

## MEMORANDUM

**To:** Jay Hardy, Brue Baukol Capital Partners

**From:** Cassie Slade, PE, PTOE

**Date:** July 6, 2022

**Project:** Redtail Ridge – Louisville, Colorado

**Subject:** Traffic Analysis Memo

The Fox Tuttle Transportation Group has completed a traffic analysis for the proposed changes to the commercial land uses types and total square footage for the Redtail Ridge project. The project site is generally bounded by 88<sup>th</sup> Street to the west, Campus Drive to the north, 96<sup>th</sup> Street/Northwest Parkway to the east and US 36 to the south, as shown in **Map 1**. Fox Tuttle had completed the *Traffic and Mobility Study* (dated March 23, 2021) for the previous Redtail Ridge site plan that evaluated the entire study area. The previous study included up to 3,115,000 square feet of industrial businesses, general office space, and retail. The updated site plan reduced the total size to 2,600,600 square feet and changed the land use types slightly to include a hospital and medical office building. The purpose of this "traffic analysis memo" is to determine if the proposed change in land use types and square footage exceeds the trip generation estimate of the previous study and if recommendations need to be adjusted.



**Map 1. Updated Site Plan**

## Comparison to the Master Traffic and Mobility Study

The latest site plan has a similar layout and land use types as the previous study. The latest site plan reduced the total size from 3,115,000 square feet to 2,600,600 square feet. Some of the office space was changed from general to life science. Some of the industrial space was defined as manufacturing and research and development. **Table 1** lists the land use and size assumptions for the previous and current site plan.

**Table 1. Comparison of Site Plans**

| PREVIOUS SITE PLAN (3/2021) |                |      | UPDATED SITE PLAN (6/2022)   |                |      |
|-----------------------------|----------------|------|------------------------------|----------------|------|
| Land Use                    | Size           | Unit | Land Use                     | Size           | Unit |
| <b>Year 2025 Completion</b> |                |      |                              |                |      |
| Industrial Park             | 414.00         | KSF  | Hospital                     | 285.60         | KSF  |
| General Office Building     | 286.67         | KSF  | Life Science Office Building | 264.00         | KSF  |
|                             |                |      | Medical Office Building      | 150.00         | KSF  |
| <b>Subtotal</b>             | <b>700.67</b>  | KSF  | <b>Subtotal</b>              | <b>699.60</b>  | KSF  |
| <b>Year 2030 Completion</b> |                |      |                              |                |      |
| Shopping Center             | 15.00          | KSF  | Shopping Center              | 14.00          | KSF  |
| Industrial Park             | 690.00         | KSF  | Industrial Park              | 510.00         | KSF  |
| General Office Building     | 716.67         | KSF  | General Office Building      | 0.00           | KSF  |
|                             |                |      | R&D                          | 118.75         | KSF  |
|                             |                |      | GMP                          | 598.25         |      |
| <b>Subtotal</b>             | <b>1421.67</b> | KSF  | <b>Subtotal</b>              | <b>1241.00</b> | KSF  |
| <b>Year 2040 Completion</b> |                |      |                              |                |      |
| Industrial Park             | 276.00         | KSF  | Life Science Office Building | 270.00         | KSF  |
| General Office Building     | 716.67         | KSF  | General Office Building      | 360.00         | KSF  |
|                             |                |      | Amenity Bldg                 | 30.00          |      |
| <b>Subtotal</b>             | <b>992.67</b>  | KSF  | <b>Subtotal</b>              | <b>660.00</b>  | KSF  |
| <b>Full Buildout Total</b>  | <b>3115.00</b> | KSF  | <b>Full Buildout Total</b>   | <b>2600.60</b> | KSF  |

For the purpose of this traffic analysis, it was assumed that similar phasing would occur in developing Redtail Ridge with the completion anticipated to be by Year 2040. The previously proposed roadway network and intersections are proposed to remain the same.

## Trip Generation

To establish the volume of trips associated with the proposed changes in the Redtail Ridge site plan, the data contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Handbook and Manual* was applied to the most applicable land use categories. The trip data for the following land uses were utilized:

- #130 Industrial Park
- #140 Manufacturing *[for GMP]*
- #710 General Office Building
- #760 Research and Development *[for Life Sciences]*
- #610 Hospital
- #720 Medical-Dental Office Building
- #820 Shopping Center

The proposed land use is estimated to have new trips, multi-use (internal) trips, and non-SOV trips, which are discussed below:

- Primary Trips. These trips are made specifically to visit the site and are considered “new” trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the number of trips made on a regional basis.
- Multi-Use (Internal) Trips. These internal trips occur from one land use or building to another within the site boundaries. For example, an office patron may also use a retail store or restaurant in one vehicular visit to the site. Multi-use or multi-purpose trips typically do not affect the exterior site access points, nor add any additional traffic volumes to the adjacent street network. For this project it was assumed that the small retail uses on the site and an amenity building will be focused on serving the employees of Redtail Ridge and most (75% estimated) of the trips accessing them will be on-site or internal trips. The other end of these internal trips were attributed to the office and industrial employees, and resulted in a 3% reduction for those uses. Based on this approach, the multi-use factors applied for this project were assumed to be three (3) percent for the industrial and office uses and 75 percent for the retail uses. *[same as Traffic and Mobility Study]*
- Non-SOV Trips. These trips originate from outside the site that may be completed by walking, bicycling, carpooling, shared ride mobility, or riding transit. The 12 percent non-SOV assumption was applied to the trip generation estimates. *[same as Traffic and Mobility Study]*

**Table 2** provides the updated trip generation estimate for Redtail Ridge and the comparison of previous trip volumes for weekday daily, weekday AM, and weekday PM periods.

Table 2. Trip Generation Estimate and Comparison

|                                               | Land Use                                            | Size   | Unit | Non-SOV | Internal Capture | Net Reduction Factor | Average Weekday Trips |               | Weekday AM Peak Hour Trips |              |              |            | Weekday PM Peak Hour Trips |              |            |              |
|-----------------------------------------------|-----------------------------------------------------|--------|------|---------|------------------|----------------------|-----------------------|---------------|----------------------------|--------------|--------------|------------|----------------------------|--------------|------------|--------------|
|                                               |                                                     |        |      |         |                  |                      | Rate                  | Total         | Rate                       | Total        | In           | Out        | Rate                       | Total        | In         | Out          |
| Year 2025 Completion                          | #130 Industrial Park                                | 0      | KSF  | 12%     | 3%               | 85%                  | *                     | 0             | 0.4                        | 0            | 0            | 0          | 0.4                        | 0            | 0          | 0            |
|                                               | #710 General Office Building                        | 0      | KSF  | 12%     | 3%               | 85%                  | **                    | 0             | ***                        | 23           | 20           | 3          | ****                       | 0            | 0          | 0            |
|                                               | #760 Research and Development Center (Life Science) | 270.0  | KSF  | 12%     | 3%               | 85%                  | **                    | 2,447         | 1.03                       | 237          | 194          | 43         | 0.98                       | 226          | 36         | 190          |
|                                               | #610 Hospital                                       | 285.6  | KSF  | 12%     | 3%               | 85%                  | 10.77                 | 2,626         | 0.82                       | 200          | 134          | 66         | 0.86                       | 210          | 74         | 136          |
|                                               | #720 Medical-Dental Office Building                 | 150.0  | KSF  | 12%     | 3%               | 85%                  | 36.00                 | 4,609         | ***                        | 296          | 234          | 62         | 3.93                       | 503          | 151        | 352          |
|                                               | <b>705.60 KSF Subtotal</b>                          |        |      |         |                  |                      |                       | <b>9,682</b>  |                            | <b>756</b>   | <b>582</b>   | <b>174</b> |                            | <b>939</b>   | <b>261</b> | <b>678</b>   |
| Year 2030 Completion                          | #820 Shopping Center                                | 14.0   | KSF  | 12%     | 75%              | 22%                  | 37.75                 | 116           | 0.94                       | 3            | 2            | 1          | 3.81                       | 12           | 6          | 6            |
|                                               | #130 Industrial Park                                | 510.0  | KSF  | 12%     | 3%               | 85%                  | *                     | 1,870         | 0.4                        | 174          | 141          | 33         | 0.40                       | 174          | 37         | 137          |
|                                               | #710 General Office Building                        | 0      | KSF  | 12%     | 3%               | 85%                  | **                    | 0             | ***                        | 0            | 0            | 0          | ****                       | 0            | 0          | 0            |
|                                               | #760 Research and Development Center                | 118.75 | KSF  | 12%     | 3%               | 85%                  | **                    | 1,195         | 1.03                       | 104          | 85           | 19         | 0.98                       | 99           | 16         | 83           |
|                                               | #140 Manufacturing (GMP)                            | 598.25 | KSF  | 12%     | 3%               | 85%                  | *****                 | 2,098         | *****                      | 320          | 243          | 77         | 0.74                       | 378          | 117        | 261          |
|                                               | <b>1241.00 KSF Subtotal</b>                         |        |      |         |                  |                      |                       | <b>5,279</b>  |                            | <b>601</b>   | <b>471</b>   | <b>130</b> |                            | <b>663</b>   | <b>176</b> | <b>487</b>   |
| Year 2040 Completion                          | #130 Industrial Park                                | 0      | KSF  | 12%     | 3%               | 85%                  | *                     | 0             | 0.4                        | 0            | 0            | 0          | 0.40                       | 0            | 0          | 0            |
|                                               | #710 General Office Building                        | 360.0  | KSF  | 12%     | 3%               | 85%                  | **                    | 3,138         | ***                        | 311          | 267          | 44         | ****                       | 328          | 52         | 276          |
|                                               | #760 Research and Development Center (Life Science) | 294.0  | KSF  | 12%     | 3%               | 85%                  | **                    | 2,646         | 1.03                       | 258          | 212          | 46         | 0.98                       | 246          | 39         | 207          |
|                                               | <b>654.00 KSF Subtotal</b>                          |        |      |         |                  |                      |                       | <b>5,784</b>  |                            | <b>569</b>   | <b>479</b>   | <b>90</b>  |                            | <b>574</b>   | <b>91</b>  | <b>483</b>   |
| <b>Full Buildout Total</b>                    |                                                     |        |      |         |                  |                      |                       | <b>20,745</b> |                            | <b>1,926</b> | <b>1,532</b> | <b>394</b> |                            | <b>2,176</b> | <b>528</b> | <b>1,648</b> |
| <b>Difference from Previous Traffic Study</b> |                                                     |        |      |         |                  |                      |                       | <b>641</b>    |                            | <b>3</b>     | <b>-97</b>   | <b>100</b> |                            | <b>166</b>   | <b>178</b> | <b>-12</b>   |

\* ITE Equation:  $\text{EXP}(0.52 \cdot \ln(X) + 4.45)$

\*\*\* ITE Equation:  $(0.94 \cdot X + 26.49)$

\*\*\*\*\* ITE Equation  $3.77 \cdot X + 201.98$

\*\* ITE Equation:  $\text{EXP}(0.97 \cdot \ln(X) + 2.5)$

\*\*\*\* ITE Equation  $\text{EXP}(0.95 \cdot \ln(X) + 0.36)$

\*\*\*\*\* ITE Equation  $0.61 \cdot X + 9.54$

Blue text is what changed from previous traffic study.

Based on the comparison of the previous and current land plans, **it was estimated that the trips associated with the proposed updated site plan will have slightly more traffic.** Although the total square footage was reduced, the addition of a hospital and medical office building increased the trips generated by the site. The daily traffic was estimated to increase by 641 vehicles, which is only 3.2% increase from the previous site plan. The AM peak hour was estimated to increase by 3 vehicles (-97 in, +100 out). The PM peak hour was estimated to increase by 166 vehicles (+178 in, -12 out). The change in trips by phase are summarized in **Table 3.**

**Table 3. Trip Difference by Phase**

| Phase        | Difference in Trips |                                         |                                           |
|--------------|---------------------|-----------------------------------------|-------------------------------------------|
|              | Daily               | AM                                      | PM                                        |
| 1            | +5,488              | +362<br>(+250 in / +112 out)            | +534<br>(+189 in / +345 out)              |
| 2            | -3,153              | -236<br>(-236 in / 0 out)               | -217<br>(+19 in / -236 out)               |
| 3            | -1,694              | -123<br>(-111 in / -12 out)             | -151<br>(-30 in / -121 out)               |
| <b>Total</b> | <b>+641</b>         | <b>+3</b><br><b>(-97 in / +100 out)</b> | <b>+166</b><br><b>(+178 in / -12 out)</b> |

## Evaluation Methodology

The traffic operations analysis addressed the signalized and unsignalized intersection operations using the procedures and methodologies set forth by the Highway Capacity Manual (HCM)<sup>1</sup>. Study intersections were evaluated using Synchro and SimTraffic software. The traffic parameters, baseline assumptions, signal timing, and phases from the previous traffic study remained the same for the updated analysis.

A Level of Service analysis was conducted to determine the performance of the study area intersection with the change in land use sizes and types and to determine if changes are needed in the proposed traffic control and need for auxiliary lanes for the study intersections.

To measure and describe the operational status of the study intersections, transportation engineers and planners commonly use a grading system referred to as “Level of Service” (LOS) that is defined by the HCM. LOS characterizes the operational conditions of an intersection’s traffic flow, ranging from LOS A (indicating

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<sup>1</sup> Highway Capacity Manual, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 2010 and 6<sup>th</sup> Edition (2016).

very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with traveling through the intersections. The intersection LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement. A more detailed discussion of LOS methodology is contained in the Appendix for reference.

Typically, LOS A through C is considered to be good for the overall intersection operations and the desired standard for overall intersection performance is LOS D or better. Individual movements may be allowed to fall to LOS E or F depending on the circumstances, such as a low-volume, side-street approach to an arterial where signal warrants are not met, or a protected-only, signalized left-turn movement where safety is prioritized over operational efficiency.

## Trip Assignment

The trip distribution and routing assumptions from the Redtail Ridge Traffic and Mobility Study were utilized in this updated analysis. The trip distribution is based on existing travel patterns, regional destinations, proximity to regional roadways, available capacity, and future roadway connections. To develop the traffic volumes for the latest site plan, the following steps were taken:

1. Updated the trip generation (as discussed) per phase (Year 2025, Year 2030, and Year 2040).
2. Distributed trips throughout roadway network *[same distribution and routing as previously applied]*.
3. Added the new trip volumes to the associated background volumes for each phase.

**Figure 1** illustrates the difference in trip volume for Year 2025 with the new site plan. **Figure 2** illustrates the difference in trip volume for Year 2030 and **Figure 3** illustrates the difference in trip volume for Year 2040.

## Capacity Analysis

The updated volumes were input into the traffic models by phase and peak hour. The results of the delay and LOS calculations for the study intersections are summarized in **Table 4**, as well as the comparison to the previous analysis. The previous and updated 95<sup>th</sup> percentile queues are listed in **Table 5**. The intersection level-of-service worksheets are attached in the **Appendix**.

The following bullets summarize the updated analysis and comparison to the previous findings for the Redtail Ridge development:

**Year 2025 – Phase 1**

- Majority of study intersections remained the same overall LOS grade and per movement.
- Majority of study intersections are anticipated to operate overall at LOS D in both peak hours.
- None of the changes in delay created an intersection to begin to operate overall at LOS E or F.
- **Dillon Road at 96<sup>th</sup> Street** – anticipated to operate overall at LOS E in the AM peak hour and LOS F in the PM peak hour without the previously recommended improvements. With the recommended dual eastbound and westbound left-turn lanes on Dillon Road, this intersection will improve to LOS D in both peak hours *[consistent with previous analysis]*.
- **Northwest Parkway at 96<sup>th</sup> Street /Varra** – anticipated to operate overall at LOS F in the AM peak hour and LOS C in the PM peak hour without the previously recommended improvements. With the recommended triple northeast-bound left-turn lanes on Northwest Parkway and signalized southwest-bound right-turn on Northwest Parkway, this intersection will improve to LOS D in the AM peak hour and LOS C in the PM peak hour *[consistent with previous analysis]*.

**Year 2030 – Phase 2**

- Majority of study intersections remained the same overall LOS grade and by movement.
- All, except one, of study intersections are anticipated to operate at overall LOS D in both peak hours.
- None of the changes in delay created an intersection to begin to operate overall at LOS E or F.
- Some movement delays were slightly decreased with the change in trip volumes.
- **Northwest Parkway at US 36 South Ramps (EB)** – anticipated to operate overall at LOS B in the AM peak hour and LOS F in the PM peak hour, consistent with findings in the previous traffic study. It is understood that the ramp intersections will be upgraded as appropriate in the future, but a design has not been developed at this time.

**Year 2040 – Phase 3**

- Majority of study intersections remained the same overall LOS grade and by movement.
- Majority of study intersections are anticipated to operate at overall LOS D in both peak hours.
- Some movement delays were slightly decreased with the change in trip volumes.

- **Dillon Road at 96<sup>th</sup> Street** – anticipated to operate overall at LOS E in the AM peak hour and LOS D in the PM peak hour due to change in trips. During the AM peak hour, it is recommended that the signal timing be adjusted to improve the overall performance to LOS D.
- **Northwest Parkway at 96<sup>th</sup> Street** – anticipated to operate overall at LOS F in the AM peak hour and LOS C in the PM peak hour without the previously recommended improvements. With the previously recommended triple northeast-bound left-turn lanes on Northwest Parkway and modify the southwest-bound right-turn movement to be controlled on Northwest Parkway, this intersection will improve to LOS D in the AM peak hour and LOS C in the PM peak hour *[consistent with previous analysis]*.
- **Northwest Parkway at Rockcress Drive/Via Varra** – anticipated to operate overall at LOS F in the AM peak hour and LOS C in the PM peak hour without the previous mitigation measures. With the previously recommended third southbound lane on Northwest Parkway, this intersection will improve to LOS D in the AM peak hour and LOS C in the PM peak hour *[consistent with previous analysis]*.

## Roadway and Intersection Recommendations

All of the recommendations for roadway and intersection improvements remain the same as the previous [Redtail Ridge Traffic and Mobility Study](#), regardless of the slight increase in trips. Roadway widths, intersection traffic control, and auxiliary lanes proposed in the previous [Redtail Ridge Traffic and Mobility Study](#) are anticipated to adequately accommodate the trips associated with the updated site plan for the Redtail Ridge project. Table 17, Figure E2, and Section 7.2 of the previous study are included within this **Appendix** for reference of recommended improvements and phasing of implementation.

## Conclusions

It is anticipated that the proposed roadway network, intersections, and access can accommodate the proposed change to the project site plan. [The analysis for the proposed Redtail Ridge found that the previous traffic study and recommendations are still valid.](#)

I hope that the contents of this memorandum are helpful to you. If you have any questions, please feel free to give me a call.

Sincerely,

**FOX TUTTLE TRANSPORTATION GROUP, LLC**



Cassie Slade, P.E., PTOE  
Principal



***Tables and Figures:***

Table 4 – Peak Hour Intersection Level of Service Summary (With Project Conditions)

Table 5 – 95<sup>th</sup> Percentile Queuing Summary (With Project Conditions)

Figure 1 – Difference in Site-Generated Traffic – Year 2025

Figure 2 – Difference in Site-Generated Traffic – Year 2030

Figure 3 – Difference in Site-Generated Traffic – Year 2040

***Appendix:***

Intersection Capacity Analysis Worksheets

Traffic and Mobility Study Pages: Table 17, Figure E2, Section 7.2

Table 4 - Peak Hour Intersection Level of Service Summary (With Project Conditions)

|                                    | Year 2025 Bkgrd+Project |     |         |     | Year 2025 Bkgrd+Project<br>UPDATED |     |         |     | Year 2025 Bkgrd+Project<br>(With Improvements) |     |         |     | Year 2030 Bkgrd+Project |     |         |     | Year 2030 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project |     |         |     | Year 2040 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project<br>(With Improvements) |     |         |   |  |  |
|------------------------------------|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|---|--|--|
| Intersection and<br>Lanes Groups   | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |   |  |  |
|                                    | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS |         |   |  |  |
| Signalized Control                 |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                         |     |         |     |                                    |     |         |     |                         |     |         |     |                                    |     |         |     |                                                |     |         |   |  |  |
| Dillon Road and McCaslin Boulevard | 25                      | C   | 33      | C   | 25                                 | C   | 34      | C   |                                                |     |         |     | 27                      | C   | 34      | C   | 26                                 | C   | 34      | C   | 28                      | C   | 40      | D   | 30                                 | C   | 38      | D   |                                                |     |         |   |  |  |
| Eastbound Left                     | 50                      | D   | 54      | D   | 47                                 | D   | 57      | E   |                                                |     |         |     | 48                      | D   | 57      | E   | 47                                 | D   | 54      | D   | 52                      | D   | 69      | E   | 54                                 | D   | 56      | E   |                                                |     |         |   |  |  |
| Eastbound Through                  | 49                      | D   | 54      | D   | 48                                 | D   | 56      | E   |                                                |     |         |     | 51                      | D   | 56      | E   | 48                                 | D   | 52      | D   | 55                      | E   | 65      | E   | 49                                 | D   | 57      | E   |                                                |     |         |   |  |  |
| Eastbound Right                    | 2                       | A   | 4       | A   | 2                                  | A   | 4       | A   |                                                |     |         |     | 2                       | A   | 4       | A   | 2                                  | A   | 4       | A   | 2                       | A   | 4       | A   | 2                                  | A   | 4       | A   |                                                |     |         |   |  |  |
| Westbound Left                     | 40                      | D   | 49      | D   | 40                                 | D   | 50      | D   |                                                |     |         |     | 41                      | D   | 50      | D   | 40                                 | D   | 50      | D   | 43                      | D   | 57      | E   | 41                                 | D   | 56      | E   |                                                |     |         |   |  |  |
| Westbound Through                  | 34                      | C   | 38      | D   | 33                                 | C   | 36      | D   |                                                |     |         |     | 34                      | C   | 37      | D   | 52                                 | D   | 39      | D   | 37                      | D   | 42      | D   | 34                                 | C   | 36      | D   |                                                |     |         |   |  |  |
| Westbound Right                    | 3                       | A   | 3       | A   | 3                                  | A   | 3       | A   |                                                |     |         |     | 3                       | A   | 3       | A   | 27                                 | C   | 3       | A   | 4                       | A   | 3       | A   | 3                                  | A   | 3       | A   |                                                |     |         |   |  |  |
| Northbound Left                    | 47                      | D   | 70      | E   | 45                                 | D   | 70      | E   |                                                |     |         |     | 50                      | D   | 70      | E   | 45                                 | D   | 68      | E   | 51                      | D   | 64      | E   | 50                                 | D   | 73      | E   |                                                |     |         |   |  |  |
| Northbound Through                 | 29                      | C   | 39      | D   | 29                                 | C   | 42      | D   |                                                |     |         |     | 31                      | C   | 42      | D   | 26                                 | C   | 43      | D   | 33                      | C   | 50      | D   | 35                                 | C   | 50      | D   |                                                |     |         |   |  |  |
| Northbound Right                   | 4                       | A   | 4       | A   | 4                                  | A   | 5       | A   |                                                |     |         |     | 4                       | A   | 5       | A   | 4                                  | A   | 5       | A   | 5                       | A   | 8       | A   | 5                                  | A   | 6       | A   |                                                |     |         |   |  |  |
| Southbound Left                    | 50                      | D   | 56      | E   | 52                                 | D   | 56      | E   |                                                |     |         |     | 56                      | E   | 58      | E   | 51                                 | D   | 57      | E   | 55                      | D   | 72      | E   | 88                                 | F   | 63      | E   |                                                |     |         |   |  |  |
| Southbound Through                 | 23                      | C   | 29      | C   | 23                                 | C   | 30      | C   |                                                |     |         |     | 23                      | C   | 30      | C   | 21                                 | C   | 30      | C   | 24                      | C   | 38      | D   | 26                                 | C   | 31      | C   |                                                |     |         |   |  |  |
| Southbound Right                   | 3                       | A   | 4       | A   | 3                                  | A   | 4       | A   |                                                |     |         |     | 3                       | A   | 5       | A   | 3                                  | A   | 4       | A   | 3                       | A   | 7       | A   | 4                                  | A   | 5       | A   |                                                |     |         |   |  |  |
| Dillon Road and 88th Street        | 20                      | B   | 20      | B   | 21                                 | C   | 20      | B   |                                                |     |         |     | 21                      | C   | 21      | C   | 23                                 | C   | 21      | C   | 25                      | C   | 28      | C   | 24                                 | C   | 35      | C   |                                                |     |         |   |  |  |
| Eastbound Through                  | 33                      | C   | 27      | C   | 36                                 | D   | 27      | C   |                                                |     |         |     | 41                      | D   | 31      | C   | 47                                 | D   | 31      | C   | 36                      | D   | 41      | D   | 35                                 | C   | 69      | E   |                                                |     |         |   |  |  |
| Eastbound Right                    | 3                       | A   | 2       | A   | 4                                  | A   | 2       | A   |                                                |     |         |     | 4                       | A   | 2       | A   | 4                                  | A   | 3       | A   | 4                       | A   | 3       | A   | 4                                  | A   | 4       | A   |                                                |     |         |   |  |  |
| Westbound Left                     | 27                      | C   | 35      | D   | 27                                 | C   | 29      | C   |                                                |     |         |     | 32                      | C   | 30      | C   | 33                                 | C   | 32      | C   | 56                      | E   | 37      | D   | 50                                 | D   | 36      | D   |                                                |     |         |   |  |  |
| Westbound Through                  | 16                      | B   | 9       | A   | 17                                 | B   | 7       | A   |                                                |     |         |     | 16                      | B   | 8       | A   | 16                                 | B   | 6       | A   | 16                      | B   | 8       | A   | 15                                 | B   | 8       | A   |                                                |     |         |   |  |  |
| Northbound Left                    | 37                      | D   | 52      | D   | 37                                 | D   | 51      | D   |                                                |     |         |     | 37                      | D   | 6       | A   | 37                                 | D   | 57      | E   | 55                      | E   | 68      | E   | 54                                 | D   | 56      | E   |                                                |     |         |   |  |  |
| Northbound Right                   | 2                       | A   | 2       | A   | 2                                  | A   | 2       | A   |                                                |     |         |     | 2                       | A   | 2       | A   | 2                                  | A   | 2       | A   | 2                       | A   | 2       | A   | 2                                  | A   | 2       | A   |                                                |     |         |   |  |  |
| Dillon Road and 96th Street        | 64                      | E   | 85      | F   | 71                                 | E   | 103     | F   | 35                                             | D   | 37      | D   | 36                      | D   | 38      | D   | 37                                 | D   | 40      | D   | 38                      | D   | 41      | D   | 44                                 | D   | 43      | D   | 60                                             | E   | 46      | D |  |  |
| Eastbound Left                     | 50                      | D   | 60      | E   | 78                                 | E   | 57      | E   | 68                                             | E   | 51      | D   | 68                      | E   | 52      | D   | 68                                 | E   | 59      | E   | 75                      | E   | 55      | E   | 71                                 | E   | 54      | D   |                                                |     |         |   |  |  |
| Eastbound Through                  | 55                      | D   | >3min   | F   | 64                                 | E   | >3min   | F   | 58                                             | E   | 63      | E   | 54                      | D   | 61      | E   | 54                                 | D   | 67      | E   | 58                      | E   | 62      | E   | 60                                 | E   | 76      | E   |                                                |     |         |   |  |  |
| Eastbound Right                    | 7                       | A   | 17      | B   | 7                                  | A   | 22      | C   | 21                                             | C   | 19      | B   | 22                      | C   | 20      | C   | 25                                 | C   | 21      | C   | 27                      | C   | 20      | B   | 32                                 | C   | 23      | C   | 31                                             | C   | 25      | C |  |  |
| Westbound Left                     | 65                      | E   | 99      | F   | 84                                 | F   | 131     | F   | 70                                             | E   | 57      | E   | 77                      | E   | 59      | E   | 73                                 | E   | 58      | E   | 75                      | E   | 61      | E   | 86                                 | F   | 70      | E   | 76                                             | E   | 76      | E |  |  |
| Westbound Through                  | 45                      | D   | 43      | D   | 54                                 | D   | 45      | D   | 49                                             | D   | 40      | D   | 50                      | D   | 41      | D   | 50                                 | D   | 41      | D   | 49                      | D   | 41      | D   | 56                                 | E   | 43      | D   | 55                                             | E   | 42      | D |  |  |
| Westbound Right                    | 9                       | A   | 17      | B   | 11                                 | B   | 19      | B   | 13                                             | B   | 17      | B   | 14                      | B   | 18      | B   | 13                                 | B   | 21      | C   | 17                      | B   | 26      | C   | 22                                 | C   | 24      | C   | 21                                             | C   | 24      | C |  |  |
| Northbound Left                    | 51                      | D   | 55      | D   | 67                                 | E   | 60      | E   | 47                                             | D   | 28      | C   | 47                      | D   | 31      | C   | 55                                 | E   | 36      | D   | 52                      | D   | 38      | D   | 61                                 | E   | 36      | D   | 65                                             | E   | 46      | D |  |  |
| Northbound Through                 | 32                      | C   | 103     | F   | 32                                 | C   | 107     | F   | 28                                             | C   | 38      | D   | 28                      | C   | 40      | D   | 27                                 | C   | 45      | D   | 29                      | C   | 49      | D   | 31                                 | C   | 48      | D   | 35                                             | C   | 56      | E |  |  |
| Northbound Right                   | 2                       | A   | 10      | B   | 2                                  | A   | 12      | B   | 7                                              | A   | 8       | A   | 7                       | A   | 8       | A   | 7                                  | A   | 9       | A   | 7                       | A   | 10      | A   | 8                                  | A   | 12      | B   | 8                                              | A   | 12      | B |  |  |
| Southbound Left                    | 103                     | F   | 91      | F   | 105                                | F   | 134     | F   | 28                                             | C   | 35      | D   | 29                      | C   | 34      | C   | 31                                 | C   | 42      | D   | 31                      | C   | 40      | D   | 37                                 | D   | 48      | D   | 65                                             | E   | 45      | D |  |  |
| Southbound Through                 | >3min                   | F   | 94      | F   | >3min                              | F   | 138     | F   | 36                                             | D   | 29      | C   | 37                      | D   | 30      | C   | 42                                 | D   | 32      | C   | 43                      | D   | 35      | D   | 53                                 | D   | 32      | C   | 107                                            | F   | 35      | D |  |  |
| Southbound Right                   | 38                      | D   | 12      | B   | 41                                 | D   | 19      | B   | 9                                              | A   | 9       | A   | 9                       | A   | 9       | A   | 10                                 | B   | 10      | A   | 11                      | B   | 10      | A   | 12                                 | B   | 12      | B   | 53                                             | D   | 11      | B |  |  |
| 88th Street and Campus Drive       | 33                      | C   | 33      | C   | 34                                 | C   | 33      | C   | 30                                             | C   | 32      | C   | 31                      | C   | 34      | C   | 35                                 | D   | 24      | C   | 38                      | D   | 25      | C   | 37                                 | D   | 23      | C   | 47                                             | D   | 35      | D |  |  |
| Eastbound Left                     | 49                      | D   | 46      | D   | 49                                 | D   | 44      | D   | 43                                             | D   | 43      | D   | 46                      | D   | 47      | D   | 46                                 | D   | 35      | C   | 50                      | D   | 30      | C   | 47                                 | D   | 34      | C   | 57                                             | E   | 40      | D |  |  |
| Eastbound Through                  | 78                      | E   | 55      | E   | 72                                 | E   | 55      | E   | 65                                             | E   | 61      | E   | 58                      | E   | 59      | E   | 78                                 | E   | 46      | D   | 89                      | F   | 49      | D   | 66                                 | E   | 48      | D   | 94                                             | F   | 56      | E |  |  |
| Eastbound Right                    | 40                      | D   | 35      | D   | 36                                 | D   | 33      | C   | 31                                             | C   | 37      | D   | 31                      | C   | 37      | D   | 46                                 | D   | 28      | C   | 49                      | D   | 30      | C   | 38                                 | D   | 29      | C   | 47                                             | D   | 35      | C |  |  |
| Westbound Left                     | 45                      | D   | 48      | D   | 44                                 | D   | 47      | D   | 45                                             | D   | 49      | D   | 44                      | D   | 50      | D   | 45                                 | D   | 39      | D   | 45                      | D   | 41      | D   | 46                                 | D   | 36      | D   | 46                                             | D   | 40      | D |  |  |
| Westbound Through                  | 41                      | D   | 52      | D   | 41                                 | D   | 55      | E   | 40                                             | D   | 54      | D   | 39                      | D   | 63      | E   | 42                                 | D   | 45      | D   | 44                      | D   | 42      | D   | 42                                 | D   | 43      | D   | 43                                             | D   | 49      | D |  |  |
| Westbound Right                    | 30                      | C   | 18      | B   | 30                                 | C   | 18      | B   |                                                |     |         |     |                         |     |         |     |                                    |     |         |     |                         |     |         |     |                                    |     |         |     |                                                |     |         |   |  |  |

Table 4 - Peak Hour Intersection Level of Service Summary (With Project Conditions)

|                                            | Year 2025 Bkgrd+Project |     |         |     | Year 2025 Bkgrd+Project<br>UPDATED |     |         |     | Year 2025 Bkgrd+Project<br>(With Improvements) |     |         |     | Year 2030 Bkgrd+Project |     |         |     | Year 2030 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project |     |         |     | Year 2040 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project<br>(With Improvements) |     |         |     |     |    |    |    |    |    |
|--------------------------------------------|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|-----|-----|----|----|----|----|----|
| Intersection and<br>Lanes Groups           | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |     |     |    |    |    |    |    |
|                                            | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS | Delay   | LOS |     |    |    |    |    |    |
| Northwest Parkway and 96th Street/Via Varr | 90                      | F   | 32      | C   | 93                                 | F   | 32      | C   | 38                                             | D   | 29      | C   | 40                      | D   | 29      | C   | 51                                 | D   | 30      | C   | 55                      | D   | 29      | C   | 100                                | F   | 34      | C   | 109                                            | F   | 34      | C   | 52  | D  | 32 | C  |    |    |
| Eastbound Left - 96th Street               | 63                      | E   | 69      | E   | 65                                 | E   | 69      | E   | 70                                             | E   | 60      | E   | 70                      | E   | 59      | E   | 87                                 | F   | 62      | E   | 86                      | F   | 58      | E   | 92                                 | F   | 54      | D   | 86                                             | F   | 53      | D   | 78  | E  | 55 | D  |    |    |
| Eastbound Through - 96th Street            | 66                      | E   | 73      | E   | 77                                 | E   | 72      | E   | 80                                             | E   | 65      | E   | 82                      | F   | 63      | E   | 102                                | F   | 61      | E   | 100                     | F   | 65      | E   | >2min                              | F   | 70      | E   | 124                                            | F   | 65      | E   | 109 | F  | 64 | E  |    |    |
| Eastbound Right - 96th Street              | 8                       | A   | 7       | A   | 8                                  | A   | 8       | A   | 8                                              | A   | 6       | A   | 9                       | A   | 7       | A   | 7                                  | A   | 7       | A   | 7                       | A   | 8       | A   | 83                                 | F   | 11      | B   | 79                                             | E   | 11      | B   | 9   | A  | 10 | B  |    |    |
| Westbound Left - Via Varra                 | 63                      | E   | 59      | E   | 59                                 | E   | 59      | E   | 57                                             | E   | 58      | E   | 60                      | E   | 55      | E   | 73                                 | E   | 60      | E   | 70                      | E   | 51      | D   | 75                                 | E   | 58      | E   | 73                                             | E   | 57      | E   | 64  | E  | 52 | D  |    |    |
| Westbound Through - Via Varra              | 79                      | E   | 60      | E   | 77                                 | E   | 61      | E   | 64                                             | E   | 61      | E   | 66                      | E   | 61      | E   | 78                                 | E   | 60      | E   | 82                      | F   | 62      | E   | 103                                | F   | 59      | E   | 99                                             | F   | 58      | E   | 79  | E  | 57 | E  |    |    |
| Westbound Right - Via Varra                | 3                       | A   | 1       | A   | 3                                  | A   | 1       | A   | 2                                              | A   | 1       | A   | 1                       | A   | 1       | A   | 2                                  | A   | 2       | A   | 2                       | A   | 1       | A   | 3                                  | A   | 2       | A   | 4                                              | A   | 2       | A   | 2   | A  | 2  | A  |    |    |
| Northbound Left - NWP                      | 199                     | F   | 51      | D   | 206                                | F   | 52      | D   | 64                                             | E   | 53      | D   | 68                      | E   | 51      | D   | 109                                | F   | 48      | D   | 118                     | F   | 49      | D   | >3min                              | F   | 53      | D   | >3min                                          | F   | 54      | D   | 98  | F  | 53 | D  |    |    |
| Northbound Through - NWP                   | 6                       | A   | 9       | A   | 6                                  | A   | 9       | A   | 9                                              | A   | 7       | A   | 9                       | A   | 7       | A   | 14                                 | B   | 10      | A   | 14                      | B   | 8       | A   | 16                                 | B   | 13      | B   | 16                                             | B   | 14      | B   | 22  | C  | 14 | B  |    |    |
| Northbound Right - NWP                     | 1                       | A   | 1       | A   | 1                                  | A   | 1       | A   | 1                                              | A   | 1       | A   | 1                       | A   | 1       | A   | 1                                  | A   | 1       | A   | 1                       | A   | 1       | A   | 1                                  | A   | 1       | A   | 1                                              | A   | 1       | A   | 1   | A  | 1  | A  |    |    |
| Southbound Left - NWP                      | 77                      | E   | 64      | E   | 79                                 | E   | 64      | E   | 70                                             | E   | 67      | E   | 72                      | E   | 66      | E   | 88                                 | F   | 62      | E   | 88                      | F   | 61      | E   | 85                                 | F   | 61      | E   | 89                                             | F   | 66      | E   | 89  | F  | 65 | E  |    |    |
| Southbound Through - NWP                   | 127                     | F   | 43      | D   | 130                                | F   | 45      | D   | 44                                             | D   | 30      | C   | 50                      | D   | 32      | C   | 47                                 | D   | 35      | C   | 51                      | D   | 36      | D   | 80                                 | E   | 46      | D   | 88                                             | F   | 46      | D   | 51  | D  | 37 | D  |    |    |
| Southbound Right - NWP                     | 11                      | B   | 1       | A   | 11                                 | B   | 1       | A   | 11                                             | B   | 9       | A   | 12                      | B   | 10      | A   | 15                                 | B   | 9       | A   | 16                      | B   | 11      | B   | 21                                 | C   | 10      | A   | 24                                             | C   | 10      | A   | 20  | C  | 10 | A  |    |    |
| Northwest Parkway and Rockcress Drive/Via  | 21                      | C   | 9       | A   | 27                                 | C   | 11      | B   |                                                |     |         |     |                         |     |         |     | 42                                 | D   | 16      | B   | 40                      | D   | 24      | C   | >2min                              | F   | 24      | C   | 119                                            | F   | 30      | C   | 52  | D  | 25 | C  |    |    |
| Eastbound Left                             | 85                      | F   | 68      | E   | 59                                 | E   | 70      | E   |                                                |     |         |     |                         |     |         |     | 76                                 | E   | 65      | E   | 79                      | E   | 66      | E   | 80                                 | F   | 66      | E   | 74                                             | E   | 68      | E   | 79  | E  | 63 | E  |    |    |
| Eastbound Through                          | 0                       | A   | 1       | A   | 0                                  | A   | 0       | A   |                                                |     |         |     |                         |     |         |     | 0                                  | A   | 0       | A   | 0                       | A   | 0       | A   | 0                                  | A   | 0       | A   | 2                                              | A   | 0       | A   | 0   | A  | 0  | A  |    |    |
| Eastbound Right                            | 0                       | A   | 1       | A   | 1                                  | A   | 1       | A   |                                                |     |         |     |                         |     |         |     | 1                                  | A   | 2       | A   | 1                       | A   | 2       | A   | 1                                  | A   | 3       | A   | 1                                              | A   | 3       | A   | 1   | A  | 3  | A  |    |    |
| Westbound Left                             | 80                      | E   | 71      | E   | 79                                 | E   | 70      | E   |                                                |     |         |     |                         |     |         |     | 92                                 | F   | 83      | F   | 91                      | F   | 90      | F   | >3min                              | F   | 79      | E   | >3min                                          | F   | 81      | F   | 78  | E  | 75 | E  |    |    |
| Westbound Through                          | 0                       | A   | 0       | A   | 0                                  | A   | 0       | A   |                                                |     |         |     |                         |     |         |     | 0                                  | A   | 0       | A   | 0                       | A   | 0       | A   | 0                                  | A   | 0       | A   | 14                                             | B   | 0       | A   | 0   | A  | 0  | A  |    |    |
| Westbound Right                            | 7                       | A   | 8       | A   | 7                                  | A   | 9       | A   |                                                |     |         |     |                         |     |         |     | 7                                  | A   | 9       | A   | 7                       | A   | 7       | A   | 52                                 | D   | 10      | A   | 112                                            | F   | 10      | A   | 9   | A  | 10 | B  |    |    |
| Northbound Left                            | 58                      | E   | 60      | E   | 55                                 | D   | 58      | E   |                                                |     |         |     |                         |     |         |     | 65                                 | E   | 71      | E   | 65                      | E   | 77      | E   | >3min                              | F   | 82      | F   | 43                                             | D   | 86      | F   | 82  | F  | 83 | F  |    |    |
| Northbound Through                         | 11                      | B   | 6       | A   | 20                                 | B   | 7       | A   |                                                |     |         |     |                         |     |         |     | 15                                 | B   | 17      | B   | 15                      | B   | 29      | C   | 95                                 | F   | 32      | C   | 28                                             | C   | 41      | D   | 41  | D  | 36 | D  |    |    |
| Northbound Right                           | 4                       | A   | 3       | A   | 7                                  | A   | 3       | A   |                                                |     |         |     |                         |     |         |     | 6                                  | A   | 10      | A   | 6                       | A   | 19      | B   | 78                                 | E   | 25      | C   | >2min                                          | F   | 33      | C   | 27  | C  | 28 | C  |    |    |
| Southbound Left                            | 54                      | D   | 67      | E   | 53                                 | D   | 66      | E   |                                                |     |         |     |                         |     |         |     | 71                                 | E   | 69      | E   | 69                      | E   | 69      | E   | >2min                              | F   | 63      | E   | >2min                                          | F   | 62      | E   | 63  | E  | 67 | E  |    |    |
| Southbound Through                         | 17                      | B   | 6       | A   | 21                                 | C   | 8       | A   |                                                |     |         |     |                         |     |         |     | 53                                 | D   | 5       | A   | 49                      | D   | 7       | A   | >3min                              | F   | 9       | A   | >2min                                          | F   | 11      | B   | 52  | D  | 7  | A  |    |    |
| Southbound Right                           | 7                       | A   | 5       | A   | 9                                  | A   | 4       | A   |                                                |     |         |     |                         |     |         |     | 17                                 | B   | 4       | A   | 16                      | B   | 4       | A   | >2min                              | F   | 5       | A   | 119                                            | F   | 6       | A   | 10  | B  | 4  | A  |    |    |
| Northwest Parkway and US 36 North Ramps (  | 9                       | A   | 15      | B   | 11                                 | B   | 17      | B   |                                                |     |         |     |                         |     |         |     | 12                                 | B   | 29      | C   | 12                      | B   | 28      | C   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Westbound Left                             | 57                      | E   | 62      | E   | 56                                 | E   | 63      | E   |                                                |     |         |     |                         |     |         |     | 56                                 | E   | 62      | E   | 56                      | E   | 61      | E   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Westbound Through                          | 51                      | D   | 69      | E   | 58                                 | E   | 54      | D   |                                                |     |         |     |                         |     |         |     | 56                                 | E   | 66      | E   | 57                      | E   | 64      | E   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Westbound Right                            | 3                       | A   | 2       | A   | 7                                  | A   | 2       | A   |                                                |     |         |     |                         |     |         |     | 6                                  | A   | 2       | A   | 5                       | A   | 3       | A   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Northbound Left                            | 36                      | D   | 38      | D   | 38                                 | D   | 49      | D   |                                                |     |         |     |                         |     |         |     | 56                                 | E   | 61      | E   | 58                      | E   | 61      | E   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Northbound Through                         | 4                       | A   | 8       | A   | 7                                  | A   | 8       | A   |                                                |     |         |     |                         |     |         |     | 7                                  | A   | 10      | A   | 7                       | A   | 11      | B   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Southbound Through                         | 5                       | A   | 14      | B   | 5                                  | A   | 19      | B   |                                                |     |         |     |                         |     |         |     | 10                                 | A   | 49      | D   | 10                      | A   | 51      | D   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Southbound Right                           | 7                       | A   | 10      | B   | 7                                  | A   | 10      | B   |                                                |     |         |     |                         |     |         |     | 7                                  | A   | 16      | B   | 7                       | A   | 13      | B   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- | -- |
| Northwest Parkway and US 36 South Ramps (  | 18                      | B   | 34      | C   | 19                                 | B   | 43      | D   |                                                |     |         |     |                         |     |         |     | 18                                 | B   | 82      | F   | 19                      | B   | 96      | F   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- | -- |
| Eastbound Left                             | 56                      | E   | 79      | E   | 57                                 | E   | 94      | F   |                                                |     |         |     |                         |     |         |     | 55                                 | D   | >2min   | F   | 56                      | E   | >2min   | F   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Eastbound Through                          | 57                      | E   | 98      | F   | 65                                 | E   | 91      | F   |                                                |     |         |     |                         |     |         |     | 55                                 | E   | >2min   | F   | 61                      | E   | >2min   | F   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Eastbound Right                            | 2                       | A   | 6       | A   | 2                                  | A   | 13      | B   |                                                |     |         |     |                         |     |         |     | 2                                  | A   | 39      | D   | 2                       | A   | 50      | D   | --                                 | --  | --      | --  | --                                             | --  | --      | --  | --  | -- | -- | -- | -- |    |
| Northbound Through                         | 25                      | C   | 42      | D   | 27                                 | C   | 53      | D   |                                                |     |         |     |                         |     |         |     |                                    |     |         |     |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |     |    |    |    |    |    |

Table 4 - Peak Hour Intersection Level of Service Summary (With Project Conditions)

|                                  | Year 2025 Bkgrd+Project |     |         |     | Year 2025 Bkgrd+Project<br>UPDATED |     |         |     | Year 2025 Bkgrd+Project<br>(With Improvements) |     |         |     | Year 2025 Bkgrd+Project<br>(With Improvements)<br>UPDATED |     |         |     | Year 2030 Bkgrd+Project |     |         |     | Year 2030 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project |     |         |     | Year 2040 Bkgrd+Project<br>UPDATED |     |         |     | Year 2040 Bkgrd+Project<br>(With Improvements) |     |         |  |
|----------------------------------|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|-----|-----------------------------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|-------------------------|-----|---------|-----|------------------------------------|-----|---------|-----|------------------------------------------------|-----|---------|--|
| Intersection and<br>Lanes Groups | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |     | AM Peak                                                   |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                 |     | PM Peak |     | AM Peak                            |     | PM Peak |     | AM Peak                                        |     | PM Peak |  |
|                                  | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS | Delay   | LOS | Delay                                                     | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                   | LOS | Delay   | LOS | Delay                              | LOS | Delay   | LOS | Delay                                          | LOS |         |  |
| Stop-Controlled                  |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           |     |         |     |                         |     |         |     |                                    |     |         |     |                         |     |         |     |                                    |     |         |     |                                                |     |         |  |
| 88th Street and Rockcress Drive  |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 3   | A       | 3   | A                       | 2   | A       | 3   | A                                  | 3   | A       | 3   | A                       | 3   | A       | 3   | A                                  | 3   | A       |     |                                                |     |         |  |
| Westbound Left                   |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 16  | C       | 11  | B                       | 16  | C       | 9   | A                                  | 15  | C       | 12  | B                       | 17  | C       | 18  | C                                  |     |         |     |                                                |     |         |  |
| Westbound Right                  |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 7   | A       | 4   | A                       | 8   | A       | 4   | A                                  | 8   | A       | 6   | A                       | 7   | A       | 8   | A                                  |     |         |     |                                                |     |         |  |
| Northbound Through               |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 2   | A       | 2   | A                       | 2   | A       | 2   | A                                  | 2   | A       | 3   | A                       | 2   | A       | 2   | A                                  |     |         |     |                                                |     |         |  |
| Northbound Right                 |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 2   | A       | 1   | A                       | 2   | A       | 1   | A                                  | 2   | A       | 2   | A                       | 2   | A       | 2   | A                                  |     |         |     |                                                |     |         |  |
| Southbound Left                  |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 9   | A       | 5   | A                       | 8   | A       | 6   | A                                  | 9   | A       | 5   | A                       | 10  | B       | 9   | A                                  |     |         |     |                                                |     |         |  |
| Southbound Through               |                         |     |         |     |                                    |     |         |     |                                                |     |         |     |                                                           | 3   | A       | 3   | A                       | 3   | A       | 3   | A                                  | 3   | A       | 3   | A                       | 3   | A       | 3   | A                                  |     |         |     |                                                |     |         |  |

Note: Delay represented in average seconds per vehicle.

Note: Under conditions with improvements, level of service results are only provided for intersections with recommended improvements.

Table 5 - 95th Percentile Queuing Summary (With Project Conditions)

| Intersection and Lane Groups       | Storage or Dist.<br>To Adj. Int | Year 2025<br>Bkgrd+Project |         | Year 2025<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) <b>UPDATED</b> |         | Year 2030<br>Bkgrd+Project |         | Year 2030<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2040<br>Bkgrd+Project |         | Year 2040<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2040<br>Bkgrd+Project<br>(With Imp.) |         | Year 2040 Bkgrd+Project<br>(With Imp.) <b>UPDATED</b> |         |
|------------------------------------|---------------------------------|----------------------------|---------|----------------------------------------------|---------|-------------------------------------------|---------|----------------------------------------------------------|---------|----------------------------|---------|----------------------------------------------|---------|----------------------------|---------|----------------------------------------------|---------|-------------------------------------------|---------|-------------------------------------------------------|---------|
|                                    |                                 | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                                   | PM Peak | AM Peak                                                  | PM Peak | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                                   | PM Peak | AM Peak                                               | PM Peak |
| Signalized Control                 |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Dillon Road and McCaslin Boulevard |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left                     | 425'                            | 78'                        | 162'    | 78'                                          | 169'    |                                           |         |                                                          |         | 84'                        | 176'    | 77'                                          | 174'    | 86'                        | 195'    | 83'                                          | 175'    |                                           |         |                                                       |         |
| Eastbound Through                  | 425'                            | 65'                        | 173'    | 67'                                          | 186'    |                                           |         |                                                          |         | 81'                        | 193'    | 73'                                          | 165'    | 85'                        | 210'    | 79'                                          | 191'    |                                           |         |                                                       |         |
| Eastbound Right                    | 120'                            | 0'                         | 55'     | 0'                                           | 65'     |                                           |         |                                                          |         | 0'                         | 83'     | 0'                                           | 73'     | 0'                         | 107'    | 0'                                           | 79'     |                                           |         |                                                       |         |
| Westbound Left                     | 500'                            | 270'                       | 368'    | 273'                                         | 388'    |                                           |         |                                                          |         | 286'                       | 385'    | 662'                                         | 343'    | 321'                       | 483'    | 305'                                         | 458'    |                                           |         |                                                       |         |
| Westbound Through                  | 500'                            | 147'                       | 138'    | 142'                                         | 137'    |                                           |         |                                                          |         | 142'                       | 151'    | 760'                                         | 153'    | 151'                       | 160'    | 203'                                         | 149'    |                                           |         |                                                       |         |
| Westbound Right                    | 280'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 0'                         | 0'      | 0'                                           | 0'      | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                       |         |
| Northbound Left                    | 540'                            | 142'                       | 186'    | 130'                                         | 189'    |                                           |         |                                                          |         | 139'                       | 195'    | 138'                                         | 193'    | 156'                       | 240'    | 148'                                         | 268'    |                                           |         |                                                       |         |
| Northbound Through                 | 870'                            | 383'                       | 419'    | 369'                                         | 440'    |                                           |         |                                                          |         | 399'                       | 440'    | 341'                                         | 435'    | 415'                       | 542'    | 432'                                         | 548'    |                                           |         |                                                       |         |
| Northbound Right                   | 190'                            | 97'                        | 127'    | 108'                                         | 135'    |                                           |         |                                                          |         | 115'                       | 137'    | 118'                                         | 116'    | 154'                       | 168'    | 137'                                         | 210'    |                                           |         |                                                       |         |
| Southbound Left                    | 240'                            | 171'                       | 216'    | 183'                                         | 208'    |                                           |         |                                                          |         | 202'                       | 227'    | 195'                                         | 239'    | 232'                       | 305'    | 277'                                         | 263'    |                                           |         |                                                       |         |
| Southbound Through                 | 410'                            | 236'                       | 290'    | 253'                                         | 299'    |                                           |         |                                                          |         | 238'                       | 308'    | 232'                                         | 306'    | 266'                       | 382'    | 523'                                         | 322'    |                                           |         |                                                       |         |
| Southbound Right                   | 110'                            | 36'                        | 121'    | 44'                                          | 139'    |                                           |         |                                                          |         | 42'                        | 139'    | 28'                                          | 137'    | 52'                        | 208'    | 82'                                          | 158'    |                                           |         |                                                       |         |
| Dillon Road and 88th Street        |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Through                  | 965'                            | 387'                       | 558'    | 410'                                         | 608'    |                                           |         |                                                          |         | 467'                       | 641'    | 562'                                         | 577'    | 520'                       | 837'    | 520'                                         | 1355'   |                                           |         |                                                       |         |
| Eastbound Right                    | 270'                            | 67'                        | 90'     | 90'                                          | 113'    |                                           |         |                                                          |         | 74'                        | 94'     | 76'                                          | 39'     | 124'                       | 258'    | 113'                                         | 835'    |                                           |         |                                                       |         |
| Westbound Left                     | 400'                            | 172'                       | 209'    | 170'                                         | 169'    |                                           |         |                                                          |         | 209'                       | 180'    | 224'                                         | 186'    | 315'                       | 211'    | 300'                                         | 194'    |                                           |         |                                                       |         |
| Westbound Through                  | 5500'                           | 215'                       | 171'    | 220'                                         | 150'    |                                           |         |                                                          |         | 222'                       | 161'    | 227'                                         | 118'    | 268'                       | 174'    | 282'                                         | 180'    |                                           |         |                                                       |         |
| Northbound Left                    | 1250'                           | 164'                       | 157'    | 168'                                         | 171'    |                                           |         |                                                          |         | 165'                       | 181'    | 183'                                         | 191'    | 214'                       | 236'    | 213'                                         | 203'    |                                           |         |                                                       |         |
| Northbound Right                   | 200'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 0'                         | 0'      | 0'                                           | 0'      | 0'                         | 47'     | 0'                                           | 46'     |                                           |         |                                                       |         |
| Dillon Road and 96th Street        |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left                     | 415'                            | 314'                       | 622'    | 437'                                         | 692'    | 192'                                      | 182'    | 188'                                                     | 177'    | 188'                       | 182'    | 193'                                         | 190'    | 281'                       | 206'    | 253'                                         | 203'    |                                           |         |                                                       |         |
| Eastbound Through                  | 5500'                           | 214'                       | 1550'   | 363'                                         | 2679'   | 183'                                      | 329'    | 183'                                                     | 323'    | 183'                       | 356'    | 196'                                         | 319'    | 184'                       | 332'    | 189'                                         | 390'    |                                           |         |                                                       |         |
| Eastbound Right                    | 415'                            | 55'                        | 527'    | 55'                                          | 686'    | 68'                                       | 131'    | 74'                                                      | 148'    | 101'                       | 151'    | 109'                                         | 149'    | 123'                       | 172'    | 123'                                         | 183'    |                                           |         |                                                       |         |
| Westbound Left                     | 425'                            | 519'                       | 666'    | 608'                                         | 697'    | 305'                                      | 302'    | 351'                                                     | 330'    | 322'                       | 301'    | 341'                                         | 291'    | 430'                       | 351'    | 376'                                         | 390'    |                                           |         |                                                       |         |
| Westbound Through                  | 1350'                           | 408'                       | 1662'   | 606'                                         | 2172'   | 216'                                      | 216'    | 227'                                                     | 229'    | 214'                       | 225'    | 232'                                         | 214'    | 278'                       | 205'    | 262'                                         | 242'    |                                           |         |                                                       |         |
| Westbound Right                    | 425'                            | 73'                        | 118'    | 85'                                          | 111'    | 87'                                       | 110'    | 85'                                                      | 117'    | 89'                        | 120'    | 101'                                         | 133'    | 125'                       | 137'    | 131'                                         | 135'    |                                           |         |                                                       |         |
| Northbound Left                    | 350'                            | 223'                       | 540'    | 276'                                         | 573'    | 326'                                      | 88'     | 216'                                                     | 143'    | 262'                       | 200'    | 249'                                         | 227'    | 289'                       | 235'    | 312'                                         | 318'    |                                           |         |                                                       |         |
| Northbound Through                 | 1900'                           | 352'                       | 1839'   | 348'                                         | 1969'   | 335'                                      | 444'    | 338'                                                     | 481'    | 334'                       | 509'    | 357'                                         | 456'    | 414'                       | 607'    | 430'                                         | 655'    |                                           |         |                                                       |         |
| Northbound Right                   | 325'                            | 0'                         | 630'    | 23'                                          | 677'    | 0'                                        | 166'    | 0'                                                       | 242'    | 0'                         | 267'    | 50'                                          | 243'    | 93'                        | 408'    | 148'                                         | 491'    |                                           |         |                                                       |         |
| Southbound Left                    | 335'                            | 694'                       | 508'    | 703'                                         | 649'    | 118'                                      | 134'    | 119'                                                     | 138'    | 153'                       | 151'    | 157'                                         | 162'    | 303'                       | 171'    | 508'                                         | 162'    |                                           |         |                                                       |         |
| Southbound Through                 | 3100'                           | 3907'                      | 1232'   | 3929'                                        | 2267'   | 389'                                      | 271'    | 420'                                                     | 292'    | 460'                       | 298'    | 450'                                         | 311'    | 715'                       | 328'    | 1481'                                        | 360'    |                                           |         |                                                       |         |
| Southbound Right                   | 350'                            | 690'                       | 444'    | 679'                                         | 622'    | 104'                                      | 87'     | 132'                                                     | 90'     | 177'                       | 88'     | 214'                                         | 92'     | 222'                       | 124'    | 696'                                         | 131'    |                                           |         |                                                       |         |
| 88th Street and Campus Drive       |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left                     | 150'                            | 59'                        | 161'    | 58'                                          | 168'    | 63'                                       | 162'    | 60'                                                      | 162'    | 69'                        | 145'    | 81'                                          | 159'    | 70'                        | 141'    | 102'                                         | 160'    |                                           |         |                                                       |         |
| Eastbound Through+Right            | 150'                            | 149'                       | 205'    | 132'                                         | 212'    | 138'                                      | 210'    | 109'                                                     | 203'    | 156'                       | 190'    | 182'                                         | 239'    | 166'                       | 180'    | 208'                                         | 222'    |                                           |         |                                                       |         |
| Westbound Left                     | 240'                            | 257'                       | 204'    | 233'                                         | 206'    | 271'                                      | 212'    | 259'                                                     | 218'    | 277'                       | 196'    | 278'                                         | 192'    | 290'                       | 194'    | 274'                                         | 205'    |                                           |         |                                                       |         |
| Westbound Through+Right            | 415'                            | 226'                       | 134'    | 231'                                         | 133'    | 234'                                      | 126'    | 224'                                                     | 125'    | 258'                       | 144'    | 269'                                         | 166'    | 268'                       | 142'    | 241'                                         | 158'    |                                           |         |                                                       |         |
| Northbound Left                    | 190'                            | 116'                       | 29'     | 118'                                         | 29'     | 120'                                      | 32'     | 117'                                                     | 43'     | 123'                       | 44'     | 133'                                         | 43'     | 147'                       | 54'     | 153'                                         | 80'     |                                           |         |                                                       |         |
| Northbound Through                 | 1300'                           | 376'                       | 212'    | 435'                                         | 223'    | 293'                                      | 200'    | 380'                                                     | 228'    | 235'                       | 198'    | 269'                                         | 164'    | 267'                       | 233'    | 272'                                         | 316'    |                                           |         |                                                       |         |
| Northbound Right                   | 190' (Ex); 500' (2025)          | 283'                       | 90'     | 293'                                         | 117'    | 403'                                      | 70'     | 430'                                                     | 78'     | 317'                       | 66'     | 342'                                         | 66'     | 379'                       | 70'     | 388'                                         | 71'     |                                           |         |                                                       |         |
| Southbound Left                    | 400'                            | 302'                       | 80'     | 308'                                         | 84'     | 246'                                      | 81'     | 262'                                                     | 86'     | 381'                       | 77'     | 410'                                         | 65'     | 536'                       | 75'     | 542'                                         | 84'     |                                           |         |                                                       |         |
| Southbound Through                 | 600'                            | 160'                       | 280'    | 204'                                         | 269'    | 140'                                      | 275'    | 138'                                                     | 289'    | 393'                       | 219'    | 416'                                         | 247'    | 732'                       | 214'    | 724'                                         | 344'    |                                           |         |                                                       |         |
| Southbound Right                   | 215'                            | 65'                        | 89'     | 70'                                          | 61'     | 66'                                       | 61'     | 71'                                                      | 63'     | 76'                        | 48'     | 67'                                          | 46'     | 120'                       | 48'     | 90'                                          | 152'    |                                           |         |                                                       |         |

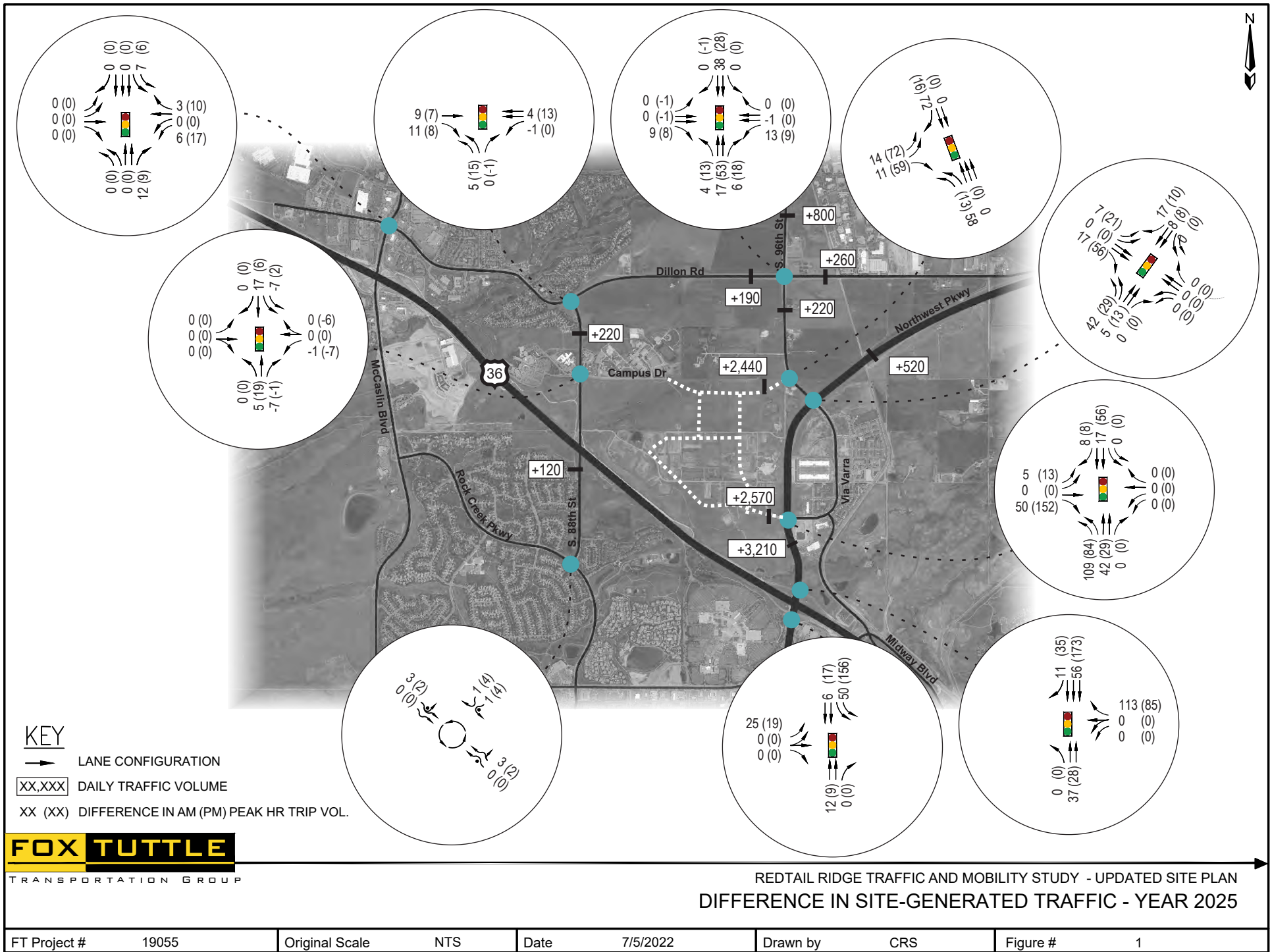
Table 5 - 95th Percentile Queuing Summary (With Project Conditions)

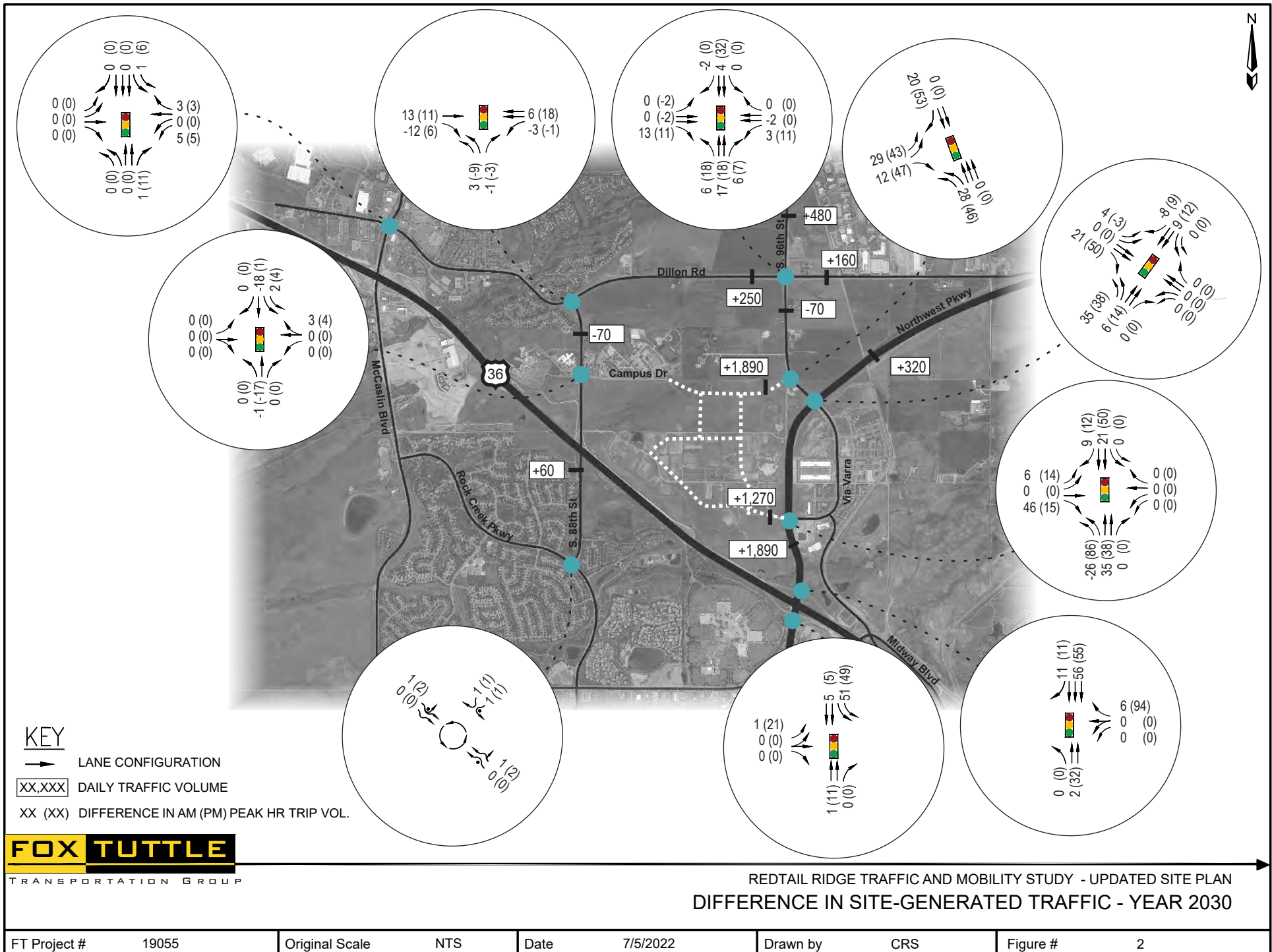
| Intersection and Lane Groups                    | Storage or Dist.<br>To Adj. Int | Year 2025<br>Bkgrd+Project |         | Year 2025<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) <b>UPDATED</b> |         | Year 2030<br>Bkgrd+Project |         | Year 2030<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2040<br>Bkgrd+Project |         | Year 2040<br>Bkgrd+Project<br><b>UPDATED</b> |         | Year 2040<br>Bkgrd+Project<br>(With Imp.) |         | Year 2040 Bkgrd+Project<br>(With Imp.) <b>UPDATED</b> |         |
|-------------------------------------------------|---------------------------------|----------------------------|---------|----------------------------------------------|---------|-------------------------------------------|---------|----------------------------------------------------------|---------|----------------------------|---------|----------------------------------------------|---------|----------------------------|---------|----------------------------------------------|---------|-------------------------------------------|---------|-------------------------------------------------------|---------|
|                                                 |                                 | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                                   | PM Peak | AM Peak                                                  | PM Peak | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                    | PM Peak | AM Peak                                      | PM Peak | AM Peak                                   | PM Peak | AM Peak                                               | PM Peak |
| 96th Street and Campus Drive                    |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left                                  | 1000'                           | 279'                       | 232'    | 280'                                         | 276'    | 195'                                      | 173'    | 191'                                                     | 205'    | 240'                       | 244'    | 248'                                         | 237'    | 254'                       | 279'    | 260'                                         | 297'    |                                           |         |                                                       |         |
| Eastbound Right                                 | 1000'                           | 50'                        | 84'     | 67'                                          | 142'    | 56'                                       | 87'     | 74'                                                      | 168'    | 80'                        | 206'    | 95'                                          | 236'    | 101'                       | 307'    | 110'                                         | 330'    |                                           |         |                                                       |         |
| Northbound Left                                 | 250'                            | 481'                       | 264'    | 472'                                         | 387'    | 180'                                      | 65'     | 188'                                                     | 83'     | 229'                       | 82'     | 253'                                         | 134'    | 331'                       | 103'    | 249'                                         | 105'    |                                           |         |                                                       |         |
| Northbound Through                              | 725'                            | 901'                       | 689'    | 897'                                         | 727'    | 357'                                      | 263'    | 337'                                                     | 222'    | 311'                       | 198'    | 300'                                         | 146'    | 501'                       | 327'    | 385'                                         | 279'    |                                           |         |                                                       |         |
| Southbound Through                              | 630'                            | 508'                       | 414'    | 521'                                         | 464'    | 545'                                      | 372'    | 581'                                                     | 474'    | 581'                       | 474'    | 557'                                         | 553'    | 615'                       | 545'    | 610'                                         | 612'    |                                           |         |                                                       |         |
| Southbound Right                                | 450'                            | 369'                       | 173'    | 327'                                         | 308'    | 395'                                      | 133'    | 438'                                                     | 235'    | 460'                       | 261'    | 440'                                         | 335'    | 510'                       | 369'    | 497'                                         | 441'    |                                           |         |                                                       |         |
| Northwest Parkway and 96th Street/Via Varra     |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left - 96th Street                    | 370'                            | 79'                        | 163'    | 83'                                          | 170'    | 71'                                       | 159'    | 83'                                                      | 177'    | 91'                        | 199'    | 92'                                          | 182'    | 166'                       | 207'    | 171'                                         | 199'    | 89'                                       | 211'    | 94'                                                   | 197'    |
| Eastbound Through - 96th Street                 | 725'                            | 110'                       | 178'    | 109'                                         | 170'    | 117'                                      | 176'    | 109'                                                     | 171'    | 151'                       | 187'    | 141'                                         | 206'    | 870'                       | 330'    | 942'                                         | 292'    | 230'                                      | 239'    | 196'                                                  | 300'    |
| Eastbound Right - 96th Street                   | 400'                            | 26'                        | 0'      | 0'                                           | 0'      | 16'                                       | 6'      | 13'                                                      | 12'     | 0'                         | 0'      | 6'                                           | 65'     | 435'                       | 90'     | 481'                                         | 37'     | 0'                                        | 0'      | 0'                                                    | 40'     |
| Westbound Left - Via Varra                      | 265'                            | 64'                        | 63'     | 65'                                          | 62'     | 64'                                       | 61'     | 66'                                                      | 60'     | 95'                        | 80'     | 101'                                         | 157'    | 163'                       | 80'     | 156'                                         | 82'     | 129'                                      | 81'     | 117'                                                  | 76'     |
| Westbound Through - Via Varra                   | 485'                            | 259'                       | 177'    | 249'                                         | 173'    | 187'                                      | 140'    | 201'                                                     | 145'    | 257'                       | 162'    | 268'                                         | 157'    | 396'                       | 189'    | 400'                                         | 189'    | 348'                                      | 182'    | 315'                                                  | 192'    |
| Westbound Right - Via Varra                     | 250'                            | 0'                         | 0'      | 0'                                           | 0'      | 0'                                        | 0'      | 0'                                                       | 0'      | 39'                        | 0'      | 39'                                          | 0'      | 129'                       | 0'      | 129'                                         | 0'      | 95'                                       | 0'      | 68'                                                   | 0'      |
| Northbound Left - NWP                           | 725'                            | 1117'                      | 483'    | 1136'                                        | 508'    | 463'                                      | 328'    | 481'                                                     | 323'    | 747'                       | 328'    | 794'                                         | 359'    | 1059'                      | 334'    | 1092'                                        | 346'    | 759'                                      | 350'    | 754'                                                  | 295'    |
| Northbound Through - NWP                        | 1450'                           | 2250'                      | 195'    | 2169'                                        | 190'    | 121'                                      | 173'    | 207'                                                     | 182'    | 576'                       | 213'    | 645'                                         | 178'    | 2555'                      | 283'    | 3021'                                        | 292'    | 589'                                      | 298'    | 609'                                                  | 297'    |
| Northbound Right - NWP                          | 320'                            | 0'                         | 0'      | 0'                                           | 0'      | 0'                                        | 0'      | 0'                                                       | 0'      | 0'                         | 0'      | 0'                                           | 0'      | 0'                         | 0'      | 0'                                           | 0'      | 0'                                        | 0'      | 0'                                                    | 0'      |
| Southbound Left - NWP                           | 500'                            | 578'                       | 69'     | 559'                                         | 68'     | 85'                                       | 63'     | 138'                                                     | 57'     | 109'                       | 62'     | 104'                                         | 50'     | 461'                       | 64'     | 706'                                         | 74'     | 120'                                      | 73'     | 114'                                                  | 75'     |
| Southbound Through - NWP                        | 7600'                           | 1613'                      | 286'    | 1971'                                        | 282'    | 488'                                      | 246'    | 543'                                                     | 244'    | 607'                       | 272'    | 634'                                         | 281'    | 1106'                      | 371'    | 1704'                                        | 364'    | 524'                                      | 252'    | 494'                                                  | 250'    |
| Southbound Right - NWP                          | 500'                            | 868'                       | 0'      | 834'                                         | 0'      | 165'                                      | 68'     | 214'                                                     | 71'     | 219'                       | 74'     | 225'                                         | 73'     | 678'                       | 80'     | 884'                                         | 77'     | 280'                                      | 75'     | 250'                                                  | 82'     |
| Northwest Parkway and Rockcress Drive/Via Varra |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Eastbound Left                                  | 130'                            | 12'                        | 43'     | 222'                                         | 64'     |                                           |         |                                                          |         | 32'                        | 80'     | 43'                                          | 97'     | 36'                        | 106'    | 52'                                          | 135'    | 37'                                       | 113'    | 51'                                                   | 123'    |
| Eastbound Through                               | 240'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 0'                         | 0'      | 0'                                           | 0'      | 0'                         | 0'      | 0'                                           | 31'     | 0'                                        | 0'      | 0'                                                    | 5'      |
| Eastbound Right                                 | 200'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 0'                         | 0'      | 0'                                           | 0'      | 0'                         | 0'      | 0'                                           | 0'      | 0'                                        | 6'      | 0'                                                    | 8'      |
| Westbound Left                                  | 520'                            | 228'                       | 162'    | 251'                                         | 162'    |                                           |         |                                                          |         | 333'                       | 213'    | 320'                                         | 207'    | 834'                       | 236'    | 828'                                         | 245'    | 328'                                      | 234'    | 353'                                                  | 234'    |
| Westbound Through                               | 520'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 0'                         | 0'      | 0'                                           | 0'      | 731'                       | 0'      | 0'                                           | 0'      | 0'                                        | 0'      | 0'                                                    | 0'      |
| Westbound Right                                 | 520'                            | 50'                        | 41'     | 53'                                          | 47'     |                                           |         |                                                          |         | 54'                        | 52'     | 57'                                          | 53'     | 169'                       | 57'     | 209'                                         | 61'     | 72'                                       | 59'     | 70'                                                   | 58'     |
| Northbound Left                                 | 450'                            | 104'                       | 35'     | 357'                                         | 94'     |                                           |         |                                                          |         | 287'                       | 88'     | 276'                                         | 134'    | 740'                       | 124'    | 565'                                         | 165'    | 390'                                      | 153'    | 363'                                                  | 208'    |
| Northbound Through                              | 1800'                           | 231'                       | 241'    | 464'                                         | 254'    |                                           |         |                                                          |         | 269'                       | 308'    | 425'                                         | 405'    | 3107'                      | 392'    | 1197'                                        | 705'    | 948'                                      | 450'    | 1015'                                                 | 681'    |
| Northbound Right                                | 200'                            | 51'                        | 76'     | 158'                                         | 56'     |                                           |         |                                                          |         | 55'                        | 98'     | 56'                                          | 246'    | 164'                       | 158'    | 150'                                         | 194'    | 103'                                      | 214'    | 90'                                                   | 269'    |
| Southbound Left                                 | 660'                            | 78'                        | 69'     | 79'                                          | 62'     |                                           |         |                                                          |         | 415'                       | 79'     | 415'                                         | 75'     | 835'                       | 86'     | 873'                                         | 84'     | 262'                                      | 81'     | 98'                                                   | 88'     |
| Southbound Through                              | 3000'                           | 382'                       | 158'    | 474'                                         | 195'    |                                           |         |                                                          |         | 1117'                      | 117'    | 932'                                         | 132'    | 2963'                      | 235'    | 2871'                                        | 251'    | 785'                                      | 169'    | 594'                                                  | 178'    |
| Southbound Right                                | 600'                            | 0'                         | 0'      | 0'                                           | 0'      |                                           |         |                                                          |         | 332'                       | 0'      | 342'                                         | 0'      | 806'                       | 0'      | 864'                                         | 0'      | 307'                                      | 0'      | 103'                                                  | 0'      |
| Northwest Parkway and US 36 North Ramps (WB)    |                                 |                            |         |                                              |         |                                           |         |                                                          |         |                            |         |                                              |         |                            |         |                                              |         |                                           |         |                                                       |         |
| Westbound Left                                  | 325'                            | 178'                       | 169'    | 196'                                         | 159'    |                                           |         |                                                          |         | 190'                       | 162'    | 183'                                         | 158'    |                            |         |                                              |         |                                           |         |                                                       |         |
| Westbound Left+Through                          | 850'                            | 199'                       | 188'    | 372'                                         | 177'    |                                           |         |                                                          |         | 207'                       | 185'    | 204'                                         | 179'    |                            |         |                                              |         |                                           |         |                                                       |         |
| Westbound Right                                 | 1700'                           | 0'                         | 18'     | 0'                                           | 0'      |                                           |         |                                                          |         | 23'                        | 0'      | 2'                                           | 0'      |                            |         |                                              |         |                                           |         |                                                       |         |
| Northbound Left                                 | 200'                            | 206'                       | 341'    | 212'                                         | 352'    |                                           |         |                                                          |         | 216'                       | 374'    | 222'                                         | 374'    |                            |         |                                              |         |                                           |         |                                                       |         |
| Northbound Through                              | 515'                            | 32'                        | 255'    | 153'                                         | 320'    |                                           |         |                                                          |         | 54'                        | 441'    | 71'                                          | 421'    |                            |         |                                              |         |                                           |         |                                                       |         |
| Southbound Through                              | 1800'                           | 149'                       | 274'    | 153'                                         | 371'    |                                           |         |                                                          |         | 217'                       | 2030'   | 224'                                         | 518'    |                            |         |                                              |         |                                           |         |                                                       |         |
| Southbound Right                                | 250'                            | 180'                       | 211'    | 186'                                         | 231'    |                                           |         |                                                          |         | 186'                       | 337'    | 165'                                         | 300'    |                            |         |                                              |         |                                           |         |                                                       |         |

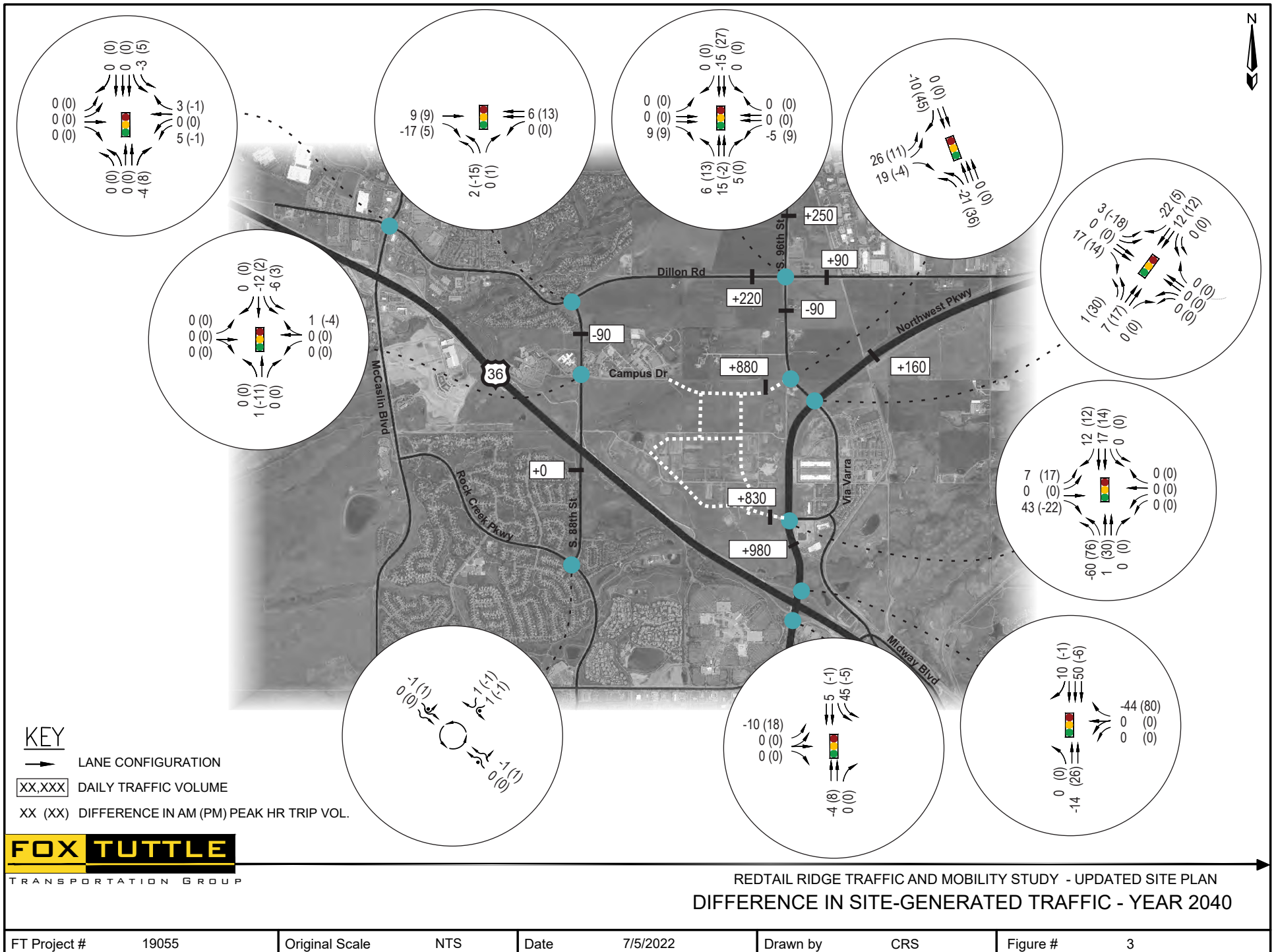
Table 5 - 95th Percentile Queuing Summary (With Project Conditions)

| Intersection and Lane Groups                 | Storage or Dist.<br>To Adj. Int | Year 2025<br>Bkgrd+Project |         | Year 2025<br>Bkgrd+Project<br>UPDATED |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) |         | Year 2025<br>Bkgrd+Project<br>(With Imp.) UPDATED |         | Year 2030<br>Bkgrd+Project |         | Year 2030<br>Bkgrd+Project<br>UPDATED |         | Year 2040<br>Bkgrd+Project |         | Year 2040<br>Bkgrd+Project<br>UPDATED |         | Year 2040<br>Bkgrd+Project<br>(With Imp.) |         | Year 2040 Bkgrd+Project<br>(With Imp.) UPDATED |         |
|----------------------------------------------|---------------------------------|----------------------------|---------|---------------------------------------|---------|-------------------------------------------|---------|---------------------------------------------------|---------|----------------------------|---------|---------------------------------------|---------|----------------------------|---------|---------------------------------------|---------|-------------------------------------------|---------|------------------------------------------------|---------|
|                                              |                                 | AM Peak                    | PM Peak | AM Peak                               | PM Peak | AM Peak                                   | PM Peak | AM Peak                                           | PM Peak | AM Peak                    | PM Peak | AM Peak                               | PM Peak | AM Peak                    | PM Peak | AM Peak                               | PM Peak | AM Peak                                   | PM Peak | AM Peak                                        | PM Peak |
| Northwest Parkway and US 36 South Ramps (EB) |                                 |                            |         |                                       |         |                                           |         |                                                   |         |                            |         |                                       |         |                            |         |                                       |         |                                           |         |                                                |         |
| Eastbound Left                               | 370'                            | 174'                       | 368'    | 198'                                  | 437'    |                                           |         |                                                   |         | 220'                       | 535'    | 224'                                  | 577'    |                            |         |                                       |         |                                           |         |                                                |         |
| Eastbound Left+Through                       | 1300'                           | 200'                       | 487'    | 212'                                  | 759'    |                                           |         |                                                   |         | 221'                       | 1035'   | 236'                                  | 1308'   |                            |         |                                       |         |                                           |         |                                                |         |
| Eastbound Right                              | 190'                            | 0'                         | 322'    | 30'                                   | 365'    |                                           |         |                                                   |         | 30'                        | 430'    | 54'                                   | 433'    |                            |         |                                       |         |                                           |         |                                                |         |
| Northbound Through                           | 570'                            | 311'                       | 637'    | 339'                                  | 746'    |                                           |         |                                                   |         | 356'                       | 1739'   | 349'                                  | 1923'   |                            |         |                                       |         |                                           |         |                                                |         |
| Northbound Right                             | 300'                            | 1'                         | 377'    | 61'                                   | 467'    |                                           |         |                                                   |         | 14'                        | 534'    | 18'                                   | 527'    |                            |         |                                       |         |                                           |         |                                                |         |
| Southbound Left                              | 515'                            | 232'                       | 261'    | 238'                                  | 432'    |                                           |         |                                                   |         | 220'                       | 667'    | 236'                                  | 673'    |                            |         |                                       |         |                                           |         |                                                |         |
| Southbound Through                           | 515'                            | 175'                       | 229'    | 167'                                  | 268'    |                                           |         |                                                   |         | 185'                       | 365'    | 179'                                  | 326'    |                            |         |                                       |         |                                           |         |                                                |         |
| Roundabout Controlled                        |                                 |                            |         |                                       |         |                                           |         |                                                   |         |                            |         |                                       |         |                            |         |                                       |         |                                           |         |                                                |         |
| 88th Street and Rock Creek Parkway           |                                 |                            |         |                                       |         |                                           |         |                                                   |         |                            |         |                                       |         |                            |         |                                       |         |                                           |         |                                                |         |
| Eastbound Left+Through                       | 825'                            | 50'                        | 25'     | 50'                                   | 25'     |                                           |         |                                                   |         | 50'                        | 50'     | 50'                                   | 50'     | 75'                        | 50'     | 75'                                   | 50'     |                                           |         |                                                |         |
| Eastbound Through                            | 825'                            | 25'                        | 50'     | 25'                                   | 50'     |                                           |         |                                                   |         | 25'                        | 50'     | 25'                                   | 50'     | 25'                        | 50'     | 25'                                   | 50'     |                                           |         |                                                |         |
| Westbound Through                            | 400'                            | 50'                        | 25'     | 50'                                   | 25'     |                                           |         |                                                   |         | 50'                        | 25'     | 50'                                   | 25'     | 50'                        | 25'     | 50'                                   | 25'     |                                           |         |                                                |         |
| Westbound Through+Right                      | 400'                            | 150'                       | 25'     | 150'                                  | 25'     |                                           |         |                                                   |         | 150'                       | 25'     | 175'                                  | 25'     | 200'                       | 25'     | 200'                                  | 25'     |                                           |         |                                                |         |
| Southbound Left                              | 550'                            | 25'                        | 50'     | 25'                                   | 50'     |                                           |         |                                                   |         | 50'                        | 50'     | 50'                                   | 50'     | 50'                        | 75'     | 50'                                   | 75'     |                                           |         |                                                |         |
| Southbound Right                             | 60'                             | 25'                        | 25'     | 25'                                   | 25'     |                                           |         |                                                   |         | 25'                        | 25'     | 25'                                   | 25'     | 25'                        | 25'     | 25'                                   | 25'     |                                           |         |                                                |         |
| Stop-Controlled                              |                                 |                            |         |                                       |         |                                           |         |                                                   |         |                            |         |                                       |         |                            |         |                                       |         |                                           |         |                                                |         |
| 88th Street and Rockcress Drive              |                                 |                            |         |                                       |         |                                           |         |                                                   |         |                            |         |                                       |         |                            |         |                                       |         |                                           |         |                                                |         |
| Westbound Left+Right                         | 1000'                           |                            |         |                                       |         |                                           |         |                                                   |         | 27'                        | 48'     | 25'                                   | 39'     | 30'                        | 62'     | 33'                                   | 32'     |                                           |         |                                                |         |
| Northbound Through                           | 1200'                           |                            |         |                                       |         |                                           |         |                                                   |         | 0'                         | 0'      | 0'                                    | 0'      | 0'                         | 0'      | 0'                                    | 2'      |                                           |         |                                                |         |
| Northbound Right                             | 150'                            |                            |         |                                       |         |                                           |         |                                                   |         | 4'                         | 0'      | 3'                                    | 0'      | 9'                         | 0'      | 2'                                    | 4'      |                                           |         |                                                |         |
| Southbound Left                              | 150'                            |                            |         |                                       |         |                                           |         |                                                   |         | 51'                        | 21'     | 42'                                   | 26'     | 61'                        | 22'     | 58'                                   | 56'     |                                           |         |                                                |         |
| Southbound Through                           | 1300'                           |                            |         |                                       |         |                                           |         |                                                   |         | 0'                         | 0'      | 0'                                    | 0'      | 0'                         | 0'      | 0'                                    | 0'      |                                           |         |                                                |         |

Note: Under conditions with improvements, queues are only provided for intersections with recommended improvements.







## 7.2 Proposed Multimodal Network

The Redtail Ridge project will be built over the next 20 years. During this time major shifts in transportation mobility and regional transportation project completion are expected to take place. Transit projects such Northwest Rail, SH 42 BRT, and the RTD local circulator will potentially be operating before Year 2040. In addition, enhancements/construction of complete streets on S. 88th Street, Dillon Road, and S. 96th Street as well as the new connections within the project on Campus Drive, Rockcress Drive, and Sorrel Avenue will be a major part of the multimodal transformation in Louisville. As outlined in the policy documents in the background section of this report, these corridors will serve many more travelers and modes in the future. The transformations will use the current right of way to move more people using safe, reliable, connected and sustainable transportation options.

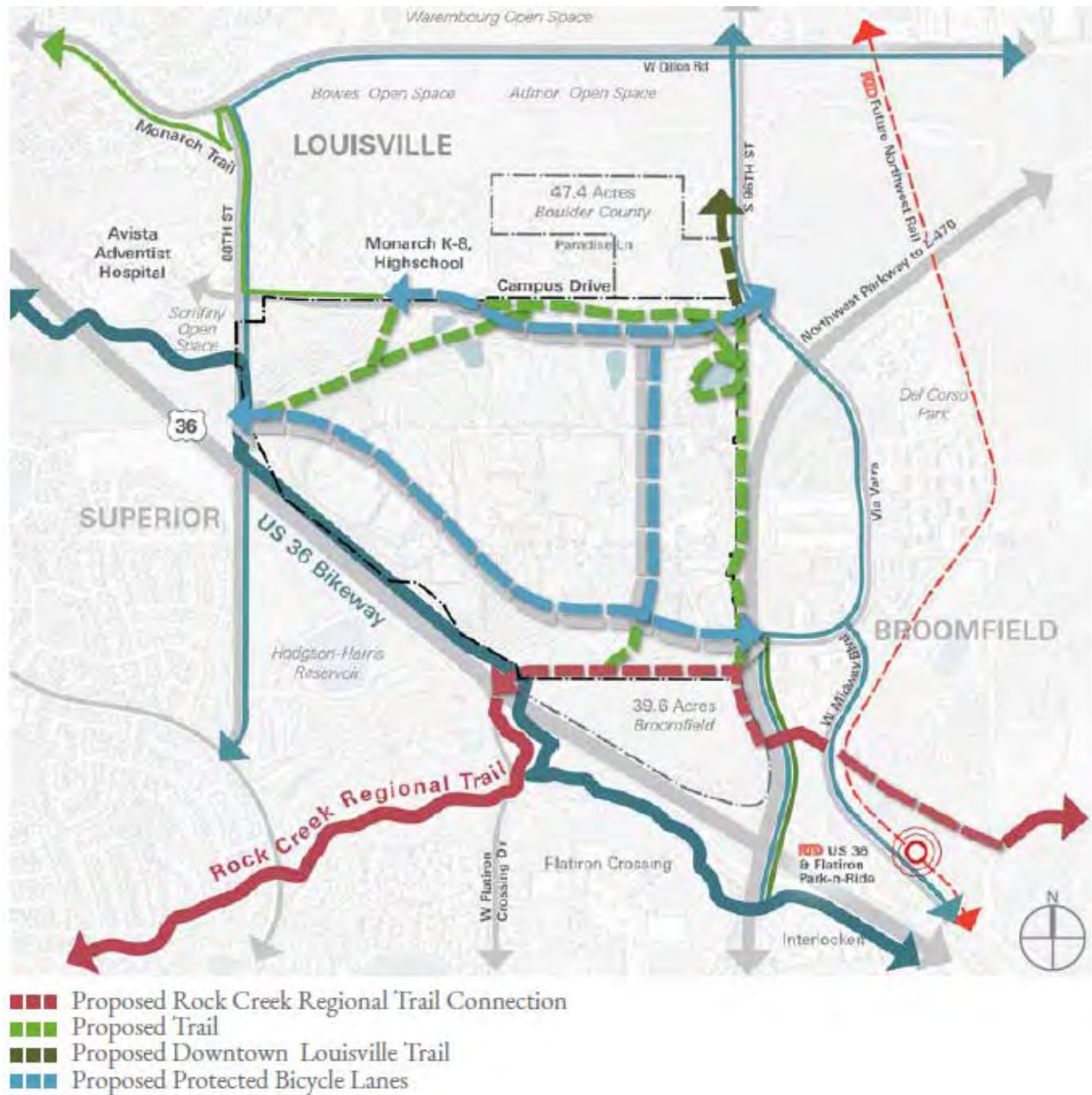
The enhanced-future multimodal network that is recommended with the Redtail Ridge project is shown in **Table 9**. Additional details regarding at-grade signalized crossings, underpasses, trail connections, transit stops, shared ride mobility, and other multimodal infrastructure will be detailed as this project continues ahead in the PUD process.

**Table 9. Enhanced-Future Multimodal Network Assumption with Redtail Ridge Project**

| Corridor                                                        | Bike Lanes            | Multi-use pathways   | Sidewalks               | Bus Lanes        |
|-----------------------------------------------------------------|-----------------------|----------------------|-------------------------|------------------|
| <b>S. 88th Street</b><br>(US 36 to Dillon Road)                 | buffered or protected | westside or eastside | westside and eastside   | none             |
| <b>Dillon Road</b><br>(S. 88th to S. 96th Street)               | buffered or protected | northside            | northside and southside | none             |
| <b>S. 96th Street</b> (Northwest Parkway to County Road)        | buffered or protected | westside             | westside and eastside   | yes              |
| <b>Northwest Parkway</b><br>(S. 96th Street to US 36)           | None                  | eastside             | eastside                | shoulder running |
| <b>Campus Drive</b><br>(S. 88th Street to S. 96th Street)       | buffered or protected | southside            | northside               | none             |
| <b>Rockcress Drive</b><br>(S. 88th Street to Northwest Parkway) | buffered or protected | none                 | northside and southside | none             |
| <b>Sorrel Avenue</b><br>(Campus Drive to Rockcress Drive)       | buffered or protected | none                 | eastside and westside   | none             |

\* Expanded future multimodal network will include on-site and off-site improvements including connections beyond Louisville that do not exist today but have been identified. See the links to the documents in the "Previous Studies" Section for additional details.

The proposed regional and local trail network for the Redtail Ridge project area is also illustrated in **Figure 24**. As shown in the graphic, the project proposes to connect the gap in the Rock Creek Regional Trail as well as provide new east/west and north/south connections through the project, giving users more route options to travel through the area.

**Figure 24. Proposed Enhanced Redtail Ridge Regional and Local Trail Network**

### 7.3 Travel Demand Management Strategies

Transportation Demand Management (TDM) refers to activities that help people use the transportation system more efficiently, while reducing traffic congestion, vehicle emissions and fuel consumption. TDM activities help get the most out of transportation infrastructure and services by making lower-cost, higher-efficiency transportation options easier to use and more readily available.

Table 17. Improvement Phasing Summary

| Recommendation<br>(Intersection/Segment)                   | Project Need (Expected Timeline/Year)                                                                                                                                                                                                |                                                                                                                                                                                                                      | Notes                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                            | Background (No Project)                                                                                                                                                                                                              | With Project                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                           |
| Campus Drive Extension                                     | (N/A) - located on the Redtail Ridge project property                                                                                                                                                                                | -Construct with first phase of the development (Opening Year 2022)                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                           |
| McCaslin Boulevard / Dillon Road                           | --                                                                                                                                                                                                                                   | --                                                                                                                                                                                                                   | Signal timing should continually be monitored to manage queues.                                                                                                                                                                                                                                                                                                                           |
| Dillon Road / S. 88th Street                               | -Restripe to provide dual WB left-turn lanes (2020) – <i>assumes Campus Drive is not extended</i>                                                                                                                                    | --                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                           |
| Dillon Road (Between S. 88th Street and S. 96th Street)    | -Widen to four-lane roadway (shortly after 2030) <i>assumes Campus Drive is not extended</i>                                                                                                                                         | -Dillon Road is nearing capacity in Year 2040. Monitor the corridor and if traffic volumes increase at a higher rate than projected, Dillon Road may need to be expanded to a four-lane roadway                      | The City noted a desire to maintain Dillon Road as a two-lane roadway. Based on projected volumes, a two-lane is expected to operate acceptably with traffic generated by the project. However, without the Campus Drive extension, Dillon Road is expected to need to be a four-lane around 2030.                                                                                        |
| Dillon Road / S. 96th Street                               | -Construct dual EB/WB left-turn lanes (2020-2021)<br><br>-Construct dual NB/SB left-turn lanes (2035-2040) <i>assumes Campus Drive is not extended</i>                                                                               | -Construct dual EB/WB left-turn lanes (2022 with Campus Drive Ext.)<br><br>-Monitor and if long queues/cycle failure begins to occur construct dual NB/SB left-turn lanes (after 2040)                               |                                                                                                                                                                                                                                                                                                                                                                                           |
| S. 96th Street (Between Dillon Road and Northwest Parkway) | -Widen to four-lane roadway (2025)                                                                                                                                                                                                   | -Widen to four-lane roadway (2022 with Campus Drive Ext.)                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                           |
| S. 96th Street (North of Dillon Road)                      | -Widen to four-lane roadway between Dillon Road and SH 42 (shortly after 2030)                                                                                                                                                       | -Widen to four-lane roadway ~ 1/2 mile to the north (2025)<br><br>-Widen to four-lane roadway to SH 42 (shortly after 2030)                                                                                          | Coordination with the SH 42 BRT project and other development/studies along S. 96th Street should occur to refine timing needs.                                                                                                                                                                                                                                                           |
| S. 88th Street (Between Dillon Road and Campus Drive)      | -Widen to a four-lane roadway (2020) <i>assumes Campus Drive is not extended</i>                                                                                                                                                     | --                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                           |
| S. 88th Street (Between Campus Drive and Rock Creek Pkwy)  | --                                                                                                                                                                                                                                   | --                                                                                                                                                                                                                   | Expected to operate acceptably as a two-lane with turn lanes at key intersection.                                                                                                                                                                                                                                                                                                         |
| S. 88th Street / Campus Drive                              | -Construct a second NB thru lane that would begin approx. 500 feet south of Campus Drive (2020) <i>assumes Campus Drive is not extended</i><br><br>-Extend the NB right-turn lane to provide a minimum of 500 feet of storage (2020) | -Extend the NB right-turn lane to provide 400- 500 feet of storage (with Campus Drive extension)                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                           |
| S. 88th Street / Rockcress Drive                           | (N/A)                                                                                                                                                                                                                                | -Construct a SB left-turn lane and NB right-turn lane on S. 88th Street (with opening of Rockcress Drive, between 2025-2030).                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                           |
| S. 88th Street and Rock Creek Pkwy                         | --                                                                                                                                                                                                                                   | --                                                                                                                                                                                                                   | No improvements anticipated to be needed                                                                                                                                                                                                                                                                                                                                                  |
| S. 96th Street / Campus Drive                              | (N/A)                                                                                                                                                                                                                                | -Construct dual NB left-turn lanes and a SB right-turn lane on S. 96th Street, and dual EB left-turn and an EB right-turn lane on Campus Drive (2022 with Campus Drive Ext.). Signalize intersection when warranted. |                                                                                                                                                                                                                                                                                                                                                                                           |
| Northwest Parkway / S. 96th Street / Via Varra             | -Construct triple NB left-turn lanes on NWP (2025)<br>-Capacity improvements on NWP – see note (2030-2035)                                                                                                                           | -Construct triple NB left-turn lanes on NWP (2025);<br>-Capacity improvements on NWP – see note (2030-2035)                                                                                                          | Constructing a third SB thru lane from north of S. 96th Street to the US 36 interchange is expected to improve operations. However, this may not be the optimal design for travel time. Previous studies have recommended that this intersection be grade separated in the future. Therefore, a separate corridor study is recommended rather than specific intersection recommendations. |
| Northwest Parkway / Rockcress Drive / Via Varra            | -Capacity improvements on NWP – see note (2030-2035)                                                                                                                                                                                 | -Capacity improvements on NWP – see note (2030-2035)                                                                                                                                                                 | See note for Northwest Parkway / 96th Street / Via Varra intersection                                                                                                                                                                                                                                                                                                                     |
| Northwest Parkway / US 36 Interchange                      | -New interchange needed (2040)                                                                                                                                                                                                       | -New interchange needed (2027-2028)                                                                                                                                                                                  | To address the anticipated capacity constraints, the interchange needs to be modified to provide additional capacity or an alternative access to this area needs to be provided via US 36. A follow-up study should be conducted that looks at future grade separation concepts along Northwest Parkway and evaluates all interchange configuration operations for US 36.                 |



#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.1  | 0.2  | 4.0 | 0.5  | 0.6  | 2.8 | 2.1  | 0.2  | 0.4 | 2.2  | 0.2  | 2.1 |
| Total Del/Veh (s)  | 47.0 | 48.3 | 2.0 | 39.5 | 33.1 | 3.1 | 45.4 | 28.7 | 4.1 | 51.5 | 23.2 | 3.1 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.7  |
| Total Del/Veh (s)  | 25.0 |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT  | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.3  | 0.3 | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.1  |
| Total Del/Veh (s)  | 35.8 | 3.6 | 27.3 | 16.7 | 37.3 | 1.2 | 1.7 | 20.6 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL   | SBT   | SBR  |
|--------------------|------|------|-----|------|------|------|------|------|-----|-------|-------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  | 0.1  | 0.1  | 0.1 | 0.0   | 0.0   | 0.0  |
| Total Del/Veh (s)  | 77.7 | 63.8 | 7.3 | 84.1 | 53.7 | 11.0 | 67.3 | 31.5 | 2.3 | 105.1 | 186.9 | 40.5 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.0  |
| Total Del/Veh (s)  | 71.1 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Denied Del/Veh (s) | 4.1  | 0.2  | 0.2  | 0.0  | 0.0  | 0.0  | 0.3  | 0.1  | 0.3  | 0.7  | 0.1  | 0.5 |
| Total Del/Veh (s)  | 49.3 | 71.7 | 35.9 | 43.6 | 41.1 | 30.1 | 40.9 | 51.0 | 20.8 | 48.5 | 22.0 | 6.3 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.3  |
| Total Del/Veh (s)  | 34.1 |

#### 23: 96th St & Campus Dr Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR | All  |
|--------------------|------|-----|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.2  | 0.0 | 0.0  | 0.9  | 0.2  | 0.0  | 0.0 | 0.2  |
| Total Del/Veh (s)  | 54.6 | 0.7 | 14.0 | 75.5 | 46.9 | 23.5 | 8.1 | 37.5 |

### 25: Northwest Pkwy & 96th St Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL   | NBT | NBR | SBL  | SBT   | SBR  |
|--------------------|------|------|-----|------|------|-----|-------|-----|-----|------|-------|------|
| Denied Del/Veh (s) | 0.1  | 0.0  | 0.0 | 3.6  | 0.2  | 3.6 | 1.9   | 0.7 | 7.2 | 0.0  | 0.0   | 0.0  |
| Total Del/Veh (s)  | 64.9 | 77.3 | 7.8 | 58.5 | 77.2 | 2.6 | 205.6 | 6.4 | 1.0 | 79.2 | 129.5 | 10.9 |

### 25: Northwest Pkwy & 96th St Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.6  |
| Total Del/Veh (s)  | 92.7 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR | WBL  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR | All  |
|--------------------|------|-----|------|-----|------|------|-----|------|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 1.0  | 3.4 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 | 0.1  |
| Total Del/Veh (s)  | 59.2 | 0.5 | 79.3 | 7.0 | 54.8 | 20.0 | 6.6 | 52.8 | 20.8 | 9.2 | 26.5 |

### 35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

| Movement           | WBL  | WBT  | WBR | NBL  | NBT | SBT | SBR | All  |
|--------------------|------|------|-----|------|-----|-----|-----|------|
| Denied Del/Veh (s) | 0.4  | 0.5  | 0.5 | 0.1  | 0.1 | 0.0 | 0.0 | 0.1  |
| Total Del/Veh (s)  | 55.5 | 57.8 | 6.6 | 38.4 | 7.3 | 5.2 | 7.1 | 10.9 |

### 40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

| Movement           | EBL  | EBT  | EBR | NBT  | NBR | SBL  | SBT | All  |
|--------------------|------|------|-----|------|-----|------|-----|------|
| Denied Del/Veh (s) | 1.6  | 1.2  | 3.3 | 0.3  | 2.3 | 0.0  | 0.0 | 0.6  |
| Total Del/Veh (s)  | 56.7 | 64.6 | 1.8 | 26.6 | 4.7 | 36.6 | 5.6 | 19.2 |

### 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.7 | 1.9 | 3.9 | 1.0 | 3.9 | 3.9 | 1.6 |

### 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBT | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |     | 0.0 | 0.0 |
| Total Del/Veh (s)  | 6.2 | 4.9 | 5.0 | 7.2 | 4.1 |     | 3.8 | 6.3 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.4 | 0.2 | 1.9 | 1.2 | 4.1 | 0.2 | 2.5 | 1.7 |

## 108: Rockcress Dr Performance by movement

| Movement           | EBT | WBT | All |
|--------------------|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 0.3 | 1.1 | 0.9 |

## 110: Sorrel Ave &amp; Rockcress Dr Performance by movement

| Movement           | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 |     | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.8 | 3.1 | 2.0 | 5.4 | 6.2 | 7.1 |     | 3.1 | 2.1 | 3.2 | 3.4 | 2.7 |

## 110: Sorrel Ave &amp; Rockcress Dr Performance by movement

| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 5.7 |

## Total Zone Performance

| Denied Del/Veh (s) | 1.2   |
|--------------------|-------|
| Total Del/Veh (s)  | 758.0 |

# Queuing and Blocking Report

07/04/2022

2025 + Project - AM

## Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  | SB  |
|-----------------------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | L   | L    | T    | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 30  | 99  | 86  | 270 | 322  | 171  | 103 | 149 | 424 | 402 | 153 | 196 |
| Average Queue (ft)    | 3   | 35  | 27  | 148 | 191  | 77   | 18  | 77  | 242 | 212 | 34  | 59  |
| 95th Queue (ft)       | 16  | 78  | 67  | 238 | 273  | 142  | 65  | 130 | 369 | 342 | 108 | 147 |
| Link Distance (ft)    |     | 750 | 750 |     | 1028 | 1028 |     |     | 893 | 893 | 893 |     |
| Upstream Blk Time (%) |     |     |     |     |      |      |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |      |      |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 135 |     |     | 285 |      |      | 510 | 510 |     |     |     | 190 |
| Storage Blk Time (%)  |     | 0   | 0   | 0   | 1    |      |     |     | 0   |     |     | 0   |
| Queuing Penalty (veh) |     | 0   | 0   | 0   | 1    |      |     |     | 0   |     |     | 1   |

## Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB   | SB   | SB   | SB |
|-----------------------|-----|------|------|------|----|
| Directions Served     | L   | T    | T    | T    | R  |
| Maximum Queue (ft)    | 233 | 292  | 267  | 227  | 80 |
| Average Queue (ft)    | 103 | 169  | 148  | 95   | 4  |
| 95th Queue (ft)       | 183 | 253  | 233  | 193  | 44 |
| Link Distance (ft)    |     | 1296 | 1296 | 1296 |    |
| Upstream Blk Time (%) |     |      |      |      |    |
| Queuing Penalty (veh) |     |      |      |      |    |
| Storage Bay Dist (ft) | 190 |      |      | 100  |    |
| Storage Blk Time (%)  | 1   | 4    |      | 5    |    |
| Queuing Penalty (veh) | 4   | 9    |      | 5    |    |

## Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | B19 | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | T   | L   | L   |
| Maximum Queue (ft)    | 485  | 132  | 222 | 256 | 249 | 155 | 170 | 195 |
| Average Queue (ft)    | 229  | 31   | 82  | 107 | 114 | 6   | 84  | 107 |
| 95th Queue (ft)       | 410  | 90   | 170 | 212 | 220 | 94  | 146 | 168 |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 | 601 |     | 337 |
| Upstream Blk Time (%) |      |      |     |     |     | 0   |     |     |
| Queuing Penalty (veh) |      |      |     |     |     | 0   |     |     |
| Storage Bay Dist (ft) |      |      | 400 |     |     |     | 200 |     |
| Storage Blk Time (%)  |      |      |     |     |     |     | 0   | 0   |
| Queuing Penalty (veh) |      |      |     |     |     |     | 0   | 1   |

Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | B19  | WB  | WB  | WB  | WB  | B37  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|
| Directions Served     | L   | T   | T   | R   | T    | L   | T   | T   | R   | T    | L   | T   |
| Maximum Queue (ft)    | 462 | 394 | 233 | 71  | 71   | 559 | 626 | 453 | 114 | 267  | 331 | 369 |
| Average Queue (ft)    | 219 | 154 | 100 | 25  | 6    | 356 | 244 | 127 | 42  | 28   | 145 | 237 |
| 95th Queue (ft)       | 437 | 363 | 202 | 55  | 83   | 608 | 606 | 309 | 85  | 200  | 276 | 348 |
| Link Distance (ft)    |     | 601 | 601 |     | 4320 |     | 648 | 648 |     | 1613 |     | 556 |
| Upstream Blk Time (%) |     | 2   |     |     |      |     | 5   | 0   |     |      |     |     |
| Queuing Penalty (veh) |     | 5   |     |     |      |     | 0   | 0   |     |      |     |     |
| Storage Bay Dist (ft) | 415 |     |     | 415 |      | 420 |     |     | 420 |      | 330 |     |
| Storage Blk Time (%)  | 8   | 0   |     |     |      | 18  |     |     |     |      | 1   | 1   |
| Queuing Penalty (veh) | 10  | 0   |     |     |      | 28  |     |     |     |      | 5   | 3   |

Intersection: 15: 96th St & Dillon Rd

| Movement              | NB  | NB  | B42 | B42 | SB  | SB  | SB  | SB  | B38  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | T   | R   | T   |     | L   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 328 | 23  | 521 | 419 | 495 | 786 | 752 | 495 | 2406 |
| Average Queue (ft)    | 186 | 1   | 45  | 13  | 401 | 750 | 700 | 439 | 1988 |
| 95th Queue (ft)       | 294 | 23  | 278 | 143 | 703 | 787 | 745 | 679 | 3142 |
| Link Distance (ft)    | 556 |     | 452 | 452 |     | 682 | 682 |     | 2350 |
| Upstream Blk Time (%) |     |     | 0   | 0   |     | 44  | 18  |     | 47   |
| Queuing Penalty (veh) |     |     | 2   | 0   |     | 0   | 0   |     | 0    |
| Storage Bay Dist (ft) |     | 330 |     |     | 335 |     |     | 335 |      |
| Storage Blk Time (%)  | 0   |     |     |     |     | 92  | 66  |     |      |
| Queuing Penalty (veh) | 2   |     |     |     |     | 96  | 192 |     |      |

Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T   | R   |
| Maximum Queue (ft)    | 75  | 166 | 272  | 293  | 163 | 566  | 270 | 388 | 404 | 311 | 85  |
| Average Queue (ft)    | 24  | 57  | 138  | 115  | 52  | 180  | 165 | 134 | 145 | 87  | 38  |
| 95th Queue (ft)       | 58  | 132 | 233  | 231  | 118 | 435  | 293 | 289 | 308 | 204 | 70  |
| Link Distance (ft)    |     | 565 | 1916 | 1916 |     | 2385 |     |     |     | 869 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 170 | 400 | 400 |     | 200 |
| Storage Blk Time (%)  |     | 4   |      |      | 0   | 8    | 9   | 0   | 1   | 1   |     |
| Queuing Penalty (veh) |     | 1   |      |      | 1   | 53   | 26  | 0   | 2   | 6   |     |

# Queuing and Blocking Report

07/04/2022

2025 + Project - AM

## Intersection: 23: 96th St & Campus Dr

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B42  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 308 | 294  | 88   | 147 | 350 | 751 | 750 | 668 | 148 | 526 | 400 | 122  |
| Average Queue (ft)    | 185 | 113  | 28   | 78  | 280 | 582 | 553 | 101 | 59  | 284 | 124 | 8    |
| 95th Queue (ft)       | 280 | 238  | 67   | 135 | 472 | 863 | 897 | 510 | 121 | 477 | 327 | 69   |
| Link Distance (ft)    |     | 1151 | 1151 |     |     | 725 | 725 | 725 | 452 | 452 |     | 1467 |
| Upstream Blk Time (%) |     |      |      |     |     | 1   | 1   | 0   |     | 2   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 6   | 6   | 2   |     | 12  |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  | 1   | 0    |      |     | 0   | 43  |     |     |     | 8   |     |      |
| Queuing Penalty (veh) | 1   | 0    |      |     | 0   | 94  |     |     |     | 37  |     |      |

## Intersection: 23: 96th St & Campus Dr

| Movement              | B49 | B49 |
|-----------------------|-----|-----|
| Directions Served     | T   |     |
| Maximum Queue (ft)    | 597 | 585 |
| Average Queue (ft)    | 116 | 49  |
| 95th Queue (ft)       | 494 | 314 |
| Link Distance (ft)    | 556 | 556 |
| Upstream Blk Time (%) | 1   | 0   |
| Queuing Penalty (veh) | 6   | 1   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

# Queuing and Blocking Report

07/04/2022

2025 + Project - AM

## Intersection: 25: Northwest Pkwy & 96th St

| Movement              | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB   | NB   | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|------|------|-----|
| Directions Served     | L   | L   | T   | T   | L   | L   | T    | T    | L   | L    | T    | T   |
| Maximum Queue (ft)    | 86  | 102 | 121 | 124 | 42  | 84  | 270  | 243  | 767 | 844  | 853  | 164 |
| Average Queue (ft)    | 23  | 45  | 58  | 57  | 6   | 25  | 154  | 108  | 667 | 714  | 642  | 52  |
| 95th Queue (ft)       | 64  | 83  | 103 | 109 | 27  | 65  | 249  | 229  | 981 | 1136 | 1428 | 121 |
| Link Distance (ft)    |     |     | 725 | 725 |     |     | 1056 | 1056 |     |      | 941  | 941 |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |      |      | 32  |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |      |      | 144 |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 180 | 180 |      |      | 700 | 700  |      |     |
| Storage Blk Time (%)  |     |     |     |     |     |     | 9    | 3    | 56  | 42   | 5    |     |
| Queuing Penalty (veh) |     |     |     |     |     |     | 4    | 1    | 111 | 83   | 46   |     |

## Intersection: 25: Northwest Pkwy & 96th St

| Movement              | B39  | B39  | B39  | SB  | SB  | SB   | SB   | SB  | B33  | B33  |
|-----------------------|------|------|------|-----|-----|------|------|-----|------|------|
| Directions Served     | T    | T    | T    | L   | L   | T    | T    | R   | T    | T    |
| Maximum Queue (ft)    | 1376 | 1336 | 1199 | 85  | 557 | 939  | 948  | 800 | 521  | 533  |
| Average Queue (ft)    | 759  | 615  | 348  | 19  | 138 | 637  | 637  | 234 | 199  | 204  |
| 95th Queue (ft)       | 2048 | 1905 | 1355 | 57  | 559 | 1055 | 1053 | 834 | 901  | 916  |
| Link Distance (ft)    | 2052 | 2052 | 2052 |     |     | 877  | 877  |     | 1436 | 1436 |
| Upstream Blk Time (%) | 5    | 2    | 0    |     | 0   | 17   | 17   |     | 4    | 5    |
| Queuing Penalty (veh) | 21   | 10   | 2    |     | 0   | 0    | 0    |     | 0    | 0    |
| Storage Bay Dist (ft) |      |      |      | 600 | 600 |      |      | 600 |      |      |
| Storage Blk Time (%)  |      |      |      |     |     | 32   | 32   |     |      |      |
| Queuing Penalty (veh) |      |      |      |     |     | 21   | 103  |     |      |      |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | NB  | NB  | NB  | NB  | NB  | B41 | B41 | B29 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | L   | R   | L   | L   | T   | T   | R   | T   | T   | T   |
| Maximum Queue (ft)    | 43  | 231 | 276 | 71  | 155 | 274 | 350 | 331 | 124 | 158 | 158 | 286 |
| Average Queue (ft)    | 8   | 127 | 162 | 27  | 79  | 133 | 196 | 164 | 37  | 44  | 44  | 29  |
| 95th Queue (ft)       | 32  | 222 | 251 | 53  | 143 | 357 | 464 | 450 | 158 | 324 | 320 | 193 |
| Link Distance (ft)    |     |     | 680 |     |     |     | 652 | 652 |     | 684 | 684 | 370 |
| Upstream Blk Time (%) |     |     |     |     |     |     | 6   | 5   |     | 4   | 3   | 1   |
| Queuing Penalty (veh) |     |     |     |     |     |     | 47  | 40  |     | 35  | 27  | 7   |
| Storage Bay Dist (ft) | 125 | 250 |     | 500 | 455 | 455 |     |     | 250 |     |     |     |
| Storage Blk Time (%)  |     | 0   | 1   |     |     |     | 7   | 5   |     |     |     |     |
| Queuing Penalty (veh) |     | 0   | 2   |     |     |     | 19  | 7   |     |     |     |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | B29 | B29 | SB  | SB  | SB   | SB   | B39 | B39 | B39 |
|-----------------------|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | T   |     | L   | L   | T    | T    | T   | T   |     |
| Maximum Queue (ft)    | 331 | 242 | 60  | 88  | 568  | 608  | 963 | 963 | 869 |
| Average Queue (ft)    | 36  | 23  | 13  | 40  | 196  | 213  | 208 | 236 | 51  |
| 95th Queue (ft)       | 215 | 181 | 42  | 79  | 444  | 474  | 846 | 902 | 404 |
| Link Distance (ft)    | 370 | 370 |     |     | 2052 | 2052 | 941 | 941 | 941 |
| Upstream Blk Time (%) | 2   | 3   |     |     |      |      | 0   | 0   | 0   |
| Queuing Penalty (veh) | 11  | 17  |     |     |      |      | 2   | 3   | 1   |
| Storage Bay Dist (ft) |     |     | 550 | 550 |      |      |     |     |     |
| Storage Blk Time (%)  |     |     |     |     | 1    | 1    |     |     |     |
| Queuing Penalty (veh) |     |     |     |     | 0    | 0    |     |     |     |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B41 |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R    | L   | T   | T   | T   | T   | T   | R   | T   |
| Maximum Queue (ft)    | 222 | 341  | 202  | 244 | 168 | 69  | 158 | 169 | 204 | 237 | 49  |
| Average Queue (ft)    | 109 | 157  | 26   | 119 | 20  | 12  | 51  | 62  | 72  | 83  | 2   |
| 95th Queue (ft)       | 196 | 372  | 289  | 212 | 153 | 129 | 121 | 133 | 153 | 186 | 50  |
| Link Distance (ft)    |     | 1442 | 1442 |     | 556 | 556 |     | 370 | 370 |     | 652 |
| Upstream Blk Time (%) |     | 0    | 1    |     | 1   | 0   |     |     | 0   | 0   |     |
| Queuing Penalty (veh) |     | 0    | 0    |     | 3   | 2   |     |     | 0   | 0   |     |
| Storage Bay Dist (ft) | 330 |      |      | 190 |     |     | 300 |     |     | 300 |     |
| Storage Blk Time (%)  |     |      |      | 1   | 2   |     |     |     | 0   | 0   |     |
| Queuing Penalty (veh) |     |      |      | 6   | 3   |     |     |     | 0   | 1   |     |

# Queuing and Blocking Report

07/04/2022

2025 + Project - AM

## Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 224 | 249  | 29  | 392  | 347  | 83  | 252 | 262 | 188 | 209 |
| Average Queue (ft)    | 126 | 138  | 1   | 221  | 175  | 5   | 143 | 164 | 66  | 90  |
| 95th Queue (ft)       | 198 | 212  | 30  | 339  | 294  | 61  | 223 | 238 | 148 | 167 |
| Link Distance (ft)    |     | 1037 |     | 1760 | 1760 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     |      |     |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |      |     |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  |     | 8    |     |      | 1    |     | 3   | 7   |     |     |
| Queuing Penalty (veh) |     | 40   |     |      | 0    |     | 7   | 17  |     |     |

## Intersection: 104: Office Park 3 & Campus Dr

| Movement              | B103 | WB  | NB  |
|-----------------------|------|-----|-----|
| Directions Served     | T    | L   | LR  |
| Maximum Queue (ft)    | 213  | 61  | 33  |
| Average Queue (ft)    | 8    | 14  | 12  |
| 95th Queue (ft)       | 109  | 43  | 36  |
| Link Distance (ft)    | 1916 |     | 585 |
| Upstream Blk Time (%) |      |     |     |
| Queuing Penalty (veh) |      |     |     |
| Storage Bay Dist (ft) |      | 150 |     |
| Storage Blk Time (%)  |      |     |     |
| Queuing Penalty (veh) |      |     |     |

## Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 139  | 92   | 174  | 18  | 58  |
| Average Queue (ft)    | 42   | 27   | 51   | 1   | 14  |
| 95th Queue (ft)       | 98   | 71   | 131  | 9   | 42  |
| Link Distance (ft)    | 1021 | 1151 | 1151 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

## Queuing and Blocking Report

07/04/2022

2025 + Project - AM

### Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | EB  | WB  | SB  |
|-----------------------|-----|-----|-----|
| Directions Served     | LTR | LTR | LTR |
| Maximum Queue (ft)    | 37  | 4   | 28  |
| Average Queue (ft)    | 2   | 0   | 12  |
| 95th Queue (ft)       | 17  | 3   | 34  |
| Link Distance (ft)    | 385 | 878 | 249 |
| Upstream Blk Time (%) |     |     |     |
| Queuing Penalty (veh) |     |     |     |
| Storage Bay Dist (ft) |     |     |     |
| Storage Blk Time (%)  |     |     |     |
| Queuing Penalty (veh) |     |     |     |

### Intersection: 108: Rockcress Dr

| Movement              |
|-----------------------|
| Directions Served     |
| Maximum Queue (ft)    |
| Average Queue (ft)    |
| 95th Queue (ft)       |
| Link Distance (ft)    |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (ft) |
| Storage Blk Time (%)  |
| Queuing Penalty (veh) |

### Intersection: 110: Sorrel Ave & Rockcress Dr

| Movement              | EB   | WB   | WB   | NB  | SB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | LT   | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 23   | 51   | 28   | 6   | 56  |
| Average Queue (ft)    | 1    | 5    | 1    | 0   | 7   |
| 95th Queue (ft)       | 12   | 32   | 12   | 5   | 32  |
| Link Distance (ft)    | 1851 | 1059 | 1059 | 250 | 657 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Zone Summary

Zone wide Queuing Penalty: 1461

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 9.7   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 630   |       | 999   |       | 488   |       |
| Demand Flow Rate, veh/h     | 643   |       | 1019  |       | 497   |       |
| Vehicles Circulating, veh/h | 329   |       | 409   |       | 329   |       |
| Vehicles Exiting, veh/h     | 497   |       | 563   |       | 1099  |       |
| Ped Vol Crossing Leg, #/h   | 5     |       | 12    |       | 0     |       |
| Ped Cap Adj                 | 0.996 |       | 0.991 |       | 1.000 |       |
| Approach Delay, s/veh       | 7.3   |       | 12.8  |       | 6.3   |       |
| Approach LOS                | A     |       | B     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | L     | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.636 | 0.364 | 0.323 | 0.677 | 0.662 | 0.338 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 409   | 234   | 329   | 690   | 329   | 168   |
| Cap Entry Lane, veh/h       | 997   | 1074  | 927   | 1003  | 997   | 1074  |
| Entry HV Adj Factor         | 0.980 | 0.980 | 0.980 | 0.980 | 0.982 | 0.982 |
| Flow Entry, veh/h           | 401   | 229   | 323   | 676   | 323   | 165   |
| Cap Entry, veh/h            | 974   | 1048  | 900   | 974   | 979   | 1054  |
| V/C Ratio                   | 0.412 | 0.219 | 0.358 | 0.694 | 0.330 | 0.156 |
| Control Delay, s/veh        | 8.3   | 5.5   | 8.0   | 15.1  | 7.1   | 4.8   |
| LOS                         | A     | A     | A     | C     | A     | A     |
| 95th %tile Queue, veh       | 2     | 1     | 2     | 6     | 1     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 7.4   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 528   | 883   |       | 70    |       |
| Demand Flow Rate, veh/h     | 544   | 909   |       | 72    |       |
| Vehicles Circulating, veh/h | 213   | 3     |       | 535   |       |
| Vehicles Exiting, veh/h     | 699   | 604   |       | 222   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.9   | 6.7   |       | 5.0   |       |
| Approach LOS                | A     | A     |       | A     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.234 | 0.766 | 0.042 | 0.958 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 544   | 213   | 696   | 3     | 69    |
| Cap Entry Lane, veh/h       | 1110  | 1416  | 1416  | 873   | 873   |
| Entry HV Adj Factor         | 0.971 | 0.972 | 0.971 | 1.000 | 0.971 |
| Flow Entry, veh/h           | 528   | 207   | 676   | 3     | 67    |
| Cap Entry, veh/h            | 1079  | 1376  | 1375  | 873   | 847   |
| V/C Ratio                   | 0.490 | 0.150 | 0.491 | 0.003 | 0.079 |
| Control Delay, s/veh        | 8.9   | 3.8   | 7.6   | 4.2   | 5.0   |
| LOS                         | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 3     | 1     | 3     | 0     | 0     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.6   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 28    |       | 316   |       | 18    |       |
| Demand Flow Rate, veh/h     | 28    |       | 325   |       | 18    |       |
| Vehicles Circulating, veh/h | 119   |       | 13    |       | 91    |       |
| Vehicles Exiting, veh/h     | 73    |       | 96    |       | 56    |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 3.0   |       | 3.7   |       | 2.9   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.464 | 0.536 | 0.345 | 0.655 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 13    | 15    | 112   | 213   | 18    | 79    |
| Cap Entry Lane, veh/h       | 1210  | 1283  | 1334  | 1405  | 1314  | 1290  |
| Entry HV Adj Factor         | 0.997 | 0.974 | 0.973 | 0.972 | 0.995 | 0.971 |
| Flow Entry, veh/h           | 13    | 15    | 109   | 207   | 18    | 77    |
| Cap Entry, veh/h            | 1206  | 1250  | 1298  | 1365  | 1308  | 1253  |
| V/C Ratio                   | 0.011 | 0.012 | 0.084 | 0.152 | 0.014 | 0.061 |
| Control Delay, s/veh        | 3.1   | 3.0   | 3.4   | 3.9   | 2.9   | 3.4   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 1     | 0     | 0     |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.3  | 0.7  | 3.3 | 0.6  | 0.6  | 2.7 | 2.1  | 0.3  | 0.4 | 2.1  | 0.2  | 2.0 |
| Total Del/Veh (s)  | 57.1 | 56.3 | 3.8 | 50.0 | 36.4 | 3.0 | 69.7 | 41.5 | 4.5 | 55.6 | 29.7 | 4.4 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.8  |
| Total Del/Veh (s)  | 33.9 |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|-----|------|-----|-----|------|
| Denied Del/Veh (s) | 0.4  | 0.3 | 0.0  | 0.0 | 0.0  | 0.0 | 0.0 | 0.2  |
| Total Del/Veh (s)  | 26.8 | 2.0 | 28.9 | 7.3 | 51.3 | 1.8 | 1.9 | 19.5 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT   | EBR  | WBL   | WBT  | WBR  | NBL  | NBT   | NBR  | SBL   | SBT   | SBR  |
|--------------------|------|-------|------|-------|------|------|------|-------|------|-------|-------|------|
| Denied Del/Veh (s) | 1.4  | 3.7   | 2.1  | 0.0   | 0.0  | 0.0  | 0.0  | 0.2   | 0.0  | 0.0   | 0.0   | 0.0  |
| Total Del/Veh (s)  | 57.3 | 241.9 | 22.0 | 130.8 | 45.4 | 18.8 | 59.9 | 106.5 | 11.9 | 134.1 | 137.5 | 19.2 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All   |
|--------------------|-------|
| Denied Del/Veh (s) | 0.6   |
| Total Del/Veh (s)  | 102.5 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 3.7  | 0.6  | 0.5  | 0.1  | 0.1  | 0.1  | 0.2  | 0.0  | 0.2 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 44.3 | 55.1 | 33.3 | 47.1 | 55.3 | 18.4 | 35.4 | 37.2 | 8.8 | 28.7 | 31.6 | 5.8 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.5  |
| Total Del/Veh (s)  | 32.5 |

#### 23: 96th St Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR | All  |
|--------------------|------|-----|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.1  | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 57.8 | 1.3 | 21.9 | 77.7 | 40.1 | 20.0 | 5.4 | 32.0 |

## 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|-----|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 3.5  | 0.2  | 3.6 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 68.8 | 72.4 | 7.7 | 58.6 | 61.3 | 1.3 | 51.9 | 9.2 | 0.9 | 63.8 | 44.5 | 1.2 |

## 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 32.4 |

## 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR | WBL  | WBR | NBL  | NBT | NBR | SBL  | SBT | SBR | All  |
|--------------------|------|-----|------|-----|------|-----|-----|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 1.4  | 3.8 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0 | 0.0 | 0.1  |
| Total Del/Veh (s)  | 69.7 | 1.0 | 69.8 | 8.7 | 57.8 | 6.5 | 3.1 | 66.2 | 7.7 | 4.1 | 11.1 |

## 35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

| Movement           | WBL  | WBT  | WBR | NBL  | NBT | SBT  | SBR  | All  |
|--------------------|------|------|-----|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.3  | 0.2  | 0.3 | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 62.5 | 54.1 | 2.0 | 49.3 | 8.3 | 18.6 | 10.1 | 16.9 |

## 40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

| Movement           | EBL  | EBT  | EBR  | NBT  | NBR  | SBL  | SBT  | All  |
|--------------------|------|------|------|------|------|------|------|------|
| Denied Del/Veh (s) | 2.4  | 2.1  | 3.9  | 0.0  | 0.0  | 0.0  | 0.0  | 0.7  |
| Total Del/Veh (s)  | 93.9 | 91.2 | 12.6 | 52.5 | 22.4 | 56.3 | 10.6 | 42.7 |

## 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.1 | 0.6 | 2.5 | 0.5 | 6.2 | 4.0 | 1.3 |

## 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBT | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 5.0 | 3.1 | 3.4 | 4.2 | 3.4 | 0.3 | 3.9 | 4.3 |

## 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | WBT | WBR | SBL | SBT | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.9 | 0.1 | 0.2 | 0.1 | 4.3 | 0.4 | 2.8 | 2.7 |

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110: Sorrel Ave & Rockcress Dr Performance by movement

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| Movement           | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 3.3 | 3.5 | 2.5 | 4.9 | 5.6 | 5.5 | 3.2 | 4.1 | 2.3 | 3.7 | 3.3 | 3.5 |

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110: Sorrel Ave & Rockcress Dr Performance by movement

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| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 4.0 |

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Total Zone Performance

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|                    |        |
|--------------------|--------|
| Denied Del/Veh (s) | 1.4    |
| Total Del/Veh (s)  | 1604.9 |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | R   | L   | L    | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 158 | 192 | 237 | 106 | 344 | 445  | 160  | 178 | 208 | 479 | 461 | 184 |
| Average Queue (ft)    | 38  | 104 | 103 | 6   | 228 | 272  | 76   | 69  | 122 | 312 | 289 | 49  |
| 95th Queue (ft)       | 118 | 169 | 186 | 65  | 333 | 388  | 137  | 164 | 189 | 440 | 416 | 135 |
| Link Distance (ft)    |     | 750 | 750 |     |     | 1028 | 1028 |     |     | 893 | 893 | 893 |
| Upstream Blk Time (%) |     |     |     |     |     |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 135 |     |     | 120 | 285 |      |      | 510 | 510 |     |     |     |
| Storage Blk Time (%)  | 0   | 5   | 10  |     | 1   | 6    |      |     |     | 0   |     |     |
| Queuing Penalty (veh) | 0   | 4   | 26  |     | 3   | 19   |      |     |     | 0   |     |     |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB  | SB   | SB   | SB   | SB  |
|-----------------------|-----|-----|------|------|------|-----|
| Directions Served     | L   | L   | T    | T    | T    | R   |
| Maximum Queue (ft)    | 184 | 249 | 340  | 317  | 261  | 190 |
| Average Queue (ft)    | 102 | 137 | 217  | 202  | 161  | 30  |
| 95th Queue (ft)       | 179 | 208 | 299  | 282  | 248  | 139 |
| Link Distance (ft)    |     |     | 1296 | 1296 | 1296 |     |
| Upstream Blk Time (%) |     |     |      |      |      |     |
| Queuing Penalty (veh) |     |     |      |      |      |     |
| Storage Bay Dist (ft) | 190 | 190 |      |      |      | 100 |
| Storage Blk Time (%)  | 0   | 1   | 13   |      | 18   |     |
| Queuing Penalty (veh) | 0   | 2   | 36   |      | 22   |     |

Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | L   | L   |
| Maximum Queue (ft)    | 708  | 278  | 212 | 165 | 192 | 174 | 200 |
| Average Queue (ft)    | 297  | 12   | 89  | 55  | 64  | 88  | 108 |
| 95th Queue (ft)       | 608  | 113  | 169 | 131 | 150 | 151 | 171 |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 |     | 324 |
| Upstream Blk Time (%) |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) |      |      | 400 |     |     | 200 |     |
| Storage Blk Time (%)  |      |      |     |     |     | 0   | 1   |
| Queuing Penalty (veh) |      |      |     |     |     | 0   | 2   |

Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | B19  | B9  | B9  | WB  | WB  | WB  | WB  | B37  |
|-----------------------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | T   | T   | R   | T    | T   |     | L   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 550 | 655 | 641 | 530 | 1830 | 355 | 48  | 580 | 729 | 672 | 134 | 1316 |
| Average Queue (ft)    | 351 | 504 | 474 | 267 | 557  | 28  | 2   | 494 | 480 | 208 | 58  | 501  |
| 95th Queue (ft)       | 692 | 784 | 764 | 686 | 2078 | 217 | 49  | 697 | 938 | 568 | 111 | 1524 |
| Link Distance (ft)    |     | 601 | 601 |     | 4320 | 490 | 490 |     | 648 | 648 |     | 1613 |
| Upstream Blk Time (%) |     | 20  | 13  |     |      | 0   |     |     | 30  | 0   |     | 11   |
| Queuing Penalty (veh) |     | 100 | 66  |     |      | 1   |     |     | 0   | 0   |     | 0    |
| Storage Bay Dist (ft) | 415 |     |     | 415 |      |     |     | 420 |     |     | 420 |      |
| Storage Blk Time (%)  | 0   | 58  | 51  |     |      |     |     | 55  | 0   |     |     |      |
| Queuing Penalty (veh) | 0   | 173 | 102 |     |      |     |     | 107 | 0   |     |     |      |

Intersection: 15: 96th St & Dillon Rd

| Movement              | NB  | NB  | NB  | NB  | B11  | B46 | B46 | SB  | SB  | SB  | SB  | B44  |
|-----------------------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | T   | T   | R   | T    | T   |     | L   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 490 | 687 | 697 | 490 | 1294 | 556 | 470 | 495 | 715 | 676 | 495 | 1593 |
| Average Queue (ft)    | 223 | 549 | 531 | 276 | 407  | 185 | 68  | 344 | 555 | 502 | 254 | 483  |
| 95th Queue (ft)       | 573 | 771 | 789 | 677 | 1322 | 591 | 351 | 649 | 822 | 779 | 622 | 1646 |
| Link Distance (ft)    |     | 621 | 621 |     | 1348 | 502 | 502 |     | 621 | 621 |     | 2411 |
| Upstream Blk Time (%) |     | 10  | 10  |     | 4    | 3   | 0   |     | 21  | 8   |     | 4    |
| Queuing Penalty (veh) |     | 70  | 75  |     | 66   | 12  | 2   |     | 0   | 0   |     | 0    |
| Storage Bay Dist (ft) | 330 |     |     | 330 |      |     |     | 335 |     |     | 335 |      |
| Storage Blk Time (%)  |     | 59  | 41  |     |      |     |     | 0   | 66  | 43  |     |      |
| Queuing Penalty (veh) |     | 54  | 156 |     |      |     |     | 1   | 89  | 116 |     |      |

Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB   | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|------|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T    | R   |
| Maximum Queue (ft)    | 173 | 256 | 243  | 174  | 43  | 268  | 174 | 88  | 103 | 297  | 84  |
| Average Queue (ft)    | 92  | 104 | 114  | 61   | 8   | 123  | 46  | 32  | 43  | 159  | 21  |
| 95th Queue (ft)       | 168 | 212 | 206  | 133  | 29  | 223  | 117 | 70  | 84  | 269  | 61  |
| Link Distance (ft)    |     | 565 | 1869 | 1869 |     | 3907 |     |     |     | 1558 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |      |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |      |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 170 | 400 | 400 |      | 200 |
| Storage Blk Time (%)  | 6   | 8   |      |      |     | 4    |     |     |     | 5    |     |
| Queuing Penalty (veh) | 9   | 10  |      |      |     | 8    |     |     |     | 9    |     |

Intersection: 23: 96th St

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B46  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 307 | 278  | 166  | 75  | 350 | 700 | 681 | 411 | 238 | 503 | 400 | 12   |
| Average Queue (ft)    | 179 | 120  | 76   | 31  | 145 | 399 | 327 | 24  | 133 | 324 | 91  | 0    |
| 95th Queue (ft)       | 276 | 230  | 142  | 67  | 387 | 727 | 686 | 233 | 217 | 464 | 308 | 10   |
| Link Distance (ft)    |     | 1161 | 1161 |     |     | 725 | 725 | 725 | 502 | 502 |     | 1348 |
| Upstream Blk Time (%) |     |      |      |     |     | 1   | 0   | 0   |     | 0   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 2   | 1   | 0   |     | 2   |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  | 1   | 0    |      |     | 0   | 33  |     |     |     | 10  |     |      |
| Queuing Penalty (veh) | 2   | 0    |      |     | 0   | 24  |     |     |     | 19  |     |      |

Intersection: 23: 96th St

| Movement              | B11 | B11 |
|-----------------------|-----|-----|
| Directions Served     | T   |     |
| Maximum Queue (ft)    | 662 | 596 |
| Average Queue (ft)    | 207 | 80  |
| 95th Queue (ft)       | 693 | 425 |
| Link Distance (ft)    | 621 | 621 |
| Upstream Blk Time (%) | 1   | 0   |
| Queuing Penalty (veh) | 10  | 2   |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

# Queuing and Blocking Report

07/04/2022

2025 Ph 1 - PM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | L   | L   | T    | T    | L   | L   | T   | T   |
| Maximum Queue (ft)    | 177 | 195 | 186 | 187 | 41  | 78  | 184  | 161  | 577 | 497 | 211 | 224 |
| Average Queue (ft)    | 104 | 114 | 106 | 111 | 7   | 27  | 109  | 59   | 347 | 284 | 102 | 120 |
| 95th Queue (ft)       | 160 | 170 | 164 | 170 | 29  | 62  | 173  | 141  | 508 | 434 | 190 | 204 |
| Link Distance (ft)    |     |     | 725 | 725 |     |     | 1056 | 1056 |     |     | 941 | 941 |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 180 | 180 |      |      | 700 | 700 |     |     |
| Storage Blk Time (%)  |     |     |     |     |     |     | 1    | 0    | 0   |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     | 0    | 0    | 1   |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   |
| Maximum Queue (ft)    | 42  | 79  | 311 | 313 |
| Average Queue (ft)    | 6   | 31  | 200 | 197 |
| 95th Queue (ft)       | 28  | 68  | 282 | 279 |
| Link Distance (ft)    |     |     | 877 | 877 |
| Upstream Blk Time (%) |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |
| Storage Bay Dist (ft) | 600 | 600 |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | NB  | NB  | NB  | NB  | NB  | B29 | B29 | B29 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | L   | R   | L   | L   | T   | T   | R   | T   | T   |     |
| Maximum Queue (ft)    | 78  | 155 | 179 | 56  | 92  | 110 | 270 | 261 | 62  | 330 | 385 | 157 |
| Average Queue (ft)    | 27  | 65  | 94  | 21  | 31  | 53  | 149 | 135 | 25  | 26  | 35  | 7   |
| 95th Queue (ft)       | 64  | 132 | 162 | 47  | 71  | 94  | 254 | 234 | 56  | 182 | 216 | 92  |
| Link Distance (ft)    |     |     | 680 |     |     |     | 722 | 722 |     | 370 | 370 | 370 |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |     |     | 0   | 0   | 0   |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |     | 1   | 4   | 1   |
| Storage Bay Dist (ft) | 125 | 250 |     | 500 | 455 | 455 |     |     | 250 |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |     |     |     | 0   |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     | 1   |     |     |     |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB  | SB  | SB   | SB   | B39 | B39 | B39 |
|-----------------------|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T    | T    | T   | T   |     |
| Maximum Queue (ft)    | 40  | 67  | 208  | 219  | 746 | 846 | 188 |
| Average Queue (ft)    | 6   | 30  | 94   | 99   | 52  | 68  | 3   |
| 95th Queue (ft)       | 25  | 62  | 190  | 195  | 400 | 465 | 96  |
| Link Distance (ft)    |     |     | 2052 | 2052 | 941 | 941 | 941 |
| Upstream Blk Time (%) |     |     |      |      | 0   | 0   | 0   |
| Queuing Penalty (veh) |     |     |      |      | 0   | 0   | 0   |
| Storage Bay Dist (ft) | 550 | 550 |      |      |     |     |     |
| Storage Blk Time (%)  |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |      |      |     |     |     |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B29 | B29 | B41 |
|-----------------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | L   | T   | T   | T   | T   | T   | R   | T   | T   | T   |
| Maximum Queue (ft)    | 174 | 193  | 344 | 522 | 444 | 368 | 430 | 334 | 299 | 68  | 2   | 123 |
| Average Queue (ft)    | 82  | 116  | 238 | 72  | 46  | 223 | 171 | 163 | 107 | 3   | 0   | 2   |
| 95th Queue (ft)       | 159 | 177  | 352 | 320 | 248 | 371 | 346 | 298 | 231 | 30  | 2   | 61  |
| Link Distance (ft)    |     | 1442 |     | 556 | 556 |     | 370 | 370 |     | 613 | 613 | 722 |
| Upstream Blk Time (%) |     |      |     | 0   | 0   | 1   | 1   | 0   | 0   |     |     |     |
| Queuing Penalty (veh) |     |      |     | 1   | 1   | 0   | 8   | 1   | 0   |     |     |     |
| Storage Bay Dist (ft) | 330 |      | 190 |     |     | 300 |     |     | 300 |     |     |     |
| Storage Blk Time (%)  |     |      | 26  | 0   |     | 5   | 1   | 0   | 0   |     |     |     |
| Queuing Penalty (veh) |     |      | 226 | 0   |     | 25  | 5   | 2   | 1   |     |     |     |

Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 418 | 650  | 300 | 779  | 764  | 390 | 335 | 484 | 326 | 322 |
| Average Queue (ft)    | 261 | 357  | 123 | 499  | 476  | 158 | 240 | 270 | 119 | 137 |
| 95th Queue (ft)       | 437 | 759  | 365 | 746  | 729  | 467 | 351 | 432 | 258 | 268 |
| Link Distance (ft)    |     | 1036 |     | 1843 | 1843 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     | 1    |     |      |      |     |     | 0   |     |     |
| Queuing Penalty (veh) |     | 0    |     |      |      |     |     | 3   |     |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  | 7   | 51   |     |      | 27   |     | 19  | 24  |     |     |
| Queuing Penalty (veh) | 46  | 354  |     |      | 43   |     | 59  | 77  |     |     |

Intersection: 104: Office Park 3 & Campus Dr

| Movement              | WB  | NB  |
|-----------------------|-----|-----|
| Directions Served     | L   | LR  |
| Maximum Queue (ft)    | 28  | 57  |
| Average Queue (ft)    | 2   | 29  |
| 95th Queue (ft)       | 14  | 50  |
| Link Distance (ft)    |     | 584 |
| Upstream Blk Time (%) |     |     |
| Queuing Penalty (veh) |     |     |
| Storage Bay Dist (ft) | 150 |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 96   | 46   | 56   | 28  | 79  |
| Average Queue (ft)    | 23   | 7    | 7    | 2   | 31  |
| 95th Queue (ft)       | 69   | 31   | 32   | 15  | 67  |
| Link Distance (ft)    | 1021 | 1161 | 1161 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

## Queuing and Blocking Report

07/04/2022

2025 Ph 1 - PM

### Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | LTR | LTR |
| Maximum Queue (ft)    | 6   | 66  |
| Average Queue (ft)    | 0   | 30  |
| 95th Queue (ft)       | 4   | 50  |
| Link Distance (ft)    | 385 | 249 |
| Upstream Blk Time (%) |     |     |
| Queuing Penalty (veh) |     |     |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

### Intersection: 110: Sorrel Ave & Rockcress Dr

| Movement              | EB   | WB   | WB   | NB  | SB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | LT   | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 29   | 38   | 10   | 47  | 64  |
| Average Queue (ft)    | 3    | 2    | 0    | 6   | 24  |
| 95th Queue (ft)       | 18   | 18   | 7    | 28  | 57  |
| Link Distance (ft)    | 1851 | 1059 | 1059 | 250 | 657 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Zone Summary

Zone wide Queuing Penalty: 2262

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 6.8   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 596   |       | 540   |       | 727   |       |
| Demand Flow Rate, veh/h     | 608   |       | 550   |       | 742   |       |
| Vehicles Circulating, veh/h | 488   |       | 185   |       | 222   |       |
| Vehicles Exiting, veh/h     | 476   |       | 911   |       | 513   |       |
| Ped Vol Crossing Leg, #/h   | 2     |       | 2     |       | 0     |       |
| Ped Cap Adj                 | 0.999 |       | 0.998 |       | 1.000 |       |
| Approach Delay, s/veh       | 7.9   |       | 5.3   |       | 7.1   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | LT    | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.404 | 0.596 | 0.658 | 0.342 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 286   | 322   | 222   | 328   | 488   | 254   |
| Cap Entry Lane, veh/h       | 862   | 938   | 1139  | 1213  | 1101  | 1176  |
| Entry HV Adj Factor         | 0.979 | 0.981 | 0.980 | 0.982 | 0.980 | 0.980 |
| Flow Entry, veh/h           | 280   | 316   | 218   | 322   | 478   | 249   |
| Cap Entry, veh/h            | 842   | 918   | 1114  | 1189  | 1078  | 1153  |
| V/C Ratio                   | 0.332 | 0.344 | 0.195 | 0.271 | 0.443 | 0.216 |
| Control Delay, s/veh        | 8.0   | 7.7   | 5.0   | 5.5   | 8.2   | 5.1   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 2     | 1     | 1     | 2     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 4.8   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 306   | 287   |       | 265   |       |
| Demand Flow Rate, veh/h     | 315   | 295   |       | 273   |       |
| Vehicles Circulating, veh/h | 115   | 11    |       | 310   |       |
| Vehicles Exiting, veh/h     | 191   | 572   |       | 120   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 5.3   | 3.5   |       | 5.7   |       |
| Approach LOS                | A     | A     |       | A     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.390 | 0.610 | 0.040 | 0.960 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 315   | 115   | 180   | 11    | 262   |
| Cap Entry Lane, veh/h       | 1227  | 1406  | 1406  | 1071  | 1071  |
| Entry HV Adj Factor         | 0.971 | 0.974 | 0.971 | 1.000 | 0.969 |
| Flow Entry, veh/h           | 306   | 112   | 175   | 11    | 254   |
| Cap Entry, veh/h            | 1192  | 1369  | 1365  | 1071  | 1038  |
| V/C Ratio                   | 0.257 | 0.082 | 0.128 | 0.010 | 0.245 |
| Control Delay, s/veh        | 5.3   | 3.3   | 3.7   | 3.4   | 5.8   |
| LOS                         | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 0     | 0     | 0     | 1     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 3.9   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 74    |       | 142   |       | 69    |       |
| Demand Flow Rate, veh/h     | 76    |       | 146   |       | 71    |       |
| Vehicles Circulating, veh/h | 286   |       | 21    |       | 329   |       |
| Vehicles Exiting, veh/h     | 30    |       | 379   |       | 33    |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 3.7   |       | 3.2   |       | 4.0   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.474 | 0.526 | 0.274 | 0.726 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 36    | 40    | 40    | 106   | 71    | 271   |
| Cap Entry Lane, veh/h       | 1038  | 1114  | 1324  | 1395  | 1074  | 1367  |
| Entry HV Adj Factor         | 0.966 | 0.980 | 0.965 | 0.972 | 0.967 | 0.974 |
| Flow Entry, veh/h           | 35    | 39    | 39    | 103   | 69    | 264   |
| Cap Entry, veh/h            | 1002  | 1092  | 1277  | 1356  | 1039  | 1331  |
| V/C Ratio                   | 0.035 | 0.036 | 0.030 | 0.076 | 0.066 | 0.198 |
| Control Delay, s/veh        | 3.9   | 3.6   | 3.1   | 3.3   | 4.0   | 4.4   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     | 0     | 1     |

### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 0.1  | 0.3 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 67.8 | 53.8 | 22.0 | 76.9 | 49.9 | 14.2 | 46.9 | 28.0 | 6.9 | 29.2 | 37.2 | 9.3 |

### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 35.9 |

### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Denied Del/Veh (s) | 3.9  | 0.2  | 0.3  | 0.0  | 0.0  | 0.0  | 0.3  | 0.1  | 0.3  | 0.6  | 0.1  | 0.5 |
| Total Del/Veh (s)  | 45.6 | 58.4 | 30.5 | 44.3 | 39.2 | 28.8 | 30.6 | 43.5 | 24.8 | 34.1 | 16.5 | 6.1 |

### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.3  |
| Total Del/Veh (s)  | 30.6 |

### 23: 96th St & Campus Dr Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR | All  |
|--------------------|------|-----|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.1  | 0.0  | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 50.0 | 0.7 | 20.2 | 65.3 | 13.9 | 23.9 | 9.5 | 23.4 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT | NBR | SBL  | SBT  | SBR  |
|--------------------|------|------|-----|------|------|-----|------|-----|-----|------|------|------|
| Denied Del/Veh (s) | 0.1  | 0.0  | 0.0 | 3.7  | 0.2  | 3.5 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 70.2 | 81.5 | 8.5 | 60.0 | 65.7 | 1.3 | 68.2 | 9.4 | 1.0 | 72.3 | 49.8 | 11.8 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 40.4 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR | WBL   | WBR | NBL  | NBT | NBR | SBL  | SBT  | SBR  | All  |
|--------------------|------|-----|-------|-----|------|-----|-----|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 1.0   | 3.4 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.1  |
| Total Del/Veh (s)  | 52.6 | 0.5 | 111.2 | 7.1 | 45.4 | 9.2 | 3.1 | 68.2 | 31.5 | 11.4 | 29.6 |

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Total Zone Performance

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|                    |       |
|--------------------|-------|
| Denied Del/Veh (s) | 1.8   |
| Total Del/Veh (s)  | 986.8 |

# Queuing and Blocking Report

07/04/2022

2025 + Project - Rec Imp - AM

## Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 200 | 213 | 203 | 175 | 98  | 50  | 341 | 378 | 279 | 231 | 108 | 250 |
| Average Queue (ft)    | 106 | 117 | 115 | 83  | 33  | 2   | 184 | 225 | 143 | 116 | 44  | 123 |
| 95th Queue (ft)       | 178 | 188 | 183 | 155 | 74  | 51  | 313 | 351 | 227 | 203 | 85  | 216 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 650 | 650 |     |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 | 330 |
| Storage Blk Time (%)  |     |     |     |     |     |     | 0   | 1   | 0   |     |     | 0   |
| Queuing Penalty (veh) |     |     |     |     |     |     | 0   | 1   | 0   |     |     | 0   |

## Intersection: 15: 96th St & Dillon Rd

| Movement              | NB   | NB   | B42 | B42 | B42 | SB  | SB   | SB   | SB  |
|-----------------------|------|------|-----|-----|-----|-----|------|------|-----|
| Directions Served     | T    | T    | T   | T   |     | L   | T    | T    | R   |
| Maximum Queue (ft)    | 351  | 361  | 340 | 473 | 106 | 164 | 409  | 464  | 221 |
| Average Queue (ft)    | 191  | 208  | 20  | 31  | 4   | 59  | 237  | 298  | 44  |
| 95th Queue (ft)       | 318  | 338  | 180 | 231 | 78  | 119 | 359  | 420  | 132 |
| Link Distance (ft)    | 2004 | 2004 | 502 | 502 | 502 |     | 2607 | 2607 |     |
| Upstream Blk Time (%) |      |      | 0   | 0   | 0   |     |      |      |     |
| Queuing Penalty (veh) |      |      | 0   | 1   | 0   |     |      |      |     |
| Storage Bay Dist (ft) |      |      |     |     |     | 335 |      | 335  |     |
| Storage Blk Time (%)  | 0    | 1    |     |     |     |     | 1    | 5    |     |
| Queuing Penalty (veh) | 1    | 5    |     |     |     |     | 1    | 16   |     |

## Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T   | R   |
| Maximum Queue (ft)    | 84  | 150 | 301  | 280  | 135 | 592  | 554 | 301 | 330 | 176 | 116 |
| Average Queue (ft)    | 23  | 49  | 151  | 113  | 46  | 145  | 194 | 105 | 124 | 67  | 39  |
| 95th Queue (ft)       | 60  | 109 | 259  | 224  | 117 | 380  | 430 | 234 | 262 | 138 | 71  |
| Link Distance (ft)    |     | 565 | 2135 | 2135 |     | 2384 |     |     |     | 869 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |     | 200 |
| Storage Blk Time (%)  | 0   | 2   |      |      | 0   | 5    | 2   | 0   | 0   | 0   |     |
| Queuing Penalty (veh) | 0   | 1   |      |      | 0   | 35   | 6   | 0   | 0   | 1   |     |

# Queuing and Blocking Report

07/04/2022

2025 + Project - Rec Imp - AM

## Intersection: 23: 96th St & Campus Dr

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B42  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 187 | 210  | 98   | 174 | 227 | 424 | 553 | 329 | 340 | 582 | 502 | 19   |
| Average Queue (ft)    | 113 | 132  | 34   | 91  | 109 | 110 | 141 | 52  | 75  | 343 | 172 | 1    |
| 95th Queue (ft)       | 171 | 191  | 74   | 158 | 188 | 266 | 337 | 202 | 204 | 581 | 438 | 11   |
| Link Distance (ft)    |     | 1136 | 1136 |     |     | 717 | 717 | 717 | 502 | 502 |     | 2004 |
| Upstream Blk Time (%) |     |      |      |     |     | 0   | 0   | 0   |     | 2   | 0   |      |
| Queuing Penalty (veh) |     |      |      |     |     | 0   | 0   | 0   |     | 14  | 0   |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     |     | 450  |
| Storage Blk Time (%)  |     |      |      |     | 0   | 0   |     |     |     | 4   |     |      |
| Queuing Penalty (veh) |     |      |      |     | 0   | 1   |     |     |     | 19  |     |      |

## Intersection: 23: 96th St & Campus Dr

| Movement              | B42  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 214  |
| Average Queue (ft)    | 14   |
| 95th Queue (ft)       | 108  |
| Link Distance (ft)    | 2004 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/04/2022

2025 + Project - Rec Imp - AM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | L   | L   | L   |
| Maximum Queue (ft)    | 83  | 93  | 135 | 132 | 25  | 43  | 76  | 248  | 228  | 521 | 564 | 547 |
| Average Queue (ft)    | 21  | 40  | 57  | 54  | 1   | 8   | 28  | 118  | 96   | 277 | 305 | 260 |
| 95th Queue (ft)       | 62  | 83  | 108 | 109 | 13  | 32  | 66  | 201  | 183  | 473 | 509 | 481 |
| Link Distance (ft)    |     |     | 717 | 717 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 700 | 700 | 700 |
| Storage Blk Time (%)  |     |     |     |     |     |     |     | 4    | 2    | 0   | 0   | 1   |
| Queuing Penalty (veh) |     |     |     |     |     |     |     | 1    | 1    | 0   | 1   | 1   |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | B39  | B39  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | T    | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 278 | 147 | 413  | 208  | 91  | 177 | 623 | 621 | 302 |
| Average Queue (ft)    | 60  | 68  | 7    | 7    | 17  | 48  | 328 | 327 | 92  |
| 95th Queue (ft)       | 207 | 126 | 211  | 212  | 55  | 138 | 543 | 542 | 214 |
| Link Distance (ft)    | 941 | 941 | 2052 | 2052 |     |     | 864 | 864 |     |
| Upstream Blk Time (%) | 0   |     | 0    | 0    |     |     |     |     |     |
| Queuing Penalty (veh) | 0   |     | 0    | 0    |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |      |      | 600 | 600 |     |     | 600 |
| Storage Blk Time (%)  | 0   |     |      |      |     |     | 2   | 2   |     |
| Queuing Penalty (veh) | 1   |     |      |      |     |     | 1   | 5   |     |

## Queuing and Blocking Report

07/04/2022

2025 + Project - Rec Imp - AM

### Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | NB  | NB  | NB  | NB  | NB  | B29 | B29 | B29 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | L   | R   | L   | L   | T   | T   | R   | T   | T   |     |
| Maximum Queue (ft)    | 43  | 298 | 334 | 63  | 153 | 170 | 300 | 255 | 62  | 222 | 254 | 72  |
| Average Queue (ft)    | 7   | 161 | 195 | 27  | 76  | 97  | 171 | 125 | 23  | 15  | 21  | 4   |
| 95th Queue (ft)       | 29  | 295 | 323 | 52  | 134 | 155 | 271 | 220 | 53  | 131 | 157 | 66  |
| Link Distance (ft)    |     |     | 680 |     |     |     | 652 | 652 |     | 370 | 370 | 370 |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |     |     | 0   | 0   | 0   |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |     | 0   | 1   | 0   |
| Storage Bay Dist (ft) | 125 | 250 |     | 500 | 455 | 455 |     |     | 250 |     |     |     |
| Storage Blk Time (%)  |     | 3   | 8   |     |     |     |     | 0   |     |     |     |     |
| Queuing Penalty (veh) |     | 5   | 12  |     |     |     |     | 0   |     |     |     |     |

### Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB  | SB  | SB   | SB   | B39 | B39  | B39 |
|-----------------------|-----|-----|------|------|-----|------|-----|
| Directions Served     | L   | L   | T    | T    | T   | T    |     |
| Maximum Queue (ft)    | 71  | 98  | 612  | 619  | 957 | 970  | 764 |
| Average Queue (ft)    | 14  | 45  | 351  | 375  | 261 | 342  | 54  |
| 95th Queue (ft)       | 44  | 84  | 519  | 537  | 943 | 1078 | 414 |
| Link Distance (ft)    |     |     | 2052 | 2052 | 941 | 941  | 941 |
| Upstream Blk Time (%) |     |     |      |      | 0   | 1    | 0   |
| Queuing Penalty (veh) |     |     |      |      | 1   | 4    | 1   |
| Storage Bay Dist (ft) | 550 | 550 |      |      |     |      |     |
| Storage Blk Time (%)  |     |     | 1    | 1    |     |      |     |
| Queuing Penalty (veh) |     |     | 0    | 0    |     |      |     |

### Zone Summary

Zone wide Queuing Penalty: 137

### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 52.4 | 61.3 | 20.2 | 58.9 | 40.7 | 17.8 | 30.8 | 40.2 | 8.1 | 34.4 | 29.8 | 8.8 |

### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.0  |
| Total Del/Veh (s)  | 37.5 |

### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 3.7  | 0.6  | 0.5  | 0.1  | 0.1  | 0.1  | 0.3  | 0.0  | 0.2 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 46.5 | 59.4 | 37.3 | 50.0 | 62.5 | 18.3 | 32.3 | 40.0 | 7.7 | 29.7 | 31.7 | 6.1 |

### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.4  |
| Total Del/Veh (s)  | 33.9 |

### 23: 96th St Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT | SBT  | SBR | All  |
|--------------------|------|-----|------|------|-----|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 53.6 | 0.8 | 29.1 | 96.0 | 9.5 | 14.8 | 4.8 | 19.3 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|-----|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 3.6  | 0.2  | 3.6 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 59.4 | 62.8 | 7.1 | 55.4 | 60.5 | 1.4 | 50.9 | 7.3 | 1.0 | 65.5 | 31.7 | 9.5 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 28.9 |

### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 1.5    |
| Total Del/Veh (s)  | 1603.4 |

Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | B9  | WB  | WB  | WB  | WB  | WB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   |     | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 186 | 200 | 352 | 312 | 185 | 450 | 50  | 330 | 354 | 260 | 238 | 157 |
| Average Queue (ft)    | 107 | 118 | 215 | 174 | 75  | 26  | 2   | 193 | 219 | 151 | 123 | 61  |
| 95th Queue (ft)       | 172 | 177 | 323 | 281 | 148 | 210 | 51  | 303 | 330 | 229 | 204 | 117 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 | 490 |     |     | 649 | 649 |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   | 0   |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 1   | 0   |     |     |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     |     | 420 | 420 |     |     | 420 |
| Storage Blk Time (%)  |     |     | 0   |     |     |     |     | 0   | 0   |     |     |     |
| Queuing Penalty (veh) |     |     | 0   |     |     |     |     | 0   | 1   |     |     |     |

Intersection: 15: 96th St & Dillon Rd

| Movement              | NB  | NB   | NB   | NB  | SB  | SB   | SB   | SB  |
|-----------------------|-----|------|------|-----|-----|------|------|-----|
| Directions Served     | L   | T    | T    | R   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 236 | 533  | 546  | 440 | 169 | 279  | 339  | 121 |
| Average Queue (ft)    | 53  | 271  | 286  | 35  | 73  | 164  | 199  | 46  |
| 95th Queue (ft)       | 143 | 470  | 481  | 242 | 138 | 247  | 292  | 90  |
| Link Distance (ft)    |     | 2019 | 2019 |     |     | 2414 | 2414 |     |
| Upstream Blk Time (%) |     |      |      |     |     |      |      |     |
| Queuing Penalty (veh) |     |      |      |     |     |      |      |     |
| Storage Bay Dist (ft) | 330 |      |      | 330 | 335 |      |      | 335 |
| Storage Blk Time (%)  |     | 6    | 7    |     |     |      | 0    |     |
| Queuing Penalty (veh) |     | 5    | 28   |     |     |      | 1    |     |

Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB   | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|------|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T    | R   |
| Maximum Queue (ft)    | 174 | 243 | 260  | 154  | 63  | 257  | 97  | 84  | 100 | 324  | 81  |
| Average Queue (ft)    | 91  | 108 | 120  | 59   | 10  | 130  | 40  | 30  | 48  | 168  | 21  |
| 95th Queue (ft)       | 162 | 203 | 218  | 125  | 43  | 228  | 78  | 67  | 86  | 289  | 63  |
| Link Distance (ft)    |     | 565 | 1994 | 1994 |     | 3906 |     |     |     | 1558 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |      |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |      |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |      | 200 |
| Storage Blk Time (%)  | 4   | 9   |      |      |     | 6    |     |     |     | 7    |     |
| Queuing Penalty (veh) | 6   | 12  |      |      |     | 9    |     |     |     | 12   |     |

# Queuing and Blocking Report

07/04/2022

2025 Ph 1 - Rec Imp - PM

## Intersection: 23: 96th St

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B46  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 214 | 235  | 215  | 92  | 97  | 233 | 408 | 375 | 296 | 536 | 400 | 15   |
| Average Queue (ft)    | 116 | 137  | 85   | 35  | 44  | 36  | 50  | 17  | 117 | 274 | 63  | 1    |
| 95th Queue (ft)       | 185 | 205  | 168  | 74  | 83  | 177 | 222 | 171 | 236 | 474 | 235 | 14   |
| Link Distance (ft)    |     | 1142 | 1142 |     |     | 718 | 718 | 718 | 494 | 494 |     | 2019 |
| Upstream Blk Time (%) |     |      |      |     |     | 0   | 0   | 0   |     | 1   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 0   | 0   | 0   |     | 6   |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  |     |      |      |     |     |     |     |     |     | 6   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     |     |     |     |     | 12  |     |      |

## Intersection: 23: 96th St

| Movement              | B46  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 60   |
| Average Queue (ft)    | 5    |
| 95th Queue (ft)       | 46   |
| Link Distance (ft)    | 2019 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/04/2022

2025 Ph 1 - Rec Imp - PM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | L   | L   | L   |
| Maximum Queue (ft)    | 195 | 201 | 188 | 185 | 20  | 42  | 73  | 166  | 153  | 324 | 348 | 301 |
| Average Queue (ft)    | 103 | 111 | 108 | 108 | 1   | 9   | 24  | 87   | 60   | 203 | 234 | 193 |
| 95th Queue (ft)       | 168 | 177 | 169 | 171 | 12  | 32  | 60  | 145  | 123  | 293 | 323 | 281 |
| Link Distance (ft)    |     |     | 718 | 718 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 700 | 700 | 700 |
| Storage Blk Time (%)  |     |     |     | 0   |     |     |     | 0    | 0    |     |     |     |
| Queuing Penalty (veh) |     |     |     | 0   |     |     |     | 0    | 0    |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | SB  | SB  | SB  | SB  | SB |
|-----------------------|-----|-----|-----|-----|-----|-----|----|
| Directions Served     | T   | T   | L   | L   | T   | T   | R  |
| Maximum Queue (ft)    | 188 | 197 | 26  | 66  | 271 | 270 | 80 |
| Average Queue (ft)    | 83  | 100 | 4   | 25  | 163 | 159 | 35 |
| 95th Queue (ft)       | 164 | 182 | 17  | 57  | 244 | 242 | 71 |
| Link Distance (ft)    | 941 | 941 |     |     | 864 | 864 |    |
| Upstream Blk Time (%) |     |     |     |     |     |     |    |
| Queuing Penalty (veh) |     |     |     |     |     |     |    |
| Storage Bay Dist (ft) |     |     | 600 | 600 |     | 600 |    |
| Storage Blk Time (%)  |     |     |     |     |     |     |    |
| Queuing Penalty (veh) |     |     |     |     |     |     |    |

## Zone Summary

Zone wide Queuing Penalty: 93

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35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

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| Movement           | WBL  | WBT  | WBR | NBL  | NBT | SBT | SBR | All  |
|--------------------|------|------|-----|------|-----|-----|-----|------|
| Denied Del/Veh (s) | 0.4  | 0.5  | 0.5 | 0.1  | 0.0 | 0.0 | 0.0 | 0.1  |
| Total Del/Veh (s)  | 55.6 | 56.7 | 5.2 | 58.2 | 6.6 | 9.9 | 6.5 | 12.2 |

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40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

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| Movement           | EBL  | EBT  | EBR | NBT  | NBR | SBL  | SBT | All  |
|--------------------|------|------|-----|------|-----|------|-----|------|
| Denied Del/Veh (s) | 1.9  | 1.3  | 3.3 | 0.3  | 2.3 | 0.0  | 0.0 | 0.6  |
| Total Del/Veh (s)  | 55.9 | 61.4 | 2.1 | 28.4 | 4.7 | 27.8 | 5.8 | 18.9 |

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Total Zone Performance

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|                    |       |
|--------------------|-------|
| Denied Del/Veh (s) | 0.9   |
| Total Del/Veh (s)  | 779.6 |

# Queuing and Blocking Report

07/04/2022

2030 + Project - AM

## Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B41 | B41 |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R    | L   | T   | T   | T   | T   | T   | R   | T   | T   |
| Maximum Queue (ft)    | 210 | 235  | 16   | 243 | 135 | 62  | 238 | 236 | 247 | 198 | 240 | 244 |
| Average Queue (ft)    | 104 | 138  | 0    | 134 | 12  | 5   | 138 | 145 | 150 | 73  | 10  | 9   |
| 95th Queue (ft)       | 183 | 204  | 2    | 222 | 71  | 37  | 220 | 218 | 224 | 165 | 139 | 129 |
| Link Distance (ft)    |     | 1442 | 1442 |     | 556 | 556 |     | 370 | 370 |     | 652 | 652 |
| Upstream Blk Time (%) |     |      |      |     |     |     |     |     |     |     | 0   | 0   |
| Queuing Penalty (veh) |     |      |      |     |     |     |     |     |     |     | 0   | 0   |
| Storage Bay Dist (ft) | 330 |      |      | 190 |     |     | 300 |     |     | 300 |     |     |
| Storage Blk Time (%)  |     |      |      | 5   | 0   |     |     |     | 0   | 0   |     |     |
| Queuing Penalty (veh) |     |      |      | 24  | 0   |     |     |     | 0   | 0   |     |     |

## Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 250 | 272  | 120 | 392  | 349  | 40  | 244 | 251 | 192 | 216 |
| Average Queue (ft)    | 149 | 158  | 3   | 247  | 200  | 2   | 143 | 164 | 95  | 112 |
| 95th Queue (ft)       | 224 | 236  | 54  | 349  | 312  | 18  | 222 | 236 | 168 | 179 |
| Link Distance (ft)    |     | 1037 |     | 1760 | 1760 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     |      |     |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |      |     |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  |     | 14   |     |      | 0    |     | 2   | 5   |     |     |
| Queuing Penalty (veh) |     | 75   |     |      | 0    |     | 5   | 15  |     |     |

## Zone Summary

Zone wide Queuing Penalty: 120

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL   | WBT   | WBR   | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|-------|-------|-------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.1  | 0.4  | 3.8 | 803.7 | 808.6 | 815.5 | 2.1  | 0.3  | 0.4 | 2.2  | 0.2  | 2.1 |
| Total Del/Veh (s)  | 47.3 | 47.9 | 2.0 | 40.2  | 51.5  | 26.5  | 44.6 | 25.9 | 4.3 | 50.7 | 20.7 | 3.0 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All   |
|--------------------|-------|
| Denied Del/Veh (s) | 415.4 |
| Total Del/Veh (s)  | 25.6  |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT  | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.3  | 0.3 | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.1  |
| Total Del/Veh (s)  | 47.3 | 3.8 | 33.3 | 16.4 | 37.4 | 1.4 | 1.7 | 23.1 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR  |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 0.0  | 0.2 | 1.4  | 0.4  | 1.3  |
| Total Del/Veh (s)  | 69.6 | 57.8 | 26.5 | 75.3 | 48.6 | 16.8 | 51.6 | 29.1 | 7.1 | 30.9 | 42.7 | 10.5 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.3  |
| Total Del/Veh (s)  | 38.0 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Denied Del/Veh (s) | 3.9  | 0.3  | 0.3  | 0.0  | 0.0  | 0.0  | 0.2  | 0.1  | 0.1  | 1.1  | 0.4  | 1.1 |
| Total Del/Veh (s)  | 50.0 | 89.4 | 49.2 | 45.4 | 43.6 | 34.8 | 36.4 | 50.8 | 17.2 | 68.5 | 24.4 | 8.3 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.4  |
| Total Del/Veh (s)  | 38.3 |

#### 22: 88th Street & Tape Dr Performance by movement

| Movement           | WBL  | WBR | NBT | NBR | SBL | SBT | All |
|--------------------|------|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.1 | 0.3 | 0.3 | 0.0 | 0.1 |
| Total Del/Veh (s)  | 16.3 | 8.1 | 2.0 | 1.5 | 7.9 | 2.8 | 2.4 |

### 23: 96th St & Campus Dr Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR  | All  |
|--------------------|------|-----|------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.1  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 61.6 | 1.1 | 21.3 | 56.3 | 10.4 | 21.0 | 13.0 | 23.0 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL   | NBT  | NBR | SBL  | SBT  | SBR  |
|--------------------|------|------|-----|------|------|-----|-------|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.1  | 0.0  | 0.0 | 3.5  | 0.2  | 3.4 | 0.1   | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 85.8 | 99.5 | 7.4 | 69.8 | 81.6 | 1.9 | 117.8 | 13.8 | 1.0 | 87.6 | 51.1 | 15.7 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 54.6 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBT | EBR | WBL  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR  | All  |
|--------------------|------|-----|-----|------|-----|------|------|-----|------|------|------|------|
| Denied Del/Veh (s) | 0.0  |     | 0.0 | 0.3  | 3.4 | 2.1  | 1.1  | 2.0 | 0.0  | 0.0  | 0.0  | 0.7  |
| Total Del/Veh (s)  | 79.0 |     | 0.7 | 90.5 | 7.3 | 65.0 | 14.9 | 6.2 | 68.6 | 49.4 | 15.6 | 40.1 |

### 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.7 | 1.9 | 4.5 | 1.6 | 5.7 | 3.8 | 1.8 |

### 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT  | NBL | NBT | NBR | All  |
|--------------------|------|-----|------|------|-----|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 10.3 | 8.4 | 15.2 | 16.7 | 4.1 | 0.5 | 3.5 | 13.4 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.2 | 0.2 | 1.6 | 0.9 | 4.2 | 2.6 | 1.5 |

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110: Sorrel Ave & Rockcress Dr Performance by movement

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| Movement           | EBL | EBT | EBR | WBL | WBT | WBR  | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0  | 0.2 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 3.9 | 3.3 | 2.3 | 8.4 | 8.6 | 11.1 | 2.7 | 3.8 | 2.2 | 3.5 | 4.1 | 2.7 |

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110: Sorrel Ave & Rockcress Dr Performance by movement

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| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 8.4 |

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Total Zone Performance

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|                    |       |
|--------------------|-------|
| Denied Del/Veh (s) | 215.2 |
| Total Del/Veh (s)  | 625.0 |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  | SB  |
|-----------------------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | L   | L    | T    | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 30  | 87  | 94  | 201 | 964  | 956  | 128 | 156 | 384 | 381 | 162 | 187 |
| Average Queue (ft)    | 4   | 37  | 31  | 93  | 229  | 199  | 22  | 81  | 227 | 201 | 40  | 65  |
| 95th Queue (ft)       | 19  | 77  | 73  | 187 | 662  | 760  | 79  | 138 | 341 | 318 | 118 | 162 |
| Link Distance (ft)    |     | 750 | 750 |     | 1028 | 1028 |     |     | 893 | 893 | 893 |     |
| Upstream Blk Time (%) |     |     |     |     | 0    | 1    |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     | 0    | 0    |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 135 |     |     | 285 |      |      | 510 | 510 |     |     |     | 190 |
| Storage Blk Time (%)  |     |     | 0   |     | 0    |      |     |     | 0   |     |     | 0   |
| Queuing Penalty (veh) |     |     | 0   |     | 0    |      |     |     | 0   |     |     | 1   |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB   | SB   | SB   | SB |
|-----------------------|-----|------|------|------|----|
| Directions Served     | L   | T    | T    | T    | R  |
| Maximum Queue (ft)    | 213 | 262  | 245  | 203  | 42 |
| Average Queue (ft)    | 109 | 158  | 141  | 88   | 2  |
| 95th Queue (ft)       | 195 | 232  | 218  | 180  | 28 |
| Link Distance (ft)    |     | 1296 | 1296 | 1296 |    |
| Upstream Blk Time (%) |     |      |      |      |    |
| Queuing Penalty (veh) |     |      |      |      |    |
| Storage Bay Dist (ft) | 190 |      |      | 100  |    |
| Storage Blk Time (%)  | 1   | 3    |      | 4    |    |
| Queuing Penalty (veh) | 3   | 7    |      | 4    |    |

Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | B19 | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | T   | L   | L   |
| Maximum Queue (ft)    | 572  | 111  | 299 | 242 | 250 | 37  | 185 | 215 |
| Average Queue (ft)    | 268  | 30   | 98  | 115 | 126 | 1   | 92  | 111 |
| 95th Queue (ft)       | 562  | 76   | 224 | 212 | 227 | 38  | 162 | 183 |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 | 600 |     | 337 |
| Upstream Blk Time (%) |      |      |     |     |     |     |     |     |
| Queuing Penalty (veh) |      |      |     |     |     |     |     |     |
| Storage Bay Dist (ft) |      |      | 400 |     |     |     | 200 |     |
| Storage Blk Time (%)  |      |      | 0   |     |     |     | 0   | 1   |
| Queuing Penalty (veh) |      |      | 0   |     |     |     | 0   | 3   |

# Queuing and Blocking Report

07/04/2022

2030 + Project - AM

## Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 206 | 223 | 220 | 196 | 136 | 49  | 344 | 365 | 267 | 224 | 130 | 297 |
| Average Queue (ft)    | 112 | 123 | 123 | 90  | 52  | 2   | 196 | 221 | 142 | 115 | 50  | 140 |
| 95th Queue (ft)       | 183 | 193 | 196 | 166 | 109 | 50  | 316 | 341 | 232 | 194 | 101 | 249 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 650 | 650 |     |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 | 330 |
| Storage Blk Time (%)  |     |     |     |     |     |     | 0   | 1   |     |     |     | 0   |
| Queuing Penalty (veh) |     |     |     |     |     |     | 1   | 1   |     |     |     | 2   |

## Intersection: 15: 96th St & Dillon Rd

| Movement              | NB   | NB   | NB  | B42 | SB  | SB   | SB   | SB  |
|-----------------------|------|------|-----|-----|-----|------|------|-----|
| Directions Served     | T    | T    | R   | T   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 390  | 388  | 57  | 39  | 287 | 497  | 502  | 414 |
| Average Queue (ft)    | 207  | 220  | 2   | 1   | 64  | 291  | 322  | 58  |
| 95th Queue (ft)       | 347  | 357  | 50  | 40  | 157 | 431  | 450  | 214 |
| Link Distance (ft)    | 2073 | 2073 |     | 455 |     | 2635 | 2635 |     |
| Upstream Blk Time (%) |      |      |     |     |     |      |      |     |
| Queuing Penalty (veh) |      |      |     |     |     |      |      |     |
| Storage Bay Dist (ft) |      |      | 330 |     | 335 |      |      | 335 |
| Storage Blk Time (%)  | 1    | 2    |     |     |     | 4    | 8    |     |
| Queuing Penalty (veh) | 2    | 10   |     |     |     | 5    | 25   |     |

## Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T   | R   |
| Maximum Queue (ft)    | 114 | 215 | 322  | 330  | 202 | 342  | 405 | 413 | 458 | 542 | 83  |
| Average Queue (ft)    | 31  | 70  | 161  | 138  | 56  | 147  | 174 | 164 | 183 | 137 | 38  |
| 95th Queue (ft)       | 81  | 182 | 278  | 269  | 133 | 269  | 342 | 377 | 410 | 416 | 67  |
| Link Distance (ft)    |     | 565 | 1976 | 1976 |     | 1351 |     |     |     | 869 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     | 0   |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     | 2   |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |     | 200 |
| Storage Blk Time (%)  | 0   | 7   |      |      | 0   | 8    | 0   | 4   | 6   | 1   |     |
| Queuing Penalty (veh) | 0   | 3   |      |      | 1   | 53   | 1   | 11  | 18  | 7   |     |

# Queuing and Blocking Report

07/04/2022

2030 + Project - AM

## Intersection: 22: 88th Street & Tape Dr

| Movement              | WB   | NB  | SB  |
|-----------------------|------|-----|-----|
| Directions Served     | LR   | R   | L   |
| Maximum Queue (ft)    | 35   | 4   | 49  |
| Average Queue (ft)    | 7    | 0   | 14  |
| 95th Queue (ft)       | 25   | 3   | 42  |
| Link Distance (ft)    | 1076 |     |     |
| Upstream Blk Time (%) |      |     |     |
| Queuing Penalty (veh) |      |     |     |
| Storage Bay Dist (ft) |      | 300 | 300 |
| Storage Blk Time (%)  |      |     |     |
| Queuing Penalty (veh) |      |     |     |

## Intersection: 23: 96th St & Campus Dr

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B42  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 242 | 262  | 136  | 258 | 313 | 392 | 464 | 333 | 239 | 538 | 400 | 226  |
| Average Queue (ft)    | 145 | 168  | 43   | 138 | 146 | 84  | 105 | 25  | 76  | 343 | 217 | 33   |
| 95th Queue (ft)       | 221 | 248  | 95   | 233 | 253 | 248 | 300 | 190 | 169 | 557 | 440 | 307  |
| Link Distance (ft)    |     | 1160 | 1160 |     |     | 711 | 711 | 711 | 455 | 455 |     | 2073 |
| Upstream Blk Time (%) |     |      |      |     |     | 0   | 0   |     |     | 4   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 0   | 0   |     |     | 34  |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  |     | 0    |      | 0   | 1   | 1   |     |     |     | 11  | 0   |      |
| Queuing Penalty (veh) |     | 0    |      | 1   | 4   | 2   |     |     |     | 66  | 1   |      |

## Intersection: 23: 96th St & Campus Dr

| Movement              | B42  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 499  |
| Average Queue (ft)    | 80   |
| 95th Queue (ft)       | 449  |
| Link Distance (ft)    | 2073 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/04/2022

2030 + Project - AM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | WB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | R   | L   | L   |
| Maximum Queue (ft)    | 87  | 109 | 162 | 159 | 6   | 41  | 158 | 336  | 320  | 38  | 673 | 717 |
| Average Queue (ft)    | 26  | 47  | 70  | 74  | 0   | 8   | 38  | 160  | 139  | 1   | 412 | 451 |
| 95th Queue (ft)       | 68  | 92  | 138 | 141 | 6   | 31  | 101 | 268  | 252  | 39  | 720 | 774 |
| Link Distance (ft)    |     |     | 711 | 711 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 180 | 700 | 700 |
| Storage Blk Time (%)  |     |     |     |     |     |     | 0   | 11   | 8    |     | 4   | 8   |
| Queuing Penalty (veh) |     |     |     |     |     |     | 0   | 5    | 5    |     | 9   | 18  |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | NB  | B39  | B39  | B39  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|------|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | T   | T   | T    | T    | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 729 | 496 | 196 | 315  | 247  | 149  | 113 | 126 | 639 | 641 | 275 |
| Average Queue (ft)    | 403 | 173 | 88  | 70   | 29   | 15   | 26  | 58  | 383 | 379 | 117 |
| 95th Queue (ft)       | 794 | 645 | 174 | 508  | 307  | 185  | 75  | 104 | 634 | 625 | 225 |
| Link Distance (ft)    |     | 941 | 941 | 2052 | 2052 | 2052 |     |     | 864 | 864 |     |
| Upstream Blk Time (%) |     | 3   |     |      |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     | 16  |     |      |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 700 |     |     |      |      |      | 600 | 600 |     |     | 600 |
| Storage Blk Time (%)  | 7   | 1   |     |      |      |      |     |     | 2   | 2   |     |
| Queuing Penalty (veh) | 16  | 11  |     |      |      |      |     |     | 2   | 6   |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | NB  | NB  | NB   | NB   | NB  | SB  | SB  | SB   |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|------|
| Directions Served     | L   | L   | L   | R   | L   | L   | T    | T    | R   | L   | L   | T    |
| Maximum Queue (ft)    | 55  | 336 | 366 | 76  | 288 | 309 | 571  | 589  | 76  | 80  | 650 | 930  |
| Average Queue (ft)    | 15  | 179 | 219 | 30  | 174 | 191 | 186  | 148  | 23  | 25  | 110 | 557  |
| 95th Queue (ft)       | 43  | 282 | 320 | 57  | 261 | 276 | 425  | 418  | 56  | 65  | 415 | 921  |
| Link Distance (ft)    |     |     | 680 |     |     |     | 1947 | 1947 |     |     |     | 2052 |
| Upstream Blk Time (%) |     |     |     |     |     |     | 0    | 0    |     |     |     |      |
| Queuing Penalty (veh) |     |     |     |     |     |     | 0    | 0    |     |     |     |      |
| Storage Bay Dist (ft) | 125 | 250 |     | 500 | 455 | 455 |      |      | 250 | 550 | 550 |      |
| Storage Blk Time (%)  |     | 2   | 7   |     |     |     |      | 0    |     |     |     | 12   |
| Queuing Penalty (veh) |     | 3   | 12  |     |     |     |      | 0    |     |     |     | 10   |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB   | SB  | B39 | B39 | B39 |
|-----------------------|------|-----|-----|-----|-----|
| Directions Served     | T    | R   | T   | T   |     |
| Maximum Queue (ft)    | 969  | 425 | 950 | 845 | 189 |
| Average Queue (ft)    | 564  | 48  | 75  | 80  | 7   |
| 95th Queue (ft)       | 932  | 342 | 493 | 505 | 138 |
| Link Distance (ft)    | 2052 |     | 941 | 941 | 941 |
| Upstream Blk Time (%) |      |     | 0   | 0   | 0   |
| Queuing Penalty (veh) |      |     | 1   | 1   | 0   |
| Storage Bay Dist (ft) |      | 550 |     |     |     |
| Storage Blk Time (%)  | 14   |     |     |     |     |
| Queuing Penalty (veh) | 6    |     |     |     |     |

Intersection: 104: Office Park 3 & Campus Dr

| Movement              | EB   | B103 | WB  | NB  |
|-----------------------|------|------|-----|-----|
| Directions Served     | TR   | T    | L   | LR  |
| Maximum Queue (ft)    | 2    | 137  | 49  | 33  |
| Average Queue (ft)    | 0    | 3    | 17  | 12  |
| 95th Queue (ft)       | 2    | 69   | 46  | 36  |
| Link Distance (ft)    | 1128 | 1976 |     | 585 |
| Upstream Blk Time (%) |      |      |     |     |
| Queuing Penalty (veh) |      |      |     |     |
| Storage Bay Dist (ft) |      |      | 150 |     |
| Storage Blk Time (%)  |      |      |     |     |
| Queuing Penalty (veh) |      |      |     |     |

## Queuing and Blocking Report

07/04/2022

2030 + Project - AM

### Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 202  | 282  | 382  | 28  | 66  |
| Average Queue (ft)    | 78   | 106  | 124  | 2   | 20  |
| 95th Queue (ft)       | 150  | 228  | 307  | 13  | 52  |
| Link Distance (ft)    | 1021 | 1160 | 1160 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | EB  | SB  |
|-----------------------|-----|-----|
| Directions Served     | LTR | LTR |
| Maximum Queue (ft)    | 27  | 33  |
| Average Queue (ft)    | 2   | 16  |
| 95th Queue (ft)       | 14  | 38  |
| Link Distance (ft)    | 795 | 249 |
| Upstream Blk Time (%) |     |     |
| Queuing Penalty (veh) |     |     |
| Storage Bay Dist (ft) |     |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

### Intersection: 110: Sorrel Ave & Rockcress Dr

| Movement              | EB   | EB  | WB   | WB   | NB  | SB  |
|-----------------------|------|-----|------|------|-----|-----|
| Directions Served     | LT   | TR  | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 42   | 4   | 120  | 94   | 33  | 60  |
| Average Queue (ft)    | 6    | 0   | 23   | 9    | 2   | 17  |
| 95th Queue (ft)       | 27   | 4   | 80   | 50   | 14  | 48  |
| Link Distance (ft)    | 1851 |     | 1063 | 1063 | 250 | 657 |
| Upstream Blk Time (%) |      |     |      |      |     |     |
| Queuing Penalty (veh) |      |     |      |      |     |     |
| Storage Bay Dist (ft) |      | 300 |      |      |     |     |
| Storage Blk Time (%)  |      |     |      |      |     |     |
| Queuing Penalty (veh) |      |     |      |      |     |     |

### Zone Summary

Zone wide Queuing Penalty: 391

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 10.2  |       |       |       |       |       |
| Intersection LOS            | B     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 652   |       | 1024  |       | 503   |       |
| Demand Flow Rate, veh/h     | 665   |       | 1045  |       | 513   |       |
| Vehicles Circulating, veh/h | 338   |       | 424   |       | 336   |       |
| Vehicles Exiting, veh/h     | 511   |       | 579   |       | 1133  |       |
| Ped Vol Crossing Leg, #/h   | 5     |       | 12    |       | 0     |       |
| Ped Cap Adj                 | 0.996 |       | 0.991 |       | 1.000 |       |
| Approach Delay, s/veh       | 7.6   |       | 13.8  |       | 6.5   |       |
| Approach LOS                | A     |       | B     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | L     | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.638 | 0.362 | 0.322 | 0.678 | 0.659 | 0.341 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 424   | 241   | 336   | 709   | 338   | 175   |
| Cap Entry Lane, veh/h       | 989   | 1065  | 914   | 990   | 991   | 1067  |
| Entry HV Adj Factor         | 0.981 | 0.980 | 0.980 | 0.980 | 0.979 | 0.983 |
| Flow Entry, veh/h           | 416   | 236   | 329   | 695   | 331   | 172   |
| Cap Entry, veh/h            | 966   | 1040  | 888   | 962   | 970   | 1049  |
| V/C Ratio                   | 0.430 | 0.227 | 0.371 | 0.722 | 0.341 | 0.164 |
| Control Delay, s/veh        | 8.7   | 5.6   | 8.3   | 16.4  | 7.3   | 4.9   |
| LOS                         | A     | A     | A     | C     | A     | A     |
| 95th %tile Queue, veh       | 2     | 1     | 2     | 7     | 2     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 9.1   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 544   | 1122  |       | 134   |       |
| Demand Flow Rate, veh/h     | 561   | 1156  |       | 138   |       |
| Vehicles Circulating, veh/h | 445   | 5     |       | 542   |       |
| Vehicles Exiting, veh/h     | 716   | 675   |       | 464   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 14.6  | 6.9   |       | 5.8   |       |
| Approach LOS                | B     | A     |       | A     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.385 | 0.615 | 0.036 | 0.964 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 561   | 445   | 711   | 5     | 133   |
| Cap Entry Lane, veh/h       | 876   | 1414  | 1414  | 867   | 867   |
| Entry HV Adj Factor         | 0.970 | 0.971 | 0.971 | 1.000 | 0.970 |
| Flow Entry, veh/h           | 544   | 432   | 690   | 5     | 129   |
| Cap Entry, veh/h            | 850   | 1372  | 1372  | 867   | 841   |
| V/C Ratio                   | 0.640 | 0.315 | 0.503 | 0.006 | 0.153 |
| Control Delay, s/veh        | 14.6  | 5.4   | 7.8   | 4.2   | 5.8   |
| LOS                         | B     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 5     | 1     | 3     | 0     | 1     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 4.6   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 45    |       | 573   |       | 36    |       |
| Demand Flow Rate, veh/h     | 47    |       | 590   |       | 37    |       |
| Vehicles Circulating, veh/h | 239   |       | 27    |       | 161   |       |
| Vehicles Exiting, veh/h     | 83    |       | 171   |       | 125   |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 3.5   |       | 4.9   |       | 3.2   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.468 | 0.532 | 0.290 | 0.710 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 22    | 25    | 171   | 419   | 37    | 148   |
| Cap Entry Lane, veh/h       | 1083  | 1159  | 1317  | 1388  | 1238  | 1225  |
| Entry HV Adj Factor         | 0.972 | 0.964 | 0.970 | 0.971 | 0.969 | 0.969 |
| Flow Entry, veh/h           | 21    | 24    | 166   | 407   | 36    | 143   |
| Cap Entry, veh/h            | 1053  | 1117  | 1277  | 1348  | 1200  | 1187  |
| V/C Ratio                   | 0.020 | 0.022 | 0.130 | 0.302 | 0.030 | 0.121 |
| Control Delay, s/veh        | 3.6   | 3.4   | 3.9   | 5.3   | 3.2   | 4.1   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 1     | 0     | 0     |

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35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

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| Movement           | WBL  | WBT  | WBR | NBL  | NBT  | SBT  | SBR  | All  |
|--------------------|------|------|-----|------|------|------|------|------|
| Denied Del/Veh (s) | 0.3  | 0.4  | 0.3 | 0.0  | 0.0  | 0.0  | 0.0  | 0.1  |
| Total Del/Veh (s)  | 61.2 | 63.8 | 2.5 | 61.4 | 10.7 | 50.7 | 13.1 | 28.3 |

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40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

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| Movement           | EBL   | EBT   | EBR  | NBT   | NBR  | SBL  | SBT  | All  |
|--------------------|-------|-------|------|-------|------|------|------|------|
| Denied Del/Veh (s) | 36.2  | 41.9  | 37.3 | 1.5   | 2.4  | 0.0  | 0.0  | 8.6  |
| Total Del/Veh (s)  | 163.8 | 158.2 | 50.4 | 131.3 | 90.4 | 97.3 | 12.8 | 95.5 |

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Total Zone Performance

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|                    |        |
|--------------------|--------|
| Denied Del/Veh (s) | 21.3   |
| Total Del/Veh (s)  | 2158.1 |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B29 | B29 | B41  |
|-----------------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | LT   | L   | T   | T   | T   | T   | T   | R   | T   | T   | T    |
| Maximum Queue (ft)    | 166 | 186  | 344 | 549 | 525 | 370 | 469 | 422 | 369 | 718 | 710 | 771  |
| Average Queue (ft)    | 84  | 123  | 263 | 113 | 77  | 363 | 435 | 226 | 137 | 610 | 529 | 596  |
| 95th Queue (ft)       | 158 | 179  | 374 | 421 | 364 | 396 | 518 | 378 | 300 | 949 | 977 | 1069 |
| Link Distance (ft)    |     | 1442 |     | 556 | 556 |     | 370 | 370 |     | 613 | 613 | 722  |
| Upstream Blk Time (%) |     |      |     | 1   | 0   | 40  | 54  | 1   | 0   | 53  | 21  | 21   |
| Queuing Penalty (veh) |     |      |     | 7   | 4   | 0   | 631 | 7   | 0   | 625 | 249 | 168  |
| Storage Bay Dist (ft) | 330 |      | 190 |     |     | 300 |     |     | 300 |     |     |      |
| Storage Blk Time (%)  |     |      | 38  | 0   |     | 67  | 6   | 2   | 1   |     |     |      |
| Queuing Penalty (veh) |     |      | 357 | 0   |     | 409 | 34  | 11  | 4   |     |     |      |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | B41  | B41  |
|-----------------------|------|------|
| Directions Served     | T    |      |
| Maximum Queue (ft)    | 783  | 882  |
| Average Queue (ft)    | 602  | 522  |
| 95th Queue (ft)       | 1091 | 1092 |
| Link Distance (ft)    | 722  | 722  |
| Upstream Blk Time (%) | 33   | 14   |
| Queuing Penalty (veh) | 259  | 110  |
| Storage Bay Dist (ft) |      |      |
| Storage Blk Time (%)  |      |      |
| Queuing Penalty (veh) |      |      |

Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 479 | 1013 | 300 | 1634 | 1631 | 390 | 335 | 593 | 415 | 384 |
| Average Queue (ft)    | 410 | 761  | 250 | 1159 | 1145 | 210 | 324 | 524 | 147 | 159 |
| 95th Queue (ft)       | 577 | 1308 | 433 | 1923 | 1922 | 527 | 366 | 673 | 326 | 322 |
| Link Distance (ft)    |     | 1036 |     | 1843 | 1843 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     | 22   |     | 0    | 0    |     |     | 11  | 0   |     |
| Queuing Penalty (veh) |     | 0    |     | 2    | 1    |     |     | 75  | 0   |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  | 33  | 74   |     |      | 43   |     | 37  | 51  |     |     |
| Queuing Penalty (veh) | 247 | 537  |     |      | 69   |     | 157 | 217 |     |     |

Zone Summary

Zone wide Queuing Penalty: 4179

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.3  | 0.7  | 3.3 | 0.6  | 0.6  | 2.7 | 2.3  | 0.3  | 0.4 | 2.1  | 0.2  | 2.0 |
| Total Del/Veh (s)  | 53.6 | 52.2 | 3.5 | 50.0 | 39.1 | 3.1 | 68.1 | 42.5 | 4.5 | 56.9 | 30.4 | 4.3 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.8  |
| Total Del/Veh (s)  | 34.0 |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|-----|------|-----|-----|------|
| Denied Del/Veh (s) | 0.4  | 0.3 | 0.0  | 0.0 | 0.0  | 0.0 | 0.0 | 0.2  |
| Total Del/Veh (s)  | 30.7 | 2.5 | 32.2 | 5.6 | 56.5 | 0.9 | 2.0 | 20.9 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.1 | 1.5  | 0.3  | 1.5 |
| Total Del/Veh (s)  | 59.0 | 61.2 | 20.0 | 61.2 | 40.9 | 25.8 | 38.1 | 49.2 | 9.6 | 39.8 | 35.4 | 9.6 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.2  |
| Total Del/Veh (s)  | 41.4 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 3.7  | 0.5  | 0.7  | 0.1  | 0.0  | 0.1  | 0.0  | 0.0  | 0.1 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 29.9 | 49.2 | 30.0 | 41.0 | 42.4 | 15.3 | 21.6 | 26.4 | 4.6 | 16.6 | 23.4 | 5.4 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.4  |
| Total Del/Veh (s)  | 24.5 |

#### 23: 96th St Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR | All  |
|--------------------|------|-----|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 50.8 | 2.4 | 30.5 | 92.8 | 11.2 | 21.0 | 6.8 | 23.5 |

#### 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.0 | 0.0 | 3.6 | 0.7 | 6.3 | 4.1 | 1.2 |

#### 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 5.4 | 5.6 | 4.2 | 5.4 | 4.7 | 7.0 | 5.9 |

#### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | WBT | WBR | SBL | SBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.8 | 0.0 | 0.3 | 0.2 | 4.6 | 2.7 | 2.2 |

#### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.8 | 3.6 | 1.9 | 3.7 | 5.3 | 7.1 | 4.6 | 6.7 | 2.6 | 6.0 | 4.6 | 4.9 |

#### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 5.5 |

#### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 0.8    |
| Total Del/Veh (s)  | 1094.2 |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | R   | L   | L    | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 148 | 182 | 219 | 214 | 335 | 464  | 204  | 175 | 181 | 476 | 481 | 138 |
| Average Queue (ft)    | 62  | 117 | 104 | 8   | 235 | 276  | 77   | 74  | 130 | 317 | 299 | 45  |
| 95th Queue (ft)       | 151 | 174 | 165 | 73  | 311 | 343  | 153  | 178 | 193 | 435 | 410 | 116 |
| Link Distance (ft)    |     | 750 | 750 |     |     | 1028 | 1028 |     |     | 893 | 893 | 893 |
| Upstream Blk Time (%) |     |     |     |     |     |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 135 |     |     | 120 | 285 |      |      | 510 | 510 |     |     |     |
| Storage Blk Time (%)  | 0   | 6   | 9   |     | 1   | 6    |      |     |     |     |     |     |
| Queuing Penalty (veh) | 0   | 5   | 22  |     | 2   | 20   |      |     |     |     |     |     |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB  | SB   | SB   | SB   | SB  |
|-----------------------|-----|-----|------|------|------|-----|
| Directions Served     | L   | L   | T    | T    | T    | R   |
| Maximum Queue (ft)    | 164 | 309 | 332  | 315  | 270  | 190 |
| Average Queue (ft)    | 101 | 149 | 225  | 194  | 161  | 29  |
| 95th Queue (ft)       | 175 | 239 | 306  | 269  | 255  | 137 |
| Link Distance (ft)    |     |     | 1296 | 1296 | 1296 |     |
| Upstream Blk Time (%) |     |     |      |      |      |     |
| Queuing Penalty (veh) |     |     |      |      |      |     |
| Storage Bay Dist (ft) | 190 | 190 |      |      | 100  |     |
| Storage Blk Time (%)  |     | 1   | 15   |      | 17   |     |
| Queuing Penalty (veh) |     | 3   | 46   |      | 23   |     |

Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | L   | L   |
| Maximum Queue (ft)    | 696  | 79   | 222 | 120 | 161 | 211 | 224 |
| Average Queue (ft)    | 321  | 9    | 109 | 50  | 53  | 96  | 119 |
| 95th Queue (ft)       | 577  | 39   | 186 | 112 | 118 | 165 | 191 |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 |     | 324 |
| Upstream Blk Time (%) |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) |      |      | 400 |     | 200 |     |     |
| Storage Blk Time (%)  |      |      |     |     | 0   | 1   |     |
| Queuing Penalty (veh) |      |      |     |     | 0   | 4   |     |

Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 198 | 219 | 335 | 290 | 197 | 498 | 319 | 314 | 244 | 237 | 158 | 487 |
| Average Queue (ft)    | 111 | 125 | 231 | 185 | 73  | 50  | 195 | 213 | 155 | 117 | 74  | 90  |
| 95th Queue (ft)       | 185 | 190 | 319 | 267 | 149 | 290 | 288 | 291 | 214 | 183 | 133 | 227 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 649 | 649 |     |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 2   |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 | 330 |
| Storage Blk Time (%)  |     |     |     |     |     |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |     |     |     |     |

Intersection: 15: 96th St & Dillon Rd

| Movement              | NB   | NB   | NB  | SB  | SB   | SB   | SB  |
|-----------------------|------|------|-----|-----|------|------|-----|
| Directions Served     | T    | T    | R   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 485  | 534  | 490 | 179 | 340  | 364  | 118 |
| Average Queue (ft)    | 322  | 345  | 35  | 92  | 196  | 222  | 49  |
| 95th Queue (ft)       | 429  | 456  | 243 | 162 | 300  | 311  | 92  |
| Link Distance (ft)    | 2019 | 2019 |     |     | 2442 | 2442 |     |
| Upstream Blk Time (%) |      |      |     |     |      |      |     |
| Queuing Penalty (veh) |      |      |     |     |      |      |     |
| Storage Bay Dist (ft) |      |      | 330 | 335 |      |      | 335 |
| Storage Blk Time (%)  | 9    | 12   |     |     | 0    | 1    |     |
| Queuing Penalty (veh) | 11   | 50   |     |     | 0    | 2    |     |

Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB   | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|------|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T    | R   |
| Maximum Queue (ft)    | 175 | 315 | 241  | 240  | 48  | 200  | 74  | 76  | 74  | 271  | 54  |
| Average Queue (ft)    | 76  | 119 | 101  | 72   | 13  | 96   | 35  | 16  | 36  | 145  | 19  |
| 95th Queue (ft)       | 159 | 239 | 192  | 166  | 43  | 164  | 66  | 49  | 65  | 247  | 46  |
| Link Distance (ft)    |     | 565 | 1989 | 1989 |     | 1350 |     |     |     | 1558 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |      |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |      |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |      | 200 |
| Storage Blk Time (%)  | 3   | 6   |      |      |     | 2    |     |     |     | 6    |     |
| Queuing Penalty (veh) | 5   | 9   |      |      |     | 3    |     |     |     | 10   |     |

Intersection: 23: 96th St

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B46  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 257 | 259  | 275  | 141 | 154 | 114 | 176 | 106 | 340 | 572 | 400 | 88   |
| Average Queue (ft)    | 151 | 174  | 142  | 62  | 65  | 53  | 65  | 10  | 180 | 344 | 103 | 3    |
| 95th Queue (ft)       | 221 | 237  | 236  | 113 | 134 | 111 | 146 | 54  | 292 | 553 | 335 | 30   |
| Link Distance (ft)    |     | 1159 | 1159 |     |     | 715 | 715 | 715 | 498 | 498 |     | 2019 |
| Upstream Blk Time (%) |     |      |      |     |     |     |     |     |     | 4   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     |     |     |     |     | 31  |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  |     |      |      |     |     |     |     |     |     | 13  |     |      |
| Queuing Penalty (veh) |     |      |      |     |     |     |     |     |     | 31  |     |      |

Intersection: 23: 96th St

| Movement              | B46  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 205  |
| Average Queue (ft)    | 15   |
| 95th Queue (ft)       | 93   |
| Link Distance (ft)    | 2019 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

Intersection: 104: Office Park 3 & Campus Dr

| Movement              | WB  | NB  |
|-----------------------|-----|-----|
| Directions Served     | L   | LR  |
| Maximum Queue (ft)    | 31  | 79  |
| Average Queue (ft)    | 3   | 31  |
| 95th Queue (ft)       | 19  | 51  |
| Link Distance (ft)    |     | 585 |
| Upstream Blk Time (%) |     |     |
| Queuing Penalty (veh) |     |     |
| Storage Bay Dist (ft) | 150 |     |
| Storage Blk Time (%)  |     |     |
| Queuing Penalty (veh) |     |     |

## Queuing and Blocking Report

07/04/2022

2030 Ph 2 - PM

### Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 96   | 78   | 154  | 42  | 172 |
| Average Queue (ft)    | 38   | 24   | 22   | 9   | 67  |
| 95th Queue (ft)       | 76   | 66   | 75   | 33  | 138 |
| Link Distance (ft)    | 1021 | 1159 | 1159 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | SB  |
|-----------------------|-----|
| Directions Served     | LTR |
| Maximum Queue (ft)    | 48  |
| Average Queue (ft)    | 28  |
| 95th Queue (ft)       | 35  |
| Link Distance (ft)    | 249 |
| Upstream Blk Time (%) |     |
| Queuing Penalty (veh) |     |
| Storage Bay Dist (ft) |     |
| Storage Blk Time (%)  |     |
| Queuing Penalty (veh) |     |

### Intersection: 110: Sorrel Ave & Rockcress Dr

| Movement              | EB   | WB   | WB   | NB  | SB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | LT   | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 29   | 31   | 47   | 74  | 132 |
| Average Queue (ft)    | 7    | 3    | 3    | 16  | 54  |
| 95th Queue (ft)       | 27   | 19   | 23   | 49  | 103 |
| Link Distance (ft)    | 1851 | 1062 | 1062 | 250 | 657 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Zone Summary

Zone wide Queuing Penalty: 278

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 7.0   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 611   |       | 553   |       | 753   |       |
| Demand Flow Rate, veh/h     | 623   |       | 564   |       | 768   |       |
| Vehicles Circulating, veh/h | 500   |       | 194   |       | 227   |       |
| Vehicles Exiting, veh/h     | 495   |       | 929   |       | 531   |       |
| Ped Vol Crossing Leg, #/h   | 2     |       | 2     |       | 0     |       |
| Ped Cap Adj                 | 0.999 |       | 0.998 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.1   |       | 5.4   |       | 7.3   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | LT    | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.402 | 0.598 | 0.651 | 0.349 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 293   | 330   | 227   | 337   | 500   | 268   |
| Cap Entry Lane, veh/h       | 852   | 928   | 1129  | 1204  | 1095  | 1171  |
| Entry HV Adj Factor         | 0.979 | 0.981 | 0.980 | 0.979 | 0.980 | 0.981 |
| Flow Entry, veh/h           | 287   | 324   | 223   | 330   | 490   | 263   |
| Cap Entry, veh/h            | 834   | 909   | 1105  | 1177  | 1074  | 1149  |
| V/C Ratio                   | 0.344 | 0.356 | 0.201 | 0.280 | 0.456 | 0.229 |
| Control Delay, s/veh        | 8.3   | 7.9   | 5.1   | 5.6   | 8.4   | 5.2   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 2     | 2     | 1     | 1     | 2     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 6.5   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 316   | 376   |       | 509   |       |
| Demand Flow Rate, veh/h     | 325   | 387   |       | 525   |       |
| Vehicles Circulating, veh/h | 202   | 23    |       | 316   |       |
| Vehicles Exiting, veh/h     | 208   | 818   |       | 211   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 6.1   | 3.8   |       | 8.7   |       |
| Approach LOS                | A     | A     |       | A     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.522 | 0.478 | 0.044 | 0.956 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 325   | 202   | 185   | 23    | 502   |
| Cap Entry Lane, veh/h       | 1123  | 1391  | 1391  | 1065  | 1065  |
| Entry HV Adj Factor         | 0.972 | 0.970 | 0.971 | 0.957 | 0.970 |
| Flow Entry, veh/h           | 316   | 196   | 180   | 22    | 487   |
| Cap Entry, veh/h            | 1091  | 1349  | 1350  | 1019  | 1033  |
| V/C Ratio                   | 0.289 | 0.145 | 0.133 | 0.022 | 0.471 |
| Control Delay, s/veh        | 6.1   | 3.8   | 3.7   | 3.7   | 8.9   |
| LOS                         | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 0     | 0     | 3     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.4   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 86    |       | 237   |       | 140   |       |
| Demand Flow Rate, veh/h     | 88    |       | 243   |       | 144   |       |
| Vehicles Circulating, veh/h | 521   |       | 43    |       | 552   |       |
| Vehicles Exiting, veh/h     | 50    |       | 653   |       | 57    |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 4.7   |       | 3.6   |       | 5.8   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.466 | 0.534 | 0.247 | 0.753 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 41    | 47    | 60    | 183   | 144   | 500   |
| Cap Entry Lane, veh/h       | 836   | 912   | 1297  | 1369  | 888   | 1337  |
| Entry HV Adj Factor         | 0.984 | 0.968 | 0.976 | 0.973 | 0.975 | 0.969 |
| Flow Entry, veh/h           | 40    | 45    | 59    | 178   | 140   | 485   |
| Cap Entry, veh/h            | 822   | 882   | 1266  | 1332  | 866   | 1296  |
| V/C Ratio                   | 0.049 | 0.052 | 0.046 | 0.134 | 0.162 | 0.374 |
| Control Delay, s/veh        | 4.8   | 4.6   | 3.2   | 3.8   | 5.8   | 6.3   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 0     | 0     | 1     | 2     |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.1  | 0.4  | 3.8 | 0.6  | 0.7  | 2.7 | 1.9  | 0.3  | 0.4 | 2.2  | 0.2  | 2.1 |
| Total Del/Veh (s)  | 54.4 | 48.9 | 2.1 | 41.4 | 34.3 | 3.4 | 50.2 | 35.0 | 4.7 | 87.7 | 26.3 | 3.6 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.8  |
| Total Del/Veh (s)  | 30.3 |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT  | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.4  | 0.3 | 0.1  | 0.0  | 0.0  | 0.0 | 0.0 | 0.2  |
| Total Del/Veh (s)  | 34.6 | 4.2 | 50.3 | 14.5 | 54.1 | 1.7 | 1.9 | 23.9 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT   | SBR  |
|--------------------|------|------|------|------|------|------|------|------|-----|------|-------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.2  | 0.1  | 0.3 | 0.0  | 0.0   | 0.0  |
| Total Del/Veh (s)  | 71.1 | 60.1 | 30.9 | 76.1 | 55.1 | 21.0 | 65.0 | 35.0 | 7.8 | 65.4 | 106.5 | 53.0 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 59.5 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL   | SBT  | SBR  |
|--------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Denied Del/Veh (s) | 4.0  | 0.3  | 0.2  | 0.0  | 0.0  | 0.0  | 0.1  | 0.0  | 0.1  | 5.8   | 3.0  | 5.6  |
| Total Del/Veh (s)  | 56.7 | 93.7 | 47.1 | 46.1 | 42.5 | 32.1 | 35.8 | 50.0 | 20.1 | 109.3 | 27.1 | 12.6 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 1.8  |
| Total Del/Veh (s)  | 46.8 |

#### 22: 88th Street & Tape Dr Performance by movement

| Movement           | WBL  | WBT | WBR | NBT | NBR | SBL  | SBT | All |
|--------------------|------|-----|-----|-----|-----|------|-----|-----|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0 | 0.1 | 0.4 | 0.3  | 0.0 | 0.1 |
| Total Del/Veh (s)  | 16.8 | 0.2 | 7.3 | 2.1 | 1.6 | 10.1 | 2.8 | 2.7 |

### 23: 96th St & Campus Dr Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT  | SBT  | SBR  | All  |
|--------------------|------|-----|------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.2  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 57.3 | 1.5 | 25.4 | 57.1 | 15.2 | 29.4 | 20.9 | 28.1 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT   | EBR | WBL  | WBT  | WBR | NBL   | NBT  | NBR | SBL  | SBT  | SBR  |
|--------------------|------|-------|-----|------|------|-----|-------|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.1  | 0.0   | 0.0 | 3.3  | 0.2  | 3.3 | 0.0   | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 81.4 | 107.1 | 8.3 | 72.0 | 84.3 | 3.5 | 110.2 | 22.7 | 1.0 | 85.0 | 49.0 | 18.6 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 54.7 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBT | EBR | WBL   | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR  | All  |
|--------------------|------|-----|-----|-------|-----|------|------|-----|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0 | 0.7   | 3.3 | 0.0  | 0.0  | 0.0 | 0.0  | 0.1  | 0.0  | 0.2  |
| Total Del/Veh (s)  | 64.6 | 0.4 | 0.8 | 111.6 | 7.9 | 51.7 | 14.4 | 4.9 | 66.8 | 70.3 | 18.9 | 48.8 |

### 35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

| Movement           | WBL  | WBT  | WBR  | NBL  | NBT | SBT | SBR | All  |
|--------------------|------|------|------|------|-----|-----|-----|------|
| Denied Del/Veh (s) | 1.1  | 1.4  | 1.0  | 0.1  | 0.0 | 0.0 | 0.0 | 0.3  |
| Total Del/Veh (s)  | 64.3 | 64.1 | 18.0 | 68.5 | 8.8 | 8.1 | 7.1 | 15.2 |

### 40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

| Movement           | EBL  | EBT  | EBR | NBT  | NBR | SBL  | SBT | All  |
|--------------------|------|------|-----|------|-----|------|-----|------|
| Denied Del/Veh (s) | 2.2  | 1.8  | 3.4 | 0.4  | 2.3 | 0.0  | 0.0 | 0.6  |
| Total Del/Veh (s)  | 64.9 | 58.0 | 3.1 | 40.0 | 6.1 | 35.0 | 6.3 | 23.9 |

### 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 |     | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.6 | 1.6 | 5.0 | 2.0 |     | 4.1 | 1.9 |

### 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT  | EBR  | WBL  | WBT  | NBL | NBR | All  |
|--------------------|------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0  |
| Total Del/Veh (s)  | 16.1 | 16.0 | 52.3 | 22.7 | 3.3 | 3.6 | 28.8 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.9 | 0.7 | 0.4 | 2.9 | 2.3 | 1.3 | 7.8 | 7.4 | 2.4 | 5.3 | 5.9 | 2.9 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 2.4 |

### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | EBR | WBL  | WBT  | WBR  | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 4.0 | 3.7 | 2.5 | 13.9 | 14.4 | 10.9 | 3.1 | 3.8 | 2.2 | 4.8 | 5.4 | 3.4 |

### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.0  |
| Total Del/Veh (s)  | 10.2 |

### Total Zone Performance

| Movement           | All   |
|--------------------|-------|
| Denied Del/Veh (s) | 1.4   |
| Total Del/Veh (s)  | 777.6 |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  | SB  |
|-----------------------|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | L   | L    | T    | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 31  | 95  | 100 | 306 | 344  | 269  | 129 | 158 | 477 | 443 | 198 | 246 |
| Average Queue (ft)    | 3   | 41  | 33  | 166 | 216  | 85   | 26  | 85  | 286 | 256 | 47  | 113 |
| 95th Queue (ft)       | 18  | 83  | 79  | 266 | 305  | 203  | 89  | 148 | 432 | 404 | 137 | 244 |
| Link Distance (ft)    |     | 750 | 750 |     | 1028 | 1028 |     |     | 893 | 893 | 893 |     |
| Upstream Blk Time (%) |     |     |     |     |      | 0    |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |      | 0    |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 135 |     |     | 285 |      |      | 510 | 510 |     |     |     | 190 |
| Storage Blk Time (%)  |     |     | 0   | 0   | 1    | 0    |     |     | 0   |     |     | 6   |
| Queuing Penalty (veh) |     |     | 0   | 0   | 4    | 0    |     |     | 0   |     |     | 19  |

Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB   | SB   | SB   | SB  |
|-----------------------|-----|------|------|------|-----|
| Directions Served     | L   | T    | T    | T    | R   |
| Maximum Queue (ft)    | 290 | 478  | 429  | 244  | 151 |
| Average Queue (ft)    | 153 | 225  | 199  | 116  | 11  |
| 95th Queue (ft)       | 277 | 523  | 474  | 217  | 82  |
| Link Distance (ft)    |     | 1296 | 1296 | 1296 |     |
| Upstream Blk Time (%) |     | 0    |      |      |     |
| Queuing Penalty (veh) |     | 0    |      |      |     |
| Storage Bay Dist (ft) | 190 |      |      | 100  |     |
| Storage Blk Time (%)  | 11  | 5    |      | 10   |     |
| Queuing Penalty (veh) | 35  | 14   |      | 11   |     |

Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | B9   | B19 | B19 | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|------|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | T    | T   |     | L   | L   |
| Maximum Queue (ft)    | 578  | 187  | 361 | 310 | 302 | 153  | 184 | 2   | 212 | 233 |
| Average Queue (ft)    | 284  | 35   | 123 | 129 | 131 | 16   | 8   | 0   | 116 | 138 |
| 95th Queue (ft)       | 520  | 113  | 300 | 282 | 266 | 256  | 105 | 2   | 193 | 213 |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 | 4320 | 600 | 600 |     | 337 |
| Upstream Blk Time (%) |      |      | 1   | 1   |     |      |     |     |     |     |
| Queuing Penalty (veh) |      |      | 0   | 4   |     |      |     |     |     |     |
| Storage Bay Dist (ft) |      |      | 400 |     |     |      |     |     | 200 |     |
| Storage Blk Time (%)  |      |      | 3   |     |     |      |     |     | 1   | 2   |
| Queuing Penalty (veh) |      |      | 9   |     |     |      |     |     | 2   | 8   |

Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 272 | 271 | 214 | 185 | 148 | 96  | 358 | 417 | 300 | 245 | 162 | 369 |
| Average Queue (ft)    | 155 | 164 | 117 | 90  | 59  | 3   | 205 | 250 | 153 | 127 | 67  | 176 |
| 95th Queue (ft)       | 248 | 253 | 189 | 164 | 123 | 71  | 331 | 376 | 262 | 216 | 131 | 312 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 650 | 650 |     |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     | 0   |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 0   |     |     | 0   |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 | 330 |
| Storage Blk Time (%)  |     |     |     |     |     |     | 0   | 1   | 0   |     |     | 2   |
| Queuing Penalty (veh) |     |     |     |     |     |     | 0   | 2   | 0   |     |     | 9   |

Intersection: 15: 96th St & Dillon Rd

| Movement              | NB   | NB   | NB  | B42 | B42 | SB  | SB   | SB   | SB  |
|-----------------------|------|------|-----|-----|-----|-----|------|------|-----|
| Directions Served     | T    | T    | R   | T   | T   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 510  | 498  | 292 | 47  | 107 | 493 | 1266 | 1328 | 495 |
| Average Queue (ft)    | 270  | 277  | 14  | 0   | 4   | 195 | 729  | 821  | 367 |
| 95th Queue (ft)       | 430  | 424  | 148 | 0   | 73  | 508 | 1409 | 1481 | 696 |
| Link Distance (ft)    | 2073 | 2073 |     | 446 | 446 |     | 2607 | 2607 |     |
| Upstream Blk Time (%) |      |      |     | 0   | 0   |     |      |      |     |
| Queuing Penalty (veh) |      |      |     | 0   | 0   |     |      |      |     |
| Storage Bay Dist (ft) |      |      | 330 |     |     | 335 |      |      | 335 |
| Storage Blk Time (%)  | 4    | 4    |     |     |     |     | 33   | 50   |     |
| Queuing Penalty (veh) | 9    | 30   |     |     |     |     | 45   | 188  |     |

Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T   | R   |
| Maximum Queue (ft)    | 130 | 242 | 328  | 285  | 209 | 301  | 476 | 459 | 514 | 770 | 128 |
| Average Queue (ft)    | 37  | 76  | 163  | 130  | 59  | 153  | 201 | 220 | 243 | 260 | 40  |
| 95th Queue (ft)       | 102 | 208 | 274  | 241  | 153 | 272  | 388 | 491 | 542 | 724 | 90  |
| Link Distance (ft)    |     | 565 | 2074 | 2074 |     | 1349 |     |     |     | 869 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     | 4   |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     | 31  |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |     | 200 |
| Storage Blk Time (%)  | 0   | 9   |      |      | 0   | 11   | 0   | 12  | 17  | 2   |     |
| Queuing Penalty (veh) | 0   | 4   |      |      | 0   | 78   | 1   | 39  | 59  | 13  |     |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 22: 88th Street & Tape Dr

| Movement              | WB   | NB  | SB  |
|-----------------------|------|-----|-----|
| Directions Served     | LR   | R   | L   |
| Maximum Queue (ft)    | 39   | 4   | 67  |
| Average Queue (ft)    | 12   | 0   | 26  |
| 95th Queue (ft)       | 33   | 2   | 58  |
| Link Distance (ft)    | 1084 |     |     |
| Upstream Blk Time (%) |      |     |     |
| Queuing Penalty (veh) |      |     |     |
| Storage Bay Dist (ft) |      | 300 | 300 |
| Storage Blk Time (%)  |      |     |     |
| Queuing Penalty (veh) |      |     |     |

## Intersection: 23: 96th St & Campus Dr

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B42  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 262 | 286  | 139  | 258 | 290 | 495 | 531 | 267 | 369 | 537 | 400 | 1143 |
| Average Queue (ft)    | 156 | 178  | 56   | 143 | 151 | 156 | 178 | 66  | 119 | 438 | 341 | 237  |
| 95th Queue (ft)       | 234 | 260  | 110  | 235 | 249 | 350 | 385 | 202 | 266 | 610 | 497 | 1115 |
| Link Distance (ft)    |     | 1144 | 1144 |     |     | 704 | 704 | 704 | 446 | 446 |     | 2073 |
| Upstream Blk Time (%) |     |      |      |     |     | 0   | 0   |     | 0   | 11  |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 0   | 0   |     | 1   | 94  |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  |     | 0    |      | 0   | 1   | 2   |     |     |     | 22  | 3   |      |
| Queuing Penalty (veh) |     | 1    |      | 2   | 3   | 6   |     |     |     | 150 | 16  |      |

## Intersection: 23: 96th St & Campus Dr

| Movement              | B42  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 1298 |
| Average Queue (ft)    | 368  |
| 95th Queue (ft)       | 1308 |
| Link Distance (ft)    | 2073 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | L   | L   | T    | T    | R   | L   | L   | L   |
| Maximum Queue (ft)    | 100 | 126 | 206 | 241 | 77  | 191 | 441  | 404  | 151 | 690 | 744 | 780 |
| Average Queue (ft)    | 26  | 45  | 99  | 107 | 11  | 47  | 206  | 181  | 9   | 409 | 440 | 407 |
| 95th Queue (ft)       | 70  | 95  | 187 | 201 | 43  | 133 | 372  | 345  | 107 | 773 | 836 | 857 |
| Link Distance (ft)    |     |     | 704 | 704 |     |     | 1056 | 1056 |     |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 180 | 180 |      |      | 180 | 700 | 700 | 700 |
| Storage Blk Time (%)  |     |     |     | 0   |     |     | 21   | 14   |     | 4   | 10  | 8   |
| Queuing Penalty (veh) |     |     |     | 1   |     |     | 11   | 10   |     | 11  | 26  | 22  |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | B39  | B39  | B39  | SB  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | T    | T    | T    | L   | L   | T   | T   | T   | R   |
| Maximum Queue (ft)    | 788 | 347 | 731  | 212  | 68   | 123 | 136 | 530 | 517 | 493 | 308 |
| Average Queue (ft)    | 243 | 147 | 53   | 10   | 2    | 36  | 65  | 319 | 315 | 291 | 135 |
| 95th Queue (ft)       | 725 | 270 | 424  | 147  | 69   | 96  | 120 | 533 | 526 | 496 | 253 |
| Link Distance (ft)    | 941 | 941 | 2052 | 2052 | 2052 |     |     | 864 | 864 | 864 |     |
| Upstream Blk Time (%) | 3   |     | 0    |      |      |     |     |     |     |     |     |
| Queuing Penalty (veh) | 16  |     | 0    |      |      |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |      |      |      | 600 | 600 |     |     |     | 600 |
| Storage Blk Time (%)  | 1   |     |      |      |      |     |     | 1   |     | 1   |     |
| Queuing Penalty (veh) | 15  |     |      |      |      |     |     | 1   |     | 2   |     |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | EB  | WB  | WB  | WB  | NB  | NB  | NB  | NB  | NB  | B41 | B41 |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | L   | L   | R   | L   | L   | T   | T   | R   | T   | T   |
| Maximum Queue (ft)    | 36  | 50  | 403 | 485 | 88  | 389 | 378 | 365 | 349 | 128 | 53  | 112 |
| Average Queue (ft)    | 8   | 12  | 249 | 301 | 33  | 254 | 261 | 233 | 196 | 34  | 2   | 4   |
| 95th Queue (ft)       | 28  | 38  | 387 | 459 | 62  | 360 | 359 | 345 | 312 | 100 | 54  | 84  |
| Link Distance (ft)    |     |     |     | 680 |     |     |     | 652 | 652 |     | 684 | 684 |
| Upstream Blk Time (%) |     |     |     | 0   |     |     |     |     |     |     |     | 0   |
| Queuing Penalty (veh) |     |     |     | 0   |     |     |     |     |     |     |     | 0   |
| Storage Bay Dist (ft) | 125 | 125 | 250 |     | 500 | 455 | 455 |     |     | 250 |     |     |
| Storage Blk Time (%)  |     |     | 9   | 29  |     |     | 0   |     | 1   |     |     |     |
| Queuing Penalty (veh) |     |     | 20  | 64  |     |     | 0   |     | 3   |     |     |     |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | B29 | B29 | B29 | SB  | SB  | SB   | SB   | SB   | SB  | B39 | B39 | B39 |
|-----------------------|-----|-----|-----|-----|-----|------|------|------|-----|-----|-----|-----|
| Directions Served     | T   | T   | T   | L   | L   | T    | T    | T    | R   | T   | T   | T   |
| Maximum Queue (ft)    | 419 | 442 | 444 | 298 | 635 | 1011 | 1053 | 1050 | 639 | 440 | 640 | 442 |
| Average Queue (ft)    | 163 | 212 | 151 | 37  | 184 | 508  | 545  | 569  | 79  | 19  | 29  | 22  |
| 95th Queue (ft)       | 465 | 531 | 481 | 158 | 584 | 969  | 1000 | 1014 | 446 | 231 | 292 | 247 |
| Link Distance (ft)    | 370 | 370 | 370 |     |     | 2052 | 2052 | 2052 |     | 941 | 941 | 941 |
| Upstream Blk Time (%) | 1   | 5   | 4   |     |     |      |      |      |     |     | 0   | 0   |
| Queuing Penalty (veh) | 12  | 44  | 31  |     |     |      |      |      |     |     | 0   | 0   |
| Storage Bay Dist (ft) |     |     |     | 550 | 550 |      |      |      | 550 |     |     |     |
| Storage Blk Time (%)  |     |     |     |     | 1   | 11   |      | 18   |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     | 4   | 11   |      | 12   |     |     |     |     |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B41 | B41 |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R    | L   | T   | T   | T   | T   | T   | R   | T   | T   |
| Maximum Queue (ft)    | 238 | 840  | 906  | 304 | 285 | 156 | 270 | 275 | 281 | 242 | 226 | 422 |
| Average Queue (ft)    | 130 | 234  | 143  | 166 | 34  | 19  | 85  | 103 | 117 | 77  | 9   | 27  |
| 95th Queue (ft)       | 208 | 723  | 791  | 266 | 149 | 87  | 201 | 212 | 219 | 189 | 130 | 233 |
| Link Distance (ft)    |     | 1442 | 1442 |     | 556 | 556 | 370 | 370 | 370 |     | 652 | 652 |
| Upstream Blk Time (%) |     | 1    | 2    |     |     |     | 0   | 0   | 0   | 0   | 0   | 0   |
| Queuing Penalty (veh) |     | 0    | 0    |     |     |     | 1   | 0   | 0   | 0   | 0   | 0   |
| Storage Bay Dist (ft) | 330 |      |      | 190 |     |     |     |     |     | 300 |     |     |
| Storage Blk Time (%)  |     |      |      | 9   | 0   |     |     |     | 0   | 0   |     |     |
| Queuing Penalty (veh) |     |      |      | 59  | 0   |     |     |     | 1   | 0   |     |     |

Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | B41 |
|-----------------------|-----|
| Directions Served     | T   |
| Maximum Queue (ft)    | 482 |
| Average Queue (ft)    | 23  |
| 95th Queue (ft)       | 214 |
| Link Distance (ft)    | 652 |
| Upstream Blk Time (%) | 0   |
| Queuing Penalty (veh) | 0   |
| Storage Bay Dist (ft) |     |
| Storage Blk Time (%)  |     |
| Queuing Penalty (veh) |     |

Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 368 | 389  | 237 | 508  | 465  | 182 | 331 | 443 | 191 | 212 |
| Average Queue (ft)    | 198 | 199  | 23  | 329  | 280  | 10  | 217 | 243 | 67  | 90  |
| 95th Queue (ft)       | 306 | 315  | 155 | 458  | 414  | 97  | 319 | 356 | 154 | 172 |
| Link Distance (ft)    |     | 1037 |     | 1760 | 1760 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     |      |     |      |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |      |     |      |      |     |     |     |     |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  | 0   | 24   |     |      | 4    |     | 11  | 19  |     |     |
| Queuing Penalty (veh) | 3   | 143  |     |      | 3    |     | 38  | 64  |     |     |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 104: Office Park 3 & Campus Dr

| Movement              | B103 | B103 | WB  | NB  |
|-----------------------|------|------|-----|-----|
| Directions Served     | T    |      | L   | LR  |
| Maximum Queue (ft)    | 57   | 5    | 47  | 33  |
| Average Queue (ft)    | 2    | 0    | 18  | 11  |
| 95th Queue (ft)       | 47   | 5    | 46  | 35  |
| Link Distance (ft)    | 2074 | 2074 |     | 585 |
| Upstream Blk Time (%) |      |      |     |     |
| Queuing Penalty (veh) |      |      |     |     |
| Storage Bay Dist (ft) |      |      | 150 |     |
| Storage Blk Time (%)  |      |      |     |     |
| Queuing Penalty (veh) |      |      |     |     |

## Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 317  | 612  | 611  | 30  | 75  |
| Average Queue (ft)    | 109  | 289  | 181  | 2   | 27  |
| 95th Queue (ft)       | 223  | 647  | 509  | 16  | 60  |
| Link Distance (ft)    | 1021 | 1144 | 1144 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

## Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | EB  | WB  | NB  | SB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | LTR | LTR | LTR | LTR |
| Maximum Queue (ft)    | 43  | 28  | 34  | 59  |
| Average Queue (ft)    | 6   | 2   | 10  | 30  |
| 95th Queue (ft)       | 29  | 15  | 33  | 50  |
| Link Distance (ft)    | 795 | 878 | 387 | 249 |
| Upstream Blk Time (%) |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

Intersection: 110: Sorrel Ave & Rockcress Dr

| Movement              | EB   | EB  | WB   | WB   | NB  | SB  |
|-----------------------|------|-----|------|------|-----|-----|
| Directions Served     | LT   | TR  | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 42   | 8   | 281  | 178  | 33  | 72  |
| Average Queue (ft)    | 8    | 0   | 86   | 21   | 2   | 30  |
| 95th Queue (ft)       | 31   | 7   | 220  | 96   | 16  | 64  |
| Link Distance (ft)    | 1853 |     | 1050 | 1050 | 250 | 657 |
| Upstream Blk Time (%) |      |     |      |      |     |     |
| Queuing Penalty (veh) |      |     |      |      |     |     |
| Storage Bay Dist (ft) |      | 300 |      |      |     |     |
| Storage Blk Time (%)  |      |     |      |      |     |     |
| Queuing Penalty (veh) |      |     |      |      |     |     |

Zone Summary

Zone wide Queuing Penalty: 1516

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT   | EBR  | WBL  | WBT  | WBR | NBL   | NBT  | NBR | SBL  | SBT  | SBR  |
|--------------------|------|-------|------|------|------|-----|-------|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.2  | 0.0   | 0.1  | 3.4  | 0.2  | 3.3 | 1.3   | 1.1  | 0.3 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 85.6 | 124.2 | 79.1 | 72.8 | 98.5 | 3.7 | 257.8 | 16.2 | 1.0 | 88.6 | 88.3 | 24.0 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All   |
|--------------------|-------|
| Denied Del/Veh (s) | 0.5   |
| Total Del/Veh (s)  | 109.0 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBT | EBR | WBL   | WBR  | NBL   | NBT  | NBR  | SBL   | SBT   | SBR   | All   |
|--------------------|------|-----|-----|-------|------|-------|------|------|-------|-------|-------|-------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0 | 61.8  | 56.3 | 3.1   | 2.8  | 2.9  | 6.1   | 6.4   | 9.6   | 10.0  |
| Total Del/Veh (s)  | 73.8 | 1.7 | 0.9 | 272.1 | 14.1 | 112.0 | 42.7 | 27.7 | 152.3 | 174.8 | 119.3 | 118.9 |

### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 15.8   |
| Total Del/Veh (s)  | 2311.5 |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | WB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | R   | L   | L   |
| Maximum Queue (ft)    | 81  | 284 | 744 | 739 | 400 | 58  | 241 | 469  | 438  | 189 | 767 | 832 |
| Average Queue (ft)    | 20  | 46  | 231 | 633 | 383 | 12  | 46  | 222  | 197  | 13  | 678 | 737 |
| 95th Queue (ft)       | 59  | 171 | 652 | 942 | 481 | 41  | 156 | 400  | 374  | 129 | 911 | 993 |
| Link Distance (ft)    |     |     | 714 | 714 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     | 1   | 11  |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     | 8   | 68  |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 180 | 700 | 700 |
| Storage Blk Time (%)  |     |     |     | 0   | 61  |     |     | 28   | 20   |     | 33  | 50  |
| Queuing Penalty (veh) |     |     |     | 4   | 61  |     |     | 14   | 15   |     | 90  | 134 |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB   | NB   | NB  | B39  | B39  | B39  | SB  | SB  | SB   | SB   | SB  | B33  |
|-----------------------|------|------|-----|------|------|------|-----|-----|------|------|-----|------|
| Directions Served     | L    | T    | T   | T    | T    | T    | L   | L   | T    | T    | R   | T    |
| Maximum Queue (ft)    | 894  | 990  | 532 | 1794 | 1559 | 1458 | 145 | 716 | 942  | 944  | 800 | 527  |
| Average Queue (ft)    | 769  | 676  | 124 | 755  | 578  | 374  | 37  | 207 | 636  | 633  | 349 | 184  |
| 95th Queue (ft)       | 1092 | 1394 | 311 | 2080 | 1937 | 1525 | 101 | 706 | 1060 | 1060 | 884 | 829  |
| Link Distance (ft)    |      | 941  | 941 | 2052 | 2052 | 2052 |     |     | 864  | 864  |     | 1436 |
| Upstream Blk Time (%) |      | 26   | 0   | 3    | 1    | 0    |     | 0   | 13   | 13   |     | 1    |
| Queuing Penalty (veh) |      | 147  | 0   | 14   | 7    | 2    |     | 0   | 0    | 0    |     | 0    |
| Storage Bay Dist (ft) | 700  |      |     |      |      |      | 600 | 600 |      |      | 600 |      |
| Storage Blk Time (%)  | 43   | 7    |     |      |      |      |     |     | 26   | 26   |     |      |
| Queuing Penalty (veh) | 116  | 72   |     |      |      |      |     |     | 25   | 100  |     |      |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | B33  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 544  |
| Average Queue (ft)    | 188  |
| 95th Queue (ft)       | 840  |
| Link Distance (ft)    | 1436 |
| Upstream Blk Time (%) | 2    |
| Queuing Penalty (veh) | 0    |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/04/2022

2040 + Project - AM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | WB  | NB  | NB  | NB   | NB   | NB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | L   | T   | R   | L   | L   | T    | T    | R   | L   | L   |
| Maximum Queue (ft)    | 65  | 430 | 722 | 636 | 392 | 494 | 588 | 2094 | 1641 | 161 | 77  | 710 |
| Average Queue (ft)    | 19  | 383 | 549 | 222 | 59  | 344 | 371 | 362  | 308  | 39  | 21  | 329 |
| 95th Queue (ft)       | 52  | 501 | 828 | 754 | 209 | 504 | 565 | 1197 | 1111 | 150 | 61  | 873 |
| Link Distance (ft)    |     |     | 686 | 686 |     |     |     | 3201 | 3201 |     |     |     |
| Upstream Blk Time (%) |     |     | 38  | 12  |     |     |     | 0    | 0    |     |     |     |
| Queuing Penalty (veh) |     |     | 0   | 0   |     |     |     | 0    | 0    |     |     |     |
| Storage Bay Dist (ft) | 125 | 250 |     |     | 500 | 455 | 455 |      |      | 250 | 550 | 550 |
| Storage Blk Time (%)  |     | 65  | 79  | 0   |     | 4   | 5   | 3    | 4    |     |     |     |
| Queuing Penalty (veh) |     | 140 | 169 | 0   |     | 33  | 41  | 23   | 8    |     |     |     |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB   | SB   | SB  | B39 | B39 |
|-----------------------|------|------|-----|-----|-----|
| Directions Served     | T    | T    | R   | T   | T   |
| Maximum Queue (ft)    | 2153 | 2162 | 710 | 923 | 978 |
| Average Queue (ft)    | 1706 | 1722 | 289 | 265 | 280 |
| 95th Queue (ft)       | 2547 | 2554 | 864 | 819 | 865 |
| Link Distance (ft)    | 2052 | 2052 |     | 941 | 941 |
| Upstream Blk Time (%) | 29   | 33   |     | 0   | 3   |
| Queuing Penalty (veh) | 337  | 379  |     | 3   | 33  |
| Storage Bay Dist (ft) |      |      | 550 |     |     |
| Storage Blk Time (%)  | 44   | 48   |     |     |     |
| Queuing Penalty (veh) | 42   | 32   |     |     |     |

## Zone Summary

Zone wide Queuing Penalty: 2115

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22: 88th Street Performance by movement

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| Movement           | WBL | WBT | WBR | NBT | NBR | SBL | SBT | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 8.6 | 0.0 | 3.5 | 2.3 | 0.7 | 6.1 | 3.1 | 2.9 |

## Queuing and Blocking Report

07/05/2022

2030 Ph 2 - PM

### Intersection: 22: 88th Street

| Movement              | WB   | SB  |
|-----------------------|------|-----|
| Directions Served     | LR   | L   |
| Maximum Queue (ft)    | 46   | 31  |
| Average Queue (ft)    | 19   | 6   |
| 95th Queue (ft)       | 39   | 26  |
| Link Distance (ft)    | 1082 |     |
| Upstream Blk Time (%) |      |     |
| Queuing Penalty (veh) |      |     |
| Storage Bay Dist (ft) |      | 300 |
| Storage Blk Time (%)  |      |     |
| Queuing Penalty (veh) |      |     |

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25: Northwest Pkwy & 96th St/Via Varra Performance by movement

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| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT | NBR | SBL  | SBT  | SBR  |
|--------------------|------|------|-----|------|------|-----|------|-----|-----|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 3.5  | 0.2  | 3.7 | 0.0  | 0.0 | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 58.1 | 64.5 | 7.6 | 50.9 | 61.7 | 1.4 | 49.4 | 7.8 | 1.0 | 61.4 | 35.9 | 11.0 |

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25: Northwest Pkwy & 96th St/Via Varra Performance by movement

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| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 29.2 |

# Queuing and Blocking Report

07/05/2022

2030 Ph 2 - PM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | L   | L   | T    | T    | L   | L   | L   | T   |
| Maximum Queue (ft)    | 202 | 215 | 276 | 254 | 30  | 71  | 196  | 216  | 421 | 470 | 353 | 166 |
| Average Queue (ft)    | 114 | 121 | 132 | 129 | 2   | 27  | 99   | 80   | 222 | 251 | 199 | 89  |
| 95th Queue (ft)       | 177 | 182 | 206 | 195 | 15  | 65  | 157  | 152  | 343 | 359 | 299 | 154 |
| Link Distance (ft)    |     |     | 715 | 715 |     |     | 1056 | 1056 |     |     |     | 941 |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 180 | 180 |      |      | 700 | 700 | 700 |     |
| Storage Blk Time (%)  |     |     | 0   | 0   |     |     | 0    | 0    |     |     |     |     |
| Queuing Penalty (veh) |     |     | 0   | 3   |     |     | 0    | 0    |     |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | SB  | SB  | SB  | SB  | SB |
|-----------------------|-----|-----|-----|-----|-----|----|
| Directions Served     | T   | L   | L   | T   | T   | R  |
| Maximum Queue (ft)    | 202 | 46  | 67  | 254 | 285 | 92 |
| Average Queue (ft)    | 100 | 7   | 19  | 177 | 176 | 42 |
| 95th Queue (ft)       | 178 | 27  | 50  | 264 | 281 | 73 |
| Link Distance (ft)    | 941 |     |     | 864 | 864 |    |
| Upstream Blk Time (%) |     |     |     |     |     |    |
| Queuing Penalty (veh) |     |     |     |     |     |    |
| Storage Bay Dist (ft) |     | 600 | 600 |     | 600 |    |
| Storage Blk Time (%)  |     |     |     |     |     |    |
| Queuing Penalty (veh) |     |     |     |     |     |    |

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30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

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| Movement           | EBL  | EBR | WBL  | WBR | NBL  | NBT  | NBR  | SBL  | SBT | SBR | All  |
|--------------------|------|-----|------|-----|------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.3  | 3.8 | 2.5  | 2.0  | 2.2  | 0.0  | 0.0 | 0.0 | 1.1  |
| Total Del/Veh (s)  | 65.5 | 1.7 | 89.9 | 7.0 | 77.2 | 29.1 | 19.2 | 69.4 | 7.1 | 4.1 | 23.6 |

# Queuing and Blocking Report

07/05/2022

2030 Ph 2 - PM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB  | WB  | NB  | NB  | NB   | NB   | NB  | SB  | SB  | SB   |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|------|
| Directions Served     | L   | L   | L   | R   | L   | L   | T    | T    | R   | L   | L   | T    |
| Maximum Queue (ft)    | 111 | 210 | 246 | 68  | 140 | 175 | 506  | 482  | 375 | 71  | 94  | 184  |
| Average Queue (ft)    | 54  | 99  | 151 | 26  | 53  | 83  | 235  | 216  | 66  | 14  | 45  | 79   |
| 95th Queue (ft)       | 97  | 193 | 207 | 53  | 101 | 134 | 405  | 380  | 246 | 45  | 75  | 132  |
| Link Distance (ft)    |     |     | 683 |     |     |     | 2496 | 2496 |     |     |     | 2052 |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |     |     |      |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |     |     |      |
| Storage Bay Dist (ft) | 125 | 250 |     | 500 | 455 | 455 |      |      | 250 | 550 | 550 |      |
| Storage Blk Time (%)  | 0   |     | 0   |     |     |     | 1    | 4    |     |     |     |      |
| Queuing Penalty (veh) | 0   |     | 0   |     |     |     | 2    | 10   |     |     |     |      |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB   | B39 | B39 | B39 |
|-----------------------|------|-----|-----|-----|
| Directions Served     | T    | T   | T   |     |
| Maximum Queue (ft)    | 180  | 901 | 935 | 962 |
| Average Queue (ft)    | 79   | 32  | 93  | 34  |
| 95th Queue (ft)       | 154  | 308 | 540 | 329 |
| Link Distance (ft)    | 2052 | 941 | 941 | 941 |
| Upstream Blk Time (%) |      |     | 0   | 0   |
| Queuing Penalty (veh) |      |     | 0   | 0   |
| Storage Bay Dist (ft) |      |     |     |     |
| Storage Blk Time (%)  |      |     |     |     |
| Queuing Penalty (veh) |      |     |     |     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 11.5  |       |       |       |       |       |
| Intersection LOS            | B     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 686   |       | 1066  |       | 525   |       |
| Demand Flow Rate, veh/h     | 700   |       | 1088  |       | 536   |       |
| Vehicles Circulating, veh/h | 352   |       | 452   |       | 348   |       |
| Vehicles Exiting, veh/h     | 532   |       | 600   |       | 1191  |       |
| Ped Vol Crossing Leg, #/h   | 5     |       | 12    |       | 0     |       |
| Ped Cap Adj                 | 0.996 |       | 0.992 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.1   |       | 16.0  |       | 6.8   |       |
| Approach LOS                | A     |       | C     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | L     | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.646 | 0.354 | 0.320 | 0.680 | 0.657 | 0.343 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 452   | 248   | 348   | 740   | 352   | 184   |
| Cap Entry Lane, veh/h       | 976   | 1053  | 891   | 967   | 980   | 1056  |
| Entry HV Adj Factor         | 0.980 | 0.980 | 0.980 | 0.980 | 0.980 | 0.978 |
| Flow Entry, veh/h           | 443   | 243   | 341   | 725   | 345   | 180   |
| Cap Entry, veh/h            | 953   | 1028  | 866   | 940   | 961   | 1033  |
| V/C Ratio                   | 0.465 | 0.237 | 0.394 | 0.772 | 0.359 | 0.174 |
| Control Delay, s/veh        | 9.3   | 5.8   | 8.8   | 19.3  | 7.6   | 5.1   |
| LOS                         | A     | A     | A     | C     | A     | A     |
| 95th %tile Queue, veh       | 3     | 1     | 2     | 8     | 2     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 12.7  |       |       |       |       |
| Intersection LOS            | B     |       |       |       |       |
| Approach                    | EB    | WB    | NB    |       |       |
| Entry Lanes                 | 1     | 2     | 2     |       |       |
| Conflicting Circle Lanes    | 1     | 1     | 1     |       |       |
| Adj Approach Flow, veh/h    | 579   | 1313  | 168   |       |       |
| Demand Flow Rate, veh/h     | 597   | 1353  | 173   |       |       |
| Vehicles Circulating, veh/h | 610   | 7     | 573   |       |       |
| Vehicles Exiting, veh/h     | 750   | 739   | 634   |       |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     |       |       |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 |       |       |
| Approach Delay, s/veh       | 26.4  | 7.5   | 6.4   |       |       |
| Approach LOS                | D     | A     | A     |       |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.451 | 0.549 | 0.040 | 0.960 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 597   | 610   | 743   | 7     | 166   |
| Cap Entry Lane, veh/h       | 741   | 1411  | 1411  | 843   | 843   |
| Entry HV Adj Factor         | 0.970 | 0.970 | 0.971 | 1.000 | 0.970 |
| Flow Entry, veh/h           | 579   | 592   | 721   | 7     | 161   |
| Cap Entry, veh/h            | 719   | 1369  | 1370  | 843   | 818   |
| V/C Ratio                   | 0.806 | 0.432 | 0.527 | 0.008 | 0.197 |
| Control Delay, s/veh        | 26.4  | 6.8   | 8.1   | 4.3   | 6.5   |
| LOS                         | D     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 8     | 2     | 3     | 0     | 1     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.5   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 85    |       | 877   |       | 43    |       |
| Demand Flow Rate, veh/h     | 88    |       | 903   |       | 44    |       |
| Vehicles Circulating, veh/h | 283   |       | 34    |       | 218   |       |
| Vehicles Exiting, veh/h     | 289   |       | 228   |       | 153   |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 3.8   |       | 5.9   |       | 3.4   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.466 | 0.534 | 0.439 | 0.561 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 41    | 47    | 396   | 507   | 44    | 173   |
| Cap Entry Lane, veh/h       | 1040  | 1116  | 1308  | 1380  | 1180  | 1012  |
| Entry HV Adj Factor         | 0.980 | 0.964 | 0.972 | 0.970 | 0.973 | 0.973 |
| Flow Entry, veh/h           | 40    | 45    | 385   | 492   | 43    | 168   |
| Cap Entry, veh/h            | 1020  | 1076  | 1272  | 1339  | 1148  | 984   |
| V/C Ratio                   | 0.039 | 0.042 | 0.303 | 0.367 | 0.037 | 0.171 |
| Control Delay, s/veh        | 3.9   | 3.7   | 5.6   | 6.1   | 3.4   | 5.3   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 1     | 2     | 0     | 1     |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.3  | 0.7  | 3.3 | 0.7  | 0.6  | 2.6 | 2.1  | 0.3  | 0.4 | 2.0  | 0.2  | 2.0 |
| Total Del/Veh (s)  | 56.2 | 57.2 | 3.8 | 55.6 | 36.3 | 3.1 | 72.8 | 50.4 | 5.5 | 63.3 | 31.0 | 4.9 |

#### 5: McCaslin Blvd & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.9  |
| Total Del/Veh (s)  | 37.8 |

#### 10: 88th Street & Dillon Rd Performance by movement

| Movement           | EBT  | EBR | WBL  | WBT | NBL  | NBT | NBR | All  |
|--------------------|------|-----|------|-----|------|-----|-----|------|
| Denied Del/Veh (s) | 0.6  | 0.5 | 0.0  | 0.0 | 0.0  | 0.0 | 0.0 | 0.3  |
| Total Del/Veh (s)  | 69.2 | 4.4 | 35.5 | 8.1 | 55.5 | 2.0 | 2.2 | 34.9 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 53.9 | 76.2 | 25.0 | 75.5 | 42.3 | 24.1 | 46.0 | 56.0 | 11.8 | 44.5 | 35.3 | 11.3 |

#### 15: 96th St & Dillon Rd Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.0  |
| Total Del/Veh (s)  | 46.3 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|------|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 3.7  | 0.6  | 0.6  | 0.1  | 0.1  | 0.1  | 0.1  | 0.0  | 0.1 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 39.9 | 56.1 | 34.7 | 39.7 | 49.0 | 19.7 | 36.2 | 48.7 | 5.8 | 33.1 | 39.5 | 7.7 |

#### 20: 88th Street & Campus Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.4  |
| Total Del/Veh (s)  | 35.2 |

#### 23: 96th St Performance by movement

| Movement           | EBL  | EBT | EBR  | NBL  | NBT | SBT  | SBR | All  |
|--------------------|------|-----|------|------|-----|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0 | 0.0  |
| Total Del/Veh (s)  | 52.6 | 1.7 | 42.1 | 92.2 | 9.9 | 22.5 | 8.1 | 26.1 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0 | 3.4  | 0.2  | 3.3 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 56.8 | 69.6 | 8.1 | 51.7 | 58.3 | 1.5 | 50.8 | 13.7 | 0.9 | 67.6 | 34.2 | 8.5 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 31.3 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR  | WBL   | WBR | NBL  | NBT | NBR | SBL  | SBT   | SBR  | All  |
|--------------------|------|------|-------|-----|------|-----|-----|------|-------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.8   | 3.7 | 0.0  | 0.0 | 0.0 | 0.0  | 0.5   | 0.4  | 0.3  |
| Total Del/Veh (s)  | 73.4 | 83.1 | 170.9 | 8.6 | 57.2 | 9.2 | 4.1 | 99.8 | 122.0 | 60.1 | 68.7 |

### 35: Northwest Pkwy & US 36 WB (North Ramps) Performance by movement

| Movement           | WBL  | WBT  | WBR | NBL  | NBT | SBT  | SBR  | All  |
|--------------------|------|------|-----|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.3  | 0.4  | 0.3 | 0.0  | 0.0 | 0.2  | 0.0  | 0.1  |
| Total Del/Veh (s)  | 67.8 | 70.5 | 2.8 | 77.4 | 9.8 | 40.1 | 13.4 | 27.0 |

### 40: Northwest Pkwy & US 36 EB (South Ramps) Performance by movement

| Movement           | EBL   | EBT   | EBR   | NBT   | NBR   | SBL  | SBT  | All   |
|--------------------|-------|-------|-------|-------|-------|------|------|-------|
| Denied Del/Veh (s) | 248.4 | 232.8 | 247.9 | 347.0 | 351.4 | 0.0  | 0.0  | 190.1 |
| Total Del/Veh (s)  | 240.3 | 234.8 | 95.8  | 254.0 | 198.8 | 43.6 | 12.2 | 137.2 |

### 104: Office Park 3 & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBT | NBR | All |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 1.0 | 0.6 | 3.1 | 0.7 | 7.3 | 0.9 | 3.9 | 1.3 |

### 105: Sorrel Ave & Campus Dr Performance by movement

| Movement           | EBT | EBR | WBL | WBT | NBL | NBR  | All |
|--------------------|-----|-----|-----|-----|-----|------|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0  | 0.0 |
| Total Del/Veh (s)  | 5.8 | 4.5 | 4.6 | 4.8 | 5.5 | 13.0 | 8.8 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Denied Del/Veh (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| Total Del/Veh (s)  | 2.3 | 0.7 | 0.3 | 2.3 | 0.9 | 0.4 | 5.4 | 6.9 | 3.3 | 5.5 | 3.5 | 3.1 |

### 107: Internal E/W & Rockcress Dr Performance by movement

| Movement           | All |
|--------------------|-----|
| Denied Del/Veh (s) | 0.0 |
| Total Del/Veh (s)  | 2.8 |

### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL | WBT | WBR | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|--------------------|------|------|------|-----|-----|-----|------|------|------|------|------|------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 | 95.4 | 40.9 | 65.3 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 47.1 | 15.6 | 16.0 | 6.8 | 7.1 | 6.5 | 73.9 | 73.5 | 68.4 | 26.2 | 27.0 | 22.7 |

### 110: Sorrel Ave & Rockcress Dr Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 8.2  |
| Total Del/Veh (s)  | 24.8 |

### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 86.6   |
| Total Del/Veh (s)  | 1583.2 |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | WB  | WB   | WB   | NB  | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | R   | L   | L    | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 157 | 182 | 245 | 170 | 344 | 516  | 178  | 169 | 332 | 606 | 604 | 297 |
| Average Queue (ft)    | 47  | 108 | 107 | 9   | 271 | 323  | 81   | 81  | 140 | 359 | 336 | 74  |
| 95th Queue (ft)       | 132 | 175 | 191 | 79  | 373 | 458  | 149  | 174 | 268 | 548 | 528 | 210 |
| Link Distance (ft)    |     | 750 | 750 |     |     | 1028 | 1028 |     |     | 893 | 893 | 893 |
| Upstream Blk Time (%) |     |     |     |     |     |      |      |     |     |     | 0   | 0   |
| Queuing Penalty (veh) |     |     |     |     |     |      |      |     |     |     | 0   | 0   |
| Storage Bay Dist (ft) | 135 |     |     | 120 | 285 |      |      | 510 | 510 |     |     |     |
| Storage Blk Time (%)  | 0   | 7   | 13  |     | 2   | 15   |      |     |     | 3   |     |     |
| Queuing Penalty (veh) | 0   | 6   | 33  |     | 9   | 55   |      |     |     | 6   |     |     |

## Intersection: 5: McCaslin Blvd & Dillon Rd

| Movement              | SB  | SB  | SB   | SB   | SB   | SB  |
|-----------------------|-----|-----|------|------|------|-----|
| Directions Served     | L   | L   | T    | T    | T    | R   |
| Maximum Queue (ft)    | 233 | 298 | 360  | 340  | 295  | 190 |
| Average Queue (ft)    | 137 | 175 | 226  | 215  | 174  | 36  |
| 95th Queue (ft)       | 219 | 263 | 322  | 310  | 272  | 158 |
| Link Distance (ft)    |     |     | 1296 | 1296 | 1296 |     |
| Upstream Blk Time (%) |     |     |      |      |      |     |
| Queuing Penalty (veh) |     |     |      |      |      |     |
| Storage Bay Dist (ft) | 190 | 190 |      |      | 100  |     |
| Storage Blk Time (%)  | 1   | 4   | 14   |      | 21   |     |
| Queuing Penalty (veh) | 4   | 15  | 48   |      | 27   |     |

## Intersection: 10: 88th Street & Dillon Rd

| Movement              | EB   | EB   | WB  | WB  | WB  | B19 | NB  | NB  | NB  |
|-----------------------|------|------|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T    | R    | L   | T   | T   | T   | L   | L   | R   |
| Maximum Queue (ft)    | 1178 | 791  | 225 | 211 | 235 | 117 | 229 | 238 | 32  |
| Average Queue (ft)    | 649  | 165  | 115 | 70  | 82  | 3   | 111 | 128 | 2   |
| 95th Queue (ft)       | 1355 | 835  | 194 | 160 | 180 | 55  | 190 | 203 | 46  |
| Link Distance (ft)    | 1552 | 1552 |     | 490 | 490 | 600 |     | 324 |     |
| Upstream Blk Time (%) | 2    | 1    |     |     |     |     |     | 0   | 0   |
| Queuing Penalty (veh) | 0    | 0    |     |     |     |     |     | 0   | 0   |
| Storage Bay Dist (ft) |      |      | 400 |     |     |     | 200 |     | 200 |
| Storage Blk Time (%)  |      |      |     |     |     |     | 1   | 2   |     |
| Queuing Penalty (veh) |      |      |     |     |     |     | 4   | 8   |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | L   |
| Maximum Queue (ft)    | 213 | 237 | 384 | 366 | 214 | 502 | 386 | 419 | 267 | 243 | 157 | 424 |
| Average Queue (ft)    | 119 | 132 | 259 | 220 | 100 | 54  | 233 | 260 | 159 | 130 | 75  | 114 |
| 95th Queue (ft)       | 191 | 203 | 390 | 354 | 183 | 308 | 359 | 390 | 242 | 217 | 135 | 318 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 649 | 649 |     |     |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     | 2   |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 | 330 |
| Storage Blk Time (%)  |     |     | 1   | 0   |     |     | 0   | 1   |     |     |     |     |
| Queuing Penalty (veh) |     |     | 3   | 1   |     |     | 1   | 2   |     |     |     |     |

## Intersection: 15: 96th St & Dillon Rd

| Movement              | NB   | NB   | NB  | SB  | SB   | SB   | SB  |
|-----------------------|------|------|-----|-----|------|------|-----|
| Directions Served     | T    | T    | R   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 674  | 709  | 489 | 202 | 351  | 395  | 167 |
| Average Queue (ft)    | 385  | 401  | 133 | 90  | 218  | 258  | 64  |
| 95th Queue (ft)       | 629  | 655  | 491 | 162 | 315  | 360  | 131 |
| Link Distance (ft)    | 2019 | 2019 |     |     | 2414 | 2414 |     |
| Upstream Blk Time (%) |      |      |     |     |      |      |     |
| Queuing Penalty (veh) |      |      |     |     |      |      |     |
| Storage Bay Dist (ft) |      |      | 330 | 335 |      |      | 335 |
| Storage Blk Time (%)  | 17   | 21   |     |     | 0    | 2    |     |
| Queuing Penalty (veh) | 25   | 90   |     |     | 0    | 6    |     |

## Intersection: 20: 88th Street & Campus Dr

| Movement              | EB  | EB  | WB   | WB   | NB  | NB   | NB  | SB  | SB  | SB   | SB  |
|-----------------------|-----|-----|------|------|-----|------|-----|-----|-----|------|-----|
| Directions Served     | L   | TR  | L    | TR   | L   | T    | R   | L   | L   | T    | R   |
| Maximum Queue (ft)    | 168 | 302 | 257  | 203  | 141 | 373  | 89  | 84  | 96  | 384  | 267 |
| Average Queue (ft)    | 88  | 108 | 111  | 73   | 18  | 184  | 39  | 37  | 48  | 200  | 39  |
| 95th Queue (ft)       | 160 | 222 | 205  | 158  | 80  | 316  | 71  | 74  | 84  | 344  | 152 |
| Link Distance (ft)    |     | 565 | 1951 | 1951 |     | 1349 |     |     |     | 1558 |     |
| Upstream Blk Time (%) |     |     |      |      |     |      |     |     |     |      |     |
| Queuing Penalty (veh) |     |     |      |      |     |      |     |     |     |      |     |
| Storage Bay Dist (ft) | 125 |     |      |      | 170 |      | 500 | 400 | 400 |      | 200 |
| Storage Blk Time (%)  | 4   | 9   |      |      |     | 16   |     |     |     | 12   |     |
| Queuing Penalty (veh) | 5   | 13  |      |      |     | 29   |     |     |     | 22   |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 23: 96th St

| Movement              | EB  | EB   | EB   | NB  | NB  | NB  | NB  | NB  | SB  | SB  | SB  | B46  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L    | R    | L   | L   | T   | T   | T   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 302 | 321  | 372  | 113 | 116 | 316 | 527 | 323 | 468 | 574 | 400 | 102  |
| Average Queue (ft)    | 194 | 216  | 200  | 53  | 58  | 56  | 78  | 18  | 205 | 404 | 164 | 6    |
| 95th Queue (ft)       | 278 | 297  | 330  | 99  | 105 | 197 | 279 | 138 | 372 | 612 | 441 | 79   |
| Link Distance (ft)    |     | 1156 | 1156 |     |     | 705 | 705 | 705 | 496 | 496 |     | 2019 |
| Upstream Blk Time (%) |     |      |      |     |     | 0   | 0   | 0   | 0   | 5   |     |      |
| Queuing Penalty (veh) |     |      |      |     |     | 0   | 0   | 0   | 0   | 43  |     |      |
| Storage Bay Dist (ft) | 300 |      |      | 250 | 250 |     |     |     |     |     | 300 |      |
| Storage Blk Time (%)  | 0   | 1    |      |     |     |     |     |     |     | 17  |     |      |
| Queuing Penalty (veh) | 0   | 2    |      |     |     |     |     |     |     | 44  |     |      |

## Intersection: 23: 96th St

| Movement              | B46  |
|-----------------------|------|
| Directions Served     | T    |
| Maximum Queue (ft)    | 282  |
| Average Queue (ft)    | 31   |
| 95th Queue (ft)       | 170  |
| Link Distance (ft)    | 2019 |
| Upstream Blk Time (%) |      |
| Queuing Penalty (veh) |      |
| Storage Bay Dist (ft) |      |
| Storage Blk Time (%)  |      |
| Queuing Penalty (veh) |      |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | L   | L   | L   |
| Maximum Queue (ft)    | 214 | 220 | 264 | 265 | 6   | 54  | 103 | 211  | 200  | 317 | 333 | 293 |
| Average Queue (ft)    | 121 | 130 | 172 | 170 | 0   | 8   | 37  | 123  | 102  | 193 | 217 | 181 |
| 95th Queue (ft)       | 189 | 200 | 250 | 247 | 6   | 36  | 80  | 189  | 176  | 282 | 302 | 262 |
| Link Distance (ft)    |     |     | 705 | 705 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 700 | 700 | 700 |
| Storage Blk Time (%)  | 0   | 0   | 0   | 1   |     |     | 0   | 2    | 1    |     |     |     |
| Queuing Penalty (veh) | 0   | 0   | 1   | 9   |     |     | 0   | 1    | 1    |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | SB  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | L   | L   | T   | T   | T   | R   |
| Maximum Queue (ft)    | 284 | 294 | 51  | 79  | 253 | 259 | 234 | 108 |
| Average Queue (ft)    | 157 | 172 | 10  | 36  | 169 | 161 | 134 | 39  |
| 95th Queue (ft)       | 257 | 265 | 36  | 72  | 234 | 230 | 207 | 81  |
| Link Distance (ft)    | 941 | 941 |     |     | 864 | 864 | 864 |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 600 | 600 |     |     | 600 |     |
| Storage Blk Time (%)  |     |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | EB  | EB   | EB   | WB  | WB  | WB  | NB  | NB  | NB  | NB  | NB  |
|-----------------------|-----|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | L   | T    | R    | L   | L   | R   | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 92  | 96  | 1117 | 1124 | 363 | 444 | 56  | 140 | 164 | 310 | 301 | 111 |
| Average Queue (ft)    | 30  | 39  | 356  | 484  | 180 | 218 | 24  | 67  | 87  | 193 | 183 | 35  |
| 95th Queue (ft)       | 70  | 78  | 1183 | 1309 | 349 | 402 | 47  | 121 | 141 | 297 | 280 | 82  |
| Link Distance (ft)    |     |     | 1052 | 1052 |     | 680 |     |     |     | 722 | 722 |     |
| Upstream Blk Time (%) |     |     | 20   | 27   |     | 0   |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     | 87   | 116  |     | 0   |     |     |     |     |     |     |
| Storage Bay Dist (ft) | 125 | 125 |      |      | 250 |     | 500 | 455 | 455 |     |     | 250 |
| Storage Blk Time (%)  | 0   | 0   |      |      | 12  | 21  |     |     |     |     | 1   |     |
| Queuing Penalty (veh) | 0   | 0   |      |      | 14  | 25  |     |     |     |     | 3   |     |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | B29 | B29 | B29 | SB  | SB  | SB   | SB   | SB   | SB  | B39 | B39 | B39 |
|-----------------------|-----|-----|-----|-----|-----|------|------|------|-----|-----|-----|-----|
| Directions Served     | T   | T   |     | L   | L   | T    | T    | T    | R   | T   | T   | T   |
| Maximum Queue (ft)    | 393 | 438 | 352 | 290 | 710 | 1760 | 1775 | 1787 | 710 | 432 | 831 | 732 |
| Average Queue (ft)    | 84  | 125 | 35  | 24  | 251 | 580  | 592  | 614  | 91  | 21  | 56  | 48  |
| 95th Queue (ft)       | 338 | 423 | 216 | 132 | 739 | 1614 | 1639 | 1647 | 483 | 218 | 400 | 367 |
| Link Distance (ft)    | 370 | 370 | 370 |     |     | 2052 | 2052 | 2052 |     | 941 | 941 | 941 |
| Upstream Blk Time (%) | 0   | 2   | 0   |     |     | 2    | 3    | 3    |     |     | 0   | 0   |
| Queuing Penalty (veh) | 3   | 22  | 4   |     |     | 14   | 16   | 17   |     |     | 0   | 0   |
| Storage Bay Dist (ft) |     |     |     | 550 | 550 |      |      |      | 550 |     |     |     |
| Storage Blk Time (%)  |     |     |     |     | 0   | 31   |      | 39   |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     | 2   | 20   |      | 9    |     |     |     |     |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | B39 |
|-----------------------|-----|
| Directions Served     |     |
| Maximum Queue (ft)    | 288 |
| Average Queue (ft)    | 10  |
| 95th Queue (ft)       | 174 |
| Link Distance (ft)    | 941 |
| Upstream Blk Time (%) | 0   |
| Queuing Penalty (veh) | 0   |
| Storage Bay Dist (ft) |     |
| Storage Blk Time (%)  |     |
| Queuing Penalty (veh) |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | WB  | WB   | NB  | NB  | NB  | SB  | SB  | SB  | SB  | B29 | B29 | B29 |
|-----------------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | L   | T   | T   | T   | T   | T   | R   | T   | T   | T   |
| Maximum Queue (ft)    | 194 | 214  | 343 | 484 | 392 | 478 | 453 | 441 | 370 | 724 | 728 | 718 |
| Average Queue (ft)    | 98  | 132  | 263 | 52  | 32  | 445 | 391 | 287 | 173 | 607 | 580 | 526 |
| 95th Queue (ft)       | 178 | 197  | 352 | 271 | 213 | 466 | 494 | 445 | 348 | 916 | 918 | 947 |
| Link Distance (ft)    |     | 1442 |     | 556 | 556 | 370 | 370 | 370 |     | 613 | 613 | 613 |
| Upstream Blk Time (%) |     |      |     | 0   | 0   | 65  | 25  | 2   | 0   | 71  | 31  | 16  |
| Queuing Penalty (veh) |     |      |     | 0   | 0   | 616 | 232 | 16  | 0   | 670 | 289 | 151 |
| Storage Bay Dist (ft) | 330 |      | 190 |     |     |     |     |     | 300 |     |     |     |
| Storage Blk Time (%)  |     |      | 47  | 0   |     |     |     | 3   | 1   |     |     |     |
| Queuing Penalty (veh) |     |      | 500 | 0   |     |     |     | 19  | 6   |     |     |     |

## Intersection: 35: Northwest Pkwy & US 36 WB (North Ramps)

| Movement              | B41  | B41  | B41  | B41  |
|-----------------------|------|------|------|------|
| Directions Served     | T    | T    | T    |      |
| Maximum Queue (ft)    | 770  | 790  | 782  | 913  |
| Average Queue (ft)    | 509  | 526  | 545  | 535  |
| 95th Queue (ft)       | 1039 | 1063 | 1074 | 1228 |
| Link Distance (ft)    | 722  | 722  | 722  | 722  |
| Upstream Blk Time (%) | 16   | 20   | 35   | 51   |
| Queuing Penalty (veh) | 114  | 139  | 250  | 359  |
| Storage Bay Dist (ft) |      |      |      |      |
| Storage Blk Time (%)  |      |      |      |      |
| Queuing Penalty (veh) |      |      |      |      |

## Intersection: 40: Northwest Pkwy & US 36 EB (South Ramps)

| Movement              | EB  | EB   | EB  | NB   | NB   | NB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|------|-----|------|------|-----|-----|-----|-----|-----|
| Directions Served     | L   | LT   | R   | T    | T    | R   | L   | L   | T   | T   |
| Maximum Queue (ft)    | 480 | 1085 | 300 | 2000 | 2003 | 390 | 335 | 588 | 370 | 359 |
| Average Queue (ft)    | 461 | 1005 | 270 | 1933 | 1930 | 212 | 308 | 415 | 158 | 175 |
| 95th Queue (ft)       | 553 | 1286 | 418 | 2171 | 2179 | 529 | 374 | 631 | 324 | 327 |
| Link Distance (ft)    |     | 1036 |     | 1950 | 1950 |     |     | 556 | 556 | 556 |
| Upstream Blk Time (%) |     | 52   |     | 66   | 53   |     |     | 2   |     |     |
| Queuing Penalty (veh) |     | 0    |     | 0    | 0    |     |     | 18  |     |     |
| Storage Bay Dist (ft) | 330 |      | 150 |      |      | 300 | 180 |     |     |     |
| Storage Blk Time (%)  | 58  | 85   |     |      | 53   |     | 21  | 25  |     |     |
| Queuing Penalty (veh) | 445 | 638  |     |      | 87   |     | 116 | 139 |     |     |

## Queuing and Blocking Report

07/05/2022

2040 + Project - PM

### Intersection: 104: Office Park 3 & Campus Dr

| Movement              | WB  | NB |
|-----------------------|-----|----|
| Directions Served     | L   | LR |
| Maximum Queue (ft)    | 27  | 55 |
| Average Queue (ft)    | 2   | 30 |
| 95th Queue (ft)       | 17  | 48 |
| Link Distance (ft)    | 585 |    |
| Upstream Blk Time (%) |     |    |
| Queuing Penalty (veh) |     |    |
| Storage Bay Dist (ft) | 150 |    |
| Storage Blk Time (%)  |     |    |
| Queuing Penalty (veh) |     |    |

### Intersection: 105: Sorrel Ave & Campus Dr

| Movement              | EB   | WB   | WB   | NB  | NB  |
|-----------------------|------|------|------|-----|-----|
| Directions Served     | TR   | L    | T    | L   | R   |
| Maximum Queue (ft)    | 104  | 100  | 83   | 46  | 278 |
| Average Queue (ft)    | 39   | 24   | 17   | 10  | 111 |
| 95th Queue (ft)       | 85   | 71   | 56   | 36  | 232 |
| Link Distance (ft)    | 1021 | 1156 | 1156 | 357 | 357 |
| Upstream Blk Time (%) |      |      |      |     | 0   |
| Queuing Penalty (veh) |      |      |      |     | 0   |
| Storage Bay Dist (ft) |      |      |      |     |     |
| Storage Blk Time (%)  |      |      |      |     |     |
| Queuing Penalty (veh) |      |      |      |     |     |

### Intersection: 107: Internal E/W & Rockcress Dr

| Movement              | EB  | WB  | NB  | SB  |
|-----------------------|-----|-----|-----|-----|
| Directions Served     | LTR | LTR | LTR | LTR |
| Maximum Queue (ft)    | 40  | 18  | 63  | 71  |
| Average Queue (ft)    | 3   | 1   | 29  | 32  |
| 95th Queue (ft)       | 21  | 9   | 53  | 52  |
| Link Distance (ft)    | 795 | 878 | 387 | 249 |
| Upstream Blk Time (%) |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |
| Storage Bay Dist (ft) |     |     |     |     |
| Storage Blk Time (%)  |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |

## Intersection: 110: Sorrel Ave &amp; Rockcress Dr

| Movement              | EB   | EB  | WB   | WB   | NB  | SB  |
|-----------------------|------|-----|------|------|-----|-----|
| Directions Served     | LT   | TR  | LT   | R    | LTR | LTR |
| Maximum Queue (ft)    | 134  | 157 | 69   | 44   | 250 | 456 |
| Average Queue (ft)    | 25   | 20  | 10   | 2    | 78  | 148 |
| 95th Queue (ft)       | 99   | 107 | 46   | 20   | 222 | 413 |
| Link Distance (ft)    | 1853 |     | 1052 | 1052 | 250 | 657 |
| Upstream Blk Time (%) |      |     |      |      | 17  | 1   |
| Queuing Penalty (veh) |      |     |      |      | 0   | 8   |
| Storage Bay Dist (ft) |      | 300 |      |      |     |     |
| Storage Blk Time (%)  | 0    | 0   |      |      |     |     |
| Queuing Penalty (veh) | 0    | 0   |      |      |     |     |

## Zone Summary

Zone wide Queuing Penalty: 5680

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 3.5  | 0.2  | 3.4 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 52.7 | 64.8 | 11.0 | 57.1 | 58.1 | 1.6 | 54.0 | 14.4 | 0.9 | 65.5 | 46.0 | 9.6 |

### 25: Northwest Pkwy & 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 33.8 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR | WBL  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR | All  |
|--------------------|------|-----|------|------|------|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.3  | 3.6  | 2.9  | 2.9  | 2.9  | 0.0  | 0.0  | 0.1 | 1.5  |
| Total Del/Veh (s)  | 68.1 | 2.9 | 80.7 | 10.0 | 85.7 | 40.8 | 33.1 | 62.1 | 10.7 | 5.6 | 29.9 |

### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 2.6    |
| Total Del/Veh (s)  | 1509.0 |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | L   | L   | L   |
| Maximum Queue (ft)    | 213 | 227 | 315 | 425 | 49  | 40  | 96  | 205  | 181  | 354 | 371 | 321 |
| Average Queue (ft)    | 121 | 128 | 164 | 166 | 2   | 6   | 39  | 125  | 101  | 231 | 256 | 212 |
| 95th Queue (ft)       | 192 | 199 | 259 | 292 | 37  | 28  | 82  | 189  | 174  | 320 | 346 | 296 |
| Link Distance (ft)    |     |     | 714 | 714 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     | 0   | 0   |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     | 0   | 0   |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 700 | 700 | 700 |
| Storage Blk Time (%)  | 0   | 0   | 0   | 1   | 0   |     |     | 2    | 0    |     |     |     |
| Queuing Penalty (veh) | 0   | 0   | 0   | 6   | 0   |     |     | 1    | 0    |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | B39  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | T    | L   | L   | T   | T   | R   |
| Maximum Queue (ft)    | 311 | 332 | 205  | 60  | 85  | 400 | 402 | 103 |
| Average Queue (ft)    | 168 | 184 | 7    | 11  | 38  | 253 | 249 | 37  |
| 95th Queue (ft)       | 279 | 292 | 209  | 40  | 74  | 363 | 364 | 77  |
| Link Distance (ft)    | 941 | 941 | 2052 |     |     | 864 | 864 |     |
| Upstream Blk Time (%) |     |     | 0    |     |     |     |     |     |
| Queuing Penalty (veh) |     |     | 0    |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |      | 600 | 600 |     | 600 |     |
| Storage Blk Time (%)  |     |     |      |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |      |     |     |     |     |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | EB   | WB  | WB  | WB  | NB  | NB  | NB   | NB   | NB  | SB  | SB  |
|-----------------------|-----|------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | T    | L   | L   | R   | L   | L   | T    | T    | R   | L   | L   |
| Maximum Queue (ft)    | 156 | 42   | 230 | 266 | 72  | 170 | 195 | 977  | 858  | 346 | 67  | 91  |
| Average Queue (ft)    | 72  | 2    | 127 | 173 | 31  | 84  | 106 | 289  | 261  | 58  | 17  | 47  |
| 95th Queue (ft)       | 135 | 31   | 225 | 245 | 61  | 147 | 165 | 705  | 504  | 194 | 51  | 84  |
| Link Distance (ft)    |     | 1059 |     | 687 |     |     |     | 3719 | 3719 |     |     |     |
| Upstream Blk Time (%) |     |      |     |     |     |     |     | 0    |      |     |     |     |
| Queuing Penalty (veh) |     |      |     |     |     |     |     | 0    |      |     |     |     |
| Storage Bay Dist (ft) | 125 |      | 250 |     | 500 | 455 | 455 |      |      | 250 | 550 | 550 |
| Storage Blk Time (%)  | 3   |      | 0   | 1   |     |     |     | 0    | 5    |     |     |     |
| Queuing Penalty (veh) | 0   |      | 0   | 1   |     |     |     | 1    | 19   |     |     |     |

Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB   | SB   | B39 | B39 | B39 |
|-----------------------|------|------|-----|-----|-----|
| Directions Served     | T    | T    | T   | T   |     |
| Maximum Queue (ft)    | 281  | 277  | 950 | 950 | 382 |
| Average Queue (ft)    | 143  | 151  | 141 | 160 | 17  |
| 95th Queue (ft)       | 247  | 251  | 683 | 731 | 222 |
| Link Distance (ft)    | 2052 | 2052 | 941 | 941 | 941 |
| Upstream Blk Time (%) |      |      | 0   | 0   | 0   |
| Queuing Penalty (veh) |      |      | 1   | 1   | 0   |
| Storage Bay Dist (ft) |      |      |     |     |     |
| Storage Blk Time (%)  |      |      |     |     |     |
| Queuing Penalty (veh) |      |      |     |     |     |

Zone Summary

Zone wide Queuing Penalty: 30

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 7.3   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 632   |       | 574   |       | 794   |       |
| Demand Flow Rate, veh/h     | 645   |       | 586   |       | 810   |       |
| Vehicles Circulating, veh/h | 523   |       | 203   |       | 234   |       |
| Vehicles Exiting, veh/h     | 521   |       | 965   |       | 555   |       |
| Ped Vol Crossing Leg, #/h   | 2     |       | 2     |       | 0     |       |
| Ped Cap Adj                 | 0.999 |       | 0.998 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.5   |       | 5.6   |       | 7.6   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | LT    | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.399 | 0.601 | 0.646 | 0.354 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 303   | 342   | 234   | 352   | 523   | 287   |
| Cap Entry Lane, veh/h       | 834   | 910   | 1120  | 1195  | 1088  | 1164  |
| Entry HV Adj Factor         | 0.981 | 0.980 | 0.980 | 0.980 | 0.981 | 0.979 |
| Flow Entry, veh/h           | 297   | 335   | 229   | 345   | 513   | 281   |
| Cap Entry, veh/h            | 817   | 891   | 1096  | 1169  | 1068  | 1140  |
| V/C Ratio                   | 0.364 | 0.376 | 0.209 | 0.295 | 0.481 | 0.247 |
| Control Delay, s/veh        | 8.7   | 8.3   | 5.2   | 5.8   | 8.9   | 5.4   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 2     | 2     | 1     | 1     | 3     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 8.5   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 334   | 418   |       | 672   |       |
| Demand Flow Rate, veh/h     | 344   | 431   |       | 692   |       |
| Vehicles Circulating, veh/h | 233   | 26    |       | 334   |       |
| Vehicles Exiting, veh/h     | 224   | 1000  |       | 243   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 6.6   | 4.0   |       | 12.3  |       |
| Approach LOS                | A     | A     |       | B     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.541 | 0.459 | 0.038 | 0.962 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 344   | 233   | 198   | 26    | 666   |
| Cap Entry Lane, veh/h       | 1088  | 1387  | 1387  | 1048  | 1048  |
| Entry HV Adj Factor         | 0.972 | 0.970 | 0.971 | 0.962 | 0.971 |
| Flow Entry, veh/h           | 334   | 226   | 192   | 25    | 647   |
| Cap Entry, veh/h            | 1057  | 1345  | 1347  | 1008  | 1018  |
| V/C Ratio                   | 0.316 | 0.168 | 0.143 | 0.025 | 0.636 |
| Control Delay, s/veh        | 6.6   | 4.1   | 3.8   | 3.8   | 12.7  |
| LOS                         | A     | A     | A     | A     | B     |
| 95th %tile Queue, veh       | 1     | 1     | 0     | 0     | 5     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 6.6   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 290   |       | 295   |       | 164   |       |
| Demand Flow Rate, veh/h     | 298   |       | 304   |       | 169   |       |
| Vehicles Circulating, veh/h | 613   |       | 49    |       | 848   |       |
| Vehicles Exiting, veh/h     | 95    |       | 968   |       | 63    |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 6.6   |       | 3.8   |       | 8.3   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.345 | 0.655 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 140   | 158   | 105   | 199   | 169   | 590   |
| Cap Entry Lane, veh/h       | 768   | 843   | 1290  | 1362  | 691   | 1285  |
| Entry HV Adj Factor         | 0.973 | 0.972 | 0.975 | 0.970 | 0.972 | 0.971 |
| Flow Entry, veh/h           | 136   | 154   | 102   | 193   | 164   | 573   |
| Cap Entry, veh/h            | 747   | 820   | 1258  | 1321  | 671   | 1247  |
| V/C Ratio                   | 0.182 | 0.187 | 0.081 | 0.146 | 0.245 | 0.459 |
| Control Delay, s/veh        | 6.8   | 6.3   | 3.5   | 3.9   | 8.3   | 7.6   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 0     | 1     | 1     | 2     |

## 25: Northwest Pkwy &amp; 96th St/Via Varra Performance by movement

| Movement           | EBL  | EBT   | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR  |
|--------------------|------|-------|-----|------|------|-----|------|------|-----|------|------|------|
| Denied Del/Veh (s) | 0.1  | 0.0   | 0.1 | 3.3  | 0.2  | 3.3 | 0.1  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Del/Veh (s)  | 76.4 | 107.8 | 8.8 | 60.5 | 75.4 | 2.4 | 89.6 | 21.2 | 1.0 | 85.6 | 48.3 | 17.9 |

## 25: Northwest Pkwy &amp; 96th St/Via Varra Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 49.0 |

## 30: Northwest Pkwy &amp; Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBT | EBR | WBL  | WBR | NBL  | NBT  | NBR  | SBL  | SBT  | SBR | All  |
|--------------------|------|-----|-----|------|-----|------|------|------|------|------|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.0 | 0.3  | 2.0 | 3.3  | 3.0  | 3.4  | 0.0  | 0.0  | 0.0 | 1.5  |
| Total Del/Veh (s)  | 65.6 | 0.8 | 0.9 | 81.5 | 8.7 | 74.5 | 34.1 | 21.7 | 62.2 | 40.6 | 8.2 | 43.7 |

## Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 2.5    |
| Total Del/Veh (s)  | 1814.7 |

# Queuing and Blocking Report

07/05/2022

2040 + Project - AM

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | WB  | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | L   | L   | T    | T    | R   | L   | L   | L   |
| Maximum Queue (ft)    | 103 | 121 | 220 | 218 | 45  | 199 | 361  | 329  | 76  | 683 | 727 | 758 |
| Average Queue (ft)    | 26  | 47  | 101 | 102 | 8   | 42  | 183  | 163  | 4   | 365 | 397 | 351 |
| 95th Queue (ft)       | 71  | 94  | 194 | 196 | 31  | 117 | 315  | 293  | 68  | 694 | 743 | 754 |
| Link Distance (ft)    |     |     | 703 | 703 |     |     | 1056 | 1056 |     |     |     |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |      |      |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |      |      |     |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 180 | 180 |      |      | 180 | 700 | 700 | 700 |
| Storage Blk Time (%)  |     |     | 0   | 0   |     | 0   | 16   | 11   |     | 3   | 6   | 5   |
| Queuing Penalty (veh) |     |     | 0   | 3   |     | 0   | 9    | 8    |     | 8   | 17  | 15  |

## Intersection: 25: Northwest Pkwy & 96th St/Via Varra

| Movement              | NB  | NB  | B39  | B39  | B39  | SB  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | T    | T    | T    | L   | L   | T   | T   | T   | R   |
| Maximum Queue (ft)    | 634 | 288 | 440  | 128  | 116  | 119 | 138 | 481 | 487 | 444 | 286 |
| Average Queue (ft)    | 202 | 143 | 55   | 17   | 11   | 34  | 65  | 325 | 320 | 287 | 136 |
| 95th Queue (ft)       | 609 | 251 | 446  | 234  | 173  | 88  | 114 | 494 | 491 | 455 | 250 |
| Link Distance (ft)    | 941 | 941 | 2051 | 2051 | 2051 |     |     | 864 | 864 | 864 |     |
| Upstream Blk Time (%) | 2   |     |      |      |      |     |     |     |     |     |     |
| Queuing Penalty (veh) | 12  |     |      |      |      |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     |      |      |      | 600 | 600 |     |     | 600 |     |
| Storage Blk Time (%)  | 0   |     |      |      |      |     |     |     |     |     |     |
| Queuing Penalty (veh) | 3   |     |      |      |      |     |     |     |     |     |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - AM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | WB  | WB   | WB  | NB  | NB  | NB   | NB   | NB  | SB  | SB  | SB   |
|-----------------------|-----|-----|------|-----|-----|-----|------|------|-----|-----|-----|------|
| Directions Served     | L   | L   | L    | R   | L   | L   | T    | T    | R   | L   | L   | T    |
| Maximum Queue (ft)    | 66  | 354 | 398  | 82  | 389 | 388 | 1506 | 1767 | 104 | 94  | 105 | 624  |
| Average Queue (ft)    | 19  | 203 | 224  | 42  | 255 | 263 | 293  | 253  | 33  | 32  | 59  | 330  |
| 95th Queue (ft)       | 51  | 322 | 353  | 70  | 353 | 363 | 1015 | 986  | 90  | 77  | 98  | 548  |
| Link Distance (ft)    |     |     | 1738 |     |     |     | 3202 | 3202 |     |     |     | 2051 |
| Upstream Blk Time (%) |     |     |      |     |     |     | 0    | 0    |     |     |     |      |
| Queuing Penalty (veh) |     |     |      |     |     |     | 0    | 0    |     |     |     |      |
| Storage Bay Dist (ft) | 125 | 250 |      | 500 | 455 | 455 |      |      | 250 | 550 | 550 |      |
| Storage Blk Time (%)  |     | 5   | 10   |     | 0   | 0   | 0    | 2    |     |     |     | 1    |
| Queuing Penalty (veh) |     | 12  | 23   |     | 0   | 0   | 0    | 4    |     |     |     | 1    |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB   | SB   | SB  | B39 | B39 | B39 |
|-----------------------|------|------|-----|-----|-----|-----|
| Directions Served     | T    | T    | R   | T   | T   | T   |
| Maximum Queue (ft)    | 657  | 654  | 142 | 184 | 652 | 376 |
| Average Queue (ft)    | 385  | 394  | 5   | 10  | 33  | 13  |
| 95th Queue (ft)       | 594  | 592  | 103 | 162 | 314 | 197 |
| Link Distance (ft)    | 2051 | 2051 |     | 941 | 941 | 941 |
| Upstream Blk Time (%) |      |      |     | 0   | 0   | 0   |
| Queuing Penalty (veh) |      |      |     | 0   | 0   | 0   |
| Storage Bay Dist (ft) |      |      | 550 |     |     |     |
| Storage Blk Time (%)  |      | 3    |     |     |     |     |
| Queuing Penalty (veh) |      | 2    |     |     |     |     |

## Zone Summary

Zone wide Queuing Penalty: 117

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15: 96th St & Dillon Rd Performance by movement

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| Movement           | EBL  | EBT  | EBR  | WBL   | WBT  | WBR  | NBL  | NBT  | NBR | SBL   | SBT   | SBR   |
|--------------------|------|------|------|-------|------|------|------|------|-----|-------|-------|-------|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.3  | 0.1  | 0.3 | 24.7  | 25.9  | 23.5  |
| Total Del/Veh (s)  | 66.4 | 64.8 | 43.5 | 229.5 | 62.8 | 23.9 | 54.9 | 29.2 | 7.1 | 154.2 | 213.9 | 136.9 |

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15: 96th St & Dillon Rd Performance by movement

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| Movement           | All   |
|--------------------|-------|
| Denied Del/Veh (s) | 8.4   |
| Total Del/Veh (s)  | 102.9 |

# Queuing and Blocking Report

07/06/2022

2040 + Project (with Improvement) - AM

## Intersection: 15: 96th St & Dillon Rd

| Movement              | EB  | EB  | EB  | EB  | EB  | B9  | WB  | WB  | WB  | WB  | WB  | B37  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Directions Served     | L   | L   | T   | T   | R   | T   | L   | L   | T   | T   | R   | T    |
| Maximum Queue (ft)    | 264 | 270 | 228 | 201 | 177 | 247 | 500 | 576 | 708 | 625 | 151 | 1440 |
| Average Queue (ft)    | 150 | 161 | 125 | 99  | 75  | 11  | 356 | 401 | 383 | 173 | 63  | 490  |
| 95th Queue (ft)       | 232 | 238 | 201 | 179 | 152 | 128 | 598 | 686 | 830 | 461 | 126 | 1636 |
| Link Distance (ft)    |     |     | 600 | 600 |     | 490 |     |     | 650 | 650 |     | 1613 |
| Upstream Blk Time (%) |     |     |     |     |     | 0   |     |     | 25  | 0   |     | 17   |
| Queuing Penalty (veh) |     |     |     |     |     | 0   |     |     | 0   | 0   |     | 0    |
| Storage Bay Dist (ft) | 415 | 415 |     |     | 415 |     | 420 | 420 |     |     | 420 |      |
| Storage Blk Time (%)  |     |     |     |     |     |     | 36  | 42  | 0   |     |     |      |
| Queuing Penalty (veh) |     |     |     |     |     |     | 54  | 63  | 0   |     |     |      |

## Intersection: 15: 96th St & Dillon Rd

| Movement              | NB  | NB   | NB   | B42 | SB  | SB   | SB   | SB  |
|-----------------------|-----|------|------|-----|-----|------|------|-----|
| Directions Served     | L   | T    | T    | T   | L   | T    | T    | R   |
| Maximum Queue (ft)    | 326 | 390  | 404  | 34  | 495 | 2582 | 2586 | 495 |
| Average Queue (ft)    | 155 | 230  | 245  | 1   | 203 | 1278 | 1288 | 292 |
| 95th Queue (ft)       | 280 | 367  | 379  | 34  | 535 | 2866 | 2867 | 656 |
| Link Distance (ft)    |     | 2073 | 2073 | 449 |     | 2635 | 2635 |     |
| Upstream Blk Time (%) |     |      |      |     |     | 15   | 18   |     |
| Queuing Penalty (veh) |     |      |      |     |     | 0    | 0    |     |
| Storage Bay Dist (ft) | 330 |      |      |     | 335 |      |      | 335 |
| Storage Blk Time (%)  | 1   | 2    | 2    |     |     | 48   | 51   |     |
| Queuing Penalty (veh) | 6   | 4    | 15   |     |     | 64   | 188  |     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 11.5  |       |       |       |       |       |
| Intersection LOS            | B     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 686   |       | 1066  |       | 525   |       |
| Demand Flow Rate, veh/h     | 700   |       | 1088  |       | 536   |       |
| Vehicles Circulating, veh/h | 352   |       | 452   |       | 348   |       |
| Vehicles Exiting, veh/h     | 532   |       | 600   |       | 1191  |       |
| Ped Vol Crossing Leg, #/h   | 5     |       | 12    |       | 0     |       |
| Ped Cap Adj                 | 0.996 |       | 0.992 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.1   |       | 16.0  |       | 6.8   |       |
| Approach LOS                | A     |       | C     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | L     | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.646 | 0.354 | 0.320 | 0.680 | 0.657 | 0.343 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 452   | 248   | 348   | 740   | 352   | 184   |
| Cap Entry Lane, veh/h       | 976   | 1053  | 891   | 967   | 980   | 1056  |
| Entry HV Adj Factor         | 0.980 | 0.980 | 0.980 | 0.980 | 0.980 | 0.978 |
| Flow Entry, veh/h           | 443   | 243   | 341   | 725   | 345   | 180   |
| Cap Entry, veh/h            | 953   | 1028  | 866   | 940   | 961   | 1033  |
| V/C Ratio                   | 0.465 | 0.237 | 0.394 | 0.772 | 0.359 | 0.174 |
| Control Delay, s/veh        | 9.3   | 5.8   | 8.8   | 19.3  | 7.6   | 5.1   |
| LOS                         | A     | A     | A     | C     | A     | A     |
| 95th %tile Queue, veh       | 3     | 1     | 2     | 8     | 2     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 12.7  |       |       |       |       |
| Intersection LOS            | B     |       |       |       |       |
| Approach                    | EB    | WB    | NB    |       |       |
| Entry Lanes                 | 1     | 2     | 2     |       |       |
| Conflicting Circle Lanes    | 1     | 1     | 1     |       |       |
| Adj Approach Flow, veh/h    | 579   | 1313  | 168   |       |       |
| Demand Flow Rate, veh/h     | 597   | 1353  | 173   |       |       |
| Vehicles Circulating, veh/h | 610   | 7     | 573   |       |       |
| Vehicles Exiting, veh/h     | 750   | 739   | 634   |       |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     | 0     |       |       |
| Ped Cap Adj                 | 1.000 | 1.000 | 1.000 |       |       |
| Approach Delay, s/veh       | 26.4  | 7.5   | 6.4   |       |       |
| Approach LOS                | D     | A     | A     |       |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.451 | 0.549 | 0.040 | 0.960 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 597   | 610   | 743   | 7     | 166   |
| Cap Entry Lane, veh/h       | 741   | 1411  | 1411  | 843   | 843   |
| Entry HV Adj Factor         | 0.970 | 0.970 | 0.971 | 1.000 | 0.970 |
| Flow Entry, veh/h           | 579   | 592   | 721   | 7     | 161   |
| Cap Entry, veh/h            | 719   | 1369  | 1370  | 843   | 818   |
| V/C Ratio                   | 0.806 | 0.432 | 0.527 | 0.008 | 0.197 |
| Control Delay, s/veh        | 26.4  | 6.8   | 8.1   | 4.3   | 6.5   |
| LOS                         | D     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 8     | 2     | 3     | 0     | 1     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 5.5   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 85    |       | 877   |       | 43    |       |
| Demand Flow Rate, veh/h     | 88    |       | 903   |       | 44    |       |
| Vehicles Circulating, veh/h | 283   |       | 34    |       | 218   |       |
| Vehicles Exiting, veh/h     | 289   |       | 228   |       | 153   |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 3.8   |       | 5.9   |       | 3.4   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.466 | 0.534 | 0.439 | 0.561 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 41    | 47    | 396   | 507   | 44    | 173   |
| Cap Entry Lane, veh/h       | 1040  | 1116  | 1308  | 1380  | 1180  | 1012  |
| Entry HV Adj Factor         | 0.980 | 0.964 | 0.972 | 0.970 | 0.973 | 0.973 |
| Flow Entry, veh/h           | 40    | 45    | 385   | 492   | 43    | 168   |
| Cap Entry, veh/h            | 1020  | 1076  | 1272  | 1339  | 1148  | 984   |
| V/C Ratio                   | 0.039 | 0.042 | 0.303 | 0.367 | 0.037 | 0.171 |
| Control Delay, s/veh        | 3.9   | 3.7   | 5.6   | 6.1   | 3.4   | 5.3   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 0     | 0     | 1     | 2     | 0     | 1     |

### 25: Northwest Pkwy & 96th St Performance by movement

| Movement           | EBL  | EBT  | EBR  | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|------|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.0  | 0.0  | 0.0  | 3.4  | 0.2  | 3.5 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 |
| Total Del/Veh (s)  | 52.6 | 70.4 | 11.1 | 54.0 | 60.7 | 2.4 | 51.9 | 14.4 | 1.0 | 65.8 | 37.8 | 9.7 |

### 25: Northwest Pkwy & 96th St Performance by movement

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.1  |
| Total Del/Veh (s)  | 32.8 |

### 30: Northwest Pkwy & Tape Drive/Via Varra Performance by movement

| Movement           | EBL  | EBR | WBL  | WBR | NBL  | NBT  | NBR  | SBL  | SBT | SBR | All  |
|--------------------|------|-----|------|-----|------|------|------|------|-----|-----|------|
| Denied Del/Veh (s) | 0.0  | 0.0 | 0.3  | 3.6 | 2.9  | 2.6  | 2.8  | 0.0  | 0.0 | 0.0 | 1.3  |
| Total Del/Veh (s)  | 62.8 | 2.8 | 71.6 | 9.5 | 85.1 | 42.2 | 34.0 | 66.8 | 8.0 | 4.1 | 29.3 |

### Total Zone Performance

| Movement           | All    |
|--------------------|--------|
| Denied Del/Veh (s) | 2.3    |
| Total Del/Veh (s)  | 1384.1 |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 25: Northwest Pkwy & 96th St

| Movement              | EB  | EB  | EB  | EB  | EB  | WB  | WB  | WB   | WB   | NB  | NB  | NB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|-----|-----|
| Directions Served     | L   | L   | T   | T   | R   | L   | L   | T    | T    | L   | L   | L   |
| Maximum Queue (ft)    | 231 | 233 | 298 | 394 | 39  | 36  | 85  | 212  | 191  | 331 | 355 | 317 |
| Average Queue (ft)    | 117 | 127 | 175 | 172 | 1   | 6   | 36  | 128  | 101  | 226 | 251 | 211 |
| 95th Queue (ft)       | 191 | 197 | 272 | 300 | 40  | 25  | 76  | 192  | 177  | 315 | 334 | 295 |
| Link Distance (ft)    |     |     | 706 | 706 |     |     |     | 1056 | 1056 |     |     |     |
| Upstream Blk Time (%) |     |     |     | 0   |     |     |     |      |      |     |     |     |
| Queuing Penalty (veh) |     |     |     | 0   |     |     |     |      |      |     |     |     |
| Storage Bay Dist (ft) | 280 | 280 |     |     | 250 | 180 | 180 |      |      | 700 | 700 | 700 |
| Storage Blk Time (%)  |     |     | 1   | 2   |     |     |     | 2    | 1    |     |     |     |
| Queuing Penalty (veh) |     |     | 5   | 22  |     |     |     | 1    | 1    |     |     |     |

## Intersection: 25: Northwest Pkwy & 96th St

| Movement              | NB  | NB  | SB  | SB  | SB  | SB  | SB  | SB  |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Directions Served     | T   | T   | L   | L   | T   | T   | T   | R   |
| Maximum Queue (ft)    | 334 | 347 | 86  | 94  | 272 | 268 | 225 | 100 |
| Average Queue (ft)    | 161 | 179 | 12  | 37  | 183 | 176 | 138 | 41  |
| 95th Queue (ft)       | 281 | 297 | 45  | 75  | 250 | 243 | 207 | 82  |
| Link Distance (ft)    | 941 | 941 |     |     | 864 | 864 | 864 |     |
| Upstream Blk Time (%) |     |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |
| Storage Bay Dist (ft) |     |     | 600 | 600 |     |     | 600 |     |
| Storage Blk Time (%)  |     |     |     |     |     |     |     |     |
| Queuing Penalty (veh) |     |     |     |     |     |     |     |     |

# Queuing and Blocking Report

07/05/2022

2040 + Project - PM

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | EB  | EB   | EB   | WB  | WB  | WB  | NB  | NB  | NB   | NB   | NB  | SB  |
|-----------------------|-----|------|------|-----|-----|-----|-----|-----|------|------|-----|-----|
| Directions Served     | L   | T    | R    | L   | L   | R   | L   | L   | T    | T    | R   | L   |
| Maximum Queue (ft)    | 140 | 5    | 12   | 209 | 244 | 66  | 172 | 286 | 843  | 696  | 347 | 66  |
| Average Queue (ft)    | 66  | 0    | 0    | 121 | 165 | 31  | 86  | 112 | 303  | 284  | 82  | 17  |
| 95th Queue (ft)       | 123 | 5    | 8    | 215 | 234 | 58  | 148 | 208 | 681  | 542  | 269 | 49  |
| Link Distance (ft)    |     | 1046 | 1046 |     | 687 |     |     |     | 3719 | 3719 |     |     |
| Upstream Blk Time (%) |     |      |      |     |     |     |     |     | 0    |      |     |     |
| Queuing Penalty (veh) |     |      |      |     |     |     |     |     | 0    |      |     |     |
| Storage Bay Dist (ft) | 125 |      |      | 250 |     | 500 | 455 | 455 |      |      | 250 | 550 |
| Storage Blk Time (%)  | 2   |      |      |     | 0   |     |     |     | 1    | 7    |     |     |
| Queuing Penalty (veh) | 0   |      |      |     | 0   |     |     |     | 2    | 24   |     |     |

## Intersection: 30: Northwest Pkwy & Tape Drive/Via Varra

| Movement              | SB  | SB   | SB   | SB   | B39 | B39 | B39 | B39 |
|-----------------------|-----|------|------|------|-----|-----|-----|-----|
| Directions Served     | L   | T    | T    | T    | T   | T   | T   |     |
| Maximum Queue (ft)    | 93  | 140  | 185  | 197  | 91  | 363 | 371 | 94  |
| Average Queue (ft)    | 49  | 50   | 92   | 114  | 3   | 13  | 13  | 3   |
| 95th Queue (ft)       | 88  | 117  | 161  | 178  | 93  | 191 | 197 | 96  |
| Link Distance (ft)    |     | 2052 | 2052 | 2052 | 941 | 941 | 941 | 941 |
| Upstream Blk Time (%) |     |      |      |      |     | 0   | 0   | 0   |
| Queuing Penalty (veh) |     |      |      |      |     | 0   | 0   | 0   |
| Storage Bay Dist (ft) | 550 |      |      |      |     |     |     |     |
| Storage Blk Time (%)  |     |      |      |      |     |     |     |     |
| Queuing Penalty (veh) |     |      |      |      |     |     |     |     |

## Zone Summary

Zone wide Queuing Penalty: 55

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 7.3   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | SB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 632   |       | 574   |       | 794   |       |
| Demand Flow Rate, veh/h     | 645   |       | 586   |       | 810   |       |
| Vehicles Circulating, veh/h | 523   |       | 203   |       | 234   |       |
| Vehicles Exiting, veh/h     | 521   |       | 965   |       | 555   |       |
| Ped Vol Crossing Leg, #/h   | 2     |       | 2     |       | 0     |       |
| Ped Cap Adj                 | 0.999 |       | 0.998 |       | 1.000 |       |
| Approach Delay, s/veh       | 8.5   |       | 5.6   |       | 7.6   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Right |
| Designated Moves            | LT    | TR    | LT    | TR    | L     | TR    |
| Assumed Moves               | LT    | TR    | LT    | R     | L     | TR    |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.399 | 0.601 | 0.646 | 0.354 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.667 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.645 | 4.328 |
| Entry Flow, veh/h           | 303   | 342   | 234   | 352   | 523   | 287   |
| Cap Entry Lane, veh/h       | 834   | 910   | 1120  | 1195  | 1088  | 1164  |
| Entry HV Adj Factor         | 0.981 | 0.980 | 0.980 | 0.980 | 0.981 | 0.979 |
| Flow Entry, veh/h           | 297   | 335   | 229   | 345   | 513   | 281   |
| Cap Entry, veh/h            | 817   | 891   | 1096  | 1169  | 1068  | 1140  |
| V/C Ratio                   | 0.364 | 0.376 | 0.209 | 0.295 | 0.481 | 0.247 |
| Control Delay, s/veh        | 8.7   | 8.3   | 5.2   | 5.8   | 8.9   | 5.4   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 2     | 2     | 1     | 1     | 3     | 1     |

| Intersection                |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 8.5   |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |
| Approach                    | EB    | WB    |       | NB    |       |
| Entry Lanes                 | 1     | 2     |       | 2     |       |
| Conflicting Circle Lanes    | 1     | 1     |       | 1     |       |
| Adj Approach Flow, veh/h    | 334   | 418   |       | 672   |       |
| Demand Flow Rate, veh/h     | 344   | 431   |       | 692   |       |
| Vehicles Circulating, veh/h | 233   | 26    |       | 334   |       |
| Vehicles Exiting, veh/h     | 224   | 1000  |       | 243   |       |
| Ped Vol Crossing Leg, #/h   | 0     | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 6.6   | 4.0   |       | 12.3  |       |
| Approach LOS                | A     | A     |       | B     |       |
| Lane                        | Left  | Left  | Right | Left  | Right |
| Designated Moves            | TR    | L     | TR    | L     | TR    |
| Assumed Moves               | TR    | L     | TR    | L     | TR    |
| RT Channelized              |       |       |       |       |       |
| Lane Util                   | 1.000 | 0.541 | 0.459 | 0.038 | 0.962 |
| Follow-Up Headway, s        | 2.609 | 2.535 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.976 | 4.544 | 4.544 | 4.544 | 4.544 |
| Entry Flow, veh/h           | 344   | 233   | 198   | 26    | 666   |
| Cap Entry Lane, veh/h       | 1088  | 1387  | 1387  | 1048  | 1048  |
| Entry HV Adj Factor         | 0.972 | 0.970 | 0.971 | 0.962 | 0.971 |
| Flow Entry, veh/h           | 334   | 226   | 192   | 25    | 647   |
| Cap Entry, veh/h            | 1057  | 1345  | 1347  | 1008  | 1018  |
| V/C Ratio                   | 0.316 | 0.168 | 0.143 | 0.025 | 0.636 |
| Control Delay, s/veh        | 6.6   | 4.1   | 3.8   | 3.8   | 12.7  |
| LOS                         | A     | A     | A     | A     | B     |
| 95th %tile Queue, veh       | 1     | 1     | 0     | 0     | 5     |

| Intersection                |       |       |       |       |       |       |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| Intersection Delay, s/veh   | 6.6   |       |       |       |       |       |
| Intersection LOS            | A     |       |       |       |       |       |
| Approach                    | EB    |       | WB    |       | NB    |       |
| Entry Lanes                 | 2     |       | 2     |       | 1     |       |
| Conflicting Circle Lanes    | 2     |       | 2     |       | 2     |       |
| Adj Approach Flow, veh/h    | 290   |       | 295   |       | 164   |       |
| Demand Flow Rate, veh/h     | 298   |       | 304   |       | 169   |       |
| Vehicles Circulating, veh/h | 613   |       | 49    |       | 848   |       |
| Vehicles Exiting, veh/h     | 95    |       | 968   |       | 63    |       |
| Ped Vol Crossing Leg, #/h   | 0     |       | 0     |       | 0     |       |
| Ped Cap Adj                 | 1.000 |       | 1.000 |       | 1.000 |       |
| Approach Delay, s/veh       | 6.6   |       | 3.8   |       | 8.3   |       |
| Approach LOS                | A     |       | A     |       | A     |       |
| Lane                        | Left  | Right | Left  | Right | Left  | Left  |
| Designated Moves            | LT    | TR    | LT    | R     | LTR   | LTR   |
| Assumed Moves               | LT    | TR    | LT    | R     | LTR   | LTR   |
| RT Channelized              |       |       |       |       |       |       |
| Lane Util                   | 0.470 | 0.530 | 0.345 | 0.655 | 1.000 | 1.000 |
| Follow-Up Headway, s        | 2.667 | 2.535 | 2.667 | 2.535 | 2.535 | 2.535 |
| Critical Headway, s         | 4.645 | 4.328 | 4.645 | 4.328 | 4.328 | 4.328 |
| Entry Flow, veh/h           | 140   | 158   | 105   | 199   | 169   | 590   |
| Cap Entry Lane, veh/h       | 768   | 843   | 1290  | 1362  | 691   | 1285  |
| Entry HV Adj Factor         | 0.973 | 0.972 | 0.975 | 0.970 | 0.972 | 0.971 |
| Flow Entry, veh/h           | 136   | 154   | 102   | 193   | 164   | 573   |
| Cap Entry, veh/h            | 747   | 820   | 1258  | 1321  | 671   | 1247  |
| V/C Ratio                   | 0.182 | 0.187 | 0.081 | 0.146 | 0.245 | 0.459 |
| Control Delay, s/veh        | 6.8   | 6.3   | 3.5   | 3.9   | 8.3   | 7.6   |
| LOS                         | A     | A     | A     | A     | A     | A     |
| 95th %tile Queue, veh       | 1     | 1     | 0     | 1     | 1     | 2     |