9. Trustee Comments and Committee Reports

Mayor and Trustees
10. Adjournment

Individuals with disabilities who need auxiliary aids in attending the meeting may request assistance by contacting the Town Hall at 207 Muegge Way, Bennett, CO 80102-7806, (303) 644-3249. Please give notice at least 48 hours in advance of the meeting to allow for enough time in making the necessary arrangements.

Contact: Christina Hart (chart@bennett.co.us 1303-644-3249 X1001) | Agenda published on 11/18/2022 at 11:13 AM


# Town Board of Trustees <br> Minutes 

Tuesday, November 8, 2022 at 7:00 pm
PLEASE SILENCE ALL CELL PHONE AND ELECTRONIC DEVICES. THANK YOU.

## 1. Meeting Information

207 Muegge Way, Bennett, CO 80102
2. Call to Order

Royce D. Pindell, Mayor
a. Roll Call

Minutes:
Present:
Royce D. Pindell, Mayor
Kevin Barden, Trustee
Steve Dambroski, Trustee
Whitney Oakley, Mayor Pro Tem
Denice Smith, Trustee
Donna Sus, Trustee

## Staff Present:

Trish Stiles, Town Administrator
Rachel Summers, Deputy Town Administrator
Taeler Houlberg, Administrative Services Director
Danette Ruvalcaba, Town Treasurer and Finance Director
Alison Belcher, Communications and IT Director
Adam Meis, IT and Communications Manager
Robin Price, Public Works Director
Ricky Martinez, Assistant Public Works Director
Sarah Shepherd, Public Works Office Coordinator
Dan Giroux, Town Engineer
Melinda Culley, Town Attorney
Christina Hart, Town Clerk

## Public Present:

Kathy Smiley

## 3. Pledge of Allegiance

Royce D. Pindell, Mayor

## Minutes:

The Pledge of Allegiance was led by Royce D. Pindell, Mayor.

## 4. Approval of Agenda

Royce D. Pindell, Mayor

## Minutes:

MAYOR PRO TEM OAKLEY MOVED, TRUSTEE DAMBROSKI SECONDED to approve the agenda as presented. The voting was as follows:
Ayes: Dambroski, Oakley, Pindell, Smith, Sus, Barden
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote.

## 5. Consent Agenda

Royce D. Pindell, Mayor

## Minutes:

MAYOR PRO TEM OAKLEY MOVED, TRUSTEE SMITH SECONDED to approve the consent agenda as presented. The voting was as follows:

Ayes: Oakley, Pindell, Smith, Sus, Barden, Dambroski
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote. 1. Action: Approval of October 25, 2022, Regular Meeting Minutes

## PUBLIC COMMENTS NO ON THE AGENDA

There were no public comments presented.
a. October 25, 2022 - Regular Meeting Minutes

## Public Comments on Items Not Scheduled for Public Hearing

The Board of Trustees welcomes you. Thank you for joining us for our Town of Bennett Board of Trustees Meeting. If you are not speaking, we ask that you please mute your microphone. For public comment please sign up on the provided sheet or in the chat box. If you are on the phone, once we get through the sign-up sheet and chat box we will call for any other comments for items not on the agenda.

Your comments will be limited to three (3) minutes. The Board may not respond to your comments this evening, rather they may take your comments and suggestions under advisement and provide direction to the appropriate member of Town staff for followup. Thank you.

## 6. Action/Discussion Items

a. Amending the Bennett Municipal Code to Update the Title of Town Administrator
Ordinance No. 761-22 - An Ordinance Amending the Bennett Municipal Code Regarding Updating the Title of Town Administrator to Town Manager

## Minutes:

Taeler Houlberg, Administrative Services Director, reported a proposed amendment to the Bennett Municipal Code updating the title of Town Administrator to Town Manager.
MAYOR PRO TEM OAKLEY SECONDED, TRUSTEE BARDEN SECONDED to amend the Bennett Municipal Code regarding updating the title of Town Administrator to Town Manager. The voting was as follows:
Ayes: Pindell, Smith, Sus, Barden, Dambroski, Oakley
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote.

## b. 2023 Town of Bennett Budget Second Draft

Danette Ruvalcaba, Town Treasurer and Director of Finance

## Minutes:

Danette Rulvacaba, Town Treasurer and Finance Director presented the second draft of the 2023 Town of Bennett Budget to the Board.
No action was needed.
c. Young at Heart Seniors Lease Agreement

## Minutes:

Sarah Shepherd, Public Works Office Coordinator, presented the Young at Heart Seniors lease agreement to the Board.

TRUSTEE SUS MOVED, TRUSTEE SMITH SECONDED to approve the continued use of the Community Center without fees for the Young at Heart Seniors with the following stipulation: They must divide the closet space equally between themselves and Bennett ATA Tae Kwon Do. The voting was as follows: Ayes: Sus, Barden, Dambroski, Oakley, Pindell, Smith
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote.
d. Intergovernmental Agreement (IGA) Between Adams County, Colorado and the Town of Bennett for Law Enforcement Services
Resolution No. 945-22 - A Resolution Approving an Intergovernmental Agreement with Adams County for the Provision of Law Enforcement Services

## Minutes:

Trish Stiles, Town Administrator, presented the Intergovernmental Agreement between Adams County and the Town of Bennett for law enforcement services for the year 2023 to the Board.
MAYOR PRO TEM OAKLEY MOVED, TRUSTEE BARDEN SECONDED to

The voting was as follows:
Ayes: Barden, Dambroski, Oakley, Pindell, Smith, Sus
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote.

## 7. Town Administrator Report

## Minutes:

- CORE hosting its annual senior luncheon on November 10th at 11:30 a.m. at the Bennett Community Center.
- Ziggis ribbon cutting is scheduled on November 10th at 2:30 p.m. Ziggis will be open for business on November 11th.
- Bennett Anythink Library Little Art Gallery ribbon cutting is scheduled on November 10th at 3:30 p.m.
- Six families have been nominated for the Holiday Help Program. The toy distribution is
- Lynette White's retirement party is scheduled on December 1st from 11:30 a.m. -

2:30 p.m. at Town Hall.

- Breakfast with Santa is scheduled for December 3rd at the Bennett Community Center from 8:00 a.m. - 12:00 p.m.
- A special meeting of the Board of Trustees is scheduled for December 12th.
- The last Board meeting of 2022 is scheduled for December 13th.
- The annual Town Holiday Party is scheduled for December 16th.
- Town Staff will be observing the Veterans Day Holiday on November 14th.


## 8. Trustee Comments and Committee Reports

Mayor and Trustees
9. Adjournment

Minutes:
TRUSTEE DAMBROSKI MOVED, TRUSTEE SMITH SECONDED to adjourn the
meeting. The meeting was adjourned at 9:21 p.m. Voting was as follows:
Ayes: Barden, Dambroski, Oakley, Pindell, Smith, Sus
Nays: None
Royce D. Pindell, Mayor, declared the motion carried by unanimous vote.

## Minutes Approved:

Royce D. Pindell, Mayor

## Christina Hart, Town Clerk

Individuals with disabilities who need auxiliary aids in attending the meeting may

80102-7806, (303) 644-3249. Please give notice at least 48 hours in advance of the meeting to allow for enough time in making the necessary arrangements.

Contact: Christina Hart (chart@bennett.co.us 1303-644-3249 X1001) | Minutes published on 11/16/2022 at 10:49 AM

## AGREEMENT FOR LAW ENFORCEMENT SERVICES

THIS AGREEMENT is made and entered into by and between the TOWN OF BENNETT, a municipal corporation of the State of Colorado, (hereinafter referred to as "Bennett") and BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF ARAPAHOE, on behalf of the ARAPAHOE COUNTY SHERIFF'S OFFICE (hereafter referred to as the "County").

## WITNESSETH:

WHEREAS, Section 30-11-410, C.R.S. as amended, authorizes the County to contract with a municipality for the purpose of providing law enforcement by the Sheriff within the boundaries of the municipality; and

WHEREAS, Bennett is without monetary means to provide for the employment of any full-time law officers; and

WHEREAS, Bennett has requested that the County through the Arapahoe County Sheriff provide law enforcement services which the parties agree are contemplated in Section 30-11-410, C.R.S ,and

WHEREAS, the County, in the interest of health, safety, and welfare of the residents of the Town of Bennett, deems it advisable to enter into this Agreement for Law Enforcement Services; and

WHEREAS, the County has determined to execute future agreements on a fiscal year basis.

NOW, THEREFORE, in consideration of the premises, it is agreed as follows:

1. The Arapahoe County Sheriff ("Sheriff") shall provide law enforcement as more specifically described herein and in Attachment A within the boundaries of Bennett within Arapahoe County commencing upon January 1, 2023.
2. The type of law enforcement services to be provided by the Sheriff, within the boundaries of Bennett situated in Arapahoe County, shall be similar to the law enforcement services provided in unincorporated areas of the County of Arapahoe and will include law enforcement communication center services, but shall not include enforcement of municipal ordinances. The Sheriff shall utilize, to the best of his ability and judgment, the manpower and equipment presently at his disposal in order to provide said law enforcement services. Offenders shall be cited into the District Court or the County Court of Arapahoe County as appropriate.
a. The law enforcement services provided under this Agreement shall not include non-routine law enforcement services associated with special events sponsored by or approved by Bennett. For such events, it is expressly understood that Bennett shall consult with the Sheriff's staff regarding such event(s) and any law enforcement needs associated with the events that exceed routine service levels. Bennett shall negotiate a separate agreement with the Sheriff's Office for any temporary or off-duty services required for such events that exceed routine service levels. For purposes of this Agreement, "special events" and/or "nonroutine service levels" shall mean events sponsored or approved by Bennett with an expected or actual attendance of more than five thousand people.
3. The term of the Agreement shall commence as of January 1, 2023 and shall end as of December 31, 2023.
4. For the law enforcement services provided under this Agreement, Bennett shall pay to the County the sum of $\$ 39,859.47$ for the term of this agreement, which includes dispatch services. Payment of said $\$ 39,859.47$ shall be made to the County in full upon execution of this Agreement by Bennett.
5. The services provided pursuant to this Agreement shall be performed by the deputies of the Arapahoe County Sheriff. The Sheriff's staff shall be responsible for maintaining all records relating to the services performed.
6. The County is, and shall at all times be deemed to be, an independent contractor. Nothing in this Agreement shall be construed as creating the relationship of employer or employee between Bennett and the County or any of the County's agents or employees. To the extent this Agreement creates a principal-agent relationship between the County and Bennett, such relationship confers on the County and its employees the authority to act on Bennett's behalf only as to matters covered by this Agreement. The County shall retain all authority for rendition of the services covered by this Agreement, including standards of performance, control of personnel (including discipline), and other matters incidental to the performance of the services by the County. Nothing in this Agreement shall make any employee of Bennett a County employee or any employee of the County a Bennett employee for any purpose, including, but not limited to, withholding of taxes, payment of benefits, worker's compensation, or any other rights or privileges accorded County or Bennett employees by virtue of their employment.
7. Nothing in this Agreement shall be construed as a waiver by either party of the protections afforded them pursuant to the Colorado Governmental Immunity Act, Sections 24-10-101, et seq., C.R.S. ("CGIA") as same may be amended from time to time. Specifically, neither party waives the monetary limitations or any other rights, immunities or protections afforded by the CGIA or otherwise available at law. If any waiver by Bennett results in a waiver of protections afforded to the County, Bennett shall, to the extent allowed by law, indemnify and hold harmless the County for such actions. If any
waiver by the County results in a waiver of the protections afforded to Bennett, the County shall, to the extent allowed by law, indemnify and hold harmless Bennett for such actions. Further, the County shall not be responsible for any claim against Bennett which arises out of services not performed by the County pursuant to this Agreement.
8. The County does not intend by the Agreement to assume any contractual obligations to anyone other than Bennett, and Bennett does not intend by the Agreement to assume any contractual obligation to anyone other than the County. The County and Bennett do not intend that there be any third-party beneficiary to this Agreement.
9. Any assignment, transfer or subcontracting of this Agreement is prohibited, unless written consent is obtained from the other party in writing.
10. This Agreement may not be modified, amended or otherwise altered unless mutually agreed upon in writing by the parties hereto.
11. Bennett is not responsible for Worker's Compensation claims to the Sheriff's employees working under this Agreement. The County shall procure and maintain Worker's Compensation insurance for such employees as required under Colorado law.
12. Bennett agrees to carry Comprehensive General Liability Insurance with a minimum $\$ 1,000,000.00$ limit of liability. Arapahoe County and the Arapahoe County Sheriff will be named as additional insured under this policy. Bennett shall provide the County with a Certificate of Insurance reflecting that coverage. Arapahoe County agrees to maintain insurance, either through self-insurance or commercial policies, adequate to cover the liability and other risks to which it may be exposed as a result of the services provided pursuant to this Agreement. Bennett shall be named as an additional insured under the policy. The County shall provide Bennett with a certificate of insurance reflecting that coverage.
13. Bennett further agrees to carry Public Official Liability insurance and Workers Compensation for its own employees for the duration of the Agreement as well as for two years after the Sheriff's services terminate. Bennett shall provide the County with a certificate of insurance reflecting that coverage.
14. Either party may terminate this Agreement with or without good cause shown upon 30 days written notice to the other party prior to termination. In the event of termination by either party, no damages liquidated or otherwise, shall inure to the benefit of the other party; however, the County will refund a pro-rated portion of the fee paid pursuant to paragraph 4 above.
15. Unless otherwise agreed in writing, this Agreement, and the interpretation thereof shall be governed by the laws of the State of Colorado.
16. Notices to be provided under this Agreement shall be given in writing either by hand delivery, or deposited in the United States mail, with sufficient postage, to the following persons:

For County: Arapahoe County Attorney<br>5334 South Prince Street<br>Littleton, Colorado 80120<br>and (send to both)<br>Arapahoe County Sheriff's Office<br>Attn: Arapahoe County Sheriff<br>13101 E Broncos Parkway<br>Centennial, Colorado 80112

For Bennett: Town Clerk
Town of Bennett
207 Muegge Way
Bennett, CO 80102-7806

EXECUTED this $\qquad$ day of $\qquad$ , 20 $\qquad$

## ATTEST:

Town Clerk Date

## TOWN OF BENNETT

Mayor Date

Arapahoe County

Tyler S. Brown, Sheriff Date

## ATTACHMENT A

This Agreement for Law Enforcement Services will be implemented by the Arapahoe County Sheriff's Office and shall not in any way affect the regular law enforcement services provided by the Arapahoe County Sheriff's Office to unincorporated portions of Arapahoe County. The Sheriff will make all determinations in scheduling and designating the patrol area of the deputy supplied under this Agreement for Law Enforcement Services. The standards of performance, disciplining of deputies, control of personnel providing such services, and other matters incident to the performance of the services to be provided hereunder shall be in accordance with Arapahoe County Sheriff's Office policies and procedures.

All legal documents, i.e. subpoenas, summonses, or any legal paperwork not generated by the Arapahoe County Sheriff's Office that require service shall be handled as follows: (1) Legal documents will be provided by Bennett to the Civil Section of the Arapahoe County Sheriff's Office; (2) Arapahoe County Sheriff's Office personnel will serve only legal documents required to be served in Arapahoe County; (3) Bennett will pay for service in accordance with the Arapahoe County Sheriff's Office fee schedule, based upon the Colorado Revised Statutes.

Criminal and traffic enforcement action taken by deputies assigned to Bennett will be handled in the same manner and nature as enforcement actions within the unincorporated areas of Arapahoe County. Generally, it will be standard practice for deputies to utilize Bennett Municipal Ordinances for criminal and traffic charging whenever practical; however, appropriate charging shall remain at the deputies' discretion.

Law enforcement services provided to Bennett under this Agreement for Law Enforcement Services will be provided within the territory of Bennett that is located within Arapahoe County. Areas outside Arapahoe County, annexed by Bennett, will not be served under this Agreement for Law Enforcement Services. The Sheriff, or his designee, will meet with the Bennett Trustees on an as-needed basis. The meetings may occur in an effort to maintain communication and enhance community policing and partnerships.

## RESOLUTION NO. 946-22

## A RESOLUTION APPROVING AN INTERGOVERNMENTAL AGREEMENT WITH ARAPAHOE COUNTY FOR THE PROVISION OF LAW ENFORCEMENT SERVICES

WHEREAS, C.R.S. Section 29-1-203 authorizes governments to contract with each other to provide any function or service lawfully authorized to each of the contracting units; and

WHEREAS, the Town of Bennett and Arapahoe County are authorized to provide law enforcement services in their respective jurisdictions, and are authorized by C.R.S. Sections 29-1-203 and 30-11-410 to contract with one another respecting such services; and

WHEREAS, the Town of Bennett wishes to contract for and Arapahoe County will provide law enforcement services to the Town of Bennett for 2023; and

WHEREAS, the Board of Trustees has determined that the proposed Intergovernmental Agreement for law enforcement services is in the best interests of the Town and its citizens and desires to enter into such Intergovernmental Agreement with the County of Arapahoe.

## NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF BENNETT, COLORADO, AS FOLLOWS:

Section 1. The proposed Intergovernmental Agreement with the County of Arapahoe for the provision of law enforcement services in 2023 is hereby approved in essentially the same form as the copy of such Intergovernmental Agreement accompanying this Resolution.

Section 2. The Mayor is hereby authorized to execute the Intergovernmental Agreement, except that the Mayor is hereby further granted the authority to negotiate and approve such revisions to said Intergovernmental Agreement as the Mayor determines are necessary or desirable for the protection of the Town, so long as the essential terms and conditions of the Intergovernmental Agreement are not altered.

Section 3. The Mayor and Town Staff are further authorized to do all things necessary on behalf of the Town to perform the obligations of the Town under the Intergovernmental Agreement and to execute and deliver any and all documents necessary to effect the terms and conditions of such Intergovernmental Agreement.

INTRODUCED, ADOPTED, AND RESOLVED THIS 22 ${ }^{\text {nd }}$ DAY OF NOVEMBER 2022.

Royce D. Pindell, Mayor

## ATTEST:

Christina Hart, Town Clerk

## QUASI-JUDICIAL PUBLIC HEARING SCRIPT <br> (Board of Trustees)

MAYOR: I will now open the public hearing on the following application: An application for Case No. 22.02 Mundell Farms Planned Development - PD Zoning.

The purpose of the hearing is to provide a public forum for all interested parties who wish to comment on an application before the Trustees. If you wish to speak please write your name and address on the sign-up sheet or in the chat box and you will be called on.

The Procedure for the public hearing will be as follows:
FIRST, there will be a presentation by the Town staff.
NEXT, we will have a presentation by the applicant.
After the presentation we will allow people who signed up to speak for up to 3 minutes each. Please DO NOT REPEAT points made by others. It is fine to say, "I agree with the previous speaker's comments". Please direct your comments to the Trustees, not the applicant or Town staff.

After receiving public comments, we will allow the applicant an opportunity to respond.
NEXT, the Trustees may ask questions of anyone who testified.
I will then close the public hearing and no further testimony or other evidence will be received. The Trustees will discuss the matter and may take some kind of action.

Public hearings are recorded for the public record. All testimony must be presented, after you give your full name and address.

MAYOR: Ms. Hart do we have proper notification?
[Town Clerk to confirm on record notice has been provided]
Do any Trustees have any disclosures?
[Trustees to disclose conflicts of interests, ex parte contacts, etc]
Town staff, please introduce the applicant and provide your staff report.

## [Staff presentation]

Will the applicant or the applicant's representative present the application?

## [Applicant presentation]

Do any of the Trustees have questions of the applicant or Town staff?
[Question and Answer]
MAYOR: I will now open the public comment portion of the public hearing. For those wishing to speak, please clearly state your name and address for the record.

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Has anyone signed up to speak at this public hearing?

## [lf more than one person has signed in, call them in order.]

Is there any interested party in the audience that has not signed up but who wishes to speak regarding the application?

## [Additional public comment]

If there is no more public comment, I will now close the public comment portion of the public hearing.
MAYOR: Does the applicant wish to respond to any of the comments?

## [Opportunity for applicant to provide any rebuttal evidence]

MAYOR: Before we turn to Trustee questions and deliberation, I want to state that the documents included within the record for this public hearing include all application materials submitted by the applicant; all materials included in the Board of Trustee packets; any PowerPoint or other presentations given tonight; all written referral and public comments received regarding the application; the public comment sign-up sheet; the public posting log and photographs of the notice, and the Town's subdivision and zoning ordinances and other applicable regulations. Does anyone have any objection to inclusion of these items in the record?

MAYOR: I will now close the public hearing and the Trustees will deliberate on the evidence presented. During deliberations, Trustees may ask questions of Town staff, but no further public comment or other testimony or evidence will be received.

Who would like to begin?
Who is next?
Any other questions or comments
If anyone believes the applicable criteria have not been met, then please explain why so we have those reasons for the record.

MAYOR: We have a draft Ordinance in front of us and I would entertain a motion.

TO: $\quad$ Mayor and Town of Bennett Board of Trustees
FROM: Steve Hebert, Planning Manager
DATE: November 22, 2022
SUBJECT: Case No. 22.02 - Mundell Farms Planned Development - PD Zoning
Applicant/Representative(s): Several Mundell Family Members | Owner's Representatives - MGV 36 North Land Investments, John Vitella/Jim Marshall

Location: Southwest Corner of E. 38th Avenue and 1st St./Converse Rd.
Purpose: Zoning of 153.62 acres to PD - Planned Development District

## Background

The 153-acre Mundell property was annexed into the Town of Bennett on March 22, 2022, when the Board of Trustees adopted Ordinance No. 739-22. Concurrent with the annexation, the applicant requested R-2 - Mid Density Residential District zoning. The motion to approve the R-2 zoning was denied. The applicant now proposes PD - Planned Development District accompanied by the Mundell Farms Outline Development Plan (ODP). The ODP proposes a maximum of 900 residential units, with a mix of single-family detached (SFD) and single-family attached (SFA) homes, at an overall density of 5.9 dwelling units per acre. The Planning and Zoning Commission was scheduled to consider this application at its November 21, 2022 public hearing.

The property was zoned A-3 - Agricultural in Adams County prior to annexation. See the vicinity map below:


## Site Characteristics

The site's gently sloping topography includes a minor depression traversing from the high point in the southwest corner of the site to the low point located in the northeast corner. Overall, there is a change in elevation of 30 -feet across the site with the topography in the $1-2 \%$ slope range. The site has been
farmed for a number of years and is currently fallow with scattered small shrubs, introduced grasses and weeds. Fauna is limited to species that live in dry grasslands.

## Proposed Zoning and Project Description

The applicant proposes zoning the 153.62 acres to PD - Planned Development District. Sec. 16-2-475 of the Bennett Municipal code describes the PD District as:
"a distinct zoning district that provides a means by which development standards and permitted land uses can be customized for a specific site. The PD District is intended to:
(1) Provide flexibility in land use regulations by allowing for the consolidation of the platting and rezoning procedures;
(2) Permit a developer to propose a total development plan which can be considered as to its overall merits under a unified procedure;
(3) Encourage imaginative uses of open space, and special consideration of property with outstanding natural or topographical features;
(4) Encourage a diversity of housing types while maintaining high quality living environments;
(5) Provide a mix of retail, office, employment, civic and recreation uses conveniently located to housing;
(6) Provide for more efficient use of land including the reduction of land area disturbed for utility lines and motor vehicle access;
(7) Facilitate use of the most appropriate design and construction techniques in the development of land; and
(8) Advance the guiding principles contained within the Comprehensive Plan.

The initial zoning for a PD District is established by an Outline Development Plan (ODP). An ODP, which reflects the overall concept of the Planned Development, shall include ODP maps and drawings, a written textual statement and such other forms as required by the Applicant Guide."

Future uses will require a subdivision plat and a final development plan (FDP). Future subdivision plats will be reviewed by the Planning and Zoning Commission and Town Board of Trustees. FDPs are more specific site planning documents that will be also be reviewed by the Board of Trustees. More detailed plans for access, street design, water, sewer, stormwater, other utilities, landscaping, etc. will be required and reviewed at these subsequent stages.

Applicant's Development Concept and Intent
The following language is from the proposed ODP:
"The idea for living at Mundell Farms is pure and natural: Surround homes with a central park, additional pocket parks, and a perimeter trail. The parks and open space energize the residents and the perimeter trail provides an active social amenity for the community. The homes will be diverse, for all generations and lifestyles. It is anticipated that Mundell Farms will start with both traditional detached and attached homes. A
community goal is to have every home within 300 feet of a park or trail that connects to the 1-mile perimeter trail network".

Below is a summary land use chart and an image from the ODP showing the general layout of the proposed residential neighborhood. Note the proposed residential densities are lower on the northern half of the property than the southern half, in accordance with the recommendations of the 2021 Comprehensive Plan and the Town Centre Land Use Concept Plan, a discussed later in this staff report.

| Land Use Iype | Gross <br> Acreage | \% of Total |
| :--- | :--- | ---: |
| Open Space and Irail Corridors | 16.8 | $10.9 \%$ |
| Parks \& Recreation Areas | 6.3 | $4.1 \%$ |
| Development Areas (All Residential) | 117.4 | $76.4 \%$ |
| Major Roadways | 13.1 | $8.5 \%$ |
| Total Map Acreage | 153.6 | $100.0 \%$ |
| Maximum \# of Dwelling Units | 900 |  |
| Residential Density | 5.9 du/ac |  |



## Surrounding Zoning and Land Use

The table below summarizes the surrounding zoning and land use.

| Direction | Zone District |  |  | Land Use |  |
| :--- | :--- | :--- | :--- | :--- | :--- |
| North | A-3 (Unincorporated) | Agricultural |  |  |  |
| East | I-Industrial, P-Public, R-1 Resid., <br> A-3 (Unincorporated) | Industrial, Public <br> Residential | Works | Facility, | Single-family |
| South | PD - Planned Development | Agricultural |  |  |  |
| West | A-3 (Unincorporated) | Agricultural |  |  |  |

Below is a section of the Town of Bennett Zoning Map. The properties north and west of the Mundell property are currently unincorporated and zoned A-3 in Adams County.


## Availability of Public Services and Utilities

Water, Wastewater and Stormwater Management
Town of Bennett water and wastewater treatment services will be available to the project, subject to system design, construction and financing by the developer of onsite and offsite improvements addressed in one or more future subdivision plats and subdivision agreements. A stormwater management system will be designed by the developer and reviewed by the Town at the time of subdivision platting. Phasing of all onsite and offsite improvements will also need to be addressed by future subdivision agreements. A future subdivision agreement(s) will also indicate how many new homes, if any, can be built and occupied before any of the offsite improvements are constructed.

## Access, Traffic Impacts and Timing of Development Relative to Improvements

The property abuts East $38^{\text {th }}$ Avenue on the north and $1^{\text {st }}$ Street/Converse Road on the east. However, neither of these streets, in their current condition, will be adequate to accommodate the traffic expected to be generated by the full build out of 900 homes. The applicant has identified future offsite connections via an expanded road network that might include additional north/south and east/west street corridors. The illustration below shows some of these potential connections, including an extension of Penrith Road to East $38^{\text {th }}$ Avenue and a new crossing of the Union Pacific rail line. This is for illustrative purposes only and does not constitute a formal plan by the Town of Bennett or the applicant. However, it does align with future roadway corridors and improvements outlined in the draft Transportation Master Plan still in progress with Town staff and the consultant team.


Final location of the off-site connections will be identified at the time of subdivision platting. 1st Street and 38th Avenue, in their current conditions, will not be adequate to accommodate traffic from the site. Improvements to those rights-of-way, streets and related infrastructure will be required.

Because of the uncertainty of when future street connections and improvements will be in place to adequately accommodate vehicular traffic, staff recommends the following language be added to the ODP in place of the existing General Development Phasing language on Sheet 2:

Updated comprehensive traffic impact studies (TIS) will be required at the time of each subdivision plat. Future studies must include, but not be limited to: an identification of vehicle trip generation, existing and proposed conditions, capacity analysis, onsite and offsite impacts
and improvements to mitigate the impacts. The design, financing and timing of construction of internal and external street connections will be addressed in subsequent subdivision agreement(s) at the time of the platting process. A future subdivision agreement or agreements will determine how many new homes, if any, can be built and occupied in each phase of development consistent with the timing of required offsite improvements. All traffic impact studies shall be subject to Town approval.

Fire and Rescue
The property lies within the Bennett-Watkins Fire Rescue (BWFR) Authority District. The developer shall confer with Bennett Fire Protection District and ensure that the proposed development conforms to adopted (IFC) fire code standards, adequate water delivery systems and fire flow, adequate access, treatment of the wildland-urban interface and other requirements of the District. The Town will continue its practice of referring development applications to the District to ensure the District's comments are addressed at the appropriate stage of development.

Gas, Electric and Telecommunications
Gas will be available from Colorado Natural Gas. Electric power will be available from CORE Electric Cooperative and telecommunications will be available from Eastern Slope and Comcast.

## School District

The property is within the Bennett 29-J School District. Development of the project will be subject to the Bennett Municipal Code and the Intergovernmental Agreement (IGA) Concerning Land Dedications or Payments in Lieu for School Purposes, in effect at the time of subdivision platting. The District has indicated they will ask for cash-in-lieu at the time of subdivision platting.

## Public Land Dedication for Parks and Other Public Facilities

Per Sec. 16-5-510 of the Bennett Municipal Code, at the time of subdivision, the subdivider shall dedicate to the Town and improve to the Town's specifications usable tracts of land that are free from liens or encumbrances, for park land and public facilities. This land may be used for public parks, trails, open space, public facilities or recreational purposes. The public land dedication requirement shall be equal to ten percent ( $10 \%$ ) of the total land area contained within the subdivision.

The proposed Mundell Farms ODP sets aside approximately 23 acres for parks, open space and trails. Some or all of this acreage may be credited against that ten percent dedication requirement discussed above. However, the Town may also need a site for a future well field and water storage. The ultimate dedication for these public facilities will be determined at the time of subdivision plat, in accordance with the requirements applicable at that time.

## Staff Analysis and Findings

Consistency with the Comprehensive Plan

1. The subject property is within the Area of Planning Interest in the 2021 Comprehensive Plan.

The Area of Planning Interest includes unincorporated infill properties within Bennett, contiguous properties and properties within a logical service area, ideal for future annexation to the Town. See the excerpt of the comprehensive plan map below.

2. The proposed zoning is consistent with the Town Centre Land Use Concept Plan.

The approximate northern one-third of the Mundell Farms project is designated as Low (Density) Residential and the southern area is designated as Mixed Residential in the Town Centre Land Use Concept Plan. The 2021 Comprehensive Plan describes the Low Residential area as a low density residential use typically less than five dwelling units (DUs) per acre and comprised of single-family detached housing. Low Residential Areas are intended to provide housing to accommodate a wide range of home prices. The Mixed Residential neighborhoods are to contain a variety of housing types and densities, combined with non-residential secondary land use that are complementary and supportive such as parks and recreation areas, religious institutions and schools.

The proposed Mundell Farms ODP can accommodate both the Low Residential and Mixed Residential land use types.

See a subsection of the Town Centre Land Use Concept Plan below.


## Comprehensive Plan Principles

The Comprehensive Plan includes twelve principles that provide guidance to elected and appointed officials, residents, business and land owners, project applicants, community partners and stakeholders concerning growth and future land uses. They are outlined below.

## Comprehensive Plan <br> Principle <br> Complies? <br> Yes, No, NA or Neutral

## Staff Comment

The applicant's TIS anticipates an expanded future transportation network of new streets, sidewalks and trails. If accomplished, the project will comply with the Comprehensive Plan.
The Mundell Farms ODP accommodates a variety of single family detached and attached housing types, along with a network of parks and open space.

Mundell Farms is not a part of the "downtown" contemplated in the Comprehensive Plan. heart of Bennett that will serve as our "downtown" offering easy access to shopping, dining, entertainment and employment.
4. Encourage a high-quality and diverse mix of housing, available to people of different backgrounds, income, age, abilities and all phases of life.
5. Commit to being good partners with other community agencies and organizations through collaboration, leveraging funding and planning for future growth. Emphasize local relationships with the School, Library, Recreation, and Fire Districts.

## Comprehensive Plan Principle <br> Complies? <br> Yes, No, NA or Neutral

## Staff Comment

The proposed housing and park development can be attractive to a multitude of home buyers who work in the area and wish to live here.

The 153 -acre property does not have any significant open space or areas of environmental concern, including flood hazards or natural minerals. emphasis on flood hazard; water value; natural mineral wealth; or are prime open space locations.
8. Value the development of a healthy community with access to healthy foods, physical activity, recreation, healthcare and safe neighborhoods.
9. The Town strives to be resilient by providing a framework to understand and measure its capacity to endure, adapt and transform through economic, social, and physical stresses.
10. Design new developments in a manner to blend with the rural setting and preserve natural features and areas designated for agricultural production.
11. Contiguous land development pattern that promotes connected infrastructure and services in line with the capital asset inventory master planning documents.
12. Both land and infrastructure development decisions will be predictable and provide equitable costsharing in line with the Town's master plans.

Future subdivision plats and agreements will ensure infrastructure development decisions will be predictable and equitable regarding cost sharing.

## Consistency with the Intent of the Zoning Code

Staff Finding: Staff finds the proposed zoning is consistent with the purpose of the Bennett Land Use Code, including the following items outlined in Section 16-1-50:
(1) Implement the Town's goals, policies, plans, and programs to preserve and enhance the quality of life of its citizens and to promote economic vitality of its businesses;
(2) Promote superior land use, design and design flexibility;
(3) Support the development of Bennett as a model healthy community of interconnected employment and neighborhood centers;
(4) Maintain and enhance a quality residential environment in the Town;
(5) Provide a diversity of housing types at various densities;
(6) Provide adequate services and facilities to support existing and projected areas of population and growth;
(7) Promote logical extensions of and efficient use of the Town's infrastructure;
(8) Ensure that the fiscal impact of subdivision and development is borne by those parties who receive the benefits therefrom;
(9) Support programs and help provide facilities that meet the recreational, cultural, public safety and educational needs of the community.

## Consistency with the Planned Development Review Criteria in Section 16-2-350

Per Section 16-2-350, the Planning Commission and Board of Trustees shall consider the following in making their decision for approval, approval with conditions or denial of a PD.

Staff Finding: Based on discussion throughout this staff report and how the Outline Development Plan has been drafted, Staff finds the proposed Planned Development zoning meets the criteria in Section 16-2-350 outlined below. Some of the criteria will be further reviewed at the time of future subdivision plats and final development plans.
(1) The proposed PD District is compatible with present development in the surrounding area and will not have a significant, adverse effect on the surrounding area;
(2) The proposed PD District is consistent with the public health, safety and welfare, as well as efficiency and economy in the use of land and its resources;
(3) The proposed PD District is consistent with the overall direction and intent of this Article and the intent and policies of the Comprehensive Plan and other pertinent policy documents of the Town;
(4) The proposed PD District provides for a creative and innovative design which could not otherwise be achieved through other standard zoning districts.
(5) The PD provides adequate circulation in terms of the internal street circulation system, designed for the type of traffic generated, for separation from living areas, convenience, safety, access and noise and exhaust control.
(6) The PD provides functional open space in terms of practical usability and accessibility, and optimum preservation of natural features, including trees and drainage areas, recreation, views, natural stream courses, bodies of water and wetlands.
(7) To the extent practicable, the PD provides variety in terms of housing types, housing size, densities, facilities and open space.
(8) The PD provides for pedestrian and bicycle traffic in terms of safety, separation, convenience, access, destination and attractiveness.
(9) Services, including utilities, fire, police protection and other such services are available or can be made available to adequately serve the development.
(10)No structures in the PD shall encroach on a floodplain except as permitted by the Town's floodplain ordinance.
(11)Visual relief and variety of visual sightings shall be located within the PD through building placement, shortened or interrupted street vistas, visual access to open space and other design methods.

## Referral Agency Review and Comments

The proposed Mundell Farms zoning application was sent to several referral agencies for comment, including:

1. Town Planning
2. Town Engineer
3. Town Traffic Engineer
4. Bennett-Watkins Fire Rescue
5. CORE Electric Cooperative
6. Bennett School District 29J
7. Adams County Planning
8. Adams County Sheriff

None of the agencies that responded have any objections to the proposed zoning. However, many of them, including the Town Engineer, Town Traffic Engineer, Bennett-Watkins Fire, Bennett School District 29J and CORE Electric Cooperative, will require more analysis at the time of subdivision platting and final development plans.

## Public Comment

Notice of the November 21, 2022 Planning and Zoning Commission hearing and the November 22, 2022 Board of Trustees hearing was published in the Eastern Colorado News, posted on the subject property and sent to all property owners within 300 feet of the property. No formal comments have been submitted to date.

## Planning and Zoning Commission Recommendation

The Planning and Zoning Commission considered Case No. 22.02 on Monday, November 21, 2022. The recommendation of the Commission will be reported during the November 22, 2022 public hearing.

## Summary of Staff Findings and Recommendation on PD Zoning

Staff finds the proposed zoning is consistent with:

- the goals and policies of the Comprehensive Plan;
- the purpose of the Bennett Land Use Code outlined in Section 16-1-50; and
- the Planned Development approval criteria outlined in Section 16-2-350

Staff recommends the Board of Trustees adopt Ordinance No. 762-22 approving the proposed zoning of Planned Development (PD) and approval of the proposed Mundell Farms Outline Development Plan. The ordinance includes the following conditions of approval:

1. Before recording the outline development plan, the applicant shall make minor modifications as directed by Town Staff, the Town Attorney and the Town Engineer.
2. The following language shall be added to the Outline Development Plan:

Updated comprehensive traffic impact studies (TIS) will be required at the time of each subdivision plat. Future studies must include, but not be limited to: an identification of vehicle trip generation, existing and proposed conditions, capacity analysis, onsite and offsite impacts and improvements to mitigate the impacts. The design, financing and timing of construction of internal and external street connections will be addressed in
subsequent subdivision agreement(s) at the time of the platting process. A future subdivision agreement or agreements will determine how many new homes, if any, can be built and occupied in each phase of development consistent with the timing of required offsite improvements. All traffic impact studies shall be subject to Town approval.

## Attachments

1. Staff PowerPoint Presentation (PDF)
2. Applicant's Presentation
3. Letter of Introduction
4. Mundell Farms Outline Development Plan (ODP)
5. Mundell Farms Traffic Impact Study
6. Combined Staff and Referral Agency Comments
7. Proposed Ordinance No. 762-22

# CaseNo. 22.02 <br> Mundell Farms (Bennett North) Zoning 

Board of Trustees Public Hearing

November 22, 2022
Steve Hebert, Planning Manager

## Proposed Zoning to PD - Planned Development District with Mundell Farms Outline Development Plan

- Proposal to zone 153.62 acres
- Annexed into Town of Bennett in March 2022
- Previously zoned A-3 in unincorporated Adams County
- Proposed zoning is PD - Planned Development District


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## Mundell Farms Outline Development Plan



## Mundell Farms Outline Development Plan

| Land Use Iype | Gross <br> Acreage | \% of Total |
| :--- | :--- | ---: |
| Open Space and Trail Corridors | 16.8 | $10.9 \%$ |
| Parks \& Recreation Areas | 6.3 | $4.1 \%$ |
| Development Areas (All Residential) | 117.4 | $76.4 \%$ |
| Major Roadways | 13.1 | $8.5 \%$ |
| Iotal Map Acreage | 153.6 | $100.0 \%$ |
| Maximum \# of Dwelling Units | 900 |  |
| Residential Density | 5.9 du/ac |  |

## Applicant's Project Description

- Living at Mundell Farms is pure and natural.
- Surround homes with a central park, additional pocket parks, and a perimeter trail.
- Parks and open space energize the residents and the perimeter trail provides an active social amenity for the community.
- The homes will be diverse, for all generations and lifestyles.
- Both traditional detached and attached homes.
- A community goal is to have every home within 300 feet of a park or trail that connects to the 1-mile perimeter trail network.


## Illustrative Plan



## Surrounding Zoning and Land Use

| Direction | Zone District | Land Use |
| :--- | :--- | :--- |
| North | A-3 (Unincorporated) | Agricultural |
| East | I-Industrial, P-Public, R-1 <br> Resid., A-3 <br> (Unincorporated) | Industrial, Public Works Facility, <br> Single-family Residential |
| South | PD - Planned <br> Development | Agricultural |
| West | A-3 (Unincorporated) | Agricultural |



## Availability of Public Infrastructure

- Future subdivision plats and subdivision agreements will require the developer to design, finance and construct both onsite and offsite improvements.
- Water and Sewer - Town of Bennett (with onsite and offsite improvements)
- Regional Stormwater - Metro District or HOA, TBD at time of subdivision
- Fire Protection - Bennett-Watkins Fire Rescue (consistent with IFC and other standards)
- Access - E. $38^{\text {th }}$ Avenue and $1^{\text {st }}$ St./Converse Rd. (see additional comments on next slide)
- Law Enforcement - Adams County Sheriff
- Electricity - CORE Electric Cooperative (with onsite and offsite improvements)
- Natural Gas - Colorado Natural Gas
- Telecom - Eastern Slope Technologies or Comcast
- Bennett School District 29J, initial request for cash-in-lieu of land dedication


## Access, Traffic Impacts and Timing of Development Relative to Improvements

- Access via existing street network is inadequate
- Significant offsite improvements are expected in multiple phases
- Offsite connections are consistent with the draft Master Transportation Plan being developed
- Development will pay its fair share of offsite improvements
- Future subdivision plats will determine how many units can be built in each phase



## New Language in ODP Re: Access, Traffic Impacts and Timing of Development Relative to Improvements

Updated comprehensive traffic impact studies (TIS) will be required at the time of each subdivision plat. Future studies must include, but not be limited to: an identification of vehicle trip generation, existing and proposed conditions, capacity analysis, onsite and offsite impacts and improvements to mitigate the impacts. The design, financing and timing of construction of internal and external street connections will be addressed in subsequent subdivision agreement(s) at the time of the platting process. A future subdivision agreement or agreements will determine how many new homes, if any, can be built and occupied in each phase of development consistent with the timing of required offsite improvements. All traffic impact studies shall be subject to Town approval.

## Future Dedication for Parks, Open Space, Trails and other Public Facilities

- Dedication for these public facilities will be determined at the time of subdivision plat, in accordance with the requirements applicable at that time.



## Consistency with 2021 Comprehensive Plan

- Property is within the Area of Planning Interest
- Contiguous to existing Town boundaries



## Consistency with 2021 Comprehensive Plan

- Consistent with the Town Centre Land Use Concept
- Can accommodate both Low Residential and Mixed Residential land uses



## Consistency with the Intent of the Zoning Code

The proposed zoning is consistent with the purpose of the Bennett Land Use Code, outlined in Section 16-1-50, including to:

- Maintain and enhance a quality residential environment in the Town;
- Provide a diversity of housing types at various densities;
- Promote logical extensions of and efficient use of the Town's infrastructure.


## Staff Findings on Case No. 22.02

- Staff finds the proposed zoning is consistent with, or will promote, the goals and policies of the Town of Bennett 2021 Comprehensive Plan as required by Sections 16-1-90 and 16-2-360 of the Municipal Code.
- Staff finds the proposed zoning is consistent with the purpose of the Bennett Land Use Code, outlined in Section 16-1-50


## Planning and Zoning Commission Recommendation

- The Planning and Zoning Commission considered the application on Monday, November 21, 2022
- The action of the Commission will be reported at the Board of Trustees hearing on November 22.


## Staff Recommendation

Staff recommends the Board of Trustees approve Ordinance No. 762-22, approving the zoning of the Mundell property to PD Planned Development District and approval of the Mundell Farms Outline Development Plan, subject to conditions as outlined in the proposed ordinance.
(See Proposed Ordinance)





## PARK \& OPEN SPACE AREAS INIENT

To provide active and passive open space uses, including potential recreational facilities, to serve the residents of MUNDELL farms.

1. Pocket Park Standards
a. Size: Generally .75 to 3 acres in size
b. Location/Orientation: Centrally located within the residential development and/ or easily accessible by residents without the use of vehicles. A 5 minute walking distance for most residents.
c. Frontage: Required on one, preferred two or more local streets.
d. Pocket Parks are required to include all of the following infrastructure:
i. Benches (two minimum)
ii. Bicycle Racks (min. to serve four bikes)
iii. Pet Waste Station
iv. Shade Structure
v. ADA Accessible Walkways
vi. Trash Receptacle
vii. Turf and landscape plantings to provide shade over at least $25 \%$ of the area viii.lrrigation
e. Pocket Parks are required to include at least one of the following components: i. Display Garden
ii. Group Picnic Shelter (min. 500 sf and two picnic łables)
iii. Loop Walk (min. length $1,000 \mathrm{lf}$ )
iv. Multi-level Play Structure
v. Basketball (one half court)
vi. Bocce Ball, Horseshoe Pits, Shuffleboard, or similar
vii. Boulder/Climbing Play Area
viii.Community Garden
ix. Fitness Course
x. Handball or Tennis Courts
xi. Turf play berm (min. 3 feet hieght)
xii. Playground with at least 3 pieces of play equipment xiii. Public Art

## Permilted Uses (by Right)

1. Active public and private recreational uses, including but not limited to multi-purpose turf areas, playgrounds, swimming pools, and court games.
2. Passive public and private recreational uses, including but not limited to picnic grounds, native, naturalized or landscaped fields, and visual buffer open space.
3. Public Recreation Buildings.
4. Community Information/Sales Centers.
5. Picnic Pavilions and Shelters.
6. Public and quasi-public facilities.
7. Hiking and biking trails.
8. Accessory structures and uses.
9. Temporary construction yards and structures.
10. Signage, (including project identification signs and monuments) - subject to the sign permit requirements in the Bennet Municipal Code.
11. Utilities and appurtenant facilities.
12. Roads and parking.
13. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
14. Drainage and detention facilities
15. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Conditional Uses

(Conditional uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Temporary Uses

(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Special community events
2. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.



## -SUMMARY

- Is a logical extension to the Town of Bennett, will contribute to required future road connectivity for the Town of Bennett.
- The property is already annexed to the Town of Bennett.
- Is the first step in the design process for a new community, and is in compliance with the Comprehensive Plan.
- The proposal is consistent with the Town of Bennett requirements.


# 位 <br> pcs group 

Steve Hebert, AICP<br>Planning and Economic Development Manager<br>303-644-3249 ext. 1030<br>shebert@bennett.co.us

## MUNDELL FARMS

DEVELOPMENT CONCEPT AND INTENT

The idea for living at MUNDELL farms is pure and natural: Surround homes with a central park, additional pocket parks, and a perimeter trail. The parks and open space energize the residents and the perimeter trail provides an active social amenity for the community. The homes will be diverse, for all generations and lifestyles. It is anticipated that MUNDELL farms will start with both traditional detached and attached homes. A community goal is to have every home within 300 feet of a park or trail that connects to the 1 -mile perimeter trail network.

Overall MUNDELL FARMS proposes a maximum of 900 homes of the approximately 154 acres, an average density of 5.9 du/ac. The applicant is requesting an ODP Zoning for the property and has prepared all the required documents for submittal.

Sincerely,
Sohn Prestwich
President, RLA, PCS Group, Inc.

## OUTLINE DEVELOPMENT PLAN <br> MUNDELL FARMS

TOWN OF BENNEIT, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 1 of 8

## Legal descripion

THE NE1/4 SECTION 28, TOWNSHIP 3, RNNGE 63,
EXCEPT THREE ACRES IN THE SE1/4 OF THE NEI/4 OF SAID EECION 28 DESCRIBED AS:
BEGINNING AI THE SOUTHEAST CORNER OF THE NEI/4; THENCE NORIH $396^{\prime}$; THENCE WEST $330^{\circ}$; THENCE SOUTH 396'; THENCE EASI $330^{\prime}$ TO THE POINT OF BEGINNING.
and excerp a parcel of Land situaitd in the nel/4 of SAID SECTION 28 DESCRRBED AS:
BEGINNING AT A POINT 396.0' NOOOOI'E Of THE SE CORNE OF THE NEI/4 OF SADD SECTION 28; THENCE NOO이E A


 338.5' MORE OR IESS TO PONT OF BCOINNG
abOVE PARCEL OF LAND INCLLUDES 153.62 ACRES MORE OR LESS.

| SHEET INDEX |  |
| :---: | :--- |
| Sheet No. | Sheet Name |
| 1 | Cover |
| 2 | Introduction/Development Concept |
| 3 | Introduction/Development Concept |
| 4 | ODP Zoning Map |
| 5 | Illustrative Concept |
| 6 | Development Standards |
| 7 | Development Standards |
| 8 | Community Patterns \& Lot Types |
| 9 | Lot Types |



APPLICANT
mgy 36 norit land investments, lle PO Box - 4701
Greenwood Village, CO 80155
(303) 507-6651

PLanNer/LaNDSCAPE ARCHITECT


CIIIL ENGINEE


7006 S. Alton Way, Bldg F,
Centennial, Colorado 80112
303.694.1520

Land Use Summary Chart

| Land Use Iype | Gross <br> Acreage | \% of Total |
| :--- | ---: | ---: |
| Open Space and Trail Corridors | 16.8 | $10.9 \%$ |
| Parks \& Recreation Areas | 6.3 | $4.1 \%$ |
| Development Areas (All Residential) | 117.4 | $76.4 \%$ |
| Major Roadways | 13.1 | $8.5 \%$ |
| Total Map Acreage | 153.6 | $100.0 \%$ |
| Maximum \# of Dwelling Units | 900 |  |
| Residential Density | $5.9 \mathrm{du} / \mathrm{ac}$ |  |

APPROVALS
Approved by the Town Board of Trustees of the Town of Bennetf on Drdinance No.

ATIESS: Town Clerk
By signing this ODP, the owner acknowledges and accepts all of the requirements and intent set forth herein.


PLANNING
LaNDSCAPE ARCHITECTURE


7006 S. Atton Way, Bldg F, Centennial, Colorado 80112 303.694 .1520

## APPLICAN

MGV 36 NORTH LAND INVESTMENS, LLC PO Box - 4701 Greenwood Village, CO 80155 (303) $507-6651$

## OUTLINE DEVELOPMENT PLAN <br> MUNDELL FARMS <br> COUNIY OF ADAMS COLORADO <br> DAIE: MMY 2022 REFISED: SPPIFMBEP 29,2022 <br> RERVISD: SPPFEMBER 29, 2022 <br> RevISED: Revyse: <br> of 8

COVER

## DEVELOPMENT CONCEPT AND INTENT

## Good Living Grows NATURALLY HERE

The idea for living at MUNDELL farms is pure and natural: Surround homes with a central park, additional pocket parks, and a perimeter trail. The parks and open space energize the residents and the perimeter trail provides an active social amenity for the community. The homes will be diverse, for all generations and lifestyles. It is anticipated that MUNDELL farms will start with both traditional detached and altached homes. A community goal is to have every home within 300 feet of a park or trail that connects to the 1 -mile perimeter trail network.

## PLAN AMENDMENTS

The size of any Planning Area may increase or decrease by an administrative amendment for no more than $10 \%$ as determined by the Town's Zoning Administrator after final determination of: internal street alignments, arterial street alignments, park and open space and buffer zone reasared for that area Aary of any Planning Area will be established with the inal pla Hat is Municipal Code, as amended.

TOWN OF BENNETT MUNICIPAL CODE STANDARDS AND DESIGN GUIDELINES

The Town standards, as amended, apply for landscaping, lighting and parking unless modified by this document. In addition, design guidelines adopted by the Town of Bennett shall apply to this development in conjunction with design statements included in this document

RESIDENTILL NEIGHBORHOOD USES
THE COMMUNITY contains four primarily residential neighborhoods organized around the central neighborhood park, pocket parks, or adjacent roadways. Each neighborhood will allow for a range of residential uses, from single-family attached, small lot and larger lot single-family detached homes. In general it is anticipated that densities will be less along the north and western border of the property. This range of housing types is proposed to ensure economic success for the project, and to attract a range of home buyers. While the actual mix of home types and lot sizes within individual neighborhoods may vary based on market conditions and economic factors at the time of development, a maximum number of units and density within each neighborhood will be maintained.
Given the conceptual nature of the plan, some minor variations in the boundaries, acreages and densities of individual neighborhoods will be allowed, but will not exceed a variation of $10 \%$ or any area as described in his 0 . In addition the overall gross project density of $5.9 \mathrm{du} /$ ac

PARKS AND OPEN SPACE SYSIEM
THE PROPOSED Parks and Open Space for MUNDELL farms will exceed the minimum 10\%

# OUTLINE DEVELOPMENT PLAN <br> MUNDELL FARMS <br> <br> TOWN OF BENNEIT, COUNTY OF ADAMS, STATE OF COLORADO 

 <br> <br> TOWN OF BENNEIT, COUNTY OF ADAMS, STATE OF COLORADO}

SHEET 2 of 8

Sese for the lown of Benneft as required for a PD District. As depicted the Parks and Open Space system is approximately 15\% of the fotal property, the areas are anticipated community entryways and natural open space areas designed to serve the future residents of the Town of Bennett.

The plan anticipates a centrally located neighborhood park, that is connected to the community's trail corridors. Pedestrian walkways and trail connections within individual parcels will link the neighborhood amenities such as the 4 additional centrally located pocket parks.

## ENVIRONMENIL STAIFMENI

THE PROPFRIY has no identified floodplain. We do not believe there are any wetlands, wildlife migration routes, or any sites of historic, archaeological, or paleontological significance.

## SIIE ACCESS AND CIRCULALION

THE COMMUNIIY includes several entry locations, a primary entry is anticipated from E-38th Ave which will create a strong community identity for the community. The primary entry road will terminate at the Neighborhood Park. The entryways and roadways will incorporate a consistent streetscape character, including streetscape landscaping, sidewalks, fencing and signage to produce a positive impression upon entering the community, as well as enhancing

## SCHOOLS

SCHOOL LAND DEDCCAION will be satisfied with cash-in-liev or dedication, this will be determined at the time of subdivision plat.

FIRE PROIECTION SERVICES
FIRE PROTECTION SERVICES for MUNDELL farms will be provided by the Bennett - Watkins Fire Rescue.

## WAIER \& SEWER SERVICE

The MUNDELL Farms property is currently annexed into the Town of Bennett, water and sanitary ewer service will be provided by the lown of Bennett.

## STORM DRAINAGE

PROPOSED IMPROVEMENTS for MUNDELL farms will require the design and construction of storm drainage facilities to reduce site run-off and the impact to historic proportions. Drainage tacilities will be built to the Town of Bennett standards, a preliminary drainage study has been completed as a part of this ODP.

The project will incorporate several concepts in the design of drainage facilities for the site, incluaing:

1. Measures to reduce erosion effects of concentrated flows from developed storm wate
2. Funoff to adjacent agricultural fields (particularly the western drainage basins); recreation facilities, trail corridors, and storm water storage for irrigation of common/ public open space areas
3. Detention and erosion control requirements for phased construction; and
4. Storm water quality enhancement in accordance with the best management practices, particularly in the neighborhood commercial areas.

## GENERAL DEVELOPMENT PHASING

DEVELOPMENT is generally anticipated to proceed from the north to the south. The first phase of the community, at the time of subdivision plat, shall be limited to a maximum number of residential units that can be adequately accommodated on the existing road network, and in accordance with the Iraffic Impact Analysis (IIA) prepared for Mundell Farms. Development the interior road network will provide access to individual residential parcels as this network the interior road network will provide access to individual residential parcels as this network first phase of the community. Future phases of the community shall include adequate off-site road improvements as determined by specific updates to the IIA at the time of subdivision plat Public facilities/services, infrastructure, utilities, and amenities will be constructed to serve the residential neighborhoods in a reasonable and efficient manner as those areas are developed.

We will continue to work with the Town of Bennett through the development process to determine the ultimate phasing.
The total project build-out time frame will be determined by market conditions.

PLANNING LANDSCAPE ARCHITECTURE

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www.pccgroupco.com
CIVIL ENGINEERING

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## APPLICAN

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# OUTLINE DEVELOPMENT PLAN <br> MUNDELL FARMS <br> TOWN OF BENNETI, COUNTY OF ADAMS, STATE OF COLORADO 

SHEET 3 of 8


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## OUTLINE DEVELOPMENT PLAN MUNDELL FARMS

DAIE: MAY 2022
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3 of 8
ODP ZONING MAP

## OUtILNE DEvELOPMENT PLAN

MUNDELL FARMS
IOWN OF BENNETI, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 4 of 8
ILLUSTRATIVE CONCEPT PLAN


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## ROOM

## to GROW

At MUNDELL farms, the entire cycle of life - from raising food to raising families - evolved in one healthy place. The first
fresh, green community including its own orchard in the park! MUNDELL farms is rooted in the most up to date neighborhood and environmental thinking. Yet, it is
down to carth and friendly with parks, paths, open space and easy access to amenities that make life easier, healthier, sustainable and comfortable.



## OUTLINE DEVELOPMENT PLAN <br> \section*{MUNDELL FARMS}

## TOWN OF BENNEIT, COUNTY OF ADAMS, STATE OF COLORADO

## DEVELOPMENT STANDAROS INTRODUCTION

The following Development Standards have been prepared to ensure a responsible site planning process which will help minimize potential land use conflicts, provide visual interest and diversity of homes, as well as enhance the small town, country character and open feeling of the Community. The standards also provide the flexibility necessary to support a range of single family-residential housing types and lot sizes, depending on market conditions at the time of development.
The Development Standards have been established for each major land use type within the Community. Projects permitted within each area and land use type shall be constructed in accordance with these Development Standards and permitted uses. These standards are considered preliminary guidelines which may require more specific information and detail at the time of Final Development Plan Review. The architectural character and inten or special/innovative residential solutions will also need to be established at Final Plan as determined by the Town. This may include prototypical site plans, and architectural character sketches and elevations.

Development Standards with respect to parking (including commercial off-street parking), sign control and landscape requirements shall be controlled by the provisions of the Town's Zoning Code and Subdivision Regulations.

## ARCHITECTURAL STANDARD

Each neighborhood shall contain architectural diversity, high quality and attention to design detail in accordance with a set of design guidelines and standards to be created for the project at the time of final plat. The following general standards shall apply to all residential neighborhoods and become the basis for more specific architectural guidelines.

1. Varied architectural styles shall be encouraged within each neighborhood. (Architectural building forms and elevations should be varied but compatible along the streetscape, imple forms are preferred over complex forms)
2. Where floor plans are offered on a repecting basis, alternate elevations shall be developed. Identical floor plans with similar exterior elevations shall not be located adjacent to, or immediately across from one another.
3. A variety of design elements and details shall contribute to the overall character of a home's elevation and its appecarance from the street, including the use of front porches and covered entries, bay and box windows, and the handling of windows and door openings.
4. Careful scrutiny shall be given to the massing, proportions, and the overall scale of each design. A home's mass will be "broken up" to reduce its apparent scale, provide visual interest and depth, and achieve a more articulated building form. Massing of individual homes should be simple and reflect the architectural style of the home. This requires the careful application of elevation styles to appropriate floorplans. For example, the strong two-story vertical massing of colonial style homes is most compatible with a simple ectilinear two-story stacked floorplan while the asymmetrical fwo-story massing or ingle story massing of a craftsman lends itseff better to second floor recessed or single story plan. Builders are encouraged to develop floor plans that are responsive to both architectural style objectives as well as energy efficient building objectives. These two objectives can be satistied by creating simple floor plan forms which minimize jogs and avoid unnecessary complicated massing solutions.
5. Large, flat, unbroken building planes on the front and rear elevations shall be prohibited Side elevations without windows shall be discouraged.
6. Size, shapes, proportions, and trim of doors and windows shall be consistent with the architectural style of the home.
7. Garage-dominated homes and streetscenes shall be avoided through various desian techniques, including providing varied garage orientations, locations and setbacks, as well as recessing garages into the main plane of front facades and providing design elements to help them blend with front architecture.
8. Maximum single family residential buildings heights will be limited to 35 feet

SINGLE-AMMLY RESIDENIIAL INTEN
o provide for a variety of residential development of single-family homes on a mix of single amily lot types, including the potential for attached homes. Special residential housing type d lot contigurations, including but not limited to, rear-load homes with alley access, will bo allowed if consistent with the intent, standards, and residential character of this section.

Permitted Uses (by Right)

1. Single-family attached and detached dwelling units
2. Attached or detached private garages (with front and rear-loaded access, including alleys.)
3. Community information centers and kiosks
4. Accessory structures and uses (see below
5. Public and private open space and recreational facilitie
6. HOA facilities and trails
7. Signage (including project identification signs and monuments)-subject to the sign permit requirements in the Bennett Municipal Code
8. Utilities and appurtenant facilities
9. Roads and parking
10. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations
11. Drainage and detention facilities
12. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Loning Administrator

## Conditional Uses

(Conditional uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Child care centers
2. Public and quasi-public facilities
3. Institutional facilities
4. Special community buildings/facilities and events
5. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator

Temporary Uses
Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Show home complexes and/or residential sales offices
2. Temporary construction yards and structures
3. Any other uses consistent with the intent of this section and similar in character to use permitted in this district as determined by the Loning Administrator

## PARK \& OPEN SPACE AREAS INIENI

To provide active and passive open space uses, including potential recreational facilities, to serve the residents of MUNDELL farms.

1. Pocket Park Standards

Size: Generally. 75 to 3 acres in size
b. Location/Orientation: Centrally located within the residential development and/ or easily accessible by residents without the use of vehicles. A 5 minute walking distance for most residents.
c. Frontage: Required on one, preferred two or more local streets.
d. Pocket Parks are required to include all of the following infrastructure:
i. Benches (two minimum)
ii. Bicycle Racks (min. to serve four bikes)
iii. Pet Waste Station
iv. Shade Structure
v. ADA Accessible Walkway
vi. Trash Receptacle
vii. Tuff and landscape plantings to provide shade over at least $25 \%$ of the area viii.lrigation
e. Pocket Parks are required to include at least one of the following components:
. Display Garden
ii. Group Picnic Shelter (min. 500 sf and two picnic tables)
ii. Loop Walk (min. length 1,000 If)
iv. Multi-level Play Structure
v. Basketball (one half court)
vi. Bocce Ball, Horseshoe Pits, Shuffleboard, or similar
vii. Boulder/Climbing Play Area
viii.Community Garden
ix. Fitness Course
x. Handball or Tennis Courts
xi. Turf play berm (min. 3 feet hieght)
xii. Playground with at least 3 pieces of play equipment xiii.Public A.rt

Permitted Uses (by Right)
Active public and private recreational uses, including but not limited to multi-purpose turf areas, playgrounds, swimming pools, and court games.
2. Passive public and private recreational uses, includding but not limited to pienic grounds, native, naturalized or landscaped fields, and visual buffer open space.
Public Recreation Buildings
4. Community Information/Sales Centers
5. Picnic Pavilions and Shelters.
6. Public and quasi-public facilities.
. Hilking and biking trails.
8. Accessory structures and uses.
9. Temporary construction yards and structures.
0. Signage, (including project identification signs and monuments) - subject to the sign permit requirements in the Bennet Municipal Code.

1. Utilities and appurtenant facilities
2. Roads and parking.
3. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
4. Drainage and detention facilities
5. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Conditional Use

(Conditional uses will be reviewed and processed in accordance with the Bennett Municipal Code)
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Temporary Uses

(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)
. Special community events
. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Park \& Open Space Development Standards
Projects permitted in Open Space Areas shall be constructed in accordance with the following Development Standards
Mevelopment Standards.
Adjacent to other land use planning areas $=30$ feet Adjacent to public roodway $=30$ feet
2. Minimum building separation $=20$ feet (or as required by applicable fire codes)
3. Maximum building height $=35$ feet ( 2 stories)
4. Maximum building height $=35$ feet ( 2 stories)
4. Minimum off-street parking - shall be controlled by the provisions of the Bennett

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Greenwood Village, co 8015
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Municipal Code.
5. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
6. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Detention Areas and Drainage Channels
The landscape for detention areas and drainage channels will be designed in a manner that will reinforce the character of MUNDELL farms and the high plains prairie, as well as provide the greatest benefit to the community. All detention areas and related conveyance facilitie shall strive for a natural vs. an "engineered" look. The designs shall strive to create a landscape concept for drainage channels and detention areas that will be aesthetically pleasing as well as environmentally responsible in terms of water use. It is considered beneficial to allow for passive recreational activities near detention areas.

1. Detention facilities, manmade drainage channels other than those through residential front or side yards, and disturbed drainage channels, shall be planted with drought tolerant native grasses and plant materials. Front and side yard residential drainages thall be planted to match the front or side yard of the residence. Natural drainage channels containing existing vegetation and non-irigated native grasses are exempt. Detention areas or droinage channels shall be designed to blend with adjacent aress.
Naturd droinge coridoss containg evisting native gases ond etablished vegetation may be supplemented with native trees shrubs and ornamental grasses that could
 .
natural drainage corridors shal 1
Consideration should be given to locating pedestrian toca pints along drainages cluding overlooks, and seating areas
Plant materials should be used to strengthen the edge of drainage ways.
2. Landscape adjacent to drainage ways should be naturalistic and include riparian vegetation.

## ACCESSORY STRUCTURES AND USES INIENT

To provide Development Standards applicable to all land use areas within MUNDELL farm (exclusive of Open Space areas). Accessory Structures or Uses shall refer to detached, subordinate buildings or structures, the use of which is customarily incidental to that of the principal building or to the main use of the land and which is located on the same lot with the main building or use.

Permitted Uses (by Right)
Private parking garages (attached or detached from single-family homes)
2. Service structures (utility/storage, garden sheds and greenhouses)
. Patio/privacy enclosures and walls
Patio shade structures and gazebos
5. Secondary living units including but not limited to living space, home offices, or recreation uses, within a detached gorage or other detached building/structure
6. Any other useses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Accessory Structures Development Standards

Permitted accessory uses shall contorm to the setbacks outlined in the Residential Development Standard Marrix.
2. Maximum building height $=28$ feet (or 2 stories)
3. Maximum number of accessory structures $=1$ per lot as a use by right, any additional structure would need to be submitted to the Town for review and approval.
4. Detached parking garages shall be architecturally compatible with the main building or

# OUTLINE DEVELOPMENI PLAN <br> MUNDELL FARMS <br> <br> TOWN OF BENNEIT, COUNTY OF ADAMS, STAIE OF COLORADO <br> <br> TOWN OF BENNEIT, COUNTY OF ADAMS, STAIE OF COLORADO <br> <br> SHEET 6 of 8 

 <br> <br> SHEET 6 of 8}
house, including similar design styles, details, materials, and color.
. Service structures, such as garden sheds, utility storage and greenhouses, are only permitted in the Single Family Detached lot types if attached to the main structure and successfully integrated into the residential architecture. Such structures may be detached in, if compatible with the architecture of the main building.
Patio shade structures and gazebos should be compatible with the architectural styles of their related homes.
7. Patio/privacy enclosures and walls should be architecturally compatible and reflect details and materials consistent with the residential buildings they serve.
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

BBQ, play in the great lown, pick apples from the orchard. Schedule a get-together in the outdoor pavilion. At the Park, MUNDELL farms residents and their guests can truly indulge in a full range of recreational amenities.

THE NEIGHBORHOODS at MUNDELL farms are loosely defined by a pocket park giving identity to the residents in that particular area. Great neighborhoods are walkable, drivable, and bike-able. To be socially connected, the neighborhoods include areas to linger, sit and talk with neighbors and provide both passive and active recreation. Neighborhoods are composed of a variety of blocks knitted together by roads, walks, trails, paths and open spaces that connect residents from their homes to these public spaces.

PLANNNG IANDSCAPE ARCHITECTURE

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## CIVIL ENGINEERING

## ETK

RESIDENIIL LTREFI design concept and STANDARDS

Residential streets contribute significantly to neighborhood quality. They offer a place to walk, to meet neighbors, and of course, to park. Street network will include a hierarchy of streets that reflect the different residential densities and traffic conditions within the Community. The proposed street system is designed to provide a treelined streetscape, characteristic of traditional neighborhoods. The intent is to utilize the standard street sections and standards from the Town of Bennett's standards.

COMMUNIIY PAITERNS OVERVIEW

THE COMMUNITY PATIERNS SECTION contains specific information for placing houses and buildings within the future development parcels, as well as information related to the density and character of specific lot types. These guidelines were developed as part of the master developed as parf of the master planning processs, and are meant to with the diversity and character with the diversity and character anticipated in the

The central Neighborhood Park The central Neighborhood Park organized the entire community, play in the splash pad with your neigho mo


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OUTLINE DEVELOPMENT PLAN MUNDELL FARMS

## DAAE: MAY 2022 REVYSED: SPPFEMBER 29,

Revlsfe:
Refysp:
6 of 8
DEVELOPMENT STANDARDS

## OUTLINE DEVELOPMENI PLAN <br> MUNDELL FARMS

TOWN OF BENNEIT, COUNTY OF ADAMS, STAIE OF COLORADO
SHEET 7 of 8

PLANNING
LaNDSCAPE ARCHITECTURE

## 40x105-GENERAL CONDIIIONS



## Lot Ypes

MUNDELL farms will offer at least three different lot types, ranging from attached townhomes and duplexe to single family detached lots. These lot types are not intended to be all inclusive, but are intended to depict the variety and quality anticipated for the community. The lot types depicted in this document include Townhomes, Duplexes, and various sizes of Single Family Detached front loaded lots. Additional product may be used in the project.

SINGLE FAMILY DEIACHED FRONT LOADED . GENERAL CONDITIONS

## LOT SIIE

The lots range from 40 feet wide by 105 feet deep to 50 feet wide by 110 feet deep. Corner lots are range from a minimum of $50-60$ feet wide. These lots are front-loaded.

## setbacks

Setbacks shall be unoccupied and unobstructed by any structure or portion of a structure from 30 inches
above grade upward; provided, however, that fences, walls, trellises, poles, posts, ornaments, furniture and other customary yard accessories may be permitted in any setback subject to height limitations and requirements limiting obstruction of visibility.

PROJECTIONS INTO REDUIRED SEIBACKS, GENERAL
The following structures may project into required
front, side or rear setbacks:
. Paved patios or terraces may project into any required setback, provided that no structures placed on them shall violate other easemen requirements.
ii. Unroofed landings, decks and stairs may project into required setbacks, provided that the floor shall not extend higher than 30 inches above the finished grade level and the projection is at least 5 feet from the lot line
iii. Unroofed exterior balconies may project into a required side or rear sethack provided these projections are ot least5 5 feet from the these line and 10 feet from the rear lot line.
iv. Cornices, eaves, canopies, window wells, chimneys, bay windows, ornamental features.
and other similar architectural features may REAR YA.RD SEIBACK project not more than 3 feet into any required setback.
v. Roofs over porches, stairways, landings, terraces, or other exterior approaches to pedestrian doorways may project up to 5 feet into a fron setback. The covered porch or entrance area projecting into the front setback shall remain exterior to the building and enclosed by no more than a railing The projection shall be at least 5 feet from the property line.

## FRONT YARD SEIBACK

Minimum 20 -foot setback from the front property line to the house.

## IIDE YARD SETBACK

Minimum 5-foot setbacks from the side property line.

## sIDE STREET SETBACK

A minimum 15-foot setback from the side stree property line to the house.
from the rear property line.

## ENCROACHMENTS

Porches, bay windows and window whs mod encroach into both the Front Yard and Side Yard Street Setback Zones.
GARAGE REQUIREMENIS
A minimum of two parking spaces per home is required. A diversity of garage styles is required Diversity shall be achieved by providing a minimum 2 of the garage variation cheices listed below. Io meet the diverity requir con ach below. To cosen shall each be used on l least 25 percent of the
 ingle famly home will ba Tariations chosen will be a minimum of 50 percent of he development; the remaining 50 percent may be
Side coared
. Side-loaded garages;
Garages recessed a minimum of 4 feet behind the
front facade of the living space within the house:
iii. Garages that protrude no less than 2 feet or no more than 5 teet in front of the dwelling unit portion of the structure; and
iv. Garages recessed a minimum of 2 feet beneath a second floor bay.

## FENCING RECOMMENDATIONS

Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy.

## Yard ReQuIremen

A minimum functional yard area of 15 feet by 20 feet is required.

## OUTLINE DEVELOPMENT PLAN

MUNDELL FARMS
TOWN OF BENNEIT, COUNTY OF ADAMS, STATE OF COLORADO
SHEET 8 of 8


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SINGLE FAMLY ATIACHED FRONI LOADED GENERAL CONDIIIONS

## IDT SIZ

The lots range from 20 feet wide by 85 feet deep for The lots range from 20 feet wide by 85 feet deep for
Townhome Lots to 30 feet wide by 95 feet deep for Duplex Lots. These lots are front-loaded.

## sfibacks

Setbacks shall be unoccupied and unobstructed by any structure or portion of a structure from 30 inches above grade upward; provided, however, that fences, walls, trellises, poles, posts, ornaments, furniture and other customary yard accessories may be permilted in any setback subject to height limitations and requirements limiting obstruction of visibility.

PROJECTIONS INTO REQURED SEEBACKS, GENERAL The following structures may project into required front, side or rear setbacks:

1. Paved patios or terraces may project into any required setback, provided that no structures placed on them shal violate other easemen requirements.
ii. Unroofed landings, decks and stairs may project into required setbacks, provided that the floor shall not extend higher than 30 inches above the finished grade level and the projection is at least 5 feet from the lot line
iii. Unroofed exterior balconies may project into a required side or rear setback provided these a required side or rear setback provided hhese line and 10 feet from the rear lot line.
iv. Cornices, eaves, canopies, window wells, chimneys, bay windows, ornamental features and other similar architectural features may project not more than 3 feet into any required setback.
v. Roofs over porches, stairways, landings, terraces or other exterior approaches to pedestrian doorways may project up to 6 feet into a front setback. The covered porch or entrance area projecting into the front setback shall remain exterior to the building and enclosed by no more than a railing. The projection shall be at least 5 feet from the property line.

## FRONI YARD SEIBACK

Minimum 20-foot setback from the front property line to the house.

## SIDE Yard SetBack

Minimum 5 -foot setbacks from the side property line.

## SIDE STREET SETBACK

A minimum 15 -foot setback from the side street property line to the house.

REAR YaRD SEIBACK
All structures shall be set back a minimum of 20 feet from the rear property line.
encroachmenis
Porches, bay windows and window wells may not encroach into both the Front Yard and Side Yard Street Setback Zones.

## GARAGE REQUIREMENIS

A minimum of two parking spaces per home is equired. Townhomes are permitted to taene is aroge sace, and one space in front of the a sing

## OWNHOME SPECIFIC GUIDELINES

1 No more than 6 townhome dwelling units may be attached in any single row or building cluster.

2 Within each town heme row or duster, individual dwelling units shall be differentiated, or may express a purposely uniform design. When dwelling units are to be differentiated, they shall be differentiated through
2 or more of the following methods:
. Use of distinct color variation between individua dwelling units;
ii. Use of distinct variations in materials between individual dwelling units;
iii. Use of distinct variations in architectural style or features, such as a porch or similar feature
between individual dwelling units;
iv. Use of distinct variations in roof form
v. A variation in the plane of the front facade to provide a minimum 3 foot variation between provide a minimum
individual dwelling units. individual dweling units
When uniformity (sameness or pattern repectition) in design is proposed, this shall be expressed
through repectition of 2 or more of the following methods,
i. Use of materials both in type and location; ii. Size, style, and patterning of windows; iii. Size and detailing of front porches; iv. Roof dormers, roof form, and roof pitch.

## DUPIEX SPECIFIC GUIDELINES

continuous row of identical homes along a block hall be prohibited. Individual structures shall be differentiated through 2 or more of the following methods:
i. Use of distinct color variation and materials between individual structures
ii. Use of distinct variations in roof form, or
iii. Use of distinct variations in architectural
features, such as porches, roof form, windows, or
similar feature, between individual structures.
Models with identical facades shall not be placed adjacent to or across the street from 1 another.

FENCING RECOMMENDAIONS
Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy.

## YARD REQUIREMENI

A minimum functional yard area of 15 feet by 20 feet is required.


November 15, 2022
Mr. John Vitella
MGV 36 North Land Investments, LLC
PO Box 4701
Greenwood Village, CO 80155

Re: Mundell Farms<br>Bennett, CO<br>LSC \#220820

Dear Mr. Vitella:
In response to your request, LSC Transportation Consultants, Inc. has prepared this updated Traffic Impact Analysis for the proposed Mundell Farms residential development to address Town comments. As shown on Figure 1, the site is located south of E. $38^{\text {th }}$ Avenue and west of $1^{\text {st }}$ Street (SH 79) in Bennett, 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

The site is proposed to include about 510 single-family detached dwelling units and about 390 single-family attached dwelling units. Access is proposed in several locations as shown in the conceptual site plan in Figure 2. Phase 1 is currently proposed to be limited to 150 dwelling units in the area of PA 2 and will be the limit of home construction until an off-site connection to the southwest is available.

## ROADWAY AND TRAFFIC CONDITIONS

## Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- State Highway 79 (SH 79) is a north-south, two-lane state highway approximately one mile east of the site. It is classified by CDOT as NR-B (non-rural highway). The CDOT straight line diagram is attached. The intersection with E. $38^{\text {th }}$ Avenue is stop-sign controlled. The posted speed limit in the vicinity of the site is 45 mph . The existing SH 79 alignment is expected to be shifted by 2030 per the preferred realignment from the SH 79 and Kiowa-Bennett Corridor PEL Study by CDOT. The existing alignment heads north from I-70 as $1^{\text {st }}$ Street, then east on E. Colfax Avenue (US 36), the north on Adams Street, and east on Palmer Avenue before turning north on the Kiowa-Bennett Road alignment as it leaves Town.
- $\quad \mathbf{1}^{\text {st }}$ Street (Local Street) is a two-lane local street immediately east of the site. The intersections with E. $38^{\text {th }}$ Avenue and Palmer Avenue are stop-sign controlled. The posted speed limit is 25 mph . It is a gravel roadway adjacent to the site. It includes residential driveways and varying right-of-way south of Truman Avenue.
- E. $\mathbf{3 8}^{\text {th }}$ Avenue is an east-west, two-lane local roadway north of the site. The intersection with $1^{\text {st }}$ Street (SH 79) is stop-sign controlled.
- Lincoln Avenue is an east-west, two-lane local roadway south of the site. The intersection with $1^{\text {st }}$ Street (Local Street) is stop-sign controlled.
- Palmer Avenue is an east-west, two-lane roadway south of the site. The intersections with Adams Street (US 36) and Colfax Avenue (US 36) are stop-sign controlled. There is an existing at-grade railroad crossing just north of the Colfax Avenue (US 36)/Palmer Avenue intersection.
- E. Colfax Avenue (US 36) is an east-west, two-lane federal highway south of the site that is classified as a rural highway ( $\mathrm{R}-\mathrm{B}$ ) by CDOT. The CDOT straight line diagram is attached. The intersections with S. $1^{\text {st }}$ Street (SH 79) and Adams Street are stop-sign controlled. The posted speed limit in the vicinity of Penrith Road is 55 mph . It drops to 45 mph further east and 35 mph east of the Colfax Avenue (US 36)/ $1^{\text {st }}$ Street (SH 79) intersection.


## Existing Traffic Conditions

Figure 3a shows the existing traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are from the attached traffic counts conducted by Counter Measures in August, 2022 for Intersections \#4, \#12, \#17, \#20, and \#21. The volumes for Intersections \#5, \#22, \#23, and \#24 are based on the Bennett Ranch TIA, Penrith Park TIA, Brunner Subdivision TIA, and Worthman Acres TIA, respectively. The existing traffic volume figures from these studies are attached for reference. Figure $3 b$ shows the existing lane geometries and traffic controls.

## 2025, 2030, and 2042 Background Traffic

Figure 4 a shows the estimated 2025 background traffic for Phase 1 which assumes an annual growth rate of two percent. Figure 4b shows the 2025 background traffic, lane geometry, and traffic control.

Figure 5a shows the estimated 2030 background traffic for the short-term impacts of site buildout. These estimates are based on a combination of a two percent annual growth rate and the long-term projections in the Brunner Subdivision TIA, the Penrith TIA, the Worthman Acres TIA, and the Bennett Ranch TIA. Figure 5b shows the 2030 background traffic, lane geometry, and traffic control.

Figure 6a shows the estimated 2042 background traffic for the long-term impacts of site buildout. These estimates are based on a combination of a two percent annual growth rate and the long-term projections in the Brunner Subdivision TIA, the Penrith TIA, the Worthman Acres TIA, and the Bennett Ranch TIA. Figure 6b shows the 2042 background traffic, lane geometry, and traffic control.

## Existing, 2025, 2030, and 2042 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 unsignalized intersections.

The intersections in Figures 3a through 6b were analyzed to determine the existing, 2025, 2030, and 2042 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. E. 38 ${ }^{\text {th }}$ Avenue/Penrith Road: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
2. E. $\mathbf{3 8}^{\text {th }}$ Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
3. E. 38 ${ }^{\text {th }}$ Avenue/Site Access: This intersection was analyzed only in the total traffic scenarios.
4. E. 38 ${ }^{\text {th }}$ Avenue $/ 1^{\text {st }}$ Street: All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to operate at LOS "B" or better through 2042.
5. E. 38 ${ }^{\text {th }}$ Avenue/SH 79: All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to operate at LOS "B" or better through 2042.
6. Internal Collector/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
7. $\mathbf{1}^{\text {st }}$ Street/Site Access: This intersection was analyzed only in the total traffic scenarios.
8. $\mathbf{1}^{\text {st }}$ Street/Site Access: This intersection was analyzed only in the total traffic scenarios.
9. $\mathbf{1}^{\text {st }}$ Street/Site Access: This intersection was analyzed only in the total traffic scenarios.
10. Penrith Road/Truman Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
11. Truman Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
12. $1^{\text {st }}$ Street/Truman Avenue: All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to do so through 2042.
13. Internal Collector/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
14. Penrith Road/Lincoln Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
15. Lincoln Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
16. Lincoln Avenue/Site Access: This intersection was analyzed only in the total traffic scenarios.
17. $1^{\text {st }}$ Street/Lincoln Avenue: All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to operate at LOS "B" or better through 2042.
18. Penrith Road/Palmer Avenue: All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2042.
19. Palmer Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
20. Palmer Avenue/ $1^{\text {st }}$ Street: All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2042.
21. Palmer Avenue/Adams Street: All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are ex- Page 66 pected to do so through 2042.
22. Penrith Road/E. Colfax Avenue (US 36): All movements at this unsignalized intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to operate at LOS "B" or better through 2025. By 2030, the northbound and southbound left-turn movements are expected to operate at LOS "F" and "E" in the afternoon peak-hour. By 2042, several movements are expected to operate at LOS "E" or "F" in one or both peak-hours. This intersection is expected to be signalized once warrants are met.
23. E. Colfax Avenue (US 36)/Palmer Avenue: All movements at this unsignalized intersection currently operate at LOS "B" or better during both morning and afternoon peak-hours and are expected to do so through 2025. The north leg is expected to be closed and the railroad crossing shifted west to the Penrith Road alignment by 2030.
24. E. Colfax Avenue (US 36)/Adams Street: All movements at this unsignalized intersection currently operate at LOS "D" or better during both morning and afternoon peak-hours. In 2025, the northbound and southbound approaches are expected to operate at LOS "E" during one or both peak-hours. By 2042, the southbound approach is expected to operate at LOS " $F$ " in the afternoon peak-hour. Traffic signal or roundabout control will likely be needed between 2025 and 2030.

## TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from Trip Generation, $11^{\text {th }}$ Edition, 2021 by the Institute of Transportation Engineers (ITE).

Phase 1 of the site is projected to generate about 1,415 vehicle-trips on the average weekday, with about half entering and half exiting during a 24 -hour period. During the morning peakhour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 27 vehicles would enter and about 78 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 89 vehicles would enter and about 52 vehicles would exit.

At buildout, the site is projected to generate about 7,617 vehicle-trips on the average weekday, with about half entering and half exiting during a 24 -hour period. During the morning peakhour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 151 vehicles would enter and about 393 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 429 vehicles would enter and about 272 vehicles would exit.

## TRIP DISTRIBUTION

Figure 7 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; and the site's proposed land use. The 2025 estimate assumed SH 79 stays in the current alignment and the railroad crossing south of the site remains at Palmer Avenue. The 2030 and 2042 estimates assume SH 79 has been relocated per the CDOT PEL Study and the railroad crossing has been shifted west to Penrith Road.

## TRIP ASSIGNMENT

Figure 8a shows the estimated Phase 1 site-generated traffic volumes based on the directional distribution percentages (from Figure 7) and the Phase 1 trip generation estimate (from Table 2). These volumes are used in the 2025 total analysis.

Figure 8 b shows the estimated buildout site-generated traffic volumes based on the directional distribution percentages (from Figure 7) and the buildout trip generation estimate (from Table 2). These volumes are used in the 2030 and 2042 total scenarios.

## 2025 AND 2042 TOTAL TRAFFIC

Figure 9a shows the estimated 2025 total traffic (Phase 1) which is the sum of the 2025 background traffic volumes (from Figure 4a) and the Phase 1 site-generated traffic volumes (from Figure 8a). Figure 9b shows the recommended 2025 lane geometry and traffic control.

Figure 10a shows the estimated 2030 total traffic which is the sum of the 2030 background traffic volumes (from Figure 5a) and the buildout site-generated traffic volumes (from Figure 8b). Figure 10b shows the recommended 2030 lane geometry and traffic control.

Figure 11a shows the estimated 2042 total traffic which is the sum of the 2042 background traffic volumes (from Figure 6a) and the buildout site-generated traffic volumes (from Figure 8b). Figure 11b shows the recommended 2042 lane geometry and traffic control.

## PROJECTED 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 unsignalized intersections.

The intersections in Figures 9a through 11b were analyzed to determine the 2025, 2030, and 2042 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. E. $\mathbf{3 8}^{\text {th }}$ Avenue/Penrith Road: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
2. E. $\mathbf{3 8}^{\text {th }}$ Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
3. E. 38 ${ }^{\text {th }}$ Avenue/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
4. E. 38 ${ }^{\text {th }}$ Avenue/ $\mathbf{1}^{\text {st }}$ Street: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
5. E. 38 ${ }^{\text {th }}$ Avenue/SH 79: All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2042.
6. Internal Collector/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
7. $\mathbf{1}^{\text {st }}$ Street/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
8. $\mathbf{1}^{\text {st }}$ Street/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
9. $\mathbf{1}^{\text {st }}$ Street/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
10. Penrith Road/Truman Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
11. Truman Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
12. $1^{\text {st }}$ Street/Truman Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
13. Internal Collector/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
14. Penrith Road/Lincoln Avenue: All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2042.
15. Lincoln Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
16. Lincoln Avenue/Site Access: All movements at this unsignalized intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2042.
17. $1^{\text {st }}$ Street/Lincoln Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
18. Penrith Road/Palmer Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better through 2030 and at LOS "E" or better during the morning peak-hour in 2042 with the addition of site traffic. Traffic signal or roundabout control may be needed by 2042 .
19. Palmer Avenue/Internal Collector: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
20. Palmer Avenue/ $1^{\text {st }}$ Street: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2042.
21. Palmer Avenue/Adams Street: All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peak-hours through 2042.
22. E. Colfax Avenue (US 36)/Penrith Road: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peakhours through 2042 with the following exceptions: The northbound and southbound movements are expected to operate at LOS "E" or "F" in one or both peak-hours by 2030. Some of these poor levels of service are from the impact of the site. Traffic signal control is planned when warranted.
23. E. Colfax Avenue (US 36)/Palmer Avenue: All movements at this unsignalized intersection are expected to operate at LOS "B" or better during both morning and afternoon peakhours through 2025. The north leg is expected to be closed and the railroad crossing shifted west to the Penrith Road alignment by 2030.
24. E. Colfax Avenue (US 36)/Adams Street: All movements at this unsignalized intersection are expected to operate at LOS "C" or better during both morning and afternoon peakhours through 2042 with the following exceptions: The northbound and southbound movements are expected to operate at LOS "E" or "F" in the afternoon peak-hours by 2025. Some of these poor levels of service are from the impact of the site. Traffic signal or roundabout control will likely be needed by 2030.

## RECOMMENDED IMPROVEMENTS

## 2025 Background Traffic Improvements (Figure 4b) - by Bennett Ranch

SH 79/E. $38^{\text {th }}$ Avenue (\#5):

- NB Left-Turn Lane $=378$ feet +222 -foot transition taper (by Bennett Ranch)


## 2025 Total Traffic Improvements (Figure 9b)

- Improve $1^{\text {st }}$ Street adjacent to the site and south to current end of pavement - by Applicant.


# 2030 Background Traffic Improvements (Figure 5b) - by Town/CDOT 

SH 79/E. $38^{\text {th }}$ Avenue (\#5)

- Intersection improvements by SH 79 Relocation Project
E. Colfax Avenue (US 36)/Penrith Road (\#22) \& E. Colfax Avenue (US 36)/Palmer Avenue (\#23):
- Relocation of existing RR crossing between Intersections \#19 (Palmer Avenue/Internal Collector) and \#23 (E. Colfax Avenue (US 36)/Palmer Avenue) to between Intersections \#18 (Penrith Road/Palmer Avenue) and \#22 (E. Colfax Avenue (US 36)/Penrith Road) (may involve contribution from applicant).


## 2030 Total Traffic Improvements (Figure 10b) - by Applicant

Penrith Road/Lincoln Avenue (\#14)

- $\quad$ SB Left-Turn Lane $=150$ feet +120 -foot transition taper
- NB Right-Turn Lane $=200$ feet +120 -foot transition taper
- WB Left-Turn Lane $=200$ feet +120 -foot transition taper


## Lincoln Avenue/Internal Collector (15)

- SB Left-Turn Lane $=150$ feet +120 -foot transition taper
- NB Left-Turn Lane $=150$ feet +120 -foot transition taper
- EB Left-Turn Lane $=150$ feet +120 -foot transition taper
- WB Left-Turn Lane $=150$ feet +120 -foot transition taper

Penrith Road/Palmer Avenue (\#18)

- SB Left-Turn Lane $=150$ feet +120 -foot transition taper
- NB Right-Turn Lane $=150$ feet +120 -foot transition taper
- WB Left-Turn Lane $=225$ feet +120 -foot transition taper


## Palmer Avenue/Internal Collector (19)

- SB Left-Turn Lane $=150$ feet +120 -foot transition taper
- $\quad$ EB Left-Turn Lane $=150$ feet +120 -foot transition taper
- WB Right-Turn Lane $=150$ feet +120 -foot transition taper


## Palmer Avenue/ 1st Street (\#20)

- EB Left-Turn Lane $=150$ feet +120 -foot transition taper
E. Colfax Avenue (US 36)/Penrith Road (\#22)
- Potential traffic signal or roundabout by 2030


## E. Colfax Avenue (US 36)Adams Street (\#24)

- SB Right-Turn Lane $=150$ feet +120 -foot transition taper
- EB Left-Turn Lane $=300$ feet ( 190 for decel +110 feet for storage $)+120$-foot transition taper
- WB Left-Turn Lane = Short stacking lane to offset EB LT with 120-foot transition taper
- Potential traffic signal or roundabout by 2030


## 2042 Background Traffic Improvements (Figure 6b) - by future development west of the site

## Penrith Road/Truman Avenue (\#10)

- SB Left-Turn Lane $=150$ feet $+10: 1$ transition taper
- NB Right-Turn Lane $=150$ feet $+10: 1$ transition taper
- WB Left-Turn Lane $=150$ feet $+10: 1$ transition taper


## 2042 Total Traffic Improvements (Figure 11b) - by Applicant if not previously completed

## Penrith Road/Truman Avenue (\#10)

- $\quad$ SB Left-Turn Lane $=150$ feet +120 -foot transition taper (10:1)
- NB Right-Turn Lane $=150$ feet +120 -foot transition taper (10:1)
- WB Left-Turn Lane $=150$ feet +120 -foot transition taper (10:1)


## CONCLUSIONS AND RECOMMENDATIONS

## Trip Generation

1. Phase 1 of the site is projected to generate about 1,415 vehicle-trips on the average weekday, with about half entering and half exiting during a 24 -hour period. During the morning peak-hour, about 27 vehicles would enter and about 78 vehicles would exit the site. During the afternoon peak-hour, about 89 vehicles would enter and about 52 vehicles would exit.
2. The overall site is projected to generate about 7,617 vehicle-trips on the average weekday, with about half entering and half exiting during a 24 -hour period. During the morning peak-hour, about 151 vehicles would enter and about 393 vehicles would exit the site. During the afternoon peak-hour, about 429 vehicles would enter and about 272 vehicles would exit.

## Projected Levels of Service

3. All movements at the intersections analyzed are expected to operate at LOS " D " or better during both morning and afternoon peak-hours through 2042 with the following exceptions: A few movements at Intersections \#18(Penrith Road/Palmer Avenue), \#22 (E. Colfax Avenue (US 36)/Penrith Road), and \#24 (E. Colfax Avenue (US 36)/Adams Street) are expected to operate at LOS "E" or "F" in one or both peak-hours. All three may need traffic signal or roundabout control by 2030 or 2042.

## Conclusions

4. The impact of the Mundell Farms residential development can be accommodated by the existing roadway network with the recommended improvements.

## Recommendations

5. Phase 1 should include a maximum of 150 lots so the impacts can be supported by the existing roadway system without additional off-site connections to the southwest. The applicant will coordinate with Town staff on the most appropriate size of Phase 1.
6. The recommended improvements are summarized above in the report narrative and are shown in Figures 4b, 5b, 6b, 10b and 11b.

We trust our findings will assist you in gaining approval of the proposed Mundell Farms residential development. Please contact me if you have any questions or need further assistance.

Sincerely,
LSC TRANSPORTATON CONSULTANTS, INC.


Enclosures: Tables 1 and 2
Figures 1-11b
SH 79 Straight Line Diagram
US 36 Straight Line Diagram
Traffic Count Reports
Existing Traffic Volume Figures From Bennett Ranch TIA, Penrith Park TIA, Brunner Subdivision TIA, and Worthman Acres TIA by LSC
Figure 7 from Penrith Park TIA by LSC
Level of Service Definitions
Level of Service Reports
W: \LSC $\backslash$ Projects $\backslash 2022 \backslash 220820-M u n d e l l F a r m s \backslash$ Report $\backslash$ Nov-2022 $\backslash$ MundellFarms-111522.wpd

| Intersection Location | Traffic Control | Table 1 (Page 1 of 3) Intersection Levels of Service Analysis Mundell Farms Bennett, CO <br> LSC \#220820; November, 2022 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Existing Traffic |  | $\begin{gathered} 2025 \\ \text { Background Traffic } \\ \hline \end{gathered}$ |  | $\begin{gathered} 2025 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | $\begin{gathered} 2030 \\ \text { Background Traffic } \\ \hline \end{gathered}$ |  | $\begin{gathered} 2030 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | 2030 Total TrafficMitigated |  | 2042 <br> Background Traffic |  | $\begin{gathered} 2042 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | 2042 Total Traffic |  |
|  |  | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | $\begin{gathered} \hline \text { Level of } \\ \text { Service } \\ \text { PM } \\ \hline \hline \end{gathered}$ | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM |
| 1) E. 38th Avenue/Penrith Road | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | B | A | B |  |  |
| EB Approach |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | A | A |  |  |
| WB Approach |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | A | A |  |  |
| SB Approach |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | B | B |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | 9.3 | 9.4 | 9.6 | 9.7 |  |  | 9.7 | 10.0 | 10.1 | 10.1 |  |  |
| 2) E. 38th Avenue/Internal Collector | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | A | A | A | A |  |  |
| EB Left/Through |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | A | A | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 9.0 | 9.2 |  |  | 8.8 | 8.9 | 9.2 | 9.3 |  |  |
| 3) E. 38th Avenue/Site Access | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| WB Left/Through |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | 8.4 | 8.4 | -- | -- | 9.0 | 9.1 |  |  | -- | -- | 9.1 | 9.3 |  |  |
| 4) E. 38th Avenue/1st Street/N. Converse Road | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | A | A | A | A | A | A | A | A | A | A |  |  | A | A | A | A |  |  |
| EB Approach |  | A | A | A | A | A | A | A | A | B | B |  |  | A | A | B | B |  |  |
| WB Approach |  | A | A | A | A | A | A | B | A | B | B |  |  | A | A | B | B |  |  |
| SB Approach Critical Movement Delay |  | A 9.1 | A 8.9 | A 9.1 | A 9.0 | A 9.1 | A 9.2 | A 10.0 | A 9.7 | A 10.1 | A |  |  | A 9.8 | A 9 | A 10.5 | A ${ }_{11.1}$ |  |  |
| Critical Movement Delay |  | 9.1 | 8.9 |  | 9.0 | 9.1 | 9.2 | 10.0 | 9.7 | 10.1 |  |  |  | 9.8 |  | 10.5 | 11.1 |  |  |
| 5) E. 38th Avenue/SH 79 | TWSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left or Approach |  | A | A | A | A | A | A | A | A | A | A |  |  | A | A | A | A |  |  |
| EB Approach |  | A | A | A | A | A | A | B | B | B | B |  |  | B | B | B | B |  |  |
| WB Approach |  | A | A | A | A | A | A | B | B | B | B |  |  | B | B | B | C |  |  |
| SB Left or Approach |  | ${ }_{9}^{\text {A }}$ | A | ${ }_{9}^{\text {A }}$ | A | ${ }_{9}^{\text {A }}$ | A | A | A | A | A |  |  | A 11.8 | A 13.4 | A 13.2 | A |  |  |
| Critical Movement Delay |  | 9.4 | 9.4 | 9.5 | 9.5 | 9.5 | 9.5 | 10.9 | 11.9 | 11.9 | 14.4 |  |  | 11.8 | 13.4 | 13.2 | 16.8 |  |  |
| 6) Internal Collector/Site Access | TWSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |  |  | A | A | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | A | A | A | A |  |  |
| WB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| SB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 8.7 | 8.8 |  |  | 8.6 | 8.6 | 9.3 | 9.7 |  |  |
| 7) 1 st Street/Site Access | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left/Through |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | ${ }_{9}$ |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | 8.6 | 8.5 | -- | -- | 9.0 | 9.2 |  |  | -- | -- | 9.0 | 9.2 |  |  |
| 8) $\frac{1 \mathrm{st} \text { Street/Site Access }}{}$ | TWSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left/Through |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | 8.7 | 8.6 | -- | -- | 9.0 | 9.2 |  |  | -- | -- | 9.1 | 9.2 |  |  |
| 9) 1 st Street/Site Access | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left/Through |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| $0_{0}^{\text {Critical Movement Delay }}$ |  | -- | -- | -- | -- | 8.8 | 8.6 | -- | -- | 9.0 | 9.1 |  |  | -- | -- | 9.1 | 9.2 |  |  |


| Intersection Location | Traffic Control | Table 1 (Page 2 of 3) <br> Intersection Levels of Service Analysis <br> Mundell Farms <br> Bennett, CO <br> LSC \#220820; November, 2022 |  |  |  |  |  |  |  |  |  |  |  | $2042$ <br> Background Traffic |  | $\begin{gathered} 2042 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | 2042 Total TrafficMitigated |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Existing Traffic |  | $2025$ <br> Background Traffic |  | $\begin{gathered} 2025 \\ \text { Total Traffic } \end{gathered}$ |  | $2030$ <br> Background Traffic |  | $\begin{gathered} 2030 \\ \text { Total Traffic } \end{gathered}$ |  | 2030 Total Traffic Mitigated |  |  |  |  |  |  |  |
|  |  | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM |
| 10) Penrith Road/Truman Avenue | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WB Left or Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | B | B | B | B |  |  |
| WB Right |  | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |  |  | A | A | A | A |  |  |
| SB Left or Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | A | A | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 9.3 | 9.4 |  |  | 10.0 | 10.2 | 10.8 | 10.7 |  |  |
| 11) Truman Avenue/Internal Collector | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | A | A | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | B |  |  | A | A | A | B |  |  |
| WB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | B |  |  | -- | -- | B | B |  |  |
| SB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 9.8 | 10.2 |  |  | 8.9 | 9.2 | 11.2 | 12.1 |  |  |
| 12) 1st Street/Truman Avenue | twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | A | A | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| WB Approach |  | A | A | A | A | A | A | A | A | A | A |  |  | A | A | A | B |  |  |
| SB Approach |  | A | A | A | A | A | A | A | A | A | A |  |  | A | A | A | A |  |  |
| Critical Movement Delay |  | 8.8 | 8.7 | 8.9 | 8.7 | 9.5 | 9.5 | 8.9 | 9.0 | 9.4 | 9.8 |  |  | 9.0 | 9.1 | 9.5 | 10.0 |  |  |
| 13) Internal Collector/Site Access | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |  |  | A | A | A | A |  |  |
| EB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |  |  | A | A | A | A |  |  |
| WB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | B | B |  |  |
| SB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 9.1 | 9.3 |  |  | 9.1 | 8.9 | 10.8 | 11.5 |  |  |
| 14) Penrith Road/Lincoln Avenue | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WB Left |  | -- | -- | -- | -- | -- | -- | A | A | B | B |  |  | B | B | C | B |  |  |
| WB Right |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | A | A |  |  |
| SB Left Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | ${ }_{9}$ | A | A | ${ }^{\text {A }}$ |  |  | A | A | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | 9.3 | 9.2 | 10.7 | 10.5 |  |  | 12.3 | 11.9 | 15.6 | 14.8 |  |  |
| 15) Lincoln Avenue/Internal Collector | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | A | A |  |  |
| EB Left |  | -- | -- | -- | -- | -- | -- | A | A | A | B |  |  | A | A | B | B |  |  |
| EB Through/Right |  | -- | -- | -- | -- | -- | -- | A | A | A | B |  |  | A | A | B | B |  |  |
| WB Left |  | -- | -- | -- | -- | -- | -- | A | A | A | B |  |  | A | A | B | B |  |  |
| WB Through/Right |  | -- | -- | -- | -- | -- | -- | A | A | B | B |  |  | A | A | B | B |  |  |
| SB Left |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  |  | A | A | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | 9.0 | 8.9 | 10.0 | 10.3 |  |  | 9.7 | 9.9 | 11.1 | 12.0 |  |  |
| 16) Lincoln Avenue/Site Access | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EB Left/Through |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| SB Approach |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  |  | -- | -- | A | A |  |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | -- | -- | 8.9 | 9.1 |  |  | -- | -- | 9.0 | 9.2 |  |  |
| 17) 1st Street/Lincoln Avenue | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | A | A | 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 | A | B |  |  |
| WB Approach |  | A | A | A | A | B | B | A | A | B | B |  |  | B | A | B | B |  |  |
| SB Approach |  | A | A | A | A | A | A | A | A | A | A |  |  | A | A | A | A |  |  |
| $0_{0}^{0}$ Critical Movement Delay |  | 9.1 | 9.1 | 9.3 | 9.2 | 10.1 | 10.1 | 9.7 | 9.5 | 10.7 | 10.8 |  |  | 10.1 | 9.8 | 11.1 | 11.0 |  |  |


| $\xlongequal{\text { Intersection Location }}$ | Traffic Control | Table 1 (Page 3 of 3) Intersection Levels of Service Analysis Mundell Farms Bennett, CO LSC \#220820; November, 2022 |  |  |  |  |  |  |  |  |  | 2030 Total TrafficMitigated | 2042 <br> Background Traffic |  | $\begin{gathered} 2042 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | 2042 Total Traffic Mitigated |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Existing Traffic |  | 2025 <br> Background Traffic |  | $\begin{gathered} 2025 \\ \text { Total Traffic } \\ \hline \end{gathered}$ |  | 2030Background Traffic |  | $\begin{gathered} 2030 \\ \text { Total Traffic } \end{gathered}$ |  |  |  |  |  |  |  |
|  |  | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Level of <br> Service Service <br> AM PM | Level of Service AM | Level of Service PM | Level of Service AM | Level of Service PM | Level of Level of <br> Service Service <br> AM PM |
| 18) Penrith Road/W. Palmer Avenue | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WB Left |  | -- | -- | -- | -- | -- | -- | B | B | B | B |  | c | c |  |  | Potential Traffic |
| WB Right |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  | A | B | A | ${ }_{\text {B }}$ | Signal or Roundabout |
| SB Left Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | A 10.3 | A 10.1 | A 12.9 | A 12.9 |  | A 18.7 | A 16.0 | A | A | Signal or Roundabout <br> Control |
| 19) W. Palmer Avenue/Internal Collector | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EB Left |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  | A | A | A | A |  |
| SB Left |  | -- | -- | -- | -- | -- | -- | B | B | B | B |  | B | B | B | B |  |
| SB Right |  | -- | -- | -- | -- | -- | -- | A | A | A | A |  | A | A | A | A |  |
| Critical Movement Delay |  | -- | -- | -- | -- | -- | -- | 10.3 | 10.3 | 11.3 | 11.8 |  | 11.5 | 11.6 | 12.7 | 13.6 |  |
| 20) W. Palmer Avenue/1st Street | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EB Left or Approach |  | A | A | A | A | A | A | A | A | A | A |  | A | A | A | A |  |
| SB Approach |  | A | A | A | A | B | B | B | A | B | B |  | B | B | B | B |  |
| Critical Movement Delay |  | 9.2 | 9.2 | 9.3 | 9.3 | 10.1 | 10.3 | 10.0 | 9.8 | 12.5 | 12.2 |  | 10.5 | 10.2 | 13.6 | 13.0 |  |
| 21) W. Palmer Avenue/Adams Street | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left |  | A | A | A | A | A | A | A | A | A | A |  | A | A | A | A |  |
| EB Approach |  | B | B | B | B | c | B | B | B | B | B |  | B | B | c | c |  |
| Critical Movement Delay |  | 13.4 | 11.4 | 14.1 | 11.8 | 15.0 | 12.6 | 11.6 | 11.1 | 13.5 | 13.4 |  | 12.7 | 12.1 | 15.3 | 15.5 |  |
| 22) E. Colfax Avenue (US 36)/Penrith Road | TwSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Left |  | в | в | B | в | B | B | D | F | F | F |  | F | F | F | F |  |
| NB Right or Through/Right |  | A | A | A | A | A | A | B | c | c | F |  | D | F | E | F |  |
| EB Left |  | -- | -- | -- | -- | A | -- | A | A | A | A | Future Traffic Signal | A | A | A | B | Future Traffic Signal |
| SB Left |  | -- | A-- | -- | --- | -- | -- | C | E | ${ }_{\text {D }}$ | F |  | A | A | A | F | Control |
| SB Through/Right |  | -- | -- | -- | -- | -- | -- | B | c | c | F |  | F | F | F | F |  |
| Critical Movement Delay |  | 10.0 | 10.3 | 10.5 | 11.0 | 10.9 | 11.6 | 34.3 | 76.2 | 223.2 | >240 |  | >240 | >240 | >240 | >240 |  |
| 23) E. Colfax Avenue (US 36)/W. Palmer Avenue | Twsc |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EB Left |  | A | A | A | A | A | A | -- | -- | -- | -- |  | -- | -- | -- | -- |  |
| SB Approach |  | A | в | A | B | B | B | -- | -- | -- | -- |  | -- | -- | -- | -- |  |
| Critical Movement Delay |  | 9.5 | 10.1 | 9.7 | 10.3 | 10.0 | 10.8 | -- | -- | -- | -- |  | -- | -- | -- | -- |  |
| 24) E. Colfax Avenue (US 36)/Adams Street | TWSC |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NB Approach |  | D | D | D | E | E | E | c | c | c | D |  | c | c | c | E |  |
| EB Approach |  | A | A | A | A | A | A | A | A | -- | A |  | A | A | -- | -- |  |
| EB Left |  | -- | -- | -- | -- | -- | -- | -- | -- | A | A |  | -- | -- | A | A |  |
| WB Approach |  | A | A | A | A | A | A | A | A | -- | -- | Future Traffic Signal | A | A | -- | -- |  |
| WB Left |  | -- | - | -- | - | - | - | - | - | A | A | or Roundabout | - | -- | A | A | or Roundabout |
| SB Approach |  | c | c | E | E | E | F | C | D | -- | -- | Control | C | F | -- | -- |  |
| SB Left/Through |  | -- | -- | -- | -- | -- | -- | -- | -- | D | F |  | -- | -- | D | F |  |
| SB Right |  | $\stackrel{-}{-}$ | $\stackrel{-}{-7}$ | -- | -- | $\stackrel{-}{-}$ | -- | -- | $\stackrel{-}{-}$ | A | A |  | -- | -- | A | A |  |
| Critical Movement Delay |  | 25.2 | 25.3 | 39.1 | 40.6 | 45.4 | 55.0 | 17.9 | 28.1 | 31.2 | 52.7 |  | 22.5 | 54.6 | 30.7 | 132.3 |  |


| Trip Generating Category | EST <br> Quantity | STIMATED TRAFFIC GENERATION <br> Mundell Farms <br> Bennett, CO <br> LSC \#220820; November, 2022 <br> Trip Generation Rates ${ }^{(1)}$ |  |  |  |  | Total Trips Generated |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Average <br> Weekday | AM Peak-Hour |  | PM Peak-Hour |  | Average Weekday | AM Peak-Hour |  | PM Peak-Hour |  |
|  |  |  | In | Out | In | Out |  | In | Out | In | Out |
| CURRENTLY PROPOSED LAND USE - PHASE 1 PA-2 |  |  |  |  |  |  |  |  |  |  |  |
| CURRENTLY PROPOSED LAND USE - BUILDOUT PA 1 |  |  |  |  |  |  |  |  |  |  |  |
| Single Family Detached Housing (2) PA-2 | $205 \text { DU (3) }$ | 9.43 | 0.182 | 0.518 | 0.592 | 0.348 | 1,933 | 37 | 106 | 121 | 71 |
| Single Family Detached Housing PA-3 | $190 \text { DU }$ | 9.43 | 0.182 | 0.518 | 0.592 | 0.348 | 1,792 | 35 | 98 | 112 | 66 |
| Single Family Attached Housing (4) PA-4 | $275 \text { DU }$ | 7.20 | 0.149 | 0.331 | 0.325 | 0.245 | 1,980 | 41 | 91 | 89 | 67 |
| Single Family Detached Housing | 115 DU | 9.43 | 0.182 | 0.518 | 0.592 | 0.348 | 1,084 | 21 | 60 | 68 | 40 |
| Single Family Attached Housing | 115 DU | 7.20 | 0.149 | 0.331 | 0.325 | 0.245 | 828 | 17 | 38 | 37 | 28 |
|  |  |  |  |  |  | Total $=$ | 7,617 | 151 | 393 | 429 | 272 |
| Notes: <br> (1) Source: Trip Generation, Institute of Transportation Engineers, 11th Edition, 2021 <br> (2) ITE Land Use No. 210 - Single-Family Detached Housing <br> (3) DU - Dwelling Units <br> (4) Land Use No. 215 - Single-Family Attached Housing |  |  |  |  |  |  |  |  |  |  |  |





* Counted for this project in 2022.
* Based on Bennett Ranch TIA (Figure 3).
** Based on Penrith Park TIA (Figure 7) with through volumes balanced with intersection to east.
*** Based on Brunner Subdivision TIA (Figure 3b)
$* * * * *$ Based on Worthman Acres TIA (Figure 3b adjusted for recent counts at \#21).



Note: This scenario will be for the short-term impacts of Phase 1. A two
percent annual growth rate was assumed.

Year 2025


1 NB LT $=378$ feet +222 -foot transition taper (by Bennett Ranch)

Year 2025 Background Lane Geometry and Traffic Control


Note: This scenario will be for the short-term impacts of site buildout.
These estimates are based on a combination of a two percent annual
growth rate and the long-term projections in the Brunner Subdivision
TIA, the Penrith Park TIA, the Worthman Acres TIA and the Bennett
Ranch TIA.

Year 2030
Background Traffic

 LEGEND:

Year 2042
Background Traffic



Note: the percentages shown on Colfax Avenue (US 36) west of the site are based on a relatively large number of residents working in the Denver metro area and traveling to/from the site via future roadways connecting to Colfax Avenue (US 36) at Penrith Road.

## LEGEND:

$\frac{5 \%}{5 \%}=$
$\overline{5 \%}=$ Buildout (2030 \& 2040) Percent Directional Distribution


## LEGEND:

r = Stop Sign
= Traffic Signal
$\frac{26}{35}=\frac{\text { AM Peak Hour Traffic }}{\text { PM Peak Hour Traffic }}$


LEGEND:
r = Stop Sign
5. $\frac{26}{35}=\frac{A M \text { Peak Hour Traffic }}{\text { PM Peak Hour Traffic }}$

$1,000=$ Average Daily Traffic
Year 2025
Total Traffic



Year 2030
Total Traffic


Recommended Improvements:
1 SB LT $=150$ feet +120 -foot transition taper (10:1)
2 NB RT $=200$ feet +120 -foot transition taper (10:1) 3 WB LT $=200$ feet +120 -foot transition taper ( $10: 1$ ) 4 SB LT $=150$ feet +120 -foot transition taper 5 NB LT $=150$ feet +120 -foot transition taper 6 EB LT $=150$ feet +120 -foot transition taper 7 WB LT $=150$ feet +120 -foot transition taper

8 SB LT $=150$ feet +120 -foot transition taper 9 NB RT $=150$ feet +120 -foot transition taper 10 WB LT $=225$ feet +120 -foot transition taper 11 SB LT $=150$ feet +120 -foot transition taper 12 EB LT $=150$ feet +120 -foot transition taper 13 WB RT $=150$ feet +120 -foot transition taper 14 EB LT $=150$ feet +120 -foot transition tape


* Potential Traffic Signal and/or Roundabout by 2030.


Year 2042
Total Traffic


Recommended Improvements by Applicant if not previously completed by others:
1 SB LT $=150$ feet +120 -foot transition taper ( $10: 1$ )
2 NB RT $=150$ feet +120 -foot transition taper (10:1)
3 WB LT $=150$ feet +120 -foot transition taper (10:1)


* Potential Traffic Signal and/or Roundabout by 2042.



It may appear that information is missing from the straight line diagram. If so, reduce the number of miles/page and re-submit the request.

## Route 036C From 88 to 90



## Legend

- Route
- Milepoint


## Structures

O Major Structure
O Minor Structure

Created:
Date: 9/22/2022
Time: 10:52:22 AM


The information contained in this map is based on the most currently available data and has been checked for accuracy. CDOT does not guarantee the accuracy of any information presented, is not llagge in any respect for any errors or omissions, and is not responsible for determining "fitness for use".


It may appear that information is missing from the straight line diagram. If so, reduce the number of miles/page and re-submit the request.

COUNTER MEASURES INC.
1889 YORK STREET
N/S STREET: 1ST STREET
E/W STREET: E. LINCOLN AVE
CITY: BENNETT
COUNTY: ADAMS

DENVER.COLORADO
303-333-7409

File Name: 1STSTLINC
Site Code : 00000025
Start Date: 8/17/2022
Page No : 1

Groups Printed- VEHICLES

|  | 1ST STREET <br> Southbound |  |  | E. LINCOLN AVE Westbound |  |  | 1ST STREET <br> Northbound |  |  | E. LINCOLN AVE Eastbound |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:45 AM | 0 | 7 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 12 |
| Total | 0 | 12 | 0 | 1 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 17 |


| 07:00 AM | 0 | 8 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 07:15 AM | 3 | 4 | 0 | 4 | 0 | 2 | 0 | 2 | 4 | 0 | 0 | 1 | 20 |
| 07:30 AM | 3 | 5 | 0 | 13 | 1 | 3 | 1 | 6 | 10 | 0 | 1 | 1 | 44 |
| 07:45 AM | 2 | 4 | 0 | 17 | 0 | 3 | 0 | 7 | 9 | 0 | 0 | 2 | 44 |
| Total | 8 | 21 | 0 | 35 | 1 | 9 | 1 | 17 | 24 | 0 | 1 | 5 | 122 |
| 08:00 AM | 0 | 4 | 0 | 5 | 0 | 0 | 1 | 3 | 2 | 0 | 0 | 1 | 16 |
| 08:15 AM | 1 | 5 | 0 | 3 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 1 | 16 |
| Total | 1 | 9 | 0 | 8 | 0 | 0 | 1 | 6 | 5 | 0 | 0 | 2 | 32 |


| 04:00 PM | 0 | 5 | 0 | 11 | 0 | 6 | 2 | 8 | 4 | 1 | 0 | 1 | 38 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 04:15 PM | 0 | 5 | 0 | 8 | 0 | 2 | 1 | 12 | 1 | 0 | 0 | 0 | 29 |
| 04:30 PM | 1 | 7 | 0 | 3 | 0 | 2 | 2 | 8 | 3 | 0 | 0 | 1 | 27 |
| 04:45 PM | 0 | 10 | 0 | 2 | 0 | 0 | 3 | 5 | 2 | 0 | 0 | 2 | 24 |
| Total | 1 | 27 | 0 | 24 | 0 | 10 | 8 | 33 | 10 | 1 | 0 | 4 | 118 |
| 05:00 PM | 1 | 5 | 0 | 1 | 0 | 1 | 2 | 12 | 1 | 0 | 0 | 1 | 24 |
| 05:15 PM | 1 | 6 | 0 | 2 | 0 | 1 | 2 | 8 | 2 | 0 | 0 | 2 | 24 |
| 05:30 PM | 1 | 7 | 0 | 2 | 0 | 1 | 3 | 12 | 4 | 0 | 0 | 3 | 33 |
| 05:45 PM | 2 | 9 | 1 | 6 | 0 | 1 | 2 | 8 | 3 | 0 | 0 | 1 | 33 |
| Total | 5 | 27 | 1 | 11 | 0 | 4 | 9 | 40 | 10 | 0 | 0 | 7 | 114 |
| Grand Total | 15 | 96 | 1 | 79 | 1 | 23 | 20 | 98 | 50 | 1 | 1 | 18 | 403 |
| Apprch \% | 13.4 | 85.7 | 0.9 | 76.7 | 1.0 | 22.3 | 11.9 | 58.3 | 29.8 | 5.0 | 5.0 | 90.0 |  |
| Total \% | 3.7 | 23.8 | 0.2 | 19.6 | 0.2 | 5.7 | 5.0 | 24.3 | 12.4 | 0.2 | 0.2 | 4.5 |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
DENVER.COLORADO
303-333-7409
File Name : 1STSTLINC
E/W STREET: E. LINCOLN AVE
CITY: BENNETT
COUNTY: ADAMS
Site Code : 00000025
Start Date: 8/17/2022
Page No : 2

|  | 1ST STREET Southbound |  |  |  | E. LINCOLN AVE Westbound |  |  |  | 1ST STREET <br> Northbound |  |  |  | E. LINCOLN AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | $\begin{gathered} \text { Int. } \\ \text { Total } \end{gathered}$ |
| Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 07:15 AM |  |  |  | $39 \quad 1 \quad 8 \quad 48$ |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 8 | 17 | 0 | 25 |  |  |  |  | 2 | 18 | 25 | 45 | 0 | 1 | 5 | 6 | 124 |
| Percent | 32.0 | 68.0 | 0.0 |  | 81.3 | 2.1 | 16.7 |  | 4.4 | 40.0 | 55.6 |  | 0.0 | 16.7 | 83.3 |  |  |
| 07:45 | 2 | 4 | 0 | 6 | 17 | 0 | 3 | 20 | 0 | 7 | 9 | 16 | 0 | 0 | 2 | 2 | 44 |
| Peak Factor | 07:30 AM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.705 |
| High Int. |  |  |  |  | 07:45 AM |  |  |  | 07:30 AM |  |  |  | 07:30 AM |  |  |  |  |
| Volume | 3 | 5 | 0 | 8 | 17 | 0 | 3 | 20 | 1 | 6 | 10 | 17 | 0 | 1 | 1 | 2 |  |
| Peak Factor |  |  |  | 0.781 |  |  |  | 0.600 |  |  |  | 0.662 |  |  |  | 0.750 |  |



## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
E/W STREET: E. LINCOLN AVE
CITY: BENNETT
COUNTY: ADAMS
DENVER.COLORADO
303-333-7409

File Name : 1STSTLINC
Site Code : 00000025
Start Date: 8/17/2022
Page No : 3

|  | 1ST STREET Southbound |  |  |  | E. LINCOLN AVE Westbound |  |  |  | 1ST STREET <br> Northbound |  |  |  | E. LINCOLN AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. <br> Total | $\begin{aligned} & \text { Int. } \\ & \text { Total } \end{aligned}$ |
| Peak Hour From 04:00 PM to 04:45 PM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 04:00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 1 | 27 | 0 | 28 | 24 | 0 | 10 | 34 | 8 | 33 | 10 | 51 | 1 | 0 | 4 | 5 | 118 |
| Percent | 3.6 | 96.4 | 0.0 |  | 70.6 | 0.0 | 29.4 |  | 15.7 | 64.7 | 19.6 |  | 20.0 | 0.0 | 80.0 |  |  |
| 04:00 | 0 | 5 | 0 | 5 | 11 | 0 | 6 | 17 | 2 | 8 | 4 | 14 | 1 | 0 | 1 | 2 | 38 |
| Peak Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.776 |
| High Int. | 04:45 |  |  |  | 04:00 |  |  |  | 04:00 |  |  |  | 04:00 |  |  |  |  |
| Volume | 0 | 10 | 0 | 10 | 11 | 0 | 6 | 17 | 2 | 8 | 4 | 14 | 1 | 0 | 1 | 2 |  |
| Peak Factor |  |  |  | 0.700 |  |  |  | 0.500 |  |  |  | 0.911 |  |  |  | 0.625 |  |



## COUNTER MEASURES INC.

## 1889 YORK STREET <br> DENVER.COLORADO <br> 303-333-7409

File Name : 1STSTPALM2
Site Code $: 00000008$
Start Date $: 8 / 25 / 2022$
Page No $: 1$

Start Date : 8/25/2022
Page No : 1
Groups Printed- VEHICLES

|  | 1ST STREET Southbound |  |  |  | PALMER AVE Westbound |  |  |  | NO ACCESS Northbound |  |  |  | PALMER AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Int. Total |
| 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 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 |
| 06:45 AM | 4 | 0 | 4 | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 16 |
| Total | 6 | 0 | 8 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 25 |


| 07:00 AM | 5 | 0 | 1 | 0 | 0 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 07:15 AM | 4 | 0 | 4 | 0 | 0 | 8 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 24 |
| 07:30 AM | 2 | 0 | 17 | 0 | 0 | 20 | 3 | 0 | 0 | 0 | 0 | 0 | 16 | 26 | 0 | 0 | 84 |
| 07:45 AM | 4 | 0 | 33 | 0 | 0 | 36 | 4 | 1 | 0 | 0 | 0 | 0 | 12 | 5 | 0 | 0 | 95 |
| Total | 15 | 0 | 55 | 0 | 0 | 67 | 12 | 2 | 0 | 0 | 0 | 0 | 31 | 35 | 0 | 0 | 217 |
| 08:00 AM | 1 | 0 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 15 |
| 08:15 AM | 2 | 0 | 7 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 14 |
| Total | 3 | 0 | 13 | 0 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 29 |


| 04:00 PM | 1 | 0 | 23 | 0 | 0 | 28 | 5 | 0 | 0 | 0 | 0 | 0 | 10 | 2 | 0 | 0 | 69 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 04:15 PM | 2 | 0 | 16 | 0 | 0 | 25 | 8 | 4 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 0 | 64 |
| 04:30 PM | 5 | 0 | 8 | 0 | 0 | 16 | 4 | 0 | 0 | 0 | 0 | 0 | 6 | 5 | 0 | 0 | 44 |
| 04:45 PM | 7 | 0 | 0 | 0 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 20 |
| Total | 15 | 0 | 47 | 0 | 0 | 72 | 22 | 4 | 0 | 0 | 0 | 0 | 22 | 15 | 0 | 0 | 197 |


| 05:00 PM | 6 | 0 | 6 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 23 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 05:15 PM | 3 | 0 | 2 | 0 | 0 | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 1 | 20 |
| 05:30 PM | 4 | 0 | 1 | 0 | 0 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 24 |
| 05:45 PM | 7 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 8 | 0 | 0 | 28 |
| Total | 20 | 0 | 13 | 0 | 0 | 11 | 15 | 2 | 0 | 0 | 0 | 0 | 21 | 12 | 0 | 1 | 95 |


| Grand Total | 59 | 0 | 136 | 0 | 0 | 160 | 55 | 8 | 0 | 0 | 0 | 0 | 76 | 68 | 0 | 1 | 563 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Apprch \% | 30.3 | 0.0 | 69.7 | 0.0 | 0.0 | 71.7 | 24.7 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 52.4 | 46.9 | 0.0 | 0.7 |  |
| Total \% | 10.5 | 0.0 | 24.2 | 0.0 | 0.0 | 28.4 | 9.8 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 | 13.5 | 12.1 | 0.0 | 0.2 |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
DENVER.COLORADO
File Name : 1STSTPALM2
E/W STREET: PALMER AVE 303-333-7409

Site Code : 00000008
Start Date: 8/25/2022
Page No : 2


|  |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
DENVER.COLORADO
File Name: 1STSTPALM2
E/W STREET: PALMER AVE 303-333-7409

Site Code : 00000008
Start Date: 8/25/2022
Page No : 3

## CITY: BENNETT

COUNTY: ADAMS

|  | 1ST STREET Southbound |  |  |  |  | PALMER AVE Westbound |  |  |  |  | NO ACCESS Northbound |  |  |  |  | PALMER AVE Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start <br> Time | Left | $\begin{array}{r} \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{gathered} \text { Rig } \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. <br> Total | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{gathered} \mathrm{Rig} \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{gathered} \text { Rig } \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. <br> Total | $\begin{array}{r} \text { Int. } \\ \text { Total } \end{array}$ |

Peak Hour From 04:00 PM to 04:45 PM - Peak 1 of 1



## COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409
File Name : 1STSTRUM
Site Code $: 00000005$
Start Date $: 8 / 17 / 2022$
Page No $: 1$
Groups Printed- VEHICLES

|  | 1ST STREET Southbound |  |  | TRUMAN AVE Westbound |  |  | 1ST STREET <br> Northbound |  |  | NO ACCESS Eastbound |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 06:45 AM | 0 | 3 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 7 |
| Total | 0 | 7 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 12 |


| 07:00 AM | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 9 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 07:15 AM | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 15 |
| 07:30 AM | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 8 | 2 | 0 | 0 | 0 | 17 |
| 07:45 AM | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 15 |
| Total | 0 | 23 | 0 | 4 | 0 | 0 | 0 | 23 | 6 | 0 | 0 | 0 | 56 |
| 08:00 AM | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 8 |
| 08:15 AM | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 5 |
| Total | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 13 |


| 04:00 PM | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 14 | 1 | 0 | 0 | 0 | 21 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 04:15 PM | 0 | 3 | 0 | 1 | 0 | 2 | 0 | 11 | 2 | 0 | 0 | 0 | 19 |
| 04:30 PM | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 14 |
| 04:45 PM | 0 | 6 | 0 | 1 | 0 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 13 |
| Total | 1 | 19 | 0 | 4 | 0 | 3 | 0 | 37 | 3 | 0 | 0 | 0 | 67 |
| 05:00 PM | 1 | 4 | 0 | 1 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 13 |
| 05:15 PM | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 12 |
| 05:30 PM | 1 | 7 | 0 | 1 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 16 |
| 05:45 PM | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 15 |
| Total | 2 | 23 | 0 | 2 | 0 | 2 | 0 | 25 | 2 | 0 | 0 | 0 | 56 |
| Grand Total | 3 | 77 | 0 | 14 | 0 | 6 | 0 | 92 | 12 | 0 | 0 | 0 | 204 |
| Apprch \% | 3.8 | 96.3 | 0.0 | 70.0 | 0.0 | 30.0 | 0.0 | 88.5 | 11.5 | 0.0 | 0.0 | 0.0 |  |
| Total \% | 1.5 | 37.7 | 0.0 | 6.9 | 0.0 | 2.9 | 0.0 | 45.1 | 5.9 | 0.0 | 0.0 | 0.0 |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
DENVER.COLORADO
303-333-7409
File Name : 1STSTRUM
E/W STREET: TRUMAN AVE
CITY: BENNETT
COUNTY: ADAMS

|  | 1ST STREET <br> Southbound |  |  |  | TRUMAN AVE Westbound |  |  |  | 1ST STREET <br> Northbound |  |  |  | NO ACCESS Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App <br> Total | $\begin{aligned} & \text { Int. } \\ & \text { Total } \end{aligned}$ |
| Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 07:15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 0 | 20 | 0 | 20 | 5 | 0 | 0 | 5 | 0 | 24 | 6 | 30 | 0 | 0 | 0 | 0 | 55 |
| Percent | 0.0 | 100. 0 | 0.0 |  | $\begin{array}{r} 100 . \\ 0 \end{array}$ | 0.0 | 0.0 |  | 0.0 | 80.0 | 20.0 |  | 0.0 | 0.0 | 0.0 |  |  |
| 07:30 <br> Volume | 0 | 5 | 0 | 5 | 2 | 0 | 0 | 2 | 0 | 8 | 2 | 10 | 0 | 0 | 0 | 0 | 17 |
| Peak Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.809 |
| High Int. | 07:15 |  |  |  | 07:30 |  |  |  | 07:30 |  |  |  |  |  |  |  |  |
| Volume | 0 | 8 | 0 | 8 | 2 | 0 | 0 | 2 | 0 | 8 | 2 | 10 |  |  |  |  |  |
| Peak Factor |  |  |  | 0.625 |  |  |  | 0.625 |  |  |  | 0.750 |  |  |  |  |  |



## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: 1ST STREET
DENVER.COLORADO
303-333-7409
File Name : 1STSTRUM
E/W STREET: TRUMAN AVE
CITY: BENNETT
COUNTY: ADAMS

|  | 1ST STREET <br> Southbound |  |  |  | TRUMAN AVE Westbound |  |  |  | 1ST STREET <br> Northbound |  |  |  | NO ACCESS Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. Total | Left | Thru | Right | App <br> Total | $\begin{aligned} & \text { Int. } \\ & \text { Total } \end{aligned}$ |
| Peak Hour From 04:00 PM to 04:45 PM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 04:00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 1 | 19 | 0 | 20 | 4 | 0 | 3 | 7 | 0 | 37 | 3 | 40 | 0 | 0 | 0 | 0 | 67 |
| Percent | 5.0 | 95.0 | 0.0 |  | 57.1 | 0.0 | 42.9 |  | 0.0 | 92.5 | 7.5 |  | 0.0 | 0.0 | 0.0 |  |  |
| 04:00 | 0 | 4 | 0 | 4 | 2 | 0 | 0 | 2 | 0 | 14 | 1 | 15 | 0 | 0 | 0 | 0 | 21 |
| Peak Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.798 |
| High Int. | 04:30 |  |  |  | 04:15 |  |  |  | 04:00 |  |  |  |  |  |  |  |  |
| Volume | 1 | 6 | 0 | 7 | 1 | 0 | 2 | 3 | 0 | 14 | 1 | 15 |  |  |  |  |  |
| Peak Factor |  |  |  | 0.714 |  |  |  | 0.583 |  |  |  | 0.667 |  |  |  |  |  |



## COUNTER MEASURES INC.

## 1889 YORK STREET <br> DENVER.COLORADO <br> 303-333-7409

File Name : ADAMSPALM2
Site Code : 00000016
Start Date : 8/25/2022
Page No : 1
Groups Printed- VEHICLES

|  | NO ACCESS Southbound |  |  |  | PALMER AVE Westbound |  |  |  | ADAMS ST Northbound |  |  |  | PALMER AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Int. Total |
| 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 | 41 | 2 | 0 | 0 | 3 | 0 | 28 | 0 | 0 | 2 | 6 | 1 | 83 |
| 06:45 AM | 0 | 0 | 0 | 0 | 32 | 6 | 0 | 0 | 8 | 0 | 47 | 0 | 0 | 2 | 9 | 0 | 104 |
| Total | 0 | 0 | 0 | 0 | 73 | 8 | 0 | 0 | 11 | 0 | 75 | 0 | 0 | 4 | 15 | 1 | 187 |


| 07:00 AM | 0 | 0 | 0 | 2 | 40 | 2 | 0 | 2 | 4 | 0 | 46 | 0 | 0 | 4 | 10 | 0 | 110 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 07:15 AM | 0 | 0 | 0 | 13 | 37 | 4 | 0 | 14 | 7 | 0 | 102 | 0 | 0 | 4 | 10 | 0 | 191 |
| 07:30 AM | 0 | 0 | 0 | 14 | 93 | 7 | 0 | 14 | 10 | 0 | 121 | 0 | 0 | 17 | 15 | 1 | 292 |
| 07:45 AM | 0 | 0 | 0 | 7 | 115 | 12 | 0 | 7 | 6 | 2 | 93 | 1 | 0 | 3 | 22 | 0 | 268 |
| Total | 0 | 0 | 0 | 36 | 285 | 25 | 0 | 37 | 27 | 2 | 362 | 1 | 0 | 28 | 57 | 1 | 861 |
| 08:00 AM | 0 | 0 | 0 | 1 | 83 | 3 | 0 | 2 | 5 | 0 | 33 | 0 | 0 | 1 | 8 | 0 | 136 |
| 08:15 AM | 0 | 0 | 0 | 1 | 39 | 2 | 0 | 1 | 10 | 0 | 31 | 0 | 0 | 1 | 8 | 1 | 94 |
| Total | 0 | 0 | 0 | 2 | 122 | 5 | 0 | 3 | 15 | 0 | 64 | 0 | 0 | 2 | 16 | 1 | 230 |


| $04: 00 ~ P M ~$ | 0 | 0 | 0 | 22 | 87 | 16 | 0 | 24 | 23 | 0 | 83 | 0 | 0 | 3 | 29 | 0 | 287 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $04: 15 \mathrm{PM}$ | 0 | 0 | 0 | 27 | 87 | 7 | 0 | 20 | 13 | 0 | 54 | 0 | 0 | 2 | 9 | 0 | 219 |
| $04: 30$ PM | 0 | 0 | 0 | 3 | 75 | 8 | 0 | 2 | 13 | 0 | 67 | 0 | 0 | 0 | 16 | 0 | 184 |
| $04: 45 \mathrm{PM}$ | 0 | 0 | 0 | 3 | 50 | 10 | 0 | 3 | 9 | 0 | 70 | 0 | 1 | 1 | 18 | 0 | 165 |
| Total | 0 | 0 | 0 | 55 | 299 | 41 | 0 | 49 | 58 | 0 | 274 | 0 | 1 | 6 | 72 | 0 | 855 |


| $05: 00 ~ P M ~$ | 0 | 0 | 0 | 5 | 65 | 5 | 0 | 8 | 12 | 0 | 48 | 0 | 0 | 3 | 16 | 0 | 162 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $05: 15 ~ P M$ | 0 | 0 | 0 | 7 | 41 | 2 | 0 | 6 | 17 | 0 | 59 | 3 | 0 | 3 | 18 | 0 | 156 |
| $05: 30 ~ P M ~$ | 0 | 0 | 0 | 1 | 43 | 2 | 0 | 1 | 16 | 0 | 64 | 0 | 0 | 3 | 10 | 0 | 140 |
| $05: 45$ PM | 0 | 0 | 0 | 1 | 59 | 3 | 0 | 0 | 14 | 0 | 70 | 0 | 0 | 11 | 6 | 0 | 164 |
| Total | 0 | 0 | 0 | 14 | 208 | 12 | 0 | 15 | 59 | 0 | 241 | 3 | 0 | 20 | 50 | 0 | 622 |


| Grand Total | 0 | 0 | 0 | 107 | 987 | 91 | 0 | 104 | 170 | 2 | 1016 | 4 | 1 | 60 | 210 | 3 | 2755 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Apprch \% | 0.0 | 0.0 | 0.0 | 100.0 | 83.5 | 7.7 | 0.0 | 8.8 | 14.3 | 0.2 | 85.2 | 0.3 | 0.4 | 21.9 | 76.6 | 1.1 |  |
| Total \% | 0.0 | 0.0 | 0.0 | 3.9 | 35.8 | 3.3 | 0.0 | 3.8 | 6.2 | 0.1 | 36.9 | 0.1 | 0.0 | 2.2 | 7.6 | 0.1 |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: ADAMS ST
DENVER.COLORADO
File Name : ADAMSPALM2
303-333-7409
Site Code : 00000016
Start Date : 8/25/2022

|  | NO ACCESS Southbound |  |  |  |  | PALMER AVE Westbound |  |  |  |  | ADAMS ST Northbound |  |  |  |  | PALMER AVE Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start <br> Time | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \mathrm{Rig} \\ \mathrm{ht} \end{array}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | Thr u | $\begin{gathered} \text { Rig } \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | Ped s | App. Total | $\begin{array}{r} \text { Int. } \\ \text { Total } \end{array}$ |

Peak Hour From 06:30 AM to 11:45 AM - Peak 1 of 1



## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: ADAMS ST
DENVER.COLORADO
File Name : ADAMSPALM2
303-333-7409
Site Code : 00000016
Start Date : 8/25/2022
Page No : 3

## CITY: BENNETT

COUNTY: ADAMS

|  | NO ACCESS Southbound |  |  |  |  | PALMER AVE Westbound |  |  |  |  | ADAMS ST Northbound |  |  |  |  | PALMER AVE Eastbound |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | $\begin{array}{r} \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \text { ht } \end{array}$ | Ped | App. Total | Left | $\begin{array}{r} \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{gathered} \text { Rig } \\ \mathrm{ht} \end{gathered}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \hline \mathrm{Thr} \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \text { Rig } \\ \mathrm{ht} \end{array}$ | $\begin{array}{r} \hline \text { Ped } \\ \mathrm{s} \end{array}$ | App. Total | Left | $\begin{array}{r} \text { Thr } \\ \mathrm{u} \end{array}$ | $\begin{array}{r} \mathrm{Rig} \\ \mathrm{ht} \end{array}$ | $\begin{array}{r} \text { Ped } \\ \mathrm{s} \end{array}$ | App. <br> Total | $\begin{array}{r} \text { Int. } \\ \text { Total } \end{array}$ |

Peak Hour From 12:00 PM to 05:45 PM - Peak 1 of 1



## COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
$303-333-7409$

File Name : NCONVE38TH
N/S STREET: N. CONVERSE RD
E/W STREET: E. 38TH AVE
CITY: BENNETT
COUNTY: ADAMS
Site Code : 00000008
Start Date : 8/18/2022
Page No : 1
Groups Printed- VEHICLES

|  | N. CONVERSE RD Southbound |  |  | E. 38TH AVE Westbound |  |  | N. CONVERSE RD <br> Northbound |  |  | E. 38TH AVE Eastbound |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 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 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 5 |
| 06:45 AM | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 9 |
| Total | 0 | 3 | 0 | 3 | 1 | 0 | 2 | 2 | 1 | 0 | 0 | 2 | 14 |


| 07:00 AM | 1 | 3 | 1 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 11 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 07:15 AM | 0 | 7 | 1 | 1 | 1 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 16 |
| 07:30 AM | 1 | 9 | 1 | 3 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 22 |
| 07:45 AM | 0 | 4 | 0 | 2 | 0 | 0 | 5 | 4 | 2 | 0 | 0 | 1 | 18 |
| Total | 2 | 23 | 3 | 8 | 1 | 0 | 10 | 8 | 8 | 0 | 0 | 4 | 67 |
| 08:00 AM | 0 | 2 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 8 |
| 08:15 AM | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| Total | 0 | 3 | 0 | 2 | 1 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 11 |


| 04:00 PM | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 6 | 5 | 0 | 0 | 0 | 18 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 04:15 PM | 1 | 0 | 1 | 1 | 0 | 1 | 3 | 8 | 1 | 0 | 1 | 0 | 17 |
| 04:30 PM | 0 | 4 | 0 | 2 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 3 | 15 |
| 04:45 PM | 0 | 2 | 0 | 1 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 10 |
| Total | 1 | 10 | 1 | 4 | 1 | 1 | 10 | 20 | 8 | 0 | 1 | 3 | 60 |
| 05:00 PM | 0 | 2 | 1 | 2 | 1 | 0 | 2 | 3 | 1 | 0 | 0 | 1 | 13 |
| 05:15 PM | 1 | 2 | 0 | 2 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 1 | 11 |
| 05:30 PM | 0 | 2 | 1 | 2 | 1 | 0 | 2 | 4 | 1 | 0 | 0 | 1 | 14 |
| 05:45 PM | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 2 | 7 |
| Total | 1 | 7 | 2 | 7 | 2 | 1 | 7 | 11 | 2 | 0 | 0 | 5 | 45 |
| Grand Total | 4 | 46 | 6 | 24 | 6 | 2 | 31 | 43 | 20 | 0 | 1 | 14 | 197 |
| Apprch \% | 7.1 | 82.1 | 10.7 | 75.0 | 18.8 | 6.3 | 33.0 | 45.7 | 21.3 | 0.0 | 6.7 | 93.3 |  |
| Total \% | 2.0 | 23.4 | 3.0 | 12.2 | 3.0 | 1.0 | 15.7 | 21.8 | 10.2 | 0.0 | 0.5 | 7.1 |  |

## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: N. CONVERSE RD
DENVER.COLORADO
File Name : NCONVE38TH
E/W STREET: E. 38TH AVE 303-333-7409

Site Code : 00000008
Start Date: 8/18/2022
Page No : 2

|  | N. CONVERSE RD Southbound |  |  |  | E. 38TH AVE Westbound |  |  |  | N. CONVERSE RD <br> Northbound |  |  |  | E. 38TH AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. Total | $\begin{array}{r} \text { Int. } \\ \text { Total } \end{array}$ |
| Peak Hour From 07:15 AM to 08:00 AM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 07:15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 1 | 22 | 2 | 25 | 7 | 2 | 0 | 9 | 10 | 9 | 8 | 27 | 0 | 0 | 3 | 3 | 64 |
| Percent | 4.0 | 88.0 | 8.0 |  | 77.8 | 22.2 | 0.0 |  | 37.0 | 33.3 | 29.6 |  | 0.0 | 0.0 | 100. |  |  |
| 07:30 Volume | 1 | 9 | 1 | 11 | 3 | 0 | 0 | 3 | 2 | 2 | 2 | 6 | 0 | 0 | 2 | 2 | 22 |
| Peak Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.727 |
| High Int. | 07:30 |  |  |  | 07:30 |  |  |  | 07:45 |  |  |  | 07:30 |  |  |  |  |
| Volume | 1 | 9 | 1 | 11 | 3 | 0 | 0 | 3 | 5 | 4 | 2 | 11 | 0 | 0 | 2 | 2 |  |
| Peak Factor |  |  |  | 0.568 |  |  |  | 0.750 |  |  |  | 0.614 |  |  |  | 0.375 |  |



## COUNTER MEASURES INC.

1889 YORK STREET
N/S STREET: N. CONVERSE RD
DENVER.COLORADO
File Name : NCONVE38TH
E/W STREET: E. 38TH AVE
303-333-7409
Site Code : 00000008
Start Date: 8/18/2022
Page No : 3
CITY: BENNETT
COUNTY: ADAMS

|  | N. CONVERSE RD Southbound |  |  |  | E. 38TH AVE Westbound |  |  |  | N. CONVERSE RD Northbound |  |  |  | E. 38TH AVE Eastbound |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | Left | Thru | Right | App. <br> Total | $\begin{array}{r} \text { Int. } \\ \text { Total } \end{array}$ |
| Peak Hour From 04:00 PM to 04:45 PM - Peak 1 of 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intersection | 04:00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume | 1 | 10 | 1 | 12 | 4 | 1 | 1 | 6 | 10 | 20 | 8 | 38 | 0 | 1 | 3 | 4 | 60 |
| Percent | 8.3 | 83.3 | 8.3 |  | 66.7 | 16.7 | 16.7 |  | 26.3 | 52.6 | 21.1 |  | 0.0 | 25.0 | 75.0 |  |  |
| 04:00 | 0 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 6 | 5 | 14 | 0 | 0 | 0 | 0 | 18 |
| Volume |  |  | 0 |  |  |  |  |  |  |  |  | 14 |  |  |  |  |  |
| Peak Factor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0.833 |
| High Int. | 04:00 |  |  |  | 04:15 |  |  |  | 04:00 |  |  |  | 04:30 |  |  |  |  |
| Volume | 0 | 4 | 0 | 4 | 1 | 0 | 1 | 2 | 3 | 6 | 5 | 14 | 0 | 0 | 3 | 3 |  |
| Peak Factor |  |  |  | 0.750 |  |  |  | 0.750 |  |  |  | 0.679 |  |  |  | 0.333 |  |



Page 1
Location: 1ST STREET N-O PALMER AVE
City: BENNETT
County: ADAMS
Direction: NORTH/SOUTH

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
Site Code: 221607 Station ID: 221607


Page 1
Location: 1ST STREET S-O KENNEDY AVE City: BENNETT
County: ADAMS
Direction: NORTH/SOUTH

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
Site Code: 22160 Station ID: 22160


Page 1
Location: PALMER AVE W-O 1ST STREET
City: BENNETT
County: ADAMS
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO 80206
Site Code: 222303 Station ID: 222303

| Start | 24-Aug-22 |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Time | Wed | EAST | WEST |  |  |  |  |  | Total |  |
| 12:00 AM |  | 2 | 1 |  |  |  |  |  |  | 3 |
| 01:00 |  | 3 | 3 |  |  |  |  |  |  | 6 |
| 02:00 |  | 0 | 0 |  |  |  |  |  |  | 0 |
| 03:00 |  | 0 | 0 |  |  |  |  |  |  | 0 |
| 04:00 |  | 0 | 7 |  |  |  |  |  |  | 7 |
| 05:00 |  | 2 | 21 |  |  |  |  |  |  | 23 |
| 06:00 |  | 11 | 25 |  |  |  |  |  |  | 36 |
| 07:00 |  | 92 | 115 |  |  |  |  |  |  | 207 |
| 08:00 |  | 4 | 31 |  |  |  |  |  |  | 35 |
| 09:00 |  | 17 | 9 |  |  |  |  |  |  | 26 |
| 10:00 |  | 7 | 18 |  |  |  |  |  |  | 25 |
| 11:00 |  | 11 | 11 |  |  |  |  |  |  | 22 |
| 12:00 PM |  | 18 | 26 |  |  |  |  |  |  | 44 |
| 01:00 |  | 12 | 16 |  |  |  |  |  |  | 28 |
| 02:00 |  | 10 | 12 |  |  |  |  |  |  | 22 |
| 03:00 |  | 28 | 25 |  |  |  |  |  |  | 53 |
| 04:00 |  | 35 | 102 |  |  |  |  |  |  | 137 |
| 05:00 |  | 33 | 23 |  |  |  |  |  |  | 56 |
| 06:00 |  | 24 | 25 |  |  |  |  |  |  | 49 |
| 07:00 |  | 18 | 16 |  |  |  |  |  |  | 34 |
| 08:00 |  | 9 | 9 |  |  |  |  |  |  | 18 |
| 09:00 |  | 9 | 4 |  |  |  |  |  |  | 13 |
| 10:00 |  | 3 | 2 |  |  |  |  |  |  | 5 |
| 11:00 |  | 3 | 1 |  |  |  |  |  |  | 4 |
| Total |  | 351 | 502 |  |  |  |  |  |  | 853 |
| Percent |  | 41.1\% | 58.9\% |  |  |  |  |  |  |  |
| AM Peak | - | 07:00 | 07:00 | - | - | - | - | - | - | 07:00 |
| Vol. | - | 92 | 115 | - | - | - | - | - | - | 207 |
| PM Peak | - | 16:00 | 16:00 | - | - | - | - | - | - | 16:00 |
| Vol. | - | 35 | 102 | - | - | - | - | - | - | 137 |
| Grand Total |  | 351 | 502 |  |  |  |  |  |  | 853 |
| Percent |  | 41.1\% | 58.9\% |  |  |  |  |  |  |  |
| ADT |  | ADT 834 |  |  |  |  |  |  |  |  |







## LEVEL OF SERVICE DEFINITIONS

From Highway Capacity Manual, Transportation Research Board, 2016, 6th Edition
SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

| LOS | $\begin{gathered} \frac{\text { Average }}{\text { Vehicle Delay }} \\ \text { sec/vehicle } \end{gathered}$ | Operational Characteristics |
| :---: | :---: | :---: |
| A | <10 seconds | Describes operations with low control delay, up to $10 \mathrm{sec} / \mathrm{veh}$. 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 | 10 to 20 seconds | Describes operations with control delay greater than 10 seconds and up to $20 \mathrm{sec} / \mathrm{veh}$. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay. |
| c | 20 to 35 seconds | Describes operations with control delay greater than 20 and up to $35 \mathrm{sec} / \mathrm{veh}$. 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. |
| D | 35 to 55 seconds | Describes operations with control delay greater than 35 and up to $55 \mathrm{sec} / \mathrm{veh}$. 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. |
| E | 55 to 80 seconds | Describes operations with control delay greater than 55 and up to $80 \mathrm{sec} / \mathrm{veh}$. These high delay values generally indicate poor progression, long cycle lengths, and high $\mathrm{v} / \mathrm{c}$ ratios. Individual cycle failures are frequent. |
| F | $\begin{gathered} >80 \\ \text { seconds } \end{gathered}$ | Describes operations with control delay in excess of $80 \mathrm{sec} / \mathrm{veh}$. 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 $\mathrm{v} / \mathrm{c}$ 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 | Operational Characteristics |
| :---: | :---: | :---: |
| 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. The delay could be up to 15 seconds. 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. 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. |
| D | 25 to 35 seconds | This is the point at which a traffic signal may be warranted for this intersection. 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. There is a high probability that this intersection will meet traffic signal warrants. 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. The only remedy for these long delays is installing a traffic signal or restricting the accesses. 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. |






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.8 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 5 | 0 | 24 | 6 | 0 | 20 |
| Future Vol, veh/h | 5 | 0 | 24 | 6 | 0 | 20 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 0 | 26 | 7 | 0 | 22 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.1 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 33 |  | 70 | 10 | 11 | 60 |
| Future Vol, veh/h | 33 | 33 | 70 | 10 | 11 | 60 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 36 | 36 | 76 | 11 | 12 | 65 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 87 | 0 | - | 0 | 190 | 82 |
| Stage 1 | - | - | - | - | 82 | - |
| Stage 2 | - | - | - | - | 108 | - |
| 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 | 1509 | - | - | - | 799 | 978 |
| Stage 1 | - | - | - | - | 941 | - |
| Stage 2 | - | - | - | - | 916 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1509 | - | - | - | 780 | 978 |
| Mov Cap-2 Maneuver | - | - | - | - | 780 | - |
| Stage 1 | - | - | - | - | 918 | - |
| Stage 2 | - | - | - | - | 916 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 3.7 |  | 0 |  | 9.2 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1509 | - | - | - | 941 |
| HCM Lane V/C Ratio |  | 0.024 | - | - | - | 0.082 |
| HCM Control Delay (s) |  | 7.4 | 0 | - | - | 9.2 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.3 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.6 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | $\mathbf{M}$ |  |  | 个 | F |  |
| Traffic Vol, veh/h | 25 | 55 | 28 | 349 | 328 | 26 |
| Future Vol, veh/h | 25 | 55 | 28 | 349 | 328 | 26 |
| 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 | - | 75 | - | - | - |
| 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 | 27 | 60 | 30 | 379 | 357 | 28 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.5 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 个 | $\mathbf{r}$ | $\mathbf{1}$ | 个 | $\mathbf{7}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 75 | 10 | 5 | 135 | 30 | 5 |
| Future Vol, veh/h | 75 | 10 | 5 | 135 | 30 | 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 | - | 200 | 200 | - | - | 0 |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 82 | 11 | 5 | 147 | 33 | 5 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.9 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | 1 | 4 | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 10 | 95 | 95 | 15 | 20 | 25 |
| Future Vol, veh/h | 10 | 95 | 95 | 15 | 20 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 103 | 103 | 16 | 22 | 27 |


| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | :--- | :--- | :--- | :--- | ---: | :---: |
| Conflicting Flow All | 119 | 0 | - | 0 | 236 | 111 |  |
| Stage 1 | - | - | - | - | 111 | - |  |
| Stage 2 | - | - | - | - | 125 | - |  |
| 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 | 1469 | - | - | - | 752 | 942 |  |
| $\quad$ Stage 1 | - | - | - | - | 914 | - |  |
| Stage 2 | - | - | - | - | 901 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1469 | - | - | - | 747 | 942 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 747 | - |  |
| Stage 1 | - | - | - | - | 908 | - |  |
| Stage 2 | - | - | - | - | 901 | - |  |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 0.7 | 0 | 9.5 |
| HCM LOS |  |  | A |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1469 | - | - | - |












| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.8 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\neq$ | 1 |  | 4 |  |
| Traffic Vol, veh/h | 22 | 15 | 72 | 22 | 15 | 47 |
| Future Vol, veh/h | 22 | 15 | 72 | 22 | 15 | 47 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 24 | 16 | 78 | 24 | 16 | 51 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 102 | 0 | - - | 0 | 154 | 90 |
| Stage 1 | - | - | - - | - | 90 | - |
| Stage 2 | - | - | - - | - | 64 | - |
| 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 | 1490 | - | - - | - | 838 | 968 |
| Stage 1 | - | - | - - | - | 934 | - |
| Stage 2 | - | - | - - | - | 959 | - |
| Platoon blocked, \% |  | - | - - | - |  |  |
| Mov Cap-1 Maneuver | 1490 | - | - - | - | 825 | 968 |
| Mov Cap-2 Maneuver | - | - | - - | - | 825 | - |
| Stage 1 | - | - | - - | - | 919 | - |
| Stage 2 | - | - | - - | - | 959 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 4.4 |  | 0 |  | 9.2 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1490 | 析 | - | - | 929 |
| HCM Lane V/C Ratio |  | 0.016 | - | - | - | 0.073 |
| HCM Control Delay (s) |  | 7.5 | - | - | - | 9.2 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0 |  | - | - | 0.2 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.8 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | M |  |  | 4 | $\mathbf{F}$ |  |
| Traffic Vol, veh/h | 6 | 72 | 58 | 274 | 299 | 41 |
| Future Vol, veh/h | 6 | 72 | 58 | 274 | 299 | 41 |
| 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 | - | 75 | - | - | - |
| 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 | 7 | 78 | 63 | 298 | 325 | 45 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 个 | $\mathbf{7}$ |  | 4 | i | $\mathbf{7}$ |
| Traffic Vol, veh/h | 165 | 35 | 5 | 95 | 20 | 5 |
| Future Vol, veh/h | 165 | 35 | 5 | 95 | 20 | 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 | - | 200 | 200 | - | - | 0 |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 179 | 38 | 5 | 103 | 22 | 5 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.1 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | P | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 20 | 140 | 100 | 5 | 30 | 20 |
| Future Vol, veh/h | 20 | 140 | 100 | 5 | 30 | 20 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 152 | 109 | 5 | 33 | 22 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | 114 | 0 | - | 0 | 308 | 112 |
| Stage 1 | - | - | - | - | 112 | - |
| Stage 2 | - | - | - | - | 196 | - |
| 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 | 1475 | - | - | - | 684 | 941 |
| $\quad$ Stage 1 | - | - | - | - | 913 | - |
| Stage 2 | - | - | - | - | 837 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1475 | - | - | - | 674 | 941 |
| Mov Cap-2 Maneuver | - | - | - | - | 674 | - |
| Stage 1 | - | - | - | - | 899 | - |
| Stage 2 | - | - | - | - | 837 | - |


| Approach | EB | WB | SB |
| :--- | :---: | :---: | :---: |
| HCM Control Delay, s | 0.9 | 0 | 10.1 |
| HCM LOS |  |  | B |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1475 | - | - | -760 |
| HCM Lane V/C Ratio | 0.015 | - | - | -0.072 |
| HCM Control Delay (s) | 7.5 | - | - | -10.1 |
| HCM Lane LOS | A | - | - | - |
| HCM 95th \%tile Q(veh) | 0 | - | - | - |








| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | MF |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 6 | 1 | 29 | 7 | 1 | 34 |
| Future Vol, veh/h | 6 | 1 | 29 | 7 | 1 | 34 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 7 | 1 | 32 | 8 | 1 | 37 |


| Major/Minor M | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 75 | 36 | 0 | 0 | 40 | 0 |
| Stage 1 | 36 | - | - | - | - | - |
| 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 | 928 | 1037 | - | - | 1570 | - |
| Stage 1 | 986 | - | - | - | - | - |
| Stage 2 | 983 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 927 | 1037 | - | - | 1570 | - |
| Mov Cap-2 Maneuver | 927 | - | - | - | - | - |
| Stage 1 | 986 | - | - | - | - | - |
| Stage 2 | 982 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 8.9 |  | 0 |  | 0.2 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 941 | 1570 | - |
| HCM Lane V/C Ratio |  | - | - | 0.008 | 0.001 | - |
| HCM Control Delay (s) |  | - | - | 8.9 | 7.3 | 0 |
| HCM Lane LOS |  | - | - | A | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0 | 0 | - |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\neq$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 35 | 35 | 75 | 19 | 12 | 64 |
| Future Vol, veh/h | 35 | 35 | 75 | 19 | 12 | 64 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 38 | 38 | 82 | 21 | 13 | 70 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 103 | 0 | - | 0 | 207 | 93 |
| Stage 1 | - | - | - | - | 93 | - |
| Stage 2 | - | - | - | - | 114 | - |
| 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 | 1489 | - | - | - | 781 | 964 |
| Stage 1 | - | - | - | - | 931 | - |
| Stage 2 | - | - | - | - | 911 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1489 | - | - | - | 761 | 964 |
| Mov Cap-2 Maneuver | - | - | - | - | 761 | - |
| Stage 1 | - | - | - | - | 907 | - |
| Stage 2 | - | - | - | - | 911 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 3.7 |  | 0 |  | 9.3 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1489 | - | - | - | 925 |
| HCM Lane V/C Ratio |  | 0.026 | - | - | - | 0.089 |
| HCM Control Delay (s) |  | 7.5 | 0 | - | - | 9.3 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.3 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.7 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 个 | F |  |
| Traffic Vol, veh/h | 27 | 58 | 30 | 370 | 350 | 28 |
| Future Vol, veh/h | 27 | 58 | 30 | 370 | 350 | 28 |
| 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 | - | 75 | - | - | - |
| 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 | 29 | 63 | 33 | 402 | 380 | 30 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.5 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 个 | $\mathbf{r}$ | $\mathbf{1}$ | 个 | $\mathbf{1}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 95 | 20 | 10 | 125 | 60 | 10 |
| Future Vol, veh/h | 95 | 20 | 10 | 125 | 60 | 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 | - | 200 | 200 | - | - | 0 |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 103 | 22 | 11 | 136 | 65 | 11 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | A | $\mathbf{F}$ |  | M |  |
| Traffic Vol, veh/h | 25 | 100 | 100 | 20 | 20 | 35 |
| Future Vol, veh/h | 25 | 100 | 100 | 20 | 20 | 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 | - | - | - | 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 | 27 | 109 | 109 | 22 | 22 | 38 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | 131 | 0 | - | 0 | 283 | 120 |
| $\quad$ Stage 1 | - | - | - | - | 120 | - |
| $\quad$ Stage 2 | - | - | - | - | 163 | - |
| 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 | 1454 | - | - | - | 707 | 931 |
| $\quad$ Stage 1 | - | - | - | - | 905 | - |
| $\quad$ Stage 2 | - | - | - | - | 866 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1454 | - | - | - | 694 | 931 |
| Mov Cap-2 Maneuver | - | - | - | - | 694 | - |
| Stage 1 | - | - | - | - | 888 | - |
| Stage 2 | - | - | - | - | 866 | - |
|  |  |  |  |  |  |  |


| Approach | EB | WB | SB |
| :--- | :---: | :---: | :---: |
| HCM Control Delay, s | 1.5 | 0 | 9.7 |
| HCM LOS |  |  | A |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1454 | - | - | -828 |
| HCM Lane V/C Ratio | 0.019 | - | - | -0.072 |
| HCM Control Delay (s) | 7.5 | - | - | - |
| HCM Lane LOS | A | - | - | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - |








| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | MF |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 5 | 4 | 36 | 4 | 2 | 18 |
| Future Vol, veh/h | 5 | 4 | 36 | 4 | 2 | 18 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 4 | 39 | 4 | 2 | 20 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.9 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 30 | 20 | 75 | 25 | 16 | 50 |
| Future Vol, veh/h | 30 | 20 | 75 | 25 | 16 | 50 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 33 | 22 | 82 | 27 | 17 | 54 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 109 | 0 | - | 0 | 184 | 96 |
| Stage 1 | - | - | - | - | 96 | - |
| Stage 2 | - | - | - | - | 88 | - |
| 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 | 1481 | - | - | - | 805 | 960 |
| Stage 1 | - | - | - | - | 928 | - |
| Stage 2 | - | - | - | - | 935 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1481 | - | - | - | 786 | 960 |
| Mov Cap-2 Maneuver | - | - | - | - | 786 | - |
| Stage 1 | - | - | - | - | 907 | - |
| Stage 2 | - | - | - | - | 935 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 4.5 |  | 0 |  | 9.3 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1481 | - | - | - | 911 |
| HCM Lane V/C Ratio |  | 0.022 | - | - | - | 0.079 |
| HCM Control Delay (s) |  | 7.5 | 0 | - | - | 9.3 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.3 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 4 | $\mathbf{F}$ |  |
| Traffic Vol, veh/h | 7 | 76 | 62 | 290 | 315 | 44 |
| Future Vol, veh/h | 7 | 76 | 62 | 290 | 315 | 44 |
| 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 | - | 75 | - | - | - |
| 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 | 8 | 83 | 67 | 315 | 342 | 48 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.3 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | 个 | F |  | M |  |
| Traffic Vol, veh/h | 30 | 150 | 105 | 10 | 30 | 25 |
| Future Vol, veh/h | 30 | 150 | 105 | 10 | 30 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 33 | 163 | 114 | 11 | 33 | 27 |


| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | :--- | :--- | :--- | ---: | ---: | :---: |
| Conflicting Flow All | 125 | 0 | - | 0 | 349 | 120 |  |
| Stage 1 | - | - | - | - | 120 | - |  |
| Stage 2 | - | - | - | - | 229 | - |  |
| 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 | 1462 | - | - | - | 648 | 931 |  |
| $\quad$ Stage 1 | - | - | - | - | 905 | - |  |
| Stage 2 | - | - | - | - | 809 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1462 | - | - | - | 633 | 931 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 633 | - |  |
| Stage 1 | - | - | - | - | 884 | - |  |
| Stage 2 | - | - | - | - | 809 | - |  |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 1.3 | 0 | 10.3 |
| HCM LOS |  |  | B |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1462 | - | - | -741 |
| HCM Lane V/C Ratio | 0.022 | - | - | -0.081 |
| HCM Control Delay (s) | 7.5 | - | - | -10.3 |
| HCM Lane LOS | A | - | - | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | -1 | Mr |  |
| Traffic Vol, veh/h | 6 | 0 | 2 | 16 | 0 | 6 |
| Future Vol, veh/h | 6 | 0 | 2 | 16 | 0 | 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 | - | - | - | - | 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 | 7 | 0 | 2 | 17 | 0 | 7 |


| Major/Minor M | Major1 |  | Major2 |  | Minor1 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 7 | 0 | 28 | 7 |  |
| Stage 1 | - | - | - | - | 7 | - |  |
| Stage 2 | - | - | - | - | 21 | - |  |
| 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 | - | - | 1614 | - | 987 | 1075 |  |
| Stage 1 | - | - | - | - | 1016 | - |  |
| Stage 2 | - | - | - | - | 1002 | - |  |
| Platoon blocked, \% | - | - |  | - |  |  |  |
| Mov Cap-1 Maneuver | - | - | 1614 | - | 986 | 1075 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 986 | - |  |
| Stage 1 | - | - | - | - | 1016 | - |  |
| Stage 2 | - | - | - | - | 1001 | - |  |
|  |  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |  |
| HCM Control Delay, s | 0 |  | 0.8 |  | 8.4 |  |  |
| HCM LOS |  |  |  |  | A |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt NBLn1 EBT EBR WBL WBT |  |  |  |  |  |  |  |
| Capacity (veh/h) | 1075 |  | - | - | 1614 | - |  |
| HCM Lane V/C Ratio | 0.006 |  | - |  | 0.001 | - |  |
| HCM Control Delay (s) | (s) 8.4 |  | - | - | 7.2 | 0 |  |
| HCM Lane LOS | A |  | - | - | A | A |  |
| HCM 95th \%tile Q(veh) | ) 0 |  | - | - | 0 | - |  |








| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.1 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\uparrow$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 1 | 25 | 8 | 40 | 59 | 0 |
| Future Vol, veh/h | 1 | 25 | 8 | 40 | 59 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 27 | 9 | 43 | 64 | 0 |





| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 0.4 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | \& |  |  | $\uparrow$ |  |  | ¢ |  |  | \$ |  |  |
| Traffic Vol, veh/h | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 55 | 7 | 1 | 108 | 0 |  |
| Future Vol, veh/h | 0 | 0 | 0 | 6 | 0 | 1 | 0 | 55 | 7 | 1 | 108 | 0 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control Star | 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 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 60 | 8 | 1 | 117 | 0 |  |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.6 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 50 | 35 | 75 | 30 | 43 | 107 |
| Future Vol, veh/h | 50 | 35 | 75 | 30 | 43 | 107 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 38 | 82 | 33 | 47 | 116 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 115 | 0 | - | 0 | 245 | 99 |
| Stage 1 | - | - | - | - | 99 | - |
| Stage 2 | - | - | - | - | 146 | - |
| 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 | 1474 | - | - | - | 743 | 957 |
| Stage 1 | - | - | - | - | 925 | - |
| Stage 2 | - | - | - | - | 881 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1474 | - | - | - | 716 | 957 |
| Mov Cap-2 Maneuver | - | - | - | - | 716 | - |
| Stage 1 | - | - | - | - | 891 | - |
| Stage 2 | - | - | - | - | 881 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 4.4 |  | 0 |  | 10.1 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1474 | - | - | - | 873 |
| HCM Lane V/C Ratio |  | 0.037 | - | - | - | 0.187 |
| HCM Control Delay (s) |  | 7.5 | 0 | - | - | 10.1 |
| HCM Lane LOS |  | A | A | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.7 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.3 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 个 | b |  |
| Traffic Vol, veh/h | 35 | 81 | 38 | 370 | 350 | 31 |
| Future Vol, veh/h | 35 | 81 | 38 | 370 | 350 | 31 |
| 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 | - | 75 | - | - | - |
| 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 | 38 | 88 | 41 | 402 | 380 | 34 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 个 | $\mathbf{r}$ | $\mathbf{1}$ | 个 | $\mathbf{1}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 107 | 20 | 10 | 160 | 60 | 10 |
| Future Vol, veh/h | 107 | 20 | 10 | 160 | 60 | 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 | - | 200 | 200 | - | - | 0 |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 116 | 22 | 11 | 174 | 65 | 11 |




| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 134 | 0 | - | 0 | 311 | 122 |
| Stage 1 | - | - | - | - | 122 | - |
| Stage 2 | - | - | - | - | 189 | - |
| 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 | 1451 | - | - | - | 681 | 929 |
| Stage 1 | - | - | - | - | 903 | - |
| Stage 2 | - | - | - | - | 843 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1451 | - | - | - | 662 | 929 |
| Mov Cap-2 Maneuver | - | - | - | - | 662 | - |
| Stage 1 | - | - | - | - | 878 | - |
| Stage 2 | - | - | - | - | 843 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 2 |  | 0 |  | 10 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1451 | - | - | - | 833 |
| HCM Lane V/C Ratio |  | 0.028 | - | - | - | 0.128 |
| HCM Control Delay (s) |  | 7.6 | - | - | - | 10 |
| HCM Lane LOS |  | A | - | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.4 |


| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 23.5 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | ¢ |  |  | $\uparrow$ |  |  | ¢ |  |  | \& |  |  |
| Traffic Vol, veh/h | 323 | 55 | 10 | 10 | 90 | 70 | 10 | 25 | 10 | 50 | 25 | 368 |  |
| Future Vol, veh/h | 323 | 55 | 10 | 10 | 90 | 70 | 10 | 25 | 10 | 50 | 25 | 368 |  |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - |  |
| Veh in Median Storage, \# | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 351 | 60 | 11 | 11 | 98 | 76 | 11 | 27 | 11 | 54 | 27 | 400 |  |



| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 158 | 1403 | - | -1529 | - | - | 537 |
| HCM Lane V/C Ratio | 0.31 | 0.25 | - | -0.007 | - | -0.897 |  |
| HCM Control Delay (s) | 37.7 | 8.4 | 0 | - | 7.4 | 0 | - |
| HCM Lane LOS | E | A | A | - | A | A | - |
| HCM 95 E \%tile Q(veh) | 1.2 | 1 | - | - | 0 | - | -10.4 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\uparrow$ | Mr |  |
| Traffic Vol, veh/h | 7 | 0 | 7 | 14 | 0 | 2 |
| Future Vol, veh/h | 7 | 0 | 7 | 14 | 0 | 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 | - | - | - | - | 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 | 8 | 0 | 8 | 15 | 0 | 2 |







| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |











| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.2 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 89 |  | 75 | 61 | 36 | 79 |
| Future Vol, veh/h | 89 | 20 | 75 | 61 | 36 | 79 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 97 | 22 | 82 | 66 | 39 | 86 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 148 | 0 | - | 0 | 331 | 115 |
| Stage 1 | - | - | - | - | 115 | - |
| Stage 2 | - | - | - | - | 216 | - |
| 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 | 1434 | - | - | - | 664 | 937 |
| Stage 1 | - | - | - | - | 910 | - |
| Stage 2 | - | - | - | - | 820 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1434 | - | - | - | 619 | 937 |
| Mov Cap-2 Maneuver | - | - | - | - | 619 | - |
| Stage 1 | - | - | - | - | 848 | - |
| Stage 2 | - | - | - | - | 820 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 6.3 |  | 0 |  | 10.3 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1434 | - | - | - | 807 |
| HCM Lane V/C Ratio |  | 0.067 | - | - | - | 0.155 |
| HCM Control Delay (s) |  | 7.7 | 0 | - | - | 10.3 |
| HCM Lane LOS |  | A | A | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.5 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.4 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 4 | $\mathbf{F}$ |  |
| Traffic Vol, veh/h | 12 | 91 | 89 | 290 | 315 | 53 |
| Future Vol, veh/h | 12 | 91 | 89 | 290 | 315 | 53 |
| 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 | - | 75 | - | - | - |
| 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 | 13 | 99 | 97 | 315 | 342 | 58 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.3 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | 个 | $\mathbf{7}$ |  | 4 | i | $\mathbf{7}$ |
| Traffic Vol, veh/h | 215 | 70 | 10 | 143 | 40 | 10 |
| Future Vol, veh/h | 215 | 70 | 10 | 143 | 40 | 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 | - | 200 | 200 | - | - | 0 |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 234 | 76 | 11 | 155 | 43 | 11 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | 7 | 4 | $\mathbf{F}$ |  | M |  |
| Traffic Vol, veh/h | 70 | 150 | 105 | 19 | 36 | 48 |
| Future Vol, veh/h | 70 | 150 | 105 | 19 | 36 | 48 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 76 | 163 | 114 | 21 | 39 | 52 |











| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.2 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 8 | 3 | 31 | 9 | 3 | 45 |
| Future Vol, veh/h | 8 | 3 | 31 | 9 | 3 | 45 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 3 | 34 | 10 | 3 | 49 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.7 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{r}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 90 | 5 | 20 | 55 | 10 | 25 |
| Future Vol, veh/h | 90 | 5 | 20 | 55 | 10 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 98 | 5 | 22 | 60 | 11 | 27 |





HCM LOS

| Minor Lane/Major Mvmt | NBL | NBT | NBR EBLn1 EBLn2WBLn1WBLn2 | SBL | SBT | SBR |  |  |
| :--- | :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | - | - | - | - | - | -916 | 1616 | - |
| HCM Lane V/C Ratio | - | - | - | - | - | -0.018 | 0.007 | - |
| HCM Control Delay (s) | - | - | - | 0 | - | - | 9 | 7.2 |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.7 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 65 | 20 | 55 | 40 | 35 | 80 |
| Future Vol, veh/h | 65 | 20 | 55 | 40 | 35 | 80 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 71 | 22 | 60 | 43 | 38 | 87 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | $\mathbf{1}$ | 4 | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 15 | 105 | 120 | 15 | 30 | 30 |
| Future Vol, veh/h | 15 | 105 | 120 | 15 | 30 | 30 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 16 | 114 | 130 | 16 | 33 | 33 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\uparrow$ | $\uparrow$ |  | 4 |  |
| Traffic Vol, veh/h | 45 | 100 | 120 | 20 | 20 | 75 |
| Future Vol, veh/h | 45 | 100 | 120 | 20 | 20 | 75 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 49 | 109 | 130 | 22 | 22 | 82 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 152 | 0 | - | 0 | 348 | 141 |
| Stage 1 | - | - | - | - | 141 | - |
| Stage 2 | - | - | - | - | 207 | - |
| 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 | 1429 | - | - | - | 649 | 907 |
| Stage 1 | - | - | - | - | 886 | - |
| Stage 2 | - | - | - | - | 828 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1429 | - | - | - | 626 | 907 |
| Mov Cap-2 Maneuver | - | - | - | - | 626 | - |
| Stage 1 | - | - | - | - | 854 | - |
| Stage 2 | - | - | - | - | 828 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 2.4 |  | 0 |  | 10 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1429 | - | - | - | 829 |
| HCM Lane V/C Ratio |  | 0.034 | - | - | - | 0.125 |
| HCM Control Delay (s) |  | 7.6 | 0 | - | - | 10 |
| HCM Lane LOS |  | A | A | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.4 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 个 | b |  |
| Traffic Vol, veh/h | 40 | 85 | 40 | 210 | 180 | 40 |
| Future Vol, veh/h | 40 | 85 | 40 | 210 | 180 | 40 |
| 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 | - | 75 | - | - | - |
| 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 | 43 | 92 | 43 | 228 | 196 | 43 |


| Major/Minor | Minor2 |  | Major1 | Major2 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 532 | 218 | 239 | 0 | - | 0 |  |
| Stage 1 | 218 |  | - | - | - | - |  |
| Stage 2 | 314 |  | - | - | - | - |  |
| 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 | 508 | 822 | 1328 | - | - | - |  |
| Stage 1 | 818 | - | - | - | - | - |  |
| Stage 2 | 741 | - | - | - | - | - |  |
| Platoon blocked, \% |  |  |  | - | - | - | - |
| Mov Cap-1 Maneuver | 492 | 822 | 1328 | - | - | - |  |
| Mov Cap-2 Maneuver | 492 | - | - | - | - | - |  |
| Stage 1 | 792 | - | - | - | - | - |  |
| Stage 2 | 741 | - | - | - | - | - |  |


| Approach | EB | NB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 11.6 | 1.2 | 0 |
| HCM LOS | B |  |  |


| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1328 | -677 | - | - |
| HCM Lane V/C Ratio | 0.033 | -0.201 | - | - |
| HCM Control Delay (s) | 7.8 | -11.6 | - | - |
| HCM Lane LOS | A | - | B | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | 0.7 | - |
| (ven | - |  |  |  |






| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 4.6 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | \& |  |  | * |  |  | \& |  |  | $\dagger$ |  |  |
| Traffic Vol, veh/h | 10 | 25 | 10 | 10 | 20 | 10 | 10 | 15 | 8 | 5 | 8 | 5 |  |
| Future Vol, veh/h | 10 | 25 | 10 | 10 | 20 | 10 | 10 | 15 | 8 | 5 | 8 | 5 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control F | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |  |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |  |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |  |
| Veh in Median Storage, \# | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 11 | 27 | 11 | 11 | 22 | 11 | 11 | 16 | 9 | 5 | 9 | 5 |  |



| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 5.3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | ¢ |  |  | * |  |  | \& |  |  | * |  |  |
| Traffic Vol, veh/h | 3 | 25 | 10 | 8 | 25 | 3 | 13 | 30 | 12 | 3 | 22 | 3 |  |
| Future Vol, veh/h | 3 | 25 | 10 | 8 | 25 | 3 | 13 | 30 | 12 | 3 | 22 | 3 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control Star | 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 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 3 | 27 | 11 | 9 | 27 | 3 | 14 | 33 | 13 | 3 | 24 | 3 |  |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.5 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 10 | 4 | 52 | 7 | 4 | 30 |
| Future Vol, veh/h | 10 | 4 | 52 | 7 | 4 | 30 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 4 | 57 | 8 | 4 | 33 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{r}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 65 | 10 | 25 | 80 | 10 | 20 |
| Future Vol, veh/h | 65 | 10 | 25 | 80 | 10 | 20 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 71 | 11 | 27 | 87 | 11 | 22 |





HCM LOS

| Minor Lane/Major Mvmt | NBL | NBT | NBR EBLn1 EBLn2WBLn1WBLn2 | SBL | SBT | SBR |  |  |
| :--- | :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | - | - | - | - | - | -951 | 1608 | - |
| HCM Lane V/C Ratio | - | - | - | - | - | -0.023 | 0.003 | - |
| HCM Control Delay (s) | - | - | - | 0 | - | - | 8.9 | 7.2 |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.1 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 50 | 35 | 85 | 70 | 25 | 60 |
| Future Vol, veh/h | 50 | 35 | 85 | 70 | 25 | 60 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 54 | 38 | 92 | 76 | 27 | 65 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.9 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{4}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 35 | 75 | 110 | 35 | 15 | 15 |
| Future Vol, veh/h | 35 | 75 | 110 | 35 | 15 | 15 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 38 | 82 | 120 | 38 | 16 | 16 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | 158 | 0 | - | 0 | 278 | 120 |
| Stage 1 | - | - | - | - | 120 | - |
| Stage 2 | - | - | - | - | 158 | - |
| 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 | 1422 | - | - | - | 712 | 931 |
| $\quad$ Stage 1 | - | - | - | - | 905 | - |
| Stage 2 | - | - | - | - | 871 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1422 | - | - | - | 693 | 931 |
| Mov Cap-2 Maneuver | - | - | - | - | 693 | - |
| Stage 1 | - | - | - | - | 881 | - |
| Stage 2 | - | - | - | - | 871 | - |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 2.4 | 0 | 9.6 |
| HCM LOS |  |  | A |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 SBLn2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1422 | - | - | - | 693 | 931 |
| HCM Lane V/C Ratio | 0.027 | - | - | -0.024 | 0.018 |  |
| HCM Control Delay (s) | 7.6 | - | - | - | 10.3 | 8.9 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - | 0.1 | 0.1 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.2 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 40 | 60 | 120 | 30 | 20 | 55 |
| Future Vol, veh/h | 40 | 60 | 120 | 30 | 20 | 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 | - | - | - | - | 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 | 43 | 65 | 130 | 33 | 22 | 60 |


| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | :--- | :--- | :--- | ---: | ---: | :---: |
| Conflicting Flow All | 163 | 0 | - | 0 | 298 | 147 |  |
| Stage 1 | - | - | - | - | 147 | - |  |
| Stage 2 | - | - | - | - | 151 | - |  |
| 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 | 1416 | - | - | - | 693 | 900 |  |
| $\quad$ Stage 1 | - | - | - | - | 880 | - |  |
| Stage 2 | - | - | - | - | 877 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1416 | - | - | - | 671 | 900 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 671 | - |  |
| Stage 1 | - | - | - | - | 852 | - |  |
| Stage 2 | - | - | - | - | 877 | - |  |


|  | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| Approach | 0 | 9.8 |  |
| HCM Control Delay, s | 3 | 0 | A |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1416 | - | - | -825 |
| HCM Lane V/C Ratio | 0.031 | - | - | -0.099 |
| HCM Control Delay (s) | 7.6 | 0 | - | - |
| HCM Lane LOS | A | A | - | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.6 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  | 1 | 个 | F |  |
| Traffic Vol, veh/h | 20 | 105 | 100 | 165 | 150 | 65 |
| Future Vol, veh/h | 20 | 105 | 100 | 165 | 150 | 65 |
| 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 | - | 75 | - | - | - |
| 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 | 22 | 114 | 109 | 179 | 163 | 71 |


| Major/Minor | Minor2 | Major1 |  | Major2 |  |  |
| :--- | ---: | ---: | ---: | :--- | :--- | :--- |
| Conflicting Flow All | 596 | 199 | 234 | 0 | - | 0 |
| $\quad$ Stage 1 | 199 | - | - | - | - | - |
| $\quad$ Stage 2 | 397 | - | - | - | - | - |
| 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 | 842 | 1333 | - | - | - |
| $\quad$ Stage 1 | 835 | - | - | - | - | - |
| $\quad$ Stage 2 | 679 | - | - | - | - | - |
| Platoon blocked, \% |  |  |  | - | - | - |
| Mov Cap-1 Maneuver | 428 | 842 | 1333 | - | - | - |
| Mov Cap-2 Maneuver | 428 | - | - | - | - | - |
| Stage 1 | 767 | - | - | - | - | - |
| Stage 2 | 679 | - | - | - | - | - |
|  |  |  |  |  |  |  |


| Approach | EB | NB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 11.1 | 3 | 0 |

HCM LOS B

| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1333 | - | 729 | - |








| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.6 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | - | Mr |  |
| Traffic Vol, veh/h | 42 | 7 | 2 | 54 | 14 | 7 |
| Future Vol, veh/h | 42 | 7 | 2 | 54 | 14 | 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 | - | - | - | - | 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 | 46 | 8 | 2 | 59 | 15 | 8 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.8 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\mathbf{~}$ | Mr |  |
| Traffic Vol, veh/h | 42 | 7 | 15 | 37 | 19 | 35 |
| Future Vol, veh/h | 42 | 7 | 15 | 37 | 19 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 46 | 8 | 16 | 40 | 21 | 38 |







| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | M |  | $\uparrow$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 15 | 7 | 14 | 8 | 3 | 6 |
| Future Vol, veh/h | 15 | 7 | 14 | 8 | 3 | 6 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 8 | 15 | 9 | 3 | 7 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.1 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{4}$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 7 | 10 | 3 | 67 | 69 | 4 |
| Future Vol, veh/h | 7 | 10 | 3 | 67 | 69 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 11 | 3 | 73 | 75 | 4 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 65 | 0 | 31 | 25 | 0 | 48 |
| Future Vol, veh/h | 65 | 0 | 31 | 25 | 0 | 48 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | - |
| 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 | 71 | 0 | 34 | 27 | 0 | 52 |





| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 2.8 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | $\uparrow$ |  |  | * |  |  | $\uparrow$ |  |  | \& |  |
| Traffic Vol, veh/h | 20 | 0 | 18 | 8 | 0 | 3 | 8 | 43 | 9 | 3 | 77 | 3 |
| Future Vol, veh/h | 20 | 0 | 18 | 8 | 0 | 3 | 8 | 43 | 9 | 3 | 77 | 3 |
| 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 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 0 | 20 | 9 | 0 | 3 | 9 | 47 | 10 | 3 | 84 | 3 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\uparrow$ |  |  | $\neq 1$ |
| Traffic Vol, veh/h | 25 | 5 | 24 | 8 | 2 | 65 |
| Future Vol, veh/h | 25 | 5 | 24 | 8 | 2 | 65 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, $\#$ | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 27 | 5 | 26 | 9 | 2 | 71 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 106 | 31 | 0 | 0 | 35 | 0 |
| Stage 1 | 31 | - | - | - | - | - |
| Stage 2 | 75 | - | - | - | - | - |
| 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 | 892 | 1043 | - | - | 1576 | - |
| Stage 1 | 992 | - | - | - | - | - |
| Stage 2 | 948 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 891 | 1043 | - | - | 1576 | - |
| Mov Cap-2 Maneuver | 891 | - | - | - | - | - |
| Stage 1 | 992 | - | - | - | - | - |
| Stage 2 | 947 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 9.1 |  | 0 |  | 0.2 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 913 | 1576 | - |
| HCM Lane V/C Ratio |  | - | - | 0.036 | 0.001 | - |
| HCM Control Delay (s) |  | - | - | 9.1 | 7.3 | 0 |
| HCM Lane LOS |  | - | - | A | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0.1 | 0 | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 个 |
| Traffic Vol, veh/h | 145 | 5 | 51 | 75 | 10 | 103 |
| Future Vol, veh/h | 145 | 5 | 51 | 75 | 10 | 103 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 158 | 5 | 55 | 82 | 11 | 112 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 6.1 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 25 | 15 | 15 | 10 | 25 | 53 |
| Future Vol, veh/h | 25 | 15 | 15 | 10 | 25 | 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 | - | - | - | - | 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 | 27 | 16 | 16 | 11 | 27 | 58 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 27 | 0 | - | 0 | 92 | 22 |
| Stage 1 | - | - | - | - | 22 | - |
| Stage 2 | - | - | - | - | 70 | - |
| 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 | 1587 | - | - | - | 908 | 1055 |
| Stage 1 | - | - | - | - | 1001 | - |
| Stage 2 | - | - | - | - | 953 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1587 | - | - | - | 893 | 1055 |
| Mov Cap-2 Maneuver | - | - | - | - | 893 | - |
| Stage 1 | - | - | - | - | 984 | - |
| Stage 2 | - | - | - | - | 953 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 4.6 |  | 0 |  | 8.9 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1587 | - | - | - | 997 |
| HCM Lane V/C Ratio |  | 0.017 | - | - | - | 0.085 |
| HCM Control Delay (s) |  | 7.3 | 0 | - | - | 8.9 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.3 |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | F | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 109 | 20 | 106 | 57 | 35 | 213 |
| Future Vol, veh/h | 109 | 20 | 106 | 57 | 35 | 213 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 118 | 22 | 115 | 62 | 38 | 232 |




| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 171 | 0 | - | 0 | 317 | 135 |  |
| Stage 1 | - | - | - | - | 135 | - |  |
| Stage 2 | - | - | - | - | 182 | - |  |
| 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 | - | - | - | 676 | 914 |  |
| Stage 1 | - | - | - | - | 891 | - |  |
| Stage 2 | - | - | - | - | 849 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1406 | - | - | - | 660 | 914 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 660 | - |  |
| Stage 1 | - | - | - | - | 871 | - |  |
| Stage 2 | - | - | - | - | 849 | - |  |
|  |  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |  |
| HCM Control Delay, s | 1.7 |  | 0 |  | 10.4 |  |  |
| HCM LOS |  |  |  |  | B |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 SBLn2 |  |  |  |
| Capacity (veh/h) |  | 1406 | - | - | - | 660 | 914 |
| HCM Lane V/C Ratio |  | 0.023 | - | - | - | 0.128 | 0.083 |
| HCM Control Delay (s) |  | 7.6 | - | - | - | 11.3 | 9.3 |
| HCM Lane LOS |  | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.4 | 0.3 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | A | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 47 | 148 | 138 | 48 | 91 | 79 |
| Future Vol, veh/h | 47 | 148 | 138 | 48 | 91 | 79 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | - | 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 | 51 | 161 | 150 | 52 | 99 | 86 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 202 | 0 | - | 0 | 439 | 176 |
| Stage 1 | - | - | - | - | 176 | - |
| Stage 2 | - | - | - | - | 263 | - |
| 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 | 1370 | - | - | - | 575 | 867 |
| Stage 1 | - | - | - | - | 855 | - |
| Stage 2 | - | - | - | - | 781 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1370 | - | - | - | 554 | 867 |
| Mov Cap-2 Maneuver | - | - | - | - | 554 | - |
| Stage 1 | - | - | - | - | 823 | - |
| Stage 2 | - | - | - | - | 781 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 1.9 |  | 0 |  | 12.5 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1370 | - | - | - | 666 |
| HCM Lane V/C Ratio |  | 0.037 | - | - | - | 0.277 |
| HCM Control Delay (s) |  | 7.7 | - | - | - | 12.5 |
| HCM Lane LOS |  | A | - | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 1.1 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  | 1 | 个 | b |  |
| Traffic Vol, veh/h | 60 | 164 | 70 | 210 | 180 | 48 |
| Future Vol, veh/h | 60 | 164 | 70 | 210 | 180 | 48 |
| 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 | - | 75 | - | - | - |
| 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 | 65 | 178 | 76 | 228 | 196 | 52 |



| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 34.6 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | 4 | 「 | ${ }^{1}$ | 4 | 「 | ${ }^{*}$ | $\uparrow$ |  | ${ }^{7}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 100 | 235 | 50 | 20 | 225 | 20 | 150 | 43 | 45 | 35 | 55 | 232 |
| Future Vol, veh/h | 100 | 235 | 50 | 20 | 225 | 20 | 150 | 43 | 45 | 35 | 55 | 232 |
| 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 | 200 | - | 200 | 200 | - | 200 | 150 | - | - | 150 | - | - |
| Veh in Median Storage, | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 109 | 255 | 54 | 22 | 245 | 22 | 163 | 47 | 49 | 38 | 60 | 252 |


| Major/Minor | Major1 | Major2 |  |  |  | Minor1 |  |  | Minor2 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 267 | 0 | 0 | 309 | 0 | 0 | 929 | 784 | 255 | 837 | 816 | 245 |  |
| Stage 1 | - | - | - | - | - | - | 473 | 473 | - | 289 | 289 |  | - |
| Stage 2 | - | - | - | - | - | - | 456 | 311 | - | 548 | 527 |  | - |
| 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 | 1297 | - | - | 1252 | - | - | 248 | 325 | 784 | 286 | 311 | 794 | 4 |
| Stage 1 | - | - | - | - | - | - | 572 | 558 | - | 719 | 673 |  | - |
| Stage 2 | - | - | - | - | - | - | 584 | 658 | - | 521 | 528 |  | - |
| Platoon blocked, \% |  | - | - |  | - | - |  |  |  |  |  |  |  |
| Mov Cap-1 Maneuver | 1297 | - | - | 1252 | - | - | ~ 131 | 293 | 784 | 218 | 280 | 794 | 94 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | ~ 131 | 293 | - | 218 | 280 |  | - |
| Stage 1 | - | - | - | - | - | - | 524 | 511 | - | 659 | 661 |  | - |
| Stage 2 | - | - | - | - | - | - | 356 | 646 | - | 407 | 484 |  | - |


| Approach | EB | WB | NB | SB |
| :--- | ---: | ---: | ---: | ---: |
| HCM Control Delay, s | 2.1 | 0.6 | 146.5 | 18.7 |
| HCM LOS |  |  | F | C |


| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 SBLn2 |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 131 | 431 | 1297 | - | - | 1252 | - | - | 218 | 587 |
| HCM Lane V/C Ratio | 1.245 | 0.222 | 0.084 | - | - | 0.017 | - | -0.175 | 0.531 |  |
| HCM Control Delay (s) | 223.2 | 15.7 | 8 | - | - | 7.9 | - | - | 25 | 17.9 |
| HCM Lane LOS | F | C | A | - | - | A | - | - | D | C |
| HCM 95th \%tile Q(veh) | 10.1 | 0.8 | 0.3 | - | - | 0.1 | - | - | 0.6 | 3.1 |

## Notes

```
~:Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon
```






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.1 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | -1 | Mr |  |
| Traffic Vol, veh/h | 60 | 15 | 7 | 52 | 9 | 3 |
| Future Vol, veh/h | 60 | 15 | 7 | 52 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 65 | 16 | 8 | 57 | 10 | 3 |


| Major/Minor M | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 81 | 0 | 146 | 73 |
| Stage 1 | - | - | - | - | 73 | - |
| Stage 2 | - | - | - | - | 73 | - |
| 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 | - | - | 1517 | - | 846 | 989 |
| Stage 1 | - | - | - | - | 950 | - |
| Stage 2 | - | - | - | - | 950 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1517 | - | 842 | 989 |
| Mov Cap-2 Maneuver | - | - | - | - | 842 | - |
| Stage 1 | - | - | - | - | 950 | - |
| Stage 2 | - | - | - | - | 945 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 0.9 |  | 9.2 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 EBT EBR WBL WBT |  |  |  |  |
| Capacity (veh/h) |  | 874 | - | - | 1517 | - |
| HCM Lane V/C Ratio |  | 0.015 | - | - | 0.005 | - |
| HCM Control Delay (s) |  | 9.2 | - | - | 7.4 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0 | - | - | 0 | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\mathbf{-}$ | Mr |  |
| Traffic Vol, veh/h | 43 | 20 | 40 | 47 | 12 | 25 |
| Future Vol, veh/h | 43 | 20 | 40 | 47 | 12 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 47 | 22 | 43 | 51 | 13 | 27 |


| Major/Minor | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 69 | 0 | 195 | 58 |
| Stage 1 | - | - | - | - | 58 | - |
| Stage 2 | - | - | - | - | 137 | - |
| 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 | - | - | 1532 | - | 794 | 1008 |
| Stage 1 | - | - | - | - | 965 | - |
| Stage 2 | - | - | - | - | 890 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1532 | - | 771 | 1008 |
| Mov Cap-2 Maneuver | - | - | - | - | 771 | - |
| Stage 1 | - | - | - | - | 965 | - |
| Stage 2 | - | - | - | - | 864 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 3.4 |  | 9.1 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 | EBT | EBR | WBL WBT |  |
| Capacity (veh/h) |  | 917 | - | - | 1532 | - |
| HCM Lane V/C Ratio |  | 0.044 | - |  | 0.028 | - |
| HCM Control Delay (s) |  | 9.1 | - | - | 7.4 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | 0.1 | - |






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.2 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | M |  | 1 |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 15 | 4 | 8 | 20 | 7 | 15 |
| Future Vol, veh/h | 15 | 4 | 8 | 20 | 7 | 15 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 4 | 9 | 22 | 8 | 16 |


| Major/Minor M | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 52 | 20 | 0 | 0 | 31 | 0 |
| Stage 1 | 20 | - | - | - | - | - |
| Stage 2 | 32 | - | - | - | - | - |
| 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 | 1058 | - | - | 1582 | - |
| Stage 1 | 1003 | - | - | - | - | - |
| Stage 2 | 991 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 952 | 1058 | - | - | 1582 | - |
| Mov Cap-2 Maneuver | 952 | - | - | - | - | - |
| Stage 1 | 1003 | - | - | - | - | - |
| Stage 2 | 986 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 8.8 |  | 0 |  | 2.3 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 973 | 1582 | - |
| HCM Lane V/C Ratio |  | - | - | 0.021 | 0.005 | - |
| HCM Control Delay (s) |  | - | - | 8.8 | 7.3 | 0 |
| HCM Lane LOS |  | - | - | A | A | A |
| HCM 95th \%tile Q(veh) |  | - | - | 0.1 | 0 | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{T}$ | F |  |
| Traffic Vol, veh/h | 5 | 6 | 10 | 85 | 74 | 8 |
| Future Vol, veh/h | 5 | 6 | 10 | 85 | 74 | 8 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 7 | 11 | 92 | 80 | 9 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{T}$ | F |  |
| Traffic Vol, veh/h | 5 | 7 | 10 | 95 | 72 | 8 |
| Future Vol, veh/h | 5 | 7 | 10 | 95 | 72 | 8 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 8 | 11 | 103 | 78 | 9 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{4}$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 5 | 7 | 10 | 95 | 70 | 9 |
| Future Vol, veh/h | 5 | 7 | 10 | 95 | 70 | 9 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 8 | 11 | 103 | 76 | 10 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.1 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\mathbf{\uparrow}$ |
| Traffic Vol, veh/h | 45 | 0 | 49 | 70 | 0 | 37 |
| Future Vol, veh/h | 45 | 0 | 49 | 70 | 0 | 37 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | - |
| 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 | 49 | 0 | 53 | 76 | 0 | 40 |


| Major/Minor | Minor1 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 131 | 91 | 0 | 0 | 129 | 0 |
| Stage 1 | 91 | - | - | - | - | - |
| Stage 2 | 40 | - | - | - | - | - |
| 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 | 863 | 967 | - | - | 1457 | - |
| Stage 1 | 933 | - | - | - | - | - |
| Stage 2 | 982 | - | - | - | - | - |
| Platoon blocked, \% |  |  | - | - |  | - |
| Mov Cap-1 Maneuver | 863 | 967 | - | - | 1457 | - |
| Mov Cap-2 Maneuver | 863 | - | - | - | - | - |
| Stage 1 | 933 | - | - | - | - | - |
| Stage 2 | 982 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | WB |  | NB |  | SB |  |
| HCM Control Delay, s | 9.4 |  | 0 |  | 0 |  |
| HCM LOS | A |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBT | NBRWBLn1 |  | SBL | SBT |
| Capacity (veh/h) |  | - | - | 863 | 1457 | - |
| HCM Lane V/C Ratio |  | - | - | 0.057 | - | - |
| HCM Control Delay (s) |  | - | - | 9.4 | 0 | - |
| HCM Lane LOS |  | - | - | A | A | - |
| HCM 95th \%tile Q(veh) |  | - |  | 0.2 | 0 | - |






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.2 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 15 | 3 | 70 | 25 | 5 | 45 |
| Future Vol, veh/h | 15 | 3 | 70 | 25 | 5 | 45 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 3 | 76 | 27 | 5 | 49 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 4 |
| Traffic Vol, veh/h | 105 | 10 | 109 | 140 | 10 | 72 |
| Future Vol, veh/h | 105 | 10 | 109 | 140 | 10 | 72 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 114 | 11 | 118 | 152 | 11 | 78 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 69 | 20 | 15 | 27 | 17 | 40 |
| Future Vol, veh/h | 69 | 20 | 15 | 27 | 17 | 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 | - | - | - | - | 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 | 75 | 22 | 16 | 29 | 18 | 43 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 45 | 0 | - | 0 | 203 | 31 |
| Stage 1 | - | - | - | - | 31 | - |
| Stage 2 | - | - | - | - | 172 | - |
| 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 | 1563 | - | - | - | 786 | 1043 |
| Stage 1 | - | - | - | - | 992 | - |
| Stage 2 | - | - | - | - | 858 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1563 | - | - | - | 747 | 1043 |
| Mov Cap-2 Maneuver | - | - | - | - | 747 | - |
| Stage 1 | - | - | - | - | 943 | - |
| Stage 2 | - | - | - | - | 858 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 5.8 |  | 0 |  | 9.1 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1563 | - | - | - | 933 |
| HCM Lane V/C Ratio |  | 0.048 | - | - | - | 0.066 |
| HCM Control Delay (s) |  | 7.4 | 0 | - | - | 9.1 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.2 |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.5 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 80 | 35 | 229 | 118 | 25 | 152 |
| Future Vol, veh/h | 80 | 35 | 229 | 118 | 25 | 152 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 87 | 38 | 249 | 128 | 27 | 165 |



| Intersection |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh 3.5 |  |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | ${ }^{4}$ | 4 | 4 | 「 | ${ }^{7}$ | 「 |
| Traffic Vol, veh/h | 78 | 80 | 113 | 86 | 48 | 42 |
| Future Vol, veh/h | 78 | 80 | 113 | 86 | 48 | 42 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control F | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 85 | 87 | 123 | 93 | 52 | 46 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 216 | 0 | - | 0 | 380 | 123 |  |
| Stage 1 | - | - | - | - | 123 | - |  |
| Stage 2 | - | - | - | - | 257 | - |  |
| 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 | 1354 | - | - | - | 622 | 928 |  |
| Stage 1 | - | - | - | - | 902 | - |  |
| Stage 2 | - | - | - | - | 786 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1354 | - | - | - | 583 | 928 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 583 | - |  |
| Stage 1 | - | - | - | - | 845 | - |  |
| Stage 2 | - | - | - | - | 786 | - |  |
|  |  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |  |
| HCM Control Delay, s | 3.9 |  | 0 |  | 10.5 |  |  |
| HCM LOS |  |  |  |  | B |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 SBLn2 |  |  |  |
| Capacity (veh/h) |  | 1354 | - | - | - | 583 | 928 |
| HCM Lane V/C Ratio |  | 0.063 | - | - | - | 0.089 | 0.049 |
| HCM Control Delay (s) |  | 7.8 | - | - | - | 11.8 | 9.1 |
| HCM Lane LOS |  | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.3 | 0.2 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | 1 | 4 | $\mathbf{F}$ |  | M |  |
| Traffic Vol, veh/h | 45 | 93 | 171 | 106 | 69 | 58 |
| Future Vol, veh/h | 45 | 93 | 171 | 106 | 69 | 58 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | - | 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 | 49 | 101 | 186 | 115 | 75 | 63 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.3 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 4 | $\mathbf{F}$ |  |
| Traffic Vol, veh/h | 34 | 159 | 185 | 165 | 150 | 86 |
| Future Vol, veh/h | 34 | 159 | 185 | 165 | 150 | 86 |
| 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 | - | 75 | - | - | - |
| 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 | 37 | 173 | 201 | 179 | 163 | 93 |


| Major/Minor M | Minor2 |  | Major1 |  | Major2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 791 | 210 | 256 | 0 | - | 0 |
| Stage 1 | 210 | - | - | - | - | - |
| Stage 2 | 581 | - | - | - | - | - |
| 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 | 358 | 830 | 1309 | - | - | - |
| Stage 1 | 825 | - | - | - | - | - |
| Stage 2 | 559 | - | - | - | - | - |
| Platoon blocked, \% |  |  |  | - | - | - |
| Mov Cap-1 Maneuver | 303 | 830 | 1309 | - | - | - |
| Mov Cap-2 Maneuver | 303 | - | - | - | - | - |
| Stage 1 | 698 | - | - | - | - | - |
| Stage 2 | 559 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | NB |  | SB |  |
| HCM Control Delay, s | 13.4 |  | 4.4 |  | 0 |  |
| HCM LOS | B |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBL | NBT EBLn1 |  | SBT | SBR |
| Capacity (veh/h) |  | 1309 | - | 635 | - | - |
| HCM Lane V/C Ratio |  | 0.154 | - | 0.33 | - | - |
| HCM Control Delay (s) |  | 8.2 | - | 13.4 | - | - |
| HCM Lane LOS |  | A | - | B | - | - |
| HCM 95th \%tile Q(veh) |  | 0.5 | - | 1.4 | - | - |


| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 95.8 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{*}$ | 4 | 「 | ${ }^{7}$ | 4 | 「 | ${ }^{1}$ | $\uparrow$ |  | ${ }^{7}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 251 | 335 | 170 | 45 | 300 | 40 | 100 | 56 | 30 | 25 | 49 | 158 |
| Future Vol, veh/h | 251 | 335 | 170 | 45 | 300 | 40 | 100 | 56 | 30 | 25 | 49 | 158 |
| 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 | 200 | - | 200 | 200 | - | 200 | 150 | - | - | 150 | - | - |
| Veh in Median Storage, | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 273 | 364 | 185 | 49 | 326 | 43 | 109 | 61 | 33 | 27 | 53 | 172 |



| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 SBLn2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 34 | 150 | 1190 | - | -1021 | - | -14 | 264 |  |
| HCM Lane V/C Ratio | 3.197 | 0.623 | 0.229 | - | -0.048 | - | -0.618 | 0.852 |  |
| HCM Control Delay (s) | $\$ 1235$ | 62.2 | 8.9 | - | - | 8.7 | - | -174.4 | 65 |
| HCM Lane LOS | F | F | A | - | - | A | - | - | F |
| HCM 95th \%tile Q(veh) | 12.6 | 3.4 | 0.9 | - | - | 0.2 | - | - | 2.3 |

## Notes

```
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon
```




| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 5.7 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | ¢ |  |  | $\uparrow$ |  |  | $\uparrow$ |  |  | $\uparrow$ |  |  |
| Traffic Vol, veh/h | 10 | 20 | 15 | 15 | 25 | 10 | 15 | 10 | 10 | 15 | 25 | 15 |  |
| Future Vol, veh/h | 10 | 20 | 15 | 15 | 25 | 10 | 15 | 10 | 10 | 15 | 25 | 15 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control F | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |  |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |  |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |  |
| Veh in Median Storage, \# | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |  |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 11 | 22 | 16 | 16 | 27 | 11 | 16 | 11 | 11 | 16 | 27 | 16 |  |




| Major/Minor | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 48 | 0 | 105 | 46 |
| Stage 1 | - | - | - | - | 46 | - |
| Stage 2 | - | - | - | - | 59 | - |
| 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 | - | - | 1559 | - | 893 | 1023 |
| Stage 1 | - | - | - | - | 976 | - |
| Stage 2 | - | - | - | - | 964 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1559 | - | 890 | 1023 |
| Mov Cap-2 Maneuver | - | - | - | - | 890 | - |
| Stage 1 | - | - | - | - | 976 | - |
| Stage 2 | - | - | - | - | 961 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 0.7 |  | 8.8 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 | EBT | EBR | WBL WBT |  |
| Capacity (veh/h) |  | 952 | - | - | 1559 | - |
| HCM Lane V/C Ratio |  | 0.011 | - |  | 0.003 | - |
| HCM Control Delay (s) |  | 8.8 | - | - | 7.3 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0 | - | - | 0 | - |






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 6.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | -1 | F |  |
| Traffic Vol, veh/h | 5 | 50 | 20 | 5 | 5 | 5 |
| Future Vol, veh/h | 5 | 50 | 20 | 5 | 5 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 54 | 22 | 5 | 5 | 5 |



| Intersection |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh 3.3 |  |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ${ }_{1}$ | F | 4 | 「 | ${ }_{1}$ | 4 |
| Traffic Vol, veh/h | 85 | 10 | 50 | 60 | 10 | 90 |
| Future Vol, veh/h | 85 | 10 | 50 | 60 | 10 | 90 |
| 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 | - | 150 | 150 | - |
| 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 | 92 | 11 | 54 | 65 | 11 | 98 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.5 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{1}$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 10 | 50 | 20 | 15 | 35 | 20 |
| Future Vol, veh/h | 10 | 50 | 20 | 15 | 35 | 20 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 54 | 22 | 16 | 38 | 22 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.4 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\uparrow$ |
| Traffic Vol, veh/h | 10 | 5 | 40 | 10 | 5 | 50 |
| Future Vol, veh/h | 10 | 5 | 40 | 10 | 5 | 50 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 5 | 43 | 11 | 5 | 54 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.7 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{4}$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 10 | 50 | 20 | 25 | 80 | 5 |
| Future Vol, veh/h | 10 | 50 | 20 | 25 | 80 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 54 | 22 | 27 | 87 | 5 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 4 |
| Traffic Vol, veh/h | 150 | 10 | 100 | 100 | 25 | 150 |
| Future Vol, veh/h | 150 | 10 | 100 | 100 | 25 | 150 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 163 | 11 | 109 | 109 | 27 | 163 |







| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 175 | 50 | 150 | 100 | 75 | 225 |
| Future Vol, veh/h | 175 | 50 | 150 | 100 | 75 | 225 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 190 | 54 | 163 | 109 | 82 | 245 |




| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | :---: |
| Conflicting Flow All | 217 | 0 | - | 0 | 380 | 190 |  |
| Stage 1 | - | - | - | - | 190 | - |  |
| Stage 2 | - | - | - | - | 190 | - |  |
| 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 | 1353 | - | - | - | 622 | 852 |  |
| $\quad$ Stage 1 | - | - | - | - | 842 | - |  |
| Stage 2 | - | - | - | - | 842 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1353 | - | - | - | 610 | 852 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 610 | - |  |
| Stage 1 | - | - | - | - | 825 | - |  |
| Stage 2 | - | - | - | - | 842 | - |  |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 1.3 | 0 | 10.5 |
| HCM LOS |  |  | B |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 SBLn2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1353 | - | - | - | 610 | 852 |
| HCM Lane V/C Ratio | 0.02 | - | - | -0.089 | 0.064 |  |
| HCM Control Delay (s) | 7.7 | - | - | - | 11.5 | 9.5 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - | 0.3 | 0.2 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.3 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\neq$ | $\uparrow$ |  | Mr |  |
| Traffic Vol, veh/h | 50 | 125 | 150 | 25 | 25 | 80 |
| Future Vol, veh/h | 50 | 125 | 150 | 25 | 25 | 80 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | - | 0 | 0 | - | 0 | - |
| Grade, \% | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 136 | 163 | 27 | 27 | 87 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 190 | 0 | - | 0 | 421 | 177 |
| Stage 1 | - | - | - | - | 177 | - |
| Stage 2 | - | - | - | - | 244 | - |
| 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 | 1384 | - | - | - | 589 | 866 |
| Stage 1 | - | - | - | - | 854 | - |
| Stage 2 | - | - | - | - | 797 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1384 | - | - | - | 564 | 866 |
| Mov Cap-2 Maneuver | - | - | - | - | 564 | - |
| Stage 1 | - | - | - | - | 818 | - |
| Stage 2 | - | - | - | - | 797 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 2.2 |  | 0 |  | 10.5 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1384 | - | - | - | 768 |
| HCM Lane V/C Ratio |  | 0.039 | - | - | - | 0.149 |
| HCM Control Delay (s) |  | 7.7 | 0 | - | - | 10.5 |
| HCM Lane LOS |  | A | A | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | - | 0.5 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 个 | b |  |
| Traffic Vol, veh/h | 50 | 100 | 50 | 225 | 200 | 50 |
| Future Vol, veh/h | 50 | 100 | 50 | 225 | 200 | 50 |
| 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 | - | 75 | - | - | - |
| 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 | 54 | 109 | 54 | 245 | 217 | 54 |





| Approach | EB | WB | NB | SB |
| :--- | ---: | ---: | ---: | ---: |
| HCM Control Delay, s | 2.4 | 0.7 | $\$ 1740.2$ | 102.4 |
| HCM LOS |  |  | F | F |


| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 | SBLn2 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 38 | 316 | 1234 | - | -1162 | - | -162 | 353 |  |
| HCM Lane V/C Ratio | 6.865 | 0.533 | 0.132 | - | -0.028 | - | -0.566 | 1.078 |  |
| HCM Control Delay (s) | $\$ 2845.6$ | 28.7 | 8.4 | - | - | 8.2 | - | - | 83 |

## Notes

```
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon
```






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\uparrow$ | Mr |  |
| Traffic Vol, veh/h | 50 | 5 | 5 | 55 | 5 | 5 |
| Future Vol, veh/h | 50 | 5 | 5 | 55 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, $\%$ | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 5 | 5 | 60 | 5 | 5 |


| Major/Minor | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 59 | 0 | 127 | 57 |
| Stage 1 | - | - | - | - | 57 | - |
| Stage 2 | - | - | - | - | 70 | - |
| 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 | - | - | 1545 | - | 868 | 1009 |
| Stage 1 | - | - | - | - | 966 | - |
| Stage 2 | - | - | - | - | 953 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1545 | - | 865 | 1009 |
| Mov Cap-2 Maneuver | - | - | - | - | 865 | - |
| Stage 1 | - | - | - | - | 966 | - |
| Stage 2 | - | - | - | - | 950 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 0.6 |  | 8.9 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 | EBT | EBR | WBL WBT |  |
| Capacity (veh/h) |  | 931 | - | - | 1545 | - |
| HCM Lane V/C Ratio |  | 0.012 | - |  | 0.004 | - |
| HCM Control Delay (s) |  | 8.9 | - | - | 7.3 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0 | - | - | 0 | - |






| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 6.4 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\uparrow$ | a |  |
| Traffic Vol, veh/h | 5 | 20 | 50 | 5 | 5 | 5 |
| Future Vol, veh/h | 5 | 20 | 50 | 5 | 5 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 22 | 54 | 5 | 5 | 5 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{7}$ | 4 |
| Traffic Vol, veh/h | 65 | 10 | 100 | 100 | 10 | 75 |
| Future Vol, veh/h | 65 | 10 | 100 | 100 | 10 | 75 |
| 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 | - | 150 | 150 | - |
| 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 | 71 | 11 | 109 | 109 | 11 | 82 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.7 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{4}$ | $\mathbf{7}$ |  |
| Traffic Vol, veh/h | 20 | 20 | 50 | 35 | 20 | 10 |
| Future Vol, veh/h | 20 | 20 | 50 | 35 | 20 | 10 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 22 | 22 | 54 | 38 | 22 | 11 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.7 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | Mr |  | $\mathbf{F}$ |  |  | $\mathbf{\uparrow}$ |
| Traffic Vol, veh/h | 15 | 5 | 55 | 10 | 5 | 35 |
| Future Vol, veh/h | 15 | 5 | 55 | 10 | 5 | 35 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | 0 | - | - | 0 |
| Grade, \% | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 16 | 5 | 60 | 11 | 5 | 38 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.6 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 4 |
| Traffic Vol, veh/h | 100 | 25 | 175 | 150 | 15 | 125 |
| Future Vol, veh/h | 100 | 25 | 175 | 150 | 15 | 125 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 109 | 27 | 190 | 163 | 16 | 136 |







| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.1 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{1}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{7}$ | $\mathbf{4}$ |
| Traffic Vol, veh/h | 125 | 75 | 250 | 100 | 50 | 175 |
| Future Vol, veh/h | 125 | 75 | 250 | 100 | 50 | 175 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 136 | 82 | 272 | 109 | 54 | 190 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.2 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | $\mathbf{4}$ | $\mathbf{4}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{7}$ | $\mathbf{7}$ |
| Traffic Vol, veh/h | 50 | 100 | 175 | 50 | 25 | 25 |
| Future Vol, veh/h | 50 | 100 | 175 | 50 | 25 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 54 | 109 | 190 | 54 | 27 | 27 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 244 | 0 | - | 0 | 407 | 190 |  |
| Stage 1 | - | - | - | - | 190 | - |  |
| Stage 2 | - | - | - | - | 217 | - |  |
| 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 | 1322 | - | - | - | 600 | 852 |  |
| Stage 1 | - | - | - | - | 842 | - |  |
| Stage 2 | - | - | - | - | 819 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1322 | - | - | - | 575 | 852 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 575 | - |  |
| Stage 1 | - | - | - | - | 807 | - |  |
| Stage 2 | - | - | - | - | 819 | - |  |
|  |  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |  |
| HCM Control Delay, s | 2.6 |  | 0 |  | 10.5 |  |  |
| HCM LOS |  |  |  |  | B |  |  |
|  |  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 SBLn2 |  |  |  |
| Capacity (veh/h) |  | 1322 | - | - | - | 575 | 852 |
| HCM Lane V/C Ratio |  | 0.041 | - | - | - | 0.047 | 0.032 |
| HCM Control Delay (s) |  | 7.8 | - | - | - | 11.6 | 9.4 |
| HCM Lane LOS |  | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - |  | 0.1 | 0.1 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\neq$ | $\uparrow$ |  | Mr |  |
| Traffic Vol, veh/h | 50 | 75 | 150 | 35 | 20 | 55 |
| Future Vol, veh/h | 50 | 75 | 150 | 35 | 20 | 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 | - | - | - | - | 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 | 54 | 82 | 163 | 38 | 22 | 60 |


| Major/Minor | Major1 | Major2 |  | Minor2 |  |  |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Conflicting Flow All | 201 | 0 | - | 0 | 372 | 182 |
| Stage 1 | - | - | - | - | 182 | - |
| Stage 2 | - | - | - | - | 190 | - |
| 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 | 1371 | - | - | - | 629 | 861 |
| $\quad$ Stage 1 | - | - | - | - | 849 | - |
| Stage 2 | - | - | - | - | 842 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1371 | - | - | - | 603 | 861 |
| Mov Cap-2 Maneuver | - | - | - | - | 603 | - |
| Stage 1 | - | - | - | - | 814 | - |
| Stage 2 | - | - | - | - | 842 | - |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 3.1 | 0 | 10.2 |
| HCM LOS |  |  | B |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |  |
| :--- | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1371 | - | - | -773 |  |
| HCM Lane V/C Ratio | 0.04 | - | - | -0.105 |  |
| HCM Control Delay (s) | 7.7 | 0 | - | -10.2 |  |
| HCM Lane LOS | A | A | - | - | B |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - | 0.4 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.1 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | $\mathbf{4}$ |  |  | 个 | b |  |
| Traffic Vol, veh/h | 25 | 125 | 125 | 175 | 175 | 75 |
| Future Vol, veh/h | 25 | 125 | 125 | 175 | 175 | 75 |
| 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 | - | 75 | - | - | - |
| 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 | 27 | 136 | 136 | 190 | 190 | 82 |



| Approach | EB | NB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 12.1 | 3.4 | 0 |
| HCM LOS | B |  |  |


| Minor Lane/Major Mvmt | NBL | NBT EBLn1 | SBT | SBR |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1291 | -673 | - | - |
| HCM Lane V/C Ratio | 0.105 | -0.242 | - | - |
| HCM Control Delay (s) | 8.1 | -12.1 | - | - |
| HCM Lane LOS | A | - | B | - |
| HCM 95th \%tile Q(veh) | 0.4 | - | 0.9 | - |
| (ven | - |  |  |  |


| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 1.3 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{7}$ | 4 | 「 | ${ }^{7}$ | 4 | 「 | ${ }^{7}$ | $\uparrow$ |  | ${ }^{7}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 200 | 410 | 270 | 80 | 370 | 50 | 160 | 100 | 50 | 25 | 125 | 150 |
| Future Vol, veh/h | 200 | 410 | 270 | 80 | 370 | 50 | 160 | 100 | 50 | 25 | 125 | 150 |
| 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 | 200 | - | 200 | 200 | - | 200 | 150 | - | - | 150 | - | - |
| Veh in Median Storage, \# | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 217 | 446 | 293 | 87 | 402 | 54 | 174 | 109 | 54 | 27 | 136 | 163 |


| Major/Minor | Major1 |  |  | Major2 |  |  | Minor1 |  |  | Minor2 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 456 | 0 | 0 | 739 | 0 | 0 | 1633 | 1510 | 446 | 1684 | 1749 | 402 |  |
| Stage 1 | - | - | - | - | - | - | 880 | 880 | - | 576 | 576 | - |  |
| Stage 2 | - | - | - | - | - | - | 753 | 630 | - | 1108 | 1173 | - |  |
| 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 | 1105 | - | - | 867 | - | - | ~ 81 | 120 | 612 | 75 | -86 | 648 |  |
| Stage 1 | - | - | - | - | - | - | 342 | 365 |  | 503 | 502 | - |  |
| Stage 2 | - | - | - | - | - | - | 402 | 475 | - | 255 | 266 | - |  |
| Platoon blocked, \% |  | - | - |  | - | - |  |  |  |  |  |  |  |
| Mov Cap-1 Maneuver | 1105 | - | - | 867 | - | - | - | ~ 87 | 612 | - | ~62 | 648 |  |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | $\sim 87$ | - | - | ~62 | - |  |
| Stage 1 | - | - | - | - | - | - | 275 | 293 | - | 404 | 452 | - |  |
| Stage 2 | - | - | - | - | - | - | 189 | 428 | - | 117 | 214 | - |  |


| Approach | EB | WB | NB | SB |
| :--- | :---: | :---: | :---: | :---: |
| HCM Control Delay, s | 2.1 | 1.5 |  |  |

HCM LOS

| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 SBLn2 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | -122 | 1105 | - | - | 867 | - | - | -122 |
| HCM Lane V/C Ratio | -1.336 | 0.197 | - | - | 0.1 | - | - | -1.45 |
| HCM Control Delay (s) | -263.4 | 9.1 | - | - | 9.6 | - | - | $\$ 733.6$ |
| HCM Lane LOS | - | F | A | - | - | A | - | - |
| HCM 95th \%tile Q(veh) | -10.8 | 0.7 | - | - | 0.3 | - | - | - |

## Notes

```
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon
```




1: Penrith Road \& E. 38th Avenue



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.1 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | F |  |  | $\mathbf{4}$ | Mr |  |
| Traffic Vol, veh/h | 47 | 12 | 7 | 64 | 19 | 12 |
| Future Vol, veh/h | 47 | 12 | 7 | 64 | 19 | 12 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 51 | 13 | 8 | 70 | 21 | 13 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.3 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\mathbf{7}$ | Mr |  |
| Traffic Vol, veh/h | 52 | 7 | 15 | 52 | 19 | 35 |
| Future Vol, veh/h | 52 | 7 | 15 | 52 | 19 | 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 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 57 | 8 | 16 | 57 | 21 | 38 |


| Major/Minor | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 65 | 0 | 150 | 61 |
| Stage 1 | - | - | - | - | 61 | - |
| Stage 2 | - | - | - | - | 89 | - |
| 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 | - | - | 1537 | - | 842 | 1004 |
| Stage 1 | - | - | - | - | 962 | - |
| Stage 2 | - | - | - | - | 934 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1537 | - | 833 | 1004 |
| Mov Cap-2 Maneuver | - | - | - | - | 833 | - |
| Stage 1 | - | - | - | - | 962 | - |
| Stage 2 | - | - | - | - | 924 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 1.6 |  | 9.1 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 | EBT | EBR | WBL WBT |  |
| Capacity (veh/h) |  | 936 | - | - | 1537 | - |
| HCM Lane V/C Ratio |  | 0.063 | - |  | 0.011 | - |
| HCM Control Delay (s) |  | 9.1 | - | - | 7.4 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | 0 | - |








| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{r}$ | $\mathbf{r}$ | $\mathbf{4}$ | $\mathbf{r}$ | $\mathbf{1}$ | 个 |
| Traffic Vol, veh/h | 150 | 10 | 56 | 85 | 10 | 103 |
| Future Vol, veh/h | 150 | 10 | 56 | 85 | 10 | 103 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 163 | 11 | 61 | 92 | 11 | 112 |







| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 3.4 |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |  |
| Lane Configurations |  | \& |  |  | $\uparrow$ |  |  | * |  |  | * |  |  |
| Traffic Vol, veh/h | 10 | 0 | 50 | 25 | 0 | 5 | 20 | 49 | 8 | 2 | 145 | 5 |  |
| Future Vol, veh/h | 10 | 0 | 50 | 25 | 0 | 5 | 20 | 49 | 8 | 2 | 145 | 5 |  |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| Sign Control Star | 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 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |  |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |  |
| Mvmt Flow | 11 | 0 | 54 | 27 | 0 | 5 | 22 | 53 | 9 | 2 | 158 | 5 |  |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.9 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 4 |
| Traffic Vol, veh/h | 205 | 10 | 131 | 120 | 25 | 228 |
| Future Vol, veh/h | 205 | 10 | 131 | 120 | 25 | 228 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 223 | 11 | 142 | 130 | 27 | 248 |



| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 3.8 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | ${ }^{7}$ | $\uparrow$ |  | ${ }^{7}$ | $\uparrow$ |  | \% | $\uparrow$ |  | ${ }^{7}$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 37 | 18 | 10 | 38 | 30 | 5 | 5 | 35 | 18 | 10 | 105 | 110 |
| Future Vol, veh/h | 37 | 18 | 10 | 38 | 30 | 5 | 5 | 35 | 18 | 10 | 105 | 110 |
| 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 | 150 | - | - | 150 | - | - | 150 | - | - | 150 | - | - |
| Veh in Median Storage, \# | \# | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, \% | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 40 | 20 | 11 | 41 | 33 | 5 | 5 | 38 | 20 | 11 | 114 | 120 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.8 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\mathbf{4}$ | $\mathbf{F}$ |  | Mr |  |
| Traffic Vol, veh/h | 25 | 20 | 20 | 10 | 25 | 53 |
| Future Vol, veh/h | 25 | 20 | 20 | 10 | 25 | 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 | - | - | - | - | 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 | 27 | 22 | 22 | 11 | 27 | 58 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 33 | 0 | - | 0 | 104 | 28 |
| Stage 1 | - | - | - | - | 28 | - |
| Stage 2 | - | - | - | - | 76 | - |
| 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 | 1579 | - | - | - | 894 | 1047 |
| Stage 1 | - | - | - | - | 995 | - |
| Stage 2 | - | - | - | - | 947 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1579 | - | - | - | 879 | 1047 |
| Mov Cap-2 Maneuver | - | - | - | - | 879 | - |
| Stage 1 | - | - | - | - | 978 | - |
| Stage 2 | - | - | - | - | 947 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 4.1 |  | 0 |  | 9 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1579 | - | - | - | 987 |
| HCM Lane V/C Ratio |  | 0.017 | - | - | - | 0.086 |
| HCM Control Delay (s) |  | 7.3 | 0 | - | - | 9 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - |  | 0.3 |




| Intersection |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 8.8 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | ${ }^{*}$ | 「7 | 4 | 7 | ${ }^{1}$ | 4 |
| Traffic Vol, veh/h | 219 | 50 | 201 | 117 | 75 | 358 |
| Future Vol, veh/h | 219 | 50 | 201 | 117 | 75 | 358 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 238 | 54 | 218 | 127 | 82 | 389 |



| Intersection |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh 4.2 |  |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | ${ }^{*}$ | 4 | 4 | 「 | ${ }^{1}$ | 「 |
| Traffic Vol, veh/h | 40 | 127 | 179 | 43 | 98 | 90 |
| Future Vol, veh/h | 40 | 127 | 179 | 43 | 98 | 90 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control F | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 43 | 138 | 195 | 47 | 107 | 98 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 4.6 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | P | $\mathbf{F}$ |  | M |  |
| Traffic Vol, veh/h | 52 | 173 | 168 | 53 | 96 | 84 |
| Future Vol, veh/h | 52 | 173 | 168 | 53 | 96 | 84 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | - | 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 | 57 | 188 | 183 | 58 | 104 | 91 |


| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | :--- | :--- | :--- | ---: | ---: | :---: |
| Conflicting Flow All | 241 | 0 | - | 0 | 514 | 212 |  |
| Stage 1 | - | - | - | - | 212 | - |  |
| 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 | 1326 | - | - | - | 521 | 828 |  |
| $\quad$ Stage 1 | - | - | - | - | 823 | - |  |
| Stage 2 | - | - | - | - | 750 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1326 | - | - | - | 499 | 828 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 499 | - |  |
| Stage 1 | - | - | - | - | 788 | - |  |
| Stage 2 | - | - | - | - | 750 | - |  |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 1.8 | 0 | 13.6 |
| HCM LOS |  |  | B |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 |
| :--- | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1326 | - | - | -613 |
| HCM Lane V/C Ratio | 0.043 | - | - | -0.319 |
| HCM Control Delay (s) | 7.8 | - | - | -13.6 |
| HCM Lane LOS | A | - | - | - |
| HCM 95th \%tile Q(veh) | 0.1 | - | - | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.5 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  | 1 | 个 | $\uparrow$ |  |
| Traffic Vol, veh/h | 70 | 179 | 80 | 225 | 200 | 58 |
| Future Vol, veh/h | 70 | 179 | 80 | 225 | 200 | 58 |
| 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 | - | 75 | - | - | - |
| 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 | 76 | 195 | 87 | 245 | 217 | 63 |





| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 SBLn2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | - | 253 | 1234 | - | -1162 | - | - | 60 | 345 |
| HCM Lane V/C Ratio | - | 0.7 | 0.185 | - | - | 0.028 | - | -0.906 | 1.66 |
| HCM Control Delay (s) | - | 46.8 | 8.6 | - | - | 8.2 | - | $-201.6 \$ 336.9$ |  |
| HCM Lane LOS | - | E | A | - | - | A | - | - | F |
| HCM 95th \%tile Q(veh) | - | 4.7 | 0.7 | - | - | 0.1 | - | - | 4.2 |

## Notes

$\sim$ : Volume exceeds capacity $\$$ : Delay exceeds 300s $\quad+$ : Computation Not Defined $\quad$ : All major volume in platoon




1: Penrith Road \& E. 38th Avenue



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 1.5 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\mathbf{7}$ | Mr |  |
| Traffic Vol, veh/h | 70 | 20 | 12 | 67 | 14 | 8 |
| Future Vol, veh/h | 70 | 20 | 12 | 67 | 14 | 8 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 76 | 22 | 13 | 73 | 15 | 9 |


| Major/Minor M | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 98 | 0 | 186 | 87 |
| Stage 1 | - | - | - | - | 87 | - |
| Stage 2 | - | - | - | - | 99 | - |
| 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 | - | - | 1495 | - | 803 | 971 |
| Stage 1 | - | - | - | - | 936 | - |
| Stage 2 | - | - | - | - | 925 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1495 | - | 796 | 971 |
| Mov Cap-2 Maneuver | - | - | - | - | 796 | - |
| Stage 1 | - | - | - | - | 936 | - |
| Stage 2 | - | - | - | - | 917 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 1.1 |  | 9.3 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 EBT EBR WBL WBT |  |  |  |  |
| Capacity (veh/h) |  | 852 | - | - | 1495 | - |
| HCM Lane V/C Ratio |  | 0.028 | - | - | 0.009 | - |
| HCM Control Delay (s) |  | 9.3 | - | - | 7.4 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | 0 | - |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 2.9 |  |  |  |  |  |
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
| Lane Configurations | $\uparrow$ |  |  | $\mathbf{- 1}$ | Mr |  |
| Traffic Vol, veh/h | 58 | 20 | 40 | 67 | 12 | 25 |
| Future Vol, veh/h | 58 | 20 | 40 | 67 | 12 | 25 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 63 | 22 | 43 | 73 | 13 | 27 |


| Major/Minor | Major1 |  | Major2 |  | Minor1 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 0 | 0 | 85 | 0 | 233 | 74 |
| Stage 1 | - | - | - | - | 74 | - |
| 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 | - | - | 1512 | - | 755 | 988 |
| Stage 1 | - | - | - | - | 949 | - |
| Stage 2 | - | - | - | - | 870 | - |
| Platoon blocked, \% | - | - |  | - |  |  |
| Mov Cap-1 Maneuver | - | - | 1512 | - | 732 | 988 |
| Mov Cap-2 Maneuver | - | - | - | - | 732 | - |
| Stage 1 | - | - | - | - | 949 | - |
| Stage 2 | - | - | - | - | 844 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | NB |  |
| HCM Control Delay, s | 0 |  | 2.8 |  | 9.3 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBLn1 | EBT | EBR | WBL WBT |  |
| Capacity (veh/h) |  | 887 | - | - | 1512 | - |
| HCM Lane V/C Ratio |  | 0.045 | - |  | 0.029 | - |
| HCM Control Delay (s) |  | 9.3 | - | - | 7.5 | 0 |
| HCM Lane LOS |  | A | - | - | A | A |
| HCM 95th \%tile Q(veh) |  | 0.1 | - | - | 0.1 | - |










| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\mathbf{T}$ | F |  |
| Traffic Vol, veh/h | 5 | 7 | 10 | 95 | 72 | 8 |
| Future Vol, veh/h | 5 | 7 | 10 | 95 | 72 | 8 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 8 | 11 | 103 | 78 | 9 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 0.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | $\uparrow$ | $\uparrow$ |  |
| Traffic Vol, veh/h | 5 | 7 | 10 | 100 | 70 | 9 |
| Future Vol, veh/h | 5 | 7 | 10 | 100 | 70 | 9 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, \# | 0 | - | - | 0 | 0 | - |
| Grade, \% | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 5 | 8 | 11 | 109 | 76 | 10 |



| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{F}$ | $\mathbf{7}$ | 4 |
| Traffic Vol, veh/h | 110 | 10 | 114 | 120 | 10 | 82 |
| Future Vol, veh/h | 110 | 10 | 114 | 120 | 10 | 82 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 120 | 11 | 124 | 130 | 11 | 89 |





| Intersection |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh | 2.7 |  |  |  |  |  |  |  |  |  |  |  |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  | $\uparrow$ |  |  | $\uparrow$ |  |  | $\uparrow$ |  |  | \& |  |
| Traffic Vol, veh/h | 16 | 0 | 14 | 15 | 0 | 5 | 20 | 89 | 10 | 5 | 56 | 17 |
| Future Vol, veh/h | 16 | 0 | 14 | 15 | 0 | 5 | 20 | 89 | 10 | 5 | 56 | 17 |
| 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 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, \% | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 17 | 0 | 15 | 16 | 0 | 5 | 22 | 97 | 11 | 5 | 61 | 18 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{1}$ | 4 |
| Traffic Vol, veh/h | 140 | 25 | 259 | 210 | 15 | 177 |
| Future Vol, veh/h | 140 | 25 | 259 | 210 | 15 | 177 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 152 | 27 | 282 | 228 | 16 | 192 |





| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.3 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  | $\neq$ | 1 |  | 4 |  |
| Traffic Vol, veh/h | 69 | 25 | 20 | 27 | 17 | 40 |
| Future Vol, veh/h | 69 | 25 | 20 | 27 | 17 | 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 | - | - | - | - | 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 | 75 | 27 | 22 | 29 | 18 | 43 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 51 | 0 | - | 0 | 214 | 37 |
| Stage 1 | - | - | - | - | 37 | - |
| Stage 2 | - | - | - | - | 177 | - |
| 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 | 1555 | - | - | - | 774 | 1035 |
| Stage 1 | - | - | - | - | 985 | - |
| Stage 2 | - | - | - | - | 854 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1555 | - | - | - | 736 | 1035 |
| Mov Cap-2 Maneuver | - | - | - | - | 736 | - |
| Stage 1 | - | - | - | - | 937 | - |
| Stage 2 | - | - | - | - | 854 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 5.5 |  | 0 |  | 9.2 |  |
| HCM LOS |  |  |  |  | A |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1555 | - | - | - | 923 |
| HCM Lane V/C Ratio |  | 0.048 | - | - | - | 0.067 |
| HCM Control Delay (s) |  | 7.4 | 0 | - | - | 9.2 |
| HCM Lane LOS |  | A | A | - | - | A |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.2 |




| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.1 |  |  |  |  |  |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | $\mathbf{T}$ | $\mathbf{7}$ | $\mathbf{4}$ | $\mathbf{7}$ | $\mathbf{7}$ | 4 |
| Traffic Vol, veh/h | 155 | 75 | 394 | 148 | 50 | 267 |
| Future Vol, veh/h | 155 | 75 | 394 | 148 | 50 | 267 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 75 | 0 | - | 150 | 150 | - |
| 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 | 168 | 82 | 428 | 161 | 54 | 290 |



| Intersection |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Int Delay, s/veh 3.5 |  |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | ${ }^{7}$ | 4 | 4 | 「 | ${ }^{7}$ | 「 |
| Traffic Vol, veh/h | 93 | 105 | 178 | 101 | 58 | 52 |
| Future Vol, veh/h | 93 | 105 | 178 | 101 | 58 | 52 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | 150 | 75 | 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 | 101 | 114 | 193 | 110 | 63 | 57 |


| Major/Minor | Major1 | Major2 |  |  | Minor2 |  |  |
| :--- | ---: | :--- | :--- | :--- | ---: | ---: | :---: |
| Conflicting Flow All | 303 | 0 | - | 0 | 509 | 193 |  |
| Stage 1 | - | - | - | - | 193 | - |  |
| Stage 2 | - | - | - | - | 316 | - |  |
| 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 | - | - | - | 524 | 849 |  |
| $\quad$ Stage 1 | - | - | - | - | 840 | - |  |
| Stage 2 | - | - | - | - | 739 | - |  |
| Platoon blocked, \% |  | - | - | - |  |  |  |
| Mov Cap-1 Maneuver | 1258 | - | - | - | 482 | 849 |  |
| Mov Cap-2 Maneuver | - | - | - | - | 482 | - |  |
| Stage 1 | - | - | - | - | 773 | - |  |
| Stage 2 | - | - | - | - | 739 | - |  |


| Approach | EB | WB | SB |
| :--- | ---: | ---: | ---: |
| HCM Control Delay, s | 3.8 | 0 | 11.7 |
| HCM LOS |  | $B$ |  |


| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR SBLn1 SBLn2 |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | 1258 | - | - | - | 482 | 849 |
| HCM Lane V/C Ratio | 0.08 | - | - | - | 0.131 | 0.067 |
| HCM Control Delay (s) | 8.1 | - | - | - | 13.6 | 9.5 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th \%tile Q(veh) | 0.3 | - | - | - | 0.4 | 0.2 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 3.5 |  |  |  |  |  |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | a | A | $\mathbf{F}$ |  | M |  |
| Traffic Vol, veh/h | 55 | 108 | 201 | 111 | 69 | 58 |
| Future Vol, veh/h | 55 | 108 | 201 | 111 | 69 | 58 |
| Conflicting Peds, \#/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 150 | - | - | - | 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 | 60 | 117 | 218 | 121 | 75 | 63 |


| Major/Minor | Major1 |  | Major2 |  | Minor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 339 | 0 | - | 0 | 516 | 279 |
| Stage 1 | - | - | - | - | 279 | - |
| Stage 2 | - | - | - | - | 237 | - |
| 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 | 1220 | - | - | - | 519 | 760 |
| Stage 1 | - | - | - | - | 768 | - |
| Stage 2 | - | - | - | - | 802 | - |
| Platoon blocked, \% |  | - | - | - |  |  |
| Mov Cap-1 Maneuver | 1220 | - | - | - | 494 | 760 |
| Mov Cap-2 Maneuver | - | - | - | - | 494 | - |
| Stage 1 | - | - | - | - | 730 | - |
| Stage 2 | - | - | - | - | 802 | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | WB |  | SB |  |
| HCM Control Delay, s | 2.7 |  | 0 |  | 13 |  |
| HCM LOS |  |  |  |  | B |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | EBL | EBT | WBT WBR SBLn1 |  |  |
| Capacity (veh/h) |  | 1220 | - | - | - | 588 |
| HCM Lane V/C Ratio |  | 0.049 | - | - | - | 0.235 |
| HCM Control Delay (s) |  | 8.1 | - | - | - | 13 |
| HCM Lane LOS |  | A | - | - | - | B |
| HCM 95th \%tile Q(veh) |  | 0.2 | - | - | - | 0.9 |


| Intersection |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
| Int Delay, s/veh | 5.9 |  |  |  |  |  |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | Mr |  |  | 4 | $\mathbf{F}$ |  |
| Traffic Vol, veh/h | 39 | 179 | 210 | 175 | 175 | 96 |
| Future Vol, veh/h | 39 | 179 | 210 | 175 | 175 | 96 |
| 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 | - | 75 | - | - | - |
| 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 | 42 | 195 | 228 | 190 | 190 | 104 |


| Major/Minor M | Minor2 |  | Major1 |  | ajor2 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 888 | 242 | 294 | 0 | - | 0 |
| Stage 1 | 242 | - | - | - | - | - |
| Stage 2 | 646 | - | - | - | - | - |
| 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 | 314 | 797 | 1268 | - | - | - |
| Stage 1 | 798 | - | - | - | - | - |
| Stage 2 | 522 | - | - | - | - | - |
| Platoon blocked, \% |  |  |  | - | - | - |
| Mov Cap-1 Maneuver | 257 | 797 | 1268 | - | - | - |
| Mov Cap-2 Maneuver | 257 | - | - | - | - | - |
| Stage 1 | 654 | - | - | - | - | - |
| Stage 2 | 522 | - | - | - | - | - |
|  |  |  |  |  |  |  |
| Approach | EB |  | NB |  | SB |  |
| HCM Control Delay, s | 15.5 |  | 4.6 |  | 0 |  |
| HCM LOS | C |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Minor Lane/Major Mvmt |  | NBL | NBT EBLn1 |  | SBT | SBR |
| Capacity (veh/h) |  | 1268 | - | 579 | - | - |
| HCM Lane V/C Ratio |  | 0.18 | - | 0.409 | - | - |
| HCM Control Delay (s) |  | 8.5 | - | 15.5 | - | - |
| HCM Lane LOS |  | A | - | C | - | - |
| HCM 95th \%tile Q(veh) |  | 0.7 | - | 2 | - | - |



| Major/Minor | Major1 |  |  | Major2 |  |  | Minor1 |  |  | Minor2 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Conflicting Flow All | 456 | 0 | 0 | 739 | 0 | 0 | 2071 | 1882 | 446 | 2068 | 2121 | 402 |
| Stage 1 | - | - | - | - | - | - | 1252 | 1252 | - | 576 | 576 | - |
| Stage 2 | - | - | - | - | - | - | 819 | 630 | - | 1492 | 1545 | - |
| 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 | 1105 | - | - | 867 | - | - | ~ 40 | $\sim 71$ | 612 | 40 | -50 | 648 |
| Stage 1 | - | - | - | - | - | - | 211 | 244 | - | 503 | 502 | - |
| Stage 2 | - | - | - | - | - | - | 369 | 475 | - | 154 | 176 | - |
| Platoon blocked, \% |  | - | - |  | - | - |  |  |  |  |  |  |
| Mov Cap-1 Maneuver | 1105 | - | - | 867 | - | - | - | $\sim 41$ | 612 | - | ~ 29 | 648 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | $\sim 41$ | - | - | ~ 29 | - |
| Stage 1 | - | - | - | - | - | - | $\sim 134$ | 155 | - | 319 | 452 | - |
| Stage 2 | - | - | - | - | - | - | $\sim 125$ | 428 | - | $\sim 14$ | $\sim 112$ | - |


| Approach | EB | WB | NB | SB |
| :--- | :---: | :---: | :---: | :---: |
| HCM Control Delay, s | 3.6 | 1.5 |  |  |
| HCM LOS |  |  | - | - |


| Minor Lane/Major Mvmt | NBLn1 NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR SBLn1 SBLn2 |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| Capacity (veh/h) | - | 56 | 1105 | - | - | 867 | - | - |
| HCM Lane V/C Ratio | -3.319 | 0.365 | - | - | 0.1 | - | - | -5.678 |
| HCM Control Delay (s) | $-\$ 1198$ | 10.1 | - | - | 9.6 | - | - | $\$ 2213.4$ |
| HCM Lane LOS | - | F | B | - | - | A | - | - |
| HCM 95th \%tile Q(veh) | - | 19.8 | 1.7 | - | - | 0.3 | - | - |

## Notes

~: Volume exceeds capacity $\quad \$$ : Delay exceeds 300s $\quad+$ : Computation Not Defined $\quad$ : All major volume in platoon




## LEGAL DESCRPPIION

THE NEI/4 SECTION 28, TOWNSHIP 3 , RANGE 63,
EXCEPT THREE ACRES IN THE SEI/4 OF THE NEI/4 OF SAID Stilion 28 DESCRBEE AS:
BEGINNNG AI THE SOUTHEASS CORNER OF THE NE1/4; THENCE NORTH 396'; THENCE WEST 330'; THENCE SOUTH 396'; THENCE EASI $330^{\prime}$ TO THE POINT OF BEGINNNG.
and excepr a Parcel of Land situaitd in the nel/4 of SAID SECTION 28 DESCRIBED AS:
BEGINNING AT A POINT 396.0' NOOOO1'E Of THE SE CORNEI OF THE NEI/4 OF SAD SECION 28; THENCE NOOㅇIE A disance of 365.0; ithene ne959 Wa disiance of

 3385', MOPE OR IESS TO POINT OF BEGINNING.

ABOVE PARCEL OF LAND INCLIUDES 153.62 ACRES MORE OR LESS.

SHEE INDEX
Sheet No. Sheet Name
1 Cover
2 Introduction/Development Concept
3 Introduction/Development Concept
4 ODP Zoning Map
5 Illustrative Concept
6 Development Standards
7 Development Standards
8 Community Patterns \& Lot Types
9 Lot Types

APPLICANT
MGV 36 NORH Land INESTMENS, LLC PO Box - 4701
Greenvod Village, CO 80155 (303) 507.6651


Land Use Summary Chart

| Land Use Type | Gross <br> Acreage | \% of Total |
| :--- | ---: | ---: |
| Open Space and Trail Corridors | 16.8 | $10.9 \%$ |
| Parks \& Recreation Areas | 6.3 | $4.1 \%$ |
| Development Areas (All Residential) | 117.4 | $76.4 \%$ |
| Major Roadways | 13.1 | $8.5 \%$ |
| Total Map Acreage | 153.6 | $100.0 \%$ |
| Maximum \# of Dwelling Units | 900 |  |
| Residential Density | 5.9 |  |

$$
\begin{aligned}
& \text { delete : "this __ day" replace with: } \\
& \text { "on_, } 20 \text { _.." }
\end{aligned}
$$



APPROVALS
Approved by the Town Board of Trustees of the Town of Bennett this day of 20 by Ordinance $\mathrm{N}^{2}$.
PLANNER/LANDSCAPE ARCHITECT
CIVIL ENGINEER
200 Kalamath Street, Denver, CO 80223
tel: 303.537 .4905
www.pesgroupco.com

PLANNING SHEET 1 of 9

LANDSCAPE ARCHITECTURE


pcs group inc 200 Kalamath Street, Denver, CO 8023 303.531.4905 www.pcggroupeo.com

CIVIL ENGINEERING


6 Inve
co
80
303.925.0544

APPLICANT
MGV 36 Norit land invesimenis, llc
PO Box - 4701
Greenwood Village, CO 80155
(303) $507-6651$

OUTLINE DEVELOPMENT PLAN


TOWN Of BENEIS CODPADO

## DAIE: MAY 2022

Revisf:
Revisf:
Revisf:
1 of 9
Cover

## OUTLINE DEVELOPMENT PLAN <br> TOWN OF BENNEIT <br> COUNTY OF ADAMS, STAIE OF COLORADO

SHEET 2 of 9

DEveLopment concepr and inient
Goad Living Chaws

## NATURALLY HERE

The idea for living at MUNDELL farms is pure and natural: Surround homes with a central park, additional pocket parks, and a perimeter trail. The parks and open space energize the residents and the perimeter trail provides an active social amenity for the community. The homes will and the perimeter trail provides an active social amenity for the community. The homes will with both traditional detached and attached homes A community goal is to have every home within 300 feet of a park or trail that connects to the 1 -mile perimeter trail network.

## PLAN AMENDMENTS

The size of any Planning Area may increase or decrease by an administrative amendment for no more than $10 \%$ as determined by the Town's Zoning Administrator affer final determination of: internal streect alignments, arterial street alignments, park and open space and buffer zone
areas. The initial boundary of any Planning Area will be established with the final plat that is areas. The initial boundary of any Planning Area will be established with the final plat that is
prepared for that area. Amendments to planning areas shall be subject to the Town of Bennett prepared for that area. Amendments to planning areas shall be subject to the Town of Bennett Municipal Code, as amended.

## TOWN OF BENNETT MUNCIPAL CODE <br> STANDARDS AND DESIGN GUIDELINES

The Town standards, as amended, apply for landscaping, lighting and parking unless modified by this document. In addition, design guidelines adopted by the Town of Bennett shall apply to by this document. In addition, design guidel ines adopted by the lown of Bennett stal
this development in conjunction with design statements included in this document.

## RESIDENIILL NEIGHBORHOOD USES

THE COMMUNITY contains four primarily residential neighborhoods organized around the central neighborhood park, pocket parks, or adjacent roadways. Each neighborhood will allow for a range of residential uses, from single-family attached, small lot and larger lot single-family detached homes. In general it is anticipated that densities will be less along the north and western border of the property. This range of housing types is proposed to ensure economic success for the project, and to attract a range of home buyers. While the actual mix of home types and lot sizes within individual neighborhoods may vary based on market conditions and economic factors at the time of development, a maximum number of units and density within each neighborhood will be maintained. Given the conceptual nature of the plan, some minor variations in the boundaries, acreages and densities of individual neighborhoods will be allowed, but will not exceeed a variation of $20 \%$ for any area as described in this ODP. In addition the overall gross project density of $5.9 \mathrm{dv} / \mathrm{ac}$
and a total residential build out of 900 homes will not be exceeded.

## PARKS AND OPEN SPACE SYSIEM

> This seems inconsistent with the "Plan Amendments" statement above. Is it?

THE PROPOSED Parks and Open Space for MUNDELL farms will exceed the minimum 10\% requirement for the lown of Bennett as required for a PD District. As depicted the Parks and Open Space system is approximately $15 \%$ of the total property, the areas are anticipated for active play and recreation opportunities, trail corridors, perimeter open space buffers, community entryways and natural open space areas designed to serve the future residents of the Town of Bennett.

Is this plural? or
The plan anticipates a centrally possessive? ........that is connected to the communities trail corridors. Pedestrian walkways and trail connections within individual parcels will link the neighborhood amenities such as the 4 additional centrally located pocket

ENUIRONMENTAL STATEMENI
IHE PROPERTY has no identified floodplain. We do not believe there are any wetlands, wildlife migration routes, or any sites of historic, archaeological, or paleontological significance.

SIIE ACCESS AND CIRCULALION
THE COMMUNIIY includes several entry locations, a primary entry is anticipated from E-38th Ave which will create a strong community identity for the community. The primary entry road will terminate at the Neighborhood Park. The entryways and roadways will incorporate a consistent streetscape character, including streetscape landscaping, sidewalks, fencing and
signage to produce a positive impression upon entering the communitu ae woll signage to produce a positive impression upon entering the comminitu an wail an anhancing te comfortable neighborhood environment for the larger comm to say: School land dedication or
cash-in-lieu
SCHOOLS
ANY SCHOOL REQUIREMENT will be satisfied with cash-in-lieu. requirements will be
determined at the time of subdivision
plat. Remove all but the
first sentence of this
FIRE PROIECTION SERVICES
FIRE PROIECTION SERVICES for MUNDELL farms will be provided var mie vepmivin -munnmis mie Rescue. The property is located approximately 1.5 miles west of Station 91 . Station 97 is Rataffed 24 hours a day, and is the primary response station for the fire district. In addition the property is located approximately 4.0 miles from Station 92 . The property is within the required 5 -mile service area of both fire stations.

WAIER \& SEWER SERVICE
Remove all of this language. Simply
state water and
The MUNDELL Farms property is currently annexed into the Town satate water and Zoning approval for the ODP Zoning. MUNDELL Farms is proposir service will be the existing Town of Bennett water and sewer infrastructure to provided by the Town At this time, we suspect the main waterlines to be extended no of Bennett.
site and the sewer to be connected to the treatment plant located off the northeast of the ite, on the cast the or stan. understanding of the scope that will be required. Further modeling is necessary to determine
line sizes and exact locations to serve the development. At this time, we expect a 5 main sewer will be necessary to serve the development at the downstream end, with a minimum of $8^{\prime \prime}$ mains at the lots.
Water mains will be primarily 8 " with loops of 12 "and 15 "serving the 8 ". It may be necessary for the Town to provide additional storage for domestic water. Once the models are produced and further design is considered the required infrastructure can be determined.

## STORM DRAINAGE

PROPOSED IMPROVEMENTS for MUNDELL farms will require the design and construction of storm drainage facilities to reduce site run-off and the impact to historic proportions. Drainage facilities will be built to the Town of Bennett standards, a preliminary drainage study has been completed as a part of this ODP.

The project will incorporate several concepts in the design of drainage facilities for the site, incuding:

1. Measures to reduce erosion effects of concentrated flows from developed storm water
runoff to adjacent agricultural fields (particularly the western drainage basins);
2. Evaluation of detention facilities for multiple use, such as parks and open space, recreation facilities, trail corridors, and storm water storage for irrigation of common/ public open space areas
3. Detention and erosion control requirements for phased construction; and
4. Storm water quality enhancement in accordance with the best management practices, particularly in the neighborhood commercial areas.

## GENERAL DEVELOPMENT PHASING

$\quad$ existing access and
DEVELOPMENT is generally anticipated to proceed from the no enerwork, we need to access will be from E-38th Ave. Development of the interior woun nutworn wirl puviur access to individual residential parcels as this network is extended through the property, and the centrally located Neighborhood Park will be in the first phase of the community. Public facilities/services, infrastructure, utilities, and amenities will be constructed to serve the residential neighborhoods in a reasonable and efficient manner as those areas are developed. The total project build-out time frome will be determined by market conditions.


PLANNING LANDSCAPE ARCHITECTURE

pcs group inc. 200 Kalamath Street, Denver, CO 80223 tel: 303.531 .4905 www.pcrgroupco.com

## CIVIL ENGINEERING



6 Inverness C + E Ste 125 , Englewo 303.925.054

## APPLICAN

MGV 36 NORRH LAND INVESTMENIS, LLC PO Box - 4701 Greenwood Village, CO 80155 (303) $507-6651$

## OUTLINE DEVELOPMENT PLAN MUNDELL FARMS <br> COUNIY OF ADAMS, COLORADO <br>  <br> ReVISED: Reflyed: ReFl|ce:

When the original zoning was reviewed by the Board, there was reference to the Low Density Residential in the Town Centre Land Use
Concept Plan for the northern tier of this property as less than $5 / \mathrm{du} / \mathrm{ac}$. How have you addressed

## OUULINE Developmen Plan

TOWN OF BENNETI
COUNTY OF ADAMS, STATE OF COLORADO
SHEET 3 of 9

1. The projected mix of single family attached/detached homes, lot sizes and densities will depend on market conditions and economic factors at the time of development, but will not exceed 900 homes.
2. See Lot standards and Development standards for more specific lot and building parameters for proposed 2. residential uses and lot types.
3. Open Space and Trail Corridor area includes perimeter and internal open space and buffers, trail connections drainage corridors, detention areas and community entries.
4. Access locations shown on this plan are conceptual and are subject to change. Final access locations and allowed turn movements determined with later development applications such as Final Development Plan or Final Plat.
5. Local street alignments shown herein as subject to change based on future development plans for each planning area.

| $\frac{\text { A. }}{\substack{\text { Land Use } \\ \text { LIem }}}$ | $\begin{gathered} \text { B. } \\ \text { Planning } \\ \text { Area Mop } \\ \text { Number } \end{gathered}$ | $\begin{array}{c\|} \hline \text { C. } \\ \text { Gross Land Area } \\ \text { in Acres } \end{array}$ | $\begin{gathered} \text { D. } \\ \text { Percentage of Fotal } \\ \text { Land Area } \end{gathered}$ |  | F.Proposed <br> Maximum Density(In OUS) | $\stackrel{\text { G. }}{\text { Chasing, Details and Comments }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1. OPEN Spact and Trall Coridors | 05.1 | 3.6 | 2.3\% |  |  | Deeicictec Open Socce |
|  | 05.2 | 6.7 | 4.4\% |  |  | Dedicafed Open Space - induldes delention area |
|  | 05.3 | 3.3 | 2.1\% |  |  | Dedicided Open Socie |
|  | $05 \cdot 4$ | 3.2 | 2.1\% |  |  | Dedicicted Open Sope |
| 2. PARK \& R RECPEATION AREES | Pk-1 | 3.0 | 2.0\% |  |  | Anficipoted Neighbortood Park \& Primary Amenity |
|  | PK-2 | 0.8 | 0.5\% |  |  | Anticipoted Pockef Park |
|  | PK-3 | 0.5 | 0.3\% |  |  | Anticipoted Pocket Park |
|  | Pk-4 | 0.7 | 0.5\% |  |  | Anticipoted Pockef Park |
|  | PK.5 | 1.3 | 0.8\% |  |  | Anticipoted PockeP Park |
| 3. DEFELOPRENT LREAS | PA-T | 35.0 | 22.8\% | 5.7 DU/aC | 184.224 | Primorily Single famil Y Resideniolo - Alacheded ollowed |
|  | PA-2 | 31.5 | 20.5\% | $5.700 / \mathrm{CC}$ | 172-210 | Primarily Single fomily Residentiol - Altached dlowed |
|  | PA-3 | 22.5 | 14.6\% | 11.1300/AC | 245-299 | Primarily Single fomily Atcache R Residentiol - Detacteed dlowed |
|  | PA-4 | 28.4 | 18.5\% | 7.90U/LC | 205-251 | Mix of Single family Detached ond Altached |
| 4.MNOOR ROOOWAY |  | 13.1 | 8.5\% |  |  |  |
| 5. Tofat Mop Acreage (Iotal figures bove) |  | 153.6 | 100.0\% | 5.9 | 900 |  |
| 6. Applican''s Acreage listed in Application |  | 15.6 |  |  |  |  |

PLANNING
pcs group inc 200 Kalamath Street, Denver, CO 80223 tel: $\quad 303.531 .4905$ www.pccgroupco.com

## CIVIL ENGINEERING




The Town is not committing to these dedications as sufficient to meet our 10 \% land dedication requirement. We will determine that at the time of subdivision plat. Overall, I think you are short on usable parks.
Although we don't have a standard yet, I think we should avoid small pocket parks less than an acre. They become expensive to maintain they are to serve areas of 200+ homes
——-- COLLECTOR STREET SECTION
--- local street section


PLANNING AREA
$\qquad$

-     -         - PROPERTY BOUNDARY (303) 50 7.665


## OUTLINE DEVELOPMENI PLAN

 muNDELL FARMSDAEE: MAY 2022
RIVIS:
Revisf:
Reflybe:
Revyse:
3 of 9
ODP ZONING MAP

OUULINE DEvELOPMENT PLAN

Please remove the colors from the version that will be eventually recorded. The colors will not record well.

PLANNING LANDSCAPE ARCHITECTURE
$\frac{1}{c}$ PCS glioup inc
200 Kalamath Street, Denver, CO 80223
tel: 303.531 .4905
www.pcsgroupco.com
CIVIL ENGINEERING
303.925.0544

## APPLICANT

MGV 36 NORTH LaND INVESTMENSS, LLC PO Box - 4701 Greenwood Villoge, CO 80155 (303) 507-6651

## ROOM

to GROW

At MUNDELL farms, the entire cycle of life - from raising food to rasing families - evolved in one heallhy place. The first fresh, green community including its own orchard in the park! MUNDELL farms is rooted in the most up to date neighborhood and environmental thinking. Yet, it is down to carth and friendly with parks, paths, open space and easy access to amenities that make life easier, healthier, sustainable and comfortable.

## OUTLINE DEVELOPMENT PLAN MUNDELL FARMS


Revisf:
Refisf:
4 of 9
IILUSTRATIVE CONCEPT

## OUULINE DEvELOPMENT PLAN <br> TOWN OF BENNEIT

COUNIY OF ADAMS, STAIE OF COLORADO
SHEET 5 of 9

## DEvELOPMENT STANDAROS INTROOUCION

The following Development Standards have been prepared to ensure a responsible site planning process which will help minimize potential land use conflicts, provide visual interest and diversity of homes, as well as enhance the small town, country character and open feeling of the Community. The standards also provide the flexibility necessary to support a range of single family-residential housing types and lot sizes, depending on market conditions at the time development.
The Development Standards have been established for each major land use type within the Community. Projects permitted within each area and land use type shall be constructed in accordance with these Development Standards and permitted uses. These standards are considered preliminary guidelines which may require more specific information and detail at the time of Final Development Plan Review. The architectural character and intent for special/innovative residential solutions will also need to be established at Final Plan as determined by the Town. This may include prototypical site plans, and architectural character sketches and elevations.

Development Standards with respect to parking (including commercial off-street parking), sign control and landscape requirements shall be controlled by the provisions of the Town's Zoning lode and Subdivision Regulations.

## ARCHITECTURAL STANDARDS

Each neighborhood shall contain architectural diversity, high quality and attention to design detail in accordance with a set of design guidelines and standards to be created for the design detail in accordance with a set of design guidelines and standards to be created for the neighborhoods and become the basis for more specific architectural guidelines.

1. Varied architectural styles shall be encouraged within each neighborhood. Aarchitectural building forms and elevations should be varied but compatible along the streetscape, imple forms are preferred over complex forms)
2. Where floor plans are offered on a repeating basis, alternate elevations shall be developed. Identical floor plans with similar exterior elevations shall not be located adjacent to, or immediately across from one another.
3. A variety of design elements and details shall contribute to the overall character of a home's elevation and its appearance from the street, including the use of front porches and covered entries, bay and box windows, and the handling of windows and door openings.
4. Careful scrutiny shall be given to the massing, proportions, and the overall scale of each design. A homés mass will be "broken up" to reduce its apparent scale, provide visual interest and depth, and achieve a more articulated building form. Massing of individual homes should be simple and reflect the architectural style of the home. This requires the careful application of elevation styles to appropriate floorplans. For example, the strong two-story vertical massing of colonial style homes is most compatible with a simple rectilinear two-story stacked floorplan while the asymmetrical fwo-story massing or single story massing of a craftsman lends isself better to second floor recessed or single story plan. Builders are encouraged to develop floor plans that are responsive to both architectural style objectives as well as energy efficient building objectives. These two objectives can be satistied by creating simple floor plan forms which minimize jogs and avoid unnecessary complicated massing solutions.
5. Large, flat, unbroken building planes on the front and rear elevations shall be prohibited. side elevations without windows shall be discouraged.
6. Size, shapes, proportions, and trim of doors and windows shall be consistent with the architectural style of the home.
7. Garage-dominated homes and streetscenes shall be avoided through various desian techniques, including providing varied garage orientations, locations and setbacks, as well as recessing garages into the main plane of front facades and providing design elements to help them blend with front architecture.
8. Maximum single family residential buildings heights will be limited to 35 feet

SNGLE-fAMLLY RESIDENIIAL INIENI
To provide for a variety of residential development of single-family homes on a mix of singlefamily lot types, including the potential for attached homes. Special residential housing types and lot configurations, including but not limited to, rear-load homes with alley access, will be allowed if consistent with the intent, standards, and residential character of this section.

Permitted Uses (by Right)

1. Single-family attached and detached dwelling units
2. Attached or detached private garages (with front and rear-loaded access, including alleys.)
3. Community information centers and kiosks
4. Accessory structures and uses (see below
5. Public and private open space and recreational facilitie
6. HOA facilities and trails
7. Signage (including project identification signs and monuments)-subject to the sign permit requirements in the Bennett Municipal Code.
8. Utilities and appurtenant facilities
9. Roads and parking
10. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
11. Drainage and detention facilities
12. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Conditional Uses

(Conditional uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Child care centers
2. Public and quasi-public facilities
3. Institutional facilities
4. Special community buildings/facilities and events
5. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Temporary Uses
(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Show
2. Show home complexes and/or residential sales offices
3. Temporary construction yards and structures
4. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Loning Administrator

## OPEN SPACE AREAS INIENT

O provide active and passive open space uses, including potential recreational facilities, to serve the residents of MUNDELL farms.

Permitted Uses (by Right)

1. Active public and private recreational uses, including but not limited to ballfields, playgrounds, swirming pools, and court games.
2. Passive public and private recreational uses, including but not limited to picnic grounds native, naturalized or landscaped fields, and visual buffer open space.
3. Public Recreation Buildings
4. Community Information/Sales Centers. The size of your parks don't 5. Picnic Pavilions and Shelters. 6. Public and quasi-public facilities.
5. Hiking and biking trails.
6. Accessory structures and use
seem to be able to
accommodate much of this
if any.
. Temporary construction yards and structures.
. Signage, (incluaing project identification signs and monuments) - subject to the sign permit requirements in the Bennet Municipal Code.
Utilities and appurtenant facilities.
7. Roads and parking.
8. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
9. Drainage and detention facilities
10. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Conditional Uses

Conditional uses will be reviewed and processed in accordance with the Bennett Municipal
Code)
. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Iemporary Uses
(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)
. Special community events
. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Open Space Development Standard

Projects permitted in Open Space Areas shall be constructed in accordance with the following Development Standards.
Development Standards.
Adjacent to other land use planning areas $=30$ feet
Adjacent to public roadway $=40$ feet
2. Minimum building separation $=20$ feet (or as required by applicable fire codes)
2. Minimum building separation $=2$ feet (or as
. Maximum building height $=35$ feet ( 2 stories) . Munimum off-stred
5. Consideration may be given to shared parking where appropriate in accordance with the Consideration may be given to shared parking where appropri
Bennett Municipal Code requirements for parking requlations.
Bennetf Municipal Code requirements for parking regulations.
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Detention Areas and Drainage Channels
The landscape for detention areas and drainage channels will be designed in a manner that will reinforce the character of MUNDELL farms and the high plains prairie, as well as provide the greatest benefit to the community. All detention areas and related conveyance facilitie shall strive for a natural vs. an "engineered" look. The designs shall strive to create a landscape concept for drainage channels and detention areas that will be aesthetically pleasing as well as environmentally responsible in terms of water use. It is considered beneficial to allow for passive recreational activities near detention areas.

1. Detention facilities, manmade drainage channels other than those through residentid front or side yards, and disturbed drainage channels, shall be planted with drought tolerant native grasses and plant materials. Front and side yard residential drainages shall be planted to match the front or side yard of the residence. Natural drainage channels containing existing vegetation and non-irrigated native grasses are exempt, Detention areas or drainage channels shall be designed to blend with adjacent areas.
2. Natural drainage corridors containing existing native grasses and established vegetation may be supplemented with native trees, shrubs and ornamental grasses that could enhance wildife habitat and the pedestrian environment. Areas of disturbance within the natural drainage corridors shall be re-vegetated with native plant materials.
3. Consideration should be given to locating pedestrian focal points along drainages including overlooks, and seating areas

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LANDSCAPE ARCHITECTURE
ocs group inc
200 Kalamath Street, Denver, CO 80223
303.531.4005
www.pcrgroupco.com
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303.925.0544

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MGV 36 NORIH LIND INVESTMENS, LLC
PO Box - 4701
Greenwood Village, CO 80155
(303) 507-6651

## OUULINE DEVELOPMENT PLAN

TOWN OF BENNETI
COUNTY OF ADAMS, STAIE OF COLORADO
SHEET 6 of 9
4. Plant materials should be used to strengthen the edge of drainage ways.
5. Landscape adjacent to drainage ways should be naturalistic and include riparian vegetation.

## ACCESSORY STRUCTURES AND USES INIENT

To provide Development Standards applicable to all land use areas within MUNDELL farms (exclusive of Open Space areas). Accessory Structures or Uses shall refer to detached, subordinate buildings or structures, the use of which is customarily incidental to that of the principal building or to the main use of the land and which is located on the same lot with the main building or use.

Permitted Uses (by Right)

1. Private parking garages (attached or detached from single-family homes)
2. Service structures (utility/storage, garden sheds and greenhouses)
3. Patio/privacy enclosures and walls
4. Patio shade structures and gazebos
5. Secondary living units including but not limited to living space, home offices, or recreation uses, within a detached garage or other detached building/structure.
6. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Accessory Structures Development Standards
Permitted accessory uses shall conform to the setbacks outlined in the Residential Development Standard Matrix.
2. Maximum building height $=28$ feet (or 2 stories)
3. Maximum number of accessory structures $=1$ per lot as a use by right, any additiona structure would need to be submitted to the Jown for review and approval.
4. Detached parking garages shall be architecturally compatible with the main building or Detached parking garages shall be archirecturally compatible with
house, including similar design styles, details, materials, and color.
5. Service structures, such as garden sheds, utility storage and greenhouses, are only

Service structures, such as garden sheds, utility storage and greenhouses, are only
permitted in the Single Family Detached lot types if attached to the main structure and permitted in the single family Detached lof types if aftached to the main structure and successfuly integrated into the residential architecture. Such structures may be defached
in, if compatible with the architecture of the main building.

- Patio shade structures and gazebos should be compatible with the architectural styles of their related homes.
Patio/privacy enclosures and walls should be architecturally compatible and reflect defails and materials consistent with the residential buildings they serve.

8. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## residenilal street design concepr and standards

Residential streets contribute significantly to neighborhood quality. They offer a place to walk, to meet neighbors, and of course, to park. Street network will include a hierarchy of streets that reflect the different residential densities and traffic conditions within the Community. The proposed street system is designed to provide a tree-lined streetscape, characteristic of traditional neighborhoods. The intent is to utilize the standard street sections and standards from the Town of Bennett's standards.

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## OUtILNE Development Plan

Remove this photo. It doesn't add anything of significance to the zoning document and will not record well.

TOWN OF BENNEIT
COUNTY OF ADAMS, STATE OF COLORADO
SHEET 7 of 9

## Community Patterns Overview

THE COMMUNITY PATIERNS SECTION contains specific information for placing houses and buildings within the future development parcels, as well as information related to the density and character of specific lof types. These guidelines were developed as part of the master planning process, and are meant to ensure that the community develops with the diversity and character anticipated in the overall vision for the community.

The central Neighborhood Park organized the entire community, play in the splash pad with your neighbor! Enjoy time with friends by the outdoor fireplace. Throw a BBQ, play in the great lawn, pick apples from the orchard. Schedule a get-together in the outdoor pavilion. At the Park, MUNDELL farms residents and their guests can truly indulge in a full range of recreational in the outd
amenities.

THE NEIGHBORHOOOS at MUNDELL farms are loosely defined by a pocket park qiving identity to the residents in that particular area. Great neighborhoods are walkable, drivable, and bike-able. To be socially connected, the neighborhoods include areas to linger, sit and talk with neighbors and provide both passive and active recreation. Neighborhoods are composed of a variety of blocks knitted together by roods, walks, trails, paths and open spaces that connect residents from their homes to these public blocks
spaces.

PLANNING
IANDSCAPE ARCHITECTURE


Remove the color from these graphics. They will not record well.

OUULINE DEvELOPMENT PLAN
TOWN OF BENNETI
COUNTY OF ADAMS, STATE OF COLORADO
SHEET 8 of 9

PLANNING
LaNDSCAPE ARCHITECTURE
-
40x105 - GENERAL CONDITIONS



LOT TYPE
MUNDELL farms will offer at least three different lot types, ranging from attached townhomes and duplexes to single family detached lots. These lot types are not intended to be all inclusive, but are intended to depict the variety and quality anticipated for the community. The lot types depicted in this document include Townhomes, Duplexes, and various sizes of Single Family Detached front loaded lots. Additional product may be used in the project.

SINGLE FAMILY DEIACHED FRONT LOADED . GENERAL CONDITIONS

## LOT SIZE

The lots range from 40 feet wide by 105 feet deep to 50 feet wide by 110 feet deep. Corner lots are range from a minimum of $50-60$ feet wide. These lots are front-loaded.

## SEIBACKS

Sefbacks shall be unoccupied and unobstructed by any structure or portion of a structure from 30 inches
above grade upward; provided, however, that fences, walls, trellises, poles, posts, ornaments, furniture and other customary yard accessories may be permitted in any setback subject to height limitations and requirements limiting obstruction of visibility.

PROJECTIONS INTO REQUIRED SETBACKS, GENERAL
The following structures may project into required
front, side or rear setbacks:
i. Paved patios or terraces may project into any required setback, provided that no structures placed on them shall violate other easement requirements.
ii. Unroofed landings, decks and stairs may project into required setbacks, provided that the floor shall not extend higher than 30 inches above the finished grade level and the projection is at least 5 feet from the lot line.
iii. Unroofed exterior balconies may project into a required side or rear sethack provided the projections are at least5 5 feet from the sides line and 10 feet from the rear lot line.
iv. Cornices, eaves, canopies, window wells chimneys, bay windows, ornamental features.
and other similar architectural features may project not more than 3 feet into any required setback.
v. Roofs over porches, stairways, landings, terraces, or other exterior approaches to pedestrian doorways may project up to 6 feet into a fron setback. The covered porch or entrance area projecting into the front sethack shall remain exterior to the building and enclosed by no more than a roiling The proiection shall be at least 5 feet from the property line.

## FRONT YARD SEIBACK

Minimum 20-foot setback from the front property line to the house.

## IIDE YARD SETBACK

Minimum 5 -foot setbacks from the side property line.

## sIDE STREET SETBACK

minimum 15 -foot setback from the side stree property line to the house.

## REAR YARD SEIBACK

All structures shall be set back a minimum of 20 feet from the rear property line.

## ENCROACHMENIS

Porches, bay windows and window wells may not encroach into both the Front Yard and Side Yard Street Setback Zones.

## GARAGE REQUIREMENTS

A minimum of two parking spaces per home is required. A diversity of garage styles is required Diversity shall be achieved by providing a minimum of 2 of the garage variation cheices listed bolow. Io meet the diverity requirement each cosen shall each be used on at least 25 percent of the The fomily hom within the develoment 2 ingle famly homes whin hie development. The 2 Wriations chosen will be a minimum of 50 percent of he development; the remaining 50 percent may be
Side coared
. Side-loaded garages;
Garages recessed a minimum of 4 feet behind the front facade of the living space within the house:
iii. Garages that protrude no less than 2 feet or no more than 5 teet in front of the dwelling unit portion of the structure; and
iv. Garages recessed a minimum of 2 feet beneath a second floor bay.

## FENCING RECOMMENDATIONS

Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy.

## Yard ReQuIremen

A minimum functional yard area of 15 feet by 20 feet is required.

## OUTLINE DEVELOPMENT PLAN

MUNDELL FARMS

## DaIE: MAY 2022 REVISED:

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ness Ct. E., Ste 125, Englewood, 925.0544
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OUTLINE DEVELOPMENT PLAN
TOWN OF BENNETI
DUPIEX - GENERAL CONDITIONS


SHEET 9 of 9

PLANNING
LANDSCAPE ARCHITECTURE
TOWNHOMES - GENERAL CONDIIIONS

rear yard setback
All structures shall be set back a minimum of 20 feet from the rear property line.

EnCroachmenis
Porches, bay windows and window wells may not encroach into both the Front Yard and Side Yard Street setback Zones.

## GARAGE REQUIREMENIS

A minimum of two parking spaces per home is equired. Townhomes are permitted to have is arges spoce and one space in front of the a singl.

## TOWNHOME SPELIFIC GUIDELINES

1 No more than 6 townhome dwelling units may be 1. No more than 6 townhome dweling units mar
attached in any single row or building cluster.
2. Within each town home row or cluster, individual dwelling units shall be differentiated, or may express a purposely uniform design. When dwelling units are to be differentiated, they shall be differentiated through
or more of the following methods:
i. Use of distinct color variation between individual dwelling units;
ii. Use of distinct variations in materials between individual dwelling units;
iii. Use of distinct variations in architectural style
between individual dwelling units;
iv. Use of distinct variations in roof form
v. A variation in the plane of the front facade to provide a minimum 3 foot variation between provide a minimum 3 foo
individual dwelling units.
When uniformity (sameness or pattern repectition) in When uniformity sameness or pattern repe
design is proposed, Hhis holl be expressed design is proposed, this shall be expressed
through repetition of 2 or more of the following methods.
i. Use of materials both in type and location; ii. Size, style, and patterning of windows; iii. Size and detailing of front porches; iv. Roof dormers, roof form, and roof pitch.

## DUPIEX SPECLFIC GUIDELINES

A continuous row of identical homes along a block shall be prohibited. Individual structures shall be differentiated through 2 or more of the following methods:
i. Use of distinct color variation and materials between individual structures:
ii. Use of distinct variations in roof form, 0
iii. Use of distinct variations in architectural
features, such as porches, roof form, windows, or similar feature, between individual structures. Models with identical facades shall not be placed adjacent to or across the street from 1 another.

FENCING RECOMMENDAIIONS
Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy

## Yard requirement

A minimum functional yard area of 15 feet by 20 feet is required.
or features, such as a porch or similar fecture

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## APPLICANT

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$\square$

## FRONT YARD SETBACK

Minimum 20 -foot setback from the front property line the house.

## SIDE YARD SEEBACK

## SIDE STREET SEIBACK

min lot selback from the side stred property line to the house. a required side or rear sethack provided the projections are at least 5 feet from the side lot line and 10 feet from the rear lot line.
x

TERRAMAX, INC.
CONSULTING

# Engineering Review Memo 

To: Stephen Hebert, AICP, Bennett Planning \& Economic Development Manager<br>From: Dan Giroux, PE, Engineering Consultant to the Town<br>Date: Thursday, July 21, 2022<br>Case: Mundell Farms / Bennett North ODP / Town Land Use Case 22.02<br>Subject: Engineering Review

Per the request of the Town of Bennett, Terramax, Inc. has reviewed the application materials for the proposed Mundell Farms Outline Development Plan (ODP). This review does not relieve the applicant from meeting the Town's requirement that the development comply with all Town Codes and Standards.

I have the following comments to offer on the Mundell Farms ODP application and submittal information:

## Water Supply

- The property and potential development on the property would be subject to the Town of Bennett's raw water supply guidelines and requirements, including governing development impact fees, and groundwater rights credits or reimbursement policies.
- The property development will require the support of additional groundwater well development, either on the property itself, or on adjacent properties, depending on future Town well spacing, for production and efficiency, as well as other areas and properties potentially served.
- Current Town water campus area sizing requirements are four (4) acres in size, and as close to square as feasible.
- The Town Water Supply Specialist, Gina Burke with Jehn Water, will determine what water supply components will be required for this development, on-site and/or off-site, including any potential land dedication areas indicated.


## Water Distribution System

- I'm generally in agreement with 2NCivil's findings and conclusions with regard to the potable water distribution system required.
- The Utility Study does indicate high fire protection plus max domestic demand flows.
- This will indicate additional water distribution system network analysis by AQUA Engineering for current and future water system conditions, including additional water tank storage to the east on the Town's NoMCom property, and/or potentially to the south or west of Mundell Farms.
- Current Town booster pump capacities can also be incorporated into the analysis.
- These will affect water main sizing and large-main spacing.
- The AQUA modeling study cannot be undertaken until there is a conceptual water distribution network layout for the property.
- The property is adjacent to existing Town water distribution mains to the immediate northeast, at Converse Road-First Street, and southeast, at West Lincoln Avenue.
- Both adjacent water distribution mains are within the Town of Bennett "north zone", lower pressure zone, so both can be connected.
- Connections to both mains is desired for greatest independent redundancy of Town water delivery to potential development on the property.
- Other First Street connections may be desirable and allowable for early phases of the Mundell Farms development.
- The Mundell Farms development will be required to provide non-potable water distribution system for public and common green space areas throughout the development.
- The developer will be required to extend both the potable and non-potable systems to key property limit points, including south and west, to provide for future system extensions to adjacent properties.
- The Mundell Farms development would support major regional Town water system expansion via Water Development Impact Fees.
- These Fees are evaluated regularly by Town Staff, and reviewed with the Town Board of Trustees, to ensure the Town is collecting appropriate development fees to support required water system expansion and upgrades.


## Sanitary Sewer System / Wastewater Treatment

- I'm generally in agreement with 2NCivil's findings and conclusions with regard to the sanitary sewer collection system required.
- I suspect the property would be best served by multiple south-to-north mains, discharging to the prospective, proposed Bennett "Western Bypass" sanitary sewer running from west-to-east along the south side of East $38^{\text {th }}$ Avenue.
- These south-to-north 'corridors' are interrupted by the current proposed ODP lot layout, so some degree of 'jogs', Tracts, easements and other alignment accommodations appear to be required.
- The development team should make allowances for the Western Bypass sanitary sewer interceptor in the Mundell Farms, as it is planned to be a 30-inch diameter pipe in concept, with commensurately large manhole structures, and at maximum depths of up to 30 feet.
- This is expected to be placed in right-of-way, Tract or easement areas along the south side of $\mathrm{E} 38^{\text {th }}$ Avenue, which will have a substantial right-of-way dedication required in its own right.
- The developer will be required to extend the sanitary sewer collection system to key property limit points, including south and west, to provide for future system extension to adjacent properties.
- Development of Mundell Farms with the proposed ODP and densities will require expansion of the Town's Water Reclamation Facility at East $38^{\text {th }}$ Avenue.
- The Town is currently conducting detailed technical studies for expansion of the existing WRF to support additional development, while also addressing improved effluent water quality, and especially treatment to quality levels supporting highly flexible and robust reuse water programs.
- The Mundell Farms development would support the WRF expansion via Wastewater Development Impact Fees.
- These Fees are evaluated regularly by Town Staff, and reviewed with the Town Board of Trustees, to ensure the Town is collecting appropriate development fees to support required WRF expansion and upgrades.


## Access

- Pedestrian and vehicular connections to the Bennett School District campus to the east are most directly served via Lincoln Avenue or Roosevelt Avenue.
- Truman Avenue is problematic as it is currently a half-street, with no immediate plans nor resources for widening.
- The Truman sidewalk system is dated, and consequently is not ADA compliant.
- Street and sidewalk connections are currently not planned between Truman Avenue and E $38^{\text {th }}$ Avenue to the north.
- As noted, the required E $38^{\text {th }}$ Avenue right-of-way dedication will be significant, as an Arterial, along with provisions for the Western Bypass sanitary sewer interceptor, and the major CORE Electric primary power corridor amongst other utility infrastructure.
- Similarly, Converse Road/First Street will require significant right-of-way dedication as either an Arterial or Major Collector, in part dependent on street connection opportunities and proposals to the south and west.
- Road connection accesses to First Street may also be limited dependent upon final classification and use of First Street, determined in part by this development and the west and south connections and traffic burden.


## Stormwater Management

- I am generally in agreement with 2NCivil's findings and conclusions with regard to the stormwater management system required.
- My own review of area topography indicates the tributary drainage basin extends at least to the UPRR tracks, and possibly to the Colfax Avenue northside ditch, or some limit between.
- Currently it is shown delineated to Palmer Avenue only. Please re-evaluate. Lack of existing road culvert crossings does not remove an area from being tributary upstream.
- This off-site increase would be for pass-through routing, conveyance, outlet and spillway sizing. It may not affect pond sizing, depending on final outlet and overflow design.
- The tributary basin should also be taken to the centerlines of Converse/First Street and E 38 ${ }^{\text {th }}$ Avenue, respectively, and should account for future build-out paving of these major collector or arterial roads.
- Please review and confirm the rainfall depths used for modeling and flows. The one-hour 100year rainfall depth for Bennett is 2.71 inches, and the one-hour 10-year rainfall depth is 1.68 inches.
- I am concerned with a conceptual (by my own computations) 15 acre-feet of stormwater management storage required, that the 3.4 acre pond area proposed will require more depth than gravity outfall may support.
- Although not required for this ODP, I'd recommend the development team evaluate feasibility and indications for grading, earthwork, and outfall conveyance.
- The property incorporates a local area drainageway from the south, generally draining off-site properties, and this property, north to East $38^{\text {th }}$ Avenue, and beyond.
- This may require treatment for intake and routing through the property.
- The peak outflows are significant, and speak to the basin area involved. If the existing downstream outfall and conveyance system is insufficient, additional off-site, downstream rights-of-way, easements, and improvements may be required to a stable, recognized outfall point or conveyance.
- Stormwater management for the property and potential development on the property will be challenging, due to the existing low-lying flat areas on-site, discharging into subtle or even unrecognized/unrecognizable, slow-draining stormwater outfalls to the north.
- It is anticipated that these stormwater challenges can be addressed for the development on the property proposed via this OGP.

Steve, this concludes my engineering review of the application materials for the proposed Mundell Farms ODP by the applicant. Please let me know if you have any questions, or require additional information pertaining to the submitted information, or my review.

# Engineering Review Memo 

| To: | Stephen Hebert, Town Planner |
| :--- | :--- |
|  | Chad Bunger, Community \& Economic Development Director |
| From: | Dan Giroux, PE, Engineering Consultant to the Town |
| Date: | Monday, November 7, 2022 |
| Case: | Mundell Farms / Bennett North ODP / Town Land Use Case 22.02 |
| Subject: | Civil Engineering Review / $2^{\text {nd }}$ Submittal |

Per the request of the Town of Bennett, Terramax, Inc. has reviewed the application materials for the proposed Mundell Farms Outline Development Plan (ODP) $2^{\text {nd }}$ submittal. This review does not relieve the applicant from meeting the Town's requirement that the development comply with all Town Codes and Standards. All prior comments are still in effect until Town concurrence regarding applicant responses.

I have the following comments to offer on the Mundell Farms ODP application and submittal information:

## General

- The applicant did not submit new information regarding utilities and stormwater, nor responses or acknowledgement of the prior review comments.
- Many of the prior review comments were advisory, and were reviewed with John Vitella, with Gary Walters and Eric McDaniel of EMK Consultants, via Zoom conference.
- As a result, I can offer the following comments for clarifications or follow-up.


## Water Supply

- I have spoken with the Town's Water Supply Specialist, Gina Burke, and confirmed that the property development will require the support of groundwater well and water storage tank development, via a Town water campus area.
- As a reminder, current Town water campus area sizing requirements are four (4) acres in size, and as close to square as feasible.


## Water Distribution System

- No conceptual or preliminary water supply master plan layout has been provided, for potable or non-potable systems, I assume due to developer and/or homebuilder desire for flexibility to respond to the market.
- For a development of this size, the master plan layout can affect phasing plans for subdivision progression through the property, and will likely be required with a first subdivision proposal.


## Sanitary Sewer System / Wastewater Treatment

- The same overall property master plan layout comments, similar to the comments for the water distribution system, hold true for sanitary sewer collection.
- Subdivisions of the Mundell property would be subject to a Wastewater Capacity Reservation Fee through their respective Subdivision Agreements with the Town.
- The Wastewater Capacity Reservation Fee would be a cash payment percentage of the Town Wastewater Impact Fee (WWIF), due at an agreed time, currently conceived to be prior to installation of Subdivision utilities.
- The Wastewater Capacity Reservation Fee would later be credited against the Town WWIF collected at building permit.


## Access

- No new comments, all prior comments remain in effect.


## Stormwater Management

- The same overall property master plan layout comments, similar to the comments for the water \& sanitary sewer systems, hold true for the stormwater management system.
- Some stormwater technical comments previously provided, regarding rainfall depths and tributary basin areas, affect system sizing, including the stormwater management pond(s), and therefore could affect property planning, layout and land use areas.

Steve \& Chad, this concludes my engineering review of the $2^{\text {nd }}$ submittal application materials for the proposed Mundell Farms ODP by the applicant. Please let me know if you have any questions, or require additional information pertaining to the submitted information, or my review.

9191 J amaica Street Englewood, CO 80112
United States T +1.303.771.0900

| Subject | Bennett North (Mundell) Zoning ODP Submittal Package |
| :--- | :--- |
| Attention | Steve Hebert, AICP, Bennett Planning \& Economic Development Manager |
|  | Sara Aragon, Community Development Manager |
| From | Mike Heugh, PE |
|  | Town Traffic Engineer |
| Date | July 13, 2022 |
| Copies to | Dan Giroux, PE, Town Engineer |

## Mundell Farm TIS, (dated May 27, 2022) - Town Traffic Comments

Comments below are previous comments (with slight revisions) from the zoning traffic memorandum received in Feb 2022 and don't appear to be addressed with the May 2022 submittal.

1. This TIS does not meet Town standards for ODP submittals, which calls for analysis. Given the roughly 7,500 estimated trips, this development falls into the town's " $V$ " access category, which requires analysis of opening day, plus 5 years, and plus 20 years. Intersections analyzed are to be site accesses, intersections within $1 / 2$ mile of site accesses, and signalized intersections within 1 mile of the site accesses. It would be best to have a scoping meeting on this prior to analysis given the presumed future roadway network, potential impacts to existing roadways/ intersections, and the proximity to numerous intersections.
2. Please change the portions of or references to $N$. Converse Rd that are south of $38^{\text {th }}$ Ave. to $1^{\text {st }}$ Street.
3. Figure 4 shows short-term and long-term, but only 1 set of numbers is shown. Please update.
4. Please provide justification for $35 \%$ of traffic traveling on Colfax Ave. It seems high.

## Mundell Preliminary ODP Plan Set (May 2022)

1. ODP submittal requirements state proposed locations of all major streets, including street names and right-of-way widths, and any proposed new or expanded interchange improvements should be included in the plans. For traffic, the main concern is access spacing to external roadways (based on future planned classifications) and ROW for the internal roadways. Please provide this information.
2. Sheets 3 and 4 don't match in terms of local street access on both $1^{\text {st }}$ Street and the Proposed Street on the west edge of the development. Please revise.
3. There's a collector roadway continuing to the south of the property. Where does this go? And how does it fit with parcel to the south?

## Memorandum

Bennett North (Mundell) Zoning ODP Submittal Package
4. It's not clear what the "Primary Entry" will provide users once the property develops in the southern half, but it's unreal istic that vehicles will drive past the entire development to use the Primary Entry and whatever it may provide. It's noted that there are plenty of other accesses surrounding the property and that access through the Primary Entry only is required.

Memorandum

6312 S. Fiddlers Green Circle

| Subject | Bennett North (Mundell) Zoning ODP Submittal Package |
| :--- | :--- |
| Attention | Chad Bunger, Town Community \& Economic Development Director |
|  | Steve Hebert, AICP, Bennett Planning \& Economic Development Manager |
| From | Mike Heugh, PE |
|  | Town Traffic Engineer |
| Date | October 27, 2022 |
| Copies to | Dan Giroux, PE, Town Engineer |

## MundelI Farm TIS, (dated September 26, 2022) - Town Traffic Comments

1. Page 2, please update the description of $1^{\text {st }}$ Street (SH 79). As a reader/ reviewer this description, while not totally incorrect, reads different than existing conditions indicate. The description should indicate that it's located approximately 1 mile east of the site. The state highway is not named $1^{\text {st }}$ Street north of Colfax. It's either Palmer (east-west portion) or Kiowa-Bennett Road (SH 79) (northsouth portion). While realignment is expected, realignment doesn't affect most of SH 79 from Old Victory to $38^{\text {th }}$ Ave.
2. Page 2, please update the description of $1^{\text {st }}$ Street (Local Street). The description should indicate that $1^{\text {st }}$ Street transitions to a gravel/ dirt road with speed limit 35 mph north of Truman Ave, this section of roadway is directly adjacent to the site on the east, and is stop controlled at E. $38^{\text {th }}$ Ave. South of Truman Ave contains numerous driveways and varying ROW.
3. Page 2, please update the description of Palmer Ave to indicate an at-grade railroad crossing with active controls near the Palmer/ Colfax intersection.
4. Page 2, please update the description of Colfax to indicate the speed limit drops to 45 mph and then to 35 mph east of the Colfax/ ${ }^{\text {st }}$ Street (SH 79) intersection.
5. Page 3, Int \#5, please include text stating that SH 79 was analyzed assuming 2 NB through lanes as a background condition. (I acknowledge this is stated as a recommendation on Figure 10b, but was included in 2030 background analysis. Is this a planned improvement or true recommendation? I think having 2 NB lanes should be noted in the text regardless.)
6. Can you respond to how the existing counts from previous TIA's were used to generate existing volumes for this report, generally speaking? A few things that caught my eye leading to this question were the volumes in this report don't match the previous reports that were attached (not that they should) and Penrith Park TIA shows Palmer/ Colfax volumes but not Penrith/ Colfax volumes but Figure 3a indicates Brunner and Penrith TIA's were used at int. \#22 \& \#23.

Bennett North (Mundell) Zoning ODP Submittal Package
7. Why wasn't Colfax Ave and SH-79 intersection analyzed since site generated traffic is moving through it?
8. How to incorporate additional bennett ranch volumes, KCP volumes, volumes from Penrith (Muegge Farms), aux lanes to $38^{\text {th }} / 79$. Show NBLT lane @ $38^{\text {th }}$ in 2025 ? Other changes at this intersection?
9. Pages 2 and 3 of LOS Table 1 show last column as 2030. Please revise to 2042.
10. Page 7, Int \#18: qualify that the LOS E in 2042 is a result of the development. Also, " 2042 " is transposed in last sentence. Please revise.
11. Page 8, Int \#22: qualify that the LOSE \& F occur by 2030 and as a result of the development for select movements.
12. Page 8 , Int \#24: qualify that the LOSE \& F occur by 2025 and as a result of the development for select movements.
13. Page 9, Projected LOS: can you use the names of intersections $18,22, \& 24$ to help the reader?
14. Page 9 , having figures that detail lane geometry recommendations is useful. However, additional text is needed in the conclusions/ recommendations section, stating what needs to be completed to achieve stated LOS, i.e. additional roads (\& classifications??), widened roads, new signals, relocated RR crossings, etc. Differentiate needs based on background or total, i.e. an additional turn lane was needed in 20XX because.... Is it appropriate to distinguish who is paying for the improvements at this point?
15. Page 9, please reword bullet \#6. These aren't the only improvements that should be recommended.
16. Figure 7 , please provide justification for $45 / 40 \%$ of traffic traveling on Colfax Ave. It seems high.
17. Estimated ADT on $1^{\text {st }}$ at Roosevelt is 650 veh in 2025 background, with 1345 veh site generated in phase 1, for a total of 1995 veh/ day. This is a which is a $300 \%$ increase in traffic and exceeds the ADT threshold for "local" roadways. (Numbers are similar for 2030 \& 2042. 2025 is worst case.)
18. Figure 10 b, please update recommendation $\# 4$ to 378 feet +222 -foot transition taper to coincide with the concept design from Bennett Ranch.
19. Figure 10 b, most proposed intersections have 150 ' storage but a few have 200 ' + . How were these few aux lanes sized?
20. Figure 11b, what is generating the improvements at Int \#10 in 2042 that aren't present in 2030?

LEGAL DESCRIPIION
THE NE1/4 SECTION 28, TOWNSHP 3, RANGE 63,
EXCEPT THREE ACRES IN THE SE1/4 OF THE NE1/4 OF SAID SECTION 28 DESCRIBED AS:
BEGINNING AT THE SOUTHEAST CORNER OF THE NEI/4; THENCE NORTH $396^{\prime}$; THENCE WEST $330^{\prime}$; THENE SOUTH 396'; THENCE EASI $330^{\prime}$ TO THE POINT OF BEGINNING.
and excepi a parcel of Land situaitd in the nel/4 of SAID SECTION 28 DESCRBED AS:
BEGINNING AT A POINI 396.0' NOOOO1'E OF THE SE CORNER OF THE NEI/4 OF SAD SECTION 28; THENCE NOO OOIE A
DIITANCE OF $365.0^{\circ}$; IHENE N8959 W A DISTANCE OF
1880059'w A DSTMCE OF 1515 feEt THMCE SODOO'W
 3385', MOPE OPIESS TO PONI OF DCGWWM

ABOVE PARCEL OF LAND INCLIUDES 153.62 ACRES MORE OR LESS.

## SHEET INDEX

Sheet No. Sheet Name
1 Cover
2 Introduction/Development Concept
3 Introduction/Development Concept
4 ODP Zoning Map
5 Illustrative Concept
6 Development Standards
7 Development Standards
8 Community Patterns \& Lot Types
9 Lot Types


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Greenwod Villoge, CO 80155
(303) 507-6651


6 Inverness Ct. E., Ste 125, Englewood, CO 80120 303.925.0544

| Land Use Type | $\begin{array}{\|l\|} \hline \text { Gross } \\ \text { Acreage } \end{array}$ | \% of Total |
| :---: | :---: | :---: |
| Open Space and Irail Corridors | 16.8 | 10.9\% |
| Parks \& Recreation Areas | 6.3 | 4.1\% |
| Development Areas (All Residential) | 117.4 | 76.4\% |
| Major Roodways | 13.1 | 8.5\% |
| Total Map Acreage | 153.6 | 100.0\% |
| Maximum \# of Dwelling Units | 900 |  |
| Residential Density | 5.9 |  |

## APPROVALS

PIANNING
LANDSCAPE ARCHITECTURE

pcs group inc 200 Kalamath Street, Denver, CO 80223 tel: 303.531 .4905 pcggroupco.com

CIVIL ENGINEERING


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303.925.0544

APPLICAN
MGV 36 NORRH LaND INVESTMENSS, LLC
PO Box - 4701
Greenwood Village, CO 80155
(303) $507-6651$

Approved by the Town Bo
20 by Ordinance

ATIEST: Town Clerk
By signing this ODP, the owner acknowledges and accepts all of the requirements and intent set forth
herein. herein.

OWNER
STATE OF COLORADO ) ISS
county of
The above and foregoing signature of
was subscribed and sworn to before me this day of
Witness my hand and official seal.
My commission expires on:
(SEAL)
Notary Public

Approved by the Planning and Zoning Commission of the Town of Bennett, Colorado this

$$
\begin{aligned}
& \text { Approved by the Planning and Loning lommission of the lown of Bennett, Colorado this } \\
& \text { day of ; by Resolution } \\
& \text { No. }
\end{aligned}
$$

Chair
TITEST: Town Clerl

COUNTY OF ADAMS COLORADO

DAIE: May 2022
Mate: mey
REVIVED:
REESSD:
ReVISED:
ReVISED:
1 of 9

## OUULINE DEVELOPMENT PLAN <br> TOWN OF BENNETI <br> COUNTY OF ADAMS, STATE OF COLORADO

SHEET 2 of 9

DEveLopment concepr and inteni
Goad Living Chaws

## NATURALLY HERE

The idea for living at MUNDELL farms is pure and natural: Surround homes with a central park, additional pocket parks, and a perimeter trail. The parks and open space energize the residents and the perimeter trail provides an active social amenity for the community. The homes will and the perimeter trail provides an active social amenity for the community. The homes will be diverse, tor all generations and lifestyles. It is anticipated that MuNEtLL farms will start with both traditional detached and attached homes. A community goal is to have every home with booth traditional detached and attacthed homes. A community goal is to have ever
within 300 feet of a park or trail that connects to the 1 -mile perimeter trail network.

## PLAN AMENDMENTS

The size of any Planning Area may increase or decrease by an administrative amendment for no more than 10\% as determined by the Town's Loning Administrator after final determination of: internal streect alignments, arterial street alignments, park and open space and buffer zone
areas. The initial boundary of any Planning Area will be established with the final plat that is areas. The initial boundary of any Planning Area will be established with the final plat that is
prepared for that area. Amendments to planning areas shall be subject to the Town of Bennett prepared for that area. Amendments to planning areas shall be subject to the Town of Bennett Municipal Code, as amended.

## TOWN OF BENNETT MUNCIPAL CODE <br> STANDARDS AND DESIGN GUIDELINES

The Town standards, as amended, apply for landscaping, lighting and parking unless modified by this document. In addition, design guidelines adopted by the Town of Bennett shall apply to by this document. In addition, design guidel ines adopted by the lown of Bennett st
this development in conjunction with design statements included in this document.

## RESIDENIILL NEIGHBORHOOD USES

THE COMMUNITY contains four primarily residential neighborhoods organized around the central neighborhood park, pocket parks, or adjacent roadways. Each neighborhood will allow for a range of residential uses, from single-family attached, small lot and larger lot single-family detached homes. In general it is anticipated that densities will be less along the north and western border of the property. This range of housing types is proposed to ensure economic success for the project, and to attract a range of home buyers. While the actual mix of home types and lot sizes within individual neighborhoods may vary based on market conditions and economic factors at the time of development, a maximum number of units and density within each neighborhood will be maintained. Given the conceptual nature of the plan, some minor variations in the boundaries, acreages and
densities of individual neighborhoods will be allowed, but will not exceed a variation of $20 \%$ densities of individual neighborhoods will be allowed, but will not excceed a variation of $20 \%$ tor any area as described in this ODP. In addition the overal gross pro
and a total residential build out of 900 homes will not be exceeded.

## PARKS AND OPEN SPACE SYSIEM

THE PROPOSED Parks and Open Space for MUNDELL farms will exceed the minimum 10\% requirement for the Town of Bennetf as required for a PD District. As depicted the Parks and Open Space system is approximately $15 \%$ of the total property, the areas are anticipated for active play and recreation opportunities, trail corridors, perimeter open space buffers, community entryways and natural open space areas designed to serve the future residents of the Town of Bennett.

The plan anticipates a centrally located neighborhood park, that is connected to the communities trail corridors. Pedestrian walkways and trail connections within individual parcels will link the neighborhood amenities such as the 4 additional centrally located pocket parcels

## ENUIRONMENTAL STATEMENT

THE PROPERIY has no identified floodplain. We do not believe there are any wellands, wildlife migration routes, or any sites of historic, archaeological, or paleontological significance.

SIIE ACCESS AND CIRCULALION
THE COMMUNIIY includes several entry locations, a primary entry is anticipated from E-38th Ave which will create a strong community identity for the community. The primary entry road will terminate at the Neighborhood Park. The entryways and roadways will incorporate a consistent streetscape character, including streetscape landscaping, sidewalks, fencing and signage to produce a positive impression upon entering the community, as well as enhancing

## SCHOOLS

ANY SCHOOL REQUIREMENT will be satisfied with cash-in-lieu.

## Fire Proiecion serlices

FIRE PROIECTION SERVICES for MUNDELL farms will be provided by the Bennett -Watkins Fire Rescue. The property is located approximately 15 miles west of Station 91 Station 97 is staffed 24 hours a day, and is the primary response station for the fire district. In addition the property is located approximately 4.0 miles from Station 92 . The property is within the required 5 -mile service area of both fire stations.

## WAIER \& SEWER SERVICE

The MUNDELL Farms property is currently annexed into the Town of Bennett and is seeking Zoning approval for the ODP Zoning. MUNDELL Farms is proposing to connect into and extend the existing Town of Bennett water and sewer infrastructure to serve the site.
at this time, we suspect the main waterlines to be extended north along lis $S$ treet into the site and the sewer to be connected to the treatment plant located off the northeast of the understanding of the scope that will be required. Further modeding is necessary to defermine


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## CIVIL ENGINEERING

PROPOSED IMPROVEMENTS for MUNDELL farms will require the design and construction of storm drainage facilities to reduce site run-off and the impact to historic proportions. Draingge facilities will be built to the Town of Bennett standards, a preliminary drainage study has been completed as a part of this ODP.

The project will incorporate several concepts in the design of drainage facilities for the site, including:

1. Measures to reduce erosion effects of concentrated flows from developed storm water
runoff to adjacent agricultural fields (particularly the western drainage basins);
2. Evaluation of detention facilities for multiple use, such as parks and open space, recreation facilities, trail corridors, and storm water storage for irrigation of common/ public open space areas;
3. Detention and erosion control requirements for phased construction; and

Storm water quality enhancement in accordance with the best management practices, particularly in the neighborhood commercial areas.

## GENERAL DEVELOPMENT PHASING

DEVELOPMENT is generally anticipated to proceed from the north to the south. Initial site access will be from E-38th Ave. Development of the interior road network will provide access to individual residential parcels as this network is extended through the property, and the centrally located Neighborhood Park will be in the first phase of the community. Public facilities/ services, infrastructure, utilities, and amenities will be constructed to serve the residential neighborhoods in a reasonable and efficient manner as those areas are developed. The total project build-out time frame will be determined by market conditions.

## OUTLINE DEVELOPMENT PLAN

 MUNDELL FARMS
## COUNIY OF ADAMS, COLORADO

## DaIE: MAY 2022 DRYISED:




ILLUSTRAIIVE CONCEPT PLAN - NOI TO SCALE


## ROOM <br> to GROW

At MUNDELL farms, the entire cycle of life - from raising food to raising families - evolved in one heallhy place. The first fresh, green community including its own orchard in the park! MUNDELL farms is rooted in the most up to date neighborhood and environmental thinking. Yet, it is down to earth and friendly with parks, paths, open space and easy access to amenities that make life easier, healthier, sustainable and comfortable.

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## OUULINE DEvELOPMENT PLAN <br> TOWN OF BENNEIT

COUNIY OF ADAMS, STAIE OF COLORADO
SHEET 5 of 9

## DEvELOPMENT STANDAROS INTROOUCION

The following Development Standards have been prepared to ensure a responsible site planning process which will help minimize potential land use conflicts, provide visual interest and diversity of homes, as well as enhance the small town, country character and open feeling of the Community. The standards also provide the flexibility necessary to support a range of single tamily-residential housing types and lot sizes, depending on market conditions at the time development.
The Development Standards have been established for each major land use type within the Community. Projects permitted within each area and land use type shall be constructed in accordance with these Development Standards and permitted uses. These standards are considered preliminary guidelines which may require more specific information and detail at the time of Final Development Plan Review. The architectural character and intent for special/innovative residential solutions will also need to be established at Final Plan as determined by the Town. This may include prototypical site plans, and architectural character sketches and elevations.

Development Standards with respect to parking (including commercial off-street parking), sign control and landscape requirements shall be controlled by the provisions of the Town's Zoning lode and Subdivision Regulations.

## ARCHITECTURAL STANDARDS

Each neighborhood shall contain architectural diversity, high quality and attention to design detail in accordance with a set of design guidelines and standards to be created for the design detail in accordance with a set of design guidelines and standards to be created for the neighborhoods and become the basis for more specific architectural guidelines.

1. Varied architectural styles shall be encouraged within each neighborhood. Aarchitectural building forms and elevations should be varied but compatible along the streetscape, imple forms are preferred over complex forms)
2. Where floor plans are offered on a repeating basis, alternate elevations shall be developed. Identical floor plans with similar exterior elevations shall not be located adjacent to, or immediately across from one another.
3. A variety of design elements and details shall contribute to the overall character of a home's elevation and its appearance from the street, including the use of front porche and covered entries, bay and box windows, and the handling of windows and door openings.
4. Careful scrutiny shall be given to the massing, proportions, and the overall scale of each design. A homés mass will be "broken up" to reduce its apparent scale, provide visual interest and depth, and achieve a more articulated building form. Massing of individual homes should be simple and reflect the architectural style of the home. This requires the careful application of elevation styles to appropriate floorplans. for example, the strong two-story vertical massing of colonial style homes is most compatible with a simple rectilinear two-story stacked floorplan while the asymmetrical fwo-story massing or single story massing of a craftsman lends isself better to second floor recessed or single story plan. Builders are encouraged to develop floor plans that are responsive to both architectural style objectives as well as energy efficient building objectives. These two objectives can be satistied by creating simple floor plan forms which minimize jogs and avoid unnecessary complicated massing solutions.
5. Large, flat, unbroken building planes on the front and rear elevations shall be prohibited. side elevations without windows shall be discouraged.
6. Size, shapes, proportions, and trim of doors and windows shall be consistent with the architectural style of the home.
7. Garage-dominated homes and streetscenes shall be avoided through various desian techniques, including providing varied garage orientations, locations and setbacks, as well as recessing garages into the main plane of front facades and providing design elements to help them blend with front architecture.
8. Maximum single family residential buildings heights will be limited to 35 feet

SNGLE-fAMLIY RESIDENIIAL INIENI
To provide for a variety of residential development of single-family homes on a mix of singlefamily lot types, including the potential for attached homes. Special residential housing types and lot configurations, including but not limited to, rear-load homes with alley access, will be allowed if consistent with the intent, standards, and residential character of this section.

Permitted Uses (by Right)

1. Single-family attached and detached dwelling units
2. Attached or detached private garages (with front and rear-loaded access, including alleys.)
3. Community information centers and kiosks
4. Accessory structures and uses (see below
5. Public and private open space and recreational facilities
6. HOA facilities and trails
7. Signage (including project identification signs and monuments)-subject to the sign permit requirements in the Bennett Municipal Code.
8. Utilities and appurtenant facilities
9. Roads and parking
10. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
11. Drainage and detention facilities
12. Any other uses consistent with the intent of this section and similar in character to use permitted in this district as determined by the Zoning Administrator.

## Conditional Uses

(Conditional uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Child care centers
2. Public and quasi-public facilities
3. Institutional facilities
4. Special community buildings/facilities and events
5. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Temporary Uses
(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)

1. Show home complexes and/or residential sales offices
2. Iemporary construction yards and structures
3. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Loning Administrator

## OPEN SPACE AREAS INIENT

O provide active and passive open space uses, including potential recreational facilities, to serve the residents of MUNDELL farms.

Permitted Uses (by Right)

1. Active public and private recreational uses, including but not limited to ballfields, playgrounds, swimming pools, and court games.
2. Passive public and private recreational uses, including but not limited to pinnic grounds native, naturalized or landscaped fields, and visual butfer open space.
. Public Recreation Buildings.
3. Community Information/Sales Centers
4. Pienic Pavilions and Shelters.
5. Public and quasi-public facilities.
6. Hiking and biking trails.
7. Accessory structures and uses.
8. Temporary construction yards and structures.
. Signage, (incluaing project identification signs and monuments) - subject to the sign permit requirements in the Bennet Municipal Code.
Utilities and appurtenant facilities.
9. Roads and parking.
10. Consideration may be given to shared parking where appropriate in accordance with the Bennett Municipal Code requirements for parking regulations.
11. Drainage and detention facilities
12. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Conditional Uses

Conditional uses will be reviewed and processed in accordance with the Bennett Municipal
Code)
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Iemporary Uses
(Temporary uses will be reviewed and processed in accordance with the Bennett Municipal Code)
. Special community events
. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

## Open Space Development Standards

Projects permitted in Open Space Areas shall be constructed in accordance with the following Development Standards.
Development Standards.
Minimum Building Setbacks
Adjacent to other land use planning areas $=30$ feet
Adjacent to public roadway $=40$ feet
2. Minimum building separation $=20$ feet (or as required by applicable fire codes)
2. Minimum building separation $=2$ feet (or as
. Maximum building height $=35$ feet ( 2 stories) . Munimum off-stred
5. Consideration may be given to shared parking where appropriate in accordance with the Consideration may be given to shared parking where appropri
Bennett Municipal Code requirements for parking requlations.
Bennett Municipal Code requirements for parking regulations.
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as defermined by the Zoning Administrator.

Detention Areas and Drainage Channels
The landscape for detention areas and drainage channels will be designed in a manner that will reinforce the character of MUNDELL farms and the high plains prairie, as well as provid the greatest benefit to the community. All detention areas and related conveyance facilitie shall strive for a natural vs. an "engineered" look. The designs shall strive to create a landscape concept tor drainage channels and detention areas that will be aesthetically pleasing as well as environmentally responsible in terms of water use. It is considered beneficial to allow for passive recreational activities near detention areas.

1. Detention facilities, manmade drainage channels other than those through residentid ront or side yards, and disturbed drainage channels, shall be planted with drought tolerant native grasses and plant materials. Front and side yard residential drainages shall be planted to match the front or side yard of the residence. Natural drainage channels containing existing vegetation and non-irrigated native grasses are exempt, Detention areas or drainage channels shall be designed to blend with adjacent areas.
2. Natural drainage corridors containing existing native grasses and established vegetation may be supplemented with native trees, shrubs and ornamental grasses that could enhance wildife habitat and the pedestrian environment. Areas of disturbance within the natural drainage corridors shall be re-vegetated with native plant materials.
3. Consideration should be given to locating pedestrian focal points along drainages including overlooks, and seating areas

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## OUULINE DEVELOPMENT PLAN

TOWN OF BENNETI
COUNTY OF ADAMS, STAIE OF COLORADO
SHEET 6 of 9
4. Plant materials should be used to strengthen the edge of drainage ways.
5. Landscape adjacent to drainage ways should be naturalistic and include riparian vegetation.

## ACCESSORY STRUCTURES AND USES INIENT

To provide Development Standards applicable to all land use areas within MUNDELL farms (exclusive of Open Space areas). Accessory Structures or Uses shall refer to detached, subordinate buildings or structures, the use of which is customarily incidental to that of the principal building or to the main use of the land and which is located on the same lot with the main building or use.

Permitted Uses (by Right)
. Private parking garages (attached or detached from single-family homes)
2. Service structures (utility/storage, garden sheds and greenhouses)
3. Patio/privacy enclosures and walls
4. Patio shade structures and gazebos
5. Secondary living units including but not limited to living space, home offices, or recreation uses, within a detached garage or other detached building/structure.
6. Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.

Accessory Structures Development Standards
Permitted accessory uses shall conform to the setbacks outlined in the Residential Development Standard Matrix.
2. Maximum building height $=28$ feet (or 2 stories)
3. Maximum number of accessory structures $=1$ per lot as a use by right, any additiona structure would need to be submitted to the Jown for review and approval.
4. Detached parking garages shall be architecturally compatible with the main building or Detached parking garages shall be archirecturally compatible with
house, including similar design styles, details, materials, and color.
5. Service structures, such as garden sheds, utility storage and greenhouses, are only

Service structures, such as garden sheds, utility storage and greenhouses, are only
permitted in the Single Family Detached lot types if attached to the main structure and permitted in the single family Detached lof types if aftached to the main structure and successfuly integrated into the residential architecture. Such structures may be defached
in, if compatible with the architecture of the main building.

- Patio shade structures and gazebos should be compatible with the architectural styles of their related homes.
Patio/privacy enclosures and walls should be architecturally compatible and reflect defails and materials consistent with the residential buildings they serve.
Any other uses consistent with the intent of this section and similar in character to uses permitted in this district as determined by the Zoning Administrator.


## residenilal street design concepr and standards

Residential streets contribute significantly to neighborhood quality. They offer a place to walk, to meet neighbors, and of course, to park. Street network will include a hierarchy of streets that reflect the different residential densities and traffic conditions within the Community. The proposed street system is designed to provide a tree-lined streetscape, characteristic of traditional neighborhoods. The intent is to utilize the standard street sections and standards from the Town of Bennett's standards.

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## OUtILNE Development Plan

TOWN OF BENNEIT
COUNIY OF ADAMS, STATE OF COLORADO
SHEET 7 of 9
Community Patterns Overview

THE COMMUNITY PATIERNS SECTION contains specific information for placing houses and buildings within the future development parcels, as well as information related to the density and character of specific lof types. These guidelines were developed as part of the master planning process, and are meant to ensure that the community develops with the diversity and character anticipated in the overall vision for the community.

The central Neighborhood Park organized the entire community, play in the splash pad with your neighbors! Enjoy time with friends by the outdoor fireplace. Throw a BBQ, play in the great lawn, pick apples from the orchard. Schedule a get-together in the outdoor pavilion. At the Park, MUNDELL farms residents and their guests can truly indulge in a full range of recreational amenities.

THE NEIGHBORHOOOS at MUNDELL farms are loosely defined by a pocket park qiving identity to the residents in that particular area. Great neighborhoods are walkable, drivable, and bike-able. To be socially connected, the neighborhoods include areas to linger, sit and talk with neighbors and provide both passive and active recreation. Neighborhoods are composed of a variety of blocks knitted together by roads, walks, triils, paths and open spaces that connect residents from their homes to these public spaces.


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## CIVIL ENGINEERING

## APPLICANT

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## OUTLINE DEVELOPMENT PLAN MUNDELL FARMS <br>  <br> 7 of 9 <br> COMMUNITY PATIERNS \& LOT TYPES 言

OUTLINE DEVELOPMENT PLAN
TOWN OF BENNETI
COUNIY OF ADAMS, STAIE OF COLORADO
SHEET 8 of 9

50x110-GENERAL CONDIIIONS


40x105 - GENERAL CONDITIONS


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## LOT TyPES

MUNDELL farms will offer at least three different lot types, ranging from attached townhomes and duplexes to single family detached lots. These lot types are not intended to be all inclusive, but are intended to depict the variety and quality anticipated for the community. The lot types depicted in this document include Townhomes, Duplexes, and various sizes of Single Family Detached front loaded lots. Additional products may be used in the project.

SINGLE FAMMLY DEIACHED FRONT LOADED -
GENERAL CONDITIONS

## LOT SIZE

The lots range from 40 feet wide by 105 feet deep to 50 feet wide by 110 feet deep. Corner lots are range from a minimum of $50-60$ feet wide. These lots are front-loaded.

## setbacks

Setbacks shall be unoccupied and unobstructed by any structure or portion of a structure from 30 inches
above grade upward; provided, however, that fences, walls, trellises, poles, posts, ornaments, furniture and other customary yard accessories may be permitted in any setback subject to height limitations and requirements limiting obstruction of visibility.
PROJECTIONS INTO REQUIRED SETBACKS, GENERAL The following structures may project into required
tront, side or rear setback.
i. Paved patios or CORE DOES NOT Fany Paved patios or
required setback ENPROVE THE required sefback ENCROACHMENT Ures
placed on them shall violate other easement requirements.
ii. Unroofed landings, decks and stairs may project II. Unroofed landings, decks and stairs may project
into reavired setbacks, provided that the floor into required setbacks, provided that the floor the finished grade level and the projection is at least 5 feet from the lot line.
iii. Unroofed exterior balconies may project into a required side or rear sethack provided these projections are at least5 5 feet from the side lot line and 10 feet from the rear lot line.
iv. Cornices, eaves, canopies, window wells chimneys, bay windows, ornamental features,
and other similar architectural features may REAR YARD SETBACK project ADD: STAIRS, DECKS,
sethact AND RETAINING WALLS
v. Roofs over porches, stairways, landings, terraces or other exterior approaches to pedestrian doorways may project up to 6 feet into a fron setback. The covered porch or entrance area setback. The covered porch or entrance area projecting into the rront setback shall remain exterior to the building and enclosed by no
more than a railing. The projection shall be at least 5 feet from the property line.

## FRONT YARD SEIBACK

Minimum 20-foot setback from the front property line to the house.

## IIDE YARD SETBACK

Minimum 5-foot setbacks from the side property line.
SIDE STREET SEIBACK
A minimum 15 -foot setback from the side stree property line to the house.
from the rear property line.

## ENCROACHMENTS

Porches, bay windows and window sells encroach into both the Front Yard and Side Yard Street Setback Zones.

## GARAGE REQUIREMENTS

A minimum of two parking spaces per home is required. A diversity of garage styles is required Diversity shall be achieved by providing a minimum of 2 of the garage variation choices listed below. 2 of the garage variation choices listed below. To hosen shall each be used on l least 25 percent of th do single family homes whe the of 50 . The 2 variations chosen will be a minimum of 50 percent of the development; the remaining 50 percent may be
Side-looded garoges:
. Side-loaded garages;
Garages recessed a minimum of 4 feet behind the front facade of the living space within the house:
iii. Garages that protrude no less than 2 feet or no more than 5 feet in front of the dwelling unit portion of the structure; and
iv. Garages recessed a minimum of 2 feet beneath a second floor bay.

## FFNCING RECOMMENDATIONS

Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy.

## YaRD REQUIREMENI

A minimum functional yard area of 15 feet by 20 feet is required.

8 of 9
DETACHED LOTS

## OUTLINE DEVELOPMENT PLAN

MUNDELL FARMS

## DAIE: MMY 2022 DPVISSD:

Qate:
ReVISD:
RFVISD:
ReVISED:
REVISED:
COUNTY OF ADAMS COLORADO

OUTLINE DEVELOPMENT PLAN
TOWN OF BENNETI
DUPIEX - GENERAL CONDITIONS


SHEET 9 of 9

PLANNING
LaNDSCAPE ARCHITECTURE
TOWNHOMES - GENERAL CONDIIIONS


REAR YARD SEIBACK
All structures shall be set back a minimum of 20 feet from the rear property line.
encroachmenis
Porches, bay windows and window wells may not encroach into both the Front Yard and Side Yard Stree etback Zones.

## CARAGE REQUIREMENTS

A minimum of two parking spaces per home is equired. Townhomes are permitted to tave is grage spoce, and one poce in front of the a sing

## OWNHOME SPECIFIC GUDELINES

1. No more than 6 townhome dwelling units may be attached in any single row or building cluster.
2. Within each town home row or duster, individual dwelling units shall be differentiated, or may express a purposely uniform design. When dwelling units are to e differentiated, they shall be differentiated through
2 or more of the following methods:
i. Use of distinct color variation between individua dwelling units;
ii. Use of distinct variations in materials between individual dwelling units;
iii. Use of distinct variations in architectural style or features, such as a porch or similar feature,
between individual dwelling units:
iv. Use of distinct variations in roof form
v. A variation in the plane of the front facade to provide a minimum 3 foot variation between provide a minimum
individual dwelling units. individual dweling units
When uniformity (sameness or pattern repectition) in design is proposed, this shall be expressed hrough repetition of 2 or more of the following methods.
i. Use of materials both in type and location; ii. Size, style, and patterning of windows; iii. Size and detailing of front porches; iv. Roof dormers, roof form, and roof pitch.

## DUPIEX SPECIFIC GUIDELINES

A continuous row of identical homes along a block hall be prohibited. Individual structures shall be differentiated through 2 or more of the following methods:
i. Use of distinct color variation and materials between individual structures
ii. Use of distinct variations in roof form, or
iii. Use of distinct variations in architectural
features, such as porches, roof form, windows, or similar feature, between individual structures. Models with identical facades shall not be placed adjacent to or across the street from 1 another

FENCING RECOMMENDAIONS
Front yard fences are a permitted upgrade and shall not exceed 4 feet in height. No fencing may be installed within sight distance easements. Rear and side yard fences are required for privacy

## Yard requirement

A minimum functional yard area of 15 feet by 20 feet is required.

A minimum 15 -foot setback from the side stree property line to the house.

## froni yard setback

Minimum 20-foot setback from the front property line to the house.

## SIDE YARD SETBACK

Minimum 5 -foot setbacks from the side property line.

pcs group inc 200 Kalamath Street, Denver, CO -
80223
tel: 303.531.4905

CIVIL ENGINEERING


C Invernes
303.925.0544

## APPLICANT

MGV 36 NORTH LaND INVESTMENS, LLC PO Box - 4701 Greenwood Vilage, co 80155 (303) 507-6651
-


## DISTRICT 0FFICES

615 Seventh Street • Bennecl. Colorado 801028015
(303) 6443234 - (303) 5711104 - FAX (303) 6444121

Bennett North (Mundell) - Case Number 22.02
July 12, 2022
This letter is being written to address impact of the 900 homes on 154 acres located on the southwest corner of E $38^{\text {th }}$ Ave and $1^{\text {st }}$ St/Converse Rd. Bennett School District has policy in place that address the expectations for land dedications, cash-in-lieu, and land use impact statements.

We are asking for $\$ 1,871,181.00$. Please see attached calculations.


Superintendent of Schools


Mr. Keith Yaich
Chief Financial Officer

B29J - Student Yield, Land Dedication and Fee-In_Lieu Calculators - 12/5/21

| Student Yield Calculator |  |  | Elementary |  | Middle |  | High |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Housing Unit Type | Density | $\sum_{0}^{\infty}$ |  |  |  |  |  |  |  | 告 |
| Single Family Detached | 1-7.99 | 900 | 0.29 | \#\#\# | 0.15 | 135 | 0.16 | \#\#\# | 0.6 | 540 |
| Single Family <br> Attached (Condo, <br> Townhome, Plex) | 8-14.99 | 0 | 0.14 | 0 | 0.06 | 0 | 0.08 | 0 | 0.28 | 0 |
| Multifamily (Apartments) | 15+ | 0 | 0.07 | 0 | 0.03 | 0 | 0.04 | 0 | 0.14 | 0 |
| Totals 900 |  |  |  |  |  |  |  |  |  | 540 |


| Acreage Calculator | Units |  | $\begin{array}{ll} 0 \\ 00 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 0 \\ 8 & 0 \end{array}$ | $\begin{array}{ll}  & \frac{\square}{ㄹ} \\ \hline \end{array}$ | $\begin{array}{r} 0 \\ \mathbf{0} \\ 0 \\ \mathbf{U} \\ \mathbf{U} \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Single Family Detached Units (SFD) | 900 | 0.0162 | 14.58 | \$2,079.09 | \$ 1,871,181.00 |
| Single Family Attached Units (SFA) | 0 | 0.0075 | 0 | \$964.84 | \$ |
| Multifamily Units (MF) | 0 | 0.0038 | 0 | \$482.42 | \$ |
| Totals |  |  | 14.58 | Or | \$ 1,871,181.00 |

# RE: Bennett North (Mundell) Zoning ODP 

1 message

Karl Smalley [KSmalley@adcogov.org](mailto:KSmalley@adcogov.org)
Tue, Jun 21, 2022 at 9:40 PM
To: Town of Bennett Planning [planning@bennett.co.us](mailto:planning@bennett.co.us)

The Adams County Sheriff's Office has no objections to this project.

Karl Smalley, Commander
Adams County Sheriff's Office
Strasburg, Co 80136

From: Town of Bennett Planning [planning@bennett.co.us](mailto:planning@bennett.co.us)
Sent: Tuesday, June 21, 2022 10:58 AM
To: Layla Bajelan [LBajelan@adcogov.org](mailto:LBajelan@adcogov.org); Karl Smalley [KSmalley@adcogov.org](mailto:KSmalley@adcogov.org); United States Postal Service [sarah.e.zawatzki@usps.gov](mailto:sarah.e.zawatzki@usps.gov); Bennett School District 29J ATTN: Robin Purdy [robinp@bsd29j.com](mailto:robinp@bsd29j.com); Bennett School District 29J: ATTN: Keith Yaich [keithy@bsd29j.com](mailto:keithy@bsd29j.com); Bennett School District 29J: ATTN: Jennifer West [jenniferw@bsd29j.com](mailto:jenniferw@bsd29j.com); Robin Price [rprice@bennett.co.us](mailto:rprice@bennett.co.us); Rick Martinez [rmartinez@bennett.co.us](mailto:rmartinez@bennett.co.us); Daymon Johnson [djohnson@bennett.co.us](mailto:djohnson@bennett.co.us); Bennett Rec District [director@bennettrec.org](mailto:director@bennettrec.org); Victoria Flamini <VictoriaFlamini@ bennettfirerescue.org>; Bennett Watkins Fire Rescue [calebconnor@bennettfirerescue.org](mailto:calebconnor@bennettfirerescue.org);
JGutierrez@summitutilitiesinc.com; GVanderstraten@summitutilitiesinc.com; Eastern Slope Rural Telephone [patw@esta.com](mailto:patw@esta.com); l-70 Regional Economic Advancement Partnership [lxc.strategies@gmail.com](mailto:lxc.strategies@gmail.com); Brooks Kaufman [BKaufman@core.coop](mailto:BKaufman@core.coop); Jehn Water Consultants Inc [gburke@jehnwater.com](mailto:gburke@jehnwater.com); Melinda Culley [melinda@kellypc.com](mailto:melinda@kellypc.com); Daniel Giroux [dangiroux@terramax.us](mailto:dangiroux@terramax.us); Steve Hebert [shebert@bennett.co.us](mailto:shebert@bennett.co.us); Heugh, Michael [Michael.Heugh@jacobs.com](mailto:Michael.Heugh@jacobs.com)
Subject: Bennett North (Mundell) Zoning ODP

Please be cautious: This email was sent from outside Adams County

Hello,

Below is a Dropbox link to the Bennett North (Mundell) Zoning ODP application. We appreciate your review and comments. Please send your comments back via this email address or by mail to Town Hall by July 12, 2022.
https://www.dropbox.com/scl/fo/myObyrbuprenhgqh2rsak/h?dl=0\&rlkey=3em3prbc4nic2duxzxk4m6frm

If you have any questions, please email or call Steve Hebert at shebert@bennett.co.us or the phone number below.

welcome neighbors.

Planning Department
207 Muegge Way | Bennett CO, 80102
(303)644-3249 | planning@bennett.co.us townofbennett.colorado.gov

# RE: Bennett North (Mundell) Zoning ODP - 2nd Submittal 

1 message
DevelopmentSubmittals [DevelopmentSubmittals@adcogov.org](mailto:DevelopmentSubmittals@adcogov.org)
Thu, Oct 6, 2022 at 4:01 PM
To: "planning@bennett.co.us" [planning@bennett.co.us](mailto:planning@bennett.co.us)

## Good Afternoon,

Adams County Development Services has no further comment on this request.

Thank you,


## Ella Gleason (she/her)

Planner I, Community \& Economic Development
ADAMS COUNTY, COLORADO
4430 South Adams County Parkway, 1st Floor, Suite W2000A
Brighton, CO 80601
O: 720.523.6923 | EGleason@adcogov.org | www.adcogov.org

Adams County operating hours: Tuesday through Friday, 7 a.m. to 5:30 p.m. (Closed on Mondays)
I work remotely on Mondays and Fridays. If you leave a voicemail on either of those days, I will respond the following Tuesday.

From: Town of Bennett Planning [planning@bennett.co.us](mailto:planning@bennett.co.us)
Sent: Thursday, October 6, 2022 3:32 PM
To: Layla Bajelan [LBajelan@adcogov.org](mailto:LBajelan@adcogov.org); Karl Smalley [KSmalley@adcogov.org](mailto:KSmalley@adcogov.org); United States Postal Service [sarah.e.zawatzki@usps.gov](mailto:sarah.e.zawatzki@usps.gov); Bennett School District 29J ATTN: Robin Purdy [robinp@bsd29j.com](mailto:robinp@bsd29j.com); Bennett School District 29J: ATTN: Keith Yaich [keithy@bsd29j.com](mailto:keithy@bsd29j.com); Robin Price [rprice@bennett.co.us](mailto:rprice@bennett.co.us); Rick Martinez [rmartinez@bennett.co.us](mailto:rmartinez@bennett.co.us); Daymon Johnson [djohnson@bennett.co.us](mailto:djohnson@bennett.co.us); Bennett Rec District [director@bennettrec.org](mailto:director@bennettrec.org); Victoria Flamini [VictoriaFlamini@bennettirerescue.org](mailto:VictoriaFlamini@bennettirerescue.org); Bennett Watkins Fire Rescue [calebconnor@bennettfirerescue.org](mailto:calebconnor@bennettfirerescue.org); Colorado Natural Gas/Eastern Utility ATTN Gabriel Vanderstraten
[GVanderstraten@summitutilitiesinc.com](mailto:GVanderstraten@summitutilitiesinc.com); Colorado Natural Gas/Eastern Utility ATTN Justin Gutierrez <JGutierrez@ summitutilitiesinc.com>; Eastern Slope Rural Telephone [patw@esrta.com](mailto:patw@esrta.com); I-70 Regional Economic Advancement Partnership [lxc.strategies@gmail.com](mailto:lxc.strategies@gmail.com); Brooks Kaufman [BKaufman@core.coop](mailto:BKaufman@core.coop); Jehn Water Consultants Inc [gburke@jehnwater.com](mailto:gburke@jehnwater.com); Melinda Culley [melinda@kellypc.com](mailto:melinda@kellypc.com); Daniel Giroux [dangiroux@terramax.us](mailto:dangiroux@terramax.us); Chad Bunger [cbunger@bennett.co.us](mailto:cbunger@bennett.co.us); Steve Hebert [shebert@bennett.co.us](mailto:shebert@bennett.co.us); Heugh, Michael [Michael.Heugh@jacobs.com](mailto:Michael.Heugh@jacobs.com)
Subject: Bennett North (Mundell) Zoning ODP - 2nd Submittal

Please be cautious: This email was sent from outside Adams County

Hello,

Below is a Dropbox link to the Bennett North (Mundell) Zoning ODP - 2nd Submittal. We appreciate your review and comments. Please send your comments back via this email address or by mail to Town Hall by October 27, 2022.
https://www.dropbox.com/scl/fo/uhbgjaspvhbwjx5xxsiaj/h?dl=0\&rlkey=1tbtrk61w7m4g644097d5xzrb

If you have any questions, please email or call Steve Hebert at shebert@bennett.co.us or the phone number below.


Planning Department
207 Muegge Way | Bennett CO, 80102
(303)644-3249 |planning@bennett.co.us
townofbennett.colorado.gov

## ORDINANCE NO. 762-22

## AN ORDINANCE ZONING PROPERTY ANNEXED TO THE TOWN OF BENNETT AND KNOWN AS THE BENNETT NORTH ANNEXATION AND APPROVING AN OUTLINE DEVELOPMENT PLAN FOR MUNDELL FARMS

WHEREAS, a petition for annexation of certain property, known as the Bennett North Annexation, as legally described in Exhibit A attached hereto and made a part hereof, was filed with the Board of Trustees of the Town of Bennett; and

WHEREAS, the property was annexed to the Town by ordinance; and
WHEREAS, the Board of Trustees must provide for the zoning of the property; and
WHEREAS, the Board of Trustees provided notice of the public hearing on said zoning by publication as provided by law; and

WHEREAS, no protests were received by the Town pursuant to C.R.S. § 31-23-305; and
WHEREAS, the landowner of the property requested the property set forth in Exhibit A be zoned PD - Planned Development District and has submitted an Outline Development Plan (ODP) for said property to be known as Mundell Farms in connection with the zoning request; and

WHEREAS, the PD - Planned Development District zoning classification and the Mundell Farms Outline Development Plan are consistent with the Town's plan for the area encompassed by the Bennett North Annexation; and

WHEREAS, the Bennett Planning and Zoning Commission has held a public hearing on the landowner's zoning request and forwarded its recommendation to the Board of Trustees, and the Board of Trustees has duly considered that recommendation.

## NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF BENNETT, COLORADO:

Section 1. That certain property contained within the Bennett North Annexation to the Town of Bennett, the legal description of which is set forth in Exhibit A attached hereto and made a part hereof, is hereby zoned PD - Planned Development District pursuant to the zoning ordinances of the Town, and the Town zoning map shall be amended accordingly.

Section 2. The Board of Trustees hereby approves the Mundell Farms Outline Development Plan, a copy of which approved Outline Development Plan is set forth on Exhibit B, attached hereto and incorporated herein by reference, subject to the following conditions of approval:
a. Before recording the Outline Development Plan, the applicant shall make minor modifications as directed by Town Staff, the Town Attorney and the Town Engineer.
b. The following language shall be added to the Outline Development Plan:

Updated comprehensive traffic impact studies (TIS) will be required at the time of each subdivision plat. Future studies must include, but not be limited to: an identification of vehicle trip generation, existing and proposed conditions, capacity analysis, onsite and offsite impacts and improvements to mitigate the impacts. The design, financing and timing of construction of internal and external street connections will be addressed in subsequent subdivision agreement(s) at the time of the platting process. A future subdivision agreement or agreements will determine how many new homes, if any, can be built and occupied in each phase of development consistent with the timing of required offsite improvements. All traffic impact studies shall be subject to Town approval.

# INTRODUCED, READ, ADOPTED, APPROVED, AND ORDERED PUBLISHED BY TITLE ONLY THIS 22 ${ }^{\text {nd }}$ DAY OF NOVEMBER 2022. 

TOWN OF BENNETT, COLORADO

Royce D. Pindell, Mayor
ATTEST:

Christina Hart, Town Clerk

## EXHIBIT A - LEGAL DESCRIPTION Bennett North Annexation

THE NE1/4 SECTION 28, TOWNSHIP 3, RANGE 63,
EXCEPT THREE ACRES IN THE SE1/4 OF THE NE1/4 OF SAID SECTION 28 DESCRIBED AS: BEGINNING AT THE SOUTHEAST CORNER OF THE NE1/4; THENCE NORTH 396'; THENCE WEST 330'; THENCE SOUTH 396'; THENCE EAST 330' TO THE POINT OF BEGINNING.

AND EXCEPT A PARCEL OF LAND SITUATED IN THE NE1/4 OF SAID SECTION 28 DESCRIBED AS: BEGINNING AT A POINT 396.0' N0001'E OF THE SE CORNER OF THE NE1/4 OF SAID SECTION 28; THENCE N0001E A DISTANCE OF 365.0'; THENCE N8959'W A DISTANCE OF 187.0'; THENCE S0001'W A DISTANCE OF 113.0'; THENCE N89ํ.59'W A DISTANCE OF 151.5 FEET; THENCE S0001'W A DISTANCE OF 257.0'; THENCE N89¹0'13"E A DISTANCE OF 338.5', MORE OR LESS, TO POINT OF BEGINNING.

ABOVE PARCEL OF LAND INCLUDES 153.62 ACRES MORE OR LESS.

## Suggested Motion

I move to approve Ordinance No. 762-22 - An ordinance zoning property annexed to the Town of Bennett and known as the Bennett North Annexation and approving an Outline Development Plan for Mundell Farms.

## Trustee Appointment Application 2022

Row 2

| Form Date Field | 11/02/22 |
| :---: | :---: |
| Name | Kat Crow |
| Email | katcrow26088@comcast.net |
| Phone Number | +1 (303) 931-9205 |
| Street Address | 1126 Pinehurst Court |
| Occupation | Research Sales Consultant |
| Name of Employer | Marshall Marketing Research |
| Prior Work Experience | International Demographics - The Media Audit 2008-2016 CBS Radio - 2003-2008 Jefferson Pilot Communications 1994-2003 Amercian Broadcasting 1992-1994 Barnhart Advertising 19901992 |
| Education | Bachelors Degree |
| How many years have you lived in Bennett? | May 2013 |
| Previous Experience | No |

What Board?

Referred by: I have been interested in the position for a few years

Training/Expertise I have been on Antelope Hills HOA since 2014 and was on my HOA board for 2 years at my last community, Serenity Ridge, Aurora, 80016.

| Interest | I am very interested in helping with economic developing and <br> helping get through the growing pains with schools/roads/first <br> responders/infrastructure. |
| :--- | :--- |

Time Yes
Commitment
Technology 5
to understand the budget/tax revenue and what is being spent where. It will be a learning process and I am interested in understanding it.

| Qualifications | I do not know the other candidates; I could not say I am the most <br> qualified. What I offer is enthusiasm to learn more about the town I <br> live in. I am eager to participate and assist in a team process to <br> help our city grow. |
| :--- | :--- |
| Comprehensive | I think the nine planning themes are good ones and I would like to <br> help. |
| Plan |  | | Lifficult |
| :--- |
| Decisions |
| have taken the time to hear and understand this issue you will |
| better in making a decision. |

## Trustee Appointment Application 2022

Row 4

| Form Date Field | 11/12/22 |
| :---: | :---: |
| Name | Larry A Vittum |
| Email | Iva@esrta.com |
| Phone Number | +1 (303) 594-4385 |
| Street Address | 400 Columbine DR. |
| Occupation | Retired |
| Name of Employer | N/A |
| Prior Work Experience | 15 Years Stockbroker, branch manager, partner of firm 20 Years Executive director large Christian ministry 9.5 years trustee for the Town of Bennett 6 years member board of directors Denver Regional Council of Governments (DRCOG) 6 years member Adams County Transportation Forum 6 years member Arapahoe County Transportation Forum 1 month member Arapahoe County Open Space and Trails Advisory Board (current |
| Education | Associates Degree |
| How many years have you lived in Bennett? | 15 years |
| Previous Experience | Yes |
| What Board? | Please see work experience |

## Referred by:

Training/Expertise My college degree is in "small business management." I am very
well read on economics, political science, motivation, capital
control, and investments. GOD has placed many brilliant people in
my pathway, who were eager to teach me and help me learn and
understand.

Interest Bennett is the finest place I have ever lived. I think I have something to contribute to the preservation of the beauty and lifestyle of this incredible town.
Time $\quad$ Yes
Commitment

| Technology | 3 |
| :--- | :--- |
| Town Issue | Finding a renewable water source. As a result of rapid growth, not <br> to lose our small rural town feal. Not becoming East Aurora. |
| Qualifications | Knowledge, experience, well able to do the work and produce a <br> good result. |
| Comprehensive | This plan has received awards from many others for its <br> thoroughness and far-reaching vision. However, it will require <br> frequent updates and rethinks to keep it contemporary in a rapidly <br> changing world. |
| Dlan | It is of critical importance that every side of the issue feels that <br> they were given ample opportunity to express their point of view. <br> Current "woke" theory says don't give the other side an <br> opportunity to speak (de-platform them). For a certainty this will <br> create anger and resentment. While having a voice in the decision <br> will create calm and a collegial atmosphere. |
| Decisions | This is the 21st. century; more people receive information form <br> digital sources like Facebook than any other format. It is <br> imperative that the town is providing information on all relevant <br> media sources. |
| Social Media | Risk and opportunity usually travel together. A wise town staff and <br> Integrity: I am the son of a family who believed that your <br> board, working together, will continue to produce outstanding <br> results for the people of Bennett. <br> reputation was your most valuable possession., and that you <br> she wrotect it at all cost. There will come a day that if you do <br> the wrong thing, you will be popular, and people will tell you how <br> "cool" you are. But if you do the right thing, people will be curse <br> you and speak against you for years to come. I do not seek the <br> approval of men only the approval of GOD. |
| Town Values | Rer |

## Trustee Appointment Application 2022

Row 1
Form Date Field 10/14/22

| Name | Gerald (Jerry) Weller |
| :--- | :--- |
| Email | Jerryweller1959@gmail.com |
| Phone Number | $+1(720) 278$-0261 |
| Street Address | 255 Dahlia Street |
| Occupation | retired |
| Name of <br> Employer | n/a |
| Prior Work <br> Experience | I worked for the Town of Bennett for nearly 19 years prior to <br> retirement in November of 2021 |
| Education | High School Diploma or GED |
| How many years <br> have you lived in <br> Bennett? | 52 |
| Previous <br> Experience | Yes |
| What Board? | town board for just a few months in the early 80's. I had to resign <br> because of work change |

Referred by:

| Training/Expertise | My main training is living in Bennett for many years and working <br> for the Town. I worked for many Departments in my Town <br> employment. these included: Public Works/parks Department <br> Code Enforcement Animal Control Building Department Utility |
| :--- | :--- |
| Billing Court I feel this gives me an overall perspective on Town of <br> Bennett operations. |  |
| Interest | I feel I would be a good candidate for this position due to my <br> experience working for the Town for many years |
| Time <br> Commitment | Yes |


| Qualifications | The dedication that I will put forth |
| :--- | :--- |
| Comprehensive <br> Plan | I do not know a lot about it. But will read through it if I am selected. |
| Difficult <br> Decisions | Listen to both sides and make a decision based on what is best <br> for the Town overall. |
| Social Media | I feel these are important and should be used or expanded. |
| Town Values | Service Orientation: Prior to retirement I worked the majority of my <br> time in customer service. This included Utility billing and being the <br> first person me talked to when coming to town hall. |
| Other | I would just like to thank everyone for the chance to be involved in <br> the great Town of Bennett |

TO: $\quad$ Mayor and Town of Bennett Board of Trustees<br>FROM: Daymon K. Johnson, Capital Projects Director<br>DATE: November 22, 2022<br>SUBJECT: Change Order for Construction of Bennett Lower Arapahoe Aquifer Well LA-14

## Background

The Town engaged with Hydro Resources - Rocky Mountain, Inc. to complete a Laramie Fox Hills (LFH) well as a part of RFP 22-001. That project has been completed and the production yield at the LFH-14 site is roughly 150 GPM, which translates to somewhere between 80-100 acre feet of water per year. That number fluctuates depending on how much it's used.

As Town Staff and Consultants have evaluated the LFH-14 Well, we feel it's important to drill a Lower Arapahoe (LA) well at that same site. There are several reasons for this. First, the yield on the recently completed LFH-14 is a bit lower than what we're accustomed to seeing and adding water here is important. Second, LFH wells tend to be high in fluoride and the only way to make that water useful as a future part of the system is to blend it with another aquifer's water. Typically, Staff uses the Upper Arapahoe Aquifer for blending purposes. However, a study was completed by Jehn Water Consultants, Inc. (the Town's water consultant) and the same site that LFH-14 is in was chosen as the best option for the Town to add a LA well. Finally, based on the recommendation of Jehn Water Consultants, Inc., Staff feels confident that the LA well will diversify and increase the Town's water portfolio. As well as provide good water to blend with the recently completed LFH-14 Well.

Staff requested a written proposal from Hydro Resources - Rocky Mountain, Inc. to construct the LA-14 Well as a change order to the contract for Bennett Well LFH-14. The new LA-14 Well is to be completed on the same well pad as LFH-14, and will eventually be fully completed and built out for implementation into the Town's water system. In the immediate, the combination of LFH-14 and LA-14 will be used for construction water for various contractors operating in Town. The goal here is to encourage this use at a reduced rate of $\$ 40$ per 1000 gallons in lieu of tapping into our potable water resources, which is $\$ 80$ per 1000 gallons.

The scope of work is for the construction, completion, development and pump testing of a vertically drilled water well suitable to provide municipal water to the Town. Hydro Resources - Rocky Mountain, Inc. will not be doing final completion of the well (pumps, SCADA and lines to connect) this is simply the hole.

In fiscal year 2024, the Town will endeavor to equip both wells and implement LFH-14 and LA-14 into the water system.

Hydro Resources - Rocky Mountain, Inc. procured drawings and specifications directly from Jehn Water Consultants, Inc., and submitted a formal cost proposal.

## Summary of LA-14 Cost Proposal

The proposed change order to the Bennett LFH-14 Well contract (attached) includes specifications for construction of Bennett Lower Arapahoe Aquifer Well LA-14 and a bid cost form.

Approval of Change Order No. 4 would increase the contract Price by $\$ 557,716$. This change order also includes a change in contract time. The contract time for completion of the Bennett Lower Arapahoe Well LA-14 is proposed to be 90 days from the execution date of this change.

The costs break down as follows:

| Description | Price |
| :--- | :--- |
| Contract Price - LFH-14 | $\$ 739,300.00$ |
| Price for Change Order No. 4 <br> (Construction of Well LA-14) | $\$ 557,716.00$ |
| Revised Contract Price | $\$ 1,297,016.00$ |

After fully reviewing the bid cost proposal from Hydro Resources - Rocky Mountain, Inc., both Town Staff and Jehn Water Consultants, Inc. are comfortable recommending that the Town proceed with executing Change Order No. 4 with Hydro Resources - Rocky Mountain, Inc.

Town Staff and Jehn Water Consultants, Inc. have a very good working history with Hydro Resources Rocky Mountain, Inc., which was the contractor that completed the replacement wells Denver-6 (D6), Arapahoe-6 (A6), Laramie Fox Hills-3 (LFH-3) in 2015, Laramie Fox Hills-6 (LFH-6) in 2020 and the recently completed Laramie Fox Hills-14 (LFH-14) earlier this year. As you can see, they're no stranger to Bennett and have proven time and again to be a reliable working partner for the Town.

Hydro Resources - Rocky Mountain, Inc. has communicated with Jehn Water Consultants, Inc. that they are available to start work immediately once the change order is executed. The contract time is 90 days from the date that Change Order No. 4 is signed.

For reference to the board, this project is being funded utilizing the water fund balance. This is a carry forward which will require a budget amendment.

## Staff Recommendation

Staff recommends the Board of Trustees authorize the Mayor and Town Staff to execute Change Order No. 4 (CO-004) with Hydro Resources - Rocky Mountain, Inc. in an amount not to exceed \$557,716 for contractor services to complete the construction of the new Lower Arapahoe (LA-14) Well.

## Attachments

1. Change Order No. 4, Construction of Bennett Lower Arapahoe Aquifer Well LA-14
2. Letter of Support from Jehn Water Consultants, Inc.


## ATTACHMENT A

## ATTACHMENT A: <br> SPECIFICATIONS FOR CONSTRUCTION OF BENNETT LOWER ARAPAHOE AQUIFER WELL <br> LA-14

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## GENERAL

## Description

These specifications describe the construction, completion, development and pump testing of a vertically drilled water well suitable to provide municipal water to the TOWN OF BENNETT. The Bennett Lower Arapahoe Aquifer Well LA-14 shall be drilled with reverse circulation mud rotary techniques with boreholes drilled in such a manner as to be suitable for sampling of cuttings.

The CONTRACTOR is defined in these documents as:
Hydro Resources- Rocky Mountain, Inc.
13027 CR 18 Unit C
Ft Lupton, CO 80621
The CONSULTANT is defined in these documents as:
Jehn Water Consultants, Inc.
88 Inverness Circle East, K-102
Englewood, CO 80112
303-321-8335
The OWNER is defined in these documents as:
TOWN OF BENNETT
C/O Trish Stiles, Town Administrator
207 Muegge Way
Bennett, CO 80102

## QUALIFICATIONS

1. All CONTRACTORS are required to be a licensed Water Well Driller qualified in mud rotary drilling in the State of Colorado.
2. The CONTRACTOR and lead driller for each shift must demonstrate experience in drilling of reverse circulation mud rotary drilling in the Denver Basin.
3. To demonstrate qualifications to perform the work, the CONTRACTOR must be prepared to submit within five days of OWNER's request a written statement of qualifications including financial data, a summary of previous experience, previous commitments and evidence of authority to conduct business in jurisdiction where the Project is located.
4. In determining the BIDDER's qualifications, the following factors will be considered: Work previously completed by the BIDDER and whether the

BIDDER (a) maintains a permanent place of business, (b) has adequate plant and equipment to do the work properly and expeditiously, (c) has the financial resources to meet all obligations incident to the work, and (d) has appropriate technical experience.
5. Each BIDDER may be required to show that he has handled former work so that no just claims are pending against such work. No Bid will be accepted from a BIDDER who is engaged on any other work which would impair his ability to perform or finance this work.

Welders shall be qualified in accordance with "Welding Procedures", ASME Boiler Construction Code or AWS Standard Qualification Procedure. Additionally, the welders shall be certified by the AWS. Proof of certification shall be provided to the CONSULTANT prior to commencement of casing and screen welding.

## SUBMITTALS

Submit detailed driller's log of all materials encountered during drilling.
Submit the required specified information for the well casing, screen and gravel pack.
Submit all forms and information required by the Colorado State Engineer's Office.
Submit the name and contact information for the Project Manager that will be in charge of the project for the entirety.

## PROJECT MANAGER-COMMUNICATION

The CONTRACTOR will appoint a Project Manager for the project. The duties of the Project Manager will include:

- Attending all meetings pertaining to the project,
- Conveying all information to the CONTRACTOR field personnel, including all information regarding these specifications from pre-bid meeting through final video, and
- Review and approval of all pay applications.

This individual is in charge of the project for the CONTRACTOR and will be the point contact for the CONSULTANT. The Project Manager will be available during the entire project to direct the CONTRACTOR personnel. No exceptions will be allowed. Failure to comply with this requirement may result in forfeiture of the retainage.

The Project Manager will communicate with the CONSULTANT on a regular basis. The Project Manager will discuss all aspects of the project with the CONSULTANT. Any questions regarding these specifications will be directed to the CONSULTANT. Given the importance of regular communication, the lead driller for each shift must be able to read, write, and clearly speak English. Failure to provide adequate communication may result in delay of payment or forfeiture of the retainer.

## SITE CONSTRAINTS

The following conditions must be implemented for this project.

- The driller may dig mud pits for the circulation of the drilling fluid as directed by the OWNER and CONSULTANT. The CONTRACTOR will be permitted to dispose of cuttings and fluids on-site.
- CONTRACTOR will be responsible for obtaining water for drilling operations. Water for drilling operations will be available from a hydrant owned by The Town of Bennett, located at the Well 6 Site. Arrangements for obtaining drilling water shall me made directly by CONTRACTOR with OWNER.
- Temporary fence around the project site will be required, and the project site must be secured at all times.
- Erosion and sediment control measures must be used as necessary to control dust, mud, and sediment runoff. The Town's erosion and sediment control requirement is performance based, not BMP-based. At a minimum, a perimeter silt fence is required. All project disturbed area runoff must be impounded within the project area or routed to a sediment pond (or ponds).
- Sediment must not be tracked onto paved surfaces. The CONTRACTOR will implement mud control measures to include Vehicle Tracking Control (VTC) pad installation at the approved access point. All construction traffic must enter and exit the site through the approved access point. The VTC must be installed prior to any land disturbing activities. The VTC pad shall be maintained such that the rock remains relatively loose and accumulated mud or other debris is regularly removed.
- In the event the VTC pad does not adequately control mud at the site, and mud is tracked onto paved surfaces, the CONTRACTOR shall immediately remove any tracked material from the streets, and shall take immediate action to improve the VTC pad to properly perform mud control measures.
- The site must be restored to its original condition, including grading and seeding at the conclusion of the project. The approved seed mix is provided as Appendix A.


## Erosion and Storm Water Sediment Control

It is the CONTRACTOR'S responsibility to follow any and all BMP guidelines regarding erosion and storm water sediment control set forth by Adams County.

## WELL DESIGN

The well is designed as a vertically drilled well based on general information of the formations in the area of the proposed well and are therefore, approximate. Final design of the well will be
given to the CONTRACTOR upon completion of the well drilling. The location of the well and the well design profile are shown on Figures 1 and 2 respectively.

## Conductor Bore and Casing

The hole shall be drilled to a minimum depth of 40 ft below the ground surface to provide for the installation of the conductor casing. The CONTRACTOR will set surface casing to the necessary depth according to the Water Well Construction Rules (2CCR 402-2, September 1, 2016).

The conductor casing for the well shall be steel pipe having a wall thickness of not less than $1 / 4^{-}$ inch. Conductor casing shall be manufactured in accordance to ASTM Designation: A53. If a conductor casing extending above the finished grade is desired by the CONTRACTOR for his convenience in drilling, it shall be cut off, if so directed by the CONSULTANT, without extra cost to the OWNER. The CONTRACTOR shall be responsible for selecting the appropriate size of conductor casing to ensure that it will be adequate in all respects to successfully complete the well.

All joints in the conductor casing shall be securely welded and shall be watertight. Field joints shall be either collared or butt-welded. Centering guides shall be welded to the conductor casing with a minimum of two sets of guides, equally spaced circumferentially.

After the conductor casing has been installed, it shall be sealed by filling the annular space between the hole and the conductor casing with cement grout. After cementing operations are completed, the concrete shall be left undisturbed for a period of not less than twenty-four (24) hours before drilling is resumed regardless of any curing additives that might be added to speed setting of the grout.

The quantity of concrete shall not be less than the volume of the annulus plus 20 percent allowance for hole oversize.

## Drilling

The CONTRACTOR shall provide, whenever possible, for continuous operations from the time drilling is started to the completion of the cement grouting operation.

The equipment furnished by the CONTRACTOR shall be of adequate size and type for the work proposed.

A mud pit will be constructed on site for the circulation of drilling fluids. Fencing shall be placed around the mud pit. CONTRACTOR personnel will be on-site 24 hours during the time the mud pit is open for safety purposes.

## Drilling Fluid

The drilling fluids shall be specifically manufactured for use in water wells. Sand and silt volume shall be kept to a minimum as determined by the mud engineer and the CONSULTANT. All
water used in the well construction and development shall be fresh potable water as provided by OWNER. The drilling fluids used in the construction of the well shall be a synthetic vinyl polymer, as approved by the CONSULTANT. Any and all anticipated additives to the drilling fluids system will be approved by the CONSULTANT prior to their use in the system. Saltbased mud systems shall not be acceptable at any time.

The objective of the fluid system used in the drilling operation is to provide a fluid containing a minimum of solids which may deposit a thin, easily removable, filter cake on the face of the aquifer. The fluid used shall be compounded especially for mud rotary water well construction and designed for minimum aquifer penetration and maximum aquifer protection. If there should be any conflict between the fluid system requirements for ease in drilling and the requirements for protection of the aquifer, then the ruling requirements shall be those for aquifer protection. The drilling fluids program shall be approved by the CONSULTANT prior to the start of the drilling operation. Selection and use of the drilling fluid materials shall be a part of this approval. The CONTRACTOR shall be responsible for maintaining the quality of the drilling fluid to assure protection of the water bearing and potential water bearing formations exposed in the borehole and assures good representative samples of the formation materials.

The CONTRACTOR shall retain a qualified mud to supervise the drilling fluids system. The mud engineer shall direct the additives and timing of the chemicals used during drilling unless otherwise directed by the CONSULTANT. The mud engineer shall visit the site and test mud properties a minimum of once every two days during routine drilling operations. During critical operations such as reaching the total depth, development, etc., the mud engineer shall be made available at the request of the CONSULTANT.

Equipment for measuring drilling fluid properties shall be immediately available at the rig site. Samples tested are those caught at the rig pump suction with care taken to assure a true and representative sample. The test should be conducted: (1) every 50 feet of depth; or (2) every four circulating hours; or (3) whenever conditions appear to have changed or problems arise.

The general requirements for drilling fluid properties shall be as follows:

1. Weight - The weight will be that which is required to maintain the hole stability during all conditions encountered during drilling. The weight will be reduced as close as possible to that of fresh water during gravel placement.
2. Mud Viscosity (Marsh Funnel) - Should be kept as thin as practical and still retain formation stability and ensure adequate hole cleaning. The mud viscosity will be based on the ascending velocity in the annulus for the mud system being used by the Driller.
3. Solids Content - Sand and silt volume shall be kept as low as possible. Sand content shall not exceed 2 percent of volume. Desanding and/or desilting cones shall be used in the mud system to reduce the sand and silt volume.
4. Consistency - Drilling fluid shall remain liquid at all times. Any additives used in the drilling fluid which are not already liquid shall be thoroughly mixed with water when being added to the fluid system.
5. Source of Water for Drilling - CONTRACTOR will be responsible for obtaining water for drilling operations. Water for drilling operations may be available from a nearby hydrant owned by the Town of Bennett. Arrangements for obtaining drilling water shall be made directly by CONTRACTOR with OWNER. The CONTRACTOR shall, however, furnish and install any equipment or facilities required to transport water from the site provided by OWNER to the drilling operation. The CONTRACTOR shall assume full responsibility for any losses or damage of any kind resulting from his using this water supply.

## Well Logs and Records

The CONTRACTOR shall keep an accurate log and record of all material passed through and the depths at which the changes in the formation occur for the well. The log of the well shall show all material penetrated and full descriptive notes made of everything found by the drilling and of all difficulties or unusual conditions met in drilling. The presence of clay and shale shall be noted. The final well completion report shall show the method of finishing the well; location of perforations; drilling bit types and depths of changes; a record of drill mud properties at 4hour intervals showing mud weight, Marsh funnel viscosity, sand content, drilling fluid losses, and all additives used; and any difficulties encountered.

The Division of Water Resources (DWR) requires that they shall receive a Well Construction and Test Report that is completed by the CONTRACTOR.

## Plumbness and Alignment

The well shall be constructed and all casing shall be set sufficiently round, plumb and true to permit the free installation of a submersible pump. Tests for plumbness and alignment shall follow the test procedure in Appendix C of the AWWA Standard for Water Wells, ANSI/AWWA A-100-84. Tests for plumbness and alignment shall be made at least every 200 feet while drilling. The total overall plumbness for the vertical well shall be within 1 degree.

Should the well fail to meet the requirements for plumbness or alignment, it shall be corrected by the CONTRACTOR at his or her expense or an acceptable new well will be drilled. The CONSULTANT may waive the requirements for plumbness if, in his or her judgment, the CONTRACTOR has exercised all possible care in construction of the well and the defect is due to circumstances beyond the CONTRACTOR'S control, and if the utility of the completed well will not be materially diminished.

## Well Casing

The well casing used shall be all newly-manufactured 8 -inch inner diameter casing and shall be manufactured in accordance with ASTM A-53, welded and seamless steel pipe, grade A or B specifications and shall be clearly stamped as such.

The casing shall be placed in the final reamed hole by approved methods in a manner that will assure no damage to the casing or screen during installation. The fabrication and assembly of the well casing shall be completely watertight throughout.

## Well Screen - Stainless Steel

1. General. The well screen inner diameter shall be 8 -inches and of the continuous slot, wire-wound design in order to provide maximum inlet area consistent with strength requirements. It shall be fabricated by circumferentially wrapping a triangularly shaped wire around a circular array of internal rods. The wire configuration must produce inlet slots with sharp outer edges, widening inwardly so as to be non-clogging. For maximum collapse strength each junction between the horizontal wire and the vertical rods will be fusion welded under water by the electrical resistance method. End fittings will be welded to the screen body.
2. Material and Fittings. The well screen and attached end fittings shall be fabricated from a corrosion-resistant Type 304 stainless steel. The blank welding pieces on the ends of the screens shall be 2 inches on one end and about 6 inches on the other. The ends of the screen and blank sections shall be beveled for welding.
3. The CONTRACTOR is responsible for ensuring that the materials used will be adequate for the actual conditions encountered. For bidding purposes, however, screen sections provided must meet the minimum requirements shown on the drawing.
4. Slot Size. The screen slot size shall be 0.040 inches, or as otherwise directed by the CONSULTANT. A tolerance of 0.002 inch greater or 0.005 inch under the specific slot size is acceptable.
5. Manufacturer: The well screen manufacturer shall be Johnson Division or equivalent as approved by the CONSULTANT.
6. Placement: CONTRACTOR must use a Microsoft Excel spreadsheet to track the tally and location of the blank and screen casing. Screened sections must be centered over each interval specified by CONSULTANT, making sure that blank welding pieces at the end of each screen section have been properly accounted for. Failure to construct the well as specified by CONSULTANT may result in the retainage retention, or may be just cause for re-drilling the well.
7. See Table 1 below for an estimate of the screen lengths which will be required. The CONTRACTOR shall provide lengths as described in this Table with the
provision that if additional lengths are required, the CONTRACTOR shall procure those additional lengths of screen.

TABLE 1.
TOWN OF BENNETT
Lower Arapahoe Aquifer Well LA-14 Screen Schedule 304 Stainless Steel Johnson or equivalent 0.040 -in slot screen 8 -inch Inner Diameter

| No. of lengths | Screen length | Total Length |
| :---: | :---: | :---: |
| 2 | 5 | 10 |
| 5 | 10 | 50 |
| 3 | 20 | 60 |
|  | Total Length | $\mathbf{1 2 0}$ |

## Gravel Pack

1. The gravel pack shall consist of clean, well-rounded grains that are smooth and uniform. The gravel pack shall be siliceous with a limit of 5 percent by weight of calcareous material. The gravel pack should be obtained from a source approved by the CONSULTANT and shall consist of hard, rounded particles with an average specific gravity of not less than 2.5 . Not more than 1 percent by weight of the material should have a specific gravity of 2.25 or less. The gravel pack shall contain no more than 2 percent by weight of thin, flat or elongate pieces (pieces in which the largest dimension exceeds three times the smallest dimension) determined by hand picking; and should be free of shale, mica, clay, sand, dirt, loam and organic impurities of any kind and should contain no iron or manganese in a form or quantity that will adversely affect the water quality.
2. The size and gradation of the gravel pack shall be $10 \times 20$ mesh, or as otherwise directed by the CONSULTANT. It is imperative that the CONTRACTOR arranges for delivery of gravel pack meeting the gradation provided to him. The CONSULTANT retains the right to reject any gravel pack delivered to the site not meeting the specified gradation.
3. A five-pound sample of the gravel pack for the well and a written certified sieve analysis shall be provided to the CONSULTANT at least 48 hours prior to the placement of gravel pack in the well. Delays in work progress as a result of the CONTRACTOR's failure to provide the sample and gradation at least 48 hours prior to gravel packing will not be considered as standby time.
4. Gravel pack shall be delivered to the site in bags with the gravel size clearly stamped on each bag. Bulk delivery will be acceptable provided that the CONTRACTOR provides an approved method for determining quantities delivered and placed in the well. Delivery slips identifying the gravel pack and
gradation delivered will be made available to the CONSULTANT prior to commencement of gravel packing operations.
5. The CONTRACTOR is required to supply a suitable calibrated probe for tagging the gravel during gravel packing operations. One acceptable method would be as follows: a wireline probe will be calibrated by tagging the bottom of the casing sump immediately after installation and calibrated to depth and the wireline marked in 50 or 100 -foot intervals as it is removed from the well.
6. The CONTRACTOR is required to include his planned method for this operation if different from the above method with the bid package, and the method must be approved by the CONSULTANT.

## Gravel Tube

The CONTRACTOR shall install a 2.5 -inch gravel tube in the annulus to extend a minimum of 20 feet below the top of the gravel pack. The gravel tube will be constructed of steel as approved by the CONSULTANT.

## Cement Grout

The grout in the well shall be installed by Halliburton, Inc., BJ Services, Cementers, Inc., or using the Halliburton method by another grouting subcontractor as approved by the CONSULTANT. It shall be the responsibility of the CONTRACTOR to devise a grouting mix and grouting program suitable for the conditions encountered down hole. The planned grout mix and grout program shall be provided to the CONSULTANT in writing a minimum of 72 hours prior to casing grouting and must be in compliance with all applicable provisions of the State of Colorado Water Well Construction Rules (2 CCR 402-2) September 1, 2016.

The CONSULTANT shall approve the composition of the grout and any additives used.

## Welding

The casing shall be welded together unless another method, such as threaded casing is approved by the CONSULTANT. All welding shall be a full, continuous, running weld and shall conform to the American Welding Society or American Petroleum Institute specifications. Welding procedures shall be the responsibility of the CONTRACTOR and shall be adequate for the conditions encountered. All welders shall be certified by the American Welding Society and proof of their certification shall be provided to the CONSULTANT prior to the start of casing welding.

The following electrodes and procedures are recommended (American Welding Society, 1981):
Stainless Steel to Mild Steel - AWS-ASTM Classification Type E 312-16 or E 309-16
Stainless Steel to Stainless Steel - AWS-ASTM Classification Type E 308-15 or E 308-16

The recommended electrode for joining mild steel to mild steel is 7018LH. When joining steel casing the following standardized procedures (American Welding Society, 1981) shall be used: (1) casing shall be prepared for welding by beveling the pipe ends at approximately 35 degrees; (2) all welds must be fully penetrating so that the weld bead (in at least two passes around the casing) fills the beveled and flat area; (3) burn-through on the first pass shall be avoided so that no metal is deposited on the inside of the pipe.

The 304 (AISI) specified stainless steel well screens are to be furnished with beveled weld-ring end fittings also made of stainless steel. Burn-through or metal deposits on the inside of the screen or pipe shall be avoided on the first of a minimum of two welding passes.

## Drill Cuttings and Sampling

Samples of the formation cuttings in the well will be collected by the CONTRACTOR at 10-foot intervals or at the direction of the CONSULTANT, beginning at the base of the surface casing and continuing to total depth. Both a bagged, labeled sample and one laid out on a table with a light for inspection and logging, as directed by the CONSULTANT, shall be provided. It will be the responsibility of the CONTRACTOR to protect the laid-out samples until they are no longer required by the CONSULTANT.

The driller shall carefully maintain the drilling fluid during drilling phases, especially while drilling in the production aquifer of the well. The CONSULTANT reserves the right to order the CONTRACTOR to slow the drilling or even stop the drilling if, in his/her opinion, the rate of drilling is having a potentially harmful effect on the aquifer due to increased fluid infiltration into the formation, etc. The time required to condition the drilling fluid system to acceptable levels as set by the mud engineer will not be considered as standby time.

## Development

The well shall be developed by mechanical methods as provided below and in such a manner as is approved by the CONSULTANT. The CONTRACTOR shall furnish all necessary pumps and other needed equipment and shall develop the well to produce the maximum yield of water per foot of drawdown and extract from the water-bearing formation the maximum practical quantity of silt and sand possible so as to prevent, during the life of the well, such material from being drawn through the screen when the well is pumped under maximum conditions of drawdown. Development shall begin within 8 hours from the end of the curing period for cementing the casing, and shall be continuous until the development is completed (within 7 days).

Measurements of discharge and of the static and pumping water levels shall be made periodically, as required by the CONSULTANT to determine the specific capacity during pump development and to evaluate the progress being made by the development operations. All development and test work shall be performed in the presence of a representative of the CONSULTANT or as directed by the CONSULTANT.

## Method and Equipment

The development shall be determined by the CONSULTANT in consultation with the CONTRACTOR. The nature and methods of the development shall be determined from the final design of the borehole. It is anticipated that the development will consist of two procedures: jetting and air lifting. The total time for development will not be known until after drilling and is based on the condition of the borehole.

1. Reverse Air lifting. The first procedure shall consist of reverse airlifting the well in order to remove as much fines and residual drilling mud from the well as possible. A minimum period of 14 hours of reverse airlifting will be required. The air compressor shall be of a sufficient size to airlift from the bottom of the well (1080 feet) with a static water level (estimated at 500 feet).
2. Surging. The CONTRACTOR shall continue to develop the well using a surge block for a minimum of $\mathbf{7}$ hours at a rate of approximately $1 \mathrm{~min} / \mathrm{ft}$ of screen
3. Jetting. This procedure shall consist of agitating the formation and gravel pack by high pressure jetting with chlorinated (sodium hypochlorite) clear water to break up wall cake formed on the borehole during well construction. The total jetting time per pass will be approximately 13 hours not including tripping in and out of the well. The chlorine concentration used shall be as directed by the mud engineer. This first jetting shall be accomplished by jetting opposite screened intervals with an approved jetting tool. This sequence shall start at the bottommost screen section of the well and proceed to the uppermost screen section.

If the jetting procedure is done using frac tanks for storage and recycling of the jetting water, the tanks shall be emptied and refilled with chlorinated clear water at the discretion and direction of the CONSULTANT, but no less than three (3) times during the jetting procedure. If earthen pits are used, they shall be emptied prior to development work and lined with plastic sheeting in a manner approved by the CONSULTANT such that the development fluids will not be contaminated by natural soils. The CONTRACTOR must provide the facility to drain the pits and mix fresh chlorinated water a minimum of three times during each jetting phase.

The CONTRACTOR will then trip back to the bottom of the well and make a second 13 hour jetting pass, again using chlorinated clear water. As with the first jetting, if either mud tanks or earthen pits are used to recycle the development water during jetting, they shall be emptied and fresh chlorinated water mixed at the discretion of the CONSULTANT, but no less than three times during the jetting process. During the two aforementioned jetting sequences, the CONSULTANT shall determine the jetting time allotted per foot of screen and shall make the final determination as to whether or not further jetting is required.

The pressure used during jetting shall be no greater than allowed by the screen manufacturer. The flow during jetting shall be a minimum of 50 gpm . It is
estimated that the total jetting time for both passes will be approximately hours, not including tripping in and out of the well.
4. Air lifting. Following the above procedures, the CONTRACTOR shall then air lift the well for a minimum of 21 hours. The time spent lifting at this juncture is in addition to the air lifting performed under Section 1. The air compressor shall be of a sufficient size to airlift from the bottom of the well ( 1080 feet) with a static water level (estimated at 500 feet). The CONTRACTOR shall air lift at intervals to allow the well to partially recover between surges, as directed by the CONSULTANT. The CONSULTANT shall be notified a minimum of 48 hours prior to the air lifting procedure, and the methods and equipment used must be approved by the CONSULTANT prior to the initiation of the procedure. The total actual time spent air lifting shall be a minimum of 21 hours; not including time spent tripping in and out of the well.

## Pump Testing

CONSULTANT will obtain the discharge permit from the Colorado Department of Health (5 CCR 1002-61) prior to testing (if required). CONSULTANT will be responsible for directing the CONTRACTOR as to the appropriate distance to discharge test water and any erosion control that may be necessary. This information shall be formalized along with the well design that will be given to the CONTRACTOR prior to on-site mobilization.

The CONTRACTOR shall test the well by pumping. Multiple tests will be made by the CONTRACTOR at the direction of CONSULTANT. These tests will include but are not limited to: (1) surge pumping; (2) step-tests to determine the drawdown curve for flows up to 400 gallons per minute for the Bennett LA-14 Well or the maximum capacity of the well, whichever is less; (3) a continuous drawdown test to determine well efficiency; and (4) a well recovery test.

The CONTRACTOR shall perform these tests at the direction of CONSULTANT. CONSULTANT will provide necessary information of expected flow rate and pumping water levels, etc. and the CONTRACTOR shall be responsible for providing a test pump capable of delivering the required flow rate and maintaining a constant rate of discharge at this flow rate for the duration of each test.

The CONTRACTOR shall keep accurate and complete records of each test both written and electronic and shall furnish copies of all records to CONSULTANT within 48 hours of completion of the test. Copies of the test records shall become property of the OWNER.

The following tests are anticipated, however, the duration and flow rates presented are estimates for bidding purposes, and subject to change at the discretion of the CONSULTANT.

1. Surge pumping shall be performed prior to step testing
A. Duration: minimum of two hours
B. Procedure: interrupted pumping up to 75 gpm (est.)
C. Requirements: Check valve installed immediately above pump to prevent back-surging. Flow rates and water levels will be monitored.

CONSULTANT must be present unless otherwise directed.
2. Step Tests
A. Duration: 4 steps; two hours per step or as directed by CONSULTANT
B. Anticipated Rates (gpm): 30, 45, 60, 75.
C. Requirements: CONTRACTOR must record water levels, pumping rates, pump motor amperage, hertz and voltage and sand content readings at regular intervals
D. Recovery Period: 24 hours; does not require monitoring of water levels (not a pay item).

## 3. Constant Rate Test

A. Duration: 24 hours
B. Anticipated Rate: $50 \mathrm{gpm} \pm 2 \%$ (no more than $5 \%$ ). CONSULTANT must be present and may adjust flow rate prior to test.
C. Requirements: CONTRACTOR must record water levels, pumping rates, pump motor amperage, hertz and voltage and sand content readings at regular intervals.

## 4. Recovery Period

A. Duration: 24 hours
B. Requirements: CONTRACTOR must record water levels for 24 hours with the first 2 hours manned.

The CONTRACTOR shall provide all the labor, equipment and materials necessary to complete the production tests at the direction of CONSULTANT. The pump and motor unit shall be shrouded unless otherwise directed by CONSULTANT. Two $1 \frac{1}{4}-$-inch (or a sufficient size) PVC pipes set to a depth sufficient to provide pumping water level measurements throughout the duration of each test. The first PVC pipe will house a transducer (provided by CONTRACTOR) approved by CONSULTANT. An alternative method may be allowed with PRIOR approval from CONSULTANT for setting the transducer (i.e. banding to drop pipe). Depths for monitoring equipment must be confirmed with CONSULTANT before the start of testing. The second PVC pipe must be installed for m-scope measurements, in case of failure of the transducer. Additional backup will be provided by the installation of at least one airline for measuring water levels including providing accurate pressure gauges and bottles of compressed nitrogen.

All monitoring devices will be installed to the depth specifications set by CONSULTANT. The CONTRACTOR will ensure that the PVC tubing is placed next to the drop pipe so that no twisting or wrapping of the PVC around the drop pipe occurs. Failure to install PVC properly may be cause for removal and replacement of the testing equipment properly.

Use of a bleed back check valve in the test pump will not be permitted under any circumstances during the testing. Use of this valve invalidates the recovery data. If this valve is
used, the 24-hour test will be required to be performed again without the valve at no cost to the OWNER.

Water level readings shall be taken from the data logger and M-Scope in all tests to be performed. The airline shall also be monitored for periodic water level measurements, but is considered a backup tool rather than the principal measuring device. For the recovery test, following the first two hours of the test, there should be no need for personnel at the site until the period of recovery has been completed and the data logger is removed. A laptop computer or a data logger shall be available at all times during the testing for review of the data.

All test data from the data logger shall be downloaded as a ".csv", or similar file and copied onto CD-R disks or USB Flash Drive in a manner that it can be read by a personal type computer, and provided to the CONSULTANT within 48 hours of the test being completed. Alternatively, the data may be emailed to: gburke@jehnwater.com or hbanks@jehnwater.com

The CONTRACTOR shall furnish, as part of the development and production testing equipment, a welded steel portable discharge pipe assembly complete with fittings, valves and supports, complete with all accessories, in accordance with the requirements of these specifications.

The discharge pipe assembly shall include a flow meter which shall measure within plus or minus 3 percent of the true water flow. The flow meter shall have a rate of flow indicator which reads directly in gallons per minute, shall have a totalizer counter reading in total gallons delivered, shall have fast-moving pointer to permit timing with a watch for determining the rate of flow. Other flow meters are allowed but not required.

The flow meter shall be installed so that it is at least 5 pipe diameters downstream and 2 diameters upstream from any valves, fittings, or other pipe obstructions which would interrupt the flow pattern.

A valve shall be provided downstream of the measuring device which will be capable of throttling the discharge. It will be used for at least partial throttling of the discharge to induce enough head to stabilize the pumping rate at a constant value.

The use of an orifice plate assembly for the primary measurement of flow rates will not be permitted under any circumstances.

The CONTRACTOR shall provide for a connection of the sand tester in the discharge piping that will allow adequate flow through the tester for accurate sand testing.

CONSULTANT will collect the required water samples for laboratory testing sometime during the 24 -hour test. The CONTRACTOR is not responsible for the laboratory costs.

## Sand Content Testing

The CONTRACTOR shall furnish the necessary equipment to accurately test the pumped water for sand content. The testing equipment shall be the Rossum Centrifugal Sand Sampler, as illustrated in the Journal of American Water Works Association, Volume 46, Number 2, February

1954, or approved equal. The CONTRACTOR will be responsible for monitoring the sand production of the well throughout the duration of each test (step test and constant rate).

## Well Video

After the well has been developed and tested, the CONTRACTOR then shall have a color video survey made by a video logging company approved by the CONSULTANT. The CONTRACTOR will take measures to ensure a relatively clear picture of the well and that calibrated footage of the well is visible by the camera. These measures shall include flocculating the well at least 48 hrs prior to performing the well video. The CONTRACTOR must also provide calibration of the cable used for the video upon request by CONSULTANT. In order to ensure accurate depth measurements, a measuring tape must be lowered alongside the camera. Two copies of the well video shall be provided, one to the OWNER and one to the CONSULTANT. If the video log shows more than 5 feet of fill in the bottom of the well, the well shall be bailed out by the CONTRACTOR.

## Cleaning and Disinfection

Prior to capping the well, the CONTRACTOR shall sterilize the well. Industrial grade sodium hypochlorite shall be uniformly injected into the well to establish a solution of not less than 100 parts per million concentration. It shall then be thoroughly mixed in the well by agitation with air, or the bailer or surge block. The CONTRACTOR shall be responsible for insuring that the well is totally cleaned and disinfected so as to produce microbiologically satisfactory water. After disinfection, the wells shall be capped by welding a $1 / 8$-inch thick steel plate over the top of the casing.

## SITE CLEANUP

The CONTRACTOR shall clean up the site following completion of the work, including removal of all trash and debris. The CONTRACTOR shall remove the cuttings and fluid from the earthen pits and fill them in with the soil material removed.

The CONTRACTOR shall reclaim the site by filling in the mud pit area, re-grading and reseeding with the approved mix.


| Jehn Water Consultants, Inc. 88 Inverness Circle East, Suite K-102 Englewood, CO 80112 (303) 321-8335 www.jehnwater.com DRAFT | FIGURE 1 |  |
| :---: | :---: | :---: |
|  |  |  |
|  | Town of Bennett | Job No. 512.30 <br> Projection: UTM NAD83 Prepared By: HLB 11/04/2022 Checked By: |
|  | Site | Sources: Muegesearns ODP Amend 3 |

FIGURE 2
TOWN OF BENNETT
LOWER ARAPAHOE AQUIFER WELL LA-14
WELL CONSTRUCTION DIAGRAM

NOTE: NOT DRAWN TO SCALE

Top of Screened Interval


## APPENDIX A



## Low Grow Grass Mix

Supplying QUALITY Seed With INTEGRITY Since 1945

A mixture of perennial, cool season, drought tolerant, grasses suitable for areas where mowing is difficult or not desirable. It grows an average of 8-12 inches a year with normal rain fall in the Intermountain region and the Desert Southwest. This mix is a great soil stabilizer. Our wildflower mixes are very compatible with this mix.


## Characteristics:

. Grows 8-12 inches tall
Requires little to no maintenance
Grows well in elevations up to $10,000 \mathrm{ft}$

## Seeding Rate:

New Seeding Dryland: 20-25 lbs/acre Irrigated: $\quad 40 \mathrm{lbs} /$ acre Overseeding

Dryland: 10-15 lbs/acre
Irrigated: $20 \mathrm{lbs} / \mathrm{acre}$

## Mix contains:

30\% Ephraim Crested Wheatgrass
Slightly rhizomatous bunchgrass with germination in 14-21 days.
Drought resistant and winter hardy with a deep root system making it an excellent soil binder. Crested wheatgrass is well adapted to stabilization of disturbed soils and does well on a variety of soil types.
25\% Sheep Fescue
Bunchgrass with germination in 14-21 days.
Well adapted to most soil conditions and is great for soil erosion control and low maintenance mixtures.
20\% Perennial Rye
Bunchgrass with germination in 5-10 days.
One of the most widely used grasses and is adaptable to a wide variety of soils and climate conditio5ns. It has a leafy head and fine stem.
15\% Chewings Fescue
Bunchgrass with germination in 7-21 days.
Fine fescue that is shade tolerant and requires little water. Persists in dry soils and infertile soils.
10\% Canada Bluegrass
Sod-forming grass with germination in 14-21 days.
Resistant to drought and some salinity. It is used to reclaim disturbed area such as gravel pits, cut roads, roadsides, and mines.

Formulations \& varieties are subject to change without notice!

4300 Monaco Street<br>Denver, CO 80216

P. (303) 320-7500 F. (303) 320-7516

877-907-3337
www.avseeds.com

## ATTACHMENT B

November 14, 2022
To: Jehn Water Consultants, Inc
88 Inverness Circle East, K-102
Englewood, CO, 80112

## ATTN: Gina Burke <br> RE: Town of Bennett - Lower Arapahoe Aquifer Well, LA-14

Ms. Burke,
Hydro Resources (HR) is pleased to present the following proposal for well drilling and pump services for the Lower Arapahoe Aquifer Well Project. Hydro Resources looks forward to another opportunity to team with Jehn Water and the Town of Bennett on a successful drilling project. HR has reviewed the specifications and bid parameters provided by Jehn Water. HR wishes to outline our understanding of the scope of work.

Before reviewing the project details, HR would first like to stress our commitment to providing Jehn Water \& Town of Bennett with a company committed to making Health \& Safety our number one priority on this project. HR has broken down the proposal into the following units:
I. Key Equipment to be supplied to the Project
II. Technical Approach
III. Unit Cost Breakdown

## I. Key Equipment to be supplied to the Project

HR intends to mobilize the following equipment to the Town of Bennett site:


- The primary drilling rig will be a Challenger 320 drilling rig or equivalent. The Challenger 320 rig has a 72 ' mast rated at $150,000 \mathrm{lbs}$. with an 18 " Howard Turner rotary table.
- The rig will be equipped with 1200 ft of appropriatesized drill pipe, a Sullair 900 CFM compressor and a Sullair 375 CFM compressor. HR has assumed a support truck for pipe and miscellaneous parts to complete the work.
- The drilling package includes a three-man drilling crew working 24 hours per day.
- HR will provide a pump rig for test pumping activities.

The equipment listed above will be dedicated to this project on a full-time basis and all the equipment is up to date with annual inspections and certifications.

## II. Technical Approach

HR is providing the following summary of our technical approach regarding expected geology and drilling plan.

## Well LA-14 Drilling \& Pumping

- Temporary fencing will be installed around the site.
- Mud Engineer has been included to provide checks every 48 hours.
- A 20 " conductor casing will be installed to approximately 40 '.
- The rig will drill a $14.75^{\prime \prime}$ hole from the surface to 1100 '.
- Install 8 " x .040 slot screen and $8 "$ casing to the surface.
- Install filter pack per engineer recommendations.
- Pressure grout casing with neat cement and bentonite grout in the annular seal to surface.
- Development of well to include surging, airlift, and jetting.
- Install temporary test pump, perform development pumping, step testing, and 24-hour continuous pump test. Remove test pump equipment and perform final disinfection.
- Perform video survey of the well.
- Clean up site and demobilize.


## III. Unit Cost Breakdown

HR has attached the Bid Schedule for LA-14 Well for your review.

| Town of Bennett - LA-14 Well |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Item No. | Description | Unit | Qty. | Unit Price |  | Sub-Total |  |
| 1 | Mobilization \& Cleanup | LS | 1 | \$ | 85,000.00 | \$ | 85,000.00 |
| 2 | Furnish \& Install 20" Diameter Conductor | LF | 40 | \$ | 480.00 | \$ | 19,200.00 |
| 3 | Drilling a 14.75" Bore | LF | 1060 | \$ | 152.00 | \$ | 161,120.00 |
| 4 | Furnish \& Install 8" Diameter MS Blank | LF | 962 | \$ | 70.00 | \$ | 67,340.00 |
| 5 | Furnish \& Install Well Screen - 8" 304 SS WW | LF | 120 | \$ | 215.00 | \$ | 25,800.00 |
| 6 | Gravel Pack ( RFS5, 10/20) | LF | 314 | \$ | 50.00 | \$ | 15,700.00 |
| 7 | Furnish \& Install 2.5" Gravel Feed Tube | LF | 806 | \$ | 16.00 | \$ | 12,896.00 |
| 8 | Grout Seal | LF | 786 | \$ | 60.00 | \$ | 47,160.00 |
| 9 | Well Development - Reverse Airlifting | HR | 14 | \$ | 850.00 | \$ | 11,900.00 |
| 10 | Well Development - Surging | HR | 7 | \$ | 850.00 | \$ | 5,950.00 |
| 11 | Well Development - Jetting | HR | 26 | \$ | 1,025.00 | \$ | 26,650.00 |
| 12 | Well Development - Airlifting | HR | 21 | \$ | 850.00 | \$ | 17,850.00 |
| 13 | Furnish \& Install Test Pump Equipment | LS | 1 | \$ | 20,300.00 | \$ | 20,300.00 |
| 14 | Test Pump - Development, Step \& Constant $\text { ( } 2 \text { / } 8 / 24 \mathrm{Hrs})$ | HR | 34 | \$ | 550.00 | \$ | 18,700.00 |
| 15 | Video Survey | EA | 1 | \$ | 1,750.00 | \$ | 1,750.00 |
| 16 | Well Disinfection | LS | 1 | \$ | 3,200.00 | \$ | 3,200.00 |
| 17 | Install Construction Fencing | LS | 1 | \$ | 8,700.00 | \$ | 8,700.00 |
| 18 | Site Restoration \& Reseeding | LS | 1 | \$ | 8,500.00 | \$ | 8,500.00 |
|  | Total Project Cost |  |  |  |  | \$ | 557,716.00 |

## Clarifications:

- HR has assumed access for the drill rig (level site, approx. 150' x 150').
- HR has excluded geophysical logging costs based upon engineer utilizing the geophysical log from the existing well on the pad.
- Site location will be located by owner/engineer.
- HR will not provide soundwalls for the site.
- HR has included all fuel costs.
- HR has planned that drilling mud and drill cuttings will remain on site.
- HR has included an allowance for water hauling. The engineer/city will provide a source of water at Well 6.
- The bid is a complete package and cannot be modified without prior written authorization from HR. Also, this is an estimate and the final invoice will reflect actual quantities utilized in the field which are properly documented multiplied by the unit rates quoted.
- HR has assumed working 24 hours a day

We are confident that Jehn Water \& the Town of Bennett will be impressed with our professional water supply services and look forward to the opportunity to team with the community on this exciting project. Please contact our office at your earliest convenience with any questions or concerns you may have.

Please feel free to contact us if you any additional questions or concerns.
Sincerely,

## Hydro Resources

## Chelsea Borneman

Chelsea Borneman

Business Development
Rocky Mountain Region
cborneman@hydroresources.com

## Dason Barnum

Jason Barnum<br>Vice President of Business Development<br>Hydro Resources, Inc<br>jbarnum@hydroresources.com

## ATTACHMENT B:

TOWN OF BENNETT
CONSTRUCTION OF LOWER ARAPAHOE AQUIFER WELL
LA-14

| BID COST FORM |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| NO. | ITEM | UNIT | ESTIMATED QUANTITY | UNIT PRICE | TOTAL PRICE |
| 1 | Mobilization/demobilization | LS | 1 | \$85,000.00 | \$85,000.00 |
| 2 | Drill approx. 30-in hole to install 20-inch Surface Casing to a depth of 40 ft | $f t$ | 40 | \$480.00 | \$19,200.00 |
| 3 | Drill approx. 14.75-inch hole reverse circulation with a polymer-bentonite mix drilling fluid; TD 1,100 feet | est ft | 1060 | \$152.00 | \$161,120.00 |
| 4 | Provide and install 8 -inch steel casing | ft | 962 | \$70.00 | \$67,340.00 |
| 5 | Provide and Install stainless-steel screen 8-inch I.D. (0.040slot) | est ft | 120 | \$215.00 | \$25,800.00 |
| 6 | Install $10 \times 20$ gravel pack with tremie pipe and positive displacement. (20 linear ft is rathole) | est linear ft | 314 | \$50.00 | \$15,700.00 |
| 7 | Install 2.5 -inch gravel tube to a depth of 806 ft . | est linear ft | 806 | \$16.00 | \$12,896.00 |
| 8 | Provide an adequate cement seal from 786 ft to the surface, including approximately 5 feet of hot plug. | est linear ft | 786 | \$60.00 | \$47,160.00 |
| 9 | Well Development Reverse Airlifting | hrs | 14 | \$850.00 | \$11,900.00 |
| 10 | Well Development Surging | hrs | 7 | \$850.00 | \$5,950.00 |
| 11 | Well Development Jetting | hrs | 26 | \$1,025.00 | \$26,650.00 |
| 12 | Well Development Airlifting | hr | 21 | \$850.00 | \$17,850.00 |
| 13 | Furnish, install, and remove test pump (with shroud) | LS | 1 | \$20,300.00 | \$20,300.00 |
| 14 | Pump Testing to include: 2 hrs surging, 8 hrs step, 24 hrs constant rate pump test and 24 hrs recovery test | Hrs | 34 | \$550.00 | \$18,700.00 |
| 15 | Color Video log of well (est. 1080) *accurate depth measurements required. | Ea | 1 | \$1,750.00 | \$1,750.00 |
| 16 | Chlorination as per Water Well Regulations | LS | 1 | \$3,200.00 | \$3,200.00 |
| 17 | Temporary Construction Fence | LS | 1 | \$8,700.00 | \$8,700.00 |
| 18 | Site Restoration \& Reseeding | LS | 1 | \$8,500.00 | \$8,500.00 |

TOTAL COST FOR BENNETT WELL LA-14: \$ 557,716.00

## NOTE:

All depths are estimates, depending on actual well depth, geology, and water levels.

## MEMORANDUM

TO: Mayor and Town of Bennett Board of Trustees<br>FROM: Gina Burke \& Hillary Banks<br>DATE: November 16, 2022<br>SUBJECT: Hydro Resources Proposal to Construct Bennett Lower Arapahoe Aquifer Well LA-14<br>JOB NO: 512.30

We have solicited a proposal from Hydro Resources on behalf of the Town of Bennett to drill a Lower Arapahoe Aquifer Well, LA-14, as a change order to the contract in place for the Bennett Laramie-Fox Hills Well, LFH-14. The well is planned to be constructed near the LFH-14 well drilled earlier this year and located on the Town's future Water Campus on the south-west Muegge parcel.

The Water Campus is planned to be approximately 4-acres and includes plans for a well location in each aquifer (Denver Aquifer, Upper Arapahoe Aquifer, Lower Arapahoe Aquifer, and the Laramie-Fox Hills Aquifer), as well as a future re-drill area for each well. The Water Campus also has the potential to house the well service buildings and above ground storage tanks. Drilling of the LA-14 well will be a step toward completing the Water Campus and will allow the Town to access their water rights in the Lower Arapahoe aquifer.

We have carefully reviewed Hydro's proposal for the construction of the LA-14 well and have found it to meet our specifications. We have worked on numerous successful Denver Basin wells with Hydro Resources, including three wells drilled for the Town of

Bennett in 2015, the Bennett LFH-6 well in 2020, and the Bennett LFH-14 well this past summer. Since Hydro Resources is fully qualified to perform the work, we recommend that Hydro Resources be approved to construct the LA-14 well for the Town of Bennett for the total price of $\$ 557,716.00$.

## Suggested Motion

I move to authorize the approval of Change Order No. 4 with Hydro Resources - Rocky Mountain, Inc. for an amount not to exceed $\$ 557,716$ for contractor services to complete the construction of the new Lower Arapahoe Well LA-14.

## (c) AQUA



## Project Update Agenda

$\checkmark$ Project Scope and Progress
$\checkmark$ Effluent Treatment Requirements and Discharge Permitting Strategy
$\checkmark$ Water Reuse Options and Strategy
$\checkmark$ Basis of Design and Recommended Expanded Facility Capacity
$\checkmark$ Technology Alternatives Considered
$\checkmark$ Proposals for Secondary Treatment Technology

## Existing Facility Site



## Project Scope

1. Project Management and Coordination
2. Planning and Basis of Design Development

## We're here now

3. Preliminary Engineering (Tech Memos and Concept Design) / Recommended Project
4. CDPHE Site Approval Application
5. Process Design Report (PDR) and $60 \%$ Design Drawings
6. Construction Plans and Specifications (Final Design)
7. Bidding Phase Services



## Permitting Status

- Town operates using a General Permit (available for facilities up to 1 MGD).
- Newest version of the Permit requires removal of nitrogen but not removal of phosphorus.
- This means as simple a Permit and treatment technology as possible.
- Modification to permit certification required for Expansion (per Reg 61).
- AQUA prepared and Bennett approved, submitted new Modification Application 9/30/22.
- CDPHE has 180 days to issue new Certification after Application receipt.
- The new Certification quantifies the "Water Quality Planning Targets" and Permit limits that the expanded facility must achieve.


## Likely Trends Based on Recent Discussions With CDPHE

- Increasing focus on emerging contaminants, especially PFAS
- Sources of the "forever chemicals" include airports, anything water resistant, Teflon ${ }^{\text {TM }}$ pans
- Bennett's new permit includes sampling and analysis once per permit term
- Future regulations are particularly uncertain because EPA's health advisory limits are below current detection limits and treatment technology capabilities
- Limits for metals based on (new) annual sampling and analysis requirement
- Whole effluent toxicity (WET) rigor


## Questions and Discussion

## Water Reuse Options and Strategy

## Discussion Topics:

- Regulation 84 and Draft Regulation 11 (DPR)
- Reclaimed Water Budget
- Reclaimed Water Use Options / Opportunities
- Recommended Reclaimed Water Strategy


## Regulation 84 Categories and Approved Uses

## Approved Reg 84 (Purple Pipe) Uses:

- Industrial
- Commercial
- Fire Protection
- Landscape Irrigation
- Agricultural Irrigation
- Toilet and Urinal Flushing


## Indirect Potable and Direct Potable Reuse (IPR/DPR)

- Pending regulatory approval per CDPHE Regulation 11 Updates (2022)
- Additional Treatment Requirements to be defined.


## Current Reuse Opportunity Allocation



## Potential Reuse Opportunity Allocation

| Annual Effluent: Reclaimed Water Distribution <br> (New Residential Developements) <br> Planned Effluent Used: 180.1 MGY <br> Unallocated Effluent: 181.3 MGY |  |
| :--- | :--- | :--- |

$$
\text { Water Reuse - Reg } 84 \text { Reuse Options and Strategy }
$$

## Recommended Reuse Strategy

## Near-term (2022-2032/34):

- Maximize water reuse opportunities under Regulation 84.
- Treat to Regulation 84 Category 3 or 3 plus standards (with new WRRRF)
- Install purple pipe distribution system to irrigation areas and other uses
- Consider requiring that new developments install purple pipe infrastructure for future irrigation demand parks, open, spaces and possibly residential turf
- Public education surrounding reuse and DPR


## Long-term (Post 2032)

- Options/Flexibility
- Option 1: Maintain a surface water discharge and meet Reg 31 Limits

Additional Facility Improvements are needed to meet $2.01 \mathrm{mg} / \mathrm{L}$ expected TIN limit

- Option 2: Zero Discharge/ 100 Reuse
- $100 \%$ of Reg 84 approved uses
- Implement IPR or DPR or other strategy to practice $100 \%$ reuse
- Consider storage


## Questions and Discussion

## Basis of Design \& Recommended Facility Capacity

## Consider:

$\checkmark$ Current and future discharge permitting (treatment) requirements
$\checkmark$ Water conservation and reclaimed water use opportunities

## and

- Town growth and population projections
- Wastewater generation rates (gal/SFE/day)
- Capacity needs and timing
- Maximize capacity / value of the existing infrastructure (equipment and tanks)
- Bennett's financial resources / project funding
- Raw wastewater character
- Flow Factors


## WRRRF Capacity Needs Are Quickly Changing



## Treatment Process Selection

## Minimum Technology Requirements:

- Meet Permit Limits (TIN < 10 mg/L)
- Achieve Reg 84 Cat 3 or 3+ reuse standard
- Position Town for Future Nutrient Regulations (Reg 31-2027 or later)
- Position Town for Expanded Reclaimed Water Program, including possible IPR/DPR


## Process Technology Alternatives

1. Continuous Flow Membrane Bioreactor (MBR)

- Suez

2. Time-Phased Membrane Bioreactor (TMBR)

- Aqua Aerobics

Obtained proposals with bids to evaluate
3. Mobile Organic Biofilm (MOB ${ }^{\text {TM }}$ )

- Nuvoda

Eliminated during prescreening

## MBR Concept Site Plan (Preliminary)



## Comparison of Aqua Aerobics and Veolia Proposals

## -Aqua Aerobics TMBR

Capital Cost of MBR and Associated Equipment

Membrane Replacement

Membrane Life

Estimated 20-Year O\&M Costs
\$4,291,710
\$1,305,600

Approximately 7 years

Under evaluation

## - Veolia MBR

\$1,967,600
\$404,800
$10-20$ years

Under evaluation

## Next Steps

## - Design MBR and other processes in need of expansion

- Submit applications required and regularly communicate with CDPHE for approval of project
- Prepare to bid construction project

| Task Name | Duration | Start | Finish |
| :--- | :--- | :--- | :--- |
| Task 0: Project Management | $\mathbf{3 9 9}$ days | Tue 3/8/22 | Fri 9/15/23 |
| Task 1: Basis of Design | $\mathbf{1 7 4}$ days | Tue 3/1/22 | Fri 10/28/22 |
| 1A. Evaluate Hydraulic Capacity and Recycled Water Categories | $\mathbf{1 5 0}$ days | Mon 4/4/22 | Fri 10/28/22 |
| 1B Evaluation of Discharge Permit | $\mathbf{1 7 4}$ days | Tue 3/1/22 | Fri 10/28/22 |
| 2.0 Alternatives Evaluation | $\mathbf{1 2 0}$ days | Mon 5/16/22 | Fri 10/28/22 |
| Task 2: Design, Permitting and Bidding Services | $\mathbf{2 8 6}$ days | Tue 9/6/22 | Tue 10/10/23 |
| 2.1 CDPHE Site Approval Application | $\mathbf{1 1 5}$ days | Wed 9/28/22 | Tue 3/7/23 |
| 2.2 Equipment Pre-Selection | $\mathbf{5 8}$ days | Mon 10/31/22 | Wed 1/18/23 |
| 2.3 30\% (Preliminary) Design | $\mathbf{4 4}$ days | Wed 12/14/22 | Mon 2/13/23 |
| 2.4 Process Design Report (PDR) \& 60\% Design | $\mathbf{5 6}$ days | Thu 2/2/23 | Thu 4/20/23 |
| 2.5 Construction Plans \& Specifications (Final Design) | $\mathbf{9 0}$ days | Tue 5/2/23 | Mon 9/4/23 |
| 2.4: Bidding Services | $\mathbf{2 6}$ days | Tue 9/5/23 | Tue 10/10/23 |

Thank You

## Questions and Discussion

TO: $\quad$ Mayor and Town of Bennett Board of Trustees
FROM: Rachel Summers, Deputy Town Manager
DATE: November 22, 2022
SUBJECT: Long-Term Land Lease with Discovery Time Kids Early Learning Center

## Background

In 2019, Discovery Time Kids Early Learning Center (ELC) moved its location to the Town of Bennett. It provides services from two classrooms inside the Bennett Park and Recreation District (BPRD) and two modular structures on the grounds of parcel 0181533100001, which is owned by the Town of Bennett.

Discovery Time Kids ELC is a non-profit organization that provides licensed, "high quality, affordable and accessible early learning and childcare programs to meet the needs of children and families along the l-70 Corridor." Services include care and programming for toddlers, preschool, kindergarten and school-age children.

In addition, the ELC partners with state, county and local districts to provide specialized programming for low-income families, at-risk children and kids with special needs. These programs offer childcare opportunities for vulnerable children and families and give them access to services tailored to their needs.

Discovery Time Kids ELC also offers a discounted rate schedule developed around the specific needs of I-70 Corridor families. The non-profit understands that many families may not meet the stringent criteria for financial assistance under the state and county programs but may still need help to afford daycare and preschool services. For that reason, they developed a discounted rate schedule for families who live and work in the Corridor to afford childcare in their community.

The current enrollment for Discovery Time Kids is 60 children, and there is a waiting list for additional children.

## Reduced Land Lease Proposal

In speaking with Joanna Arnold, the owner and operator of Discovery Time Kids ELC, the biggest obstacle they face regarding growth and facility needs is space and funding. They currently lack the space to expand their programming and provide care for additional children. They also do not have space for functional items like a manager's office, a workspace for staff and a kitchen to prepare meals.

Ms. Arnold also expressed a desire to stay in or near the Civic Center location in Bennett. She has received numerous compliments about the location and how centralized it is.

As owners of the property and to continue to meet the needs of our community, Town Staff is proposing that we provide a reduced five-year land lease for ELC, which they could lease from the Town. Good childcare services are already scarce and Staff believes it is important to help keep this community service in Bennett to support our residents, the economy and the local workforce.

## Staff Recommendation

Discovery Time Kids ELC provides an important service in our community by offering low-cost childcare, which allows our residents and workforce to have a localized option for their childcare needs. For this reason, Staff believes that providing a reduced land lease for the early learning center is beneficial and that the Town could support those efforts by building the facility and leasing it to Discovery Time Kids.

## Attachments

1. Long-Term Land Lease Agreement
2. Ordinance No. 763-22 Approving Land Lease Agreement

## LEASE AGREEMENT

THIS LEASE AGREEMENT (hereinafter "Lease") is made and entered into effective the $\qquad$ day of $\qquad$ 2023, by and between the Town of Bennett, Colorado, a municipal corporation (hereinafter "Town") and Discovery Time Kids Early Learning Center, a Colorado nonprofit corporation (hereinafter "Lessee").

WHEREAS, the Town is the owner of the property located southwest of the Bennett Recreation Center building, which property is more particularly described and depicted on Exhibit A, attached hereto and incorporated herein by reference and is hereinafter referred to as the "Premises;" and

WHEREAS, Lessee desires to lease the Premises for the purpose of operating an early childhood and daycare facilities; and

WHEREAS, Discovery Time Kids Early Learning Center was established in 2019 to provide early childhood and daycare services and facilities to people in the vicinity of the Eastern I-70 corridor; and

WHEREAS, the Town recognizes childcare services as a tremendous asset to our community and recognizes the lack of affordable childcare hurts working families; and

WHEREAS, the Town is willing to lease the Premises to Lessee at a reduced rental rate, which will serve the important public purpose of increasing the number of available spaces for childcare facilities and driving down the cost of childcare for both providers and families; and

WHEREAS, the Town and Lessee desire to enter into a lease for the Premises for a term of five (5) years, with such lease to be upon the terms, covenants and conditions of this Lease; and

WHEREAS, the Town is authorized to enter into this Lease pursuant to state law, including but not limited to C.R.S. § 31-15-713(1)(c).

## NOW, THEREFORE, The Town and Lessee agree as follows:

1. Demise. In consideration of the performance of the covenants and agreements set forth in this Lease, the Town leases to Lessee that certain real property described and depicted on page 21 of the Final Development Plan Amendment No. 2 for the Bennett Recreation District, attached hereto as Exhibit A and incorporated herein by reference (hereinafter the "Premises").
2. Term. The term of this Lease shall be for a period of five (5) years commencing on and shall terminate on the 31st day of
$\qquad$ 20 $\qquad$ , unless sooner terminated by the mutual written consent of the Town and Lessee or as provided in this Lease. The parties may renew the Lease by written agreement for an additional term of five years, or for a shorter period agreed to in writing by the parties ("Renewal Term"). All of the terms and provisions of this Lease shall apply to the Renewal Term, unless amended by written agreement of the parties.
3. Rent. As consideration for this Lease, Lessee shall pay the Town rent in the amount of ten dollars ( $\$ 10$ ) per year, payable in advance on the 31st day of December of each year. Rent shall be payable to the Town of Bennett, 207 Muegge Way, Bennett, CO, 80102, or to such other address as directed by the Town.
4. Purposes. The parties agree the Premises are to be used solely by Lessee for its operation of early learning and childcare facilities. The Premises may be occupied and used by Lessee pursuant to this Lease solely for the following purposes: placement of not more than three (3) temporary, modular structures for operation of the facilities, together with related site improvements including a sidewalk, playground area, fencing, landscaping and other improvements (the "improvements"). All Lessee improvements to the Premises shall be in accordance with the Town-approved the Final Development Plan Amendment No. 2 for Bennett Recreation District, attached hereto as Exhibit A and incorporated herein by reference. No changes to the Final Development Plan shall be made by Lessee without the prior written approval of the Town. In no event shall any of the modular structures or any other Lessee structures be affixed to, or become or be considered a part of, the real estate. The use of the Premises shall be consistent with the public purpose stated above.
5. Alterations and Improvements. Lessee, at its sole expense, shall be responsible for the design, construction and installation of current or future improvements on the Premises. Lessee shall not place, build, expand, alter or add to any structures or other improvements on the Premises without the Town's prior written consent, which consent may be granted or denied in the Town's sole discretion.
6. Responsibilities of the Lessee. The following terms and conditions shall apply during the term of the Lease:
A. Prior to construction of any improvements on the Premises, Lessee shall obtain, at its expense, all permits required under the Bennett Municipal Code.
B. Lessee shall own and keep all improvements constructed upon the Premises in good condition and repair, all at the Lessee's expense. Lessee's maintenance obligations shall include but are not limited to: facilities maintenance, repair, access drives, paths and ways; removal of snow; mowing, watering and otherwise maintaining all turf and landscaping; removal of trash and debris from the Premises; and other maintenance as required by the Town. Lessee shall use reasonable care and caution against damage or destruction of the Premises, and shall use reasonable care to prevent
waste, damage or injury to the Premises. Lessee shall comply with all applicable ordinances, resolutions, rules, and regulations in Lessee's use and occupancy of the Premises.
C. Lessee shall allow representatives of the Town to enter upon the Premises at any reasonable hour, upon notice from the Town to inspect the Premises and improvements, to assure compliance with this Lease.
D. All signs proposed to be placed on the Premises shall be subject to review and approval by the Town. Signage shall comply with all applicable laws, ordinances and regulations.
E. Lessee agrees to not permit or suffer any use of the Premises which may constitute a nuisance or result in a violation of any federal, state, or local law, ordinance or rule; or any activity which may be hazardous or result in the discharge of any fumes or hazardous materials.
7. Utilities and Other Costs. Lessee shall be solely responsible for payment of, and shall pay when due, all charges and costs for water, electricity, sewer, trash removal, and other utilities and services from time to time furnished to, or consumed in or upon, the Premises. Lessee shall have $100 \%$ responsibility for all costs and expenses related to its use of the Premises including, but not limited to, the design, installation, maintenance, repair and operation of the parking lot, access drive and all other Lessee improvements; installation and maintenance of electric and other utility connections; and any and all other charges, costs and expenses arising out of or relating to its development, occupancy or use of the Premises or the conduct of its operations thereon.
8. Removal and Restoration Upon Termination. Upon termination of this Lease by lapse of time or otherwise, Lessee, at the Lessee's sole cost and expense, remove the modular structures, playground area, and all Lessee improvements from the Premises and to deliver up possession of the Premises in as good a condition as when Lessee took possession. If any portion of Lessee improvements or property are not removed within 15 days after the date of termination of this Lease, then any personal property, fixtures, structures, or improvements owned by Lessee or on the Premises at the time of termination shall, at the Town's sole option, be deemed the property of the Town, or be removed by the Town at the Lessee's sole expense. Upon termination of this Lease, the Lessee may choose to donate the improvements to the Town if agreed to by the Town.
9. Holding After Termination. Lessee is strictly forbidden from holding over under this Lease. If after the termination of this Lease Lessee shall remain in possession of the Premises, then such holding shall be deemed and taken to be a continued holding of the Premises upon a tenancy from month to month at two times the rental rate, and Lessee shall be liable for such rent in addition to all other damages incurred by Lessor as a result of such unauthorized holding over.
10. Hazardous Materials. Lessee shall not keep any hazardous materials in or about the Premises. "Hazardous material" includes but is not limited to asbestos, other asbestotic material (which is currently or may be designated in the future as a hazardous material), any petroleum base products, pesticides, paints and solvents, polychlorinated biphenyl, lead, cyanide, DDT, acids, ammonium compounds, and other chemical products (excluding commercially used cleaning materials in ordinary quantities) and any substance or material defined or designated as a hazardous or toxic substance, or other similar term, by any federal, state, or local law.
11. Compliance Costs. If Lessee fails to comply with any of its obligations under this Lease, the Town may at its option terminate this Lease as provided herein or take such measures as it determines necessary to bring the Premises into compliance with the terms hereof, and the cost of any such measures shall be paid by Lessee within fifteen (15) days of demand from the Town.
12. General Acceptance. Lessee accepts the Premises in its present "as is" condition with all faults, whether patent or latent, and without warranties or covenants, express or implied. Lessee acknowledges the Town shall have no obligation to repair, replace, improve or maintain any portion of the Premises.
13. Taxes; Non-Subordination. The Premises are presently exempt from any real property taxation. In the event the Assessor determines that the Premises are subject to the lien of general property taxes due to Lessee's use or occupancy, Lessee shall be responsible for the payment of taxes. The Town's interest in the Premises shall at no time be subordinated to any lien or other interest in connection with Lessee's use and occupancy of the Premises.
14. Liens. Lessee shall be solely responsible for and shall promptly pay for all services, labor or materials furnished to the Premises at the instance of Lessee. The Town may at Lessee's expense discharges any liens or claims arising from the same.
15. Lessee's Property. The Town shall have no responsibility, liability, or obligation with respect to the safety or security of any personal property or improvements of Lessee placed or located on, at, or in the Premises, it being acknowledged and understood by Lessee that the safety and security of any such personal property and improvements is the sole responsibility and risk of Lessee.
16. Indemnity and Release. Lessee shall be solely responsible for any damages suffered by the Town or others as a result of Lessee's use and occupancy of the Premises. Lessee agrees to indemnify and hold the Town, its elected and appointed officers, employees and agents, from and against all liability, claims, damages, losses, and expenses, including but not limited to attorney fees, arising out of, resulting from, or in any way connected with: (a) Lessee's use and occupancy of the Premises; (b) any liens or other claims made, asserted or recorded against the Premises as a result of Lessee's use or occupancy thereof; or (c) the rights and
obligations of Lessee under this Lease. Lessee shall investigate, handle, respond to, and provide defense for and defend against any such liability, claims, demands, losses and expenses. Lessee releases and agrees to hold harmless and make no claim against the Town or its elected or appointed officers, employees or agents, for any damages which may be caused by the acts of any such released entities or persons, to Lessee's interests or Lessee's improvements located upon the Premises; however, this release shall not apply with respect to wanton and willful acts.
17. Lessee Insurance. Lessee shall at its expense obtain, carry and maintain at all times while this Lease is in effect a policy of comprehensive general liability insurance insuring the Town and Lessee against any liability arising out of or in connection with Lessee's use, occupancy or maintenance of the Premises or the condition thereof Such insurance shall be at all times in an amount of not less than TWO MILLION DOLLARS $(\$ 2,000,000)$ combined single limit for bodily injury and property damage per occurrence. The Town, its elected and appointed officers, agents and employees shall be named as additional insureds on such policy. The coverage required hereof of Lessee shall be primary insurance, and any insurance carried by the Town shall be excess and not contributory insurance. Such policies shall contain a severability of interest's provision. Lessee shall be solely responsible for any deductible losses under each of the policies required above. A certificate of insurance shall be completed by Lessee's insurance agent(s) as evidence that a policy or policies providing the coverages, conditions, and minimum limits required herein are in full force and effect, and shall be provided to the Town no later than the commencement date of the Lease. As between the parties hereto, the limits of such insurance shall not limit the liability of Lessee. Failure on the part of Lessee to procure or maintain a policy or policies providing the required coverages, conditions, and minimum limits shall constitute a material breach hereof

## 18. Contractor Insurance.

A. Lessee shall ensure that any contractor hired to construct or maintain the improvements on the Premises does not begin construction until it has obtained all insurance required by this Section 18 and that such insurance has been approved by Town.
B. Lessee shall cause its contractors to procure and maintain the minimum insurance coverages listed below. Lessee shall cause such coverages to be procured and maintained with forms and insurers acceptable to the Town.
i. Workers' Compensation insurance to cover obligations imposed by the Workers' Compensation Act of Colorado and any other applicable laws for any employee engaged in the performance of Work under this contract.
ii. Comprehensive General Liability insurance with mm1mum combined single limits of ONE MILLION DOLLARS $(\$ 1,000,000)$ each occurrence and TWO MILLION DOLLARS $(\$ 2,000,000)$ aggregate. The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury,
broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, independent contractors, products, and completed operations. The policy shall contain a severability of interest's provision.
iii. Comprehensive Automobile Liability insurance with mm1mum combined single limits for bodily injury and property damage of not less than THREE HUNDRED AND FIFTY THOUSAND DOLLARS $(\$ 350,000)$ each occurrence and ONE MILLION DOLLARS $(\$ 1,000,000)$ aggregate with respect to each of contractor's and any subcontractors' owned, hired and/or non-owned vehicles assigned to or used in the performance of any work related to the construction of the improvements. The policy shall contain a severability of interest's provision.
C. Lessee shall ensure the policies required above, except for the Workers' Compensation insurance, are endorsed to include the Town and its officers and employees as additional insureds. Lessee shall ensure every policy required above is primary insurance, and any insurance carried by the Town, its officers, or its employees, shall be excess and not contributory insurance to that provided by the contractor. Lessee shall ensure that the additional insured endorsement for the Comprehensive General Liability insurance required above does not contain any exclusion for bodily injury or property damage arising from completed operations. Lessee shall ensure contractors are solely responsible for any deductible losses under each of the policies required above.
D. Lessee shall ensure that certificates of insurance are completed by the contractor's insurance agent as evidence that policies providing the required coverages, conditions, and minimum limits are in full force and effect, and shall ensure that each certificate is reviewed and approved by the Town. Lessee shall ensure that each certificate identifies the work to be done and provides that the coverages afforded under the policies shall not be cancelled, terminated or materially changed until at least 30 days' prior written notice has been given to the Town. Lessee shall ensure that if the words "endeavor to" appear in the portion of the certificate addressing cancellation, that those words are stricken from the certificate by the agent(s) completing the certificate. The Town reserves the right to request and receive a certified copy of any policy.
E. Failure on the part of the Lessee to cause any hired contractor to procure or maintain policies providing the required coverages, conditions, and minimum limits shall constitute a material breach of this Lease upon which the Town may immediately terminate the Lease, or at its discretion may procure or renew any such policy or any extended reporting period thereto and may pay any and all premiums in connection therewith. All monies so paid by the Town shall be repaid by Lessee to the Town upon demand. Lessee shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Lease by reason of its failure to cause any contractor to procure or maintain insurance, or by reason of its failure to cause any contractor to procure or maintain insurance in sufficient amounts, durations, or types.
19. No Waiver of Immunity or Impairment of Other Obligations. The Town, its officers and employees are relying on and do not waive or intend to waive by any provision of this Lease the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, C.R.S. §24-10-101 et seq., as from time to time amended, or otherwise available to the Town, and their respective officers and employees.
20. Termination. At the Town's option, it shall be deemed a breach of this Lease if the Lessee defaults in the payment of the rent, or defaults in the performance of any other term or condition of this Agreement. In the event the Town elects to declare a breach of this Agreement, the Town shall give the Lessee fifteen (15) days written notice requiring payment of the rent or compliance with the other terms and conditions of this Lease. In the event any default remains uncorrected after fifteen (15) days written notice, the Town, at the Town's option, may terminate the Lease, repossess the Premises and expel the Lessee without being deemed guilty of a trespass or of a forcible entry and detainer and without prejudice to any other remedies to which the Town may be entitled.
21. Destruction by Casualty. In the event that the Premises may be rendered untenantable by reason of fire, flood or other casualty, Lessee at its option may terminate this Lease effective on the date of casualty by giving written notice to the Town within thirty (30) days of the date of casualty.
22. Contingencies. This Lease is contingent upon the adoption by the Bennett Board of Trustees and final effectiveness of an ordinance authorizing this Lease. Lessee acknowledges and agrees that such contingency is subject to the legislative discretion of the Board of Trustees of the Town of Bennett, and that no representations or assurances of any approvals respecting such contingencies have been or will be made by the Town, or have been or will be relied upon by Lessee.
23. Notices. Any notices or communication required or permitted hereunder shall be given in writing and shall be personally delivered, or sent by facsimile transmission or by United States mail, postage prepaid, registered or certified mail, return receipt requested, addressed as follows:

The Town:<br>Town of Bennett<br>Attn: Town Manager<br>207 Muegge Way<br>Bennett, CO 80102

or to such other address or the attention of such other person(s) as hereafter designated in writing by the parties. Notices given in the manner described above shall be effective,
respectively, upon personal delivery, upon facsimile receipt, or upon mailing.
24. Representations Respecting Premises. Lessee affirms that the Town and the Town's agents have made no representations or promises with respect to the Premises, or the condition thereof, or the making or entry into this Lease except as in this Lease expressly set forth, and that no claim or liability shall be asserted by Lessee against the Town, and that the Town shall not be liable, for breach of any representations or promises not expressly stated in this Lease. Specifically, the Lessee agrees that the Town has made no warranties or representations that the Premises are suitable for any purpose.
25. No Waiver. Waiver by the Town of any breach of any term of this Lease shall not be deemed a waiver of any subsequent breach of the same or any other term or provision thereof.
26. No Assignment. This Lease is personal to the parties hereto. Lessee shall not sublease the Premises, or transfer or assign any rights under this Lease, for monetary or any other consideration, without the prior written approval of the Town, which approval is solely at the discretion of the Town.
27. Force Majeure. If either party is prevented from performing due to acts of God or other conditions beyond its control, such performance shall be excused so long as the condition exists.
28. No Partnership. This Lease shall not be deemed to give rise to a partnership, and neither party shall have authority to obligate the other without written consent, except as specifically provided in the Lease.
29. Governing Law and Venue. This Lease shall be deemed entered into in Adams County, Colorado, and shall be governed by and interpreted under the laws of the State of Colorado. Any action arising out of, in connection with, or relating to this Lease shall be filed in the District Court of Adams County of the State of Colorado, and in no other court.
30. Attorney Fees and Costs. Should the Town commence an action for collection of rent or other sums payable under this Lease, or to compel performance of any of the terms or conditions of this Lease, or for damages for failure of Lessee to perform under this Lease, the Town shall collect from Lessee all reasonable attorney fees in respect thereof.
31. Captions. The captions hereof shall be deemed and construed to be informative only and shall have no legal effect upon the interpretations of the terms and conditions of this Lease.
32. Entire Agreement. This Lease is the entire agreement between the Town and Lessee and may be amended only by written instrument subsequently executed by the Town and Lessee.
33. Survival. All of the terms and conditions of this Lease concerning release, indemnification, termination, remedies and enforcement shall survive termination of this Lease.

IN WITNESS WHEREOF, the parties have entered into this Lease on the date first above written.

# TOWN OF BENNETT, COLORADO 

Royce D. Pindell, Mayor

## ATTEST:

## Christina Hart, Town Clerk

## LESSEE:

Discovery Time Kids Early Learning Center a Colorado nonprofit corporation

By: $\qquad$
Title: $\qquad$

Exhibit A
Final Development Plan Amendment No. 2
Bennett Recreation District

## FINAL DEVELOPMENT PLAN AMENDMENT NO. 2

BENNETT PARK AND RECREATION DISTRICT

## LEGAL DESCRIPTION SITE

A PORTION OF THE FOLLOWING DESCRIBED PARCEL OF LAND
A PARCEL OF LAND IN THE NORTHEAST QUARTER OF SECTION 33 TOWNSHIP 3 SOUTH, RANGE 63 WEST OF THE 6TH P.M.;
COMMENCING AT THE NORTHEAST CORNER OF THE ABOVE SECTION 33 , TOWNSHIP 3 SOUTH, RANGE 63 WEST OF THE 6 TH PM

ASTER Y SECTION LNE OF CETION 33
THENCE $589^{\circ} 10^{\prime} 42^{\prime \prime}$ W A DISTANCE OF 700.52 FEET
THENCE NOO 22 '41"W A DISTANCE OF 914.58 FEET' TO THE NORTH INE OF SECTION 33;
位

EXCEPTING THE EASTERLY 50 FEET FOR THE WESTERN HALF OF HE RIGHT-OF-WAY FOR COLORADO STATE HIGHWAY 79; ALSO XCEEPT THE NORTHERLY 30 FEET FOR THE SOUTHERN HALF OF PREVIOUS ANNEXATION TO THE TOWN OF BENNETT, AS DESCRIBED AT BOOK 2950, PAGE 440, AT THE ADAMS COUNTY CLERK AND RECORDER'S OFFICE; BRIGHTON, COLORADO. (APRIL 25, 1985)
CONTAINING 275,231 SQ FT, OR 6. 14 ACRES; INCLUDING THE REVIOUS ANNEXATION AND TOWN WELL SITE, BUT NOT NCLUDING RIGHT-OF-WAY AREA.

## LEGAL DESCRIPTION -

FINAL DEVELOPMENT PLAN AREA THE LEASED PREMISES IS DESCRIBED AS BEING A 6.3 ACRE ARCEL ADJOINING COLORADO HIGHWAY 79 AND KNOWN AS LO 2 OF THE HAND ANNEXATION TO THE TOWN OF BENNET THE TOWN WELL SITE AND RECORDED IN BOOK 2206, PAGE 757.

## AMENDMENT HISTORY

HIS AMENDMENT NO. 2 SETS FORTH THE FOLLOWING CHANGES AS DESCRIBED TO REFLECT A NEW PAVED PARKING LOT, NEW DAY CARE / CLASSROOM / PLAYGROUND FACILITY, AND NEW SIGN CODE PAVED PARKING LOT, NEW DAY CARE/CLASSROOM PLAYGROUND FACILITY, AND TEW IGN

SHEETS 1-21: UPDATED TITLE BLOCK, SIGNATURE BLOCKS, AMENDMENT NUMBER AND ADDED ADDITIONAL SHEETS TO BRING TOTAL NUMBER OF SHEETS TO 2

SHEETS 19-21: ADDED NEW SHEET TO DEPICT NEW PAVED PARKING LOT AND ASSOCIATED LANDSCAPE AREA. ADDED NEW SHEET TO DEPICT NEW DAY CARE, CLASSROOM AND PLAYGROUND FACILITIES.

TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO


SHEET INDEX

## TITLE SHEET

SITE SURVEY
TEXT SHEET
TEXT SHEET
TEXT SHEE
SITE PLAN
EROSION CONTROL PLAN
UTILITY PLAN
UTILITY PLAN - GAS \& ELECTRIC
LANDSCAPE PLAN
ADDRESS MAP
BUILDING ELEVATIONS - CONCEPT A BUILDING ELEVATIONS - CONCEPT B BUILDING ELEVATIONS - FUTURE FINAL IMPROVEMENTS SIGN PROGRAM DUMPSTER DETAILS
SITE DETAILS
UTILITY DETAILS
ROSION CONTROL DETAILS
TE PLAN WITH REVISED PARKING LOT
21 OF 21 SITE PLAN

## OWNER / DEVELOPER

BENNETT PARK AND RECREATION DISTRIC
455 SOUTH
BENNETT, COLORADO 80102-
PHONE: 303-644-5040
FAX: 303 3-644-5045
CHERYY FISHER PRESIDENT

## OWNER SIGNATURE BLOCK

BY SIGNING THIS FDP, BENNETT PARK AND RECREATION DISTRICT ACKNOWLEDGES AND AgCEPTS ALL OE THE REQUIREMENTS AND INTENT SET FORTH HEREIN.

ADMINISTRATION APPROVAL BLOCK
APPROVED BY THE ZONING ADMIIISTRATOR OF THE TOWN OF BENNETT, COLORADO
this $14^{\text {th }}$ day of OCTOBER
Gushsiles Sypute I. White

## COUNTY CLERK AND RECORDER CERTIFICATE

HIS FINAL DEVELOPMENT PLAN WAS FLLED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK AND RECORDER OF ADAMS COUNTY,



CLERK AND RECORDER
Oleam Anderson





FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO

NOTE.
SHEET DETAIL FROM AMENDMENT NO. 1. NO REVISIONS TO THIS SHEET. REVISED SITE PLAN FOR AMENDMENT NO. 2 IS ON SHEET 21



1. Prolect Concept

The profect concept is to continue with development of the exxating 6.3 cre (plus or minuus) parces of land adjolining Colorado Highway 79 wittin the corporate limlis of the Town of Bennett, known as Lot 2 of the Hand Annexalion to the Town o Bennetil Adems Caunty, colorado, exxcepting that 757 of the records of Adams County, Colorado. Thise existling property house the Bennott Recraation Center. This FDP conslats of phase 2 of

This Finel Development Plan (FFDP') is prosented for conthued mprovements to the 6.3 acre parcal consistent with the intergovernmenta Recreation Disterlct (Dibticter), dated February 12, 2002.

Development of the sthe will conseste of a five year plan baend on the adseting budget. The Distict has recolved a $\$ 1,500,000.00$ grant from Adem County Open Space. It is the intent of the Recreation District to apply for addiltonal funds from Adam's County Open Space (Feb 2009), to complete the expensilon, in order to offeet some of the costs for the slie work, utillite

This FDP submittal is to consstruct a swimming pool addilton to the extasing nool.
2. Land Use Section:

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Existing FDP Sllo
Exduthg Paved Arvas
Exiting Gravel Arrasi
Now Pool Addilton
New Landrcapaped Avoes
NNetve Gresaspry Ampdec
Existing Parkng Spacose
Nxawn Parkling Spaces
Land Us
The devilopment of the parcel will establlsh a now facllyy as well as
recreation services for the Town of Bennoti, Colorado, and any othe
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3. Residenter Densillices - Dose not apply to this propect.
4. Environmental Impect miligation - The Dlatict is not awere of any
5. Pivite Meintenence and Enforcement - The following common aree

6. Pelmior
7. Perlmeter landscapling.
8. Common slonage. The Difict ill maintain the exisiting parking lot. If areas of depression
 adollitional inil or gravel into, the affifcceded areas to e eliminate the dopreseston. In order for the parking lot stibe to drail to and into the direction of the
9. Otherinary rotentition pond dosionneted in the innel approved FDP. Other Thems as specined in
10. Parke, Triels and Open Space - The Dibutco is not awere of any deelonatilons for public or pitvate open space or groenbeatis on the as doflined in section Number 1. This project it to establith a
11. Contiolse - There aro no oflictal open spacco or greenbealt dosionations. within the profect stite. The alto and dill mprovement
12. Dralnege - Onatito dralinge will be conveyed over land from tre roof
 tomporay memition beasin thet $1 s$ loccived in the Northwest comer
13. Uulltlows: Water demend is summartzed in the Water Demand Table as



## FINAL DEVELOPMENT PLAN AMENDMENT NO. 2

BENNETT PARK AND RECREATION DISTRICT

$$
\begin{aligned}
& \text { TOWN OF BENNET } \\
& \text { ADAMS COUNTY }
\end{aligned}
$$

MENDMENT NO. 2 ELIMINATES ALL SIGN STANDARDS. ALL NEW SIGNAG SUBJECT TO SIGN REGULATIONS IN BENNETT MUNICIPAL CODE.

Intemational Plumbing Code - Table E103.3(2) In libu of 3.5 WSFU for urinals, use $20+15=35$ WSFU. Total becomee 16.25. Table $8-5$ © 46 to 60 pel pressure range. Meter stze $=1-1 / 2$ Water demand is estimated at 25 gallons per day per indlikdual, timee a maximum of 100 Indliliduals to equal 2,500 gallons per day, times
365 days equals 912,500 gallons, times $60 \%$ equals 547,500 gallons per yeer. Imigation should equal a maximum of 50 gallons per day when in use.
10.1.Parking - 109 spaces are required and shall be provided, on the basls of maximum occupancy of 438 persons on the stie at bulid-out. The Park and Recrsation District is responsiblo for scheduling activtioe Ite at any one time. If special events are scheculed, then the Park and Recreation District will make arrangements for the use of addilitonal arking spaces off-stio.
11. Archliecture
A. Archlectural deelgn shall reflect a unlified theme. The dasign unity shair se implemenied win regard to scailo, with the construction of the Recreation Facllity Builiding.
B. The palotte of materials shall conslit of stone, steel, wood, stucco or integrated colored textured concrete as major viluual elements of the structure. The color pelette shall be earth tones with pastels resticted. An exception to the color palette shall be accem areas of olther slgnage or graphics identitying the varrous businees

All roofs shall be constructed with fire retardant roofing materials.
D. Vieual interest and human scalo will be provided by hortzontal staggering or indenting facades or by varying the material
E. Mechanical HVAC systemes will be located on the roof, and provided with architectural screening, color to match the roof.
F. Exterior doors shall be of a color which blends with and is not In sharp contrast to the extarlor color of the bullding.
G. All ground mounted mechanical equipment shall be screened with walls, fences or landecaping.
H. All llghting induiding exieting well pecks on the bullding shall be down cast lighting or shlolded to reduce glare and be in compliance with Town of Bennett lighting standards in effect at the time of submittal of plans for installation of buliding lights.

1. All future parking lot lighting will be in compllance with Town of Bennet lighting standerds in efiect at the time of submlttal of plans for Installation of those llohts.
2. Selthecks Refer to Sheet 6 of 18.
3. Development Schedule - Following the Town of Bennett and Permit approver a now pool building addition will commence in May 2009 at a coest o $31,500,000$ for a total of $11,800 \mathrm{SF}$. If addiltonel funding becomes avelleble tot pool, endless pool, and new entiy/multipuipose room will be added for a addtional 6400 SF In June of 2009 .
4. -Signage Program
A. Stonage for propectidontilieation, to bo located adjacent to State-

5. -One profeet ddentilicatton boundary marker 6 p proposed to bo loceted at the main entrance to the athe. Thlo main -itmber-4 an Shoet-44- of -4). An exterior bullding sign -will be mounted on the maln entrance for for to tillustration - number 2onsheot 44 of 40).
6. Maximum Sbellelght Malin Sign-6 4. Meximum 8quere Footego:-2580.न.


Reotictions- - shall not bo tocated within vistion tiangle
toeetion -t be wethin $50^{\circ}$ of elther alde of the prof joct
B. Direetery Type Dreetlonal Signe-

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C. -Regulatery/friaflie signe.
2. -Reguleteryffremle slegne shalt helude all standard Trefle olgne (le-stop algn, ylield slen, croswwilk
3. 

All egulatorydtreatle slgno will be standard traflic colors -and typee, but shall be placedon ondecorative polverand -everall olignage theme. Rocreation and pedestian
3. -The will elso bo induded as neoded. - of Unllogn Frimie Gontiol Devileses) standands.
D. Temperary siano (constuction)

1. -Number allowed-1 algn along State H Ifhway 79 Itrontage
2. Maximum ske- 100 sq.ith persign along Stato Hilghway 79. - Maximum Helght- 10 feet form grade, incuding the heifight
-Of berme at Etate H tighway 79 - 7 -
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## FINAL DEVELOPMENT PLAN AMENDMENT NO. 2

BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNET

NOTE:
SHEET DETAIL FROM AMENDMENT NO. 1. REVISED SITE PLAN FOR AMENDMENT NO. 2 IS ON SHEET 21

PHASE 1 IMPROVEMENTS - 2009
The improvect are
A. Swimming Pool Addillion, see pg. 13.
B. Now Entry, see pg. 13A, 13B.
C. Awning Variations, see pg. 13 B .

Sased on fundiling, phass 1 ilprovementst, rofer to pg. 13 .
Ifadilional funding becomes avallable rofer to pg. 13 A . fuil funding becomes avallable refler to pg. 13 B .

REFER TO REVISED SITE PLAN ON SHEET 21








FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO
NOTE:
SHEET DETAIL FROM AMENDMENT NO. 1. REVISED SITE PLAN FOR AMENDMENT NO. 2 IS ON SHEET 21


# FINAL DEVELOPMENT PLAN AMENDMENT NO. 2 <br> BENNETT PARK AND RECREATION DISTRICT <br> TOWN OF BENNETT <br> ADAMS COUNTY <br> STATE OF COLORADO 





FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO


EAST VIEW scale: n.t.s.


FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
OWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO




FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY STATE OF COLORADO






TRENCH DRAIN ELEVATION FOR
$\frac{\text { ACCESS DRIVE CROSS }}{\text { Scale: N.T. }}$


FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO
SHEET DETAIL FROM AMENDMENT NO. 1. REVISED SITE PLAN FOR AMENDMENT NO. 2 IS ON SHEET 21. NO REVISIONS TO THIS SHEET



FINAL DEVELOPMENT PLAN AMENDMENT NO. 2
BENNETT PARK AND RECREATION DISTRICT
TOWN OF BENNETT
ADAMS COUNTY
STATE OF COLORADO

NOTE:
NO REVISIONS TO THIS SHEET.


## AN ORDINANCE APPROVING A LEASE AGREEMENT WITH DISCOVERY TIME KIDS EARLY LEARNING CENTER

WHEREAS, the Board of Trustees has the power pursuant to Section 31-15-713(1)(c), C.R.S. to lease real estate owned by the municipality when deemed by the Board of Trustees to be in the best interests of the Town; and

WHEREAS, there has been proposed a multi-year Lease Agreement (the "Lease Agreement") between the Town of Bennett and Discovery Time Kids Early Learning Center for the use of the Town-owned property adjacent to the Bennett Recreation Center for early childhood and daycare facilities; and

WHEREAS, the Town recognizes childcare services as a tremendous asset to our community and recognizes the lack of affordable childcare hurts working families; and

WHEREAS, the Town will lease the Premises at a reduced rental rate per the Economic Development Policy; and

WHEREAS, has determined that the proposed Lease Agreement is in the best interests of the Town because it serves the important public purpose of increasing the number of available spaces for childcare facilities and driving down the cost of childcare for both providers and families.

## NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF BENNETT, COLORADO:

Section 1. The proposed Lease Agreement (the "Lease Agreement") between the Town of Bennett and Discovery Time Kids Early Learning Center for the lease of the Town-owned property described in Exhibit A to the Lease Agreement is hereby approved in essentially the same form as the copy of such Lease Agreement accompanying this Ordinance on the condition that the Lessee uses said property in accordance with the terms of the Lease Agreement.

Section 2. The Mayor is hereby authorized to execute the Lease Agreement, except that the Mayor is hereby further granted the authority to negotiate and approve such revisions to said Lease Agreement as the Mayor determines are necessary or desirable for the protection of the Town, so long as the essential terms and conditions of the Lease Agreement are not altered.

Section 3. The Mayor and Town Staff are further authorized to do all things necessary on behalf of the Town to perform the obligations of the Town under the Lease Agreement and to execute and deliver any and all documents necessary to effect the lease under the terms and conditions of the Lease Agreement.

INTRODUCED, READ, ADOPTED, APPROVED, AND ORDERED PUBLISHED BY TITLE ONLY THIS 22 ${ }^{\text {nd }}$ OF NOVEMBER 2022.

# TOWN OF BENNETT, COLORADO 

Royce D. Pindell, Mayor

## ATTEST:

Christina Hart
Town Clerk

## Suggested Motion

I move to approve Ordinance No. 763-22 - An ordinance approving a lease agreement with Discovery Time Kids Early Learning Center.


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    4 of 9
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