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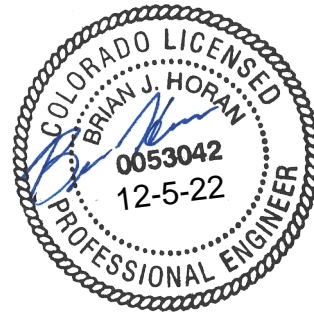
Memorandum

To: Tom Reiff, Project Manager
Public Works Department

From: Brian Horan, PE

Date: December 5, 2022

Re: **The Meadows – Filing 20
Traffic Conformance**



INTRODUCTION

This memorandum provides the results of a traffic conformance analysis performed in support of the development of Lot 2A-1A, Lot 1A-2, and Lot 1B-1 of The Meadows Filing 20 in Castle Rock, Colorado. The proposed site development is located east of Bilberry Street, west of Ambrosia Street, south of Meadows Boulevard, and north of Meadows Parkway. The lots are currently vacant. The site location is shown on Figure 1.



Figure 1 – Site Location



The subject site was previously studied with a mixed use as part of a larger proposed development, The Meadows Town Center (Filing 20) which was supported by an Arterial Street Access Plan Addendum (Access Plan) completed by Felsburg Holt & Ullevig (FHU) dated March 2018 and provided by Public Works Department (Staff). The full planning area for Filing 20 is shown on Figure 2.



Figure 2 – Filing 20

The Access Plan analyzed the Filing 20 planning area with the following uses (Table 1 of Access Plan):

- 1,018 Single Family Units
- 320 Townhome Units
- 444 Apartment Units
- 83 KSF Office Use
- 47.5 KSF Retail Use
- 5 KSF Bank Use
- 13 KSF Drug Store Use
- 717 Students Charter School

Excerpts from the Access Plan are included as Attachment I.

The Applicant, Garrett Companies, proposes to develop Lot 2A-1A, Lot 1A-2, and Lot 1B-1 of Filing 20 of The Meadows with a mix of townhome, apartment, and commercial uses. Specifically, the Applicant is proposing the following mix of uses:

- 41 Townhome Units
- 44 Apartment Units
- 6.3 KSF Commercial/Retail Use

A full-sized copy of the site plan is provided as Attachment II. The following memorandum has been prepared for Public Works as requested. The purpose is to evaluate the traffic generated by the currently proposed use in comparison to the approved land use support by the approved Access Plan.

ARTERIAL STREET ACCESS PLAN ADDENDUM TRIP GENERATION AND RECOMMENDATIONS

As mentioned previously, the Access Plan is dated March 2018 and contemplates a variety of uses for the subject site, Filing 20 of The Meadows. The Access Plan forecasted trip generation estimates for the above development program based on rates/equations published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th Edition and industry standard methodologies for internal capture reductions.

The Access Plan concluded that in order to accommodate the projected volumes a number of roadway improvements would need to be provided. Suggested intersection geometries were provided for all affected intersections and access points included in the Access Plan as intersections 7, 8, 18, & 19, and included herein as Attachment I.

As determined by virtual field reconnaissance, the existing nearby unsignalized intersections have been constructed consistent with recommendations of the Access Plan. Intersection 19 has been signalized as recommended. Intersection 8 was identified for future signalization and improvements when warrants are met.

PROPOSED DEVELOPMENT AND TRIP GENERATION COMPARISON

As shown in the Attachment I excerpt, the Access Plan contemplates a mix of uses for the parcels of Filing 20 of The Meadows development. The proposed development would encompass 41 townhome units of the previously studied 320 townhome units, 44 apartment units of the previously studied 444 apartment units, and 6.3 KSF of the previously studied 47.5 KSF retail use.

Table 1 forecasts the trip generation for the proposed Meadows Townhome development using the ITE *Trip Generation Manual*, 11th Ed. As can be seen in the table, the proposed use is forecasted to generate 54 weekday AM peak hour trips, 55 weekday PM peak hour trips, and 514 average daily trips.

To conduct a more direct trip generation comparison between the forecasted Meadows development trips and the forecasted Filling 20 trips, the Filling 20 trip generation table originally made using the ITE *Trip Generation Manual* 9th Ed was updated to the 11th edition and is included in Table 1. This changed the forecasted number of daily trips from 21,834 to 21,017. Since 2018, many of the proposed Filling 20 developments have been constructed. The City of Castle Rock has provided a list of what has been developed as of 10/19/2022. The original list is included in Attachment II, while the condensed trip generation for developed land uses is shown in Table 1. It can be concluded that of the 21,017 daily trips forecasted to be generated upon completion of the Filling 20 development, 17,148 daily trips are currently being generated by what has been developed to date.

Once the Meadow Townhomes have been developed as a part of Filling 20, there will be a remainder of 581 weekday AM peak hour trips, 529 PM peak hour trips, and 3,355 average daily trips for the remainder of the undeveloped Filling 20 developments. The proposed residential and commercial use is in conformance with and would have no adverse effect on the conclusions or recommendations of the Access Plan.

Table 1

Meadows Townhomes - Castle Rock, CO

Site Trip Generation

| | | | | AM Peak Hour | | | PM Peak Hour | | | Average |
|--|---------------|--------|------------------------|--------------|-------|-------|--------------|-------|-------|-------------|
| Land Use | Land Use Code | Amount | Units | In | Out | Total | In | Out | Total | Daily Trips |
| Proposed: ⁽¹⁾ | | | | | | | | | | |
| Townhomes | 220 | 41 | DU | 9 | 27 | 36 | 24 | 14 | 38 | 338 |
| Apartments | 221 | 23 | DU | 2 | 7 | 9 | 5 | 4 | 9 | 104 |
| Apartments w/ Ground-Floor Commercial | 230 | 21 | DU | 2 | 7 | 9 | 6 | 2 | 8 | 72 |
| Meadow Townhomes Total Proposed | | | | 13 | 41 | 54 | 35 | 20 | 55 | 514 |
| Total Approved - 2017: ⁽¹⁾⁽²⁾ | | | | | | | | | | |
| Single-Family | 210 | 1,018 | DU | 185 | 528 | 713 | 603 | 354 | 957 | 8,532 |
| Multifamily Housing (Low-Rise) | 220 | 320 | DU | 29 | 93 | 122 | 99 | 59 | 158 | 2,127 |
| Multifamily Housing (Mid-Rise) | 221 | 444 | DU | 42 | 142 | 184 | 106 | 68 | 174 | 2,071 |
| Charter School (K-12) | 538 | 717 | Students | 325 | 288 | 613 | 213 | 214 | 427 | 1,928 |
| General Office Building | 710 | 83 | KSF | 126 | 17 | 143 | 24 | 118 | 142 | 987 |
| Shopping Plaza (40-150K) | 821 | 47.5 | KSF | 51 | 31 | 82 | 121 | 126 | 247 | 3,207 |
| Pharmacy/Drugstore with Drive-Through | 881 | 13 | KSF | 25 | 24 | 49 | 66 | 67 | 133 | 1,364 |
| Walk-in-Bank | 911 | 5 | KSF | 59 | 54 | 113 | 67 | 65 | 132 | 1,452 |
| Subtotal | | | | 842 | 1,177 | 2,019 | 1,299 | 1,071 | 2,370 | 21,668 |
| Internal Capture ⁽²⁾ | | | | (26) | (36) | (61) | (39) | (33) | (72) | (651) |
| Filling 20 Total Approved | | | | 816 | 1,141 | 1,958 | 1,260 | 1,038 | 2,298 | 21,017 |
| Built to Date (10/19/22) | | | | | | | | | | |
| Single-Family | 210 | 926 | DU | 147 | 418 | 565 | 507 | 298 | 805 | 7,820 |
| Multifamily Housing (Low-Rise) | 220 | 64 | DU | 10 | 33 | 43 | 30 | 18 | 48 | 486 |
| Multifamily Housing (Mid-Rise) | 221 | 555 | DU | 53 | 180 | 233 | 132 | 85 | 217 | 2,601 |
| Rock Climbing Gym | 434 | | KSF | 20 | 7 | 13 | 13 | 10 | 23 | 253 |
| Charter School (K-12) | 538 | 350 | Students | 119 | 105 | 224 | 44 | 45 | 89 | 941 |
| General Office Building | 710 | 29.3 | KSF | 51 | 7 | 58 | 10 | 50 | 60 | 399 |
| Shopping Plaza (40-150K) | 821 | 30 | KSF | 32 | 20 | 52 | 76 | 80 | 156 | 2,026 |
| Pharmacy/Drugstore with Drive-Through | 881 | 13 | KSF | 25 | 24 | 49 | 66 | 67 | 133 | 1,364 |
| Walk-in-Bank | 911 | 3.8 | KSF | 45 | 41 | 86 | 51 | 49 | 100 | 1,100 |
| Recreation Center | | | Town Provided Trip Gen | 29 | 12 | 41 | 56 | 81 | 137 | 689 |
| Subtotal | | | | 531 | 847 | 1,364 | 985 | 783 | 1,768 | 17,679 |
| Internal Capture ⁽²⁾ | | | | (16) | (26) | (41) | (30) | (24) | (54) | (531) |
| Filling 20 Developed to Date | | | | 515 | 821 | 1,323 | 955 | 759 | 1,714 | 17,148 |
| | | | | | | | | | | |
| Undeveloped - Proposed | | | | 288 | 279 | 581 | 270 | 259 | 529 | 3,355 |

Note(s):

(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition

(2) Arterial Street Access Plan Addendum Filing 20 (Town Center) in the Meadows by FHU dated March 2018

CONCLUSIONS

The conclusions of this comparative analysis are as follows:

1. The subject site was previously contemplated under a mixed use for The Meadows development in Castle Rock, CO.
2. According to the Arterial Street Access Plan Addendum (Access Plan) prepared by Felsburg Holt & Ullevig dated March 2018, the Access Plan analyzed Filing 20 with the following uses:
 - 1,018 Single Family Units
 - 320 Multi-Family Units
 - 444 Apartment Units
 - 83 KSF Office Use
 - 47.5 KSF Retail Use
 - 5 KSF Bank Use
 - 13 KSF Drug Store Use
 - 717 Student Charter School
3. The Applicant, Garret Companies, proposes to develop Lot 2A-1A, Lot 1A-2, and Lot 1B-1 of Filing 20 with a mix of residential and commercial uses. The Access Plan contemplated the subject site with a mix of residential, office, and commercial use. The proposed use is consistent with the assumptions of the approved Access Plan.
4. A comparison of trip generation between the undeveloped parcels uses and proposed uses suggests that the proposed use would leave a balance of trips for the remaining undeveloped parcels of 581 weekday AM peak hour, 529 weekday PM peak hour, and 3,355 average daily trips.
5. Based on the trip generation comparison contained herein, the proposed residential and commercial development would not negatively impact the conclusions of the Access Plan. The traffic impacts associated with the proposed use would be adequately accommodated by the constructed/proposed road network without the need for additional improvements.

We trust that the information contained herein satisfy the request of Castle Rock, CO. If you have any questions or need further information, please contact Brian Horan at BrianHoran@gallowayus.com or 303-770-8884.

Attachment I

Arterial Street Access Plan Addendum – Filing 17, Filing 18 & Filing 20 (Town Center)

Felsburg Holt & Ullevig dated March 2018 excerpts

ARTERIAL STREET ACCESS PLAN ADDENDUM

**Filing 17, Filing 18 &
Filing 20 (Town Center)
in The Meadows**

Prepared for:

Castle Rock Development Company
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Denver, CO 80206

R.C. Hanisch, Development Director

Prepared by:

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FHU Reference No. 117256-01

March 2, 2018
4th Edition

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I. INTRODUCTION

Castle Rock Development Company has been working with home and commercial builders on the construction of new land parcels in The Meadows subdivision of Castle Rock, Colorado, for many years. Residential homes, medical facilities, commercial and office space, and parks and open spaces continue to be built as The Meadows progresses toward its eventual buildout of the entire subdivision.

As The Meadows grows, it is necessary to understand the traffic impacts of these new projects, specifically along the main access routes near the core of the commercial development. To that end, this report is an addendum to the *Arterial Street Access Plan (Access Plan)* for Filings 17, 18 and 20 that was completed and approved by the Town of Castle Rock in June 2004.

Since 2004, intersection locations, turning movements, and access restrictions have been constructed as were recommended in the *Access Plan*. As such, this 2017 report assesses and confirms the recommendations from 2004 and provides input for new or revised geometric and traffic control improvements based on known uses and densities and on projections of future development uses.

This report includes information on:

- Existing land use, traffic control, and roadway data
- Available access routes and intersection characteristics
- Projected land uses and resulting traffic volume forecasts
- Recommended intersection geometry, auxiliary lanes, and traffic control
- Comparison of 2004 recommendations to 2017 recommendations

The analyses and recommendations of this report focus on Filings 17, 18 and 20 (also referred to as the Town Center). The physical land boundary of these filings is depicted on **Figure 1**. Access, traffic control and geometric improvements are focused along the arterial street system adjacent to these filings, being:

- Two segments of Meadows Boulevard – from North Meadows Drive to the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection (one segment between Filings 18 and 20 and the other segment between Filings 17 and 20)

Note: For the purposes of this report, the segment of Meadows Boulevard between Filings 18 and 20 is referred to as West Meadows Boulevard and the segment between Filings 17 and 20 is referred to as North Meadows Boulevard.

- Meadows Parkway from the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection to the Filing 17 access on the west side of Plum Creek (Lombard Street); this intersection currently provides parking lot access for the East Plum Creek Trail but will ultimately serve as the entry for the Filing 17 COI areas on the north and south sides of Meadows Parkway
- Prairie Hawk Drive from the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection to Morningbird Lane (being constructed)

This report provides the Town of Castle Rock and Castle Rock Development Company with information and recommendations that will satisfy the vehicle capacity demands of The Meadows through construction of the final land areas.

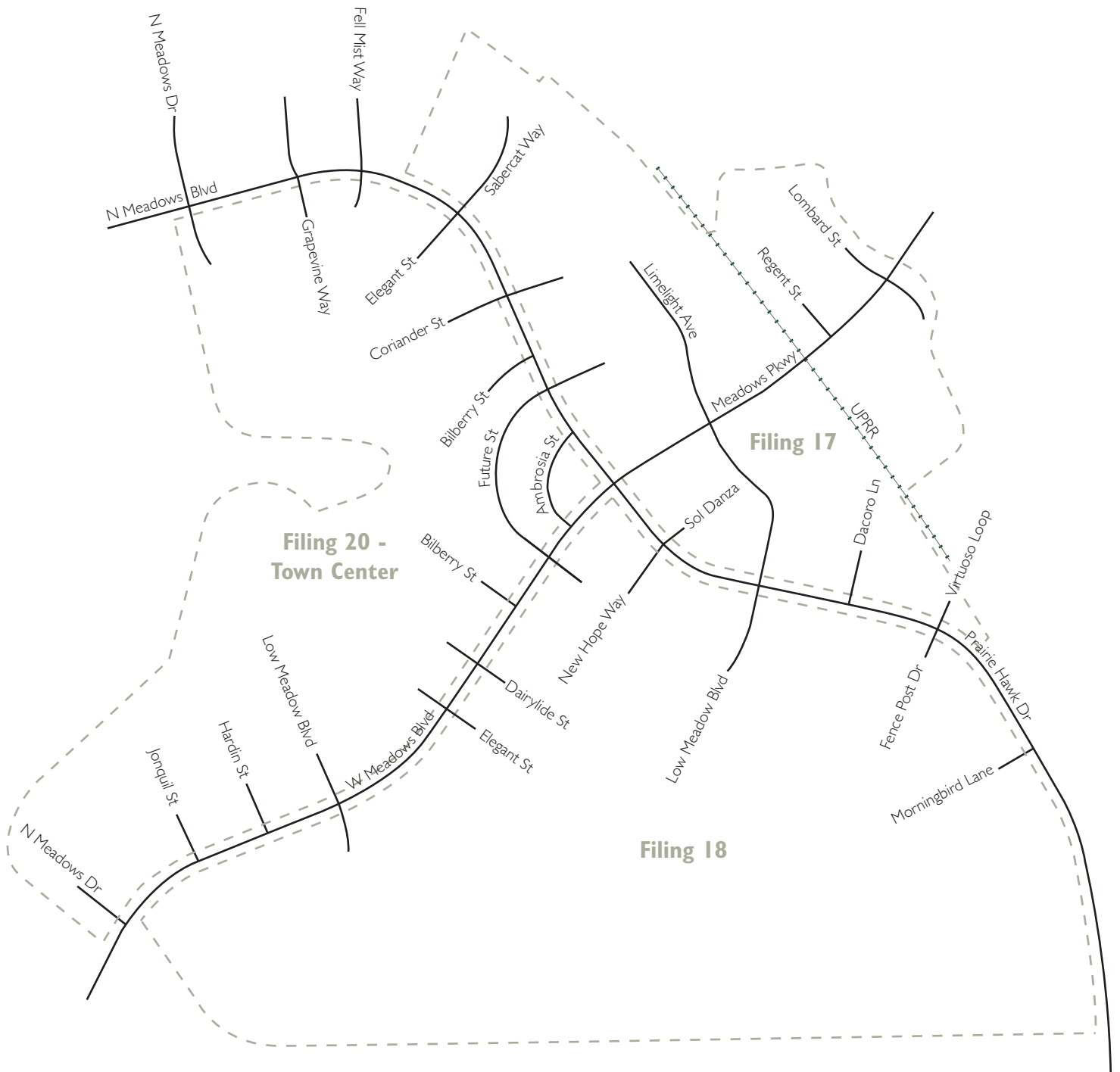


Figure 1
Filings 17, 18, and 20 Boundaries



II. EXISTING CONDITIONS COMPARISON

Since the completion of the *Access Plan* in 2004, significant development has occurred, and roadway projects have been constructed that provide a more complete street system in Filings 17, 18 and 20. Following is information on how the built environment of these filings has progressed since 2004.

II.A. *Developed Environment*

Residential homes, retail establishments, office space, a hospital, a charter school, medical office buildings (MOB's), an assisted care facility, and other uses have been constructed since the completion of the *Access Plan* in 2004. These land uses are throughout Filings 17, 18 and 20, but somewhat concentrated as:

- Retail, office, hospital, and MOB's in Filing 17
- Residential homes, charter school, and assisted living facility in Filing 18
- Retail, office, and residential homes (both single-family and multi-family) in Filing 20

These land uses follow what was envisioned by Castle Rock Development Company in 2004 in most cases but have been refined over the years based on economic market trends.

II.B. *Access Routes*

In 2004, most of the arterial street network in The Meadows had been constructed to a four-lane cross-section except in a few cases. West Meadows Boulevard between the Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive intersection and Coachline Road was only a two-lane facility as was Prairie Hawk Drive to the south of Fire Station 154.

Additions to the street network provide new opportunities for residents, as well as patrons of its commercial areas, for vehicular movements to/from The Meadows and internally between the varying land uses.

None of the commercial land uses of Filing 17 existed in 2004, and, as such, none of the internal street network was in place. Only the AMC movie theater was being contemplated at that time, but Limelight Avenue or other streets had yet to be constructed.

Only the New Hope Presbyterian Church and Fire Station 154 had been built in Filing 18 in 2004. None of the internal street network for the residential homes or charter school existed, and the Town Center was totally void of any development or constructed street network.

II.C. *Traffic Control*

Traffic signals were in operation at only the Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive intersection and at the North Meadows Boulevard/North Meadows Drive intersection in 2004. All other intersection movements were controlled by stop signs. Today, three other traffic signals have been added within the study area: 1) & 2) North Meadows Boulevard at Fell Mist Way and Elegant Street/Sabercat Way, and 3) Meadows Parkway/Limelight Avenue.

III. FUTURE CONDITIONS

The following subsections summarize the land uses, trip generation estimates, and trip distribution characteristics for Filings 17, 18 and 20, as well as describe the used to develop trip generation estimates for the *Access Plan* in 2004 and for those used in this current report.

III.A. Developing and Future Land Uses

Figure 2 provides a representation of the developing and future construction projects. Areas of this figure that are not defined are existing, completed projects. The information of **Figure 2** is provided to summarize the development context of Filings 17, 18 and 20; that is, what parcels are undergoing construction now or will be constructed in the future. Filing 17 will include new commercial and office uses, Filing 18 will have additional residential dwelling units, and Filing 20, the Town Center, will be a mix of residential and commercial uses.

As found in Section III.C, the analyses for this addendum are based on known and assumed land uses in these filings, not simply ones that are under construction or are anticipated in the future.

III.B. Trip Generation Methodologies

As can be imagined, land use and density information for Filings 17, 18 and 20 are more defined now than they were in 2004. For example, the land areas in Filing 17 were zoned as Commercial/Office/Industrial (COI) in 2004 and without more exact information, trip generation estimates were developed with a 1/3, 1/3, 1/3 split of these three land use types. Now these land areas are partially constructed and better assumptions of individual uses can be made.

Related to resultant trip generation estimates, an important factor to understand is that trip generation rates in 2004 for single-family homes were based on empirical trip generation data that was collected for homes in specific sections of The Meadows and in Founders Village. That investigation found that vehicle-trip rates on a daily and peak hour basis were less than what the Institute of Transportation Engineers' (ITE) publication *Trip Generation* would predict. The current study uses the standard ITE rates, resulting in a more conservative approach, one that should provide the Town with a level of confidence that the recommendations of this report are sufficient to meet the travel demands of The Meadows residents and commercial patrons as it continues to develop.

In 2004, an internal capture allowance of 25 percent was used to reflect the interaction of the varying residential, retail and office uses in Filing 20, the Town Center. The 25 percent allowance was based on information contained in ITE's *Trip Generation Handbook* and on conversations with Town of Castle Rock staff. Current analyses indicate that a 25 percent internal capture cannot be justified given the current mix of dwelling units and retail and office space (see next section). As such, a more conservative estimate of vehicle-trips for Filing 20 was used for the analyses.

The information above strives to convey that the methodologies of predicting vehicle-trips and resultant recommendations in 2004 and 2017 are different; ones that provide some slight variations to the recommendations of the 2004 *Access Plan*. These variations do not result in whole-scale changes to the access recommendations along the arterial street system.

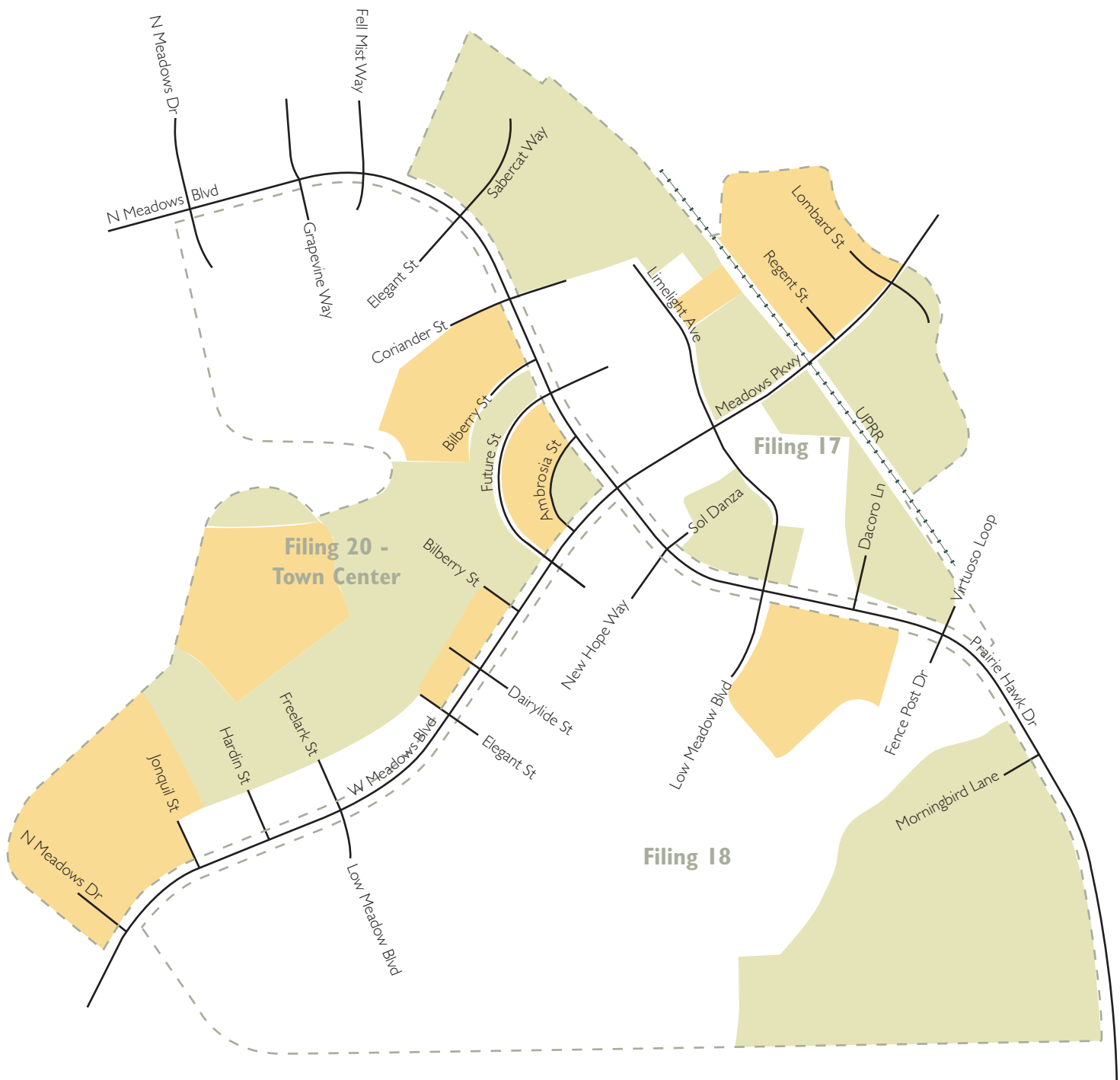


Figure 2
Developing and Future land Uses



III.C. Trip Generation Estimates and Trip Comparison

Trip Generation

Vehicle-trip estimates for Filings 17, 18 and 20 were prepared using information contained in *Trip Generation*, 9th Edition (2012), or information developed in previous traffic studies for non-typical land uses like the charter schools (see **Table 1** on pages 7 & 8).

Table 1 also shows the internal capture allowances used for each filing. The internal capture percentage for the Town Center used the *National Cooperative Highway Research Program* 684 methodology to estimate the AM and PM peak hour reductions since the Town Center will have a good mix of land use types that allow this procedure to be used. Evaluation results indicate that an internal capture of 3 percent and 11 percent can be expected for the AM and PM peak hours, respectively (see **Appendix A**).

For Filings 17 and 18, the land use mix is not significant enough to use this procedure; that is, Filing 17 lacks a residential component, while Filing 18 lacks retail and office components. Regardless, it is projected that there will be some interaction between the differing land uses within these filings that will result in some internal capture, but not necessarily for each land use.

For example, in Filing 17, some internal capture will occur in the land area where the AMC movie theater is; interaction among restaurants, the theater, bank or convenience store will occur. Residents visiting the movie theater could have dinner at one of the restaurants before or after a movie. Frequenting the bank's ATM could occur before meals or before purchases at the convenience store. Businesses of varying types in this area of Filing 17 are very conducive to completing shared trips to support the internal capture concept.

There will also likely be interaction among the hospital, the MOB's, and the Arapahoe Community College (ACC) campus along Limelight Avenue. ACC may provide dental or medical programs that could support internships at one of the MOB's or at the hospital, or a hospital employee could take a class at ACC in the evening, for example; trips between land uses that do not require leaving and returning to the immediate area.

But not every parcel in Filing 17 will have an internal capture interaction. It is not expected that the COI parcel on the south side of Meadows Parkway adjacent to Plum Creek will have much interaction among the several office buildings in this land area.

Relative to Filing 18, there will be some internal capture between the residential dwelling units and the Aspen View Charter School. Some families may live within walking distance of the school or, even if they drive their children to school, they may return home and not proceed onto The Meadows arterial street system. Also, some vehicle-trips will have routes to/from the south through the Red Hawk development and to other areas of Castle Rock via Wolfensberger Road, which also do not use The Meadows arterial street system. Each condition contributes to some level of internal capture.

Considering this information, an allocation for internal capture has been used – 10 percent for the interaction between lands uses in Filings 17 and 18 have been applied to the trip generation estimates contained in **Table 1**.

Table 1 also includes information at the end of each filing summary that compares trip generation data for Filings 17, 18 and 20 between what was estimated in 2004 and what is predicted now. A summary of the numerical difference is also included. Following **Table 1** is a brief description of these differences and what is likely causing them.

Table 1. Trip Generation for Filings 17, 18 and 20

| Land Use | Unit | Size | Daily | AM Peak Hour | | | PM Peak Hour | | |
|--|-------|-------|--------|--------------|------|-------|--------------|-------|-------|
| | | | | In | Out | Total | In | Out | Total |
| Filing 17 | | | | | | | | | |
| Retail | KSF | 150 | 6,618 | 318 | 344 | 662 | 206 | 262 | 468 |
| Office | KSF | 237 | 2,748 | 353 | 48 | 401 | 64 | 312 | 376 |
| Light Industrial | KSF | 84.4 | 529 | 69 | 9 | 78 | 10 | 72 | 82 |
| Hospital | | | 4,953 | 246 | 78 | 324 | 115 | 272 | 387 |
| Medical-Dental Office | KSF | 110.5 | 4,088 | 209 | 55 | 264 | 92 | 237 | 329 |
| Hotel | Rooms | 130 | 1,062 | 71 | 50 | 121 | 40 | 38 | 78 |
| ACC Campus | KSF | 108 | 2,969 | 239 | 84 | 323 | 159 | 115 | 274 |
| Mini-Warehouse | KSF | 97.3 | 244 | 8 | 6 | 14 | 13 | 13 | 26 |
| Restaurant | KSF | 10 | 1,271 | 59 | 49 | 108 | 59 | 40 | 99 |
| Car Wash | Bays | 4 | 432 | 16 | 16 | 32 | 16 | 16 | 32 |
| Bank | KSF | 3.3 | 978 | 46 | 34 | 80 | 80 | 80 | 160 |
| Convenience Store | KSF | 3 | 2,537 | 62 | 61 | 123 | 76 | 77 | 153 |
| Movie Theater | KSF | 43.4 | 3,510 | 0 | 0 | 0 | 188 | 85 | 273 |
| Day Care | KSF | 18.7 | 1,385 | 121 | 107 | 228 | 108 | 122 | 230 |
| 2017 Subtotal | | | 33,324 | 1,816 | 941 | 2,757 | 1,227 | 1,741 | 2,968 |
| Internal Capture – 10% For Certain Parcel Interaction | | | -2,430 | -120 | -72 | -192 | -101 | -115 | -216 |
| TOTAL External Trips to/from Filing 17 | | | 30,895 | 1,696 | 869 | 2,565 | 1,126 | 1,626 | 2,752 |
| Filing 17 TOTAL - 2004 | | | 34,064 | 1,286 | 366 | 1,652 | 1,332 | 2,149 | 3,481 |
| Difference (2017 vs. 2004) | | | -3,169 | +410 | +503 | +913 | -206 | -523 | -729 |

Table 1. Trip Generation for Filings 17, 18 and 20 (Continued)

| Land Use | Unit | Size | Daily | AM Peak Hour | | | PM Peak Hour | | |
|---|----------|------------------|--------|--------------|-------|-------|--------------|-------|-------|
| | | | | In | Out | Total | In | Out | Total |
| Filing 18 | | | | | | | | | |
| Single-Family | DU | 1,176 | 11,978 | 228 | 683 | 911 | 749 | 440 | 1,190 |
| Church | KSF | 28 | 255 | 10 | 6 | 16 | 9 | 5 | 15 |
| Charter School | Students | 790 ¹ | 2,200 | 401 | 337 | 736 | 234 | 308 | 542 |
| Assisted Living | Units | 219 | 616 | 25 | 14 | 39 | 30 | 33 | 63 |
| Subtotal | | | 15,050 | 663 | 1,040 | 1,702 | 1,023 | 787 | 1,809 |
| Internal Capture – 10% Between Residential & Charter School | | | -1,418 | -63 | -102 | -165 | -99 | -75 | -173 |
| TOTAL External Trips to/from Filing 18 | | | 13,632 | 600 | 938 | 1,537 | 924 | 712 | 1,636 |
| Filing 18 TOTAL – 2004 | | | 17,995 | 399 | 903 | 1,302 | 1,078 | 594 | 1,672 |
| Difference (2017 vs. 2004) | | | -4,363 | +201 | +35 | +235 | -154 | +118 | -36 |
| Filing 20 – Town Center | | | | | | | | | |
| Single-Family | DU | 1,018 | 10,318 | 195 | 585 | 781 | 645 | 378 | 1,023 |
| Townhomes | DU | 320 | 2,084 | 29 | 140 | 169 | 131 | 65 | 196 |
| Apartments | DU | 444 | 2,938 | 46 | 180 | 226 | 183 | 97 | 280 |
| Office | KSF | 83 | 915 | 114 | 16 | 129 | 21 | 103 | 124 |
| Retail | KSF | 47.5 | 2,183 | 105 | 113 | 218 | 88 | 112 | 200 |
| Bank | KSF | 5 | 741 | 34 | 26 | 60 | 61 | 61 | 122 |
| Drug Store | KSF | 13 | 1,250 | 23 | 21 | 45 | 64 | 64 | 128 |
| Charter School | Students | 717 ¹ | 2,005 | 364 | 305 | 668 | 212 | 280 | 492 |
| Subtotal | | | 22,433 | 910 | 1,388 | 2,298 | 1,405 | 1,159 | 2,564 |
| Internal Capture 3% AM; 11% PM | | | -60 | -28 | -38 | -66 | -154 | -183 | -282 |
| TOTAL Filing 20 | | | 22,373 | 882 | 1,350 | 2,232 | 1,251 | 1,031 | 2,282 |
| Filing 20 TOTAL – 2004 | | | 22,530 | 441 | 1,237 | 1,678 | 1,344 | 923 | 2,267 |
| Difference (2017 vs. 2004) | | | -157 | +441 | +113 | +554 | -93 | +108 | +15 |

¹ Student size represents 95 percent of the maximum population to reflect average daily attendance.

¹ Student size represents 95 percent of the maximum population to reflect average daily attendance.

Trip Generation Comparison

The following information summarizes how the current trip generation estimates compare to what was projected in 2004. Of note, the trip generation summary in the 2004 *Access Plan* included an internal capture allowance for Filing 20 (the Town Center) which was discussed on Page 6 but also included estimates of vehicle-trips between entire filings since one of the objectives of the 2004 *Access Plan* was to understand how many vehicle-trips were entering and leaving the entire Meadows subdivision (different from internal capture within a filing). As such, the comparison of vehicle-trips in **Table 1** is between the 2017 projected vehicle-trips (minus any internal capture) and the estimates from the 2004 *Access Plan* (without any trip reductions for Filings 17 and 18, and for Filing 20 minus the 25 percent internal capture). This approach provides a better apples-to-apples comparison.

- *Filing 17* – Trip generation estimates in 2017 are less on a daily basis. AM peak hour trips are higher, while trips during the PM peak hour are lower. Partial reasoning is that some of the land uses are now known versus assumptions that were made in 2004.
- *Filing 18* – Daily vehicle-trips for Filing 18 are also lower, but slightly higher during the AM peak hour. Inbound and outbound trips in the PM peak hour are mixed, but the PM peak hour total is slightly lower. While the number of residential dwelling units is smaller than in 2004, the Aspen View Charter School has a higher trip generation, being essentially twice the projections for a public elementary school. Charter schools do not have bus service and, therefore, many students arrive by passenger car from anywhere in Castle Rock or outside Town limits.
- *Filing 20 (Town Center)* – Trip generation projections for Filing 20 are slightly lower over the course of an entire day but are higher during the AM peak hour. Reasoning is that a significant internal capture percentage was allowed in 2004 (25 percent), which cannot be justified now due to current ITE methodologies. Additionally, while the number of residential dwelling units is less, the upcoming charter school in this filing has a higher trip generation than a typical public elementary school as also noted for Filing 18.

Vehicle-Trips – Undeveloped Parcels

As noted in Section III.A, certain parcels in Filings 17, 18 and 20 are currently undeveloped and are not contributing vehicle traffic to the surrounding street network at this time. **Table 2** uses information from **Table 1** to estimate the amount of traffic that could be added to the local street network as the undeveloped parcels are constructed.

As shown in **Table 2**, over 34,500 additional vehicle-trips per day are projected to be added to the surrounding arterial street network as Filings 17, 18 and 20 develop. These new trips are part of the expected number of vehicle-trips for the entire build-out of these filings.

Additionally, no internal capture is included in **Table 2**. If it is the Town's desire to compare projected vehicle-trips in Filings 17, 18 and 20 to the information contained in this table, individual traffic studies likely will not address internal capture for a larger area outside their immediate parcel. As such, a better apples-to-apples comparison will occur if internal capture allowances are not included in these comparisons.

Table 2. Trip Generation for Undeveloped Parcels

| Land Use | Unit | Size | Daily | AM Peak Hour | | | PM Peak Hour | | |
|---|-------|------|--------|--------------|-------|-------|--------------|-------|-------|
| | | | | In | Out | Total | In | Out | Total |
| Filing 17 | | | | | | | | | |
| Retail | KSF | 108 | 4,712 | 226 | 245 | 471 | 142 | 181 | 322 |
| Office | KSF | 205 | 2,397 | 309 | 42 | 351 | 56 | 272 | 328 |
| Light Industrial | KSF | 84.4 | 529 | 69 | 9 | 78 | 10 | 72 | 82 |
| Medical-Dental Office | KSF | 100 | 3,874 | 189 | 50 | 239 | 82 | 210 | 291 |
| Hotel | Rooms | 130 | 1,062 | 71 | 50 | 121 | 40 | 38 | 78 |
| ACC Campus | KSF | 108 | 2,969 | 239 | 84 | 323 | 159 | 115 | 274 |
| Restaurant | KSF | 10 | 1,271 | 59 | 49 | 108 | 59 | 40 | 99 |
| Car Wash | Bays | 4 | 432 | 16 | 16 | 32 | 16 | 16 | 32 |
| Bank | KSF | 3.3 | 489 | 23 | 17 | 40 | 40 | 40 | 80 |
| Convenience Store | KSF | 3 | 2,537 | 62 | 61 | 123 | 76 | 77 | 153 |
| Filing 17 Totals | | | 20,272 | 1,263 | 623 | 1,886 | 679 | 975 | 1,590 |
| Filing 18 | | | | | | | | | |
| Single-Family | DU | 209 | 2,069 | 39 | 117 | 156 | 129 | 75 | 204 |
| Filing 18 Totals | | | 2,069 | 39 | 117 | 156 | 129 | 75 | 204 |
| Filing 20 | | | | | | | | | |
| Single-Family | DU | 376 | 4,462 | 86 | 257 | 343 | 280 | 164 | 444 |
| Multi-Family | DU | 310 | 1,997 | 27 | 134 | 161 | 125 | 62 | 187 |
| Apartments | DU | 204 | 1,380 | 21 | 83 | 104 | 85 | 45 | 130 |
| Office | SF | 72 | 794 | 99 | 13 | 112 | 18 | 89 | 107 |
| Retail | SF | 37 | 1,674 | 80 | 87 | 167 | 67 | 85 | 152 |
| Bank | SF | 5 | 741 | 34 | 26 | 60 | 61 | 61 | 122 |
| Drug Store | SF | 13 | 1,250 | 23 | 21 | 45 | 64 | 64 | 128 |
| Filing 20 Totals | | | 12,279 | 371 | 621 | 992 | 701 | 569 | 1,270 |
| TOTAL New Trips for Undeveloped Parcels | | | 34,620 | 1,673 | 1,361 | 3,034 | 1,509 | 1,619 | 3,064 |

Referring to **Table 1**, current daily vehicle-trip projections are less than what was approved for these filings in 2004 since there is now a better understanding of expected land use types and densities. As such, any trip generation comparisons that are made should reflect the approved densities, a level of vehicle-trips that is higher than an additional 34,620 vehicles per day (vpd).

III.D. Trip Distribution

Distribution of vehicles along the arterial street system defines how the projected vehicle-trips are assigned to individual left turn, right turn or through movements at the study area intersections. To develop the trip distribution relationship, the Denver Regional Council of Governments' (DRCOG) travel demand model was reviewed—both the base model and the one that was modified for the recent *Castle Rock Transportation Plan*.

The distribution of vehicles to/from Filings 17, 18 and 20 can vary slightly given their location within The Meadows. For example, Filing 17 trips will likely have a higher distribution toward the east along Meadows Parkway because it is closer to US 85 and I-25 than the other filings. Filing 18 will have a slightly higher distribution toward the south along Red Hawk Drive, while Filing 20, the Town Center, will have a higher distribution of traffic to/from the north along North Meadows Drive.

Considering these factors and the distribution assessments of the DRCOG traffic demand model, the following distribution of vehicle-trips for Filings 17, 18 and 20 were used for the *Access Plan* addendum.

Table 3. Trip Distribution Projections

| Filing | To/From the North | To/From the East | To/From the West | To/From the South | | TOTAL |
|-----------|-------------------|------------------|-------------------|--------------------|----------------|-------|
| | N. Meadows Drive | Meadows Parkway | Meadows Boulevard | Prairie Hawk Drive | Red Hawk Drive | |
| Filing 17 | 20% | 55% | 5% | 15% | 5% | 100% |
| Filing 18 | 20% | 45% | 10% | | 10% | 100% |
| Filing 20 | 25% | 45% | 10% | | 5% | 100% |

Distribution of vehicle-trips is somewhat different from what was estimated in 2004. As noted, the DRCOG travel demand models were used to make these assessments. A better understanding of developed and undeveloped land areas, and advancements in travel model accuracy, provide differing results than the travel model estimates from 13 years ago. The estimates of **Table 3** have been discussed with Town staff and are deemed acceptable for this addendum.

III.E. Projected Traffic Volumes

The projected traffic volumes of **Table 1** and the trip distribution estimates of **Table 3** were used as defining information to estimate vehicle movements to/from each intersection along Meadows Parkway, Meadows Boulevard, and Prairie Hawk Drive. The software program Vistro™ was used to organize distribution pathways and trip assignments for individual land areas in Filings 17, 18 and 20. Traffic volume data at the 25 intersections along these roadways are represented on **Figure 3** and **Figure 4**.

Legend

xx(xx) AM(PM) Peak Hour Traffic Volumes

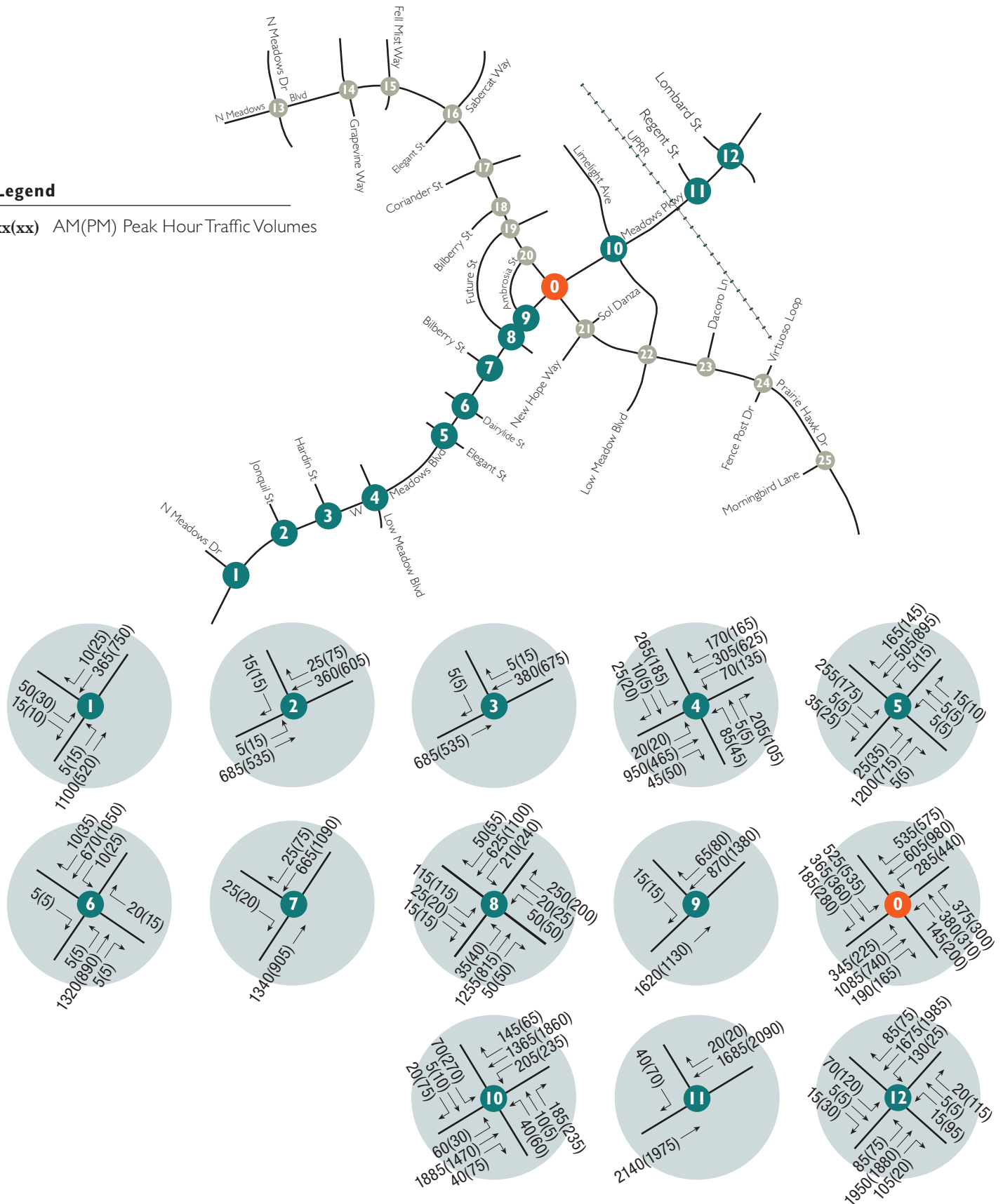


Figure 3

**Projected Traffic Volumes
Meadows Boulevard/Meadows Parkway Intersections**



Legend

xx(xx) AM(PM) Peak Hour Traffic Volumes

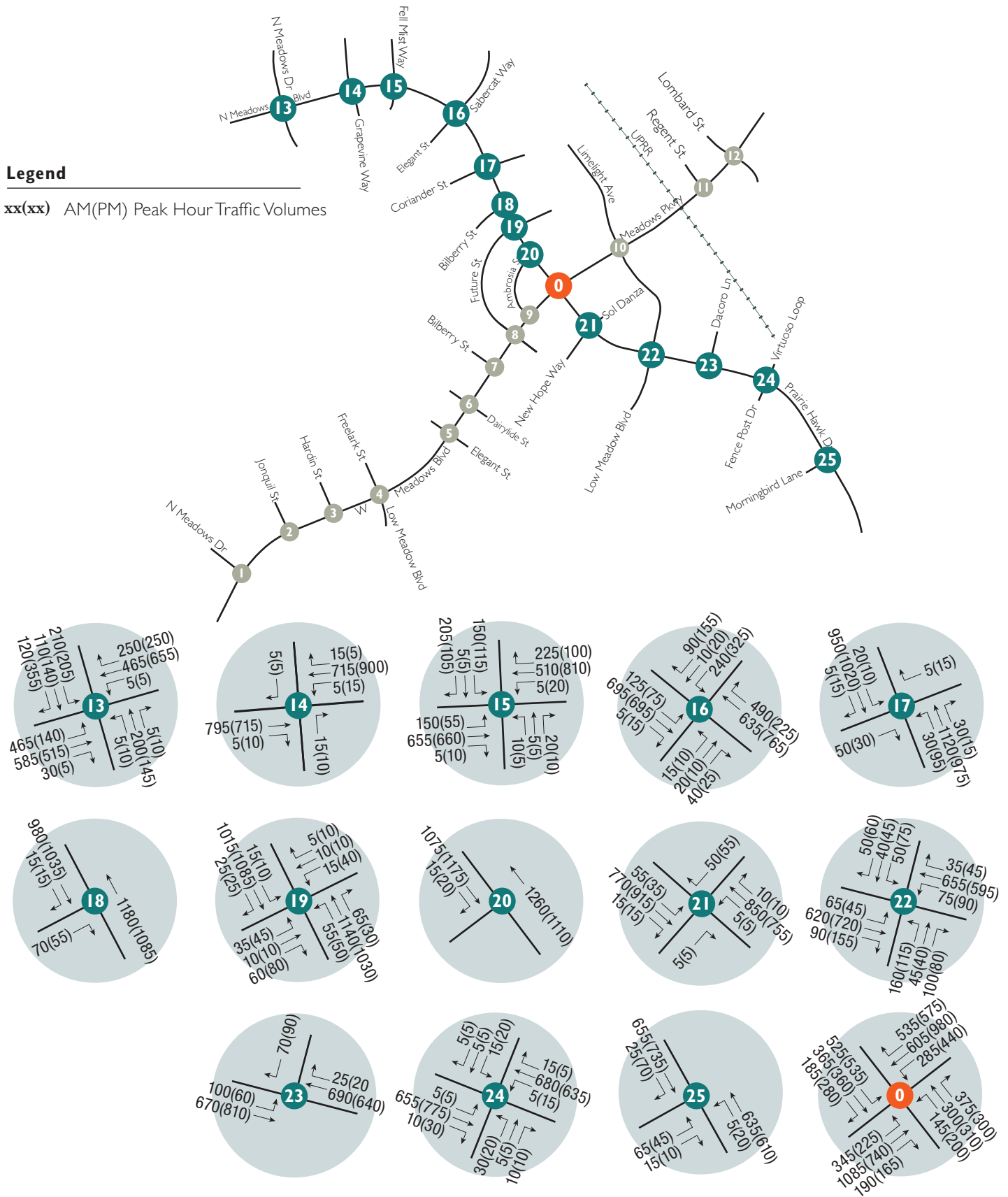


Figure 4
Projected Traffic Volumes
Meadows Boulevard/Prairie Hawk Drive Intersections



Having several access points for vehicle movements to/from Filings 17, 18 and 20 offers many routes for motorists to choose from when traveling to/from a destination. As such, traffic volumes are distributed over many intersection movements. **Figure 3** and **Figure 4** show that not one movement to/from these filings is excessive. Many movements are fewer than 25 vehicles per hour (vph) and few reach 200 vph. The highest levels of projected vehicle turning movements are:

- *Intersections 4 & 5* – Southbound left turn movements onto West Meadows Boulevard related to the proximity of the upcoming Apex Charter School. Based on empirical data collected by Felsburg Holt & Ullevig, charter schools generate twice as many daily and peak hour vehicle-trips as a traditional public elementary school of the same size.
- *Intersection 4* – Northbound right turn from Low Meadow Boulevard onto eastbound West Meadows Boulevard during the AM peak hour. Possibly related to movements from Aspen View Charter School.
- *Intersection 8* – Westbound left turn movement onto Red Hawk Drive; likely related to Red Hawk Drive being a cut-through route for residents of the Red Hawk subdivision.
- *Intersection 10* – Westbound left turn and northbound right turn to/from the commercial area along Limelight Avenue.
- *Intersection 16* – Northbound right turn and westbound left turn for movements to/from North Meadows Boulevard and Sabercat Way.

III.F. Intersection Geometry





An assessment has been made relative to the projected intersection laneage requirements for the build-out of The Meadows when compared to existing intersection geometry. In summary, intersection laneage that currently exists is mostly deemed appropriate for the project traffic volumes. Only one pair of modifications is necessary to satisfy operational conditions if the traffic volume projections of this report are met:

- *Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive Intersection* – 2nd left turn lanes should be added to the westbound and northbound approaches; these can be added via pavement restriping. Castle Rock Development Company constructed these intersections to accommodate this lane geometry.
- *Meadows Parkway/Limelight Avenue Intersection* – The existing lane striping on the southbound approach should be changed from separate left, through and right turn lanes to two left turn lanes and a shared through/right lane.

Additionally, only the Morningbird Lane access along Prairie Hawk Drive is not completed, but it is being constructed as part of the Prairie Hawk Drive widening currently underway. This intersection will serve only residential dwelling units in Filing 18 and the planned intersection laneage is deemed appropriate for this access.

As part of the analyses for this addendum, and related to intersection geometry, an assessment has been made about whether some intersections may warrant the installation of an auxiliary lane that does not exist or if one that does exist should be modified to add more vehicle storage length. These modifications are not related to traffic operations but are specifically related to meeting the Town of Castle Rock access requirements. The summary of that information is in Section IV.C, Auxiliary Lane Modifications. **Figure 5** and **Figure 6** represent the intersection lane geometry along the arterial street system in Filings 17, 18 and 20 to satisfy the operational needs for the build-out of these filings.

Legend

-  Lane Geometry
-  New or Modified Laneage
- X/X** AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** AM/PM Peak Hour Unsignalized Intersection Level of Service
-  Stop Sign
-  Traffic Signal

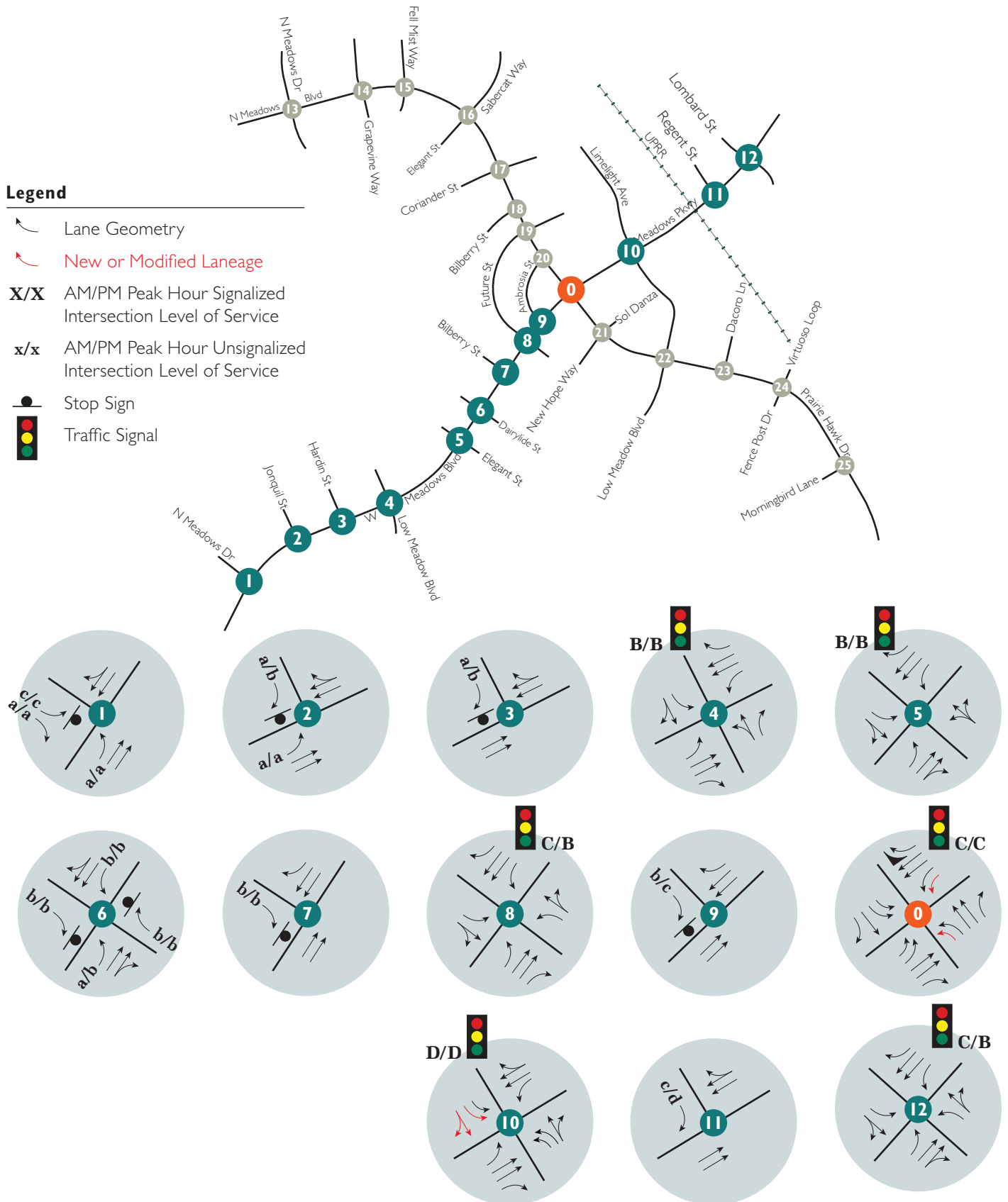






Figure 5
Intersection Geometry, Traffic Control, and Levels of Service
Meadows Boulevard/Meadows Parkway Intersections



Legend

-  Lane Geometry
-  New or Modified Laneage
- X/X** AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** AM/PM Peak Hour Unsignalized Intersection Level of Service
-  Stop Sign
-  Traffic Signal

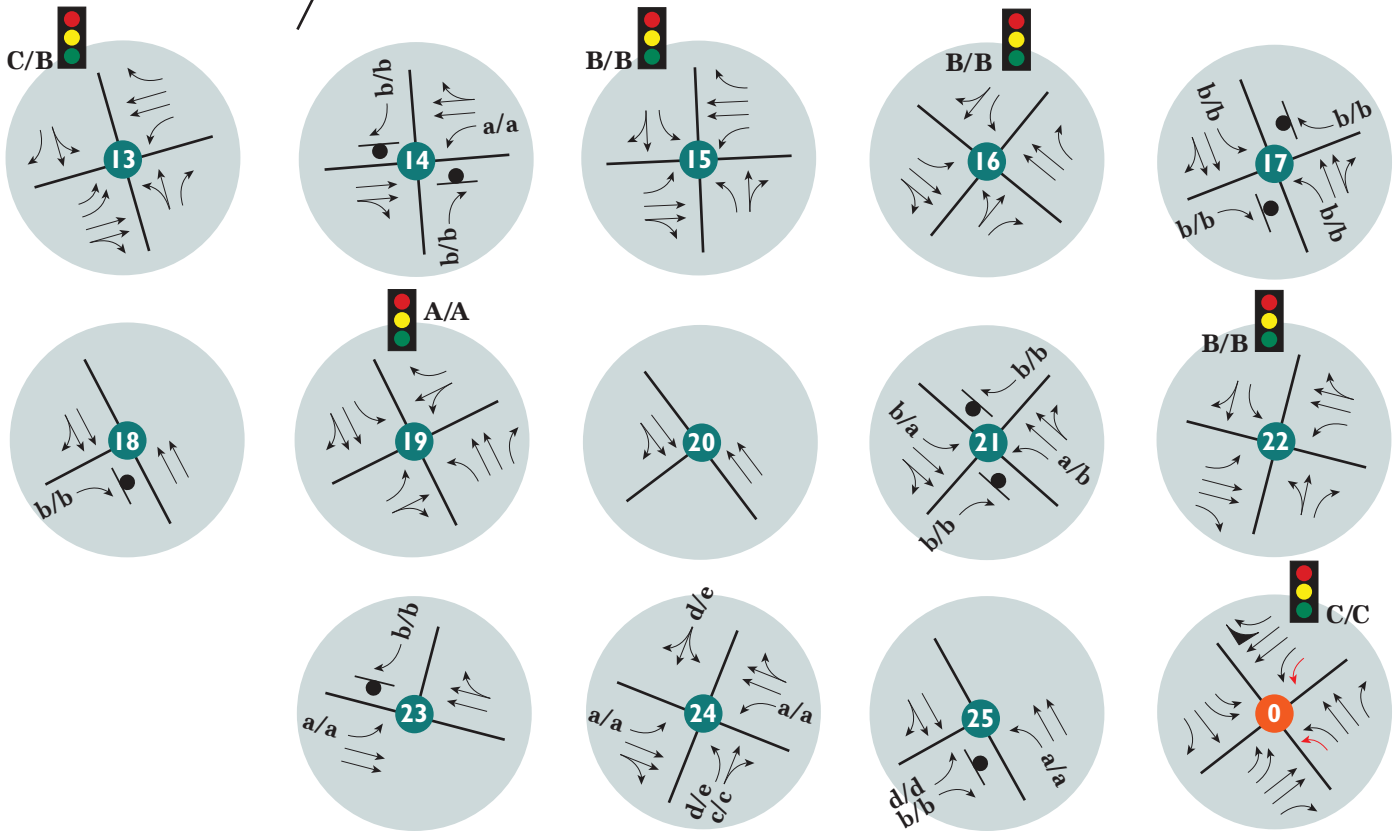
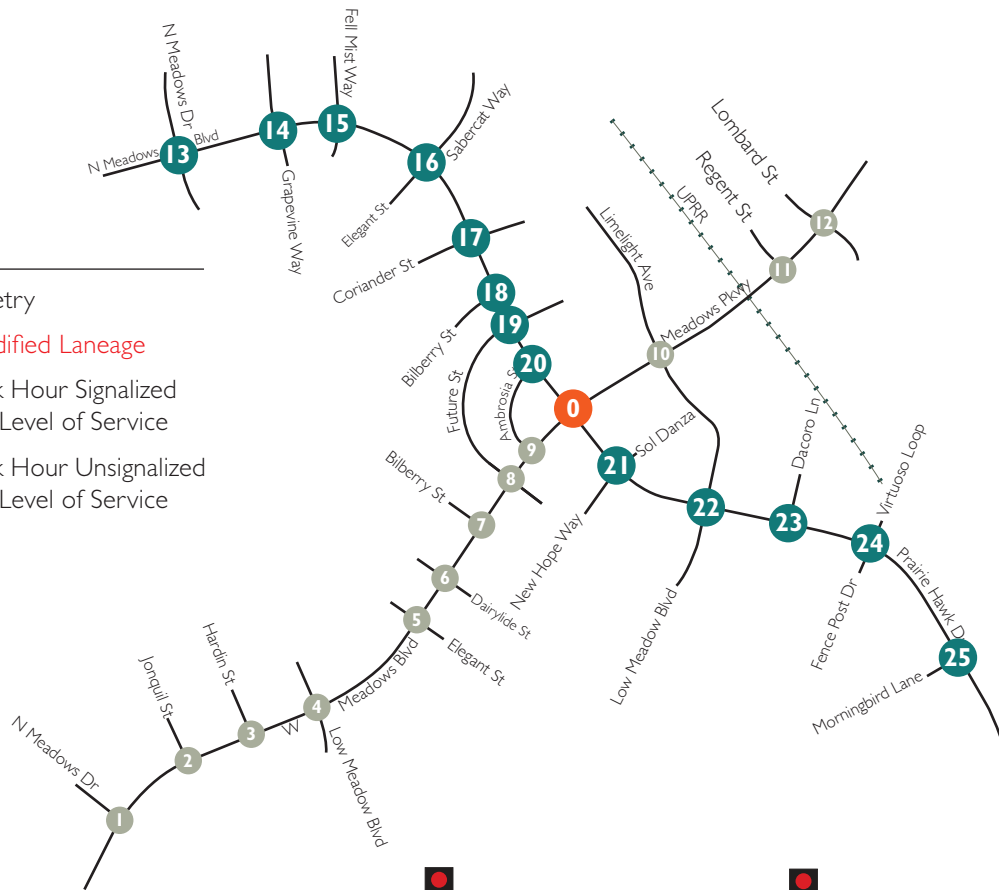


Figure 6
Intersection Geometry, Traffic Control, and Levels of Service
Meadows Boulevard/Prairie Hawk Drive Intersections



III.G. Traffic Signalization/Traffic Control

Understanding traffic control at each intersection along the arterial street system is important to the future functionality and operational capacity of these intersections. Along the developed roadway network are intersections that allow all vehicle movements, ones that restrict some movements, and one that allows only inbound right turns (into Filing 20).

For those intersections with restricted movements, traffic control is accomplished by stop signs. For intersections that allow all movements, an assessment was conducted to determine which ones may require the installation of a traffic signal by the build-out of these filings. Recognizing that three locations along North Meadows Boulevard are already signalized (North Meadows Drive, Fell Mist Way, and Elegant Street/Sabercat Way), as is the Meadows Parkway/Limelight Avenue intersection, there are a total of nine other full-movement intersections that have the potential for the installation of a traffic signal.

Each of the nine intersections was evaluated to determine whether it may meet the traffic-volume based traffic signal warrant criteria of the *Manual on Uniform Traffic Control Devices* (MUTCD). Because traffic volumes at these intersections are not yet sufficient to conduct a complete analysis of the MUTCD volume-based criterion, only the projected peak hour volumes were used in this evaluation. While Warrant 3, Peak Hour is not the correct warrant to use for normal public street intersections, it is the best guide available for making judgments on future conditions. A right turn volume reduction allowance for side street movements was used based on MUTCD criteria and on approach laneage.

A graph showing whether these nine intersections meet the criteria of Warrant 3, using the highest peak hour of side street traffic volume at each location, can be found on **Figure 7**. This evaluation finds that six of the nine intersections are very likely to meet the MUTCD criterion by build-out of Filings 17, 18 and 20 (see **Table 4**).

Table 4. Intersections with Traffic Signal Potential

| Int. No. | Location | Int. No. | Location |
|----------|--|----------|---|
| 4 | West Meadows Boulevard/ Low Meadow Boulevard | 12 | Meadows Parkway/Lombard Street |
| 5 | West Meadows Boulevard/ Elegant Street | 19 | North Meadows Boulevard/ Future Street |
| 8 | West Meadows Boulevard/Future Street/Red Hawk Drive | 22 | Prairie Hawk Drive/Limelight Avenue/Low Meadow Boulevard |

Keep in mind that this information is only a guide on the relative potential for signalization; each of the MUTCD warrants should be evaluated when considering installing a traffic signal at any location in The Meadows.

III.H. Intersection Operations

Analyses were conducted to determine how well each intersection in this study will operate once the projected traffic volumes materialize and when considering the traffic control and access restrictions noted previously. The results of this analysis are a Level of Service (LOS) assessment, one that provides a letter designation from LOS A to LOS F, with LOS A representing free-flow conditions and LOS F being a condition with high vehicle delay and excessive congestion.

- 1 -W. Meadows Blvd./N. Meadows Dr. (AM-1475/60)
- 4 -W. Meadows Blvd./Low Meadow Blvd. (AM-1475/295)
- 5 -W. Meadows Blvd./Elegant St. (AM-1820/285)
- 8 -W. Meadows Blvd./Future St./Red Hawk Dr. (PM- 2010/150)
- 12 -Meadows Parkway/Lombard St. (PM-4015/150)
- 19 -N. Meadows Blvd./Future St. (PM- 2190/115)
- 22 -Prarie Hawk Dr./Limelight Ave./Low Meadow Blvd. (AM-1440/255)
- 24 -Prarie Hawk Dr./Virtuoso Loop/Fence Post Dr. (AM-1350/45)
- 25 -Prarie Hawk Dr./Morningbird Lane (AM- 1320/75)

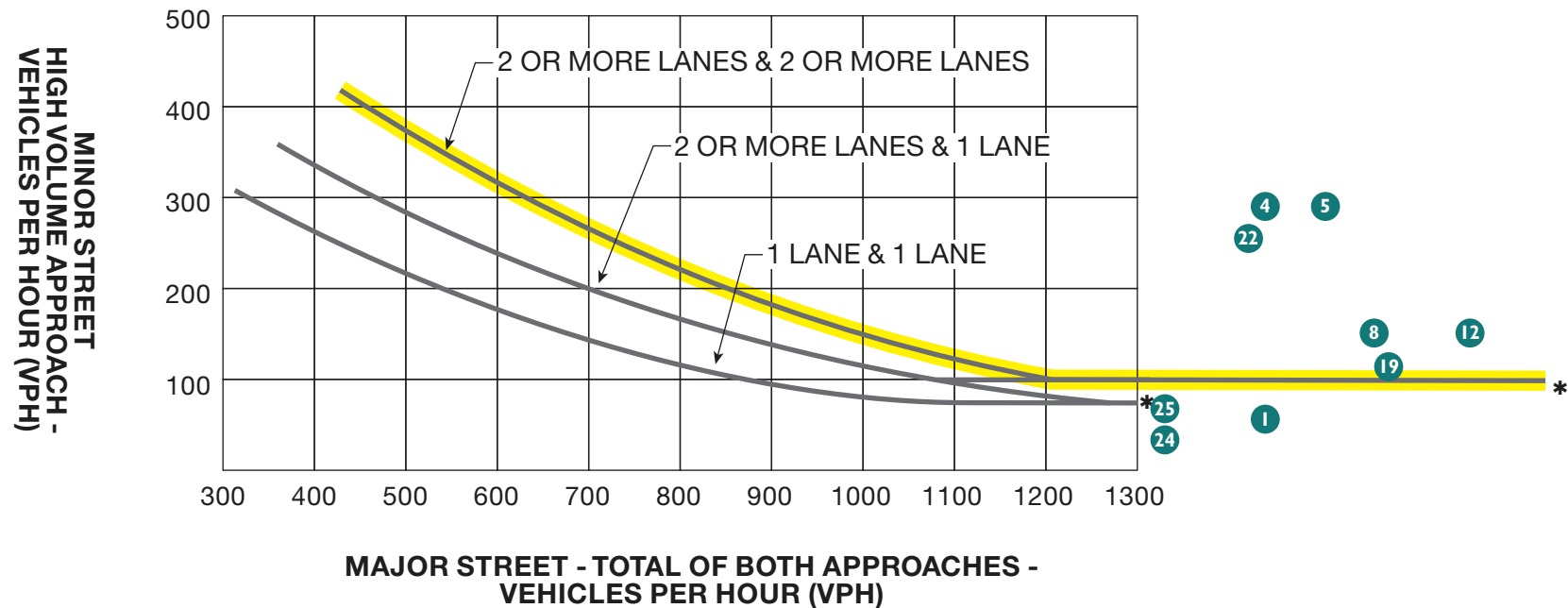


Figure 7
Peak Hour Volume Warrant
(Above 40mph on Major Street)



When considering the information contained in **Table 4**, these six intersections were evaluated with traffic signal control along with the existing signalized intersections. All other intersections were evaluated with stop-sign control. Level of service results are provided for an entire intersection when signalized; at stop-controlled intersections, LOS is provided for those movements that must yield to opposing traffic to complete their respective maneuver. Following is a summary of the LOS analyses.

Signalized Intersections

Levels of service for the existing and future signalized intersections along Meadows Boulevard, Meadows Parkway, and Prairie Hawk Drive corridors are projected to operate at LOS D or better during both the AM and PM peak hours. Only the Meadows Parkway intersections at Meadows Boulevard/Prairie Hawk Drive and Limelight Avenue are projected to experience LOS D conditions, however. Other locations are projected to operate at LOS A, B, or C.

Stop-Controlled Intersections

Given the restricted nature of some intersections, most intersection movements will operate very well (LOS A or B) with only a few operating in the LOS C to D range. Two movements are projected to operate at LOS E during the PM peak hour—the left turn movement onto Prairie Hawk Drive from Fence Post Drive, and the shared left/through/right approach from Virtuoso Loop onto Prairie Hawk Drive. This intersection is not expected to meet MUTCD volume-based criterion for signalization and their projected traffic volume levels equate to a very low frequency during the PM peak hour. When a new traffic signal is installed at the Limelight Avenue/Low Meadow Boulevard intersection, it will create gaps in the vehicle travel stream that will assist motorists in making movements onto or across Prairie Hawk Drive. No access changes are recommended.

Figure 5 and **Figure 6** show the LOS results for each intersection movement. **Appendix B** includes the analysis worksheets for each evaluated intersection.

III.I. Progression Analyses

Analyses were conducted to understand how well vehicles can travel along these arterial street corridors, i.e., from one end to the other without excessive stops. Large flows of traffic along West Meadows Boulevard/Meadows Parkway and North Meadows Boulevard/ Prairie Hawk Drive meet at the Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive intersection. As such, this intersection operates as a natural break point for vehicle progression.

There is a high outflow of vehicles from The Meadows during the morning when motorists are heading to work and other activities with a corresponding high inbound flow of vehicles during the evening. While movements on North Meadows Boulevard and on Prairie Hawk Drive are somewhat similar during these peak hours, there is a primarily eastbound flow of motorists on Meadows Boulevard/Meadows Parkway in the morning with an opposite westbound flow during the evening peak period.

Additionally, traffic signals that are farther away from the Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive intersection do not require as much vehicle progression time since overall intersection traffic volumes decrease to the north, south and west of this intersection. As such, a shorter cycle length can be used so that motorists on the intersecting streets do not wait for a green indication unnecessarily.

Therefore, the progression analyses were conducted with a 120 second traffic signal cycle length for the two Future Street intersections along North and West Meadows Boulevards, and from the Meadows Parkway/Meadows Boulevard/Prairie Hawk intersection eastward. 90-second cycle lengths were used for the remaining traffic signals. While this approach provides good levels of service at the intersections as noted previously in this report, vehicle progression is only optimal beginning one traffic signal to the north and west of the Meadows Parkway/Meadows Boulevard/Prairie Hawk Drive intersection and eastward towards US 85.

Considering these influences, vehicle progression characteristics include:

West Meadows Boulevard/Meadows Parkway

- The morning progression bandwidth in the eastbound direction on West Meadows Boulevard/Meadows Parkway works well beginning at Future Street. There will be a natural progression break at Future Street related to the shorter cycle lengths for the Low Meadow Boulevard and Elegant Street intersections.
- Westbound flows are disrupted in the morning at the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection due to the level of southbound traffic along North Meadows Boulevard. A progression break will occur at the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection.
- The evening bandwidths on West Meadows Boulevard/Meadows Parkway can be somewhat continuous with both directions working relatively well. Progression breaks will occur at Red Hawk Drive.

North Meadows Boulevard/Prairie Hawk Drive

- Vehicle progression works well to the north of Future Street. The southbound left turn movement from North Meadows Boulevard onto eastbound Meadows Parkway in the morning can be accommodated well via a secondary bandwidth created on Meadows Parkway.
- Progression through the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive and Limelight Avenue intersections can occur, but it is influenced by vehicle demands and traffic flow at the Meadows Boulevard/Meadows Parkway/Prairie Hawk Drive intersection.

The information contained above is only an initial evaluation of vehicle progression along the Meadows Parkway, Meadows Boulevard and Prairie Hawk Drive corridors. Other traffic signal cycle lengths or intersection phasing patterns could be used to optimize vehicle progression. Analyses of vehicle progression will be required as The Meadows continues to develop and as traffic volumes increase and new traffic signals are added.

IV. ACCESS MANAGEMENT PLAN

This section summarizes recommendations related to access revisions along Meadows Parkway, Meadows Boulevard, and Prairie Hawk Drive for the complete development of Filings 17, 18 and 20. Information in this section summarizes the locations of existing access and their relative spacing, their access type, traffic control recommendations, and any auxiliary lane changes that are deemed necessary to meet the projected vehicle capacity demands and to provide good operations.

IV.A. Existing Access Type and Spacing

Access Type

A total of 25 intersections of varying movement allowances exist along Meadows Parkway, Meadows Boulevard, and Prairie Hawk Drive adjacent to Filings 17, 18 and 20. Of these 25 access points, 13 allow all movements for which four are currently operated by traffic signals. Of the remaining locations, five are termed $\frac{3}{4}$ movement accesses, where left turns or crossing movements are not permitted from the side streets, while five are right-in/right-out (RIRO) intersections that permit only right turn movements to/from the intersecting streets. One intersection is a combination of $\frac{3}{4}$ and RIRO movements, being the Grapevine Way/Castle Rock Middle School access where it is a $\frac{3}{4}$ movement access for Grapevine Way, but only a RIRO access for movements to/from the Castle Rock Middle School. Additionally, the Ambrosia Street intersection along North Meadows Boulevard allows only inbound right turn movements (RI). **Figure 8** shows the permitted movements at the public street intersections along the arterial street system.

Access Spacing

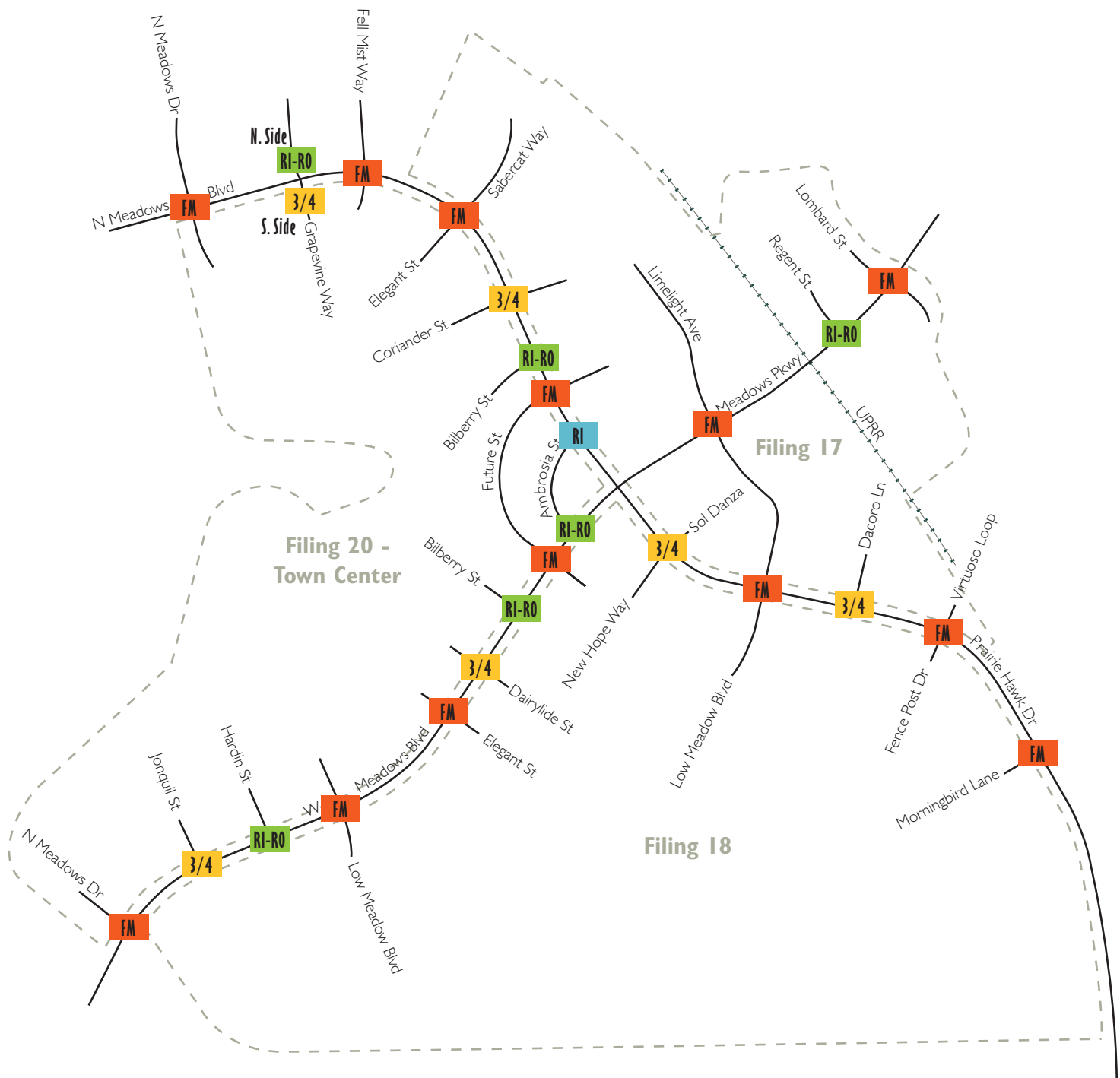
The spacing of access points along Meadows Parkway, Meadows Boulevard, and Prairie Hawk Drive can be relevant related to the dimensions of auxiliary lanes along the arterial street system. Currently, access spacing appears to be sufficient for movements to/from the adjoining residential and commercial parcels of Filings 17, 18 and 20. **Figure 9** represents the spacing of each of the 25 access points to each other.

IV.B. Traffic Control

As noted previously, intersections that have restricted movements of some level are controlled by stop signs and will always have this type of control. For those locations that allow all vehicle movements (13 total), four are already signalized. Of the remaining nine, six have the potential for being signalized as Filings 17, 18 and 20 move toward complete build-out:

- Intersection 4 – Meadows Boulevard/Low Meadow Boulevard
- Intersection 5 – Meadows Boulevard/Elegant Street
- Intersection 8 – Meadows Boulevard/Future Street/Red Hawk Drive
- Intersection 12 – Meadows Parkway/Lombard Street
- Intersection 19 – North Meadows Boulevard/Future Street
- Intersection 22 – Prairie Hawk Drive/Limelight Avenue/Low Meadow Boulevard

These six intersections were also identified in the 2004 *Access Plan* as requiring signalization. Of the remaining three intersections, these locations are not expected to meet any of the traffic-volume based warrants of the MUTCD to install a traffic signal.



Legend

- FM** Full Movement Intersection
- RI-RO** 3/4 Movement Intersection
- 3/4** Right-In/Right-Out Intersection
- RI** Right-In Only

Figure 8
Existing Access Types



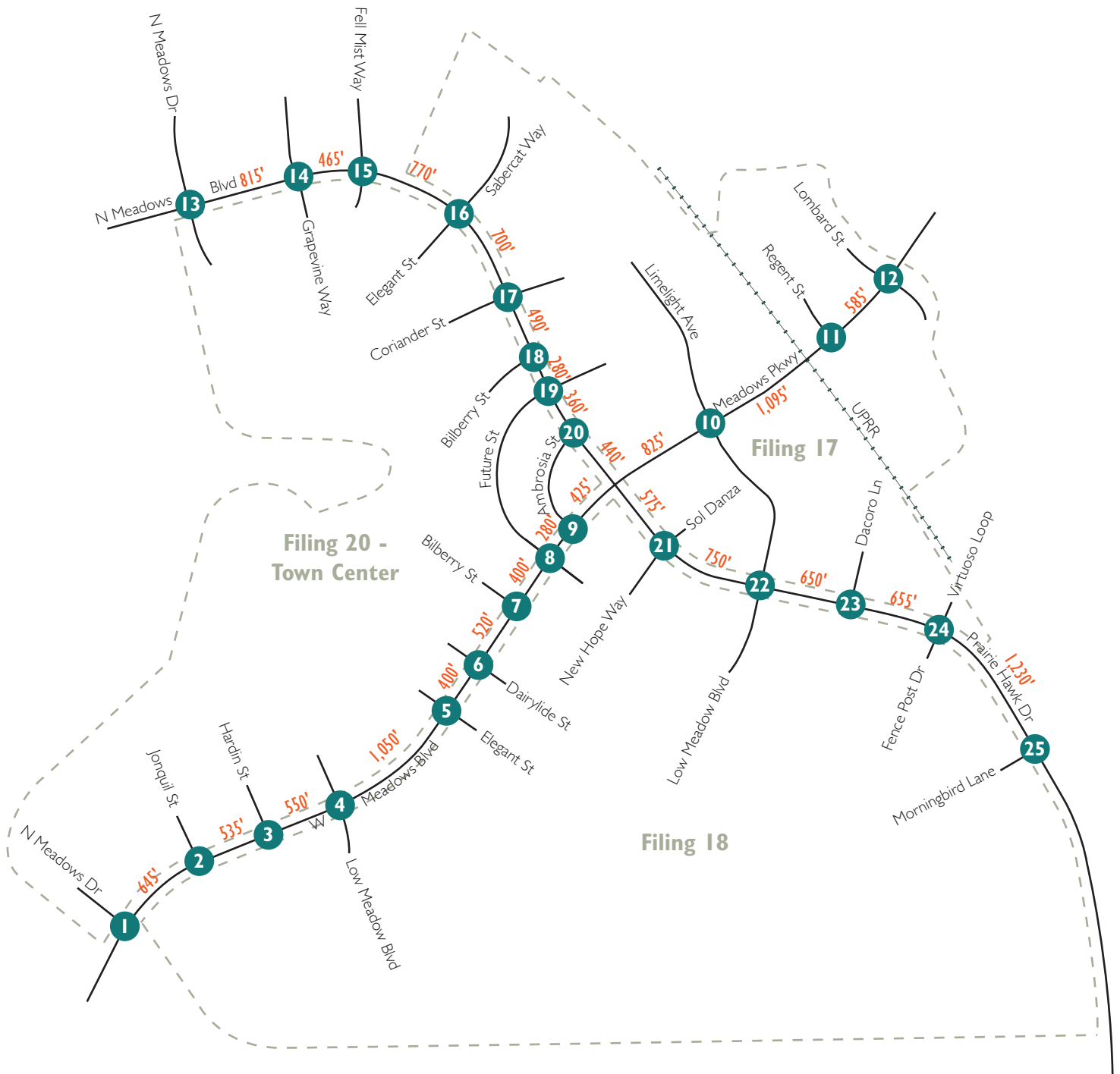


Figure 9
Existing Access Spacing



IV.C. Auxiliary Lane Modifications

The Town of Castle Rock includes information in their *Transportation Design Criteria Manual* (the *Manual*) that summarizes the dimensional requirements for when left turn or right turn deceleration lanes are installed. It also states that the need for deceleration lanes shall be determined through an analysis contained in the traffic study. As such, an assessment was made to determine if new auxiliary lanes should be added at intersections along the arterial street system that currently do not have them. That assessment was based on the level of traffic volumes projected for each auxiliary lane and the results of the *Manual* criterion.

Right Turn Deceleration Lanes

For these auxiliary lanes, operational analyses will typically find that right turn movements will operate well with or without an exclusive right turn lane. As such, engineering judgment must be used to determine the true operational value of a right turn lane.

To make this judgment, the level of right turn movements must be considered. For the purposes of this assessment, a value of two right turn movements per minute is judged to be the criterion for installing a right turn lane (one every 30 seconds on average). Because right turn vehicles typically do not stop before completing their maneuver, only to slow down to an acceptable speed, the impact to motorists behind them is limited.

If considered an acceptable procedure, right turn deceleration lanes are not needed for movements with less than 120 right turn vehicles per hour. Keep in mind that the traffic volume projections contained in this report are for the two highest hours of vehicle traffic for a typical weekday. As such, there is less of a need for a right turn lane during other hours of a weekday and on weekends when there are fewer right turn movements.

The Town of Castle Rock and Castle Rock Development Company have installed right turn deceleration lanes on intersection approaches based on information contained in the original *Access Plan*. As such, when considering the criterion proposed above, only one new right turn deceleration lane is required—in the southbound direction at the Prairie Hawk Drive/Limelight Avenue/Low Meadow Boulevard intersection. This deceleration lane is currently being constructed as part of the Prairie Hawk Drive widening project. As such, no other right turn lane installations are needed.

Left Turn Deceleration Lanes

An assessment was conducted to understand whether any modifications to the length of existing left turn lanes should be made given current knowledge on projected traffic volumes.

Table 5 summarizes each of the existing (or future) left turn lanes, and it recommends a few changes to the left turn lane dimensions along Meadows Parkway or Meadows Boulevard based on information contained in the *Manual*, if necessary. Left turn lane dimensions on Prairie Hawk Drive are deemed sufficient for the projected traffic volumes.

Table 5. Left Turn Deceleration Lane Modifications

| Intersection | Direction | Highest Peak Hour Volume | Required Vehicle Storage | Existing Vehicle Storage | Recommendation |
|--|---------------------------|--------------------------|--------------------------|--------------------------|--|
| 1 – W. Meadows Boulevard/ N. Meadows Drive | EB M.B. onto NB N.M.D. | 15 (PM) | 25' | 120' | No Change |
| | SB N.M.D. onto EB M.B. | 50 (AM) | 50' | Design Plans = 150' | Develop When Constructed |
| 2 – W. Meadows Boulevard/ Jonquil St. | EB M.B. onto NB Jonquil | 15 (PM) | 25' | 100' | No Change |
| 4 – W. Meadows Boulevard/Low Meadow Drive | EB M.B. onto NB L.M. | 20 (AM/PM) | 25' | 100' | No Change |
| | WB M.B. onto SB L.M. | 135 (PM) | 135' | 150' | |
| | SB L.M. onto EB M.B. | 265 (AM) | 265' | Striped= 75' | Re-Stripe Toward Celestial Avenue When Apex Charter School Opens |
| | NB L.M. onto WB M.B. | 90 (AM) | 100' | 100' | No Change |
| 5 – W. Meadows Boulevard/ Elegant Street | EB M.B. onto NB Elegant | 35 (PM) | 50' | 100' | No Change |
| | WB M.B. onto SB Elegant | 15 (PM) | 25' | 100' | |
| | SB Elegant onto EB M.B. | 255 (AM) | 255' | Striped= 75' | Re-Stripe Toward Celestial Avenue When Apex Charter School Opens |
| 6 – W. Meadows Boulevard/ Dairylide St. | EB M.B. onto NB Dairylide | 5 (AM/PM) | 25' | 100' | No Change |
| | WB M.B. onto SB Dairylide | 25 (PM) | 25' | 100' | |
| 8 – W. Meadows Boulevard/Future St./Red Hawk Dr. | EB M.B. onto NB Future | 40 (PM) | 50' | 100' | No Change |
| | WB M.B. onto SB R.H. | 240 (PM) | 240' | 125' | Increase WB Left Turn Lane by 115' |
| | SB Future onto EB M.B. | 115 (AM/PM) | 115' | Design Plans = 85' | Increase by 30' When Constructed |
| | NB R.H. onto WB M.B. | 50 (PM) | 100' | 100' | No Change |

Table 5. Left Turn Deceleration Lane Modifications (Continued)

| Intersection | Direction | Highest Peak Hour Volume | Required Vehicle Storage | Existing Vehicle Storage | Recommendation |
|--|---------------------------|--------------------------|--------------------------|--------------------------|--|
| 10 – Meadows Parkway/Limelight Avenue | EB M.P. onto NB Limelight | 60 (AM) | 50' | 200' | No Change |
| | WB M.P. onto SB Limelight | 235 (PM) | 235' | 270' | |
| | NB Limelight onto WB M.P. | 60 (PM) | 50' | 125' (Each of 2 Lanes) | |
| | SB Limelight onto EB M.P. | 270 (PM) | 270' | 200' | Revise Striping on SB Limelight from Left/Through/Right Lanes to Two Left Turn Lanes and a Shared Through/Right Lane |
| 12 – Meadows Parkway/Lombard Street | EB M.P. onto NB Lombard | 85 (AM) | 100' | 165' | No Change |
| | WB M.P. onto SB Lombard | 130 (AM) | 130' | 215' | |
| | NB Lombard onto WB M.P. | 95 (PM) | 100' | | Develop When Constructed |
| | SB Lombard onto EB M.P. | 120 (PM) | 120' | Design Plans = 150' | |
| 13 – N. Meadows Boulevard/ N. Meadows Drive | EB M.B. onto NB M.D. | 465 (AM) | 465' | 345' (Each of 2 Lanes) | No Change |
| | WB M.B. onto SB M.D. | 5 (AM/PM) | 25' | 115' | |
| | NB M.D. onto WB M.B. | 205 (PM) | 205' | >200' | |
| | SB M.D. onto EB M.B. | 345 (SB) | 345' | 210' | Increase by 135' Via Striping Revisions when Needed |
| 14 – N. Meadows Boulevard/ Grapevine Way | WB M.B. onto SB Grapevine | 15 (PM) | 25' | 130' | No Change |

Table 5. Left Turn Deceleration Lane Modifications (Continued)

| Intersection | Direction | Highest Peak Hour Volume | Required Vehicle Storage | Existing Vehicle Storage | Recommendation |
|--|---------------------------------|--------------------------|--------------------------|--------------------------|--|
| 15 –N. Meadows Boulevard/Fell Mist Way | EB M.B. into C.R. Middle School | Not an Access Plan Issue | | | No Change |
| | WB M.B. onto Fell Mist | 20 (PM) | 25' | 135' | |
| | NB Fell Mist onto WB M.B. | 10 (AM) | 25' | 70' | |
| 16 –N. Meadows Boulevard/Elegant Street/Sabercat Way | EB M.B. onto NB Sabercat | 125 (AM) | 125' | 130' | No Change |
| | NB Elegant onto WB M.B. | 35 (AM) | 50' | 75' | |
| | SB Sabercat onto EB M.B. | 325 (PM) | 325' | 250' | Increase by 75' Via Striping Revisions when Needed |
| 17 – N. Meadows Boulevard/ Coriander Street | NB M.B. onto Coriander | 95 (PM) | 100' | 150' | No Change |
| | SB M.B. onto Coriander | 20 (AM) | 25' | 150' | |
| 19 – N. Meadows Boulevard/ Future Street | NB M.B. onto Future | 55 (AM) | 50' | 215' | No Change |
| | SB M.B. onto Future | 15 (AM) | 25' | 150' | |
| | EB Future onto NB M.B. | 45 (PM) | 50' | 85' | |
| | WB Future onto SB M.B. | 50 (PM) | 50' | 75' | |
| 21 – Prairie Hawk Drive/New Hope Way/Sol Danza | NB P.H. onto N.H. | 5 (AM/PM) | 25' | 90' | No Change |
| | SB P.H. onto S, D, | 55 (AM) | 50' | 190' | |

Table 5. Left Turn Deceleration Lane Modifications (Continued)

| Intersection | Direction | Highest Peak Hour Volume | Required Vehicle Storage | Existing Vehicle Storage | Recommendation |
|---|--------------------------|--------------------------|--------------------------|--------------------------|----------------|
| 22 – Prairie Hawk Drive/Limelight Avenue/Low Meadow Boulevard | NB P.H. onto L.M. | 90 (PM) | 100' | 100' | No Change |
| | SB P.H. onto Limelight | 65 (AM) | 100' | 100' | |
| | EB L.M. onto P.H. | 205 (AM) | 205' | >205' | |
| | WB Limelight onto P.H. | 75 (PM) | 100' | 100' | |
| 23 – Prairie Hawk Drive/Dacoro Lane | SB P.H. onto Dacoro | 100 (AM) | 100' | 125' | No Change |
| 24 – Prairie Hawk Drive/Virtuoso Loop/Fence Post Drive | NB P.H. onto F.P. | 15 (PM) | 25' | 100' | No Change |
| | SB P.H. onto Virtuoso | 5 (AM/PM) | 25' | 100' | |
| 25 – Prairie Hawk Drive/Morningbird Lane | NB P.H. onto Morningbird | 20 (PM) | 25' | 100' | No Change |

V. SUMMARY

An analysis of trip generation, access locations, intersection geometry, operational conditions, and auxiliary lane requirements has been conducted for the projected future conditions when build-out of Filings 17, 18 and 20 of The Meadows subdivision is completed. The results of these analyses are contained in this report and the salient findings include:

- Trip generation for the build-out of these filings is somewhat similar to what was predicted in 2004 within certain parameters. Vehicle-trips on a daily basis are estimated to be lower given the overall reduction in density. Peak hour trips are projected to be higher during the AM peak hour and relatively equal or somewhat lower during the PM peak hour.
- The analyses have concluded that the existing access locations along Meadows Boulevard, Meadows Parkway, and Prairie Hawk Drive can continue to have the same type of access movements as what was proposed in the 2004 *Access Plan* (see **Figure 8**). Full-movement intersections and ones with vehicle movement restrictions should remain as currently constructed. A few auxiliary lane modifications are necessary, however, to meet the projected vehicle demands for certain movements (see **Table 5**).
- Six additional intersections are expected to require traffic signalization by build-out of Filings 17, 18 and 20 to satisfy the projected vehicle demand. These intersections were also identified in 2004 as needing traffic signalization.
 - West Meadows Boulevard/Low Meadows Boulevard
 - West Meadows Boulevard/Elegant Street
 - West Meadows Boulevard/Future Street/Red Hawk Drive
 - Meadows Parkway/Lombard Street
 - North Meadows Boulevard/Future Street
 - Prairie Hawk Drive/Limelight Avenue/Low Meadows Boulevard
- Intersection levels of service (LOS) are projected to operate well, with LOS D or better expected for each intersection controlled by a traffic signal. Stop-sign controlled intersections are also projected to operate well with only a few movements operating below LOS D (Fence Post/Virtuoso Loop along Prairie Hawk Drive) and only during the PM peak hour (see **Figure 5** and **Figure 6**). All other hours of a typical weekday or on a weekend are projected to operate better. Traffic signalization or access restrictions are not recommended at these two intersections.

The projected traffic volumes, trip distribution, and resultant recommendations are based on the entire build-out of Filings 17, 18 and 20. Keep in mind that any recommendations contained in this addendum may not be needed for some time. It will be necessary for the Town of Castle Rock to monitor the intersections along The Meadows arterial street system to determine if and when infrastructure improvements should occur. Also, land use assumptions for undeveloped parcels may change as development in The Meadows continues and as economic trends dictate.

APPENDIX A NCHRP INTERNAL CAPTURE WORKSHEETS

| NCHRP 684 Internal Trip Capture Estimation Tool | | | | | |
|---|-------------------------------------|---------------|-------------------------|--|--|
| Project Name: | Meadows Arterial Access Plan Update | Organization: | Felsburg Holt & Ullevig | | |
| Project Location: | Meadows-Castle Rock, CO | Performed By: | RRF | | |
| Scenario Description: | AM Peak Hour | Date: | October 2017 | | |
| Analysis Year: | 2017 | Checked By: | | | |
| Analysis Period: | AM Street Peak Hour | Date: | | | |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | 83,000 | SF | 130 | 114 | 16 |
| Retail | | 65,000 | SF | 323 | 162 | 161 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | 1,782 | DU | 1,176 | 270 | 906 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 1,629 | 546 | 1,083 |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 4 | 0 | 0 | 0 | 0 |
| Retail | 5 | | 0 | 0 | 5 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 3 | 9 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 5-A: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 1,629 | 546 | 1,083 |
| Internal Capture Percentage | 3% | 5% | 2% |
| External Vehicle-Trips ⁵ | 1,577 | 520 | 1,057 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-A: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 7% | 25% |
| Retail | 8% | 6% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 2% | 1% |
| Hotel | N/A | N/A |

| |
|---|
| ¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers. |
| ² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator. |
| ³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>). |
| ⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete. |
| ⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A. |
| ⁶ Person-Trips |
| *Indicates computation that has been rounded to the nearest whole number. |
| Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1 |

| NCHRP 684 Internal Trip Capture Estimation Tool | | | | | |
|---|-------------------------------------|----------------------|-------------------------|--|--|
| Project Name: | Meadows Arterial Access Plan Update | Organization: | Felsburg Holt & Ullevig | | |
| Project Location: | Meadows-Castle Rock, CO | Performed By: | RRF | | |
| Scenario Description: | PM Peak Hour | Date: | October 2017 | | |
| Analysis Year: | 2017 | Checked By: | | | |
| Analysis Period: | PM Street Peak Hour | Date: | | | |

| Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | | 83,000 | SF | 124 | 21 | 103 |
| Retail | | 65,000 | SF | 450 | 213 | 237 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | 1,782 | DU | 1,500 | 960 | 540 |
| Hotel | | | | 0 | | |
| All Other Land Uses ² | | | | 0 | | |
| | | | | 2,074 | 1,194 | 880 |

| Table 2-P: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |
| All Other Land Uses ² | | | | | | |

| Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |






| Table 4-P: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 17 | 0 | 0 | 2 | 0 |
| Retail | 5 | | 0 | 0 | 62 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 12 | 21 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

| Table 5-P: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 2,074 | 1,194 | 880 |
| Internal Capture Percentage | 11% | 10% | 14% |
| External Vehicle-Trips ⁵ | 1,836 | 1,075 | 761 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-P: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 81% | 18% |
| Retail | 18% | 28% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 7% | 6% |
| Hotel | N/A | N/A |

| |
|--|
| ¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers. |
| ² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator. |
| ³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>). |
| ⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be |
| ⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P. |
| ⁶ Person-Trips |
| *Indicates computation that has been rounded to the nearest whole number. |
| Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1 |

APPENDIX B LEVEL OF SERVICE ANALYSIS WORKSHEETS

| Intersection | | | | | | |
|--------------------------|---|---|---|------|---|---|
| Int Delay, s/veh | 0.9 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  |  | |  |  |
| Traffic Vol, veh/h | 5 | 1100 | 365 | 10 | 50 | 15 |
| Future Vol, veh/h | 5 | 1100 | 365 | 10 | 50 | 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 | 120 | - | - | - | 100 | 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 | 1196 | 397 | 11 | 54 | 16 |





| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|------|
| Conflicting Flow All | 408 | 0 | - | 0 | 1011 |
| Stage 1 | - | - | - | - | 402 |
| Stage 2 | - | - | - | - | 609 |
| Critical Hdwy | 4.14 | - | - | - | 6.84 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 |
| Follow-up Hdwy | 2.22 | - | - | - | 3.52 |
| Pot Cap-1 Maneuver | 1147 | - | - | - | 236 |
| Stage 1 | - | - | - | - | 644 |
| Stage 2 | - | - | - | - | 505 |
| Platoon blocked, % | | - | - | - | |
| Mov Cap-1 Maneuver | 1147 | - | - | - | 235 |
| Mov Cap-2 Maneuver | - | - | - | - | 235 |
| Stage 1 | - | - | - | - | 644 |
| Stage 2 | - | - | - | - | 503 |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 21.4 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h) | 1147 | - | - | - | 235 | 803 |
| HCM Lane V/C Ratio | 0.005 | - | - | - | 0.231 | 0.02 |
| HCM Control Delay (s) | 8.2 | - | - | - | 24.9 | 9.6 |
| HCM Lane LOS | A | - | - | - | C | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.9 | 0.1 |

Intersection

Int Delay, s/veh 0.2

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|---|---|---|------|------|---|
| Lane Configurations |  |  |  | | |  |
| Traffic Vol, veh/h | 5 | 685 | 360 | 25 | 0 | 15 |
| Future Vol, veh/h | 5 | 685 | 360 | 25 | 0 | 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 | 100 | - | - | - | - | 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 | 745 | 391 | 27 | 0 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 418 | 0 | 0 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | 4.14 | - | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | 2.22 | - | - |
| Pot Cap-1 Maneuver | 1138 | - | 0 |
| Stage 1 | - | - | 0 |
| Stage 2 | - | - | 0 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1138 | - | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 0.1 | 0 | 9.6 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 1138 | - | - | - | 797 |
| HCM Lane V/C Ratio | 0.005 | - | - | - | 0.02 |
| HCM Control Delay (s) | 8.2 | - | - | - | 9.6 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

Intersection

Int Delay, s/veh 0

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | | ↑ |
| Traffic Vol, veh/h | 0 | 685 | 380 | 5 | 0 | 5 |
| Future Vol, veh/h | 0 | 685 | 380 | 5 | 0 | 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 | 0 | 745 | 413 | 5 | 0 | 5 |

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

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
























| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 797 |
| HCM Lane V/C Ratio | - | - | - | 0.007 |
| HCM Control Delay (s) | - | - | - | 9.5 |
| HCM Lane LOS | - | - | - | A |
| HCM 95th %tile Q(veh) | - | - | - | 0 |

Queues

51: Low Meadow/Freelark

AM Peak Hour

01/10/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  | |  |  |  |  |  |
| Traffic Volume (vph) | 20 | 950 | 45 | 70 | 305 | 170 | 85 | 5 | 205 | 265 | 10 | 25 |
| Future Volume (vph) | 20 | 950 | 45 | 70 | 305 | 170 | 85 | 5 | 205 | 265 | 10 | 25 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 0 | 1779 | 1583 | 1770 | 1663 | 0 |
| Flt Permitted | 0.551 | | | 0.182 | | | | 0.709 | | 0.515 | | |
| Satd. Flow (perm) | 1026 | 3539 | 1583 | 339 | 3539 | 1583 | 0 | 1321 | 1583 | 959 | 1663 | 0 |
| Satd. Flow (RTOR) | | | 127 | | | 185 | | | 218 | | 27 | |
| Lane Group Flow (vph) | 22 | 1033 | 49 | 76 | 332 | 185 | 0 | 97 | 223 | 288 | 38 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | 8 | 4 | | |
| Total Split (s) | 12.0 | 45.0 | 45.0 | 12.0 | 45.0 | 45.0 | 21.0 | 21.0 | 21.0 | 12.0 | 33.0 | |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | | 5.5 | 5.5 | 4.0 | 5.5 | |
| Act Effect Green (s) | 52.9 | 46.0 | 46.0 | 55.9 | 50.8 | 50.8 | | 11.5 | 11.5 | 25.0 | 23.5 | |
| Actuated g/C Ratio | 0.59 | 0.51 | 0.51 | 0.62 | 0.56 | 0.56 | | 0.13 | 0.13 | 0.28 | 0.26 | |
| v/c Ratio | 0.03 | 0.57 | 0.06 | 0.24 | 0.17 | 0.19 | | 0.57 | 0.57 | 0.85 | 0.08 | |
| Control Delay | 7.5 | 18.3 | 0.1 | 10.8 | 7.5 | 0.9 | | 49.6 | 11.5 | 52.2 | 12.1 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 7.5 | 18.3 | 0.1 | 10.8 | 7.5 | 0.9 | | 49.6 | 11.5 | 52.2 | 12.1 | |
| LOS | A | B | A | B | A | A | | D | B | D | B | |
| Approach Delay | | 17.2 | | | 5.9 | | | 23.0 | | | 47.6 | |
| Approach LOS | | B | | | A | | | C | | | D | |
| Queue Length 50th (ft) | 4 | 215 | 0 | 9 | 24 | 0 | | 52 | 3 | 140 | 5 | |
| Queue Length 95th (ft) | 14 | 310 | 0 | 31 | 38 | 9 | | 99 | 63 | #238 | 27 | |
| Internal Link Dist (ft) | | 465 | | | 950 | | | 307 | | | 239 | |
| Turn Bay Length (ft) | 100 | | 100 | 150 | | 100 | | | 115 | 75 | | |
| Base Capacity (vph) | 686 | 1808 | 870 | 338 | 1996 | 973 | | 227 | 453 | 339 | 526 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.03 | 0.57 | 0.06 | 0.22 | 0.17 | 0.19 | | 0.43 | 0.49 | 0.85 | 0.07 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 19.4

Intersection LOS: B

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 51: Low Meadow/Freelark



Build-Out LOS

Felsburg Holt & Ullevig





















Synchro 9 Report

Page 1

Queues
48: Elegant

AM Peak Hour

01/10/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  | |  | |  |  | |
| Traffic Volume (vph) | 25 | 1200 | 5 | 5 | 505 | 165 | 5 | 5 | 15 | 255 | 5 | 35 |
| Future Volume (vph) | 25 | 1200 | 5 | 5 | 505 | 165 | 5 | 5 | 15 | 255 | 5 | 35 |
| Satd. Flow (prot) | 1770 | 3536 | 0 | 1770 | 3539 | 1583 | 0 | 1691 | 0 | 1770 | 1615 | 0 |
| Flt Permitted | 0.421 | | | 0.148 | | | | 0.922 | | 0.587 | | |
| Satd. Flow (perm) | 784 | 3536 | 0 | 276 | 3539 | 1583 | 0 | 1575 | 0 | 1093 | 1615 | 0 |
| Satd. Flow (RTOR) | | | | | | 179 | | 16 | | | 38 | |
| Lane Group Flow (vph) | 27 | 1309 | 0 | 5 | 549 | 179 | 0 | 26 | 0 | 277 | 43 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | Perm | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 12.0 | 34.0 | | 12.0 | 34.0 | 34.0 | 27.0 | 27.0 | | 17.0 | 44.0 | |
| Total Lost Time (s) | 4.0 | 5.5 | | 4.0 | 5.5 | 5.5 | | 5.5 | | 5.0 | 4.5 | |
| Act Effect Green (s) | 63.2 | 60.3 | | 61.9 | 58.0 | 58.0 | | 6.4 | | 17.2 | 17.7 | |
| Actuated g/C Ratio | 0.70 | 0.67 | | 0.69 | 0.64 | 0.64 | | 0.07 | | 0.19 | 0.20 | |
| v/c Ratio | 0.04 | 0.55 | | 0.02 | 0.24 | 0.17 | | 0.20 | | 0.93 | 0.12 | |
| Control Delay | 4.3 | 7.2 | | 6.2 | 9.2 | 2.5 | | 27.1 | | 70.9 | 10.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 4.3 | 7.2 | | 6.2 | 9.2 | 2.5 | | 27.1 | | 70.9 | 10.4 | |
| LOS | A | A | | A | A | A | | C | | E | B | |
| Approach Delay | | 7.2 | | | 7.6 | | | 27.1 | | | 62.7 | |
| Approach LOS | | A | | | A | | | C | | | E | |
| Queue Length 50th (ft) | 2 | 76 | | 1 | 39 | 0 | | 6 | | ~190 | 3 | |
| Queue Length 95th (ft) | m7 | 214 | | 5 | 134 | 33 | | 30 | | #215 | 26 | |
| Internal Link Dist (ft) | | 950 | | | 321 | | | 181 | | | 163 | |
| Turn Bay Length (ft) | 100 | | | 100 | | 115 | | | | 75 | | |
| Base Capacity (vph) | 639 | 2369 | | 325 | 2282 | 1084 | | 388 | | 299 | 730 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.04 | 0.55 | | 0.02 | 0.24 | 0.17 | | 0.07 | | 0.93 | 0.06 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 31 (34%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

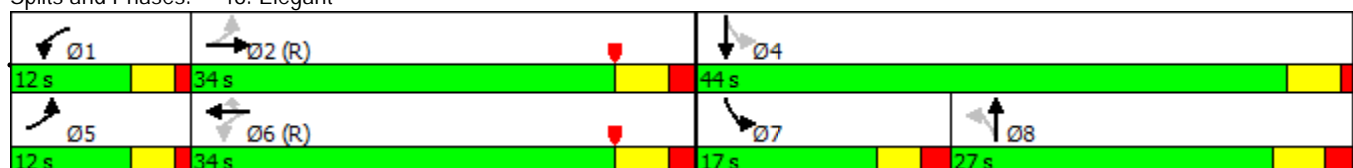
Queue shown is maximum after two cycles.







95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 48: Elegant



| Intersection | | | | | | | | | | | | |
|--------------------------|---|---|------|---|---|------|------|------|---|------|------|---|
| Int Delay, s/veh | 0.2 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | | | |  | | |  |
| Traffic Vol, veh/h | 5 | 1320 | 5 | 10 | 670 | 10 | 0 | 0 | 5 | 0 | 0 | 20 |
| Future Vol, veh/h | 5 | 1320 | 5 | 10 | 670 | 10 | 0 | 0 | 5 | 0 | 0 | 20 |
| 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 | 100 | - | - | 100 | - | - | - | - | 0 | - | - | 0 |
| 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 | 5 | 1435 | 5 | 11 | 728 | 11 | 0 | 0 | 5 | 0 | 0 | 22 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|------|
| Conflicting Flow All | 739 | 0 | 0 | 1440 | 0 | 0 | - | - | 720 | - | - | 370 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | - | - | 6.94 | - | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | - | - | 3.32 | - | - | 3.32 |
| Pot Cap-1 Maneuver | 863 | - | - | 467 | - | - | 0 | 0 | 370 | 0 | 0 | 627 |
| Stage 1 | - | - | - | - | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 863 | - | - | 467 | - | - | - | - | 370 | - | - | 627 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|-----|------|------|
| HCM Control Delay, s | 0 | 0.2 | 14.9 | 10.9 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 370 | 863 | - | - | 467 | - | - | 627 |
| HCM Lane V/C Ratio | 0.015 | 0.006 | - | - | 0.023 | - | - | 0.035 |
| HCM Control Delay (s) | 14.9 | 9.2 | - | - | 12.9 | - | - | 10.9 |
| HCM Lane LOS | B | A | - | - | B | - | - | B |
| HCM 95th %tile Q(veh) | 0 | 0 | - | - | 0.1 | - | - | 0.1 |

Intersection

Int Delay, s/veh 0.1

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | ↑ | | ↑ |
| Traffic Vol, veh/h | 0 | 1340 | 665 | 25 | 0 | 25 |
| Future Vol, veh/h | 0 | 1340 | 665 | 25 | 0 | 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 | - | - | - | 115 | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1457 | 723 | 27 | 0 | 27 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | - | 0 | - 0 - 361 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - 0 636 |
| Stage 1 | 0 | - | - 0 - |
| Stage 2 | 0 | - | - 0 - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - - 636 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |























| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 636 |
| HCM Lane V/C Ratio | - | - | - | 0.043 |
| HCM Control Delay (s) | - | - | - | 10.9 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.1 |

Queues
40: Red Hask/Future

AM Peak Hour

01/22/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  | |  |  | |
| Traffic Volume (vph) | 35 | 1255 | 50 | 210 | 625 | 50 | 50 | 20 | 250 | 115 | 25 | 15 |
| Future Volume (vph) | 35 | 1255 | 50 | 210 | 625 | 50 | 50 | 20 | 250 | 115 | 25 | 15 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 1770 | 1604 | 0 | 1770 | 1758 | 0 |
| Flt Permitted | 0.393 | | | 0.095 | | | 0.729 | | | 0.233 | | |
| Satd. Flow (perm) | 732 | 3539 | 1583 | 177 | 3539 | 1583 | 1358 | 1604 | 0 | 434 | 1758 | 0 |
| Satd. Flow (RTOR) | | | 100 | | | 100 | | 221 | | | 16 | |
| Lane Group Flow (vph) | 38 | 1364 | 54 | 228 | 679 | 54 | 54 | 294 | 0 | 125 | 43 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 16.0 | 61.0 | 61.0 | 19.0 | 64.0 | 64.0 | 27.0 | 27.0 | | 13.0 | 40.0 | |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 5.5 | 5.5 | | 4.5 | 5.5 | |
| Act Effect Green (s) | 72.0 | 63.6 | 63.6 | 84.8 | 76.3 | 76.3 | 12.7 | 12.7 | | 26.7 | 25.7 | |
| Actuated g/C Ratio | 0.60 | 0.53 | 0.53 | 0.71 | 0.64 | 0.64 | 0.11 | 0.11 | | 0.22 | 0.21 | |
| v/c Ratio | 0.08 | 0.73 | 0.06 | 0.70 | 0.30 | 0.05 | 0.38 | 0.80 | | 0.65 | 0.11 | |
| Control Delay | 7.9 | 26.1 | 0.5 | 50.4 | 5.3 | 0.1 | 54.8 | 30.3 | | 54.1 | 24.9 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 7.9 | 26.1 | 0.5 | 50.4 | 5.3 | 0.1 | 54.8 | 30.3 | | 54.1 | 24.9 | |
| LOS | A | C | A | D | A | A | D | C | | D | C | |
| Approach Delay | | 24.7 | | | 15.7 | | | 34.1 | | | 46.6 | |
| Approach LOS | | C | | | B | | | C | | | D | |
| Queue Length 50th (ft) | 8 | 417 | 0 | 114 | 53 | 0 | 40 | 54 | | 82 | 17 | |
| Queue Length 95th (ft) | 24 | 579 | 3 | #231 | 84 | m1 | 75 | 144 | | 125 | 44 | |
| Internal Link Dist (ft) | | 316 | | | 208 | | | 329 | | | 163 | |
| Turn Bay Length (ft) | 100 | | 115 | 125 | | 120 | 150 | | | 50 | | |
| Base Capacity (vph) | 577 | 1875 | 885 | 341 | 2249 | 1042 | 243 | 468 | | 191 | 516 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.07 | 0.73 | 0.06 | 0.67 | 0.30 | 0.05 | 0.22 | 0.63 | | 0.65 | 0.08 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 21 (18%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 24.1

Intersection LOS: C

Intersection Capacity Utilization 85.9%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 40: Red Hask/Future



Intersection

Int Delay, s/veh 0.1

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | ↑ | | ↑ |
| Traffic Vol, veh/h | 0 | 1620 | 870 | 65 | 0 | 15 |
| Future Vol, veh/h | 0 | 1620 | 870 | 65 | 0 | 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 | - | - | - | 100 | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1761 | 946 | 71 | 0 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | - | 0 | - 0 - 473 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - 0 538 |
| Stage 1 | 0 | - | - 0 - |
| Stage 2 | 0 | - | - 0 - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - - 538 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |

























| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 11.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 538 |
| HCM Lane V/C Ratio | - | - | - | 0.03 |
| HCM Control Delay (s) | - | - | - | 11.9 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.1 |

N. Meadows Blvd./Meadows Parkway/Prairie Hawk
1: P.H. & M.B. & M.P.

AM Peak Hour

12/01/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 345 | 1085 | 190 | 285 | 605 | 535 | 145 | 380 | 375 | 525 | 365 | 185 |
| Future Volume (vph) | 345 | 1085 | 190 | 285 | 605 | 535 | 145 | 380 | 375 | 525 | 365 | 185 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Flt Permitted | 0.269 | | | 0.098 | | | 0.518 | | | 0.291 | | |
| Satd. Flow (perm) | 972 | 3539 | 1583 | 354 | 3539 | 1583 | 1872 | 3539 | 1583 | 1052 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 155 | | | 353 | | | 280 | | | 201 |
| Lane Group Flow (vph) | 375 | 1179 | 207 | 310 | 658 | 582 | 158 | 413 | 408 | 571 | 397 | 201 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | Free | 8 | | 8 | 4 | | 4 |
| Total Split (s) | 19.0 | 33.0 | 33.0 | 19.0 | 33.0 | | 17.0 | 24.0 | 24.0 | 44.0 | 51.0 | 51.0 |
| Total Lost Time (s) | 4.5 | 6.0 | 6.0 | 4.5 | 6.0 | | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| Act Effect Green (s) | 56.0 | 42.0 | 42.0 | 54.0 | 41.0 | 120.0 | 32.8 | 22.1 | 22.1 | 51.5 | 36.2 | 36.2 |
| Actuated g/C Ratio | 0.47 | 0.35 | 0.35 | 0.45 | 0.34 | 1.00 | 0.27 | 0.18 | 0.18 | 0.43 | 0.30 | 0.30 |
| v/c Ratio | 0.53 | 0.95 | 0.32 | 0.68 | 0.54 | 0.37 | 0.25 | 0.63 | 0.79 | 0.63 | 0.37 | 0.33 |
| Control Delay | 21.1 | 46.6 | 10.9 | 46.2 | 61.7 | 0.5 | 21.7 | 49.1 | 25.4 | 21.4 | 28.3 | 4.0 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 1.3 | 0.0 | 0.0 |
| Total Delay | 21.1 | 46.6 | 10.9 | 46.2 | 61.7 | 0.5 | 21.7 | 49.1 | 28.8 | 22.7 | 28.3 | 4.0 |
| LOS | C | D | B | D | E | A | C | D | C | C | C | A |
| Approach Delay | | 37.0 | | | 35.6 | | | 36.2 | | | 21.4 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (ft) | 57 | 246 | 7 | 127 | 287 | 0 | 37 | 157 | 95 | 126 | 129 | 28 |
| Queue Length 95th (ft) | 118 | #792 | m72 | 179 | #351 | 0 | 47 | 196 | 206 | 74 | 140 | 37 |
| Internal Link Dist (ft) | | 369 | | | 730 | | | 462 | | | 371 | |
| Turn Bay Length (ft) | 155 | | 110 | 230 | | 150 | 180 | | 100 | 290 | | 155 |
| Base Capacity (vph) | 767 | 1238 | 654 | 539 | 1209 | 1583 | 733 | 667 | 525 | 1235 | 1328 | 719 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 | 435 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.49 | 0.95 | 0.32 | 0.58 | 0.54 | 0.37 | 0.22 | 0.62 | 0.87 | 0.71 | 0.30 | 0.28 |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 33.1

Intersection LOS: C

Intersection Capacity Utilization 82.4%

ICU Level of Service E

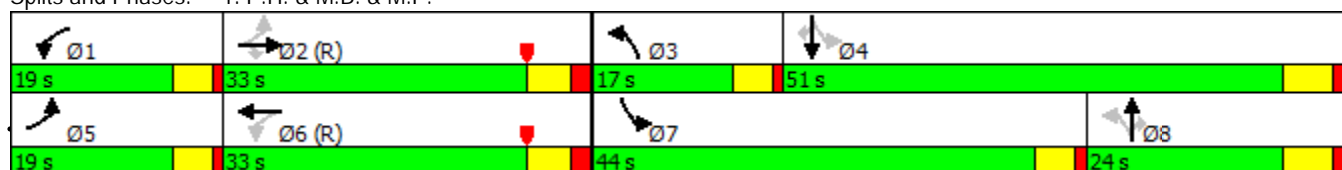
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: P.H. & M.B. & M.P.



























Queues

2: Limelight & M.P.

AM Peak Hour

01/10/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 60 | 1885 | 40 | 205 | 1365 | 145 | 40 | 10 | 185 | 70 | 5 | 20 |
| Future Volume (vph) | 60 | 1885 | 40 | 205 | 1365 | 145 | 40 | 10 | 185 | 70 | 5 | 20 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 1598 | 0 | 3433 | 1635 | 0 |
| Flt Permitted | 0.111 | | | 0.054 | | | 0.740 | | | 0.452 | | |
| Satd. Flow (perm) | 207 | 3539 | 1583 | 195 | 3539 | 1583 | 1378 | 1598 | 0 | 1633 | 1635 | 0 |
| Satd. Flow (RTOR) | | | 100 | | | 158 | | 80 | | | 22 | |
| Lane Group Flow (vph) | 65 | 2049 | 43 | 223 | 1484 | 158 | 43 | 212 | 0 | 76 | 27 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 12.0 | 77.0 | 77.0 | 14.0 | 79.0 | 79.0 | 29.0 | 29.0 | | 29.0 | 29.0 | |
| Total Lost Time (s) | 7.0 | 6.0 | 6.0 | 7.0 | 6.0 | 6.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Act Effect Green (s) | 75.0 | 71.0 | 71.0 | 80.0 | 75.4 | 75.4 | 22.0 | 22.0 | | 22.0 | 22.0 | |
| Actuated g/C Ratio | 0.62 | 0.59 | 0.59 | 0.67 | 0.63 | 0.63 | 0.18 | 0.18 | | 0.18 | 0.18 | |
| v/c Ratio | 0.34 | 0.98 | 0.04 | 0.70 | 0.67 | 0.15 | 0.17 | 0.59 | | 0.25 | 0.09 | |
| Control Delay | 9.4 | 33.0 | 0.1 | 34.1 | 25.1 | 4.3 | 43.5 | 35.1 | | 44.6 | 19.2 | |
| Queue Delay | 0.0 | 16.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 9.4 | 49.8 | 0.1 | 34.1 | 25.1 | 4.3 | 43.5 | 35.1 | | 44.6 | 19.2 | |
| LOS | A | D | A | C | C | A | D | D | | D | B | |
| Approach Delay | | 47.6 | | | 24.4 | | | 36.5 | | | 38.0 | |
| Approach LOS | | D | | | C | | | D | | | D | |
| Queue Length 50th (ft) | 3 | 808 | 0 | 29 | 635 | 30 | 28 | 93 | | 26 | 3 | |
| Queue Length 95th (ft) | m11 | m#970 | m1 | m68 | 716 | m32 | 63 | 177 | | 50 | 30 | |
| Internal Link Dist (ft) | | 730 | | | 1326 | | | 566 | | | 560 | |
| Turn Bay Length (ft) | 200 | | | 200 | | 300 | 125 | | | 200 | | |
| Base Capacity (vph) | 194 | 2094 | 977 | 319 | 2223 | 1053 | 252 | 358 | | 299 | 317 | |
| Starvation Cap Reductn | 0 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.34 | 1.04 | 0.04 | 0.70 | 0.67 | 0.15 | 0.17 | 0.59 | | 0.25 | 0.09 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 58 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 36.9

Intersection LOS: D

Intersection Capacity Utilization 97.4%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Limelight & M.P.



Felsburg Holt & Ullevig

Intersection

Int Delay, s/veh 0.2

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | | ↑ |
| Traffic Vol, veh/h | 0 | 2140 | 1685 | 20 | 0 | 40 |
| Future Vol, veh/h | 0 | 2140 | 1685 | 20 | 0 | 40 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 2326 | 1832 | 22 | 0 | 43 |


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

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 20.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 275 |
| HCM Lane V/C Ratio | - | - | 0.158 |
| HCM Control Delay (s) | - | - | 20.5 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 0.6 |

Meadows Parkway/Lombard
8: Office Access/Filing 17 & M.P.

AM Peak Hour
12/01/2017

| |  | | | | | | | | | | | |
|-------------------------|--|--------|-----|-------|------|------|-------|------|-----|-------|------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 85 | 1950 | 105 | 130 | 1675 | 85 | 15 | 5 | 20 | 70 | 5 | 15 |
| Future Volume (vph) | 85 | 1950 | 105 | 130 | 1675 | 85 | 15 | 5 | 20 | 70 | 5 | 15 |
| Satd. Flow (prot) | 1770 | 3511 | 0 | 1770 | 3539 | 1583 | 1770 | 1635 | 0 | 1770 | 1650 | 0 |
| Flt Permitted | 0.068 | | | 0.049 | | | 0.784 | | | 0.417 | | |
| Satd. Flow (perm) | 127 | 3511 | 0 | 91 | 3539 | 1583 | 1460 | 1635 | 0 | 777 | 1650 | 0 |
| Satd. Flow (RTOR) | | 8 | | | | 95 | | 22 | | | 16 | |
| Lane Group Flow (vph) | 92 | 2234 | 0 | 141 | 1821 | 92 | 16 | 27 | 0 | 76 | 21 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 12.0 | 73.0 | | 12.0 | 73.0 | 73.0 | 12.0 | 21.0 | | 14.0 | 23.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Act Effect Green (s) | 89.4 | 81.5 | | 96.6 | 85.2 | 85.2 | 10.6 | 6.4 | | 14.8 | 10.8 | |
| Actuated g/C Ratio | 0.74 | 0.68 | | 0.80 | 0.71 | 0.71 | 0.09 | 0.05 | | 0.12 | 0.09 | |
| v/c Ratio | 0.46 | 0.94 | | 0.60 | 0.73 | 0.08 | 0.11 | 0.25 | | 0.46 | 0.13 | |
| Control Delay | 16.3 | 32.3 | | 24.8 | 25.9 | 5.6 | 43.5 | 30.1 | | 53.7 | 27.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 16.3 | 32.3 | | 24.8 | 25.9 | 5.6 | 43.5 | 30.1 | | 53.7 | 27.8 | |
| LOS | B | C | | C | C | A | D | C | | D | C | |
| Approach Delay | | 31.7 | | | 24.9 | | | 35.1 | | | 48.1 | |
| Approach LOS | | C | | | C | | | D | | | D | |
| Queue Length 50th (ft) | 14 | ~996 | | 54 | 686 | 13 | 11 | 4 | | 52 | 3 | |
| Queue Length 95th (ft) | m18 | m#1032 | | 101 | 817 | m44 | 31 | 34 | | 97 | 30 | |
| Internal Link Dist (ft) | | 200 | | | 1007 | | | 565 | | | 580 | |
| Turn Bay Length (ft) | 165 | | | 215 | | 215 | 100 | | | 100 | | |
| Base Capacity (vph) | 213 | 2386 | | 236 | 2511 | 1150 | 161 | 243 | | 179 | 271 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.43 | 0.94 | | 0.60 | 0.73 | 0.08 | 0.10 | 0.11 | | 0.42 | 0.08 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 6 (5%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 86.2%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.


Splits and Phases: 8: Office Access/Filing 17 & M.P.



Queues
35: N. Meadows

AM Peak Hour

01/22/2018

| |  | | | | | | | | | | | |
|-------------------------|--|-------|------|-------|-------|------|-------|------|------|-------|------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↖ | ↗ | | ↖ | ↗ | ↖ | ↗ | ↗ | ↖ | ↗ | ↗ |
| Traffic Volume (vph) | 5 | 200 | 5 | 210 | 110 | 120 | 5 | 465 | 250 | 465 | 585 | 30 |
| Future Volume (vph) | 5 | 200 | 5 | 210 | 110 | 120 | 5 | 465 | 250 | 465 | 585 | 30 |
| Satd. Flow (prot) | 0 | 1861 | 1583 | 0 | 1803 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Flt Permitted | | 0.999 | | | 0.968 | | 0.410 | | | 0.287 | | |
| Satd. Flow (perm) | 0 | 1861 | 1583 | 0 | 1803 | 1583 | 764 | 3539 | 1583 | 1037 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 200 | | | 200 | | | 272 | | | 145 |
| Lane Group Flow (vph) | 0 | 222 | 5 | 0 | 348 | 130 | 5 | 505 | 272 | 505 | 636 | 33 |
| Turn Type | Split | NA | Perm | Split | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | 8 | | | 4 | 6 | | 6 | 2 | | 2 |
| Total Split (s) | 22.0 | 22.0 | 22.0 | 28.0 | 28.0 | 28.0 | 9.0 | 23.0 | 23.0 | 17.0 | 31.0 | 31.0 |
| Total Lost Time (s) | | 5.5 | 5.5 | | 5.5 | 5.5 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Act Effect Green (s) | | 14.5 | 14.5 | | 20.6 | 20.6 | 28.8 | 21.5 | 21.5 | 39.8 | 36.0 | 36.0 |
| Actuated g/C Ratio | | 0.16 | 0.16 | | 0.23 | 0.23 | 0.32 | 0.24 | 0.24 | 0.44 | 0.40 | 0.40 |
| v/c Ratio | | 0.74 | 0.01 | | 0.84 | 0.25 | 0.02 | 0.60 | 0.47 | 0.64 | 0.45 | 0.05 |
| Control Delay | | 50.9 | 0.0 | | 52.1 | 2.0 | 32.2 | 54.2 | 23.4 | 21.6 | 22.8 | 0.1 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | | 50.9 | 0.0 | | 52.1 | 2.0 | 32.2 | 54.2 | 23.4 | 21.6 | 22.8 | 0.1 |
| LOS | | D | A | | D | A | C | D | C | C | C | A |
| Approach Delay | | 49.8 | | | 38.5 | | | 43.3 | | | 21.6 | |
| Approach LOS | | D | | | D | | | D | | | C | |
| Queue Length 50th (ft) | | 119 | 0 | | 184 | 0 | 2 | 161 | 67 | 100 | 140 | 0 |
| Queue Length 95th (ft) | | 194 | 0 | | #314 | 10 | m6 | 216 | 123 | 141 | 226 | 0 |
| Internal Link Dist (ft) | | 298 | | | 352 | | | 730 | | | 568 | |
| Turn Bay Length (ft) | | | 75 | | | 160 | 115 | | 115 | 345 | | 115 |
| Base Capacity (vph) | | 341 | 453 | | 450 | 545 | 303 | 844 | 584 | 807 | 1416 | 720 |
| Starvation Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | | 0.65 | 0.01 | | 0.77 | 0.24 | 0.02 | 0.60 | 0.47 | 0.63 | 0.45 | 0.05 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 8 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 71.8%

ICU Level of Service C

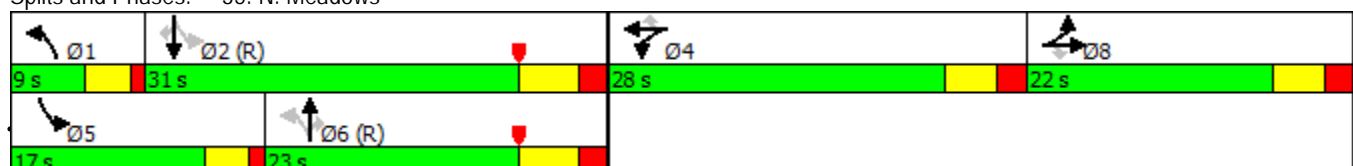
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 35: N. Meadows



Intersection

Int Delay, s/veh 0.2

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | ↗ | | | ↗ | ↗ | ↗↘ | | | ↗↘ | |
| Traffic Vol, veh/h | 0 | 0 | 15 | 0 | 0 | 5 | 5 | 715 | 15 | 0 | 795 | 5 |
| Future Vol, veh/h | 0 | 0 | 15 | 0 | 0 | 5 | 5 | 715 | 15 | 0 | 795 | 5 |
| 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 | - | - | 0 | - | - | 0 | 130 | - | - | - | - | - |
| 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 | 16 | 0 | 0 | 5 | 5 | 777 | 16 | 0 | 864 | 5 |


| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 435 | - | - | 397 | 870 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 569 | 0 | 0 | 602 | 770 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | 0 |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | 0 |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 569 | - | - | 602 | 770 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|----|-----|----|
| HCM Control Delay, s | 11.5 | 11 | 0.1 | 0 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBT | SBR |
|-----------------------|-------|-----|-----|------------|-------|-----|
| Capacity (veh/h) | 770 | - | - | 569 | 602 | - |
| HCM Lane V/C Ratio | 0.007 | - | - | 0.029 | 0.009 | - |
| HCM Control Delay (s) | 9.7 | - | - | 11.5 | 11 | - |
| HCM Lane LOS | A | - | - | B | B | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | - |

N. Meadows Blvd./Fell Mist
29: Fell Mist

AM Peak Hour
12/01/2017

| |  | | | | | | | | | | | |
|-------------------------|--|------|-----|-------|------|-----|-------|------|------|-------|------|-----|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 10 | 5 | 20 | 150 | 5 | 205 | 5 | 510 | 225 | 150 | 655 | 5 |
| Future Volume (vph) | 10 | 5 | 20 | 150 | 5 | 205 | 5 | 510 | 225 | 150 | 655 | 5 |
| Satd. Flow (prot) | 1770 | 1635 | 0 | 1770 | 1589 | 0 | 1770 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | | | | 0.500 | | | 0.379 | | | 0.349 | | |
| Satd. Flow (perm) | 1863 | 1635 | 0 | 931 | 1589 | 0 | 706 | 3539 | 1583 | 650 | 3536 | 0 |
| Satd. Flow (RTOR) | | 22 | | | 223 | | | | 245 | | 1 | |
| Lane Group Flow (vph) | 11 | 27 | 0 | 163 | 228 | 0 | 5 | 554 | 245 | 163 | 717 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 3 | 8 | | 7 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | | 4 | | | 6 | | 6 | 2 | | |
| Total Split (s) | 10.0 | 23.0 | | 10.0 | 23.0 | | 12.0 | 45.0 | 45.0 | 12.0 | 45.0 | |
| Total Lost Time (s) | 4.0 | 5.5 | | 4.0 | 5.5 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | |
| Act Effect Green (s) | 10.4 | 7.4 | | 12.1 | 9.4 | | 46.6 | 39.0 | 39.0 | 69.1 | 65.1 | |
| Actuated g/C Ratio | 0.12 | 0.08 | | 0.13 | 0.10 | | 0.52 | 0.43 | 0.43 | 0.77 | 0.72 | |
| v/c Ratio | 0.05 | 0.18 | | 0.87 | 0.62 | | 0.01 | 0.36 | 0.30 | 0.20 | 0.28 | |
| Control Delay | 28.5 | 20.0 | | 75.3 | 13.5 | | 4.8 | 12.7 | 1.6 | 4.6 | 4.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 28.5 | 20.0 | | 75.3 | 13.5 | | 4.8 | 12.7 | 1.6 | 4.6 | 4.4 | |
| LOS | C | B | | E | B | | A | B | A | A | A | |
| Approach Delay | | 22.5 | | | 39.2 | | | 9.3 | | | 4.5 | |
| Approach LOS | | C | | | D | | | A | | | A | |
| Queue Length 50th (ft) | 6 | 3 | | ~109 | 3 | | 1 | 58 | 0 | 13 | 35 | |
| Queue Length 95th (ft) | 17 | 26 | | 128 | 66 | | m3 | 81 | 12 | m43 | 79 | |
| Internal Link Dist (ft) | | 361 | | | 343 | | | 689 | | | 379 | |
| Turn Bay Length (ft) | 70 | | | 125 | | | 135 | | 215 | 125 | | |
| Base Capacity (vph) | 214 | 335 | | 187 | 488 | | 478 | 1533 | 824 | 799 | 2558 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.05 | 0.08 | | 0.87 | 0.47 | | 0.01 | 0.36 | 0.30 | 0.20 | 0.28 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 29 (32%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 13.0

Intersection LOS: B

Intersection Capacity Utilization 50.3%

ICU Level of Service A

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.






















Splits and Phases: 29: Fell Mist



Queues
26: Elegant/Sabercat

AM Peak Hour

01/10/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  |  |  | | |  |  |  |  |  |
| Traffic Volume (vph) | 15 | 20 | 40 | 240 | 10 | 90 | 0 | 635 | 490 | 125 | 695 | 5 |
| Future Volume (vph) | 15 | 20 | 40 | 240 | 10 | 90 | 0 | 635 | 490 | 125 | 695 | 5 |
| Satd. Flow (prot) | 0 | 1824 | 1583 | 1770 | 1611 | 0 | 0 | 3539 | 1583 | 1770 | 3536 | 0 |
| Flt Permitted | | 0.883 | | 0.732 | | | | | | 0.319 | | |
| Satd. Flow (perm) | 0 | 1645 | 1583 | 1364 | 1611 | 0 | 0 | 3539 | 1583 | 594 | 3536 | 0 |
| Satd. Flow (RTOR) | | | 73 | | 98 | | | | 533 | | 2 | |
| Lane Group Flow (vph) | 0 | 38 | 43 | 261 | 109 | 0 | 0 | 690 | 533 | 136 | 760 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | | | NA | Perm | pm+pt | NA | |
| Protected Phases | | 8 | | | 4 | | | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | | | | | 6 | 2 | | |
| Total Split (s) | 23.0 | 23.0 | 23.0 | 23.0 | 23.0 | | | 54.0 | 54.0 | 13.0 | 67.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | | 4.5 | 4.5 | 4.5 | 4.5 | |
| Act Effect Green (s) | | 18.4 | 18.4 | 18.4 | 18.4 | | | 50.5 | 50.5 | 62.6 | 62.6 | |
| Actuated g/C Ratio | | 0.20 | 0.20 | 0.20 | 0.20 | | | 0.56 | 0.56 | 0.70 | 0.70 | |
| v/c Ratio | | 0.11 | 0.11 | 0.94 | 0.27 | | | 0.35 | 0.48 | 0.27 | 0.31 | |
| Control Delay | | 30.2 | 3.5 | 77.6 | 10.0 | | | 11.5 | 2.5 | 5.2 | 5.4 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 30.2 | 3.5 | 77.6 | 10.0 | | | 11.5 | 2.5 | 5.2 | 5.4 | |
| LOS | | C | A | E | A | | | B | A | A | A | |
| Approach Delay | | 16.1 | | | 57.7 | | | 7.6 | | | 5.3 | |
| Approach LOS | | B | | | E | | | A | | | A | |
| Queue Length 50th (ft) | | 18 | 0 | 147 | 5 | | | 105 | 0 | 34 | 100 | |
| Queue Length 95th (ft) | | 44 | 12 | #294 | 47 | | | 144 | 44 | m20 | m51 | |
| Internal Link Dist (ft) | | 334 | | | 311 | | | 632 | | | 689 | |
| Turn Bay Length (ft) | | | 75 | 250 | | | | | 125 | 130 | | |
| Base Capacity (vph) | | 338 | 383 | 280 | 409 | | | 1987 | 1122 | 524 | 2460 | |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | | 0.11 | 0.11 | 0.93 | 0.27 | | | 0.35 | 0.48 | 0.26 | 0.31 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 41 (46%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 14.3

Intersection LOS: B

Intersection Capacity Utilization 55.7%

ICU Level of Service B

Analysis Period (min) 15







95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Elegant/Sabercat



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|---|------|------|---|---|---|------|---|---|------|
| Int Delay, s/veh | 0.6 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  |  |  | |  |  | |
| Traffic Vol, veh/h | 0 | 0 | 50 | 0 | 0 | 5 | 30 | 1120 | 30 | 20 | 950 | 5 |
| Future Vol, veh/h | 0 | 0 | 50 | 0 | 0 | 5 | 30 | 1120 | 30 | 20 | 950 | 5 |
| 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 | - | - | 0 | - | - | 0 | 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 | 0 | 0 | 54 | 0 | 0 | 5 | 33 | 1217 | 33 | 22 | 1033 | 5 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 519 | - | - | 625 | 1038 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 502 | 0 | 0 | 428 | 665 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 502 | - | - | 428 | 665 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |























| Approach | EB | WB | NB | SB |
|----------------------|----|------|-----|-----|
| HCM Control Delay, s | 13 | 13.5 | 0.3 | 0.2 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h) | 665 | - | - | 502 | 428 | 553 | - |
| HCM Lane V/C Ratio | 0.049 | - | - | 0.108 | 0.013 | 0.039 | - |
| HCM Control Delay (s) | 10.7 | - | - | 13 | 13.5 | 11.8 | - |
| HCM Lane LOS | B | - | - | B | B | B | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | 0.4 | 0 | 0.1 | - |

| Intersection | | | | | | |
|--------------------------|--------|--------|--------|------|------|------|
| Int Delay, s/veh | 0.4 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 70 | 0 | 1180 | 980 | 15 |
| Future Vol, veh/h | 0 | 70 | 0 | 1180 | 980 | 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 | 0 | 76 | 0 | 1283 | 1065 | 16 |
| Major/Minor | Minor2 | Major1 | Major2 | | | |
| Conflicting Flow All | - | 541 | - | 0 | - | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 6.94 | - | - | - | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.32 | - | - | - | - |
| Pot Cap-1 Maneuver | 0 | 485 | 0 | - | - | - |
| Stage 1 | 0 | - | 0 | - | - | - |
| Stage 2 | 0 | - | 0 | - | - | - |
| Platoon blocked, % | | | | - | - | - |
| Mov Cap-1 Maneuver | - | 485 | - | - | - | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Approach | EB | NB | SB | | | |
| HCM Control Delay, s | 13.8 | 0 | 0 | | | |
| HCM LOS | B | | | | | |
| Minor Lane/Major Mvmt | NBT | EBLn1 | SBT | SBR | | |
| Capacity (veh/h) | - | 485 | - | - | | |
| HCM Lane V/C Ratio | - | 0.157 | - | - | | |
| HCM Control Delay (s) | - | 13.8 | - | - | | |
| HCM Lane LOS | - | B | - | - | | |
| HCM 95th %tile Q(veh) | - | 0.6 | - | - | | |

N. Meadows Blvd./Future
18: Future

AM Peak Hour
12/01/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 35 | 10 | 60 | 15 | 10 | 5 | 55 | 1140 | 65 | 15 | 1015 | 25 |
| Future Volume (vph) | 35 | 10 | 60 | 15 | 10 | 5 | 55 | 1140 | 65 | 15 | 1015 | 25 |
| Satd. Flow (prot) | 1770 | 1624 | 0 | 0 | 1809 | 1583 | 1770 | 3539 | 1583 | 1770 | 3525 | 0 |
| Flt Permitted | 0.740 | | | | 0.729 | | 0.225 | | | 0.213 | | |
| Satd. Flow (perm) | 1378 | 1624 | 0 | 0 | 1358 | 1583 | 419 | 3539 | 1583 | 397 | 3525 | 0 |
| Satd. Flow (RTOR) | | 65 | | | | 64 | | | 71 | | 4 | |
| Lane Group Flow (vph) | 38 | 76 | 0 | 0 | 27 | 5 | 60 | 1239 | 71 | 16 | 1130 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 8 | | | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | | 4 | | 4 | 6 | | 6 | 2 | | |
| Total Split (s) | 26.0 | 26.0 | | 26.0 | 26.0 | 26.0 | 12.0 | 82.0 | 82.0 | 12.0 | 82.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | | 4.5 | 4.5 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | |
| Act Effect Green (s) | 8.8 | 8.8 | | | 8.8 | 8.8 | 103.4 | 99.9 | 99.9 | 101.0 | 95.7 | |
| Actuated g/C Ratio | 0.07 | 0.07 | | | 0.07 | 0.07 | 0.86 | 0.83 | 0.83 | 0.84 | 0.80 | |
| v/c Ratio | 0.38 | 0.42 | | | 0.27 | 0.03 | 0.14 | 0.42 | 0.05 | 0.04 | 0.40 | |
| Control Delay | 62.6 | 23.2 | | | 58.2 | 0.4 | 2.0 | 3.4 | 1.2 | 1.9 | 5.5 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 62.6 | 23.2 | | | 58.2 | 0.4 | 2.0 | 3.4 | 1.2 | 1.9 | 5.5 | |
| LOS | E | C | | | E | A | A | A | A | A | A | |
| Approach Delay | | 36.3 | | | 49.2 | | | 3.3 | | | 5.4 | |
| Approach LOS | | D | | | D | | | A | | | A | |
| Queue Length 50th (ft) | 29 | 8 | | | 20 | 0 | 1 | 30 | 0 | 1 | 141 | |
| Queue Length 95th (ft) | 64 | 56 | | | 50 | 0 | m16 | 140 | m6 | 5 | 206 | |
| Internal Link Dist (ft) | | 212 | | | 159 | | | 306 | | | 203 | |
| Turn Bay Length (ft) | 85 | | | | | 75 | 213 | | | 150 | | |
| Base Capacity (vph) | 246 | 344 | | | 243 | 336 | 453 | 2947 | 1330 | 431 | 2811 | |
| Starvation Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.15 | 0.22 | | | 0.11 | 0.01 | 0.13 | 0.42 | 0.05 | 0.04 | 0.40 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 6.2

Intersection LOS: A

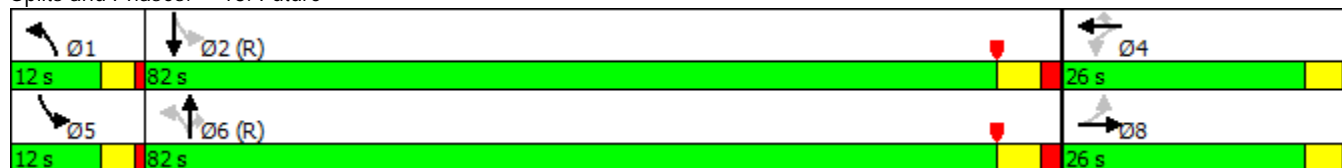
Intersection Capacity Utilization 56.4%







ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Future



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|---|------|------|---|---|---|------|---|---|------|
| Int Delay, s/veh | 0.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  |  |  | |  |  | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 0 | 0 | 50 | 5 | 850 | 10 | 55 | 770 | 15 |
| Future Vol, veh/h | 0 | 0 | 5 | 0 | 0 | 50 | 5 | 850 | 10 | 55 | 770 | 15 |
| 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 | - | - | 0 | - | - | 0 | 90 | - | - | 190 | - | - |
| 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 | 5 | 0 | 0 | 54 | 5 | 924 | 11 | 60 | 837 | 16 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 427 | - | - | 467 | 853 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 576 | 0 | 0 | 542 | 782 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 576 | - | - | 542 | 782 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |


| Approach | EB | WB | NB | SB |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 11.3 | 12.4 | 0.1 | 0.7 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|------------|------|-------|-----|
| Capacity (veh/h) | 782 | - | - | 576 | 542 | 728 | - |
| HCM Lane V/C Ratio | 0.007 | - | - | 0.009 | 0.1 | 0.082 | - |
| HCM Control Delay (s) | 9.6 | - | - | 11.3 | 12.4 | 10.4 | - |
| HCM Lane LOS | A | - | - | B | B | B | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.3 | 0.3 | - |

Prairie Hawk/Limelight/Low Meadow
63: Low Meadow/Limelight

AM Peak Hour

12/01/2017

| |  | | | | | | | | | | | |
|-------------------------|--|-------|------|-------|------|-----|-------|------|-----|-------|------|------|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | ↔ | ↔ | ↔ | | ↔ | ↔ | | ↔ | ↔ | ↔ |
| Traffic Volume (vph) | 160 | 45 | 100 | 50 | 40 | 50 | 75 | 655 | 35 | 65 | 620 | 720 |
| Future Volume (vph) | 160 | 45 | 100 | 50 | 40 | 50 | 75 | 655 | 35 | 65 | 620 | 720 |
| Satd. Flow (prot) | 0 | 1792 | 1583 | 1770 | 1706 | 0 | 1770 | 3511 | 0 | 1770 | 3539 | 1583 |
| Flt Permitted | | 0.709 | | 0.463 | | | 0.351 | | | 0.318 | | |
| Satd. Flow (perm) | 0 | 1321 | 1583 | 862 | 1706 | 0 | 654 | 3511 | 0 | 592 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 109 | | 54 | | | 7 | | | | 783 |
| Lane Group Flow (vph) | 0 | 223 | 109 | 54 | 97 | 0 | 82 | 750 | 0 | 71 | 674 | 783 |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | | 8 | | | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | | | 6 | | | 2 | | 2 |
| Total Split (s) | 41.0 | 41.0 | 41.0 | 41.0 | 41.0 | | 12.0 | 37.0 | | 12.0 | 37.0 | 37.0 |
| Total Lost Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Act Effect Green (s) | | 20.9 | 20.9 | 20.9 | 20.9 | | 56.7 | 50.7 | | 56.3 | 50.5 | 50.5 |
| Actuated g/C Ratio | | 0.23 | 0.23 | 0.23 | 0.23 | | 0.63 | 0.56 | | 0.63 | 0.56 | 0.56 |
| v/c Ratio | | 0.73 | 0.24 | 0.27 | 0.22 | | 0.16 | 0.38 | | 0.15 | 0.34 | 0.64 |
| Control Delay | | 44.9 | 6.2 | 29.2 | 13.7 | | 7.7 | 13.6 | | 7.8 | 13.4 | 4.1 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 44.9 | 6.2 | 29.2 | 13.7 | | 7.7 | 13.6 | | 7.8 | 13.4 | 4.1 |
| LOS | | D | A | C | B | | A | B | | A | B | A |
| Approach Delay | | 32.2 | | | 19.2 | | | 13.0 | | | 8.4 | |
| Approach LOS | | C | | | B | | | B | | | A | |
| Queue Length 50th (ft) | | 118 | 0 | 25 | 19 | | 14 | 121 | | 12 | 106 | 0 |
| Queue Length 95th (ft) | | 172 | 35 | 51 | 51 | | 40 | 212 | | 36 | 190 | 70 |
| Internal Link Dist (ft) | | 237 | | | 257 | | | 574 | | | 663 | |
| Turn Bay Length (ft) | | | 140 | 90 | | | 100 | | | 100 | | 160 |
| Base Capacity (vph) | | 535 | 706 | 349 | 723 | | 512 | 1980 | | 475 | 1985 | 1231 |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | | 0.42 | 0.15 | 0.15 | 0.13 | | 0.16 | 0.38 | | 0.15 | 0.34 | 0.64 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 88 (98%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 13.1

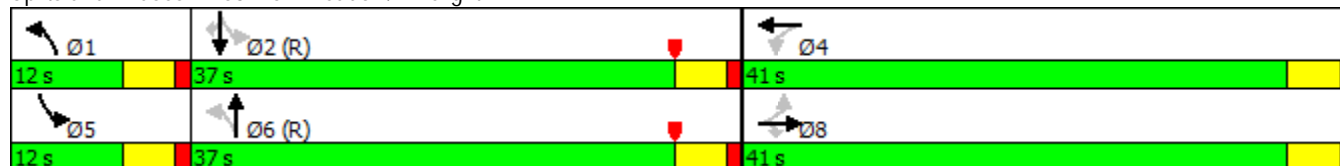
Intersection LOS: B





Intersection Capacity Utilization 65.2%








ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 63: Low Meadow/Limelight



| Intersection | | | | | | |
|--------------------------|--------|---|---|--------|---|---|
| Int Delay, s/veh | 1.2 | | | | | |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations | |  |  | |  |  |
| Traffic Vol, veh/h | 0 | 70 | 690 | 25 | 100 | 670 |
| Future Vol, veh/h | 0 | 70 | 690 | 25 | 100 | 670 |
| 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 | - | - | 100 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 76 | 750 | 27 | 109 | 728 |
| Major/Minor | Minor1 | Major1 | | Major2 | | |
| Conflicting Flow All | - | 389 | 0 | 0 | 777 | 0 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 610 | - | - | 835 | - |
| Stage 1 | 0 | - | - | - | - | - |
| Stage 2 | 0 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | - | 610 | - | - | 835 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Approach | WB | NB | | SB | | |
| HCM Control Delay, s | 11.7 | 0 | | 1.3 | | |
| HCM LOS | B | | | | | |
| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT | | |
| Capacity (veh/h) | - | - | 610 | 835 | - | |
| HCM Lane V/C Ratio | - | - | 0.125 | 0.13 | - | |
| HCM Control Delay (s) | - | - | 11.7 | 10 | - | |
| HCM Lane LOS | - | - | B | A | - | |
| HCM 95th %tile Q(veh) | - | - | 0.4 | 0.4 | - | |

| Intersection | | | | | | | | | | | | |
|--------------------------|---|---|------|------|---|------|---|---|------|---|---|------|
| Int Delay, s/veh | 1.5 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | |  |  | |  |  | |
| Traffic Vol, veh/h | 30 | 5 | 10 | 15 | 5 | 5 | 5 | 680 | 15 | 5 | 655 | 10 |
| Future Vol, veh/h | 30 | 5 | 10 | 15 | 5 | 5 | 5 | 680 | 15 | 5 | 655 | 10 |
| 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 | 0 | - | - | - | - | - | 100 | - | - | 100 | - | - |
| 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 | 33 | 5 | 11 | 16 | 5 | 5 | 5 | 739 | 16 | 5 | 712 | 11 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|------|--------|------|--------|------|--------|---|---|------|---|---|
| Conflicting Flow All | 1111 | 1494 | 361 | 1128 | 1492 | 378 | 723 | 0 | 0 | 755 | 0 | 0 |
| Stage 1 | 728 | 728 | - | 758 | 758 | - | - | - | - | - | - | - |
| Stage 2 | 383 | 766 | - | 370 | 734 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.54 | 6.94 | 7.54 | 6.54 | 6.94 | 4.14 | - | - | 4.14 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.54 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.54 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4.02 | 3.32 | 3.52 | 4.02 | 3.32 | 2.22 | - | - | 2.22 | - | - |
| Pot Cap-1 Maneuver | 164 | 122 | 636 | 159 | 122 | 620 | 875 | - | - | 851 | - | - |
| Stage 1 | 381 | 427 | - | 365 | 413 | - | - | - | - | - | - | - |
| Stage 2 | 611 | 410 | - | 622 | 424 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | 156 | 121 | 636 | 150 | 121 | 620 | 875 | - | - | 851 | - | - |
| Mov Cap-2 Maneuver | 156 | 121 | - | 150 | 121 | - | - | - | - | - | - | - |
| Stage 1 | 379 | 424 | - | 363 | 411 | - | - | - | - | - | - | - |
| Stage 2 | 594 | 408 | - | 600 | 422 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 29.3 | 30.7 | 0.1 | 0.1 |
| HCM LOS | D | D | | |







| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-------|-----|-----|
| Capacity (veh/h) | 875 | - | - | 156 | 263 | 167 | 851 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | - | 0.209 | 0.062 | 0.163 | 0.006 | - | - |
| HCM Control Delay (s) | 9.1 | - | - | 34.1 | 19.6 | 30.7 | 9.3 | - | - |
| HCM Lane LOS | A | - | - | D | C | D | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.8 | 0.2 | 0.6 | 0 | - | - |

Prairie Hawk/Morningbird
71: Morningbird

AM Peak Hour
12/01/2017

Intersection






Int Delay, s/veh 1.6

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|---|---|---|---|---|---|
| Lane Configurations |  |  |  |  |  |  |
| Traffic Vol, veh/h | 65 | 15 | 5 | 635 | 655 | 25 |
| Future Vol, veh/h | 65 | 15 | 5 | 635 | 655 | 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 | 0 | 0 | 100 | - | - | - |
| 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 | 16 | 5 | 690 | 712 | 27 |

| Major/Minor | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1082 | 370 | 739 |
| Stage 1 | 726 | - | - |
| Stage 2 | 356 | - | - |
| Critical Hdwy | 6.84 | 6.94 | 4.14 |
| Critical Hdwy Stg 1 | 5.84 | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | 2.22 |
| Pot Cap-1 Maneuver | 212 | 627 | 863 |
| Stage 1 | 440 | - | - |
| Stage 2 | 680 | - | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 211 | 627 | 863 |
| Mov Cap-2 Maneuver | 211 | - | - |
| Stage 1 | 440 | - | - |
| Stage 2 | 676 | - | - |





| Approach | EB | NB | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 26.7 | 0.1 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 863 | - | 211 | 627 | - | - |
| HCM Lane V/C Ratio | 0.006 | - | 0.335 | 0.026 | - | - |
| HCM Control Delay (s) | 9.2 | - | 30.4 | 10.9 | - | - |
| HCM Lane LOS | A | - | D | B | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 1.4 | 0.1 | - | - |

| Intersection | | | | | | |
|--------------------------|---|---|---|--------|---|---|
| Int Delay, s/veh | 0.7 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations |  |  |  | |  |  |
| Traffic Vol, veh/h | 15 | 750 | 385 | 25 | 30 | 10 |
| Future Vol, veh/h | 15 | 750 | 385 | 25 | 30 | 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 | 120 | - | - | - | 100 | 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 | 815 | 418 | 27 | 33 | 11 |
| | | | | | | |
| Major/Minor | Major1 | Major2 | | Minor2 | | |
| Conflicting Flow All | 446 | 0 | - | 0 | 872 | 223 |
| Stage 1 | - | - | - | - | 432 | - |
| Stage 2 | - | - | - | - | 440 | - |
| Critical Hdwy | 4.14 | - | - | - | 6.84 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 | - |
| Follow-up Hdwy | 2.22 | - | - | - | 3.52 | 3.32 |
| Pot Cap-1 Maneuver | 1111 | - | - | - | 290 | 780 |
| Stage 1 | - | - | - | - | 622 | - |
| Stage 2 | - | - | - | - | 616 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1111 | - | - | - | 286 | 780 |
| Mov Cap-2 Maneuver | - | - | - | - | 286 | - |
| Stage 1 | - | - | - | - | 622 | - |
| Stage 2 | - | - | - | - | 607 | - |
| | | | | | | |
| | | | | | | |
| Approach | EB | WB | | SB | | |
| HCM Control Delay, s | 0.2 | 0 | | 16.8 | | |
| HCM LOS | C | | | | | |
| | | | | | | |
| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
| Capacity (veh/h) | 1111 | - | - | - | 286 | 780 |
| HCM Lane V/C Ratio | 0.015 | - | - | - | 0.114 | 0.014 |
| HCM Control Delay (s) | 8.3 | - | - | - | 19.2 | 9.7 |
| HCM Lane LOS | A | - | - | - | C | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.4 | 0 |

Intersection

Int Delay, s/veh 0.3

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|---|---|---|------|------|---|
| Lane Configurations |  |  |  | | |  |
| Traffic Vol, veh/h | 15 | 535 | 605 | 75 | 0 | 15 |
| Future Vol, veh/h | 15 | 535 | 605 | 75 | 0 | 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 | 100 | - | - | - | - | 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 | 582 | 658 | 82 | 0 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 739 | 0 | 0 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | 4.14 | - | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | 2.22 | - | - |
| Pot Cap-1 Maneuver | 863 | - | 0 |
| Stage 1 | - | - | 0 |
| Stage 2 | - | - | 0 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 863 | - | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.3 | 0 | 10.9 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h) | 863 | - | - | - | 627 |
| HCM Lane V/C Ratio | 0.019 | - | - | - | 0.026 |
| HCM Control Delay (s) | 9.3 | - | - | - | 10.9 |
| HCM Lane LOS | A | - | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.1 |

Intersection

Int Delay, s/veh 0

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | | ↑ |
| Traffic Vol, veh/h | 0 | 535 | 675 | 15 | 0 | 5 |
| Future Vol, veh/h | 0 | 535 | 675 | 15 | 0 | 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 | 0 | 582 | 734 | 16 | 0 | 5 |
























| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | - | 0 | - 0 - 375 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - 0 623 |
| Stage 1 | 0 | - | - 0 - |
| Stage 2 | 0 | - | - 0 - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - - 623 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 10.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 623 |
| HCM Lane V/C Ratio | - | - | - | 0.009 |
| HCM Control Delay (s) | - | - | - | 10.8 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0 |

W/ Meadows Blvd./Low Meadow
51: Low Meadow/Freelark

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  | |  |  |  |  |  |
| Traffic Volume (vph) | 20 | 465 | 50 | 135 | 625 | 165 | 45 | 5 | 105 | 185 | 5 | 20 |
| Future Volume (vph) | 20 | 465 | 50 | 135 | 625 | 165 | 45 | 5 | 105 | 185 | 5 | 20 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 0 | 1783 | 1583 | 1770 | 1635 | 0 |
| Flt Permitted | 0.393 | | | 0.412 | | | | 0.726 | | 0.477 | | |
| Satd. Flow (perm) | 732 | 3539 | 1583 | 767 | 3539 | 1583 | 0 | 1352 | 1583 | 889 | 1635 | 0 |
| Satd. Flow (RTOR) | | | 176 | | | 167 | | | 182 | | 22 | |
| Lane Group Flow (vph) | 22 | 505 | 54 | 147 | 679 | 179 | 0 | 54 | 114 | 201 | 27 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | Perm | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | 8 | 4 | | |
| Total Split (s) | 10.0 | 37.0 | 37.0 | 15.0 | 42.0 | 42.0 | 25.0 | 25.0 | 25.0 | 13.0 | 38.0 | |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | | 5.5 | 5.5 | 4.0 | 5.5 | |
| Act Effect Green (s) | 54.4 | 46.4 | 46.4 | 60.6 | 54.6 | 54.6 | | 8.9 | 8.9 | 21.2 | 19.7 | |
| Actuated g/C Ratio | 0.60 | 0.52 | 0.52 | 0.67 | 0.61 | 0.61 | | 0.10 | 0.10 | 0.24 | 0.22 | |
| v/c Ratio | 0.04 | 0.28 | 0.06 | 0.24 | 0.32 | 0.17 | | 0.41 | 0.36 | 0.68 | 0.07 | |
| Control Delay | 6.9 | 14.4 | 0.1 | 2.5 | 3.2 | 0.5 | | 46.2 | 4.2 | 40.4 | 12.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 6.9 | 14.4 | 0.1 | 2.5 | 3.2 | 0.5 | | 46.2 | 4.2 | 40.4 | 12.4 | |
| LOS | A | B | A | A | A | A | | D | A | D | B | |
| Approach Delay | | 12.8 | | | 2.7 | | | 17.7 | | | 37.1 | |
| Approach LOS | | B | | | A | | | B | | | D | |
| Queue Length 50th (ft) | 4 | 85 | 0 | 5 | 16 | 0 | | 29 | 0 | 96 | 2 | |
| Queue Length 95th (ft) | 13 | 138 | 0 | 9 | 23 | 0 | | 64 | 11 | 151 | 21 | |
| Internal Link Dist (ft) | | 465 | | | 950 | | | 307 | | | 239 | |
| Turn Bay Length (ft) | 100 | | 100 | 150 | | 100 | | | 115 | 75 | | |
| Base Capacity (vph) | 515 | 1824 | 901 | 640 | 2147 | 1026 | | 292 | 485 | 297 | 604 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.04 | 0.28 | 0.06 | 0.23 | 0.32 | 0.17 | | 0.18 | 0.24 | 0.68 | 0.04 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 64 (71%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 10.8

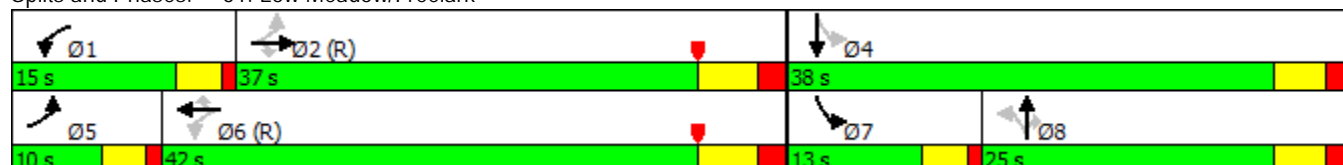
Intersection LOS: B

Intersection Capacity Utilization 51.3%

ICU Level of Service A





















Analysis Period (min) 15

Splits and Phases: 51: Low Meadow/Freelark



W. Meadows Blvd./Elegant
48: Elegant

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  | |  | |  |  | |
| Traffic Volume (vph) | 35 | 715 | 5 | 15 | 895 | 145 | 5 | 5 | 10 | 175 | 5 | 25 |
| Future Volume (vph) | 35 | 715 | 5 | 15 | 895 | 145 | 5 | 5 | 10 | 175 | 5 | 25 |
| Satd. Flow (prot) | 1770 | 3536 | 0 | 1770 | 3539 | 1583 | 0 | 1710 | 0 | 1770 | 1626 | 0 |
| Flt Permitted | 0.232 | | | 0.342 | | | | 0.908 | | 0.599 | | |
| Satd. Flow (perm) | 432 | 3536 | 0 | 637 | 3539 | 1583 | 0 | 1571 | 0 | 1116 | 1626 | 0 |
| Satd. Flow (RTOR) | | 1 | | | | 139 | | 11 | | | 27 | |
| Lane Group Flow (vph) | 38 | 782 | 0 | 16 | 973 | 158 | 0 | 21 | 0 | 190 | 32 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | Perm | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 12.0 | 41.0 | | 12.0 | 41.0 | 41.0 | 22.0 | 22.0 | | 15.0 | 37.0 | |
| Total Lost Time (s) | 4.0 | 5.5 | | 4.0 | 5.5 | 5.5 | | 5.5 | | 5.0 | 4.5 | |
| Act Effect Green (s) | 65.3 | 62.4 | | 63.3 | 58.2 | 58.2 | | 6.4 | | 15.0 | 15.5 | |
| Actuated g/C Ratio | 0.73 | 0.69 | | 0.70 | 0.65 | 0.65 | | 0.07 | | 0.17 | 0.17 | |
| v/c Ratio | 0.09 | 0.32 | | 0.03 | 0.43 | 0.15 | | 0.17 | | 0.74 | 0.11 | |
| Control Delay | 4.0 | 5.6 | | 5.3 | 10.6 | 3.2 | | 29.4 | | 50.9 | 12.6 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 4.0 | 5.6 | | 5.3 | 10.6 | 3.2 | | 29.4 | | 50.9 | 12.6 | |
| LOS | A | A | | A | B | A | | C | | D | B | |
| Approach Delay | | 5.5 | | | 9.5 | | | 29.4 | | | 45.4 | |
| Approach LOS | | A | | | A | | | C | | | D | |
| Queue Length 50th (ft) | 3 | 37 | | 1 | 119 | 3 | | 5 | | 109 | 3 | |
| Queue Length 95th (ft) | m11 | 151 | | 10 | 250 | 36 | | 28 | | 152 | 24 | |
| Internal Link Dist (ft) | | 950 | | | 321 | | | 181 | | | 163 | |
| Turn Bay Length (ft) | 100 | | | 100 | | 115 | | | | 75 | | |
| Base Capacity (vph) | 433 | 2451 | | 557 | 2286 | 1072 | | 297 | | 260 | 604 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.09 | 0.32 | | 0.03 | 0.43 | 0.15 | | 0.07 | | 0.73 | 0.05 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 54 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 11.8

Intersection LOS: B

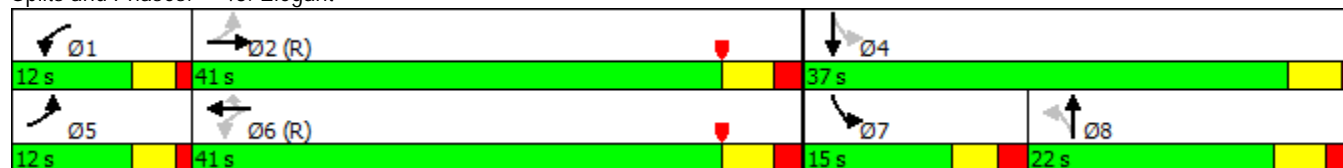
Intersection Capacity Utilization 53.8%







ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 48: Elegant



| Intersection | | | | | | | | | | | | |
|--------------------------|---|---|------|---|---|------|------|------|---|------|------|---|
| Int Delay, s/veh | 0.3 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | | | |  | | |  |
| Traffic Vol, veh/h | 5 | 890 | 5 | 25 | 1050 | 35 | 0 | 0 | 15 | 0 | 0 | 5 |
| Future Vol, veh/h | 5 | 890 | 5 | 25 | 1050 | 35 | 0 | 0 | 15 | 0 | 0 | 5 |
| 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 | 100 | - | - | 100 | - | - | - | - | 0 | - | - | 0 |
| 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 | 5 | 967 | 5 | 27 | 1141 | 38 | 0 | 0 | 16 | 0 | 0 | 5 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|---|------|--------|---|------|
| Conflicting Flow All | 1179 | 0 | 0 | 973 | 0 | 0 | - | - | 486 | - | - | 590 |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | - | - | 6.94 | - | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | - | - | 3.32 | - | - | 3.32 |
| Pot Cap-1 Maneuver | 588 | - | - | 704 | - | - | 0 | 0 | 527 | 0 | 0 | 451 |
| Stage 1 | - | - | - | - | - | - | 0 | 0 | - | 0 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 0 | 0 | - | 0 | 0 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 588 | - | - | 704 | - | - | - | - | 527 | - | - | 451 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|-----|-----|----|------|
| HCM Control Delay, s | 0.1 | 0.2 | 12 | 13.1 |
| HCM LOS | | | B | B |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|-------|
| Capacity (veh/h) | 527 | 588 | - | - | 704 | - | - | 451 |
| HCM Lane V/C Ratio | 0.031 | 0.009 | - | - | 0.039 | - | - | 0.012 |
| HCM Control Delay (s) | 12 | 11.2 | - | - | 10.3 | - | - | 13.1 |
| HCM Lane LOS | B | B | - | - | B | - | - | B |
| HCM 95th %tile Q(veh) | 0.1 | 0 | - | - | 0.1 | - | - | 0 |

Intersection

Int Delay, s/veh 0.1

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | ↑ | | ↑ |
| Traffic Vol, veh/h | 0 | 905 | 1090 | 75 | 0 | 20 |
| Future Vol, veh/h | 0 | 905 | 1090 | 75 | 0 | 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 | - | - | - | 115 | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 984 | 1185 | 82 | 0 | 22 |























| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | - | 0 | - 0 - 592 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - 0 449 |
| Stage 1 | 0 | - | - 0 - |
| Stage 2 | 0 | - | - 0 - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - - 449 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 13.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 449 |
| HCM Lane V/C Ratio | - | - | - | 0.048 |
| HCM Control Delay (s) | - | - | - | 13.4 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.2 |

W. Meadows Blvd./Red Hawk
40: Red Hask/Future

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  | |  |  | |
| Traffic Volume (vph) | 40 | 815 | 50 | 240 | 1100 | 55 | 50 | 25 | 200 | 115 | 20 | 15 |
| Future Volume (vph) | 40 | 815 | 50 | 240 | 1100 | 55 | 50 | 25 | 200 | 115 | 20 | 15 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 1770 | 1615 | 0 | 1770 | 1745 | 0 |
| Flt Permitted | 0.189 | | | 0.239 | | | 0.732 | | | 0.288 | | |
| Satd. Flow (perm) | 352 | 3539 | 1583 | 445 | 3539 | 1583 | 1364 | 1615 | 0 | 536 | 1745 | 0 |
| Satd. Flow (RTOR) | | | 177 | | | 141 | | 217 | | | 16 | |
| Lane Group Flow (vph) | 43 | 886 | 54 | 261 | 1196 | 60 | 54 | 244 | 0 | 125 | 38 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 16.0 | 55.0 | 55.0 | 23.0 | 62.0 | 62.0 | 12.0 | 25.0 | | 17.0 | 30.0 | |
| Total Lost Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.5 | 5.5 | | 4.5 | 5.5 | |
| Act Effect Green (s) | 74.8 | 66.4 | 66.4 | 85.0 | 74.5 | 74.5 | 19.3 | 9.4 | | 24.3 | 15.1 | |
| Actuated g/C Ratio | 0.62 | 0.55 | 0.55 | 0.71 | 0.62 | 0.62 | 0.16 | 0.08 | | 0.20 | 0.13 | |
| v/c Ratio | 0.15 | 0.45 | 0.06 | 0.57 | 0.54 | 0.06 | 0.21 | 0.75 | | 0.55 | 0.16 | |
| Control Delay | 8.5 | 18.6 | 0.1 | 17.9 | 9.0 | 0.1 | 37.6 | 24.2 | | 48.7 | 31.3 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 8.5 | 18.6 | 0.1 | 17.9 | 9.0 | 0.1 | 37.6 | 24.2 | | 48.7 | 31.3 | |
| LOS | A | B | A | B | A | A | D | C | | D | C | |
| Approach Delay | | 17.2 | | | 10.2 | | | 26.6 | | | 44.6 | |
| Approach LOS | | B | | | B | | | C | | | D | |
| Queue Length 50th (ft) | 9 | 197 | 0 | 45 | 136 | 0 | 34 | 20 | | 83 | 16 | |
| Queue Length 95th (ft) | 25 | 335 | 0 | 148 | 175 | m1 | 63 | 100 | | 126 | 46 | |
| Internal Link Dist (ft) | | 316 | | | 208 | | | 329 | | | 163 | |
| Turn Bay Length (ft) | 100 | | 115 | 125 | | 120 | 150 | | | 50 | | |
| Base Capacity (vph) | 377 | 1957 | 954 | 524 | 2195 | 1035 | 259 | 444 | | 237 | 369 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.11 | 0.45 | 0.06 | 0.50 | 0.54 | 0.06 | 0.21 | 0.55 | | 0.53 | 0.10 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 10 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 16.1

Intersection LOS: B

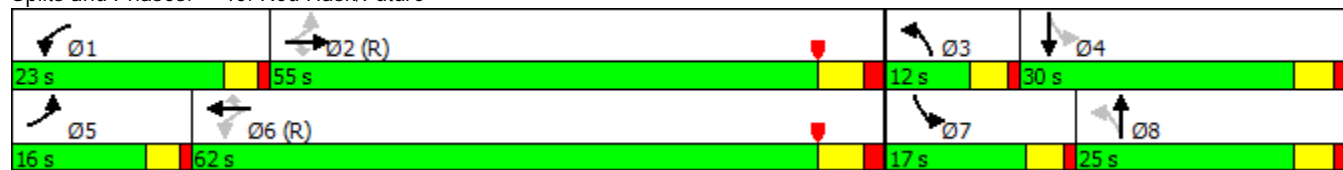
Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 40: Red Hask/Future



Intersection

Int Delay, s/veh 0.1

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | ↑ | | ↑ |
| Traffic Vol, veh/h | 0 | 1130 | 1380 | 80 | 0 | 15 |
| Future Vol, veh/h | 0 | 1130 | 1380 | 80 | 0 | 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 | - | - | - | 100 | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1228 | 1500 | 87 | 0 | 16 |

























| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|-----------|
| Conflicting Flow All | - | 0 | - 0 - 750 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - - 0 354 |
| Stage 1 | 0 | - | - - 0 - |
| Stage 2 | 0 | - | - - 0 - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | - | - | - - 354 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-------|
| Capacity (veh/h) | - | - | - | 354 |
| HCM Lane V/C Ratio | - | - | - | 0.046 |
| HCM Control Delay (s) | - | - | - | 15.7 |
| HCM Lane LOS | - | - | - | C |
| HCM 95th %tile Q(veh) | - | - | - | 0.1 |

Meadows Blvd./Meadows Pkwy./Prairie Hawk
1: P.H. & M.B. & M.P.

PM Peak Hour
12/01/2017

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 225 | 740 | 165 | 440 | 980 | 575 | 200 | 310 | 300 | 535 | 360 | 280 |
| Future Volume (vph) | 225 | 740 | 165 | 440 | 980 | 575 | 200 | 310 | 300 | 535 | 360 | 280 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Flt Permitted | 0.158 | | | 0.209 | | | 0.521 | | | 0.324 | | |
| Satd. Flow (perm) | 571 | 3539 | 1583 | 755 | 3539 | 1583 | 1883 | 3539 | 1583 | 1171 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 195 | | | 250 | | | 232 | | | 207 |
| Lane Group Flow (vph) | 245 | 804 | 179 | 478 | 1065 | 625 | 217 | 337 | 326 | 582 | 391 | 304 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Free | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | Free | 8 | | 8 | 4 | | 4 |
| Total Split (s) | 13.0 | 45.0 | 45.0 | 21.0 | 53.0 | | 12.0 | 30.0 | 30.0 | 24.0 | 42.0 | 42.0 |
| Total Lost Time (s) | 4.5 | 6.0 | 6.0 | 4.5 | 6.0 | | 4.5 | 6.5 | 6.5 | 4.5 | 6.5 | 6.5 |
| Act Effect Green (s) | 58.0 | 47.6 | 47.6 | 66.9 | 52.5 | 120.0 | 27.4 | 17.9 | 17.9 | 43.6 | 29.6 | 29.6 |
| Actuated g/C Ratio | 0.48 | 0.40 | 0.40 | 0.56 | 0.44 | 1.00 | 0.23 | 0.15 | 0.15 | 0.36 | 0.25 | 0.25 |
| v/c Ratio | 0.50 | 0.57 | 0.24 | 0.66 | 0.69 | 0.39 | 0.41 | 0.64 | 0.75 | 0.74 | 0.45 | 0.56 |
| Control Delay | 16.5 | 21.7 | 3.8 | 29.4 | 36.0 | 0.2 | 28.9 | 53.2 | 25.8 | 29.7 | 33.5 | 10.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 16.5 | 21.7 | 3.8 | 29.4 | 36.0 | 0.2 | 28.9 | 53.2 | 25.8 | 29.7 | 33.5 | 10.6 |
| LOS | B | C | A | C | D | A | C | D | C | C | C | B |
| Approach Delay | | 18.0 | | | 24.2 | | | 37.1 | | | 26.3 | |
| Approach LOS | | B | | | C | | | D | | | C | |
| Queue Length 50th (ft) | 21 | 266 | 28 | 128 | 285 | 0 | 58 | 131 | 67 | 115 | 125 | 29 |
| Queue Length 95th (ft) | 47 | 370 | 56 | m130 | m285 | m0 | 79 | 171 | 168 | 131 | 126 | 59 |
| Internal Link Dist (ft) | | 369 | | | 730 | | | 462 | | | 371 | |
| Turn Bay Length (ft) | 155 | | 110 | 230 | | 150 | 180 | | 100 | 290 | | 155 |
| Base Capacity (vph) | 494 | 1403 | 745 | 792 | 1548 | 1583 | 526 | 693 | 496 | 793 | 1046 | 614 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.50 | 0.57 | 0.24 | 0.60 | 0.69 | 0.39 | 0.41 | 0.49 | 0.66 | 0.73 | 0.37 | 0.50 |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 25.4

Intersection LOS: C

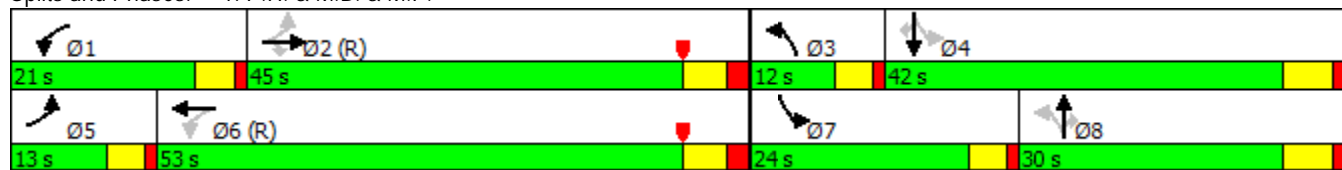
Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

























m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: P.H. & M.B. & M.P.



W. Meadows Blvd./Limelight
2: Limelight & M.P.

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  |  |  |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 30 | 1470 | 75 | 235 | 1860 | 65 | 60 | 5 | 235 | 270 | 10 | 75 |
| Future Volume (vph) | 30 | 1470 | 75 | 235 | 1860 | 65 | 60 | 5 | 235 | 270 | 10 | 75 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 1589 | 0 | 3433 | 1617 | 0 |
| Flt Permitted | 0.073 | | | 0.065 | | | 0.697 | | | 0.444 | | |
| Satd. Flow (perm) | 136 | 3539 | 1583 | 121 | 3539 | 1583 | 2519 | 1589 | 0 | 1604 | 1617 | 0 |
| Satd. Flow (RTOR) | | | 100 | | | 100 | | 146 | | | 82 | |
| Lane Group Flow (vph) | 33 | 1598 | 82 | 255 | 2022 | 71 | 65 | 260 | 0 | 293 | 93 | 0 |
| Turn Type | pm+pt | NA | Perm | pm+pt | NA | Perm | Perm | NA | | Perm | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | | 8 | | | 4 | |
| Permitted Phases | 2 | | 2 | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 15.0 | 61.0 | 61.0 | 21.0 | 67.0 | 67.0 | 38.0 | 38.0 | | 38.0 | 38.0 | |
| Total Lost Time (s) | 7.0 | 6.0 | 6.0 | 7.0 | 6.0 | 6.0 | 7.0 | 7.0 | | 7.0 | 7.0 | |
| Act Effect Green (s) | 60.4 | 55.0 | 55.0 | 74.9 | 67.7 | 67.7 | 31.0 | 31.0 | | 31.0 | 31.0 | |
| Actuated g/C Ratio | 0.50 | 0.46 | 0.46 | 0.62 | 0.56 | 0.56 | 0.26 | 0.26 | | 0.26 | 0.26 | |
| v/c Ratio | 0.21 | 0.99 | 0.11 | 0.95 | 1.01 | 0.08 | 0.10 | 0.50 | | 0.71 | 0.19 | |
| Control Delay | 13.7 | 46.7 | 6.2 | 59.8 | 50.5 | 6.6 | 34.5 | 19.8 | | 51.0 | 10.4 | |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 13.7 | 46.7 | 6.2 | 59.8 | 50.5 | 6.6 | 34.5 | 19.8 | | 51.0 | 10.4 | |
| LOS | B | D | A | E | D | A | C | B | | D | B | |
| Approach Delay | | 44.2 | | | 50.2 | | | 22.8 | | | 41.3 | |
| Approach LOS | | D | | | D | | | C | | | D | |
| Queue Length 50th (ft) | 7 | 411 | 5 | 178 | -918 | 2 | 19 | 71 | | 106 | 6 | |
| Queue Length 95th (ft) | m19 | #790 | m23 | m#217 | m#1048 | m11 | 38 | 156 | | 159 | 49 | |
| Internal Link Dist (ft) | | 730 | | | 1326 | | | 566 | | | 560 | |
| Turn Bay Length (ft) | 200 | | | 200 | | 300 | 125 | | | 200 | | |
| Base Capacity (vph) | 179 | 1622 | 779 | 268 | 1996 | 936 | 650 | 518 | | 414 | 478 | |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.18 | 0.99 | 0.11 | 0.95 | 1.01 | 0.08 | 0.10 | 0.50 | | 0.71 | 0.19 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 107 (89%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 45.4

Intersection LOS: D

Intersection Capacity Utilization 99.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Limelight & M.P.



Intersection

Int Delay, s/veh 0.6

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | | ↑ |
| Traffic Vol, veh/h | 0 | 1975 | 2090 | 20 | 0 | 70 |
| Future Vol, veh/h | 0 | 1975 | 2090 | 20 | 0 | 70 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 2147 | 2272 | 22 | 0 | 76 |






















| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|------------|
| Conflicting Flow All | - | 0 | - 0 - 1136 |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |
| Critical Hdwy | - | - | - - 6.94 |
| Critical Hdwy Stg 1 | - | - | - - - |
| Critical Hdwy Stg 2 | - | - | - - - |
| Follow-up Hdwy | - | - | - - 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - 0 0 196 |
| Stage 1 | 0 | - | - 0 0 - |
| Stage 2 | 0 | - | - 0 0 - |
| Platoon blocked, % | - | - | |
| Mov Cap-1 Maneuver | - | - | - - 196 |
| Mov Cap-2 Maneuver | - | - | - - - |
| Stage 1 | - | - | - - - |
| Stage 2 | - | - | - - - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 34.6 |
| HCM LOS | | | D |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 196 |
| HCM Lane V/C Ratio | - | - | 0.388 |
| HCM Control Delay (s) | - | - | 34.6 |
| HCM Lane LOS | - | - | D |
| HCM 95th %tile Q(veh) | - | - | 1.7 |

W. Meadows Blvd./Lombard
8: Office Access/Filing 17 & M.P.

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  |  |  |  | |  |  | |
| Traffic Volume (vph) | 75 | 1880 | 20 | 25 | 1985 | 75 | 95 | 5 | 115 | 120 | 5 | 30 |
| Future Volume (vph) | 75 | 1880 | 20 | 25 | 1985 | 75 | 95 | 5 | 115 | 120 | 5 | 30 |
| Satd. Flow (prot) | 1770 | 3532 | 0 | 1770 | 3539 | 1583 | 1770 | 1595 | 0 | 1770 | 1621 | 0 |
| Flt Permitted | 0.051 | | | 0.053 | | | 0.512 | | | 0.615 | | |
| Satd. Flow (perm) | 95 | 3532 | 0 | 99 | 3539 | 1583 | 954 | 1595 | 0 | 1146 | 1621 | 0 |
| Satd. Flow (RTOR) | | 1 | | | | 95 | | 125 | | | 33 | |
| Lane Group Flow (vph) | 82 | 2065 | 0 | 27 | 2158 | 82 | 103 | 130 | 0 | 130 | 38 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 5 | 2 | | 1 | 6 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | 2 | | | 6 | | 6 | 8 | | | 4 | | |
| Total Split (s) | 12.0 | 71.0 | | 12.0 | 71.0 | 71.0 | 14.0 | 21.0 | | 16.0 | 23.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | |
| Act Effect Green (s) | 86.6 | 81.5 | | 83.1 | 78.1 | 78.1 | 19.1 | 7.5 | | 17.5 | 8.7 | |
| Actuated g/C Ratio | 0.72 | 0.68 | | 0.69 | 0.65 | 0.65 | 0.16 | 0.06 | | 0.15 | 0.07 | |
| v/c Ratio | 0.48 | 0.86 | | 0.18 | 0.94 | 0.08 | 0.42 | 0.60 | | 0.58 | 0.26 | |
| Control Delay | 28.6 | 10.7 | | 7.4 | 22.2 | 0.3 | 46.5 | 22.0 | | 54.6 | 23.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 28.6 | 10.7 | | 7.4 | 22.2 | 0.3 | 46.5 | 22.0 | | 54.6 | 23.3 | |
| LOS | C | B | | A | C | A | D | C | | D | C | |
| Approach Delay | | 11.4 | | | 21.2 | | | 32.8 | | | 47.5 | |
| Approach LOS | | B | | | C | | | C | | | D | |
| Queue Length 50th (ft) | 30 | 202 | | 3 | 336 | 0 | 70 | 4 | | 90 | 4 | |
| Queue Length 95th (ft) | m42 | m#235 | | m8 | #1110 | m1 | 116 | 64 | | 142 | 37 | |
| Internal Link Dist (ft) | | 200 | | | 1007 | | | 565 | | | 580 | |
| Turn Bay Length (ft) | 165 | | | 215 | | 215 | 100 | | | 125 | | |
| Base Capacity (vph) | 182 | 2400 | | 173 | 2304 | 1063 | 245 | 327 | | 231 | 277 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.45 | 0.86 | | 0.16 | 0.94 | 0.08 | 0.42 | 0.40 | | 0.56 | 0.14 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 12 (10%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 18.3

Intersection LOS: B

Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: Office Access/Filing 17 & M.P.



| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  | |  |  |  |  |  |  |  |  |
| Traffic Volume (vph) | 10 | 145 | 10 | 205 | 140 | 355 | 5 | 655 | 250 | 140 | 515 | 5 |
| Future Volume (vph) | 10 | 145 | 10 | 205 | 140 | 355 | 5 | 655 | 250 | 140 | 515 | 5 |
| Satd. Flow (prot) | 0 | 1857 | 1583 | 0 | 1809 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 |
| Flt Permitted | | 0.997 | | | 0.971 | | 0.442 | | | 0.198 | | |
| Satd. Flow (perm) | 0 | 1857 | 1583 | 0 | 1809 | 1583 | 823 | 3539 | 1583 | 716 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 200 | | | 386 | | | 194 | | | 145 |
| Lane Group Flow (vph) | 0 | 169 | 11 | 0 | 375 | 386 | 5 | 712 | 272 | 152 | 560 | 5 |
| Turn Type | Split | NA | Perm | Split | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | Perm |
| Protected Phases | 8 | 8 | | 4 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | 8 | | | 4 | 6 | | 6 | 2 | | 2 |
| Total Split (s) | 18.0 | 18.0 | 18.0 | 31.0 | 31.0 | 31.0 | 12.0 | 20.0 | 20.0 | 21.0 | 29.0 | 29.0 |
| Total Lost Time (s) | | 5.5 | 5.5 | | 5.5 | 5.5 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Act Effect Green (s) | | 11.6 | 11.6 | | 22.9 | 22.9 | 34.4 | 26.7 | 26.7 | 40.4 | 36.5 | 36.5 |
| Actuated g/C Ratio | | 0.13 | 0.13 | | 0.25 | 0.25 | 0.38 | 0.30 | 0.30 | 0.45 | 0.41 | 0.41 |
| v/c Ratio | | 0.71 | 0.03 | | 0.82 | 0.56 | 0.01 | 0.68 | 0.45 | 0.27 | 0.39 | 0.01 |
| Control Delay | | 54.3 | 0.1 | | 46.4 | 6.3 | 3.8 | 10.2 | 3.0 | 16.8 | 21.7 | 0.0 |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | | 54.3 | 0.1 | | 46.4 | 6.3 | 3.8 | 10.2 | 3.0 | 16.8 | 21.7 | 0.0 |
| LOS | | D | A | | D | A | A | B | A | B | C | A |
| Approach Delay | | 51.0 | | | 26.0 | | | 8.2 | | | 20.5 | |
| Approach LOS | | D | | | C | | | A | | | C | |
| Queue Length 50th (ft) | | 92 | 0 | | 193 | 0 | 0 | 64 | 0 | 26 | 119 | 0 |
| Queue Length 95th (ft) | | #173 | 0 | | #299 | 65 | m1 | #278 | m15 | 45 | 196 | 0 |
| Internal Link Dist (ft) | | 298 | | | 352 | | | 730 | | | 568 | |
| Turn Bay Length (ft) | | | 75 | | | 160 | 115 | | 115 | 345 | | 115 |
| Base Capacity (vph) | | 258 | 393 | | 512 | 725 | 419 | 1048 | 605 | 835 | 1435 | 728 |
| Starvation Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | | 0.66 | 0.03 | | 0.73 | 0.53 | 0.01 | 0.68 | 0.45 | 0.18 | 0.39 | 0.01 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 28 (31%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 19.6

Intersection LOS: B

Intersection Capacity Utilization 66.7%

ICU Level of Service C

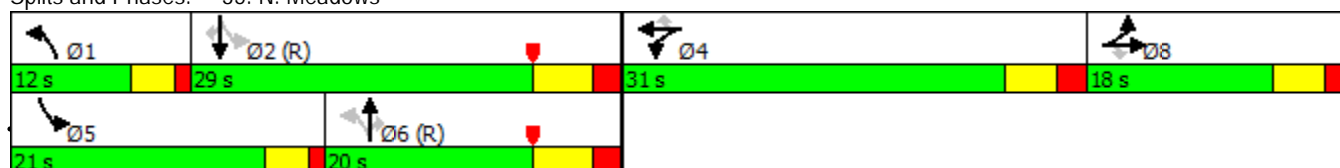
Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 35: N. Meadows



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.2 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | ↗ | | | ↗ | ↗ | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 0 | 0 | 15 | 0 | 0 | 5 | 15 | 900 | 5 | 0 | 715 | 10 |
| Future Vol, veh/h | 0 | 0 | 15 | 0 | 0 | 5 | 15 | 900 | 5 | 0 | 715 | 10 |
| 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 | - | - | 0 | - | - | 0 | 130 | - | - | - | - | - |
| 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 | 16 | 0 | 0 | 5 | 16 | 978 | 5 | 0 | 777 | 11 |























| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 394 | - | - | 492 | 788 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 605 | 0 | 0 | 522 | 827 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | 0 |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | 0 |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 605 | - | - | 522 | 827 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|----|-----|----|
| HCM Control Delay, s | 11.1 | 12 | 0.2 | 0 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBT | SBR |
|-----------------------|------|-----|-----|------------|------|-----|
| Capacity (veh/h) | 827 | - | - | 605 | 522 | - |
| HCM Lane V/C Ratio | 0.02 | - | - | 0.027 | 0.01 | - |
| HCM Control Delay (s) | 9.4 | - | - | 11.1 | 12 | - |
| HCM Lane LOS | A | - | - | B | B | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.1 | 0 | - |

N. Meadows Blvd./Fell Mist
29: Fell Mist

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 5 | 5 | 10 | 115 | 5 | 105 | 20 | 810 | 100 | 55 | 660 | 10 |
| Future Volume (vph) | 5 | 5 | 10 | 115 | 5 | 105 | 20 | 810 | 100 | 55 | 660 | 10 |
| Satd. Flow (prot) | 1770 | 1671 | 0 | 1770 | 1595 | 0 | 1770 | 3539 | 1583 | 1770 | 3532 | 0 |
| Flt Permitted | | | | 0.563 | | | 0.375 | | | 0.139 | | |
| Satd. Flow (perm) | 1863 | 1671 | 0 | 1049 | 1595 | 0 | 699 | 3539 | 1583 | 259 | 3532 | 0 |
| Satd. Flow (RTOR) | | 11 | | | 114 | | | | 176 | | 2 | |
| Lane Group Flow (vph) | 5 | 16 | 0 | 125 | 119 | 0 | 22 | 880 | 109 | 60 | 728 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | 3 | 8 | | 7 | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | | 4 | | | 6 | | 6 | 2 | | |
| Total Split (s) | 12.0 | 21.0 | | 12.0 | 21.0 | | 12.0 | 34.0 | 34.0 | 23.0 | 45.0 | |
| Total Lost Time (s) | 4.0 | 5.5 | | 4.0 | 5.5 | | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | |
| Act Effect Green (s) | 9.5 | 6.5 | | 12.7 | 9.6 | | 35.9 | 28.0 | 28.0 | 68.9 | 62.7 | |
| Actuated g/C Ratio | 0.11 | 0.07 | | 0.14 | 0.11 | | 0.40 | 0.31 | 0.31 | 0.77 | 0.70 | |
| v/c Ratio | 0.03 | 0.12 | | 0.60 | 0.44 | | 0.06 | 0.80 | 0.18 | 0.08 | 0.30 | |
| Control Delay | 28.2 | 25.7 | | 45.3 | 13.2 | | 5.1 | 23.3 | 2.0 | 8.1 | 14.4 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 28.2 | 25.7 | | 45.3 | 13.2 | | 5.1 | 23.3 | 2.0 | 8.1 | 14.4 | |
| LOS | C | C | | D | B | | A | C | A | A | B | |
| Approach Delay | | 26.3 | | | 29.7 | | | 20.6 | | | 13.9 | |
| Approach LOS | | C | | | C | | | C | | | B | |
| Queue Length 50th (ft) | 3 | 3 | | 71 | 3 | | 4 | 242 | 9 | 17 | 136 | |
| Queue Length 95th (ft) | 11 | 22 | | 105 | 51 | | m4 | 318 | 12 | m42 | 248 | |
| Internal Link Dist (ft) | | 361 | | | 343 | | | 689 | | | 379 | |
| Turn Bay Length (ft) | 70 | | | 125 | | | 135 | | 215 | 125 | | |
| Base Capacity (vph) | 234 | 296 | | 214 | 378 | | 390 | 1101 | 613 | 783 | 2463 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.02 | 0.05 | | 0.58 | 0.31 | | 0.06 | 0.80 | 0.18 | 0.08 | 0.30 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 8 (9%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 19.2

Intersection LOS: B

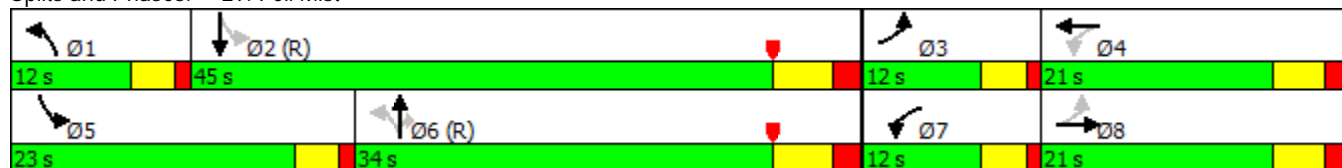
Intersection Capacity Utilization 52.5%






















ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 29: Fell Mist



| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  |  |  | | |  |  |  |  |  |
| Traffic Volume (vph) | 10 | 10 | 25 | 325 | 20 | 155 | 0 | 765 | 225 | 75 | 695 | 15 |
| Future Volume (vph) | 10 | 10 | 25 | 325 | 20 | 155 | 0 | 765 | 225 | 75 | 695 | 15 |
| Satd. Flow (prot) | 0 | 1818 | 1583 | 1770 | 1615 | 0 | 0 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | | 0.874 | | 0.743 | | | | | | 0.240 | | |
| Satd. Flow (perm) | 0 | 1628 | 1583 | 1384 | 1615 | 0 | 0 | 3539 | 1583 | 447 | 3529 | 0 |
| Satd. Flow (RTOR) | | | 73 | | 168 | | | | 200 | | 4 | |
| Lane Group Flow (vph) | 0 | 22 | 27 | 353 | 190 | 0 | 0 | 832 | 245 | 82 | 771 | 0 |
| Turn Type | Perm | NA | Perm | Perm | NA | | | NA | Perm | pm+pt | NA | |
| Protected Phases | | 8 | | | 4 | | | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | | | | | 6 | 2 | | |
| Total Split (s) | 31.0 | 31.0 | 31.0 | 31.0 | 31.0 | | | 34.0 | 34.0 | 25.0 | 59.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | | 4.5 | 4.5 | 4.5 | 4.5 | |
| Act Effect Green (s) | | 25.2 | 25.2 | 25.2 | 25.2 | | | 46.1 | 46.1 | 55.8 | 55.8 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.28 | 0.28 | | | 0.51 | 0.51 | 0.62 | 0.62 | |
| v/c Ratio | | 0.05 | 0.05 | 0.91 | 0.33 | | | 0.46 | 0.27 | 0.21 | 0.35 | |
| Control Delay | | 23.2 | 0.2 | 60.5 | 7.2 | | | 16.3 | 4.4 | 2.8 | 2.7 | |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | | 23.2 | 0.2 | 60.5 | 7.2 | | | 16.3 | 4.4 | 2.8 | 2.7 | |
| LOS | | C | A | E | A | | | B | A | A | A | |
| Approach Delay | | 10.5 | | | 41.8 | | | 13.6 | | | 2.7 | |
| Approach LOS | | B | | | D | | | B | | | A | |
| Queue Length 50th (ft) | | 9 | 0 | 189 | 9 | | | 164 | 13 | 6 | 38 | |
| Queue Length 95th (ft) | | 27 | 0 | #346 | 57 | | | 224 | 56 | m7 | 28 | |
| Internal Link Dist (ft) | | 334 | | | 311 | | | 632 | | | 689 | |
| Turn Bay Length (ft) | | | 75 | 250 | | | | | 125 | 130 | | |
| Base Capacity (vph) | | 479 | 517 | 407 | 594 | | | 1812 | 908 | 578 | 2187 | |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | | 0.05 | 0.05 | 0.87 | 0.32 | | | 0.46 | 0.27 | 0.14 | 0.35 | |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBT, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 15.9

Intersection LOS: B

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15







95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Elegant/Sabercat



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|---|------|------|---|---|---|------|---|---|------|
| Int Delay, s/veh | 0.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  |  |  | |  |  | |
| Traffic Vol, veh/h | 0 | 0 | 30 | 0 | 0 | 15 | 95 | 975 | 15 | 10 | 1120 | 15 |
| Future Vol, veh/h | 0 | 0 | 30 | 0 | 0 | 15 | 95 | 975 | 15 | 10 | 1120 | 15 |
| 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 | - | - | 0 | - | - | 0 | 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 | 0 | 0 | 33 | 0 | 0 | 16 | 103 | 1060 | 16 | 11 | 1217 | 16 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 617 | - | - | 538 | 1234 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 433 | 0 | 0 | 488 | 560 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 433 | - | - | 488 | 560 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|----|------|-----|-----|
| HCM Control Delay, s | 14 | 12.6 | 1.1 | 0.1 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h) | 560 | - | - | 433 | 488 | 644 | - |
| HCM Lane V/C Ratio | 0.184 | - | - | 0.075 | 0.033 | 0.017 | - |
| HCM Control Delay (s) | 12.9 | - | - | 14 | 12.6 | 10.7 | - |
| HCM Lane LOS | B | - | - | B | B | B | - |
| HCM 95th %tile Q(veh) | 0.7 | - | - | 0.2 | 0.1 | 0.1 | - |

Intersection

Int Delay, s/veh 0.3

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↗ | | ↑↑ | ↑↑ | |
| Traffic Vol, veh/h | 0 | 55 | 0 | 1085 | 1035 | 15 |
| Future Vol, veh/h | 0 | 55 | 0 | 1085 | 1035 | 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 | 0 | 60 | 0 | 1179 | 1125 | 16 |

| Major/Minor | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - | 571 | 0 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | - | 6.94 | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | - | 3.32 | - |
| Pot Cap-1 Maneuver | 0 | 464 | 0 |
| Stage 1 | 0 | - | 0 |
| Stage 2 | 0 | - | 0 |
| Platoon blocked, % | | | - |
| Mov Cap-1 Maneuver | - | 464 | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | EB | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 13.9 | 0 | 0 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT EBLn1 | SBT | SBR |
|-----------------------|-----------|-------|-----|
| Capacity (veh/h) | - | 464 | - |
| HCM Lane V/C Ratio | - | 0.129 | - |
| HCM Control Delay (s) | - | 13.9 | - |
| HCM Lane LOS | - | B | - |
| HCM 95th %tile Q(veh) | - | 0.4 | - |

N. Meadows Blvd./Future
18: Future

PM Peak Hour
02/08/2018

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|------|-----|------|-------|------|-------|------|------|-------|------|-----|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 45 | 10 | 80 | 40 | 10 | 10 | 50 | 1030 | 30 | 10 | 1085 | 25 |
| Future Volume (vph) | 45 | 10 | 80 | 40 | 10 | 10 | 50 | 1030 | 30 | 10 | 1085 | 25 |
| Satd. Flow (prot) | 1770 | 1615 | 0 | 0 | 1792 | 1583 | 1770 | 3539 | 1583 | 1770 | 3529 | 0 |
| Flt Permitted | 0.722 | | | | 0.575 | | 0.199 | | | 0.247 | | |
| Satd. Flow (perm) | 1345 | 1615 | 0 | 0 | 1071 | 1583 | 371 | 3539 | 1583 | 460 | 3529 | 0 |
| Satd. Flow (RTOR) | | 87 | | | | 64 | | | 50 | | 4 | |
| Lane Group Flow (vph) | 49 | 98 | 0 | 0 | 54 | 11 | 54 | 1120 | 33 | 11 | 1206 | 0 |
| Turn Type | Perm | NA | | Perm | NA | Perm | pm+pt | NA | Perm | pm+pt | NA | |
| Protected Phases | | 8 | | | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | | 4 | | 4 | 6 | | 6 | 2 | | |
| Total Split (s) | 26.0 | 26.0 | | 26.0 | 26.0 | 26.0 | 12.0 | 82.0 | 82.0 | 12.0 | 82.0 | |
| Total Lost Time (s) | 4.5 | 4.5 | | | 4.5 | 4.5 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | |
| Act Effect Green (s) | 10.0 | 10.0 | | | 10.0 | 10.0 | 100.9 | 97.5 | 97.5 | 97.8 | 91.3 | |
| Actuated g/C Ratio | 0.08 | 0.08 | | | 0.08 | 0.08 | 0.84 | 0.81 | 0.81 | 0.82 | 0.76 | |
| v/c Ratio | 0.44 | 0.46 | | | 0.61 | 0.06 | 0.14 | 0.39 | 0.03 | 0.03 | 0.45 | |
| Control Delay | 63.2 | 20.1 | | | 79.4 | 0.6 | 2.8 | 5.3 | 0.8 | 2.1 | 6.5 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 63.2 | 20.1 | | | 79.4 | 0.6 | 2.8 | 5.3 | 0.8 | 2.1 | 6.5 | |
| LOS | E | C | | | E | A | A | A | A | A | A | |
| Approach Delay | | 34.5 | | | 66.1 | | | 5.0 | | | 6.5 | |
| Approach LOS | | C | | | E | | | A | | | A | |
| Queue Length 50th (ft) | 37 | 8 | | | 41 | 0 | 7 | 137 | 0 | 1 | 163 | |
| Queue Length 95th (ft) | 75 | 59 | | | 83 | 0 | 13 | 264 | m5 | 4 | 243 | |
| Internal Link Dist (ft) | | 212 | | | 159 | | | 306 | | | 203 | |
| Turn Bay Length (ft) | 85 | | | | | 75 | 213 | | | 150 | | |
| Base Capacity (vph) | 240 | 360 | | | 191 | 336 | 405 | 2875 | 1295 | 469 | 2685 | |
| Starvation Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.20 | 0.27 | | | 0.28 | 0.03 | 0.13 | 0.39 | 0.03 | 0.02 | 0.45 | |

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 8.9

Intersection LOS: A

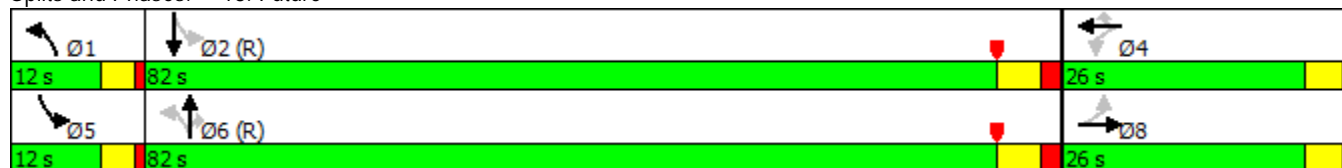
Intersection Capacity Utilization 56.4%







ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 18: Future



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|---|------|------|---|---|---|------|---|---|------|
| Int Delay, s/veh | 0.7 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | |  | | |  |  |  | |  |  | |
| Traffic Vol, veh/h | 0 | 0 | 5 | 0 | 0 | 55 | 5 | 755 | 10 | 35 | 915 | 15 |
| Future Vol, veh/h | 0 | 0 | 5 | 0 | 0 | 55 | 5 | 755 | 10 | 35 | 915 | 15 |
| 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 | - | - | 0 | - | - | 0 | 90 | - | - | 190 | - | - |
| 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 | 5 | 0 | 0 | 60 | 5 | 821 | 11 | 38 | 995 | 16 |























| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | |
|----------------------|--------|---|--------|---|--------|------|--------|---|
| Conflicting Flow All | - | - | 505 | - | - | 416 | 1011 | 0 |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |
| Critical Hdwy | - | - | 6.94 | - | - | 6.94 | 4.14 | - |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | 3.32 | - | - | 3.32 | 2.22 | - |
| Pot Cap-1 Maneuver | 0 | 0 | 512 | 0 | 0 | 585 | 681 | - |
| Stage 1 | 0 | 0 | - | 0 | 0 | - | - | - |
| Stage 2 | 0 | 0 | - | 0 | 0 | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | 512 | - | - | 585 | 681 | - |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|----------------------|------|------|-----|-----|
| HCM Control Delay, s | 12.1 | 11.9 | 0.1 | 0.4 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h) | 681 | - | - | 512 | 585 | 796 | - |
| HCM Lane V/C Ratio | 0.008 | - | - | 0.011 | 0.102 | 0.048 | - |
| HCM Control Delay (s) | 10.3 | - | - | 12.1 | 11.9 | 9.7 | - |
| HCM Lane LOS | B | - | - | B | B | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.3 | 0.1 | - |

Prairie Hawk/Limelight
63: Low Meadow/Limelight

PM Peak Hour
02/08/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  |  |  |  | |  |  |  |  |  |  |
| Traffic Volume (vph) | 115 | 40 | 80 | 75 | 45 | 60 | 90 | 595 | 45 | 45 | 720 | 155 |
| Future Volume (vph) | 115 | 40 | 80 | 75 | 45 | 60 | 90 | 595 | 45 | 45 | 720 | 155 |
| Satd. Flow (prot) | 0 | 1796 | 1583 | 1770 | 1703 | 0 | 1770 | 3500 | 0 | 1770 | 3539 | 1583 |
| Flt Permitted | | 0.689 | | 0.532 | | | 0.303 | | | 0.370 | | |
| Satd. Flow (perm) | 0 | 1283 | 1583 | 991 | 1703 | 0 | 564 | 3500 | 0 | 689 | 3539 | 1583 |
| Satd. Flow (RTOR) | | | 87 | | 65 | | | 11 | | | | 168 |
| Lane Group Flow (vph) | 0 | 168 | 87 | 82 | 114 | 0 | 98 | 696 | 0 | 49 | 783 | 168 |
| Turn Type | Perm | NA | Perm | Perm | NA | | pm+pt | NA | | pm+pt | NA | Perm |
| Protected Phases | | 8 | | | 4 | | 1 | 6 | | 5 | 2 | |
| Permitted Phases | 8 | | 8 | 4 | | | 6 | | | 2 | | 2 |
| Total Split (s) | 36.0 | 36.0 | 36.0 | 36.0 | 36.0 | | 13.0 | 44.0 | | 10.0 | 41.0 | 41.0 |
| Total Lost Time (s) | | 4.5 | 4.5 | 4.5 | 4.5 | | 4.5 | 4.5 | | 4.5 | 4.5 | 4.5 |
| Act Effect Green (s) | | 16.7 | 16.7 | 16.7 | 16.7 | | 62.3 | 57.5 | | 59.9 | 54.7 | 54.7 |
| Actuated g/C Ratio | | 0.19 | 0.19 | 0.19 | 0.19 | | 0.69 | 0.64 | | 0.67 | 0.61 | 0.61 |
| v/c Ratio | | 0.71 | 0.24 | 0.45 | 0.31 | | 0.20 | 0.31 | | 0.09 | 0.36 | 0.16 |
| Control Delay | | 49.6 | 8.0 | 38.7 | 16.2 | | 6.0 | 9.4 | | 5.6 | 11.2 | 2.4 |
| Queue Delay | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 |
| Total Delay | | 49.6 | 8.0 | 38.7 | 16.2 | | 6.0 | 9.4 | | 5.6 | 11.2 | 2.4 |
| LOS | | D | A | D | B | | A | A | | A | B | A |
| Approach Delay | | 35.4 | | | 25.6 | | | 9.0 | | | 9.5 | |
| Approach LOS | | D | | | C | | | A | | | A | |
| Queue Length 50th (ft) | | 90 | 0 | 42 | 24 | | 14 | 94 | | 7 | 114 | 0 |
| Queue Length 95th (ft) | | 145 | 35 | 79 | 63 | | 38 | 162 | | 22 | 196 | 32 |
| Internal Link Dist (ft) | | 237 | | | 257 | | | 574 | | | 663 | |
| Turn Bay Length (ft) | | | 140 | 90 | | | 100 | | | 100 | | 160 |
| Base Capacity (vph) | | 449 | 610 | 346 | 638 | | 508 | 2240 | | 534 | 2150 | 1027 |
| Starvation Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Spillback Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Storage Cap Reductn | | 0 | 0 | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 |
| Reduced v/c Ratio | | 0.37 | 0.14 | 0.24 | 0.18 | | 0.19 | 0.31 | | 0.09 | 0.36 | 0.16 |

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 13.7

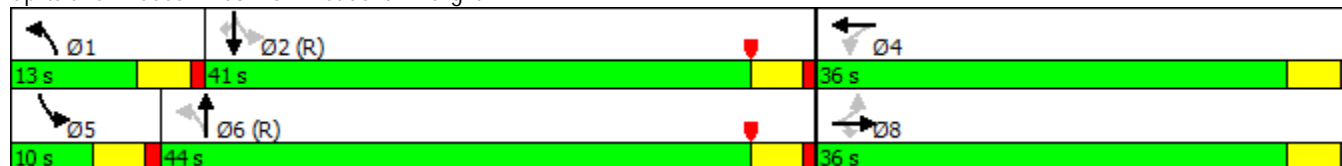
Intersection LOS: B

Intersection Capacity Utilization 51.3%

ICU Level of Service A





Analysis Period (min) 15

Splits and Phases: 63: Low Meadow/Limelight



Intersection








Int Delay, s/veh 1

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|---|---|------|---|---|
| Lane Configurations | |  |  | |  |  |
| Traffic Vol, veh/h | 0 | 90 | 640 | 20 | 60 | 810 |
| Future Vol, veh/h | 0 | 90 | 640 | 20 | 60 | 810 |
| 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 | - | - | 100 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 98 | 696 | 22 | 65 | 880 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - | 359 | 0 |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |
| Critical Hdwy | - | 6.94 | - |
| Critical Hdwy Stg 1 | - | - | - |
| Critical Hdwy Stg 2 | - | - | - |
| Follow-up Hdwy | - | 3.32 | - |
| Pot Cap-1 Maneuver | 0 | 638 | - |
| Stage 1 | 0 | - | - |
| Stage 2 | 0 | - | - |
| Platoon blocked, % | | - | - |
| Mov Cap-1 Maneuver | - | 638 | - |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | - |
| Stage 2 | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 11.7 | 0 | 0.6 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h) | - | - | 638 | 880 |
| HCM Lane V/C Ratio | - | - | 0.153 | 0.074 |
| HCM Control Delay (s) | - | - | 11.7 | 9.4 |
| HCM Lane LOS | - | - | B | A |
| HCM 95th %tile Q(veh) | - | - | 0.5 | 0.2 |

| Intersection | | | | | | | | | | | | |
|--------------------------|---|---|------|------|---|------|---|---|------|---|---|------|
| Int Delay, s/veh | 1.6 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  | |  |  | |  |  | |
| Traffic Vol, veh/h | 20 | 5 | 10 | 20 | 5 | 5 | 15 | 635 | 5 | 5 | 775 | 30 |
| Future Vol, veh/h | 20 | 5 | 10 | 20 | 5 | 5 | 15 | 635 | 5 | 5 | 775 | 30 |
| 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 | 0 | - | - | - | - | - | 100 | - | - | 100 | - | - |
| 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 | 5 | 11 | 22 | 5 | 5 | 16 | 690 | 5 | 5 | 842 | 33 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|------|--------|------|--------|------|--------|---|---|------|---|---|
| Conflicting Flow All | 1250 | 1598 | 438 | 1161 | 1612 | 348 | 875 | 0 | 0 | 696 | 0 | 0 |
| Stage 1 | 870 | 870 | - | 726 | 726 | - | - | - | - | - | - | - |
| Stage 2 | 380 | 728 | - | 435 | 886 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.54 | 6.54 | 6.94 | 7.54 | 6.54 | 6.94 | 4.14 | - | - | 4.14 | - | - |
| Critical Hdwy Stg 1 | 6.54 | 5.54 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.54 | 5.54 | - | 6.54 | 5.54 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 4.02 | 3.32 | 3.52 | 4.02 | 3.32 | 2.22 | - | - | 2.22 | - | - |
| Pot Cap-1 Maneuver | 129 | 105 | 567 | 150 | 103 | 648 | 767 | - | - | 896 | - | - |
| Stage 1 | 313 | 367 | - | 382 | 428 | - | - | - | - | - | - | - |
| Stage 2 | 614 | 427 | - | 570 | 361 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | 120 | 102 | 567 | 138 | 100 | 648 | 767 | - | - | 896 | - | - |
| Mov Cap-2 Maneuver | 120 | 102 | - | 138 | 100 | - | - | - | - | - | - | - |
| Stage 1 | 306 | 365 | - | 374 | 419 | - | - | - | - | - | - | - |
| Stage 2 | 588 | 418 | - | 548 | 359 | - | - | - | - | - | - | - |

| Approach | EB | | WB | | NB | | SB | |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 33.2 | | 36.1 | | 0.2 | | 0.1 | |
| HCM LOS | D | | E | | | | | |







| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | EBLn2 | WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-------|-----|-----|
| Capacity (veh/h) | 767 | - | - | 120 | 225 | 148 | 896 | - | - |
| HCM Lane V/C Ratio | 0.021 | - | - | 0.181 | 0.072 | 0.22 | 0.006 | - | - |
| HCM Control Delay (s) | 9.8 | - | - | 41.5 | 22.2 | 36.1 | 9 | - | - |
| HCM Lane LOS | A | - | - | E | C | E | A | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | 0.6 | 0.2 | 0.8 | 0 | - | - |

Prairie Hawk/Morningbird
71: Morningbird

PM Peak Hour
12/01/2017

Intersection

Int Delay, s/veh 1.2

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|--------------------------|---|---|---|---|---|---|
| Lane Configurations |  |  |  |  |  |  |
| Traffic Vol, veh/h | 45 | 10 | 20 | 610 | 735 | 70 |
| Future Vol, veh/h | 45 | 10 | 20 | 610 | 735 | 70 |
| 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 | 0 | 100 | - | - | - |
| 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 | 11 | 22 | 663 | 799 | 76 |

| Major/Minor | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1212 | 438 | 875 |
| Stage 1 | 837 | - | - |
| Stage 2 | 375 | - | - |
| Critical Hdwy | 6.84 | 6.94 | 4.14 |
| Critical Hdwy Stg 1 | 5.84 | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | 2.22 |
| Pot Cap-1 Maneuver | 175 | 567 | 767 |
| Stage 1 | 385 | - | - |
| Stage 2 | 665 | - | - |
| Platoon blocked, % | | | |
| Mov Cap-1 Maneuver | 170 | 567 | 767 |
| Mov Cap-2 Maneuver | 170 | - | - |
| Stage 1 | 385 | - | - |
| Stage 2 | 646 | - | - |

| Approach | EB | NB | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 30.3 | 0.3 | 0 |
| HCM LOS | D | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBT | SBR |
|-----------------------|-------|-----|-------|-------|-----|-----|
| Capacity (veh/h) | 767 | - | 170 | 567 | - | - |
| HCM Lane V/C Ratio | 0.028 | - | 0.288 | 0.019 | - | - |
| HCM Control Delay (s) | 9.8 | - | 34.5 | 11.5 | - | - |
| HCM Lane LOS | A | - | D | B | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 1.1 | 0.1 | - | - |

Attachment II

Site Plan

Developed Land Use Table

Filing 20 Built and Approved Land Use Trip Data (10/19/22)

[illegible]