

Pinnacle Village Outline Plan

Transportation Impact Assessment

Prepared for Pinnacle Investments Inc.
By Arcadis

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Table of Contents

1	Executive Summary	1
1	Introduction and Proposed Development	2
1.1	Background	2
1.2	Study Scope and Proposed Development.....	2
2	Access Management, Highway and Municipal Plans	5
3	Existing Infrastructure Conditions	5
3.1	Existing Roadway Network	5
3.2	Existing Intersection Configurations	7
4	Traffic Conditions	10
4.1	Background Traffic.....	10
4.2	Traffic Generated by Other Developments.....	13
4.3	Total Background Traffic.....	Error! Bookmark not defined.
4.4	Site Generated Traffic.....	22
4.5	Combined Traffic.....	28
5	Analysis	34
5.1	Intersection Capacity Analysis	34
5.2	Intersection Treatment Warrants	37
5.3	Design Considerations.....	41
5.4	Traffic Control Needs	42
5.5	Illumination Warrant Analysis.....	43
5.6	Design Vehicle Accommodation	43
5.7	Site Access Review	43
5.8	Sightlines.....	44
5.9	Emergency Access	44
5.10	Active Transportation Review	44
6	Conclusions and Recommendations	46

Appendices

- Appendix A: Traffic Counts
- Appendix B: Intersection Analysis – Synchro
- Appendix C: Intersection Analysis – Sidra
- Appendix D: Intersection Treatment Warrants
- Appendix E: Signal Warrant Calculation
- Appendix F: Illumination Warrant

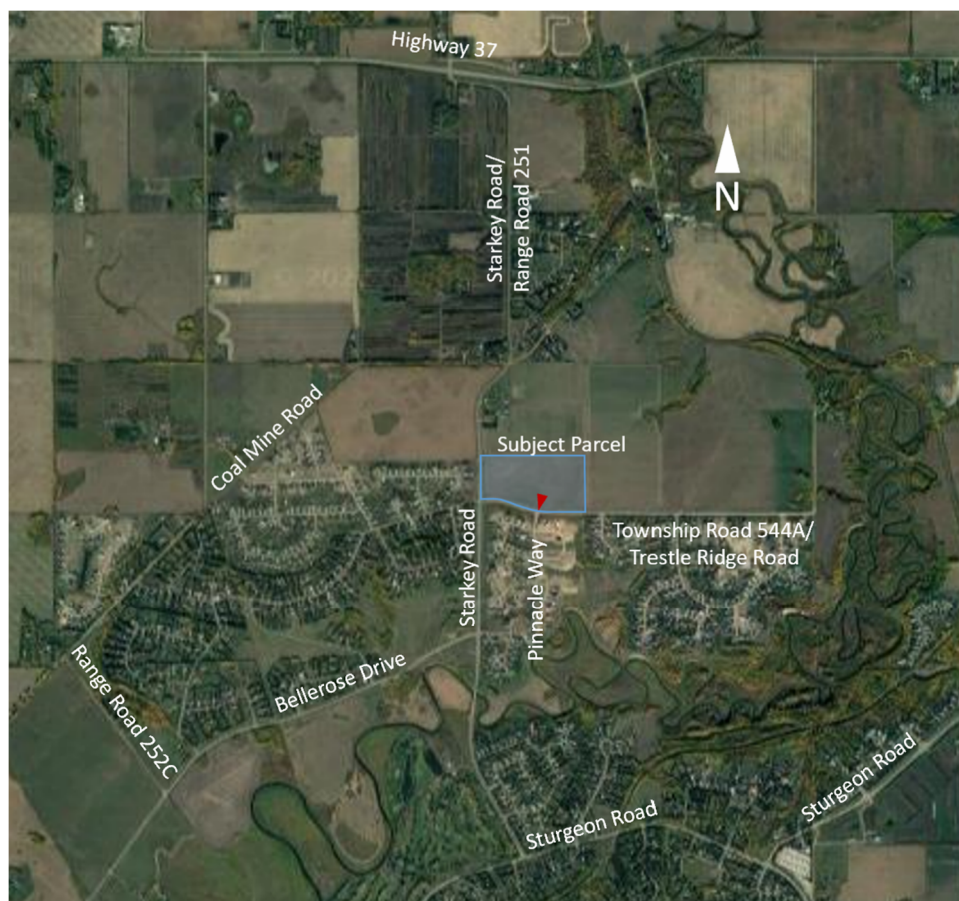
1 Executive Summary

The proposed development Pinnacle Village proposed at parcel legal description Lot 1, Block 1, Plan 182 1685 in Sturgeon County, Alberta. The proposed residential development is in the northeast quadrant of the intersection at Starkey Road & Trestle Ridge Road.

The subject site is currently undeveloped and is intended for future residential development with a total area of approximately 13.88ha. The proposed development may be developed in phases, however the full development was the focus of the analysis.

The traffic associated with the proposed residential development Pinnacle Village can be accommodated on the surrounding roadway network. The study intersections on Starkey Road, at East Estate Way / Trestle Ridge Road and Bellerose Drive / Pinnacle Way are able to accommodate the proposed traffic.

The access to the proposed development will align with Pinnacle Way south of the subject parcel. To accommodate the additional traffic generated by the Pinnacle Village development, it is recommended that the intersection be improved to a Type IIIc intersection configuration.



1 Introduction and Proposed Development

1.1 Background

Arcadis IBI Group was retained by Pinnacle Investments Inc. to undertake a Traffic Impact Assessment (TIA) in support of the Pinnacle Village Outline Plan (OP) for a proposed residential development on the north side of Trestle Ridge Road directly east of Starkey Road. An OP is required as the proposed development area falls within the Valley Core Reserve in the Sturgeon Valley Area Structure Plan (ASP).

1.2 Study Scope and Proposed Development

1.2.1 Study Scope

The primary objectives of the TIA are to:

- Identify the transportation network relevant to the subject site;
- Estimate the additional traffic associated with the proposed residential development; and
- Address the potential for off-site traffic impacts.

1.2.2 Proposed Development

The proposed development is located in Sturgeon County, Alberta at parcel legal description Lot 1, Block 1, Plan 182 1685. The proposed residential development is located in the northeast quadrant of the Starkey Road & Trestle Ridge Road intersection as illustrated in **Figure 1-1**. The figure below also illustrates the existing roadways within the study area. Pinnacle Village outline plan location is also illustrated in **Figure 1-2**.

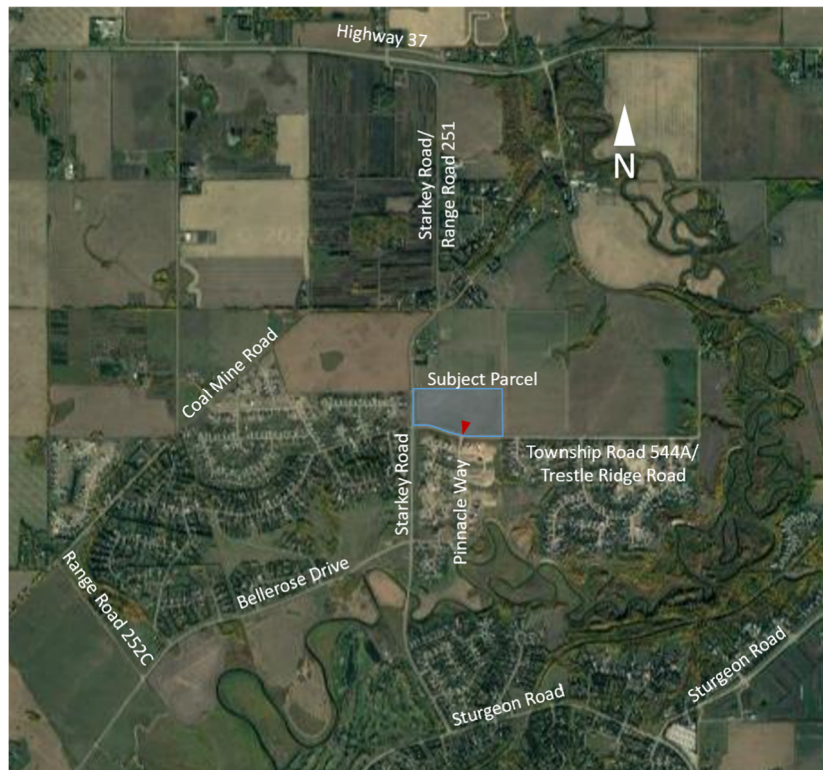


Figure 1-1: Context Plan

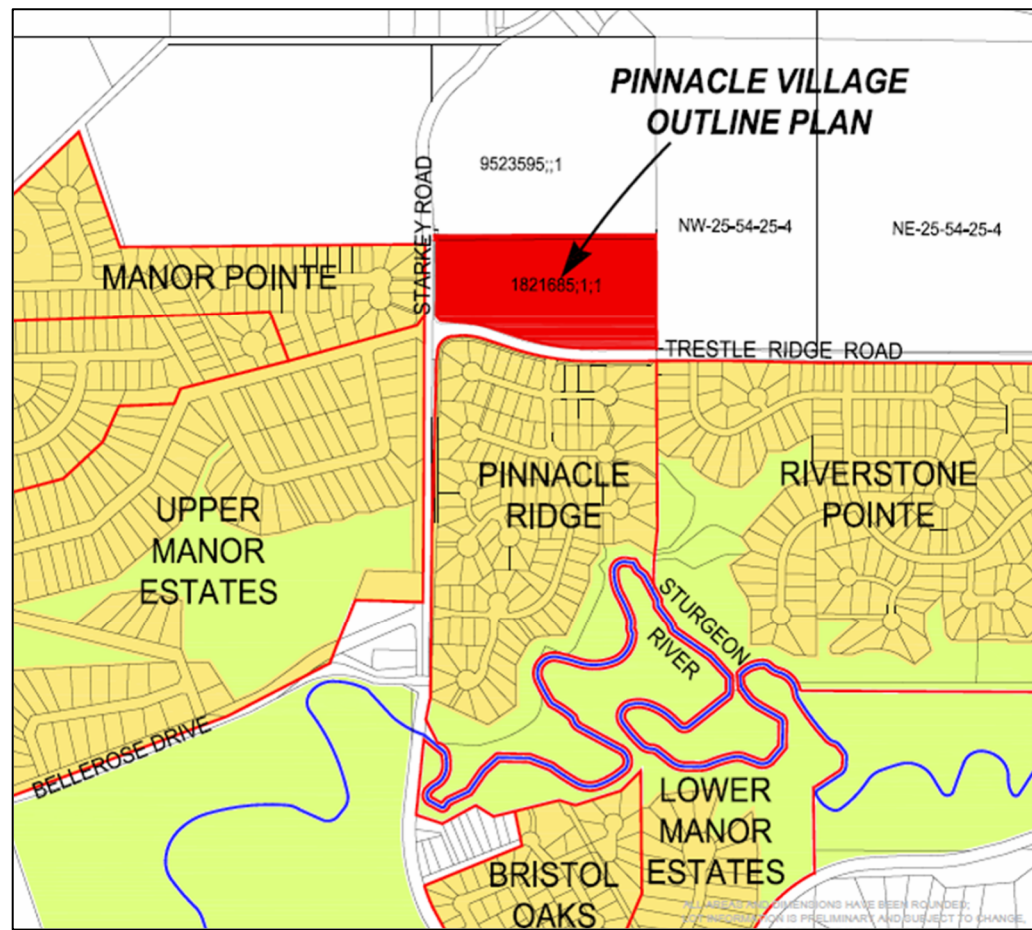


Figure 1-2: Pinnacle Village Outline Plan

The subject site is currently undeveloped and is intended for future residential development with a total area of approximately 13.88ha. As shown in **Figure 1-3**, the proposed development includes proposed phases. The development will include construction of 144 lots.



Figure 1-3: Proposed Development

The raised median is being proposed at the site entrance road, along with sidewalks at both side of the roadway. Conceptual design of the main entrance road is illustrated in **Figure 1-4**.

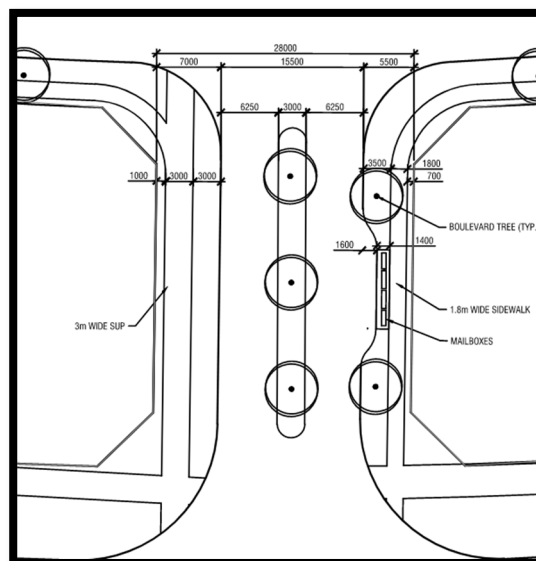


Figure 1-4: Proposed Development Entrance Road

The area south of Pinnacle Village contains the residential subdivision of Pinnacle Ridge. The area to the west contains the residential subdivisions of Upper Manor Pointe and The Banks. The areas to the north and east of the plan area are predominantly agricultural with associated farm buildings.

2 Access Management, Highway and Municipal Plans

The access to the proposed development will align with Pinnacle Way south of the subject parcel, identified by a red triangle in **Figure 1-1**.

The proposed development meets the intent of the Edmonton Metropolitan Regional Growth Plan (EMRGP) and the Sturgeon County Municipal Development Plan.

Based on the Sturgeon County Municipal Development Plan Trestle Ridge Road may be extended in the future and turn south providing a new connection to Township Road 543A via Range Road 245. Timing for the extension is unknown.

Alberta Transportation Roadside Management Classification Map identifies the future functional classification for Highway 37 as rural arterial divided (RAD).

3 Existing Infrastructure Conditions

3.1 Existing Roadway Network

The existing roadway network adjacent to the subject site includes the following roadways:

Highway 37

Alberta Transportation classifies Highway 37 as a Level 2 Arterial which is intended to accommodate the movement of people, and goods and services at an intra-provincial level. Access to this level of arterial road is restricted to connections with the National Highway System and collector roads. Within the vicinity of Range Road 251, Highway 37 has a 3-lane rural cross-section with two westbound lanes and one eastbound lane. The posted speed limit is 70km/h.

Two streetlights are present on the north and south sides at the intersection with Range Road 251.

Starkey Road / Range Road 251

Starkey Road / Range Road 251 is a 2-lane north-south collector with a posted speed limit of 70km/h which extends for approximately 4.6km between Highway 37 and Sturgeon Road. The existing roadway cross-section is approximately 7.0m wide with 1.5m paved shoulders. Starkey Road crosses the Sturgeon River approximately 320m south of the intersection with Bellerose Drive / Pinnacle Way. There is an existing crest in the roadway between East Estate Way / Trestle Ridge Road and Bellerose Drive / Pinnacle Way, as well as north of the Sturgeon River crossing. The posted speed limit is 70km/h.

A shared use path (SUP) is located on the west side of the corridor, extending approximately 125m north and 560m south of East Estates Way. A mid-block crossing of the SUP is located approximately 170m north of Bellerose Drive. A concrete median is present on Starkey Road at the intersection with Sturgeon Road.

Trestle Ridge Road

Directly south of the subject site, Trestle Ridge Road is an east-west 2-lane rural collector with a posted speed limit of 60km/h which extends east from Range Road 251. The existing roadway cross-section is approximately 7.0m wide with 1.0m paved shoulders. There do not appear to be any significant grade changes along the existing road profile.

There are four side street connections from the south to Trestle Ridge Road: Pinnacle Way, Riverridge Rd, Riverstone Dr W and Riverstone Drive E. At its eastern limits, Trestle Ridge Road turns north becoming the north-south Range Road 250 which dead ends at Trestle Ridge Place. Other than Pinnacle Way, there are no other through road connections.

At its intersection with Range Road 251, a streetlight is present on the northeast corner, an existing Canada Post Mailbox is located on the southeast corner, and utility pedestals are located on both the northeast and southeast corners.

East Estates Way

Extending west of Range Road 251, opposite of Trestle Ridge Road, East Estates Way is an east-west 2-lane rural collector with a posted speed limit of 40km/hr. The existing roadway cross-section is approximately 7.0m wide and there do not appear to be any significant grade changes within close proximity to its subject intersection with Range Road 251.

East Estates Way has two connections to Bellerose Drive via Villa Drive and River Lane, and two connections to Township Road 544 via Estate Way West and Estate Way Drive.

Two large entrance features are located on the north and south side of the corridor west of Range Road 251.

Bellerose Drive

Starting at Starkey Road / Range Road 251, this existing 2-lane rural collector with a posted speed limit of 70km/h extends southwest into the City of St. Albert. The existing roadway cross-section is approximately 7.5m wide with 1.0m wide paved shoulders. The road profile falls away from the Starkey Road / Range Road 251 intersection.

Streetlights are present on the northwest and southwest corners of its intersection with Starkey Road / Range Road 251. A north-south mid-block SUP crossing is located approximately 290m west of Starkey Road / Range Road 251.

Pinnacle Way

Extending east of Starkey Road / Range Road 251, opposite Bellerose Drive, Pinnacle Way is a 2-lane urban local subdivision roadway with a posted speed limit of 40km/h. A 30m landscaped median with street lighting is located at its intersection with Starkey Road / Range Road 251. The typical cross-section has roughly a 9.0m wide road platform. Two large entrance features are located on the north and south side of the corridor east of Starkey Road / Range Road 251. Pinnacle Way turns to the north and connects to Trestle Ridge Road.

Sturgeon Road

Sturgeon Road is a 2-lane east-west rural arterial roadway with a posted speed limit of 70km/h. The corridor has an approximate roadway cross-section of 7.5m with 1.2m wide paved shoulders. Partial urbanization is present at its intersection with Starkey Road, otherwise the roadway has a rural cross-section. Street lighting is present on the approaches to the intersection with Starkey Road.

3.2 Existing Intersection Configurations

Intersection configurations within proximity to the subject site are as follows are shown in **Figure 3-2**.



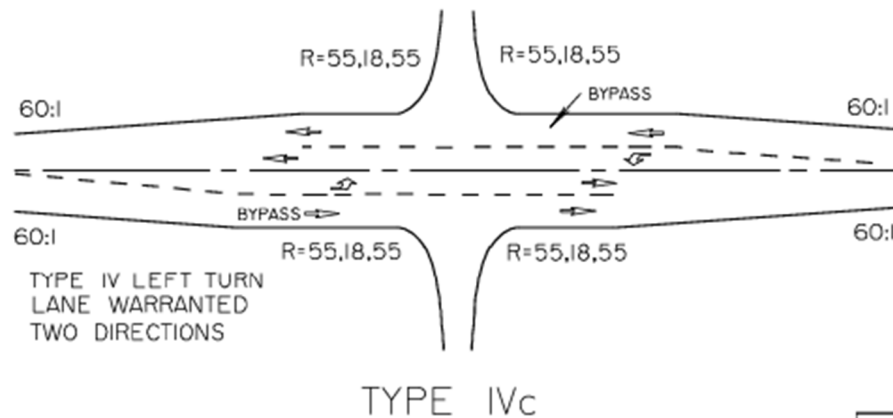
Figure 3-2: Subject Intersections

3.2.1 Range Road 251 and East Estate Way / Trestle Ridge Road

Stop Control on East Estate Way / Trestle Ridge Road. The existing intersection appears to have a **Type IVc** configuration as per Alberta Transportation HGDG.

- Eastbound (East Estate Way) – one shared left / through / right lane
- Westbound (Trestle Ridge Road) – one left turn / through / right turn lane, although while there are no defined turn lanes the single approach lane widens from 3.5m to 6.6m over approximately 120m. For the purposes of analysis, a left turn bay was modeled to represent the current use.
- Northbound (Range Road 251) – one left turn lane (130m taper, 105m storage), one shared through / right lane

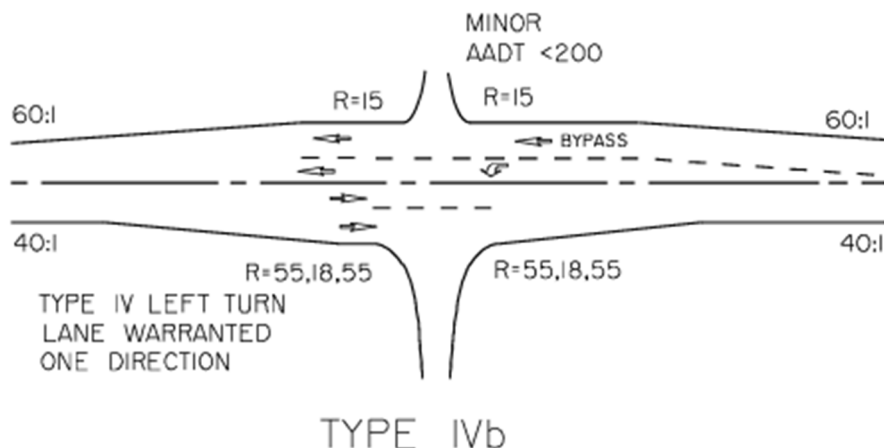
- Southbound (Range Road 251) – one shared left / through lane, one shared right turn lane (75m taper, 55m storage)



3.2.2 Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way

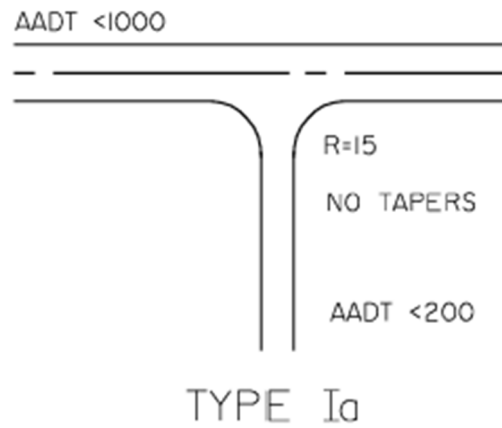
Stop Control on Bellerose Drive / Pinnacle Way, located approximately 710m south of East Estate Way / Trestle Ridge Road. Sight lines are minimal for vehicles on East Estates Way approaching Range Road 251 and users of the SUP along the west side of Range Road 251. The existing intersection appears to have a **Type IVb** configuration as per Alberta Transportation HGDG.

- Eastbound (Bellerose Drive) – one shared left turn / through lane, one right turn lane (50m taper, 100m storage)
- Westbound (Pinnacle Way) – one shared left turn / through / right turn lane (while there are no defined turn lanes the approach single lane widens from 4.5m to 7.0m over approximately 30m). For the purpose of the analysis, it was assumed a left turn lane with 30 m storage and a shared through and right turn lane.
- Northbound (Starkey Road) – one left turn lane (130m taper, 105m storage), one shared through / right turn lane
- Southbound (Range Road 251) – one shared left turn / through lane, one right turn taper (80m)



3.2.3 Trestle Ridge Road and Pinnacle Way

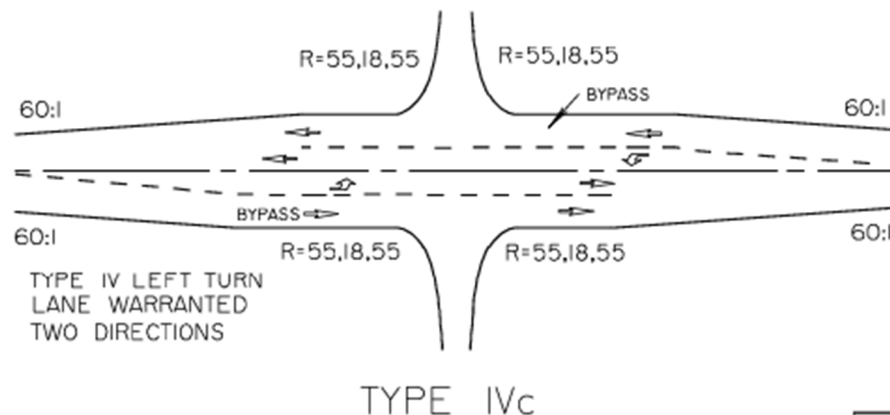
'T' intersection with stop control on Pinnacle Way, located approximately 310m east of Range Road 251. There are no existing turn lanes present and the intersection geometry appears to follow Alberta Transportation Geometric Design Guide (HGDG) **Type Ia** configuration.



3.2.4 Highway 37 and Range Road 251

Stop Control on Range Road 251, located approximately 2.6km north of East Estate Way / Trestle Ridge Road. The existing intersection appears to have a **Type IVc** configuration as per Alberta Transportation HGDG.

- Eastbound (Highway 37) – one shared left turn / through lane, one right turn lane (130m taper, 95m storage)
- Westbound (Highway 37) – one left turn lane (200m taper, 110m storage), one through lane, one shared through / right turn lane
- Northbound (Range Road 251) – one shared left turn / through lane, one right turn lane (10 m storage)
- Southbound (Range Road 251) – one shared left turn / through lane, one right turn lane (10 m storage)



3.2.5 Sturgeon Road and Starkey Road

Single lane roundabout located approximately 240m south of Bristol Way.

4 Traffic Conditions

4.1 Background Traffic

4.1.1 Existing Background Traffic

12-hour traffic counts were conducted in 2022 at the intersections of Range Road 251 and East Estate Way / Trestle Ridge Road, Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way, and Sturgeon Road and Starkey Road. The traffic counts data were collected from 7 am to 7 pm on:

- Wednesday, October 5, 2022, at Range Road 251 and East Estate Way / Trestle Ridge Road intersection;
- Tuesday, October 4, 2022, at Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way intersection; and
- Thursday, September 29, 2022, at Sturgeon Road and Starkey Road intersection.

A historical traffic count for the intersection of Highway 37 and Range Road 251 (2021) was obtained from Alberta Transportation. The traffic counts have been provided in **Appendix A**. Due to the low volume of site-generated traffic that is anticipated to use Highway 37, it is not expected that site-generated traffic will have a significant impact to the Highway 37 & Range Road 251 intersection. This early assumption has been reviewed as part of the intersection analysis.

The existing traffic volumes have been balanced between the subject intersections and are illustrated in **Figures 4-1 and 4-2**.

2022 Background AADT

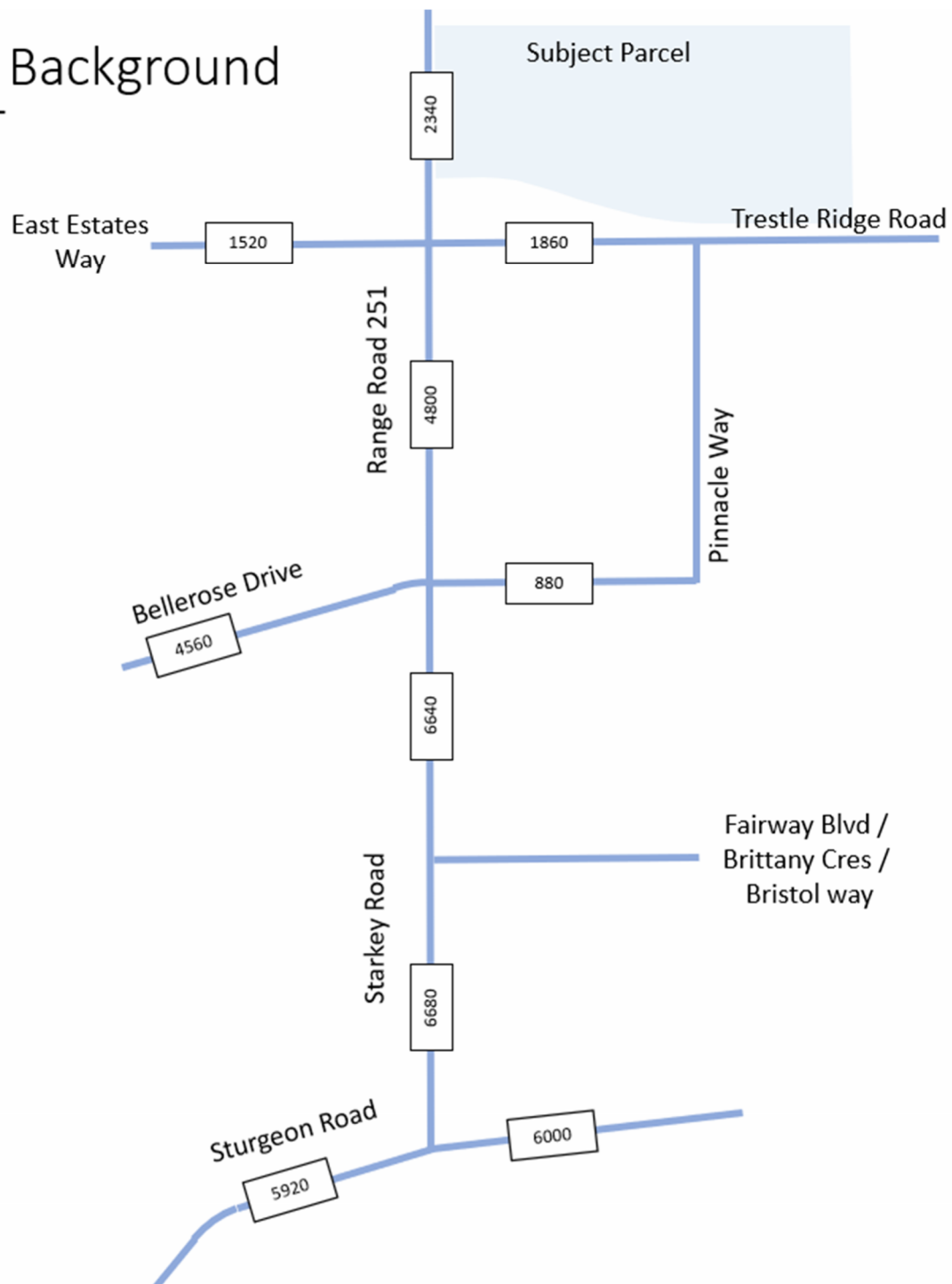


Figure 4-1: Background Traffic Volumes (Daily)

2022 Background AM (PM) Peak

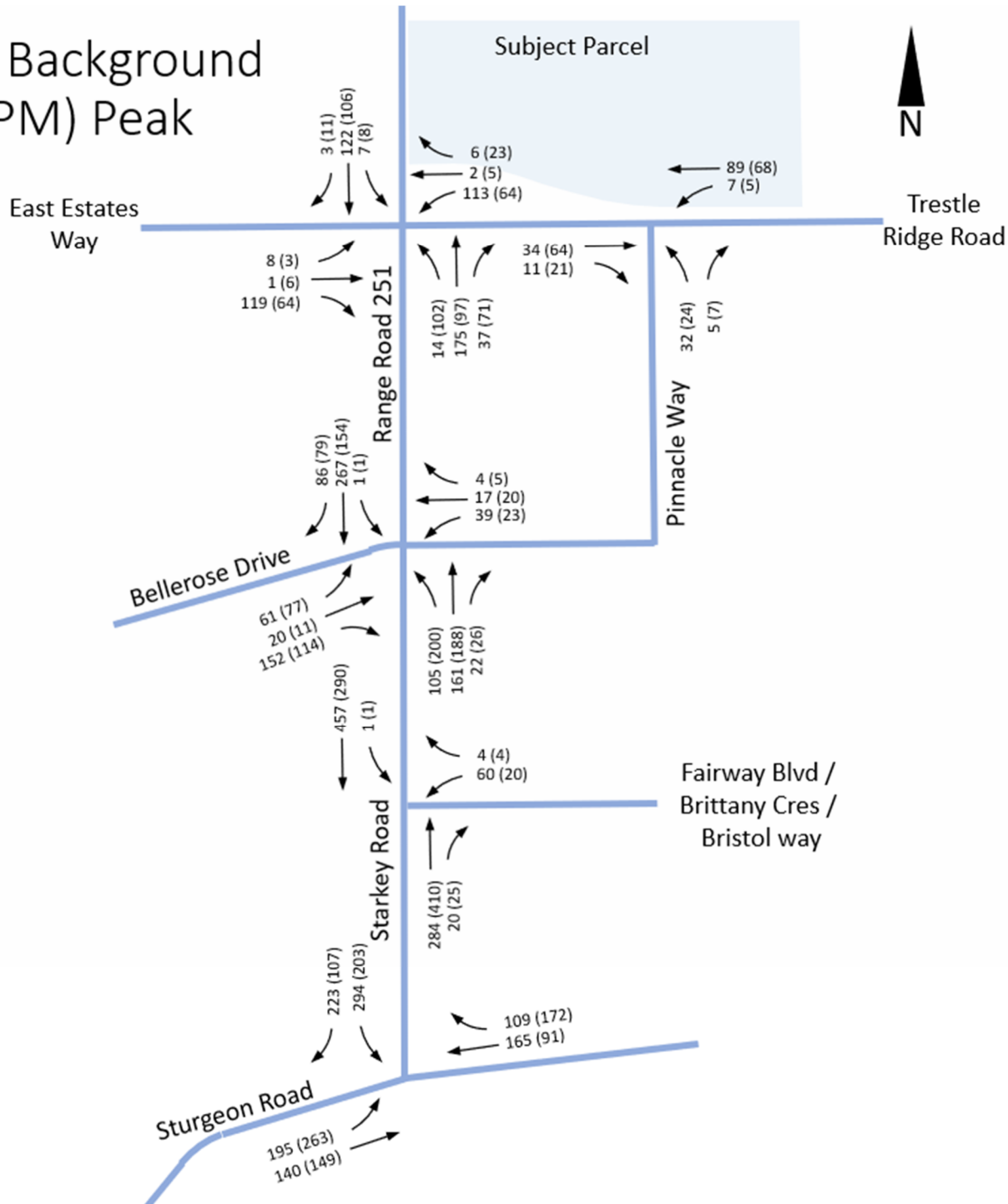


Figure 4-2: Background Traffic Volumes (AM/PM)

4.1.2 Projected Background Traffic

It is anticipated (for the purposes of this study) that Phase 1 of the proposed development will open in 2025 and Phase 2 in 2026 or later. As such, project background traffic volumes were developed for 2025 commencement, 2035 and 2045.

For the analysis conducted in Sturgeon County **Transportation Master Plan** (September 2023) a 2.0% linear traffic growth rate was applied to the highways, to determine forecasted traffic volumes. The analysis in this report follows a same approach. A compounding 2% growth rate was applied to regional traffic, including traffic along Starkey Road/Range Road 251, Bellerose Drive, and Sturgeon Road. In addition, as per the County's request, the 2% growth rate was applied to Estates Way, Trestle Ridge Road, and Pinnacle Way to account for any additional growth within the developing areas. There aren't planning documents identifying the proposed development northeast of Pinnacle Ridge. When plans are developed, additional traffic analysis, particularly for the Trestle Ridge Road corridor, will be required.

Updated since the previous report, the AADT numbers are now based on Vistro traffic numbers and reflect more accurate results, which are less than the previous report. It is noted that the AADT by the 2035 background becomes slightly over 10,000 AADT along Starkey Road and increases in the future years. The capacity for two lane collector roads is generally less than 10,000 AADT based on the Sturgeon County General Municipal Servicing Standard (GMSS). Based on the GMSS, the roads would have higher demand than capacity. Based on the Sturgeon County Master Plan, there are plans to expand Starkey Road to a four-lane arterial road between Coal Mine Road and Bellerose Drive. The expanded road should have enough capacity to account for the additional traffic.

4.2 Traffic Generated by Other Developments

Starkey Hills is a proposed development located on the south-west corner for the Range Road 251 and Township Road 544D/Township Road 545A intersection. Two accesses are proposed as part of this development as follows:

- A new access intersection will be provided on Range Road 251 approximately 490m north of the East Estates Way / Trestle Ridge Road intersection in 2025, and
- By 2035, a second access intersection will be provided on Township Road 544D approximately 670m west of Range Road 251.

Figures 4-9 and 4-10 below were provided by D&A Paulichuk Consulting Ltd. and identify the anticipated daily and peak hour trip generation for the proposed development for 2025, 2035, and 2045.

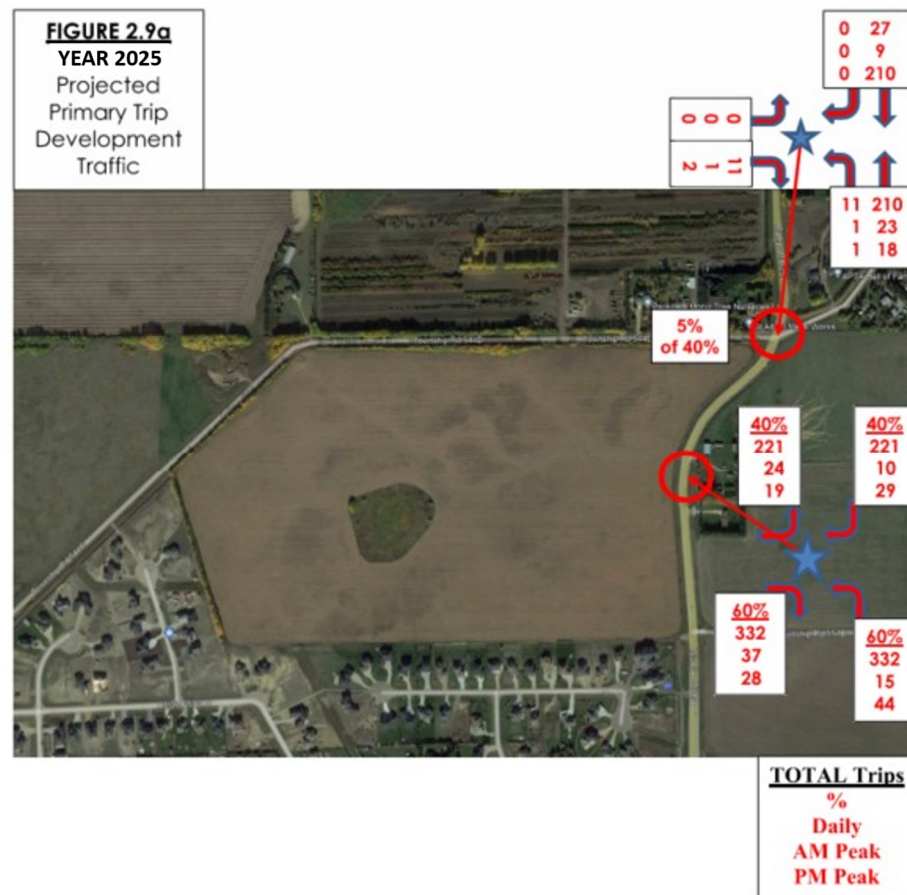


Figure 4-3: Starkey Hills 2025 Trip Generation

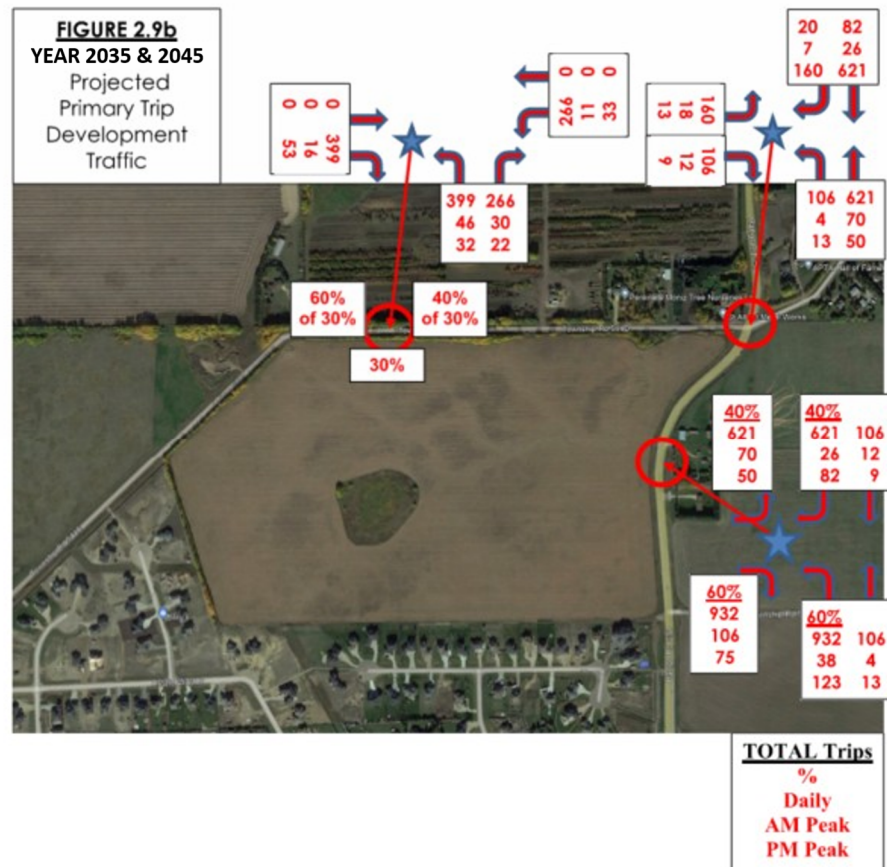


Figure 4-4: Starkey Hills 2035 & 2045 Trip Generation

4.3 Total Background Traffic

The background traffic escalated from current traffic counts, and the traffic generated by the Starkey Hills development were combined to develop total background traffic volumes. The forecasted traffic data are provided in **Figures 4-3 to 4-8**.

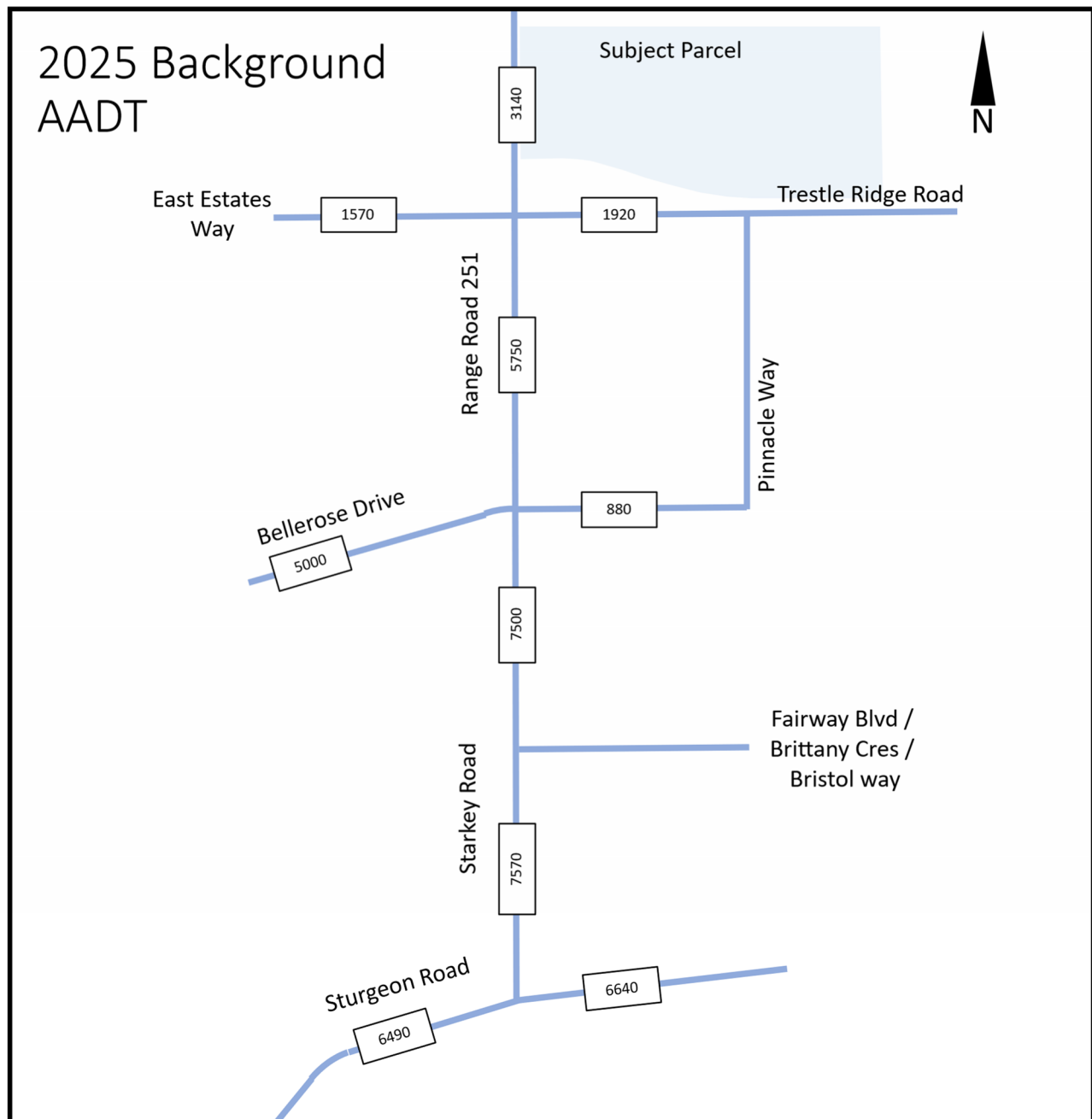


Figure 4-5: 2025 Background Traffic Volumes (Daily)

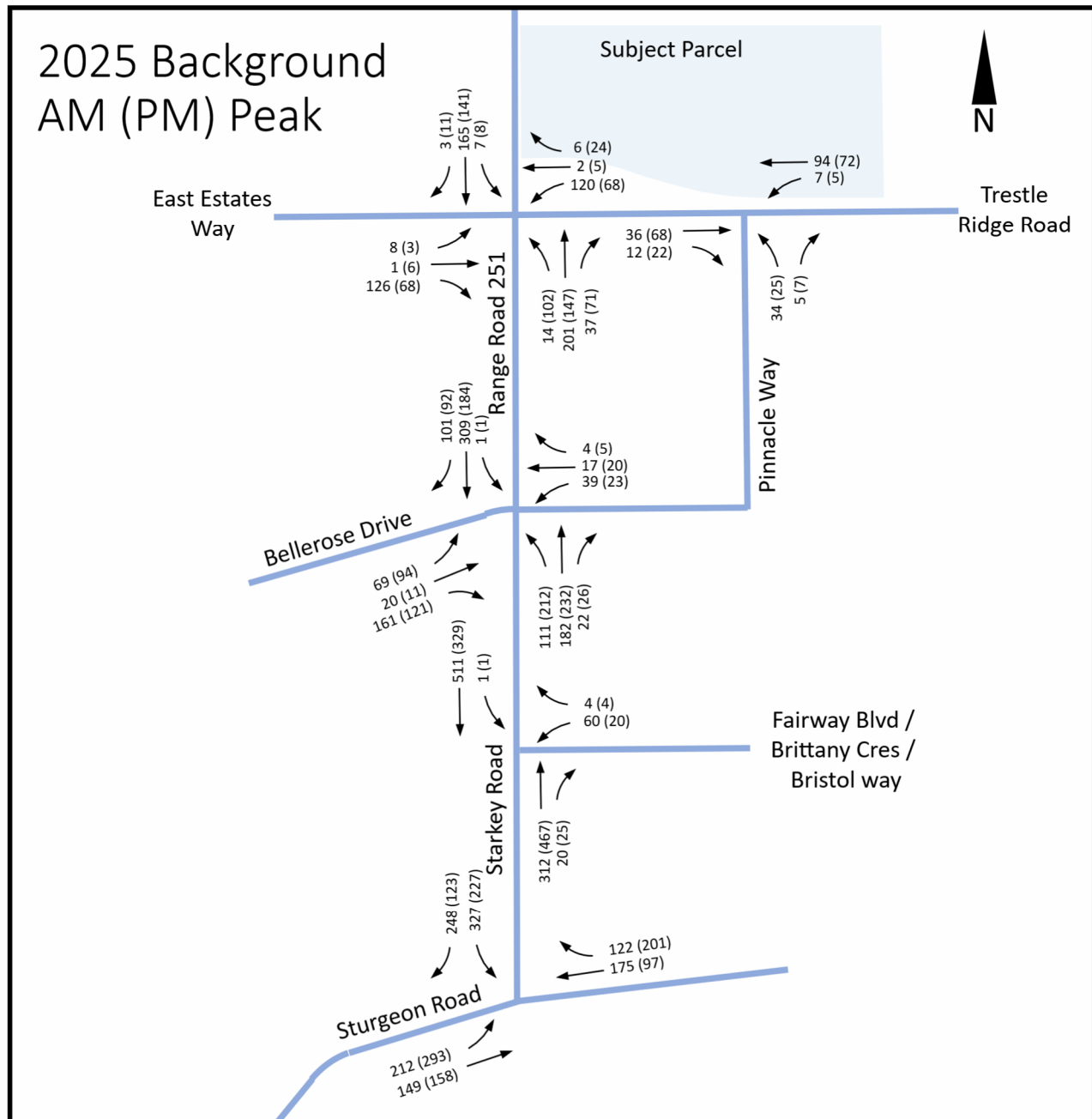


Figure 4-6: 2025 Background Traffic Volumes (AM/PM)

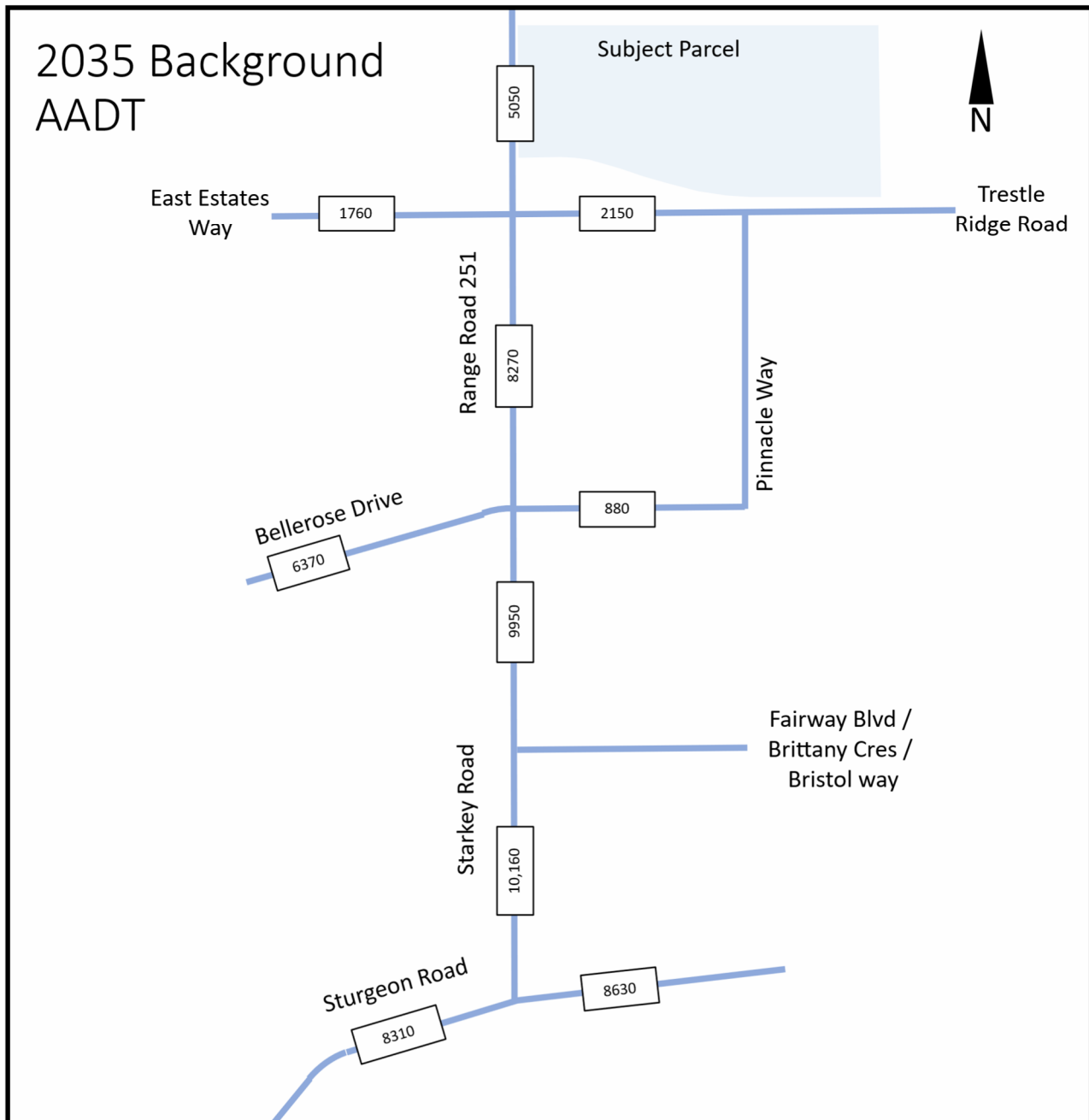


Figure 4-7: 2035 Background Traffic Volumes (Daily)

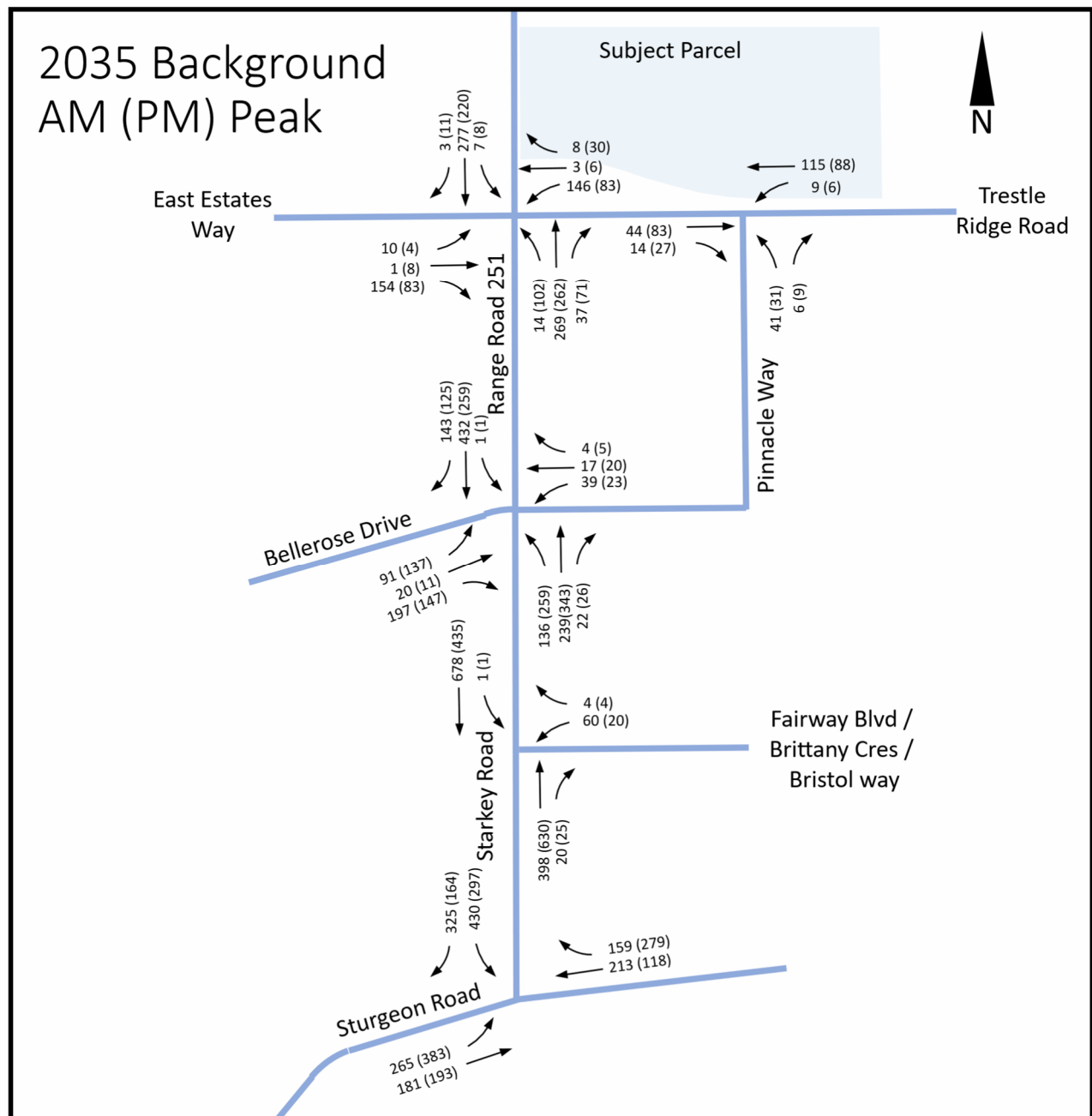


Figure 4-8: 2035 Background Traffic Volumes (AM/PM)

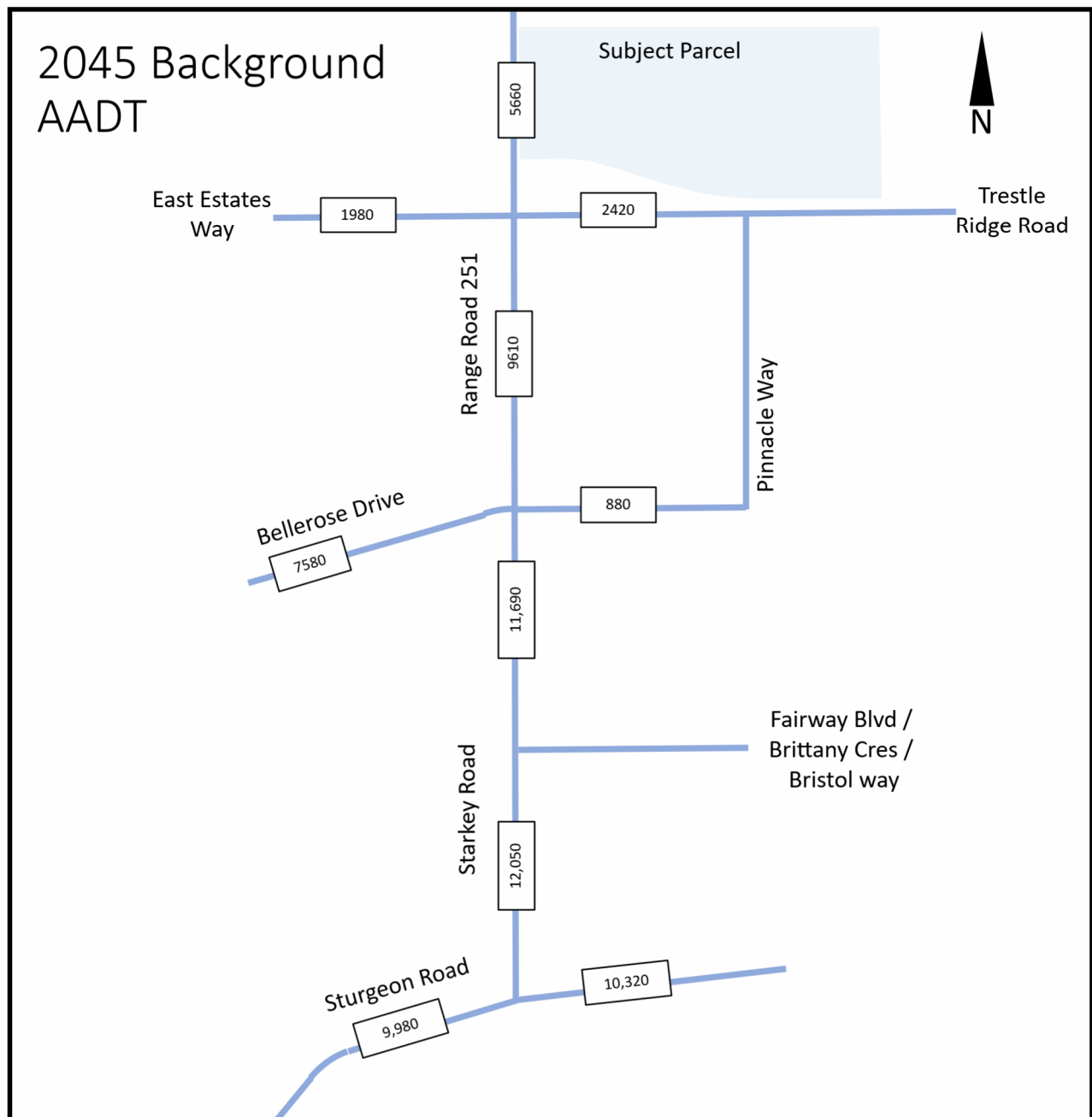


Figure 4-9: 2045 Background Traffic Volumes (Daily)

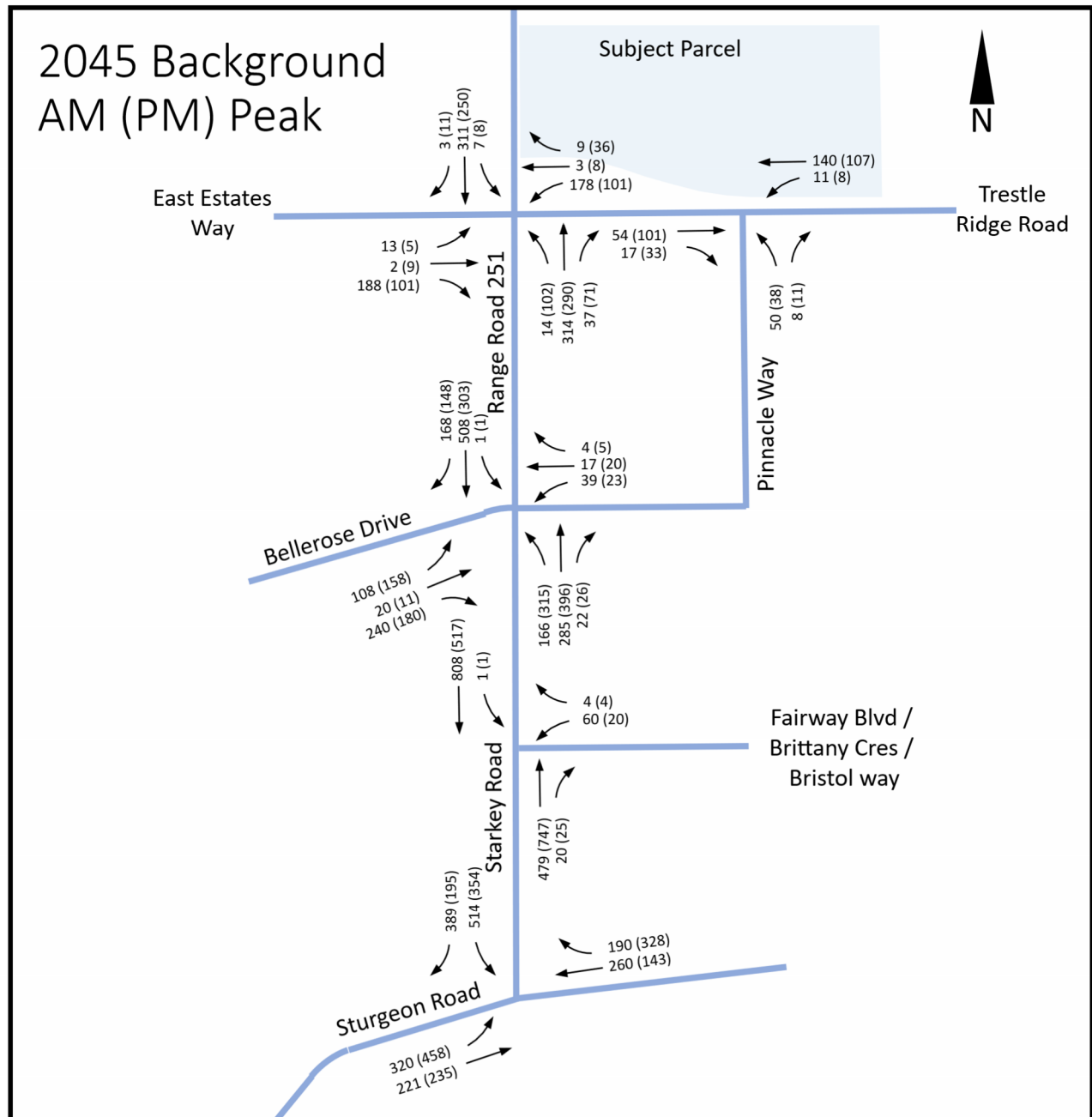


Figure 4-10: 2045 Background Traffic Volumes (AM/PM)

4.4 Site Generated Traffic

The proposed development will introduce a fourth leg, Pinnacle Village, to the existing 'T' intersection of Trestle Ridge Road and Pinnacle Way. In accordance with 2021 ASP Traffic Review by Bunt and Associates, 9.44 two-way trips per unit were used to calculate the daily traffic generation of the proposed development. As per the County's request, this rate was increased by 27% to 12 two-way trips per unit to account for additional site traffic. **Table 4-1** summarizes the trip generation for each phase of the proposed development.

Table 4-1: Trip Generation Rates

Phase	Commencement	Units	Daily Trip Generation Rate (t/du) ¹	Total Daily Trips
Phase 1	2025	130	12.00	1560
Phase 2	2026+	14	12.00	168
Total		144		1728

¹ From 2021 Bunt and Associates ASP Traffic Review and increased by 27% as per the County's request

Table 4-2 summarizes the projected two-way AM peak hour and PM peak hour vehicle trips generated by the proposed development, using the trip generation rates from the Institute of Transportation Engineers (ITE) **Trip Generation Manual, 11th Edition** (2021) publication. However, as per the County's request, these rates were increased by 27% to account for additional site traffic.

Table 4-2: Trip Generation Table

Phase	Units	Vehicle Trip Generation Rates ²						Total Generated Trips			
		AM Peak			PM Peak			AM Peak		PM Peak	
		AM Peak (t/du)	% IN	% OUT	PM Peak (t/du)	% IN	% OUT	In	Out	In	Out
Ph 1	130	0.89	25%	75%	1.19	63%	37%	29	87	98	57
Ph 2	14	0.89	25%	75%	1.19	63%	37%	3	9	11	6
Total	144							32	96	109	63

² Trip Generation Rates based on the trip rates from the ITE Trip Generation Manual, 11th Edition and increased by 27% as per the County's request

Note: Any apparent discrepancies in the subtotals are due to numbers rounding

The projected traffic generated by the proposed site was distributed and assigned to the site access and the roadway network, primarily based on the directional distribution of the existing traffic volumes as well as taking account of trips as per the Starky Hills development, as illustrated in **Figure 4-11**. A portion of the of the traffic from the proposed development has been allocated to the future extension of Coal Mine Road to Starkey Road, as shown in the County's Transportation Master Plan. The extension is planned as a four-lane arterial with a connection to Neil Ross Road.



Figure 4-11: Trip Distributions

It is anticipated that the majority of site generated traffic will travel south along Starkey Road. 43% of traffic generated from the proposed development will travel westerly towards St. Albert via Coal Mine Road (11%), Bellerose Drive (14%) and Sturgeon Road (18%). It's expected that 40% of traffic will travel to the east on Sturgeon Road to make connections to north-south Highway 28 or Anthony Henday Drive. 17% of traffic from the proposed development is anticipated to travel north towards Highway 37, where the majority will go east.

Figures 4-12 to 4-15 summarize distribution of the site generated daily and peak hour traffic volumes.

The County has noted there is an existing condition of additional traffic going southbound on Pinnacle Way to Bellerose Drive and an expectation the site traffic could compound the issue. The traffic was modelled to account for traffic for the most conservative route - taking Starkey Road. There is the potential that some traffic will take Pinnacle Way southbound, which will disperse traffic further than as assumed. Should there be qualitative issues experienced by residents, potential improvements could include traffic calming enhancements. Such enhancements would not be resultant from quantitative traffic concerns introduced by the development.

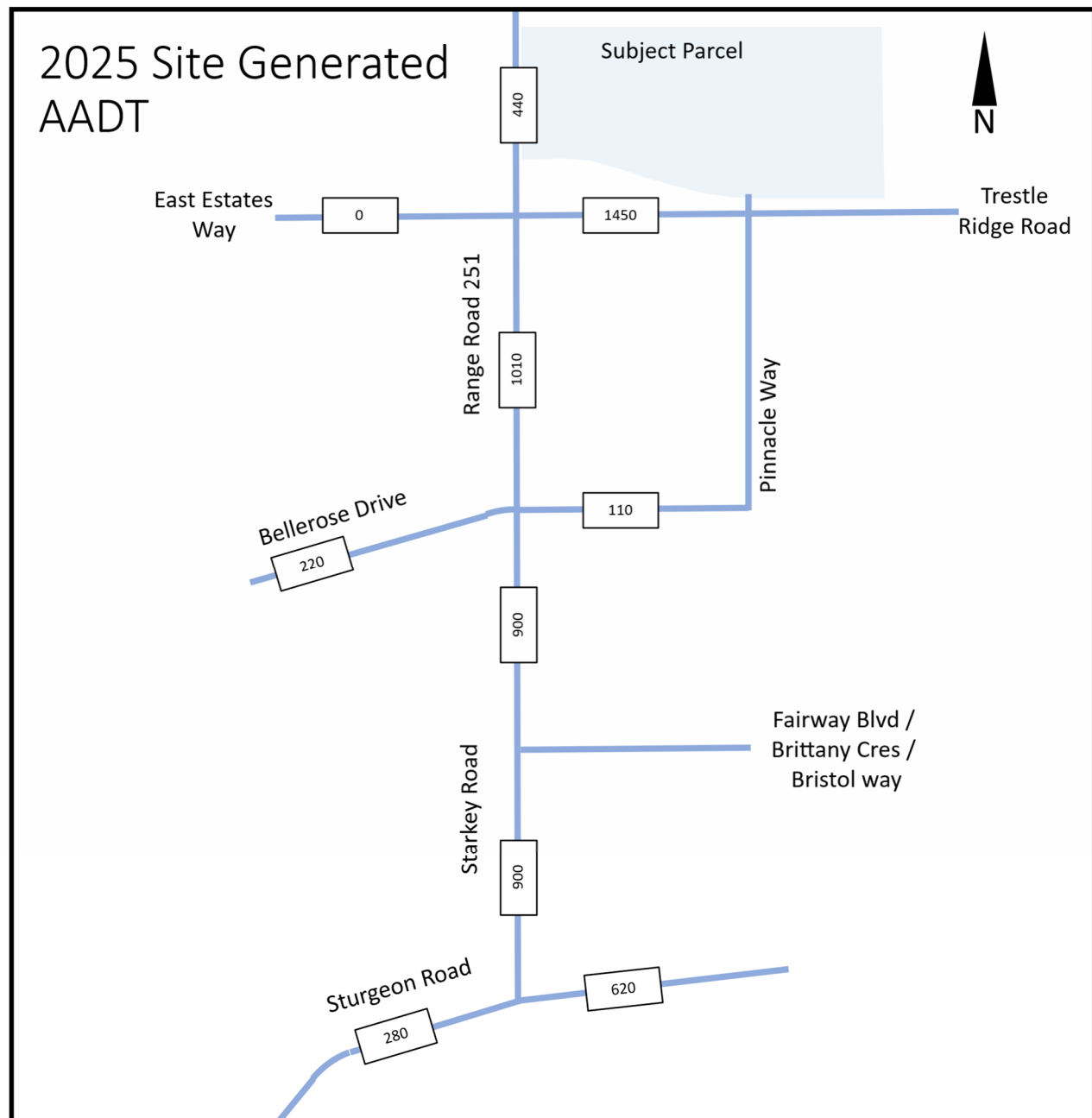


Figure 4-12: 2025 Phase 1 Site Generate Traffic Volumes (Daily)

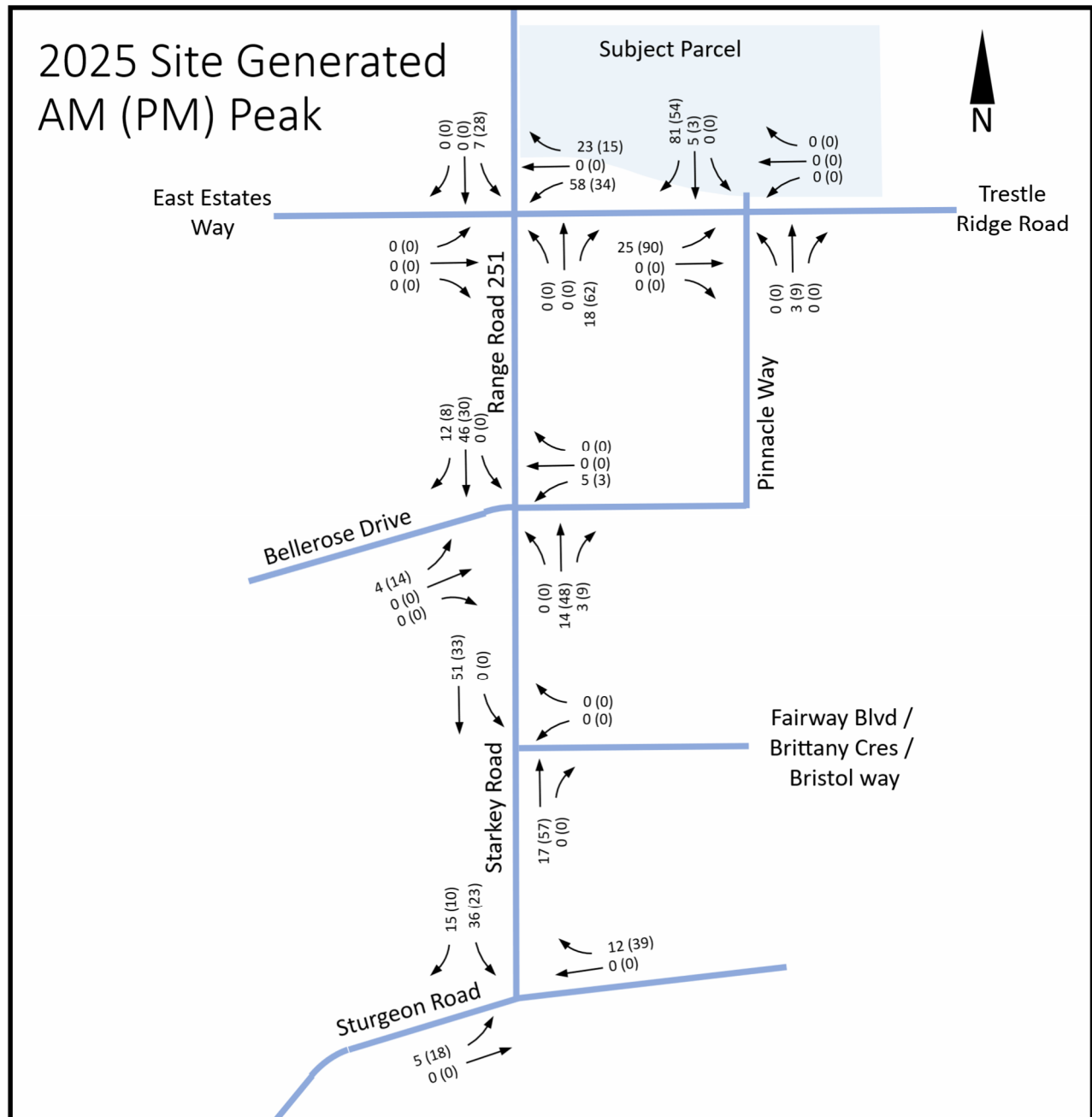


Figure 4-13: 2025 Phase 1 Site Generated Traffic Volumes (AM/PM)

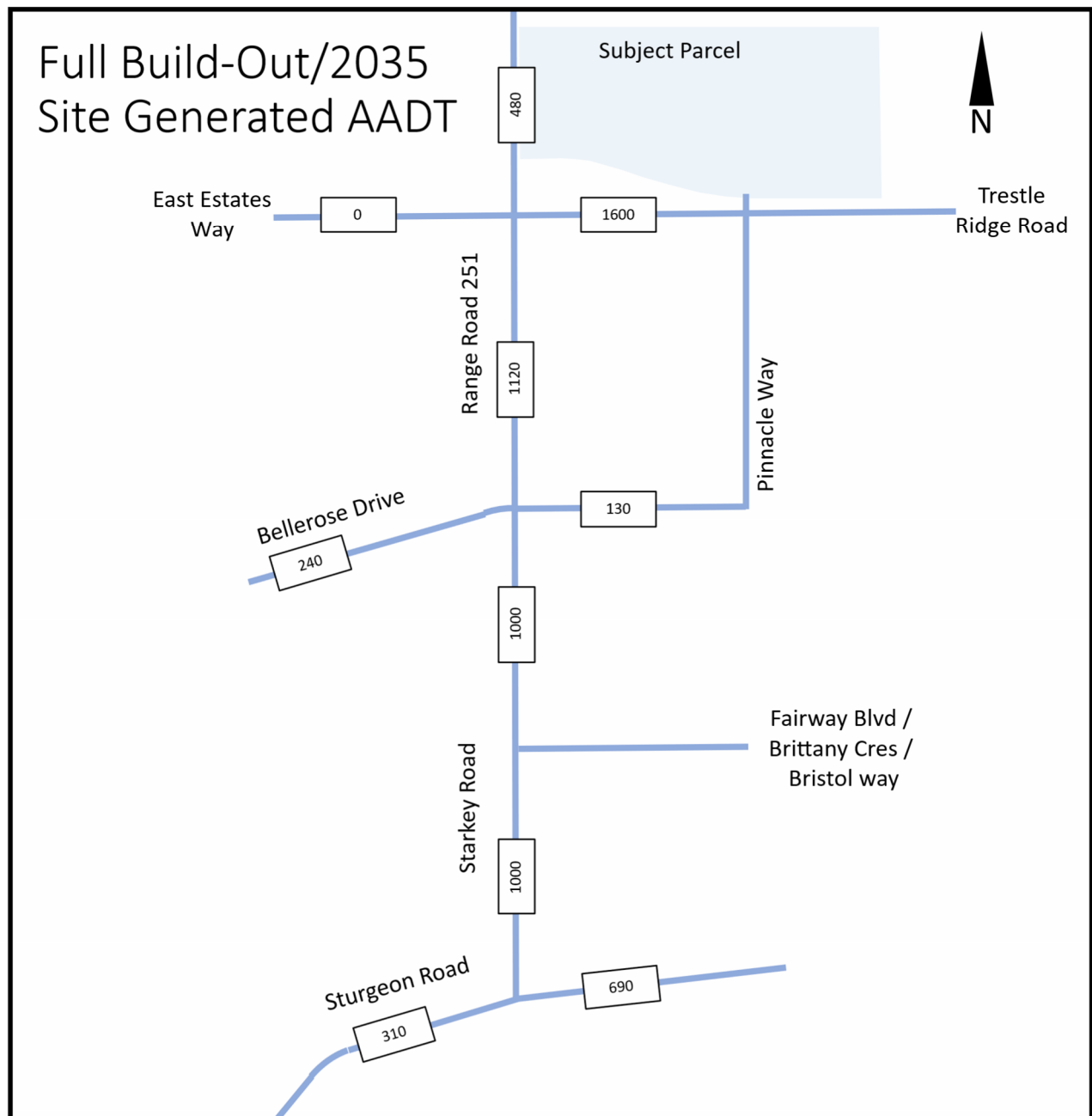


Figure 4-14: Full Build-Out Site Generated Traffic Volumes (Daily)

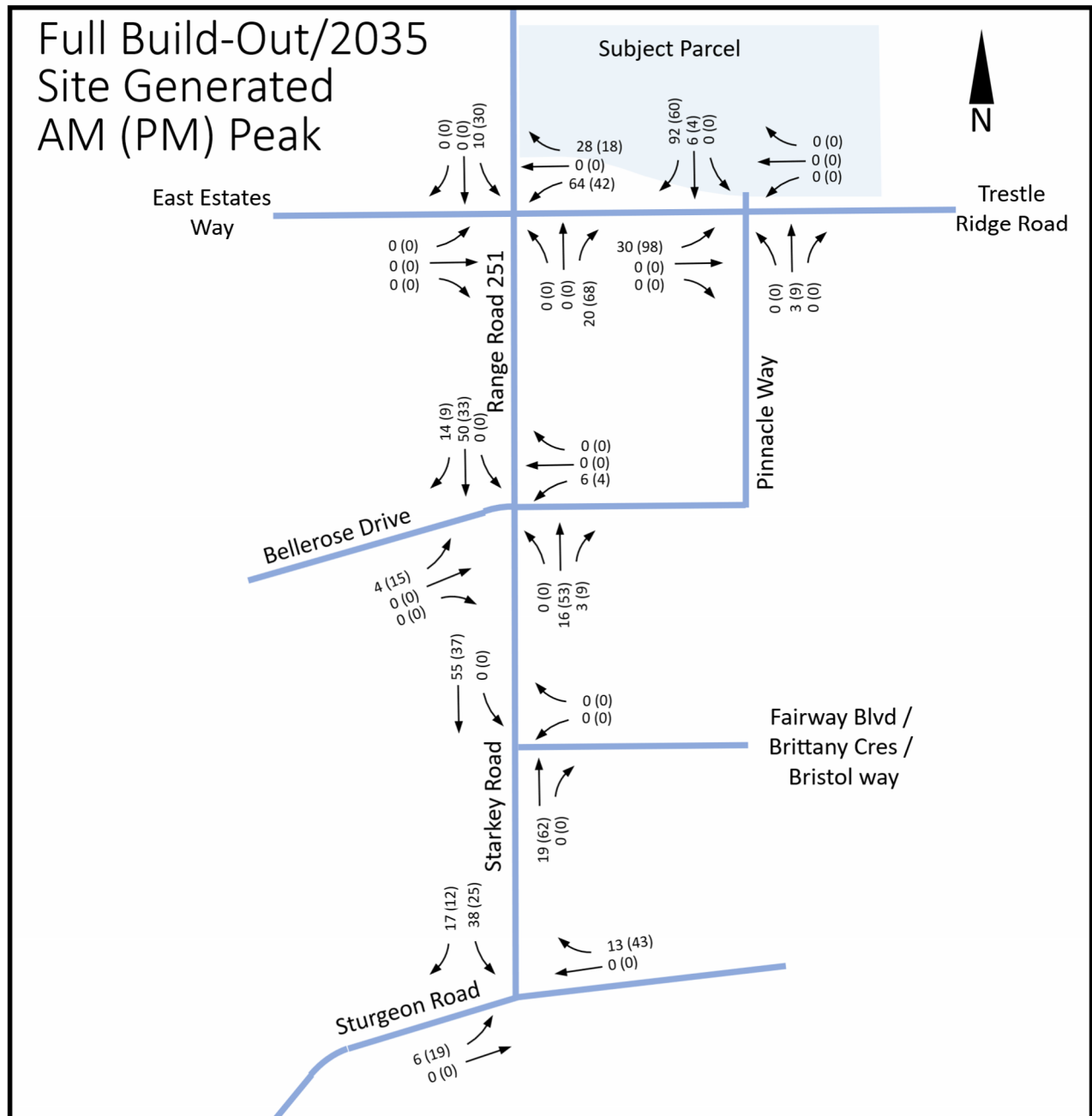


Figure 4-15: Full Build-Out/2035 Site Generated Traffic Volumes (AM/PM)

4.5 Combined Traffic

The combined volumes were obtained by superimposing the proposed site traffic volumes with the total background traffic volumes.

The resulting volumes are shown in **Figures 4-16 to 4-21**.

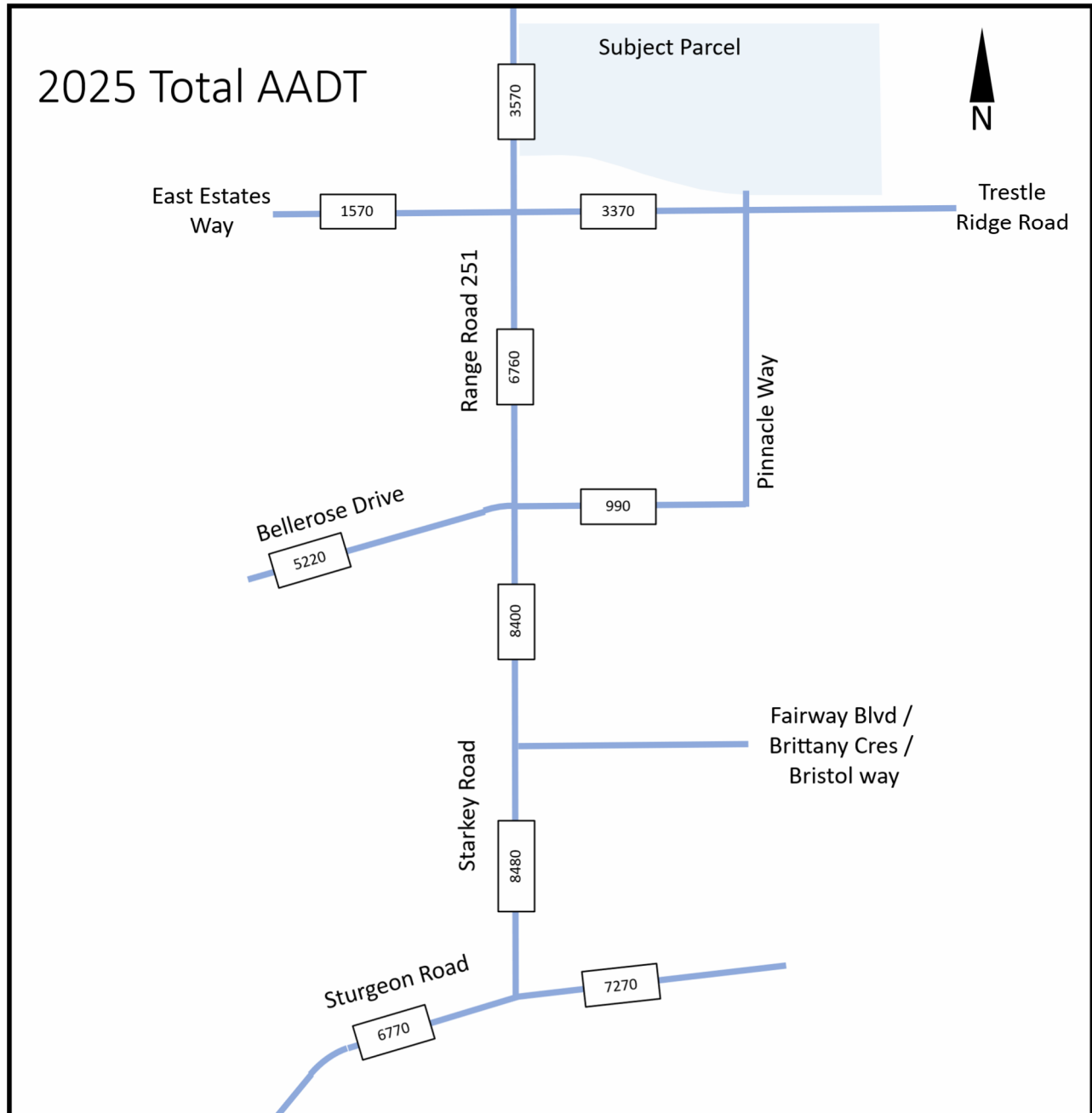


Figure 4-16: 2025 Total Traffic Volumes (Daily)

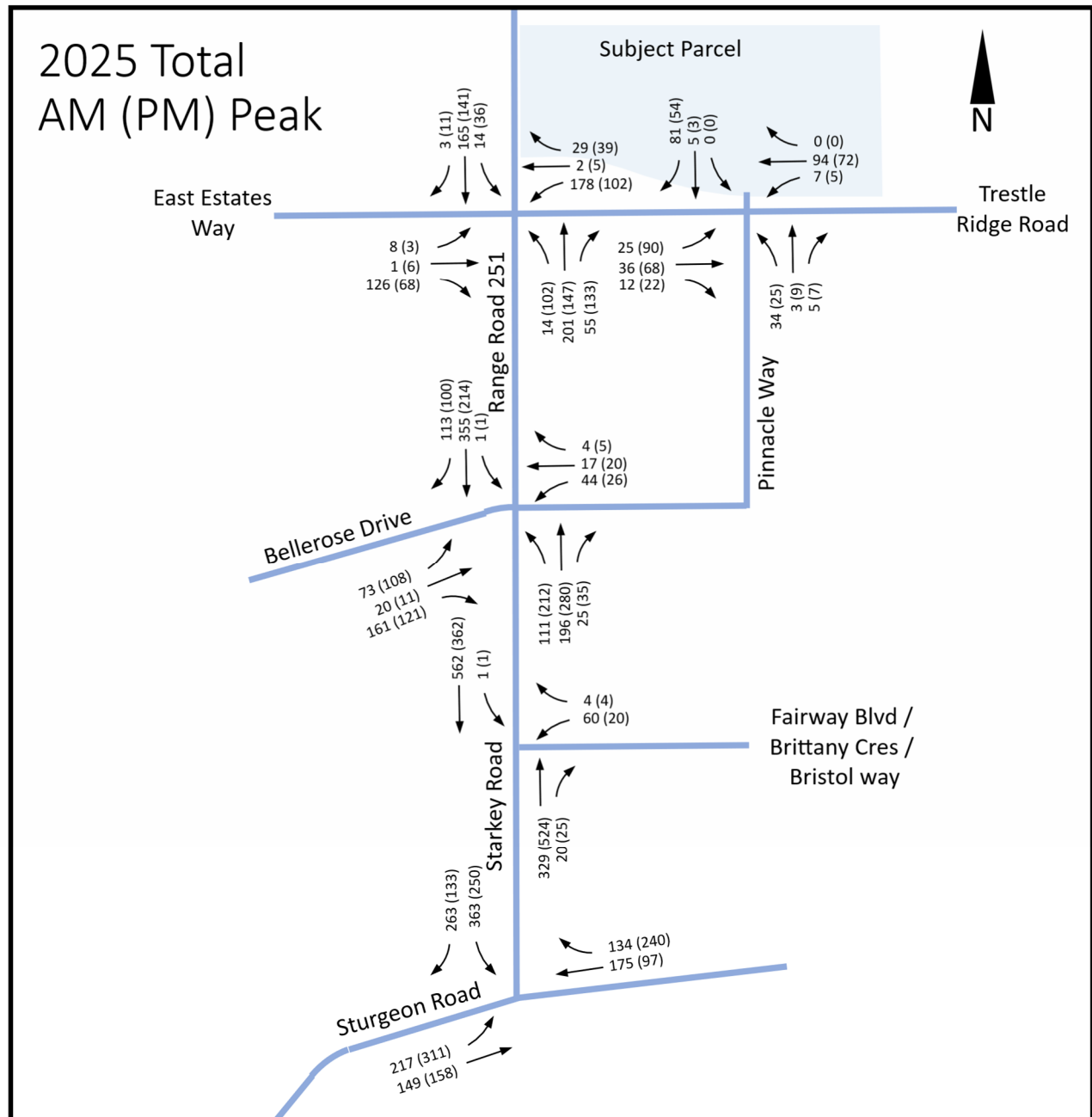


Figure 4-17: 2025 Total Traffic Volumes (AM/PM)

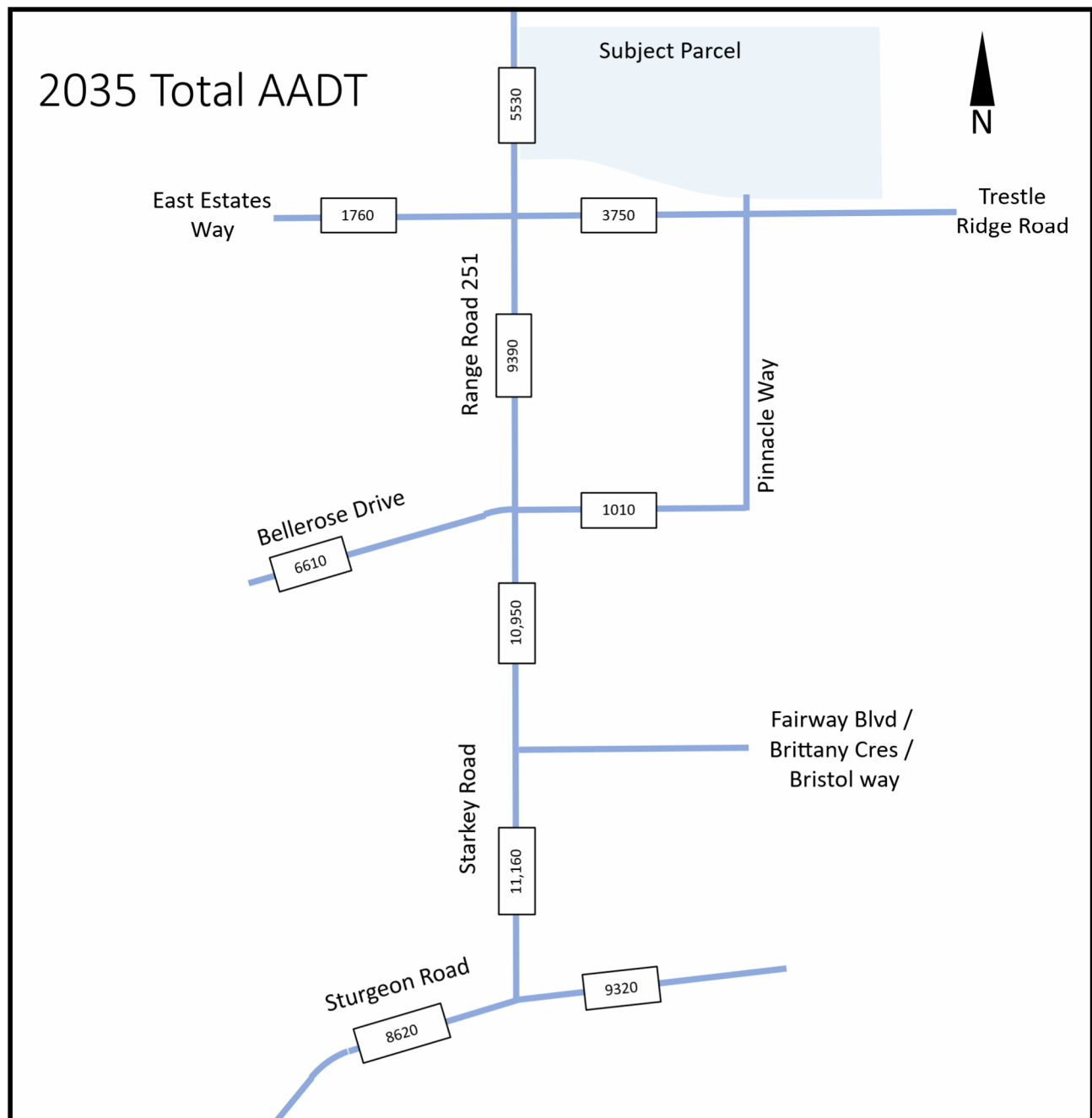


Figure 4-18: 2035 Total Traffic Volumes (Daily)

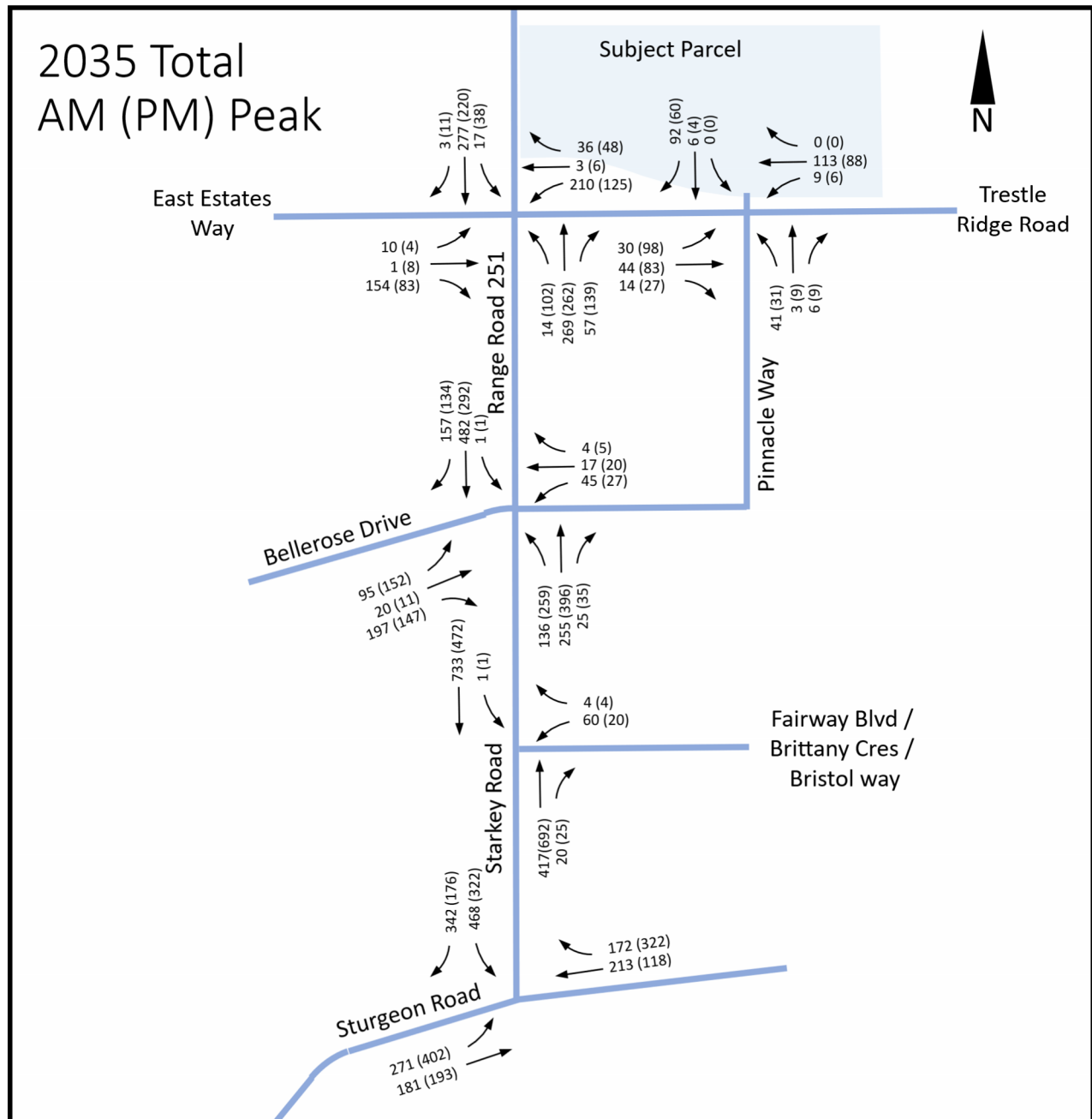


Figure 4-19: 2035 Total Traffic Volumes (AM/PM)

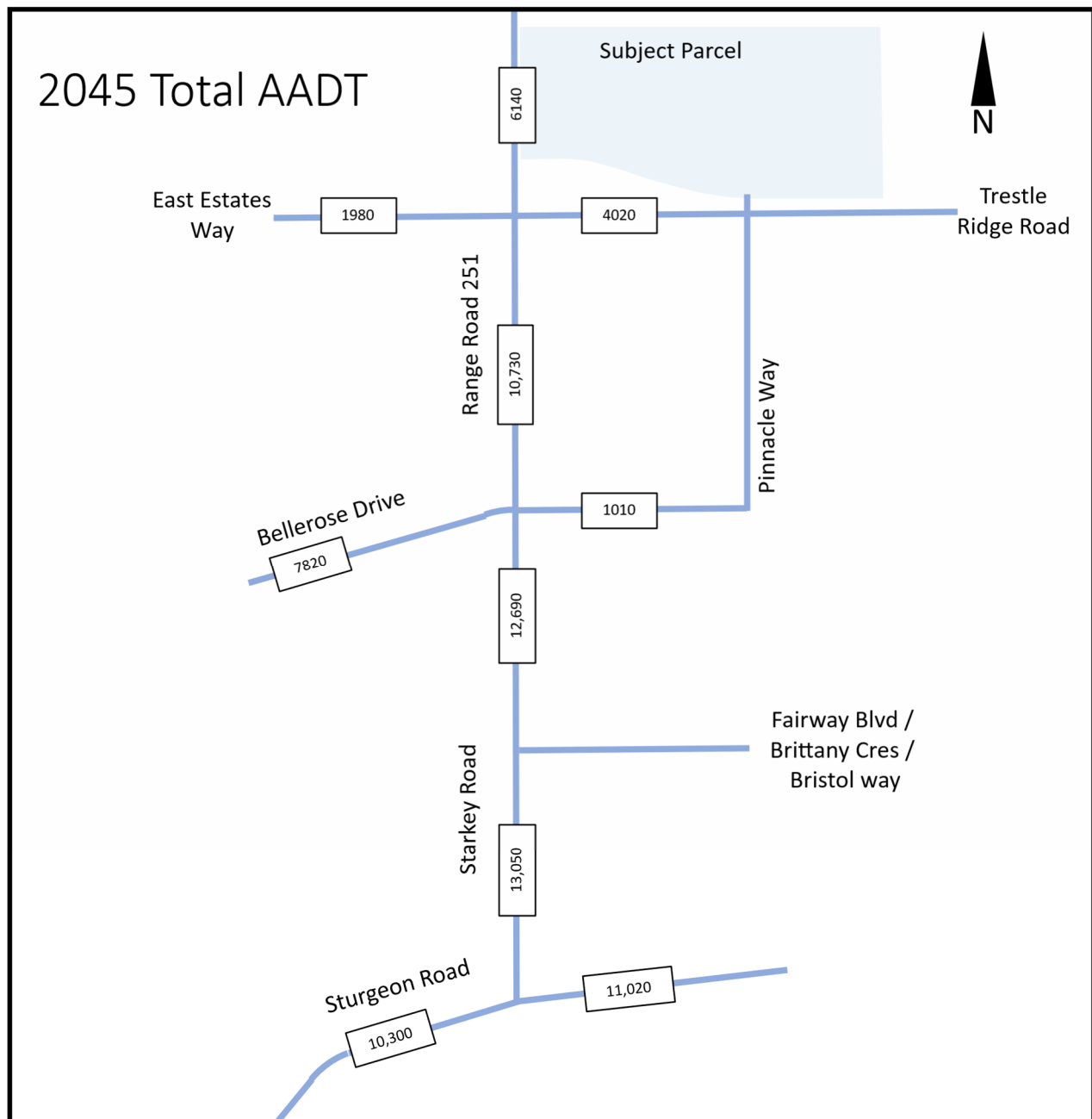


Figure 4-20: 2045 Total Traffic Volumes (Daily)

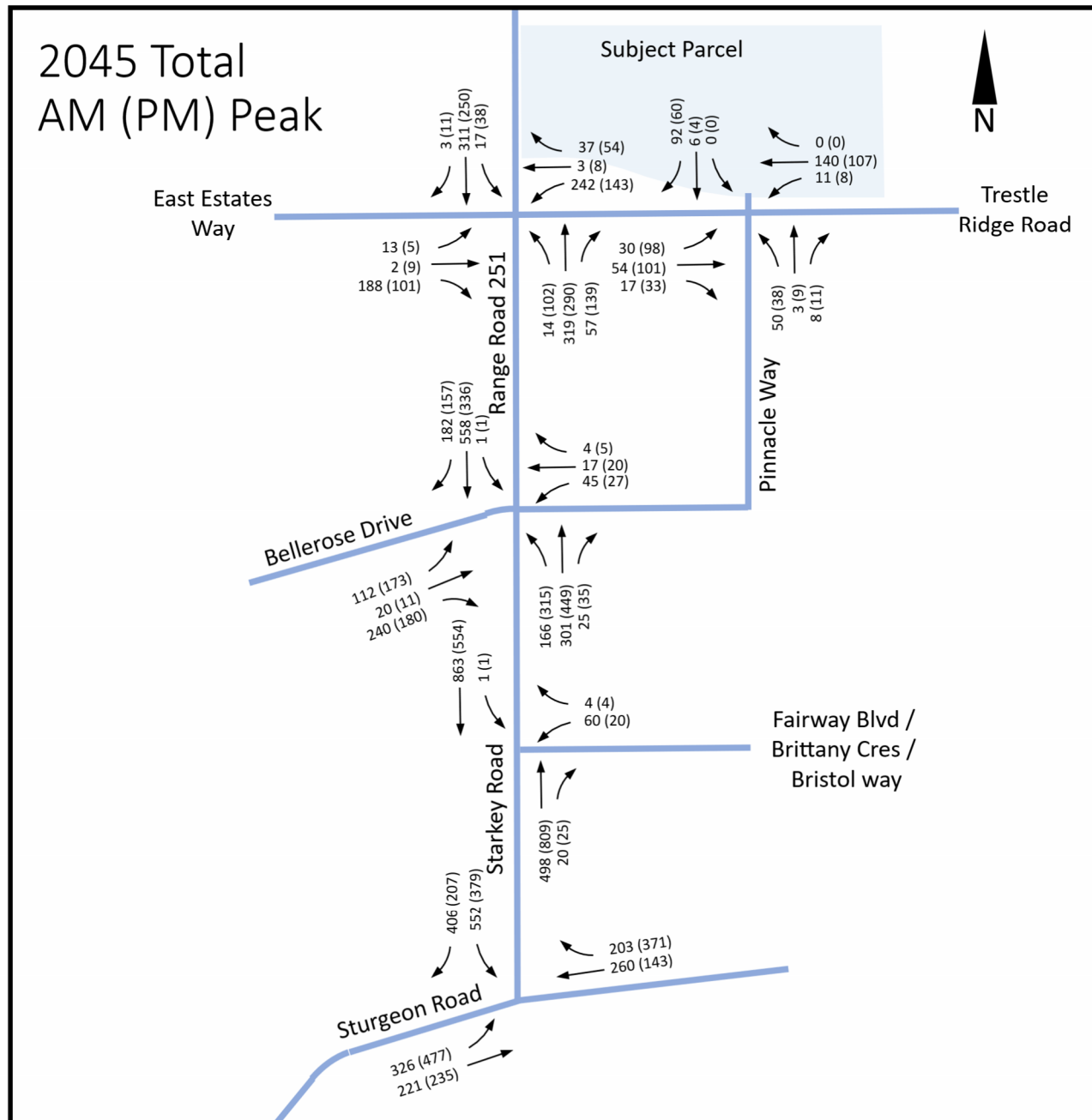


Figure 4-21: 2045 Total Traffic Volumes (AM/PM)

5 Analysis

5.1 Intersection Capacity Analysis

5.1.1 Intersection Analysis Assumptions

Synchro 11 was used to model. Intersection Capacity Analysis is based on the 2021 Alberta Transportation TIA Guidelines as well as the 2019 Sturgeon County Infrastructure Master Plan. The Synchro reports are included in **Appendix B**, and the settings are outlined in **Table 5.1**.

Table 5.1: Synchro Settings

Setting	Recommended Value
Percent Trucks	2%
Saturation Flow Rate	1,900 pcu/hr/ln
Minimum Lane Width	3.6 m
Grade	0%
Total Lost Time Adjustment Factor	0.5
Peak hour Factor	1.0
Lane Utilization Factor	1.0
Link Speed	As per posted speed

The following operational standards were used to evaluate intersection function.

- The maximum volume-to-capacity ratio shall be 0.85 for the intersection overall, and 0.90 for any individual movement as per Alberta Transportation.
- The level of service shall be D or better for the intersection overall or each individual movement as per the Infrastructure Master Plan.

5.1.2 Starkey Road / Range Road 251 and East Estate Way / Trestle Ridge Road

The Synchro results included in **Appendix B** summarize the critical movements during the AM and PM Peak hour intersection assessments for the study years 2025, 2035, and 2045.

With background and total traffic, the operational standards are met for 2025.

In 2035, the background traffic shows an intersection performance of LOS A and the most restrictive movement is the westbound left with a v/c of 0.48 and LOS D. In 2035, the total traffic intersection performs at a LOS A and the most restrictive movement is the westbound left with a v/c of 0.74 and LOS E.

In 2045, under the background condition, the intersection has a LOS A and the most restrictive movement is the westbound left with a v/c of 0.74 and LOS F. In the same year the intersection with total traffic has a LOS B and the most restrictive movement is the westbound left with a v/c of 1.06 and LOS F.

By 2035 future background, there are performance concerns for this intersection. It is only with the subsequent ongoing projected growth in the area for which the traffic exceeds the intersection capacity, rather than that associated with the proposed development. With a 2% compounding growth factor, the background traffic is modeled to increase by over 50% between 2025 and 2045 which exceeds the approved development in the area.

As per the County's request, mitigation was looked at to improve the conditions for 2035 and 2045. A single lane roundabout analysis was completed in Sidra and the results are included in **Appendix C**. The results include both 2035 and 2045 background and total conditions. Overall,

the mitigation shows improved conditions, especially for the westbound left. In the 2035 and 2045 horizon years for both the background and total traffic scenarios, the roundabout performs at a LOS A, with the most constrained movements showing a LOS B, and all within operational standards. This mitigation is to show a potential solution of improvement; ultimately, it is the county that will decide on potential mitigation strategies to this intersection based on background conditions.

5.1.3 Starkey Road/Range Road 251 and Bellerose Drive / Pinnacle Way

The 2023 TMP identifies that the Starkey Road and Bellerose Drive intersection is planned to be upgraded to a single lane roundabout in 2034 and expanded to a four-lane roundabout in 2043. which is anticipated to address the intersection operations.

For the 2025 and 2035 horizon, the intersection was analysed using Synchro with the existing intersection configuration and the results are included in **Appendix B**. North of this intersection, the pedestrian crossing along Starkey Road was modelled as well as per the County's request and included in the Synchro results.

In the 2025 horizon year for both the background and total traffic scenarios, the existing intersection configuration performs at a LOS A, with the most constrained movements showing a LOS D and the highest v/c at 0.34. By 2035 horizon year, the background and total configuration performs at a LOS B, with the most constrained movements showing a LOS F and the highest v/c at 0.64.

Roundabout analysis was completed in Sidra for the 2035 and 2045 background and total conditions and the results are included in **Appendix C**. For the background traffic and the proposed development, a single lane roundabout was analyzed.

In the 2035 and 2045 horizon years for both the background and total traffic scenarios, the roundabout performs at a LOS A, with the most constrained movements showing a LOS B, and all within operational standards.

5.1.4 Starkey Road/Range Road 251 and Sturgeon Road

The Starkey Road/Range Road 251 and Sturgeon Road intersection is currently a three-legged roundabout. The 2023 TMP identifies that the roundabout is to remain a single lane roundabout within the timeframe of the TMP which is 25 years, although incremental improvements may be added.

The single lane roundabout analysis was completed in Sidra and the results are included in **Appendix C**.

In all horizon years for the background scenario, the roundabout performs at a LOS A, with the most constrained movements showing a LOS C. For the 2025 and 2035 horizon years and the total traffic volumes, the roundabout also performs at a LOS A, with the most constrained movements showing a LOS B. For the 2045 horizon year and with the total traffic volumes, the roundabout performs at a LOS B, with all movements performing at a LOS C or better.

5.1.5 Trestle Ridge Road and Pinnacle Way/Entrance Road (TBD)

The Synchro results for the Trestle Ridge Road and Pinnacle Way/Entrance Road (TBD) intersection included in **Appendix B** summarize the critical movements during the AM and PM Peak hour intersection assessments for the study years 2025, 2035, and 2045.

In all study years, the Starkey Road/Range Road 251 and Bellerose Drive/Entrance Road (TBD) intersection functions within operational standards, with a LOS A for the intersection and the most constrained movement the northbound approach at a v/c of 0.13 and a LOS B.

5.1.6 Starkey Road/Range Road 251 and Highway 37

The Synchro results included in **Appendix B** summarize the critical movements during the AM and PM Peak hour intersection assessments for the study years 2025, 2035, and 2045.

In 2025, the background traffic shows during the PM Peak an intersection performance of LOS B and the most restrictive movement is the northbound approach with a v/c of 0.47 and LOS D. In 2025, the total traffic intersection performs at a LOS B and the most restrictive movement is the northbound approach with a v/c of 0.51 and LOS D.

In 2035, under the background condition, the intersection has a LOS C and the most restrictive movement is the northbound approach with a v/c of 1.11 and LOS F. In the same year, the intersection with total traffic has a LOS C and the most restrictive movement is the westbound left with a v/c of 1.20 and LOS F. The 2045 background conditions worsen.

The 2025 conditions are at the threshold and 2035 and 2045 conditions become critical. It is only with the subsequent ongoing projected growth in the area for which the traffic exceeds the intersection capacity, rather than that associated with the proposed development. The existing intersection will require improvement to address the background conditions. The incremental additional traffic associated with the development will not drive the decision-making as to intersection planning. Additional guidance on the intersection configuration is included in Section 5.2.5.

5.2 Intersection Treatment Warrants

Intersection treatment warrants were reviewed in the context of the current TRANS “Highway Geometric Design Guide” (HGDG). Intersection treatment warrants are based on annual average daily traffic volume (HGDG, Figure D-7.4) and Left Turn Warrants based on hourly traffic volume (HGDG, Figure D-7.6 and D8.6C) to determine the initial intersection treatment type. The spreadsheets for the interpolation of the Harmelink curves used in Figure D-7.6. of the HGDG are included in **Appendix D**.

5.2.1 Starkey Road and East Estate Way / Trestle Ridge Road

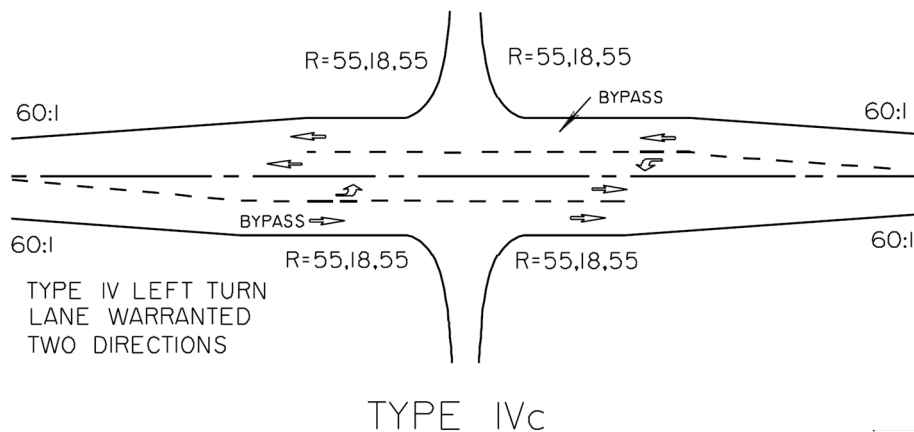
A summary of the intersection warrants for the Starkey Road and East Estate Way / Trestle Ridge Road intersection for the total background and total traffic volumes are included in **Table 5-1**.

Table 5-1

Starkey Road / Range Road 251 and East Estate Way / Trestle Ridge Road		
Existing Configuration	NB - Dedicated left, 105m storage - Through/Right - Type IVb SB - Dedicated right, 55m storage - Through/Left - Type IVd	
Year	Background	Total
2025	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: None SB - No RT Warranted - Type II	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: None SB - No RT Warranted - Type II
2035	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: None SB - No RT Warranted - Type II	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: 30m SB - No RT Warranted - Type IV
2045	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: 30m SB - No RT Warranted - Type II	NB - RT Lane Warranted - Type IV - Existing Storage: 105m - Required Storage: 30m SB - No RT Warranted - Type IV

The requirements for the Starkey Road / Range Road 251 and East Estate Way / Trestle Ridge Road intersection for the total traffic volumes, at the 2045 horizon year are for a ‘Type IVb’, with an 30m left turn storage in the northbound direction and a “Type IVd” configuration southbound.

The current configuration of the intersection at Starkey Road / Range Road 251 and East Estate Way / Trestle Ridge Road accommodates these requirements.



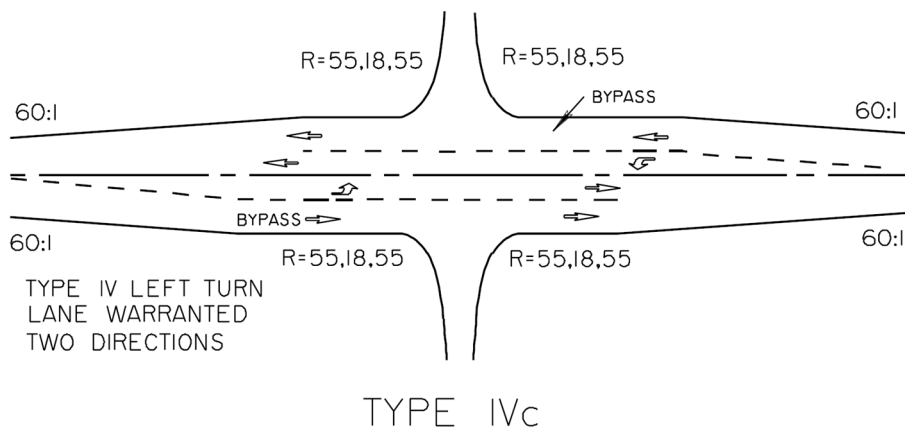
5.2.2 Starkey Road and Bellerose Drive / Pinnacle Way

A summary of the intersection warrants for the Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way intersection for the total background and total traffic volumes are included in **Table 5-2**. Only the 2025 analysis is included as the intersection is planned to be upgraded to a roundabout in 2035. The results of this section are to evaluate the existing intersection configuration only. Please refer to **Appendix C** for the analysis results for the roundabout.

Table 5-2

Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way		
Existing Configuration	NB	- Dedicated Left, 105m storage - Through/Right - Type IVb
	SB	- Dedicated Right, 80m storage - Through/Left - Type IVd
Year	Background	Total
2025	NB	NB
	- No RT Warranted - Type IV - Existing Storage: 105m - Required Storage: 30m	- No RT Warranted - Type IV - Existing Storage: 105m - Required Storage: 40m
	SB	SB
	- RT Lane Warranted - Type II	- RT Lane Warranted - Type II

The requirements for the Range Road 251 / Starkey Road and Bellerose Drive / Pinnacle Way intersection for the total traffic volumes, at the 2044 horizon year are for a 'Type IVb', with an 40m left turn storage, and right turn bay in the northbound direction and a 'Type II' configuration southbound. The existing intersection has the required right turn for the southbound approach and the northbound approach has an adequate left turn bay and storage.



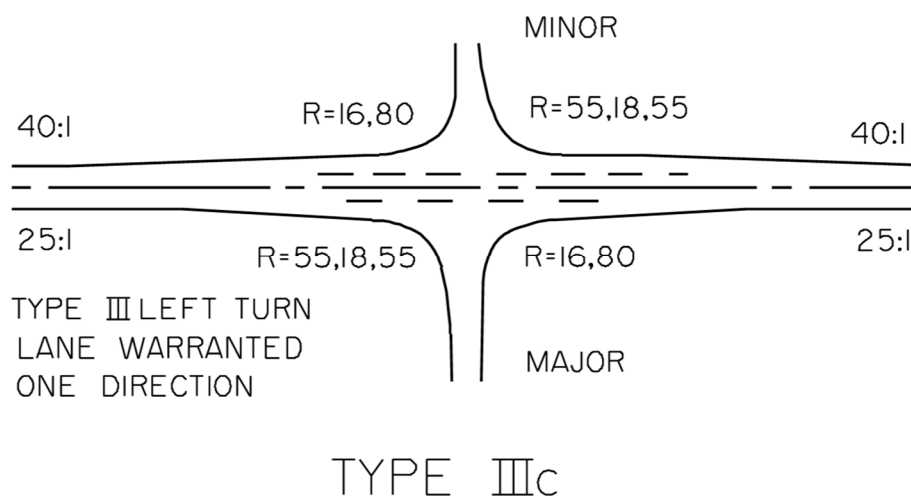
5.2.3 Trestle Ridge Road and Pinnacle Way/Entrance Road (Name TBD)

A summary of the intersection warrants for the Trestle Ridge and Pinnacle Way/Entrance Road (TBD) intersection for the total background and total traffic volumes are included in **Table 5-3**.

Table 5-3

Trestle Ridge Road and Pinnacle Way/Entrance Road (Name TBD)		
Existing Configuration	Type Ia 'T'	
Year	Background	Total
2025	EB - No RT Warranted - No LT movement - Type II 'T' WB - No RT movement - Type II 'T'	EB - No RT Warranted - Type II WB - No RT Warranted - Type II
2035	EB - No RT Warranted - No LT movement - Type II 'T' WB - No RT movement - Type II 'T'	EB - No RT Warranted - Type III* - Type II @ 50 – 60 km/h WB - No RT Warranted - Type II
2045	EB - No RT Warranted - LT movement - Type II 'T' WB - No RT movement - Type II 'T'	EB - RT lane Warranted - Type III @ 50 – 60 km/h WB - No RT Warranted - Type II

The existing intersection configuration is currently a Type Ia T-intersection. For a design speed of 70km/h, based on the current speed limit, a full Type IIIc is recommended to accommodate the total 2045 traffic volumes. As per the 2023 TMP identifies that collector roadways in Sturgeon Valley are recommended to be planned for a 50 – 60km/h design speed, which is recommended based on the evolving context of Trestle Ridge Road, at least in the vicinity of the proposed development. For a 50 – 60km/h design speed, a Type IIIc intersection is recommended.



5.2.4 Range Road 251 / Starkey Road and Sturgeon Road

As the intersection at Range Road 251 / Starkey Road and Sturgeon Road is a roundabout and therefore it was not assessed for turn bays based on the warrants.

5.2.5 Highway 37 and Range Road 251

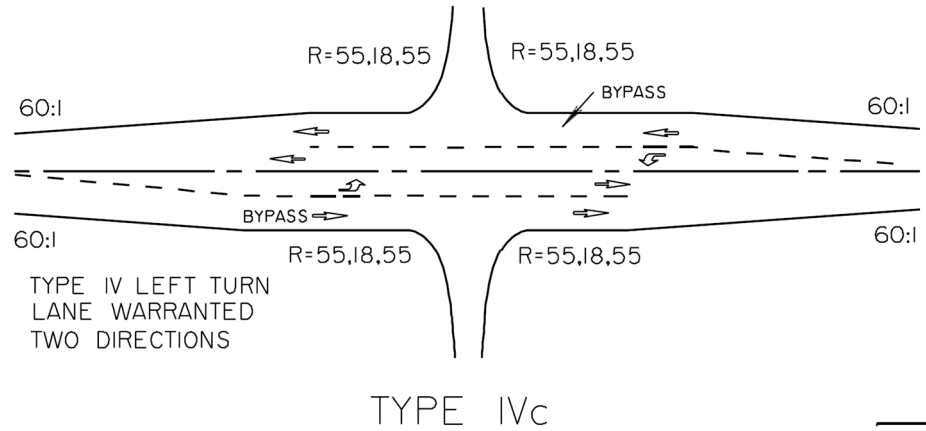
A summary of the intersection warrants for the Highway 37 and Range Road 251/Starkey Road intersection for the total background and total traffic volumes are included in **Table 5-4**.

Table 5-4

Highway 37 and Range Road 251/Starkey Road		
Existing Configuration	EB - Dedicated right, 130m storage - Through/Left - Type IVd WB - Dedicated left, 110m storage - Through/Right - Type IVb	
Year	Background	Total
2025	EB - RT Lane Warranted - Type III, No additional storage WB - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 30m	EB - RT Lane Warranted - Type III, No additional storage WB - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 30m
2035	EB - RT Lane Warranted - Type III, No additional storage WB - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 60m	EB - RT Lane Warranted - Type III, No additional storage WB - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 80m
2045	EB - RT Lane Warranted - Type III, No additional storage WB - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 90m	EB - RT Lane Warranted - Type IV, No additional storage WB - No RT Warranted - No RT Warranted - Type IV - Existing Storage: 110m - Required Storage: 110m

The requirements for the Highway 37 and Range Road 251/Starkey Road intersection for the total traffic volumes, at the 2045 horizon year are for a 'Type IVb', with an 110m left turn storage in the westbound direction and a "Type IVd" configuration eastbound with a right turn lane warranted. The current configuration of the intersection at Highway 37 and Range Road 251/Starkey Road accommodates these requirements. The left turn bay storage just has enough

length to accommodate 2045 traffic; however, if there is continued growth in the future then this storage may need to be expanded to accommodate background traffic demands.



5.3 Design Considerations

Entrance Road (Name TBD)

The connection to the subject site is projected to have approximately 1728 vehicles per day. The proposed cross-section has a 28m right-of-way, two 6.25m lanes, a 3m median, and separate walk on both sides. This design accommodates the anticipated traffic volumes.

Trestle Ridge Road

Trestle Ridge Road adjacent to the subject site will be designed as a collector road in accordance with the Sturgeon County 2024 GMSS Section 3.1.5, Volume 8, Drawing 6.1.7, which requires a 24m ROW, with a 12m carriage way, with a separate walk on one side and a 3m SUP on the opposing side.

Starkey Road

In accordance with the Sturgeon County 2023 Transportation Master Plan (TMP), Starkey Road between Coal Mine Road and Bellerose Drive should be upgraded to a four-lane arterial as per the development occurs in the northern section of the Sturgeon Valley Core by 2043. As per the 2023 GMSS Section 3.1.5, Volume 8, Drawing 3.1.24, the road will be designed with a 42m ROW, 20.3m roadway, and 3m SUP on either side. The current ROW adjacent to the OP area is 50m, so additional land for transportation servicing is not required, but may be required for utility servicing when the County confirms with Utility and Waste Management Services (UWMS).

In addition, the Starkey Road and Bellerose Drive intersection, in reference to the 2023 TMP, is planned to be upgraded to a single lane roundabout in 2034 and expanded to a four-lane roundabout in 2043.

5.4 Traffic Control Needs

Based on the **Transportation Association of Canada** (TAC) signal warrant procedure, an analysis was carried out to assess the need for traffic signal control installation at the study intersections. An analysis at the Starkey Road & East Estate Way / Trestle Ridge Road and Trestle Ridge Road & Pinnacle Way / Pinnacle Village intersections, under 2045 Total conditions, concluded that the signalization is not warranted.

Full signal warrant analysis calculation is presented in **Appendix E**.

5.5 Illumination Warrant Analysis

Based on TAC's warrant for "Illumination of Isolated Rural Intersections", illumination is not warranted at the intersection of Site Access & Trestle Ridge Road for the 2045 Total scenarios. For analysis purposes, a rate of at least 1.5 collisions per million entering vehicles per year was still assumed in the illumination warrant, in the absence of collision data. However, lighting is not warranted due to the projected traffic. **Appendix F** presents the illumination warrant calculations. All other existing study intersections have existing streetlighting.

5.6 Design Vehicle Accommodation

Standard intersection treatment types are recommended and accommodate both WB-21 and WB-23 design vehicles.

5.7 Site Access Review

Site Access Spacing Review

The proposed access to the site is proposed on the Township Rd 544A/Trestle Ridge Road, which is of the lower classification between the two roads bordering the site, aligning with the requirement of County's General Municipal Servicing Standard (GMSS) (2024). Similarly, maintain the requirement of the GMSS, the proposed access is to align with the existing Pinnacle Way south of Trestle Ridge Road. No further accesses are proposed.

Table 5-4 shows the distances of the proposed site accesses, from the existing nearest intersection of Starkey Road and Trestle Ridge Road and compares it with the spacing requirements of the following:

- TAC Geometric Design Guide for Canadian Roads (2017) - Corner clearance distance is measured from the near curb of the cross roadway to the near edge of the access throat.
- Surgeon County General Municipal Servicing Standard (GMSS) (2024) – Distance between an intersection and driveways and/or crossing accesses is measured centerline to centerline.

Table 5-4: Access Spacing Requirement

	Distance from the intersection at Starkey Road and Trestle Ridge Road	Spacing Requirements	
		TAC (20 m)	Sturgeon County (55 m)
Site Access	~293 m	Yes	Yes

Based on the above, the site access meets the TAC's and County's access spacing requirements. Considering that this access is for the site's general-purpose vehicles, and it aligns with the Pinnacle Way (access to the neighbourhood on the south) it is expected that this location would function adequately.

5.8 Sightlines

In order to address sightlines at Township Rd 544A/Trestle Ridge Road and Starkey Road, the cut corner in the northeast corner of the intersection will conform to Sturgeon County's General Municipal Servicing Standard Drawing 3.1.1.

5.9 Emergency Access

Access into the community will primarily occur via Township Rd 544A/Trestle Ridge Road. There is no direct access from Starkey Road. The community will also have the southeast and southwest emergency access roads, via the proposed 6m wide asphalt surfaced walkways (as indicated in **Figure 5-1**), to ensure the community has more than one option for ingress/egress should the road network be compromised. As per the County's GMSS, this access will be provided with bollards at both access points to the PUL that will not impede emergency vehicle access.

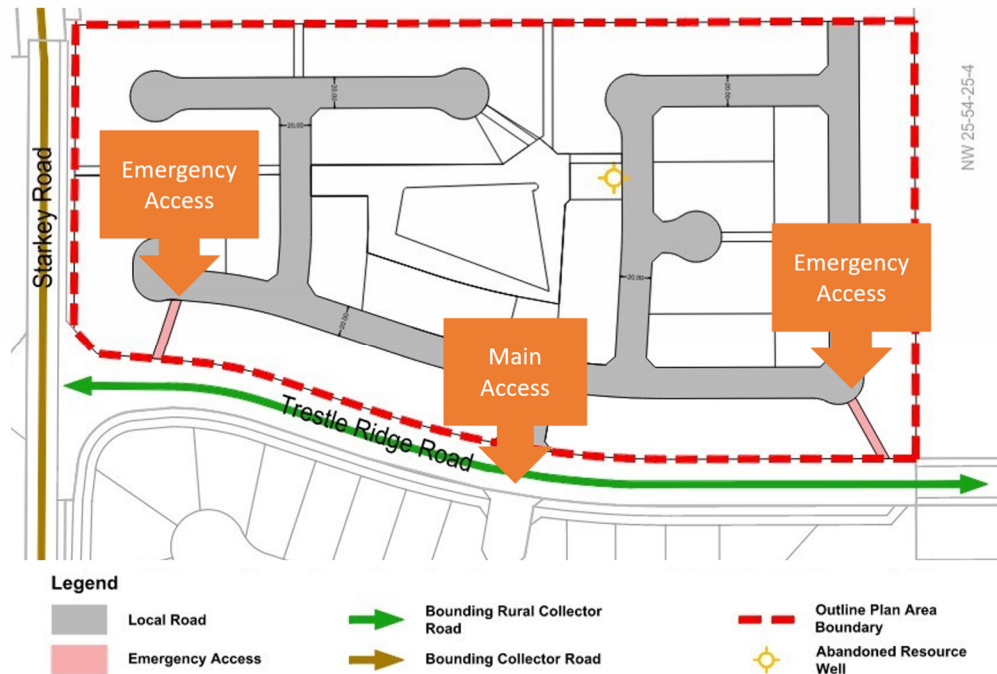


Figure 5-1: Emergency Access

5.10 Active Transportation Review

From the **Sturgeon Valley Trails System – The Path Forward** (2021) study, a trail and active transportation routes along the Starkey Road / Range Road 251 and East Estates Way / Trestle Ridge Road are proposed as medium and low priority projects, as depicted in Figure 5--1.

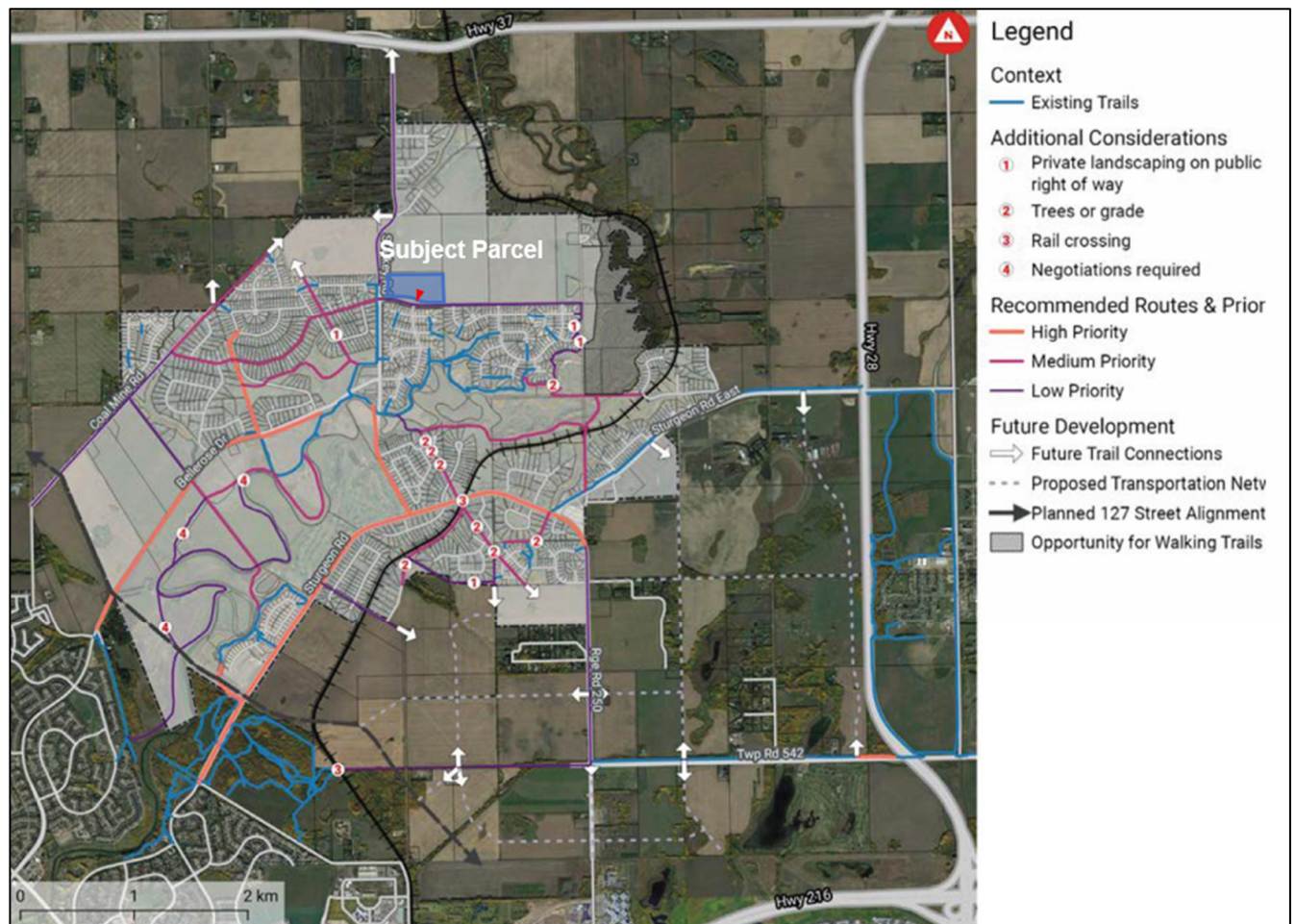


Image Source: Sturgeon Valley Trails System – The Path Forward. Retrieved June 21, 2024

Figure 5--1: Prioritized Trails and Active Transportation Network

In conformance with the requirements from the Path Forward study, a provision for future active transportation infrastructure should be provided in the immediate vicinity of the proposed site.

A shared use path is proposed on the north side of Trestle Ridge Road as part of the proposed development. An east-west pedestrian crossing will be required at the north leg of the intersection at Starkey Road and Trestle Ridge Road to connect the proposed shared use path to the shared use path along the west side of Starkey Road.

6 Conclusions and Recommendations

The traffic associated with the proposed residential development Pinnacle Village can be accommodated on the surrounding roadway network. Traffic was reviewed for a proposed 144 units at horizon years 2025, 2035, and 2045. Five intersections were reviewed in proximity to the development, including:

- Starkey Road and East Estate Way / Trestle Ridge Road,
- Starkey Road and Bellerose Drive / Pinnacle Way,
- Starkey Road and Sturgeon Road,
- Pinnacle Way/Entrance Road (Name TBD) and Trestle Ridge Road, and
- Highway 37 and Starkey Road

Starkey Road and Trestle Ridge Road can accommodate the proposed traffic in their existing configurations through to 2035. Intersection improvements are anticipated to be required by 2045 associated with ongoing development accessing Trestle Ridge Road, rather than the proposed development. One proposed mitigation strategy is transforming the existing intersection configuration into a roundabout; however, the county can review potential mitigation strategies in the future.

For Pinnacle Way/Entrance Road (Name TBD) and Trestle Ridge Road, it is recommended that the intersection be improved to a Type IIIc intersection configuration to accommodate projected traffic volumes and that the speed be reduced to 50km/h or 60 km/h adjacent to the proposed development. The improvement is recommended to be completed with the first phase of development.

The Starkey Road and Bellerose Drive / Pinnacle Way intersection can accommodate the proposed development traffic in its current configuration in 2025. The intersection will require upgrades to a roundabout by 2035 to accommodate background traffic. The Starkey Road and Bellerose Drive / Pinnacle Way roundabout will accommodate the proposed development traffic as a single-lane roundabout through to 2045.

The Highway 37 and Starkey Road intersection can accommodate traffic in 2025. By 2035 and 2045 intersection improvements are anticipated from growth and development in the area, rather than the proposed development.

The Starkey Road and Sturgeon Road roundabout will accommodate the proposed development traffic as a single-lane roundabout through to 2045.

The site access meets the TAC's and County's access spacing requirements.

No additional illumination is required to meet operational standards.

Appendix A

Traffic Counts

Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000691

Intersection of:

STARKEY RD & BELLEROSE DR / PINNACLE WAY

2022 AADT / ASDT ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	4634	96.9
B: Recreational Vehicle	3	0.1
C: Bus	13	0.3
D: Single Unit Truck	123	2.6
E: Tractor Trailer Unit	7	0.1
ASDT	5210	AADT 4780

West On BelleroseD		
Vehicle Type	Vol	%
A: Passenger Vehicle	4497	98.6
B: Recreational Vehicle	0	0.0
C: Bus	10	0.2
D: Single Unit Truck	51	1.1
E: Tractor Trailer Unit	2	0.0
ASDT	4970	AADT 4560

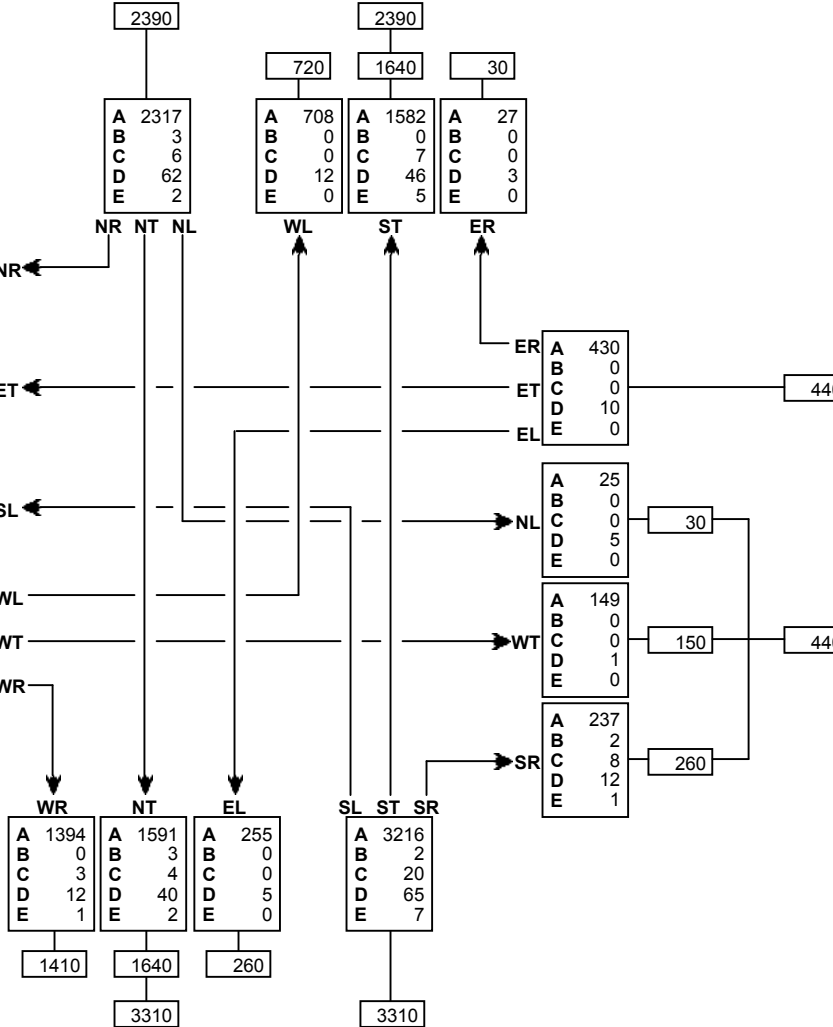
East On PinnacleWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	841	95.6
B: Recreational Vehicle	2	0.2
C: Bus	8	0.9
D: Single Unit Truck	28	3.2
E: Tractor Trailer Unit	1	0.1
ASDT	960	AADT 880

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through
SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through
ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through
WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

TURNING MOVEMENT ABBREVIATIONS

AADT: Annual Average Daily Traffic
Average daily traffic expressed as vehicles per day for period of January 1 to December 31 (365 days)
ASDT: Average Summer Daily Traffic
Average daily traffic expressed as vehicles per day for period of May 1 to September 30 (153 days)



Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000691

Intersection of:

STARKEY RD & BELLEROSE DR / PINNACLE WAY

2022 a.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:

7:00 am - 7:00 pm

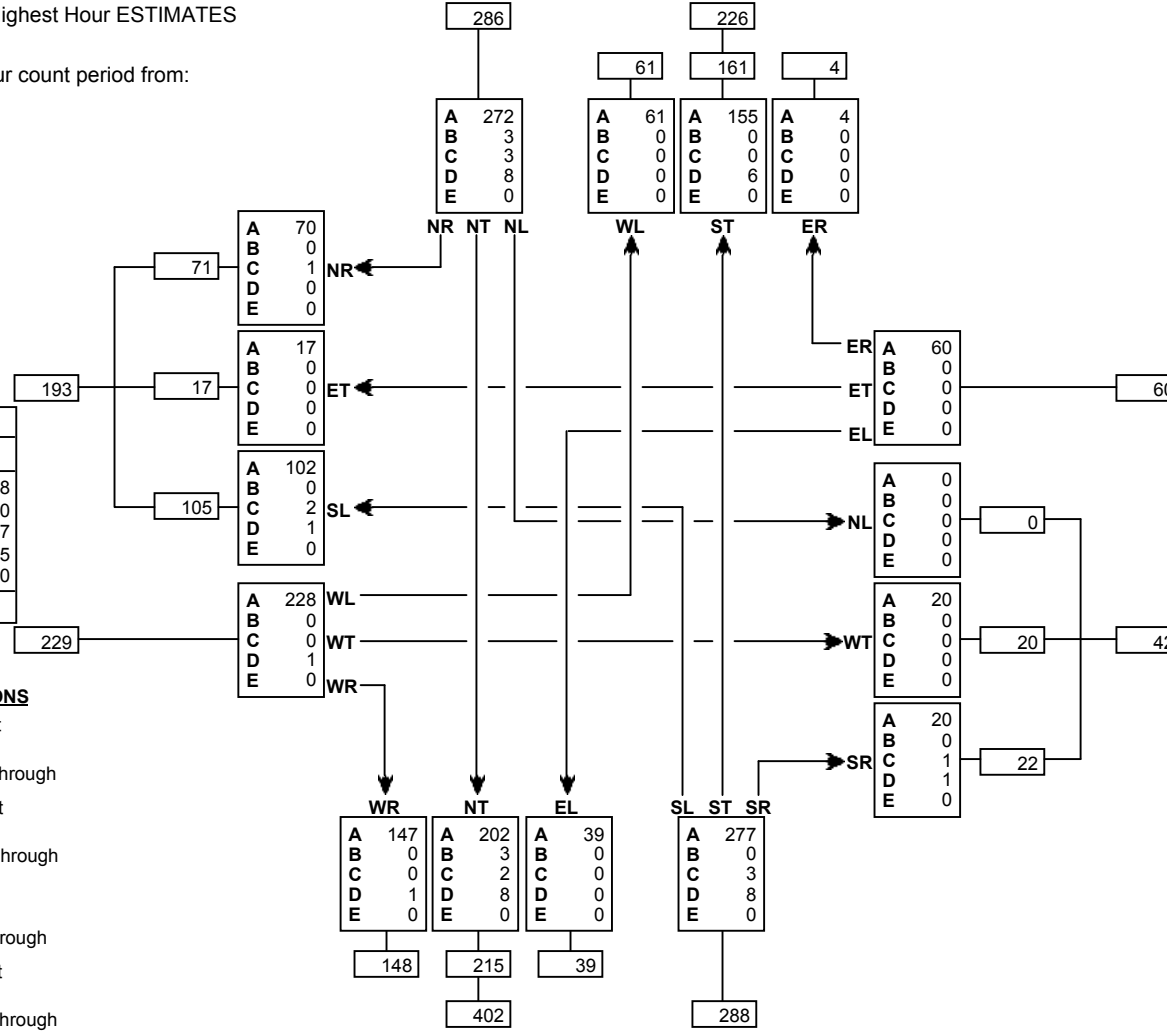
North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	492	96.1
B: Recreational Vehicle	3	0.6
C: Bus	3	0.6
D: Single Unit Truck	14	2.7
E: Tractor Trailer Unit	0	0.0
Total	512	

West On BelleroseD		
Vehicle Type	Vol	%
A: Passenger Vehicle	417	98.8
B: Recreational Vehicle	0	0.0
C: Bus	3	0.7
D: Single Unit Truck	2	0.5
E: Tractor Trailer Unit	0	0.0
Total	422	

East On PinnacleWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	100	98.0
B: Recreational Vehicle	0	0.0
C: Bus	1	1.0
D: Single Unit Truck	1	1.0
E: Tractor Trailer Unit	0	0.0
Total	102	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
 NL: Traffic From North Turning Left
 NT: Traffic From North Proceeding Through
 SR: Traffic From South Turning Right
 SL: Traffic From South Turning Left
 ST: Traffic From South Proceeding Through
 ER: Traffic From East Turning Right
 EL: Traffic From East Turning Left
 ET: Traffic From East Proceeding Through
 WR: Traffic From West Turning Right
 WL: Traffic From West Turning Left
 WT: Traffic From West Proceeding Through



South On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	665	96.4
B: Recreational Vehicle	3	0.4
C: Bus	5	0.7
D: Single Unit Truck	17	2.5
E: Tractor Trailer Unit	0	0.0
Total	690	

Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000691

Intersection of:

STARKEY RD & BELLEROSE DR / PINNACLE WAY

2022 p.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:

7:00 am - 7:00 pm

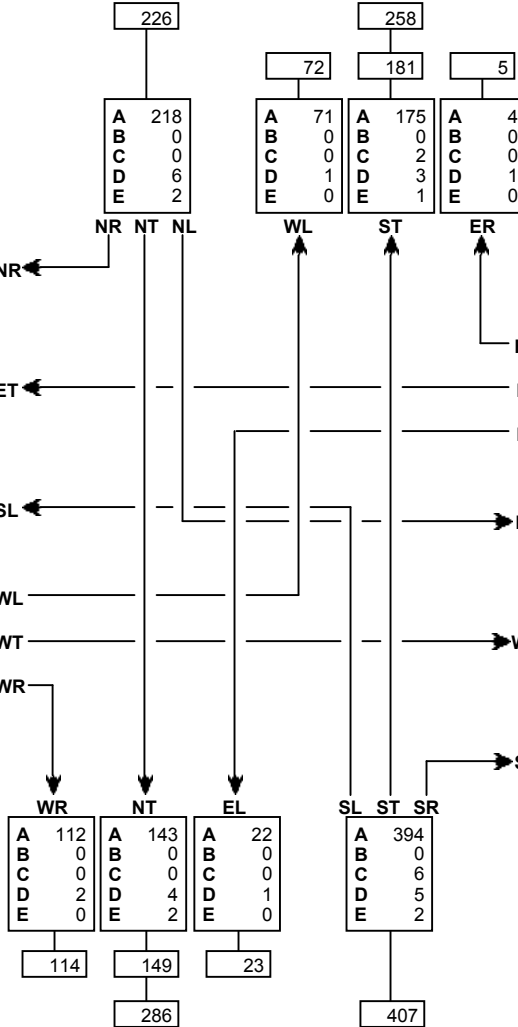
North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	468	96.7
B: Recreational Vehicle	0	0.0
C: Bus	2	0.4
D: Single Unit Truck	11	2.3
E: Tractor Trailer Unit	3	0.6
Total	484	

West On BelleroseDr		
Vehicle Type	Vol	%
A: Passenger Vehicle	484	98.2
B: Recreational Vehicle	0	0.0
C: Bus	3	0.6
D: Single Unit Truck	6	1.2
E: Tractor Trailer Unit	0	0.0
Total	493	

East On PinnacleWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	79	91.9
B: Recreational Vehicle	0	0.0
C: Bus	1	1.2
D: Single Unit Truck	5	5.8
E: Tractor Trailer Unit	1	1.2
Total	86	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
 NL: Traffic From North Turning Left
 NT: Traffic From North Proceeding Through
 SR: Traffic From South Turning Right
 SL: Traffic From South Turning Left
 ST: Traffic From South Proceeding Through
 ER: Traffic From East Turning Right
 EL: Traffic From East Turning Left
 ET: Traffic From East Proceeding Through
 WR: Traffic From West Turning Right
 WL: Traffic From West Turning Left
 WT: Traffic From West Proceeding Through



South On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	671	96.8
B: Recreational Vehicle	0	0.0
C: Bus	6	0.9
D: Single Unit Truck	12	1.7
E: Tractor Trailer Unit	4	0.6
Total	693	

Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000692

Intersection of:
STARKEY RD & E ESTATES WAY

2022 AADT / ASDT ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	1906	92.5
B: Recreational Vehicle	0	0.0
C: Bus	9	0.4
D: Single Unit Truck	93	4.5
E: Tractor Trailer Unit	52	2.5
ASDT	2250	AADT 2060

West On EEstatesWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	1490	98.0
B: Recreational Vehicle	1	0.1
C: Bus	9	0.6
D: Single Unit Truck	18	1.2
E: Tractor Trailer Unit	2	0.1
ASDT	1660	AADT 1520

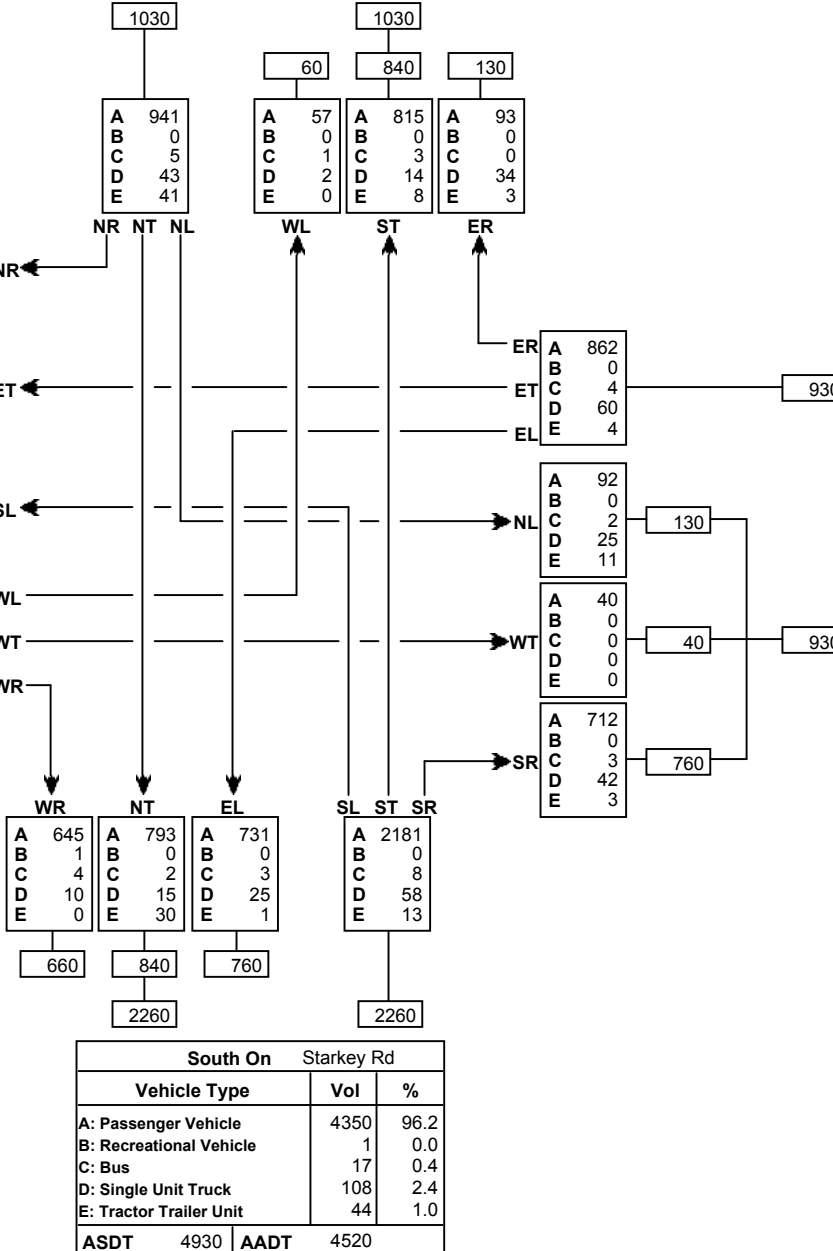
East On TwpRd 544A		
Vehicle Type	Vol	%
A: Passenger Vehicle	1706	91.7
B: Recreational Vehicle	0	0.0
C: Bus	9	0.5
D: Single Unit Truck	127	6.8
E: Tractor Trailer Unit	18	1.0
ASDT	2030	AADT 1860

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
NT: Traffic From North Proceeding Through
SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through
ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through
WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

TURNING MOVEMENT ABBREVIATIONS

AADT: Annual Average Daily Traffic
Average daily traffic expressed as vehicles per day for period of January 1 to December 31 (365 days)
ASDT: Average Summer Daily Traffic
Average daily traffic expressed as vehicles per day for period of May 1 to September 30 (153 days)



Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000692

Intersection of:
STARKEY RD & E ESTATES WAY

2022 a.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

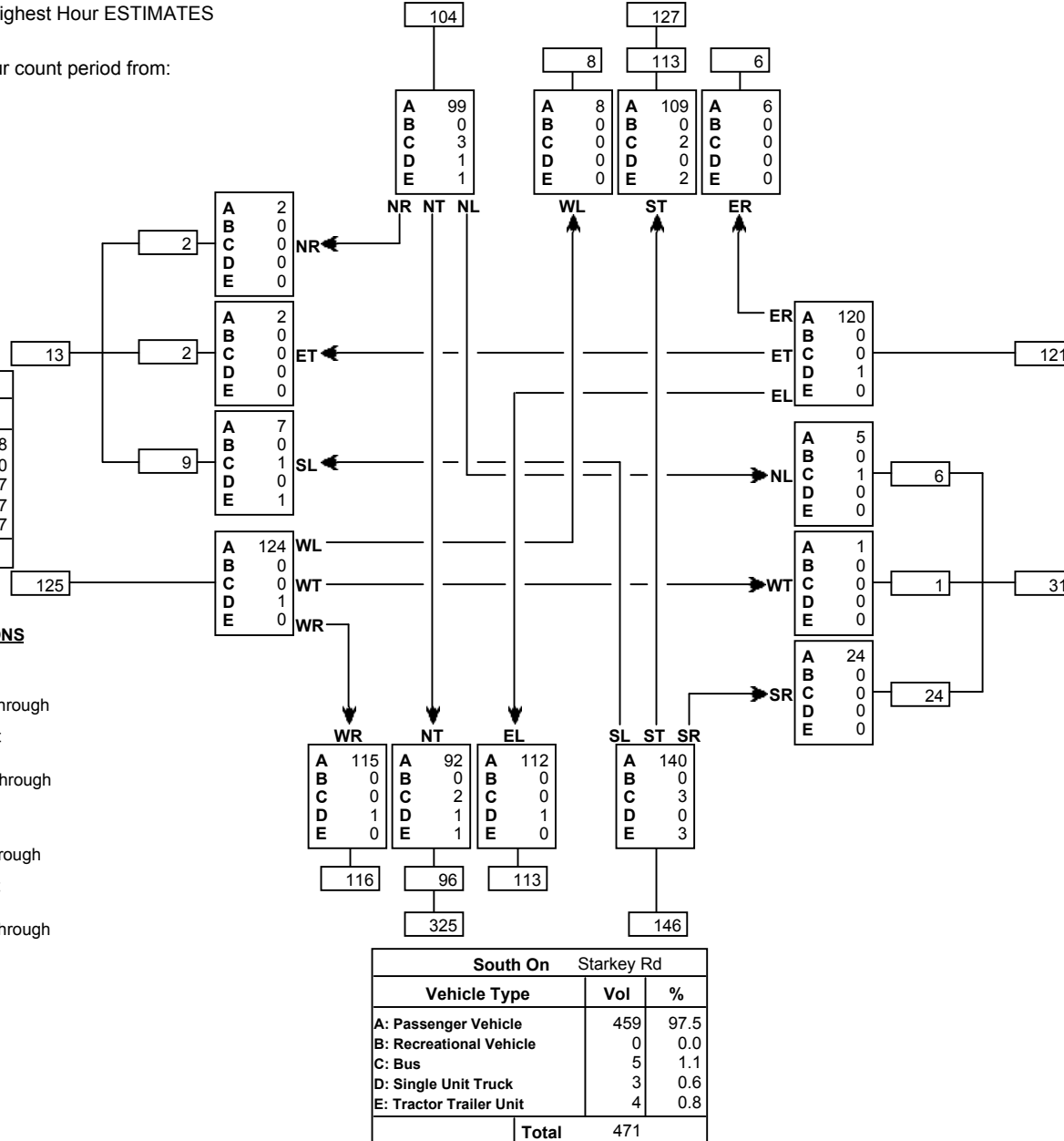
North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	222	96.1
B: Recreational Vehicle	0	0.0
C: Bus	5	2.2
D: Single Unit Truck	1	0.4
E: Tractor Trailer Unit	3	1.3
Total	231	

West On EEstatesWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	135	97.8
B: Recreational Vehicle	0	0.0
C: Bus	1	0.7
D: Single Unit Truck	1	0.7
E: Tractor Trailer Unit	1	0.7
Total	138	

East On TwpRd 544A		
Vehicle Type	Vol	%
A: Passenger Vehicle	150	98.7
B: Recreational Vehicle	0	0.0
C: Bus	1	0.7
D: Single Unit Truck	1	0.7
E: Tractor Trailer Unit	0	0.0
Total	152	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
 NL: Traffic From North Turning Left
 NT: Traffic From North Proceeding Through
 SR: Traffic From South Turning Right
 SL: Traffic From South Turning Left
 ST: Traffic From South Proceeding Through
 ER: Traffic From East Turning Right
 EL: Traffic From East Turning Left
 ET: Traffic From East Proceeding Through
 WR: Traffic From West Turning Right
 WL: Traffic From West Turning Left
 WT: Traffic From West Proceeding Through



Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000692

Intersection of:
STARKEY RD & E ESTATES WAY

2022 p.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

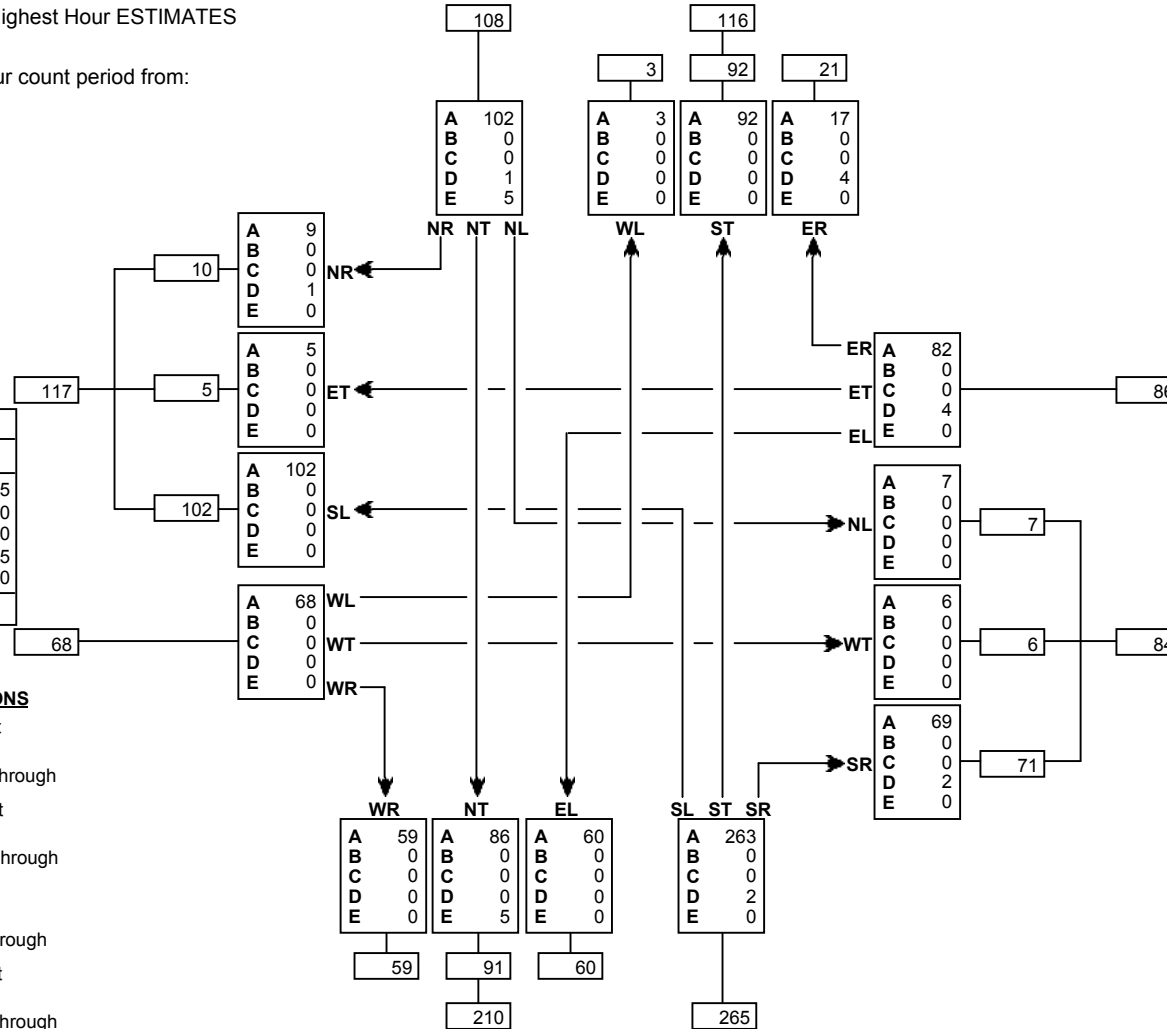
North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	214	95.5
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	5	2.2
E: Tractor Trailer Unit	5	2.2
Total	224	

West On EEstatesWy		
Vehicle Type	Vol	%
A: Passenger Vehicle	184	99.5
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	1	0.5
E: Tractor Trailer Unit	0	0.0
Total	185	

East On TwpRd 544A		
Vehicle Type	Vol	%
A: Passenger Vehicle	164	96.5
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	6	3.5
E: Tractor Trailer Unit	0	0.0
Total	170	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
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SR: Traffic From South Turning Right
SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through
ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through
WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through



South On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	468	98.5
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	2	0.4
E: Tractor Trailer Unit	5	1.1
Total	475	

Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000690

Intersection of:
STARKEY RD & STURGEON RD

2022 AADT / ASDT ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	6432	96.3
B: Recreational Vehicle	29	0.4
C: Bus	26	0.4
D: Single Unit Truck	180	2.7
E: Tractor Trailer Unit	13	0.2
ASDT	7280	AADT 6680

West On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	5727	96.7
B: Recreational Vehicle	20	0.3
C: Bus	22	0.4
D: Single Unit Truck	138	2.3
E: Tractor Trailer Unit	13	0.2
ASDT	6450	AADT 5920

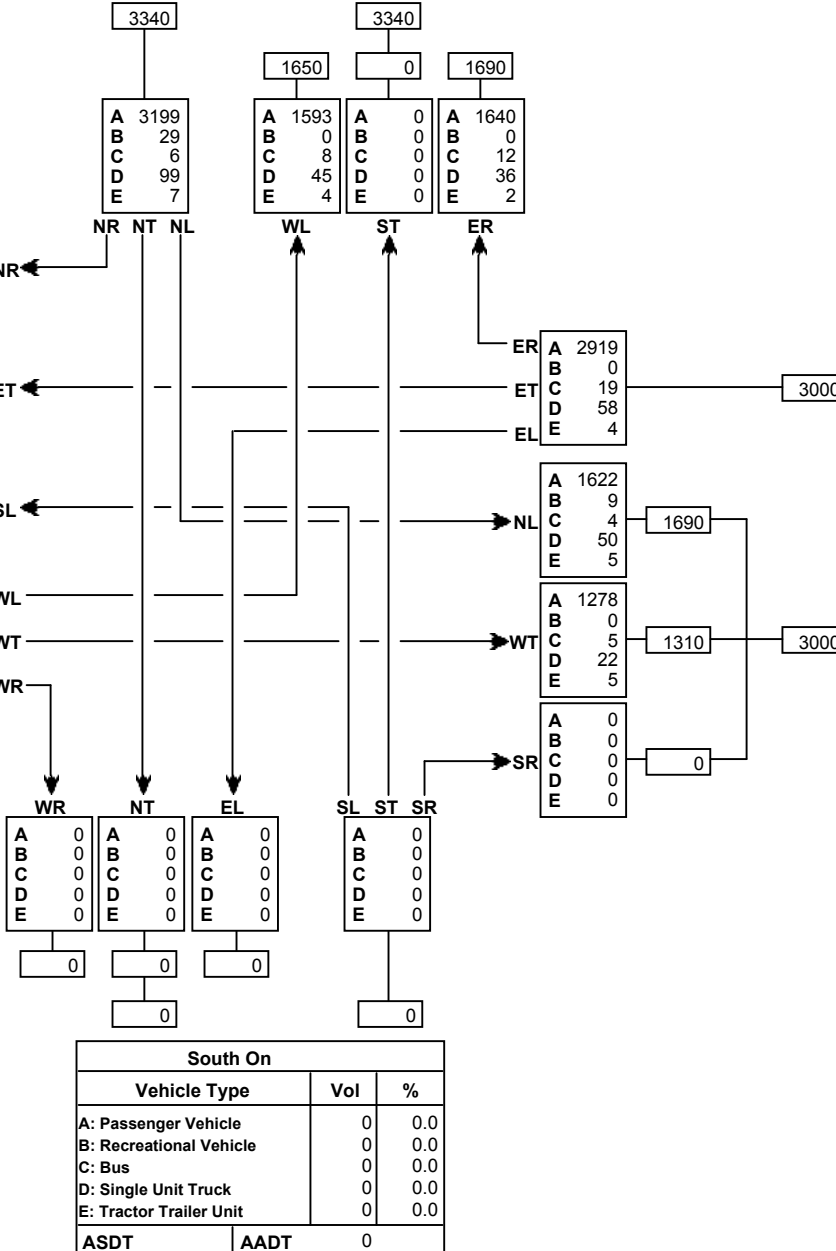
East On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	5819	97.0
B: Recreational Vehicle	9	0.2
C: Bus	28	0.5
D: Single Unit Truck	130	2.2
E: Tractor Trailer Unit	14	0.2
ASDT	6540	AADT 6000

TURNING MOVEMENT ABBREVIATIONS

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SL: Traffic From South Turning Left
ST: Traffic From South Proceeding Through
ER: Traffic From East Turning Right
EL: Traffic From East Turning Left
ET: Traffic From East Proceeding Through
WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through

TURNING MOVEMENT ABBREVIATIONS

AADT: Annual Average Daily Traffic
Average daily traffic expressed as vehicles per day for period of January 1 to December 31 (365 days)
ASDT: Average Summer Daily Traffic
Average daily traffic expressed as vehicles per day for period of May 1 to September 30 (153 days)



Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000690

Intersection of:
STARKEY RD & STURGEON RD

2022 a.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

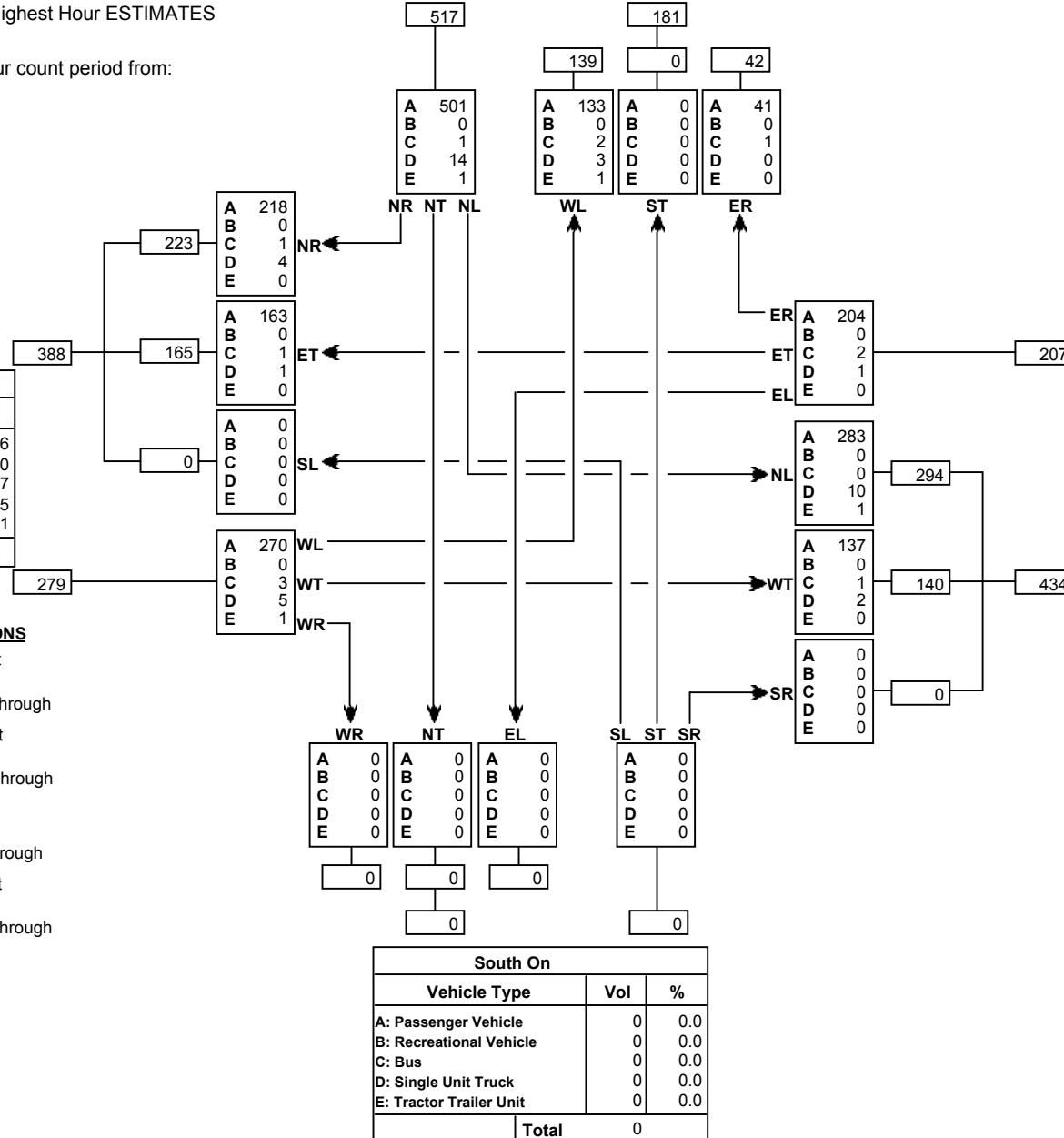
North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	675	96.7
B: Recreational Vehicle	0	0.0
C: Bus	4	0.6
D: Single Unit Truck	17	2.4
E: Tractor Trailer Unit	2	0.3
Total	698	

West On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	651	97.6
B: Recreational Vehicle	0	0.0
C: Bus	5	0.7
D: Single Unit Truck	10	1.5
E: Tractor Trailer Unit	1	0.1
Total	667	

East On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	624	97.3
B: Recreational Vehicle	0	0.0
C: Bus	3	0.5
D: Single Unit Truck	13	2.0
E: Tractor Trailer Unit	1	0.2
Total	641	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
NL: Traffic From North Turning Left
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ET: Traffic From East Proceeding Through
WR: Traffic From West Turning Right
WL: Traffic From West Turning Left
WT: Traffic From West Proceeding Through



Turning Movement Summary Diagram

D & A Paulichuk Consulting Ltd.

Reference No.: 1000690

Intersection of:
STARKEY RD & STURGEON RD

2022 p.m. 100th Highest Hour ESTIMATES

Remarks: Based on a 12 hour count period from:
7:00 am - 7:00 pm

North On Starkey Rd		
Vehicle Type	Vol	%
A: Passenger Vehicle	678	97.1
B: Recreational Vehicle	2	0.3
C: Bus	4	0.6
D: Single Unit Truck	14	2.0
E: Tractor Trailer Unit	0	0.0
Total	698	

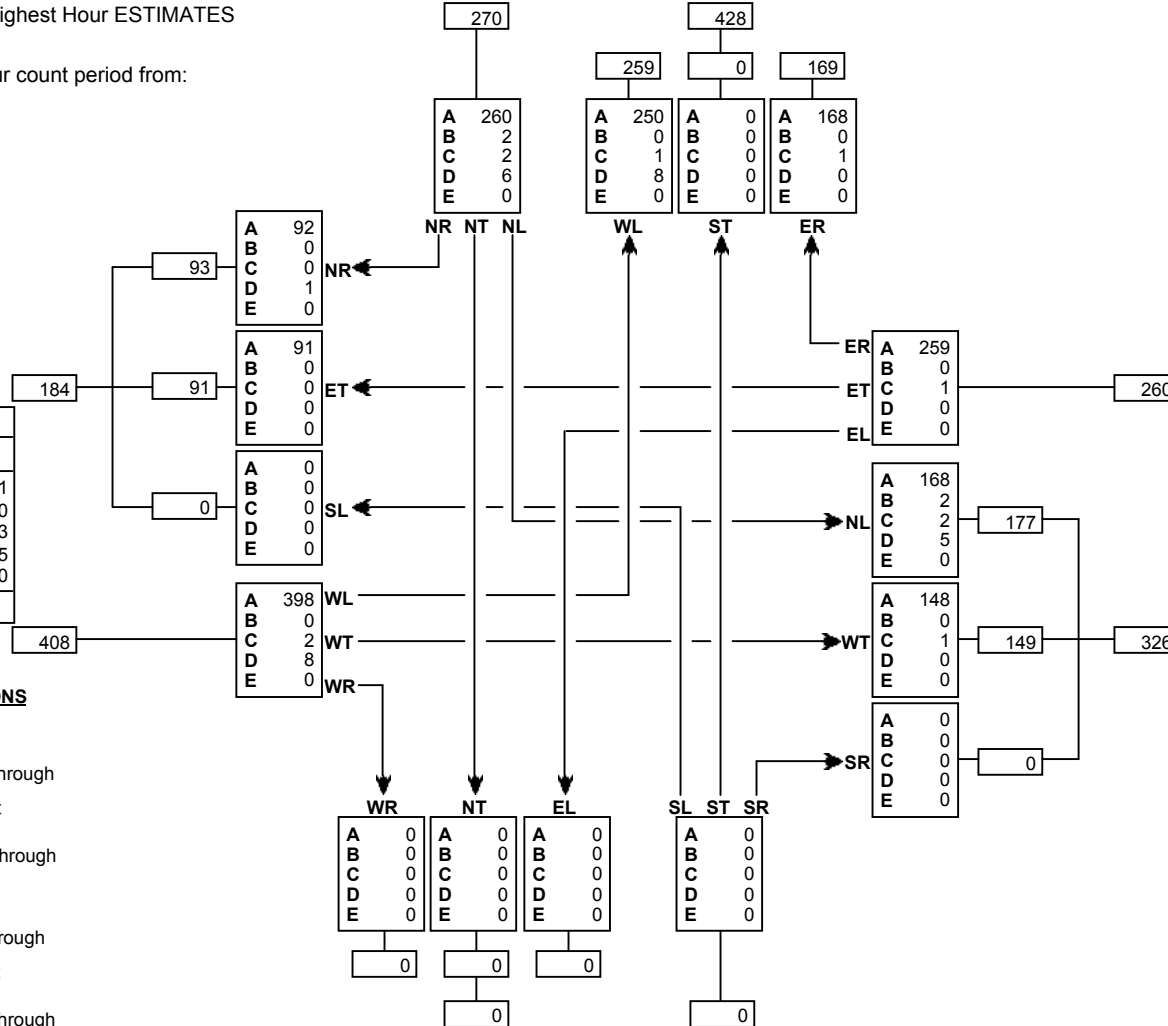
West On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	581	98.1
B: Recreational Vehicle	0	0.0
C: Bus	2	0.3
D: Single Unit Truck	9	1.5
E: Tractor Trailer Unit	0	0.0
Total	592	

East On SturgeonRd		
Vehicle Type	Vol	%
A: Passenger Vehicle	575	98.1
B: Recreational Vehicle	2	0.3
C: Bus	4	0.7
D: Single Unit Truck	5	0.9
E: Tractor Trailer Unit	0	0.0
Total	586	

South On		
Vehicle Type	Vol	%
A: Passenger Vehicle	0	0.0
B: Recreational Vehicle	0	0.0
C: Bus	0	0.0
D: Single Unit Truck	0	0.0
E: Tractor Trailer Unit	0	0.0
Total	0	

TURNING MOVEMENT ABBREVIATIONS

NR: Traffic From North Turning Right
 NL: Traffic From North Turning Left
 NT: Traffic From North Proceeding Through
 SR: Traffic From South Turning Right
 SL: Traffic From South Turning Left
 ST: Traffic From South Proceeding Through
 ER: Traffic From East Turning Right
 EL: Traffic From East Turning Left
 ET: Traffic From East Proceeding Through
 WR: Traffic From West Turning Right
 WL: Traffic From West Turning Left
 WT: Traffic From West Proceeding Through



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: Starkey Road
REFERENCE NO.:
DAY & DATE OF COUNT: Oct. 5, 2022

INTERSECTION OF: Starkey Road & E Estates Way-Treste Ridge Rd.
LEGAL DESCRIPTION: Sturgeon County
COUNT DURATION: 12 Hours

INTERVAL VEH CLASS	APPROACHING INTERSECTION															TOTALS																		
	FROM THE EAST ON					Twp. Rd. 544A					FROM THE WEST ON						E Estates Way																	
	LEFT					THROUGH					RIGHT						LEFT					THROUGH					RIGHT							
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E			
7:00 - 7:30	35	0	0	1	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	41	0	0	0	0	83		
7:30 - 8:00	70	0	0	0	0	2	0	0	0	0	4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	67	0	0	1	0	149			
8:00 - 8:30	56	0	2	0	1	1	0	1	0	0	0	0	0	0	0	4	0	1	1	0	0	0	0	0	0	58	0	0	1	0	126			
8:30 - 9:00	30	0	0	0	0	4	0	0	0	0	5	0	0	0	0	2	0	0	0	0	1	0	0	0	0	34	0	1	1	0	78			
9:00 - 9:30	35	0	0	0	0	0	0	0	0	0	4	0	0	3	0	3	0	0	0	0	1	0	0	0	0	25	0	0	0	0	71			
9:30 - 10:00	30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	28	0	0	0	0	62			
10:00-10:30	18	0	0	0	0	0	0	0	0	0	5	0	0	1	0	1	0	0	0	0	2	0	0	0	0	20	1	1	1	0	50			
10:30 - 11:00	19	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	1	0	36			
11:00 - 11:30 pm	20	0	0	2	0	0	0	0	0	0	4	0	0	3	2	2	0	0	0	0	1	0	0	0	0	14	0	0	0	0	48			
11:30 - 12:00	35	0	0	0	0	1	0	0	0	0	1	0	0	4	0	9	0	0	0	0	2	0	0	0	0	20	0	0	0	0	72			
12:00 - 12:30	26	0	0	5	0	0	0	0	1	0	2	0	0	4	0	0	0	0	0	0	3	0	0	0	0	13	0	0	0	0	54			
12:30 - 1:00	29	0	0	1	0	3	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	15	0	0	1	0	53			
1:00 - 1:30	14	0	0	3	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	4	0	0	0	0	15	0	0	0	0	40			
1:30 - 2:00	5	0	0	2	0	1	0	0	0	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	18	0	0	0	0	36			
2:00 - 2:30	32	0	0	3	0	1	0	0	0	0	2	0	0	3	0	3	0	0	0	0	1	0	0	0	0	12	0	0	1	0	58			
2:30 - 3:00	14	0	0	0	0	3	0	0	0	0	4	0	0	1	0	1	0	0	0	0	2	0	0	0	0	14	0	0	0	0	39			
3:00 - 3:30	22	0	0	1	0	0	0	0	0	0	2	0	0	1	1	2	0	0	0	0	1	0	0	0	0	23	0	0	0	0	53			
3:30 - 4:00	30	0	1	3	0	4	0	0	0	0	3	0	0	1	0	2	0	0	0	0	2	0	0	0	0	30	0	2	2	0	80			
4:00 - 4:30	19	0	0	0	0	0	0	0	0	0	5	0	0	1	0	4	0	0	0	0	2	0	0	0	0	20	0	0	0	0	51			
4:30 - 5:00	33	0	0	1	0	0	0	0	0	0	6	0	0	0	0	3	0	0	0	0	1	0	0	0	0	34	0	0	0	0	78			
5:00 - 5:30	38	0	0	0	0	2	0	0	0	0	13	0	0	2	0	2	0	0	0	0	0	0	0	0	0	35	0	0	0	0	92			
5:30 - 6:00	22	0	0	0	0	3	0	0	0	0	4	0	0	2	0	1	0	0	0	0	6	0	0	0	0	24	0	0	0	0	62			
6:00 - 6:30	17	0	0	1	0	1	0	0	0	0	4	0	0	1	0	1	0	0	0	0	1	0	0	0	0	13	0	0	0	0	39			
6:30 - 7:00	19	0	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	10	0	0	0	0	34			
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E				
TOTALS	668	0	3	23	1	27	0	1	1	0	85	0	0	31	3	56	0	1	2	0	32	0	0	0	0	596	1	4	9	0	1544			
EL					ET					ER					WL					WT					WR									

LOCATION DIAGRAM ENCLOSED (Y/N):

WEATHER CONDITIONS:

RECORDER(S):

COMMENTS:

VEHICLE CLASSES

A: PASSENGER VEHICLES B: RECREATION VEHICLES C: BUSES
D: SINGLE UNIT TRUCKS E: TRACTOR TRAILER COMBINATIONS

INTERVAL VEH CLASS	APPROACHING INTERSECTION															TOTALS	GRAND TOTALS															
	FROM THE NORTH ON					Starkey Road					FROM THE SOUTH ON							Starkey Road														
	LEFT					THROUGH					RIGHT							LEFT					THROUGH					RIGHT				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E			A	B	C	D	E	A	B	C	D	E					
7:00 - 7:30	3	0	0	0	0	29	0	1	1	1	2	0	0	0	0	3	0	1	0	1	22	0	1	0	1	8	0	0	0	0	74	157
7:30 - 8:00	2	0	1	0	0	58	0	1	0	0	0	0	0	0	0	4	0	0	0	0	81	0	1	0	1	15	0	0	0	0	164	313
8:00 - 8:30	3	0	0	0	0	43	0	0	0	0	1	0	0	0	0	10	0	0	0	0	50	0	0	1	0	20	0	0	0	0	128	254
8:30 - 9:00	0	0	0	0	2	50	0	0	0	3	2	0	0	0	0	13	0	0	0	0	35	0	0	1	0	25	0	0	1	1	133	211
9:00 - 9:30	1	0	0	0	2	20	0	0	0	2	0	0	0	0	0	7	0	0	0	0	14	0	0	0	0	10	0	0	1	0	57	128
9:30 - 10:00	1	0	0	0	0	19	0	0	0	0	0	0	0	0	0	8	0	0	0	0	18	0	0	1	0	13	0	0	0	0	60	122
10:00-10:30	3	0	0	2	0	31	0	0	1	0	1	0	0	0	0	6	0	0	0	0	17	0	0	0	0	20	0	0	0	0	81	131
10:30 -11:00	2	0	0	2	0	23	0	0	0	4	0	0	0	0	0	16	0	0	0	1	18	0	0	1	0	9	0	0	0	0	76	112
11:00 - 11:30 pm	3	0	0	3	0	18	0	0	0	1	0	0	0	0	0	11	0	0	1	0	24	0	0	1	0	15	0	0	3	0	80	128
11:30 - 12:00 pm	0	0	0	0	1	30	0	0	0	0	1	0	0	0	0	9	0	0	0	0	33	0	0	0	0	21	0	0	3	0	98	170
12:00 - 12:30	1	0	0	3	0	20	0	0	0	4	1	0	0	0	0	12	0	0	0	0	18	0	0	1	0	13	0	0	4	1	78	132
12:30 - 1:00	0	0	0	3	0	13	0	0	0	2	0	0	0	0	0	12	0	0	0	0	17	0	0	0	0	14	0	0	4	0	65	118
1:00 - 1:30	5	0	0	0	0	27	0	0	0	0	1	0	0	0	0	18	0	0	0	0	39	0	0	2	0	22	0	0	1	0	115	155
1:30 - 2:00	4	0	0	1	0	15	0	0	4	2	0	0	0	0	0	15	0	0	0	0	15	0	0	2	1	23	0	0	1	0	83	119
2:00 - 2:30	2	0	0	1	1	23	0	0	4	0	1	0	0	0	0	16	0	0	0	0	26	0	0	0	0	17	0	0	2	0	93	151
2:30 - 3:00	1	0	0	0	0	30	0	0	2	0	0	0	0	0	0	28	0	0	0	0	22	0	0	0	0	24	0	1	1	0	109	148
3:00 - 3:30	0	0	0	0	0	21	0	0	0	0	3	0	1	0	0	30	0	1	0	0	22	0	0	0	0	22	0	0	1	0	101	154
3:30 - 4:00	4	0	0	0	0	29	0	0	1	3	3	0	0	0	0	28	0	0	1	0	23	0	0	1	0	26	0	1	4	0	124	204
4:00 - 4:30	4	0	0	0	0	35	0	0	0	1	2	0	0	0	0	36	0	0	0	0	35	0	0	0	0	35	0	0	0	0	148	199
4:30 - 5:00	4	0	0	0	0	55	0	0	1	0	11	0	0	1	0	59	0	0	0	0	45	0	1	0	1	35	0	0	0	0	213	291
5:00 - 5:30	5	0	0	0	0	47	0	0	0	5	5	0	0	0	0	61	0	0	0	0	51	0	0	0	0	39	0	0	0	0	213	305
5:30 - 6:00	2	0	0	0	0	39	0	0	0	0	4	0	0	1	0	41	0	0	0	0	41	0	0	0	0	30	0	0	2	0	160	222
6:00 - 6:30	3	0	0	0	0	30	0	0	0	0	1	0	0	0	0	29	0	0	0	0	25	0	0	0	3	27	0	0	1	0	119	158
6:30 - 7:00	2	0	0	0	0	24	0	0	0	0	0	0	0	0	0	18	0	0	0	0	20	0	0	1	0	15	0	0	0	0	80	114
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
TOTALS	55	0	1	15	6	729	0	2	14	28	39	0	1	2	0	490	0	2	2	2	711	0	3	12	7	498	0	2	29	2	2652	4196
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y/N):

WEATHER CONDITIONS:

RECORDER(S):

COMMENTS:

VEHICLE CLASSES

A: PASSENGER VEHICLES B: RECREATION VEHICLES C: BUSES
D: SINGLE UNIT TRUCKS E: TRACTOR TRAILER COMBINATIONS

Turning Movement Summary Diagram

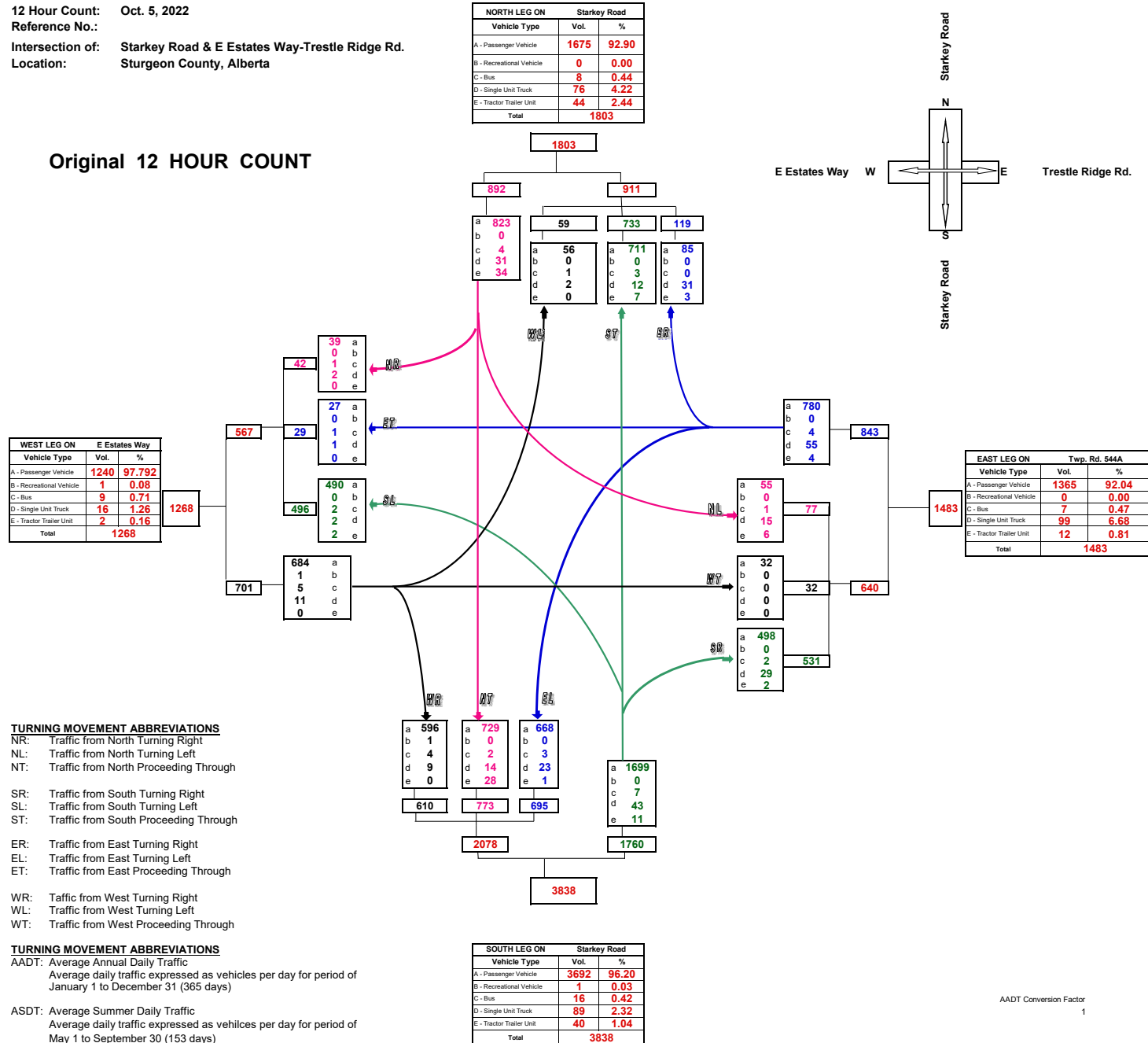
12 Hour Count: Oct. 5, 2022

Reference No.:

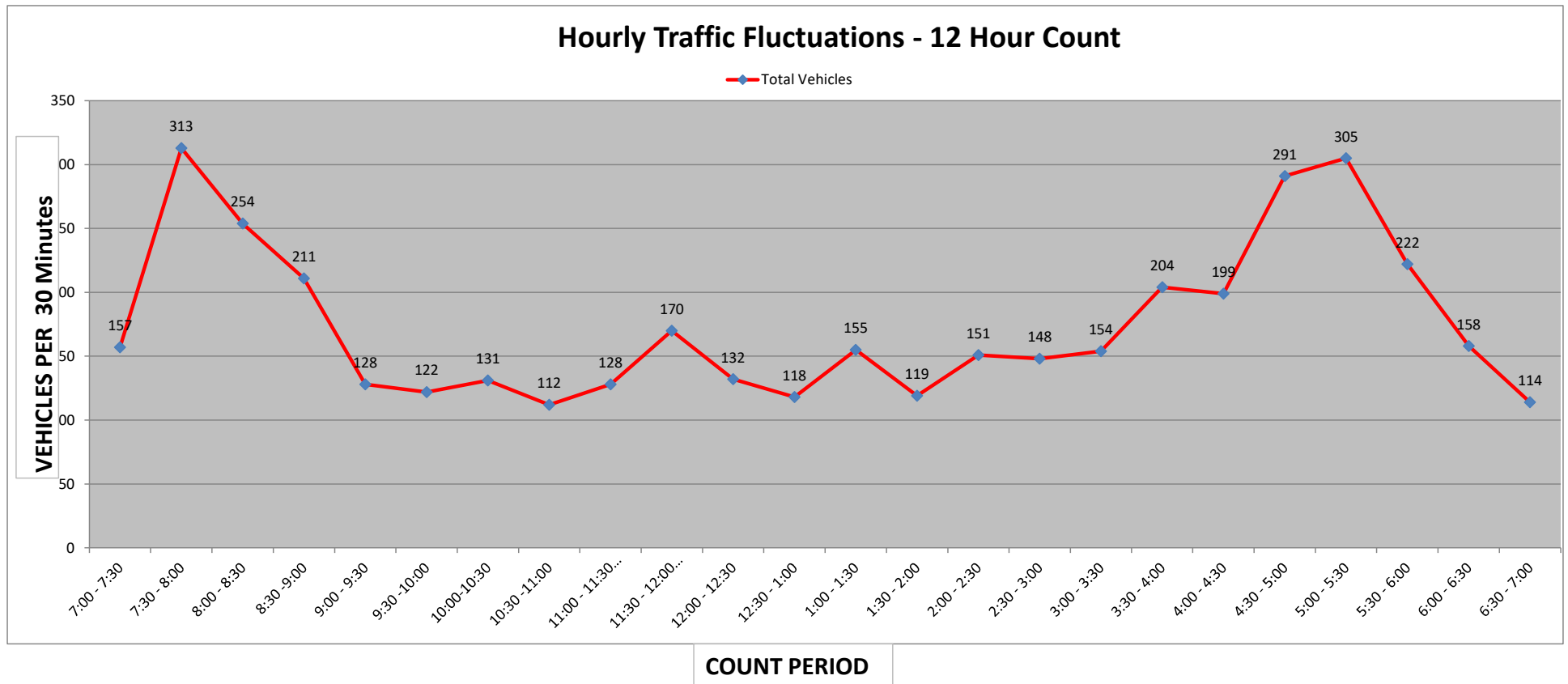
Intersection of: Starkey Road & E Estates Way-Trestle Ridge Rd.

Location: Sturgeon County, Alberta

Original 12 HOUR COUNT



Starkey Rd. & E Estates Way-Trestle Ridge Rd._Oct. 5, 2022



DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: Starkey Road
REFERENCE NO.:
DAY & DATE OF COUNT: Oct. 4, 2022

INTERSECTION OF: Starkey Road & Belrose Drive-Pinnacle Way
LEGAL DESCRIPTION: Sturgeon County
COUNT DURATION: 12 Hours

INTERVAL VEH CLASS	APPROACHING INTERSECTION															TOTALS																
	FROM THE EAST ON					Pinnacle Way					FROM THE WEST ON						Belrose Drive															
	LEFT					THROUGH					RIGHT						LEFT					THROUGH					RIGHT					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		A	B	C	D	E	A	B	C	D	E						
7:00 - 7:30	9	0	0	0	0	1	0	0	0	0	2	0	0	0	0	35	0	0	0	0	0	8	0	0	0	0	75	0	1	1	0	132
7:30 - 8:00	15	0	0	0	0	3	0	0	0	0	1	0	0	0	0	40	0	0	0	0	0	1	0	0	0	0	73	0	0	0	0	133
8:00 - 8:30	25	0	0	0	0	10	0	0	0	0	2	0	0	0	0	38	0	0	0	0	0	15	0	0	0	0	85	0	0	1	0	176
8:30 -9:00	10	0	0	0	0	5	0	0	0	0	2	0	0	0	0	16	0	0	0	0	0	3	0	0	0	0	46	0	0	0	0	82
9:00 - 9:30	5	0	0	0	0	2	0	0	1	0	1	0	0	0	0	10	0	0	1	0	0	2	0	0	0	0	42	0	0	1	0	65
9:30 -10:00	8	0	0	0	0	3	0	0	0	0	1	0	0	0	0	16	0	0	2	0	0	5	0	0	0	0	39	0	0	2	0	76
10:00-10:30	10	0	0	0	0	4	0	0	0	0	0	0	0	0	0	14	0	0	2	0	0	2	0	0	0	0	45	0	0	0	0	77
10:30 -11:00	8	0	0	0	0	2	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	2	0	0	0	0	30	0	0	0	0	51
11:00 - 11:30 pm	5	0	0	0	0	3	0	0	0	0	1	0	0	0	0	15	0	0	0	0	0	6	0	0	0	0	36	0	0	0	0	66
11:30 - 12:00	4	0	0	0	0	6	0	0	0	0	1	0	0	0	0	20	0	0	1	0	0	3	0	0	0	0	49	0	0	0	0	84
12:00 -12:30	8	0	0	1	0	1	0	0	0	0	0	0	0	0	0	21	0	0	1	0	0	5	0	0	0	0	37	0	0	0	0	74
12:30 - 1:00	4	0	0	1	0	5	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	4	0	0	0	0	41	0	0	1	0	74
1:00 - 1:30	8	0	0	0	0	9	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	5	0	0	0	0	26	0	0	0	0	71
1:30 - 2:00	9	0	0	0	0	4	0	0	0	0	0	0	0	1	0	20	0	0	2	0	0	6	0	0	0	0	35	0	0	0	0	77
2:00 - 2:30	11	0	0	0	0	3	0	0	0	0	0	0	0	0	0	28	0	0	0	0	0	4	0	0	0	0	36	0	0	0	0	82
2:30 - 3:00	9	0	0	0	0	8	0	0	0	0	0	0	0	0	0	35	0	0	0	0	0	4	0	0	0	0	47	0	0	0	0	103
3:00 - 3:30	17	0	0	0	0	4	0	0	0	0	2	0	0	1	0	31	0	0	1	0	0	10	0	0	0	0	45	0	1	0	1	113
3:30 - 4:00	6	0	0	1	0	5	0	0	0	0	1	0	0	0	0	55	0	0	0	0	0	12	0	0	0	0	60	0	1	0	0	141
4:00 - 4:30	13	0	0	1	0	6	0	0	1	0	0	0	0	1	0	34	0	0	1	0	0	6	0	0	0	0	55	0	0	0	0	118
4:30 - 5:00	10	0	0	0	0	14	0	0	0	0	4	0	0	0	0	42	0	0	0	0	0	6	0	0	0	0	65	0	0	2	0	143
5:00 - 5:30	8	0	0	0	0	5	0	0	0	0	0	0	0	0	0	39	0	0	0	0	0	12	0	0	1	0	63	0	0	0	0	128
5:30 - 6:00	9	0	0	1	0	3	0	0	0	0	0	0	0	0	0	44	0	0	0	0	0	8	0	0	0	0	75	0	0	0	0	140
6:00 - 6:30	5	0	0	0	0	3	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	4	0	0	0	0	41	0	0	1	0	84
6:30 - 7:00	12	0	0	0	0	3	0	0	0	0	3	0	0	0	0	14	0	0	0	0	0	5	0	0	0	0	40	0	0	1	0	78
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E		
TOTALS	228	0	0	5	0	112	0	0	2	0	21	0	0	3	0	647	0	0	11	0	0	138	0	0	1	0	1186	0	3	10	1	2368
	EL					ET					ER					WL					WT					WR						

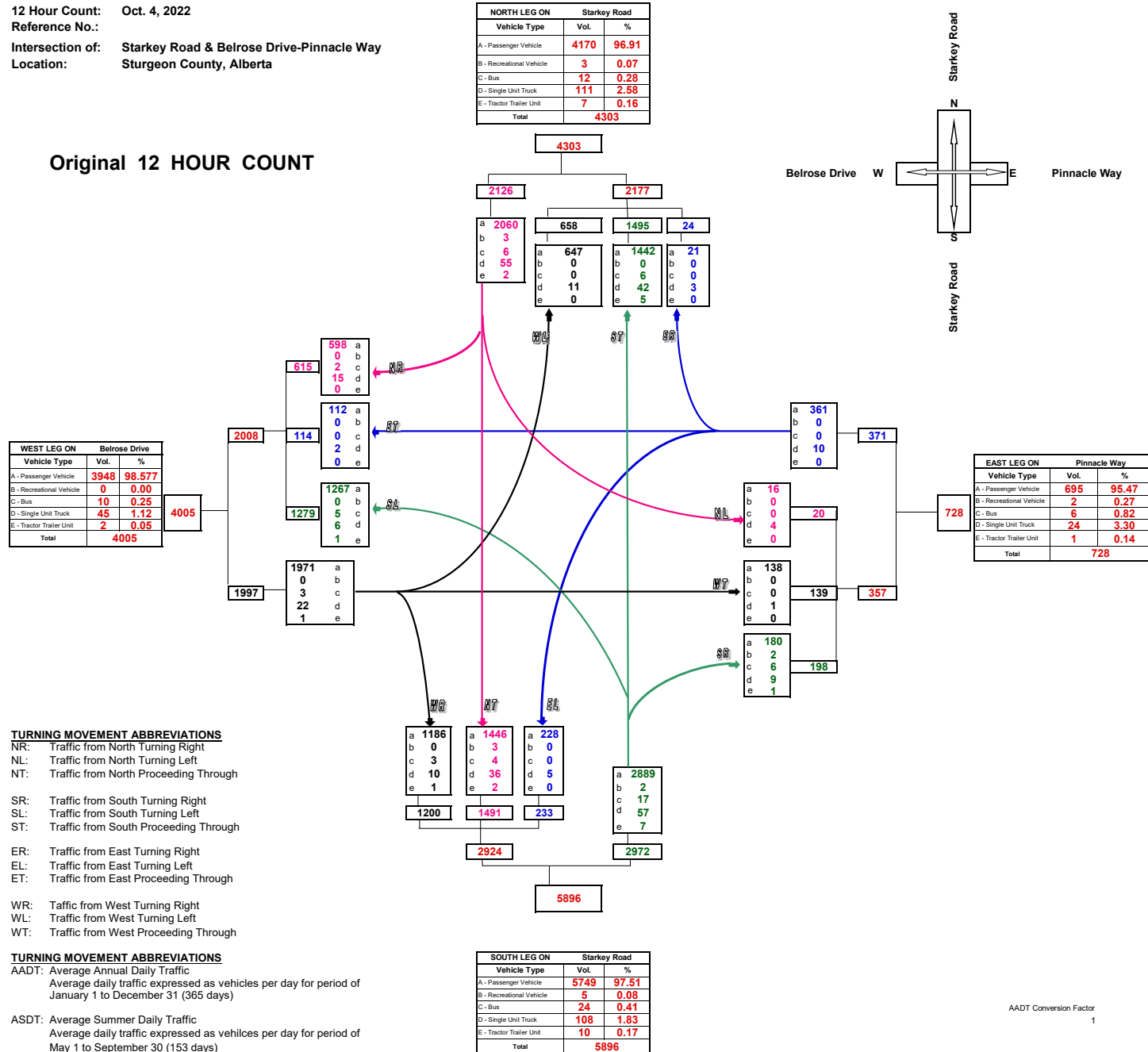
Turning Movement Summary Diagram

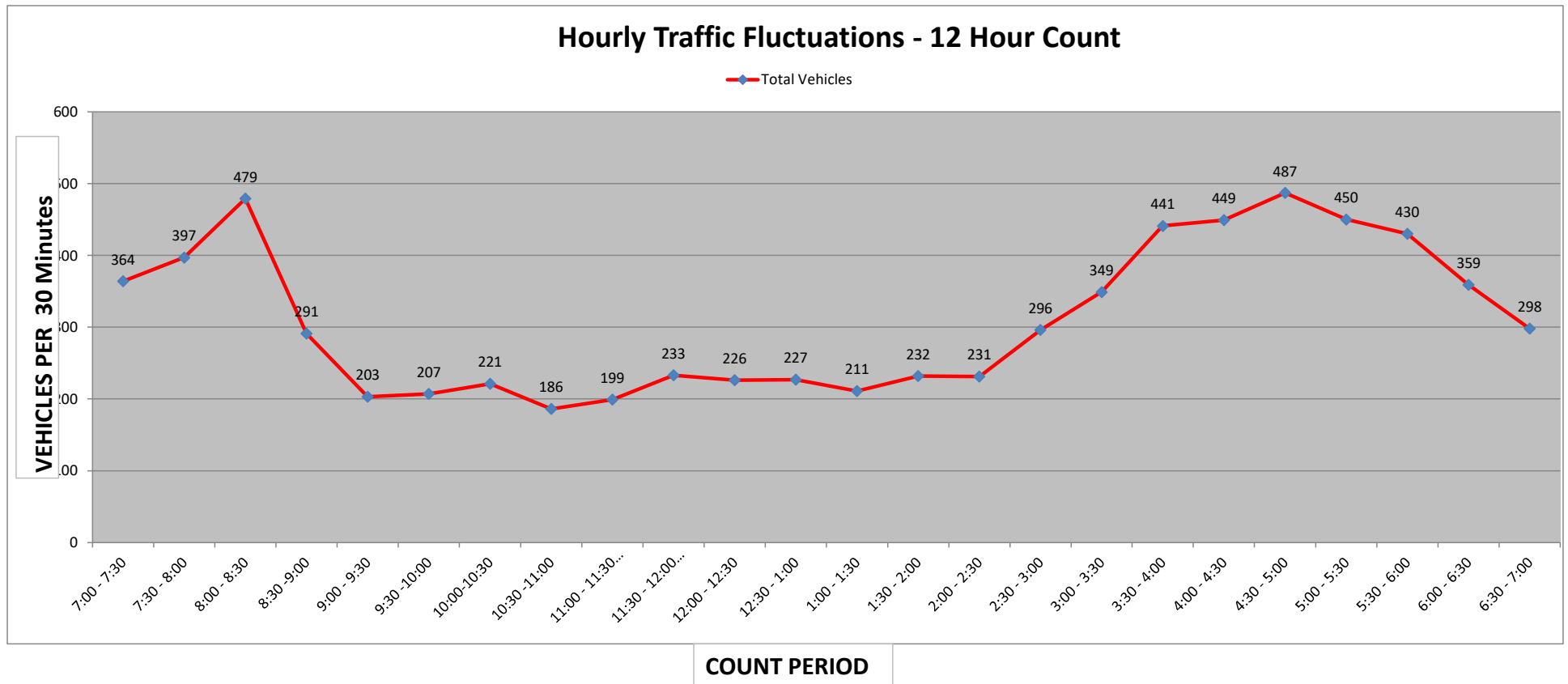
12 Hour Count: Oct. 4, 2022

Reference No.:

Intersection of: Starkey Road & Belrose Drive-Pinnacle Way
Location: Sturgeon County, Alberta

Original 12 HOUR COUNT





DIRECTIONAL TRAFFIC COUNT SUMMARY

HIGHWAY: Starkey Road
REFERENCE NO.:
DAY & DATE OF COUNT: Sept. 29, 2022

INTERSECTION OF: Starkey Road & Sturgeon Road
LEGAL DESCRIPTION: Sturgeon County
COUNT DURATION: 12 Hours

INTERVAL VEH CLASS	APPROACHING INTERSECTION																				TOTALS										
	FROM THE EAST ON					Sturgeon Road					FROM THE WEST ON											Sturgeon Road									
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
7:00 - 7:30	0	0	0	0	0	77	0	1	0	0	8	0	0	1	0	46	0	2	1	0	28	0	1	0	0	0	165				
7:30 - 8:00	0	0	0	0	0	79	0	1	0	0	13	0	0	0	0	76	0	1	2	0	69	0	0	0	0	0	241				
8:00 - 8:30	0	0	0	0	0	88	0	1	1	0	21	0	1	0	0	54	0	2	2	1	71	0	1	2	0	0	245				
8:30 - 9:00	0	0	0	0	0	60	0	0	0	0	16	0	0	0	0	67	0	0	1	0	54	0	0	0	0	0	198				
9:00 - 9:30	0	0	0	0	0	49	0	0	2	0	10	0	0	2	0	48	0	0	2	0	29	0	0	2	3	0	147				
9:30 - 10:00	0	0	0	0	0	29	0	1	1	0	11	0	0	1	0	34	0	0	1	0	25	0	0	0	1	0	104				
10:00-10:30	0	0	0	0	0	25	0	0	1	1	25	0	0	0	0	51	0	0	1	1	26	0	0	2	0	0	133				
10:30 - 11:00	0	0	0	0	0	35	0	0	1	0	26	0	0	2	0	44	0	0	0	0	42	0	0	1	0	0	151				
11:00 - 11:30 pm	0	0	0	0	0	36	0	0	0	1	33	0	1	0	0	42	0	0	2	0	35	0	0	0	1	0	151				
11:30 - 12:00	0	0	0	0	0	33	0	0	2	0	38	0	0	0	1	51	0	0	2	0	58	0	0	2	0	0	187				
12:00 - 12:30	0	0	0	0	0	47	0	0	0	0	42	0	0	4	0	54	0	0	0	1	50	0	0	2	0	0	200				
12:30 - 1:00	0	0	0	0	0	45	0	0	1	0	48	0	0	3	0	68	0	0	3	0	53	0	0	1	0	0	222				
1:00 - 1:30	0	0	0	0	0	36	0	0	2	0	42	0	0	0	0	58	0	0	2	1	54	0	0	0	0	0	195				
1:30 - 2:00	0	0	0	0	0	35	0	0	2	0	46	0	0	2	0	64	0	0	2	0	44	0	1	2	0	0	198				
2:00 - 2:30	0	0	0	0	0	20	0	0	0	0	39	0	1	0	0	65	0	0	4	0	39	0	0	2	0	0	170				
2:30 - 3:00	0	0	0	0	0	27	0	0	0	0	54	0	2	3	0	73	0	0	2	1	40	0	0	2	0	0	204				
3:00 - 3:30	0	0	0	0	0	48	0	2	1	0	73	0	1	2	0	119	0	0	3	0	56	0	0	0	0	0	305				
3:30 - 4:00	0	0	0	0	0	44	0	0	0	0	100	0	1	2	0	135	0	2	4	0	80	0	1	0	0	0	369				
4:00 - 4:30	0	0	0	0	0	30	0	0	0	0	100	0	1	0	0	137	0	1	4	0	95	0	0	0	0	0	368				
4:30 - 5:00	0	0	0	0	0	70	0	0	0	0	85	0	0	0	0	138	0	0	5	0	68	0	1	0	0	0	367				
5:00 - 5:30	0	0	0	0	0	56	0	0	1	0	94	0	0	1	0	122	0	1	3	0	94	0	0	0	0	0	372				
5:30 - 6:00	0	0	0	0	0	36	0	0	0	0	49	0	0	0	0	103	0	0	2	0	56	0	0	2	0	0	248				
6:00 - 6:30	0	0	0	0	0	27	0	0	3	0	48	0	0	0	0	91	0	0	2	0	42	0	0	1	0	0	214				
6:30 - 7:00	0	0	0	0	0	26	0	0	0	0	40	0	0	0	0	78	0	0	2	0	34	0	0	0	0	0	180				
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E						
TOTALS	0	0	0	0	0	1058	0	6	18	2	1061	0	8	23	1	1818	0	9	52	5	1242	0	5	21	5	5334					
	EL					ET					ER					WL					WT					WR					

LOCATION DIAGRAM ENCLOSED (Y/N):

WEATHER CONDITIONS:

RECORDER(S):

COMMENTS:

VEHICLE CLASSES

A: PASSENGER VEHICLES B: RECREATION VEHICLES C: BUSES
D: SINGLE UNIT TRUCKS E: TRACTOR TRAILER COMBINATIONS

INTERVAL VEH CLASS	APPROACHING INTERSECTION																				TOTALS	GRAND TOTALS										
	FROM THE NORTH ON					Starkey Road					FROM THE SOUTH ON																					
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E							
7:00 - 7:30	140	0	2	1	0						54	1	0	0	0												198	363				
7:30 - 8:00	170	0	0	2	0						98	0	0	0	0												270	511				
8:00 - 8:30	135	0	0	5	0						106	0	1	2	0												249	494				
8:30 -9:00	123	0	0	4	1						92	0	0	2	0												222	420				
9:00 - 9:30	62	1	0	1	0						50	0	0	2	1												117	264				
9:30 -10:00	53	0	0	2	0						30	1	0	2	0												88	192				
10:00-10:30	66	0	0	2	0						41	0	0	0	1												110	243				
10:30 -11:00	65	0	0	3	1						34	2	0	2	0												107	258				
11:00 - 11:30 pm	69	0	0	2	0						35	1	0	2	0												109	260				
11:30 - 12:00 pm	81	0	0	4	1						52	0	0	2	0												140	327				
12:00 - 12:30	69	0	0	3	0						43	1	0	3	0												119	319				
12:30 - 1:00	86	0	0	5	0						39	0	0	2	0												132	354				
1:00 - 1:30	85	1	0	2	0						62	2	0	3	0												155	350				
1:30 - 2:00	74	2	0	3	0						53	3	0	2	0												137	335				
2:00 - 2:30	69	3	1	3	0						43	0	0	2	0												121	291				
2:30 - 3:00	74	0	0	3	1						48	0	0	2	0												128	332				
3:00 - 3:30	78	0	0	4	2						52	0	1	1	0												138	443				
3:30 - 4:00	92	0	0	3	0						63	0	0	1	0												159	528				
4:00 - 4:30	95	0	1	3	0						50	0	0	0	0												149	517				
4:30 - 5:00	90	2	1	3	0						51	0	0	1	0												148	515				
5:00 - 5:30	111	2	0	3	0						57	4	0	2	0												179	551				
5:30 - 6:00	84	1	0	1	1						33	0	0	2	0												122	370				
6:00 - 6:30	57	0	0	1	0						36	1	0	2	0												97	311				
6:30 - 7:00	73	0	0	1	0						35	0	0	2	0												111	291				
VEH CLASS	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E							
TOTALS	2101	12	5	64	7	0	0	0	0	0	1257	16	2	39	2	0	0	0	0	0	0	0	0	0	0	0	3505	8839				
	NL					NT					NR					SL					ST					SR						

LOCATION DIAGRAM ENCLOSED (Y/N):

WEATHER CONDITIONS:

RECORDER(S):

COMMENTS:

VEHICLE CLASSES

A: PASSENGER VEHICLES B: RECREATION VEHICLES C: BUSES
D: SINGLE UNIT TRUCKS E: TRACTOR TRAILER COMBINATIONS

Turning Movement Summary Diagram

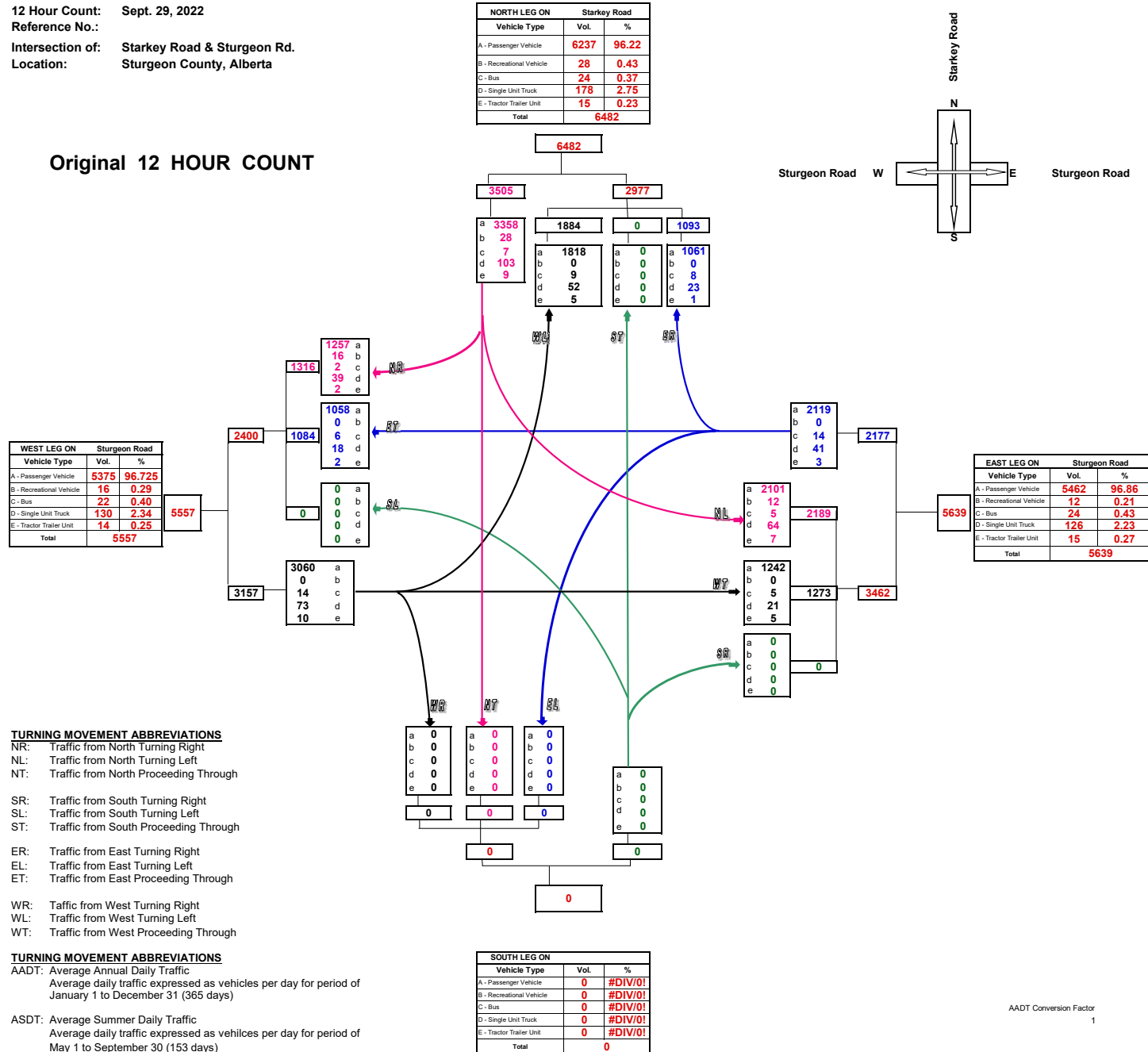
12 Hour Count: Sept. 29, 2022

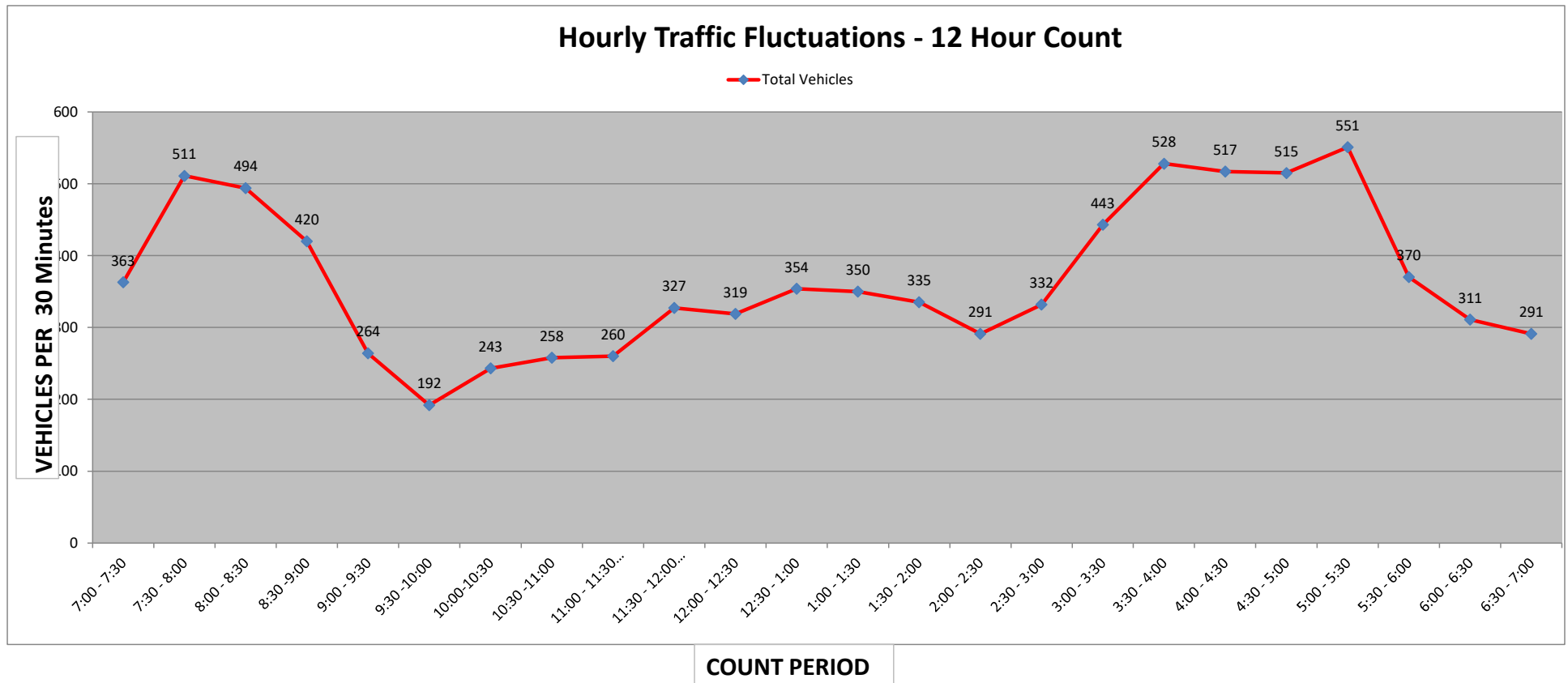
Reference No.:

Intersection of: Starkey Road & Sturgeon Rd.

Location: Sturgeon County, Alberta

Original 12 HOUR COUNT





Appendix B

Intersection Analysis - Synchro

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1	119	113	2	6	14	175	37	7	122	3
Future Volume (vph)	8	1	119	113	2	6	14	175	37	7	122	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.874			0.887			0.974			0.997	
Flt Protected		0.997		0.950			0.950				0.997	
Satd. Flow (prot)	0	1641	0	1789	1671	0	1789	1834	0	0	3557	0
Flt Permitted		0.997		0.950			0.950				0.997	
Satd. Flow (perm)	0	1641	0	1789	1671	0	1789	1834	0	0	3557	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			536.6			477.5	
Travel Time (s)		14.4			18.5			27.6			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	1	119	113	2	6	14	175	37	7	122	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	128	0	113	8	0	14	212	0	0	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.8%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	119	113	2	6	14	175	37	7	122	3
Future Volume (Veh/h)	8	1	119	113	2	6	14	175	37	7	122	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	119	113	2	6	14	175	37	7	122	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	348	378	62	416	360	194	125			212		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348	378	62	416	360	194	125			212		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	88	75	100	99	99			99		
cM capacity (veh/h)	570	545	989	452	557	815	1459			1356		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	128	113	8	14	212	68	64					
Volume Left	8	113	0	14	0	7	0					
Volume Right	119	0	6	0	37	0	3					
cSH	940	452	731	1459	1700	1356	1700					
Volume to Capacity	0.14	0.25	0.01	0.01	0.12	0.01	0.04					
Queue Length 95th (m)	3.6	7.4	0.3	0.2	0.0	0.1	0.0					
Control Delay (s)	9.4	15.6	10.0	7.5	0.0	0.8	0.0					
Lane LOS	A	C	A	A		A						
Approach Delay (s)	9.4	15.2		0.5		0.4						
Approach LOS	A	C										
Intersection Summary												
Average Delay	5.3											
Intersection Capacity Utilization	32.8%			ICU Level of Service					A			
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	34	11	7	89	0	32	0	5	0	0	0
Future Volume (vph)	0	34	11	7	89	0	32	0	5	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.965								0.981			
Flt Protected					0.996				0.959			
Satd. Flow (prot)	0	1818	0	0	1876	0	0	1772	0	0	1883	0
Flt Permitted					0.996				0.959			
Satd. Flow (perm)	0	1818	0	0	1876	0	0	1772	0	0	1883	0
Link Speed (k/h)	60				60				40			
Link Distance (m)	308.8				150.6				78.4			
Travel Time (s)	18.5				9.0				7.1			
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	34	12	8	89	0	36	0	6	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	97	0	0	42	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.7				3.7				0.0			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	2.4				2.4				4.8			
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Stop			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 20.5%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	34	11	7	89	0	32	0	5	0	0	0
Future Volume (Veh/h)	0	34	11	7	89	0	32	0	5	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	34	12	8	89	0	36	0	6	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	89			46			145	145	40	151	151	89
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	89			46			145	145	40	151	151	89
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	100	99	100	100	100
cM capacity (veh/h)	1519			1562			821	742	1031	813	737	975
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	97	42	0								
Volume Left	0	8	36	0								
Volume Right	12	0	6	0								
cSH	1519	1562	845	1700								
Volume to Capacity	0.00	0.01	0.05	0.00								
Queue Length 95th (m)	0.0	0.1	1.2	0.0								
Control Delay (s)	0.0	0.6	9.5	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.5	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				20.5%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	365	96	14	251	2	129	8	52	5	22	16
Future Volume (vph)	3	365	96	14	251	2	129	8	52	5	22	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.955			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Flt Permitted				0.950				0.955			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	365	96	14	251	2	129	8	52	5	22	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	368	96	14	253	0	0	137	52	0	27	16
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 42.5%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	365	96	14	251	2	129	8	52	5	22	16
Future Volume (Veh/h)	3	365	96	14	251	2	129	8	52	5	22	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	365	96	14	251	2	129	8	52	5	22	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	253			461			669	652	365	681	747	252
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	253			461			669	652	365	681	747	252
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			62	98	92	98	93	98
cM capacity (veh/h)	1312			1100			342	381	680	327	336	787
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	368	96	14	253	189	43						
Volume Left	3	0	14	0	129	5						
Volume Right	0	96	0	2	52	16						
cSH	1312	1700	1100	1700	436	533						
Volume to Capacity	0.00	0.06	0.01	0.15	0.43	0.08						
Queue Length 95th (m)	0.1	0.0	0.3	0.0	16.3	2.0						
Control Delay (s)	0.1	0.0	8.3	0.0	19.4	14.1						
Lane LOS	A		A		C	B						
Approach Delay (s)	0.1		0.4		19.4	14.1						
Approach LOS					C	B						
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			42.5%	ICU Level of Service					A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	61	20	152	105	161	22	1	267	86	39	17	4
Future Volume (vph)	61	20	152	105	161	22	1	267	86	39	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.982				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1850	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1850	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			171.1		207.9		
Travel Time (s)		14.8			34.8			8.8		18.7		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	61	20	152	105	161	22	1	267	86	39	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	152	105	183	0	0	268	86	39	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	45.1% ICU Level of Service A											
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	61	20	152	105	161	22	1	267	86	39	17	4
Future Volume (Veh/h)	61	20	152	105	161	22	1	267	86	39	17	4
Sign Control		Stop			Free			Free		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	61	20	152	105	161	22	1	267	86	39	17	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	7											
Median type						None	None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	652	662	267	353			183			737	737	172
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	652	662	267	353			183			737	737	172
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	82	94	80	91			100			84	95	100
cM capacity (veh/h)	339	349	772	1206			1392			240	316	872
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	233	105	183	268	86	39	21					
Volume Left	61	105	0	1	0	39	0					
Volume Right	152	0	22	0	86	0	4					
cSH	983	1206	1700	1392	1700	240	359					
Volume to Capacity	0.24	0.09	0.11	0.00	0.05	0.16	0.06					
Queue Length 95th (m)	7.0	2.2	0.0	0.0	0.0	4.3	1.4					
Control Delay (s)	13.6	8.3	0.0	0.0	0.0	22.9	15.6					
Lane LOS	B	A		A		C	C					
Approach Delay (s)	13.6	3.0		0.0		20.4						
Approach LOS	B					C						
Intersection Summary												
Average Delay	5.6											
Intersection Capacity Utilization	45.1%			ICU Level of Service					A			
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	223	0	0	354	0
Future Volume (vph)	0	0	0	0	0	0	0	223	0	0	354	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	17.9			34.9			171.1			536.6		
Travel Time (s)	1.3			2.5			8.8			27.6		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	248	0	0	393	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	248	0	0	393	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0		3.7			3.7		
Link Offset(m)	0.0				0.0		0.0			0.0		
Crosswalk Width(m)	4.8				4.8		4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 22.0%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1	126	120	2	6	14	201	37	7	165	3
Future Volume (vph)	8	1	126	120	2	6	14	201	37	7	165	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.874			0.887			0.977			0.997	
Flt Protected		0.997		0.950			0.950				0.998	
Satd. Flow (prot)	0	1641	0	1789	1671	0	1789	1840	0	0	3561	0
Flt Permitted		0.997		0.950			0.950				0.998	
Satd. Flow (perm)	0	1641	0	1789	1671	0	1789	1840	0	0	3561	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			537.9			477.5	
Travel Time (s)		14.4			18.5			27.7			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	1	126	120	2	6	14	201	37	7	165	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	0	120	8	0	14	238	0	0	175	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 37.8%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	126	120	2	6	14	201	37	7	165	3
Future Volume (Veh/h)	8	1	126	120	2	6	14	201	37	7	165	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	126	120	2	6	14	201	37	7	165	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	416	446	84	470	430	220	168			238		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	416	446	84	470	430	220	168			238		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	87	71	100	99	99			99		
cM capacity (veh/h)	509	498	958	408	509	785	1407			1326		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	135	120	8	14	238	90	86					
Volume Left	8	120	0	14	0	7	0					
Volume Right	126	0	6	0	37	0	3					
cSH	905	408	691	1407	1700	1326	1700					
Volume to Capacity	0.15	0.29	0.01	0.01	0.14	0.01	0.05					
Queue Length 95th (m)	4.0	9.2	0.3	0.2	0.0	0.1	0.0					
Control Delay (s)	9.7	17.4	10.3	7.6	0.0	0.6	0.0					
Lane LOS	A	C	B	A		A						
Approach Delay (s)	9.7	17.0		0.4		0.3						
Approach LOS	A	C										
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			37.8%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	36	12	7	94	0	34	0	5	0	0	0
Future Volume (vph)	0	36	12	7	94	0	34	0	5	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964						0.982				
Flt Protected					0.996			0.959				
Satd. Flow (prot)	0	1816	0	0	1876	0	0	1774	0	0	1883	0
Flt Permitted					0.996			0.959				
Satd. Flow (perm)	0	1816	0	0	1876	0	0	1774	0	0	1883	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			78.4			69.7	
Travel Time (s)		18.5			9.0			7.1			6.3	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	36	13	8	94	0	38	0	6	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	102	0	0	44	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.7%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	36	12	7	94	0	34	0	5	0	0	0
Future Volume (Veh/h)	0	36	12	7	94	0	34	0	5	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	36	13	8	94	0	38	0	6	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	94			49			152	152	42	158	159	94
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	94			49			152	152	42	158	159	94
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			95	100	99	100	100	100
cM capacity (veh/h)	1513			1558			811	735	1028	804	729	968
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	49	102	44	0								
Volume Left	0	8	38	0								
Volume Right	13	0	6	0								
cSH	1513	1558	835	1700								
Volume to Capacity	0.00	0.01	0.05	0.00								
Queue Length 95th (m)	0.0	0.1	1.3	0.0								
Control Delay (s)	0.0	0.6	9.5	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.5	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				20.7%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	387	106	19	266	2	148	8	66	5	23	17
Future Volume (vph)	3	387	106	19	266	2	148	8	66	5	23	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.955			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Flt Permitted				0.950				0.955			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	387	106	19	266	2	148	8	66	5	23	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	106	19	268	0	0	156	66	0	28	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 44.7%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	387	106	19	266	2	148	8	66	5	23	17
Future Volume (Veh/h)	3	387	106	19	266	2	148	8	66	5	23	17
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	387	106	19	266	2	148	8	66	5	23	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1	1	
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	268			493			717	699	387	735	804	267
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268			493			717	699	387	735	804	267
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			53	98	90	98	93	98
cM capacity (veh/h)	1296			1071			313	357	661	292	310	772
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	390	106	19	268	222	45						
Volume Left	3	0	19	0	148	5						
Volume Right	0	106	0	2	66	17						
cSH	1296	1700	1071	1700	411	493						
Volume to Capacity	0.00	0.06	0.02	0.16	0.54	0.09						
Queue Length 95th (m)	0.1	0.0	0.4	0.0	23.7	2.3						
Control Delay (s)	0.1	0.0	8.4	0.0	23.6	14.8						
Lane LOS	A		A		C	B						
Approach Delay (s)	0.1		0.6		23.6	14.8						
Approach LOS					C	B						
Intersection Summary												
Average Delay			5.8									
Intersection Capacity Utilization			44.7%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	69	20	161	111	182	22	1	309	101	39	17	4
Future Volume (vph)	69	20	161	111	182	22	1	309	101	39	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.984				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1853	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1853	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			169.8		207.9		
Travel Time (s)		14.8			34.8			8.7		18.7		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	69	20	161	111	182	22	1	309	101	39	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	89	161	111	204	0	0	310	101	39	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 48.8%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	69	20	161	111	182	22	1	309	101	39	17	4
Future Volume (Veh/h)	69	20	161	111	182	22	1	309	101	39	17	4
Sign Control		Stop			Free			Free		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	69	20	161	111	182	22	1	309	101	39	17	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	7											
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	728	737	309	410			204			816	827	193
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	728	737	309	410			204			816	827	193
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	77	94	78	90			100			81	94	100
cM capacity (veh/h)	298	312	731	1149			1368			203	277	849
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	250	111	204	310	101	39	21					
Volume Left	69	111	0	1	0	39	0					
Volume Right	161	0	22	0	101	0	4					
cSH	846	1149	1700	1368	1700	203	318					
Volume to Capacity	0.30	0.10	0.12	0.00	0.06	0.19	0.07					
Queue Length 95th (m)	9.4	2.4	0.0	0.0	0.0	5.2	1.6					
Control Delay (s)	15.1	8.5	0.0	0.0	0.0	26.9	17.1					
Lane LOS	C	A		A		D	C					
Approach Delay (s)	15.1	3.0		0.0		23.5						
Approach LOS	C					C						
Intersection Summary												
Average Delay	5.9											
Intersection Capacity Utilization	48.8%			ICU Level of Service					A			
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	255	0	0	411	0
Future Volume (vph)	0	0	0	0	0	0	0	255	0	0	411	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)		50			50			70			70	
Link Distance (m)		19.3			73.8			169.8			537.9	
Travel Time (s)		1.4			5.3			8.7			27.7	
Confl. Peds. (#/hr)							5		5	5		5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	283	0	0	457	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	283	0	0	457	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 25.0%	ICU Level of Service A											
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1	126	178	2	29	14	201	55	14	165	3
Future Volume (vph)	8	1	126	178	2	29	14	201	55	14	165	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.874			0.860			0.968			0.998	
Flt Protected		0.997		0.950			0.950				0.996	
Satd. Flow (prot)	0	1641	0	1789	1620	0	1789	1823	0	0	3557	0
Flt Permitted		0.997		0.950			0.950				0.996	
Satd. Flow (perm)	0	1641	0	1789	1620	0	1789	1823	0	0	3557	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			533.0			477.5	
Travel Time (s)		14.4			18.5			27.4			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	1	126	178	2	29	14	201	55	14	165	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	0	178	31	0	14	256	0	0	182	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.5%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	126	178	2	29	14	201	55	14	165	3
Future Volume (Veh/h)	8	1	126	178	2	29	14	201	55	14	165	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	126	178	2	29	14	201	55	14	165	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	454	478	84	494	452	228	168			256		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	454	478	84	494	452	228	168			256		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	87	55	100	96	99			99		
cM capacity (veh/h)	463	475	958	391	491	774	1407			1306		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	135	178	31	14	256	96	86					
Volume Left	8	178	0	14	0	14	0					
Volume Right	126	0	29	0	55	0	3					
cSH	895	391	746	1407	1700	1306	1700					
Volume to Capacity	0.15	0.45	0.04	0.01	0.15	0.01	0.05					
Queue Length 95th (m)	4.0	17.5	1.0	0.2	0.0	0.2	0.0					
Control Delay (s)	9.7	21.6	10.0	7.6	0.0	1.2	0.0					
Lane LOS	A	C	B	A		A						
Approach Delay (s)	9.7	19.9		0.4		0.6						
Approach LOS	A	C										
Intersection Summary												
Average Delay				7.2								
Intersection Capacity Utilization				43.5%	ICU Level of Service				A			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	36	12	7	94	0	34	3	5	0	5	81
Future Volume (vph)	25	36	12	7	94	0	34	3	5	0	5	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976						0.983			0.874	
Flt Protected		0.983			0.996			0.961				
Satd. Flow (prot)	0	1807	0	0	1876	0	0	1779	0	0	1646	0
Flt Permitted		0.983			0.996			0.961				
Satd. Flow (perm)	0	1807	0	0	1876	0	0	1779	0	0	1646	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			74.1			68.2	
Travel Time (s)		18.5			9.0			6.7			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	2%
Adj. Flow (vph)	25	36	13	8	94	0	38	3	6	0	6	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	102	0	0	47	0	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 26.4% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	36	12	7	94	0	34	3	5	0	5	81
Future Volume (Veh/h)	25	36	12	7	94	0	34	3	5	0	5	81
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	25	36	13	8	94	0	38	3	6	0	6	81
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	94			49			286	202	42	210	209	94
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	94			49			286	202	42	210	209	94
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			94	100	99	100	99	92
cM capacity (veh/h)	1500			1558			596	679	1028	732	673	963
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	74	102	47	87								
Volume Left	25	8	38	0								
Volume Right	13	0	6	81								
cSH	1500	1558	635	935								
Volume to Capacity	0.02	0.01	0.07	0.09								
Queue Length 95th (m)	0.4	0.1	1.8	2.3								
Control Delay (s)	2.6	0.6	11.1	9.2								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.6	0.6	11.1	9.2								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.1								
Intersection Capacity Utilization				26.4%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	387	107	22	266	2	152	8	76	5	23	17
Future Volume (vph)	3	387	107	22	266	2	152	8	76	5	23	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.955			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Flt Permitted				0.950				0.955			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	387	107	22	266	2	152	8	76	5	23	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	107	22	268	0	0	160	76	0	28	17
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 44.9%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	387	107	22	266	2	152	8	76	5	23	17
Future Volume (Veh/h)	3	387	107	22	266	2	152	8	76	5	23	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	387	107	22	266	2	152	8	76	5	23	17
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1	1	
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	268			494			723	705	387	746	811	267
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268			494			723	705	387	746	811	267
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			51	98	89	98	92	98
cM capacity (veh/h)	1296			1070			309	353	661	282	306	772
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	390	107	22	268	236	45						
Volume Left	3	0	22	0	152	5						
Volume Right	0	107	0	2	76	17						
cSH	1296	1700	1070	1700	417	485						
Volume to Capacity	0.00	0.06	0.02	0.16	0.57	0.09						
Queue Length 95th (m)	0.1	0.0	0.5	0.0	25.8	2.3						
Control Delay (s)	0.1	0.0	8.4	0.0	24.3	15.0						
Lane LOS	A		A		C	B						
Approach Delay (s)	0.1		0.6		24.3	15.0						
Approach LOS					C	B						
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization			44.9%	ICU Level of Service					A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	73	20	161	111	196	25	1	355	113	44	17	4
Future Volume (vph)	73	20	161	111	196	25	1	355	113	44	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.983				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1851	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1851	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			174.7		208.5		
Travel Time (s)		14.8			34.8			9.0		18.8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	73	20	161	111	196	25	1	355	113	44	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	161	111	221	0	0	356	113	44	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	52.4%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	73	20	161	111	196	25	1	355	113	44	17	4
Future Volume (Veh/h)	73	20	161	111	196	25	1	355	113	44	17	4
Sign Control		Stop			Free			Free		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	73	20	161	111	196	25	1	355	113	44	17	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)			7									
Median type					None			None				
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	788	800	355	468			221			878	900	208
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	788	800	355	468			221			878	900	208
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	73	93	77	90			100			76	93	100
cM capacity (veh/h)	269	286	689	1094			1348			180	250	832
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	254	111	221	356	113	44	21					
Volume Left	73	111	0	1	0	44	0					
Volume Right	161	0	25	0	113	0	4					
cSH	744	1094	1700	1348	1700	180	288					
Volume to Capacity	0.34	0.10	0.13	0.00	0.07	0.24	0.07					
Queue Length 95th (m)	11.5	2.6	0.0	0.0	0.0	7.0	1.8					
Control Delay (s)	16.6	8.7	0.0	0.0	0.0	31.4	18.5					
Lane LOS	C	A		A		D	C					
Approach Delay (s)	16.6	2.9		0.0		27.2						
Approach LOS	C					D						
Intersection Summary												
Average Delay			6.2									
Intersection Capacity Utilization			52.4%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	273	0	0	469	0
Future Volume (vph)	0	0	0	0	0	0	0	273	0	0	469	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50				50				70			
Link Distance (m)	20.2				56.0				174.7			
Travel Time (s)	1.5				4.0				9.0			
Confl. Peds. (#/hr)							5			5	5	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	303	0	0	521	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	303	0	0	521	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				3.7			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	4.8				4.8				4.8			
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Free			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 28.0%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	154	146	3	8	14	269	37	7	277	3
Future Volume (vph)	10	1	154	146	3	8	14	269	37	7	277	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.874			0.891			0.982			0.998	
Flt Protected		0.997		0.950			0.950				0.999	
Satd. Flow (prot)	0	1641	0	1789	1678	0	1789	1850	0	0	3568	0
Flt Permitted		0.997		0.950			0.950				0.999	
Satd. Flow (perm)	0	1641	0	1789	1678	0	1789	1850	0	0	3568	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			535.2			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1	154	146	3	8	14	269	37	7	277	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	0	146	11	0	14	306	0	0	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	44.6%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	154	146	3	8	14	269	37	7	277	3
Future Volume (Veh/h)	10	1	154	146	3	8	14	269	37	7	277	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	1	154	146	3	8	14	269	37	7	277	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	599	626	140	622	610	288	280			306		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	599	626	140	622	610	288	280			306		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	83	52	99	99	99			99		
cM capacity (veh/h)	374	392	882	302	401	709	1280			1252		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	165	146	11	14	306	146	142					
Volume Left	10	146	0	14	0	7	0					
Volume Right	154	0	8	0	37	0	3					
cSH	810	302	586	1280	1700	1252	1700					
Volume to Capacity	0.20	0.48	0.02	0.01	0.18	0.01	0.08					
Queue Length 95th (m)	5.8	19.0	0.4	0.3	0.0	0.1	0.0					
Control Delay (s)	10.6	27.6	11.3	7.8	0.0	0.4	0.0					
Lane LOS	B	D	B	A		A						
Approach Delay (s)	10.6	26.5		0.3		0.2						
Approach LOS	B	D										
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utilization			44.6%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	44	14	9	115	0	41	0	6	0	0	0
Future Volume (vph)	0	44	14	9	115	0	41	0	6	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964								0.982			
Flt Protected					0.996				0.958			
Satd. Flow (prot)	0	1816	0	0	1876	0	0	1772	0	0	1883	0
Flt Permitted					0.996				0.958			
Satd. Flow (perm)	0	1816	0	0	1876	0	0	1772	0	0	1883	0
Link Speed (k/h)	60				60				40			
Link Distance (m)	308.8				150.6				70.4			
Travel Time (s)	18.5				9.0				6.3			
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	44	16	10	115	0	46	0	7	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	60	0	0	125	0	0	53	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.7				3.7				0.0			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	2.4				2.4				4.8			
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Stop			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 23.2%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	44	14	9	115	0	41	0	6	0	0	0
Future Volume (Veh/h)	0	44	14	9	115	0	41	0	6	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	44	16	10	115	0	46	0	7	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	115			60			187	187	52	194	195	115
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			60			187	187	52	194	195	115
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	100	100	100
cM capacity (veh/h)	1487			1544			770	703	1016	761	696	943
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	60	125	53	0								
Volume Left	0	10	46	0								
Volume Right	16	0	7	0								
cSH	1487	1544	795	1700								
Volume to Capacity	0.00	0.01	0.07	0.00								
Queue Length 95th (m)	0.0	0.1	1.6	0.0								
Control Delay (s)	0.0	0.6	9.9	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.9	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				23.2%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	472	140	34	325	3	211	10	111	6	28	21
Future Volume (vph)	4	472	140	34	325	3	211	10	111	6	28	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.954			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1797	1601	0	1866	1601
Flt Permitted				0.950				0.954			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1797	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	472	140	34	325	3	211	10	111	6	28	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	476	140	34	328	0	0	221	111	0	34	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 53.8%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	4	472	140	34	325	3	211	10	111	6	28	21	
Future Volume (Veh/h)	4	472	140	34	325	3	211	10	111	6	28	21	
Sign Control	Free				Free				Stop		Stop		
Grade	0%				0%				0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	4	472	140	34	325	3	211	10	111	6	28	21	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)										1	1		
Median type	None					None							
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	328				612			898	876	472	935	1014	326
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	328				612			898	876	472	935	1014	326
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2				2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100				96			5	96	81	97	88	97
cM capacity (veh/h)	1232				967			223	276	592	188	229	715
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	476	140	34	328	332	55							
Volume Left	4	0	34	0	211	6							
Volume Right	0	140	0	3	111	21							
cSH	1232	1700	967	1700	291	359							
Volume to Capacity	0.00	0.08	0.04	0.19	1.14	0.15							
Queue Length 95th (m)	0.1	0.0	0.8	0.0	106.4	4.1							
Control Delay (s)	0.1	0.0	8.9	0.0	134.6	18.8							
Lane LOS	A		A		F	C							
Approach Delay (s)	0.1		0.8		134.6	18.8							
Approach LOS					F	C							
Intersection Summary													
Average Delay			33.8										
Intersection Capacity Utilization			53.8%		ICU Level of Service				A				
Analysis Period (min)			15										
Description: New Intersection													

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	91	20	197	136	239	22	1	432	143	39	17	4
Future Volume (vph)	91	20	197	136	239	22	1	432	143	39	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1859	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1859	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			172.5		191.0		
Travel Time (s)		14.8			34.8			8.9		17.2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	20	197	136	239	22	1	432	143	39	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	111	197	136	261	0	0	433	143	39	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 59.5%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	91	20	197	136	239	22	1	432	143	39	17	4
Future Volume (Veh/h)	91	20	197	136	239	22	1	432	143	39	17	4
Sign Control	Stop				Free		Free		Stop			
Grade	0%				0%		0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	91	20	197	136	239	22	1	432	143	39	17	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	7											
Median type					None				None			
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	958	967	432	575			261			1064	1099	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	958	967	432	575			261			1064	1099	250
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	54	91	68	86			100			66	91	99
cM capacity (veh/h)	197	219	624	998			1303			114	183	789
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	308	136	261	433	143	39	21					
Volume Left	91	136	0	1	0	39	0					
Volume Right	197	0	22	0	143	0	4					
cSH	557	998	1700	1303	1700	114	215					
Volume to Capacity	0.55	0.14	0.15	0.00	0.08	0.34	0.10					
Queue Length 95th (m)	25.5	3.6	0.0	0.0	0.0	10.3	2.4					
Control Delay (s)	24.1	9.2	0.0	0.0	0.0	51.9	23.6					
Lane LOS	C	A		A		F	C					
Approach Delay (s)	24.1	3.1		0.0		42.0						
Approach LOS	C					E						
Intersection Summary												
Average Delay	8.4											
Intersection Capacity Utilization	59.5%			ICU Level of Service				B				
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	334	0	0	576	0
Future Volume (vph)	0	0	0	0	0	0	0	334	0	0	576	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	19.7			79.5			172.5			535.2		
Travel Time (s)	1.4			5.7			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	371	0	0	640	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	371	0	0	640	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 33.6%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	154	210	3	36	14	269	57	17	277	3
Future Volume (vph)	10	1	154	210	3	36	14	269	57	17	277	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.874			0.862			0.974			0.998	
Flt Protected		0.997		0.950			0.950				0.997	
Satd. Flow (prot)	0	1641	0	1789	1624	0	1789	1834	0	0	3561	0
Flt Permitted		0.997		0.950			0.950				0.997	
Satd. Flow (perm)	0	1641	0	1789	1624	0	1789	1834	0	0	3561	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			536.5			477.5	
Travel Time (s)		14.4			18.5			27.6			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	1	154	210	3	36	14	269	57	17	277	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	0	210	39	0	14	326	0	0	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	52.3%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	154	210	3	36	14	269	57	17	277	3
Future Volume (Veh/h)	10	1	154	210	3	36	14	269	57	17	277	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	1	154	210	3	36	14	269	57	17	277	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	647	666	140	652	640	298	280			326		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	647	666	140	652	640	298	280			326		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	83	26	99	95	99			99		
cM capacity (veh/h)	329	369	882	285	382	699	1280			1230		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	165	210	39	14	326	156	142					
Volume Left	10	210	0	14	0	17	0					
Volume Right	154	0	36	0	57	0	3					
cSH	795	285	657	1280	1700	1230	1700					
Volume to Capacity	0.21	0.74	0.06	0.01	0.19	0.01	0.08					
Queue Length 95th (m)	5.9	40.6	1.4	0.3	0.0	0.3	0.0					
Control Delay (s)	10.7	46.1	10.8	7.8	0.0	1.0	0.0					
Lane LOS	B	E	B	A		A						
Approach Delay (s)	10.7	40.6		0.3		0.5						
Approach LOS	B	E										
Intersection Summary												
Average Delay			11.5									
Intersection Capacity Utilization			52.3%		ICU Level of Service					A		
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	44	14	9	115	0	41	3	6	0	6	92
Future Volume (vph)	30	44	14	9	115	0	41	3	6	0	6	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976						0.983			0.875	
Flt Protected		0.984			0.996			0.961				
Satd. Flow (prot)	0	1809	0	0	1876	0	0	1779	0	0	1648	0
Flt Permitted		0.984			0.996			0.961				
Satd. Flow (perm)	0	1809	0	0	1876	0	0	1779	0	0	1648	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			97.7			68.2	
Travel Time (s)		18.5			9.0			8.8			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	2%
Adj. Flow (vph)	30	44	16	10	115	0	46	3	7	0	7	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	125	0	0	56	0	0	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 27.6%	ICU Level of Service A											
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	44	14	9	115	0	41	3	6	0	6	92
Future Volume (Veh/h)	30	44	14	9	115	0	41	3	6	0	6	92
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	30	44	16	10	115	0	46	3	7	0	7	92
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	115			60			342	247	52	256	255	115
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115			60			342	247	52	256	255	115
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			91	100	99	100	99	90
cM capacity (veh/h)	1474			1544			536	638	1016	680	631	937
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	90	125	56	99								
Volume Left	30	10	46	0								
Volume Right	16	0	7	92								
cSH	1474	1544	575	906								
Volume to Capacity	0.02	0.01	0.10	0.11								
Queue Length 95th (m)	0.5	0.1	2.4	2.8								
Control Delay (s)	2.6	0.6	11.9	9.5								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.6	0.6	11.9	9.5								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.2								
Intersection Capacity Utilization				27.6%	ICU Level of Service			A				
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	472	142	38	325	3	216	10	123	6	28	21
Future Volume (vph)	4	472	142	38	325	3	216	10	123	6	28	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.954			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1797	1601	0	1866	1601
Flt Permitted				0.950				0.954			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1797	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	472	142	38	325	3	216	10	123	6	28	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	476	142	38	328	0	0	226	123	0	34	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 57.4%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	472	142	38	325	3	216	10	123	6	28	21
Future Volume (Veh/h)	4	472	142	38	325	3	216	10	123	6	28	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	472	142	38	325	3	216	10	123	6	28	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	328			614			906	884	472	949	1024	326
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328			614			906	884	472	949	1024	326
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			1	96	79	97	88	97
cM capacity (veh/h)	1232			965			219	272	592	179	225	715
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	476	142	38	328	349	55						
Volume Left	4	0	38	0	216	6						
Volume Right	0	142	0	3	123	21						
cSH	1232	1700	965	1700	291	351						
Volume to Capacity	0.00	0.08	0.04	0.19	1.20	0.16						
Queue Length 95th (m)	0.1	0.0	0.9	0.0	119.1	4.2						
Control Delay (s)	0.1	0.0	8.9	0.0	156.3	19.1						
Lane LOS	A		A		F	C						
Approach Delay (s)	0.1		0.9		156.3	19.1						
Approach LOS					F	C						
Intersection Summary												
Average Delay			40.3									
Intersection Capacity Utilization			57.4%		ICU Level of Service				B			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	95	20	197	136	255	25	1	482	157	45	17	4
Future Volume (vph)	95	20	197	136	255	25	1	482	157	45	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1859	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1859	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			171.2		160.5		
Travel Time (s)		14.8			34.8			8.8		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	95	20	197	136	255	25	1	482	157	45	17	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	197	136	280	0	0	483	157	45	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	63.4%				ICU Level of Service B							
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

														
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2		
Lane Configurations														
Traffic Volume (veh/h)	95	20	197	136	255	25	1	482	157	45	17	4		
Future Volume (Veh/h)	95	20	197	136	255	25	1	482	157	45	17	4		
Sign Control		Stop			Free			Free		Stop				
Grade		0%			0%			0%		0%				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	95	20	197	136	255	25	1	482	157	45	17	4		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)	7													
Median type						None	None							
Median storage veh														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	1024	1036	482	639				280				1132	1180	268
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	1024	1036	482	639				280				1132	1180	268
tC, single (s)	7.1	6.5	6.2	4.1				4.1				7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	3.5	4.0	3.3	2.2				2.2				3.5	4.0	3.3
p0 queue free %	46	90	66	86				100				54	90	99
cM capacity (veh/h)	174	198	584	945				1283				98	163	771
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2							
Volume Total	312	136	280	483	157	45	21							
Volume Left	95	136	0	1	0	45	0							
Volume Right	197	0	25	0	157	0	4							
cSH	484	945	1700	1283	1700	98	191							
Volume to Capacity	0.64	0.14	0.16	0.00	0.09	0.46	0.11							
Queue Length 95th (m)	34.2	3.8	0.0	0.0	0.0	14.9	2.8							
Control Delay (s)	29.6	9.4	0.0	0.0	0.0	69.5	26.1							
Lane LOS	D	A		A		F	D							
Approach Delay (s)	29.6	3.1		0.0		55.7								
Approach LOS	D					F								
Intersection Summary														
Average Delay	9.9													
Intersection Capacity Utilization	63.4%			ICU Level of Service				B						
Analysis Period (min)	15													
Description: New Intersection														

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	354	0	0	640	0
Future Volume (vph)	0	0	0	0	0	0	0	354	0	0	640	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	24.6			79.8			171.2			536.5		
Travel Time (s)	1.8			5.7			8.8			27.6		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	393	0	0	711	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	393	0	0	711	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 37.0%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	2	188	178	3	9	14	319	37	7	311	3
Future Volume (vph)	13	2	188	178	3	9	14	319	37	7	311	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.875			0.887			0.984			0.999	
Flt Protected		0.997		0.950			0.950				0.999	
Satd. Flow (prot)	0	1643	0	1789	1671	0	1789	1853	0	0	3571	0
Flt Permitted		0.997		0.950			0.950				0.999	
Satd. Flow (perm)	0	1643	0	1789	1671	0	1789	1853	0	0	3571	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			535.5			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	2	188	178	3	9	14	319	37	7	311	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	178	12	0	14	356	0	0	321	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	51.3%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	2	188	178	3	9	14	319	37	7	311	3
Future Volume (Veh/h)	13	2	188	178	3	9	14	319	37	7	311	3
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	2	188	178	3	9	14	319	37	7	311	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	684	710	157	724	694	338	314				356	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	684	710	157	724	694	338	314				356	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	96	99	78	26	99	99	99				99	
cM capacity (veh/h)	324	351	861	241	359	658	1243				1199	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	203	178	12	14	356	162	158					
Volume Left	13	178	0	14	0	7	0					
Volume Right	188	0	9	0	37	0	3					
cSH	768	241	545	1243	1700	1199	1700					
Volume to Capacity	0.26	0.74	0.02	0.01	0.21	0.01	0.09					
Queue Length 95th (m)	8.1	39.1	0.5	0.3	0.0	0.1	0.0					
Control Delay (s)	11.4	53.1	11.8	7.9	0.0	0.4	0.0					
Lane LOS	B	F	B	A		A						
Approach Delay (s)	11.4	50.5		0.3		0.2						
Approach LOS	B	F										
Intersection Summary												
Average Delay				11.1								
Intersection Capacity Utilization				51.3%	ICU Level of Service				A			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	54	17	11	140	0	50	0	8	0	0	0
Future Volume (vph)	0	54	17	11	140	0	50	0	8	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965						0.981				
Flt Protected					0.996			0.959				
Satd. Flow (prot)	0	1818	0	0	1876	0	0	1772	0	0	1883	0
Flt Permitted					0.996			0.959				
Satd. Flow (perm)	0	1818	0	0	1876	0	0	1772	0	0	1883	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			88.3			68.2	
Travel Time (s)		18.5			9.0			7.9			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	54	19	12	140	0	56	0	9	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	152	0	0	65	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.6%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	54	17	11	140	0	50	0	8	0	0	0
Future Volume (Veh/h)	0	54	17	11	140	0	50	0	8	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	54	19	12	140	0	56	0	9	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	140			73			228	228	64	236	237	140
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	140			73			228	228	64	236	237	140
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			92	100	99	100	100	100
cM capacity (veh/h)	1456			1527			723	667	1001	711	659	913
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	73	152	65	0								
Volume Left	0	12	56	0								
Volume Right	19	0	9	0								
cSH	1456	1527	752	1700								
Volume to Capacity	0.00	0.01	0.09	0.00								
Queue Length 95th (m)	0.0	0.2	2.1	0.0								
Control Delay (s)	0.0	0.6	10.2	0.0								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	0.6	10.2	0.0								
Approach LOS			B	A								
Intersection Summary												
Average Delay				2.6								
Intersection Capacity Utilization				24.6%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	576	167	38	396	3	247	13	126	8	35	25
Future Volume (vph)	5	576	167	38	396	3	247	13	126	8	35	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.955			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Flt Permitted				0.950				0.955			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	576	167	38	396	3	247	13	126	8	35	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	581	167	38	399	0	0	260	126	0	43	25
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 62.0%				ICU Level of Service B								
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	576	167	38	396	3	247	13	126	8	35	25
Future Volume (Veh/h)	5	576	167	38	396	3	247	13	126	8	35	25
Sign Control	Free				Free				Stop		Stop	
Grade	0%				0%				0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	576	167	38	396	3	247	13	126	8	35	25
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	399			743			1088	1061	576	1129	1226	398
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399			743			1088	1061	576	1129	1226	398
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			0	94	76	94	79	96
cM capacity (veh/h)	1160			864			151	213	517	126	170	652
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	581	167	38	399	386	68						
Volume Left	5	0	38	0	247	8						
Volume Right	0	167	0	3	126	25						
cSH	1160	1700	864	1700	200	256						
Volume to Capacity	0.00	0.10	0.04	0.23	1.93	0.27						
Queue Length 95th (m)	0.1	0.0	1.0	0.0	215.7	7.9						
Control Delay (s)	0.1	0.0	9.4	0.0	477.2	26.2						
Lane LOS	A		A		F	D						
Approach Delay (s)	0.1		0.8		477.2	26.2						
Approach LOS					F	D						
Intersection Summary												
Average Delay			113.7									
Intersection Capacity Utilization			62.0%	ICU Level of Service					B			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	397	0	0	677	0
Future Volume (vph)	0	0	0	0	0	0	0	397	0	0	677	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.8			80.1			172.2			535.5		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	441	0	0	752	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	441	0	0	752	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	39.0%				ICU Level of Service A							
Analysis Period (min)	15											

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	2	188	242	3	37	14	319	57	17	311	3
Future Volume (vph)	13	2	188	242	3	37	14	319	57	17	311	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.875			0.861			0.977			0.999	
Flt Protected		0.997		0.950			0.950				0.997	
Satd. Flow (prot)	0	1643	0	1789	1622	0	1789	1840	0	0	3564	0
Flt Permitted		0.997		0.950			0.950				0.997	
Satd. Flow (perm)	0	1643	0	1789	1622	0	1789	1840	0	0	3564	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			535.6			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	2	188	242	3	37	14	319	57	17	311	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	242	40	0	14	376	0	0	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 57.2%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	2	188	242	3	37	14	319	57	17	311	3
Future Volume (Veh/h)	13	2	188	242	3	37	14	319	57	17	311	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	2	188	242	3	37	14	319	57	17	311	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	732	750	157	754	724	348	314			376		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	732	750	157	754	724	348	314			376		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	99	78	0	99	94	99			99		
cM capacity (veh/h)	284	330	861	227	342	649	1243			1179		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	203	242	40	14	376	172	158					
Volume Left	13	242	0	14	0	17	0					
Volume Right	188	0	37	0	57	0	3					
cSH	751	227	608	1243	1700	1179	1700					
Volume to Capacity	0.27	1.06	0.07	0.01	0.22	0.01	0.09					
Queue Length 95th (m)	8.3	79.7	1.6	0.3	0.0	0.3	0.0					
Control Delay (s)	11.6	123.7	11.3	7.9	0.0	0.9	0.0					
Lane LOS	B	F	B	A		A						
Approach Delay (s)	11.6	107.8		0.3		0.5						
Approach LOS	B	F										
Intersection Summary												
Average Delay			27.4									
Intersection Capacity Utilization			57.2%		ICU Level of Service					B		
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	54	17	11	140	0	50	3	8	0	6	92
Future Volume (vph)	30	54	17	11	140	0	50	3	8	0	6	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975						0.982			0.875	
Flt Protected		0.986			0.996			0.960				
Satd. Flow (prot)	0	1811	0	0	1876	0	0	1776	0	0	1648	0
Flt Permitted		0.986			0.996			0.960				
Satd. Flow (perm)	0	1811	0	0	1876	0	0	1776	0	0	1648	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			98.9			68.2	
Travel Time (s)		18.5			9.0			8.9			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	2%
Adj. Flow (vph)	30	54	19	12	140	0	56	3	9	0	7	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	152	0	0	68	0	0	99	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane								Yes				
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.7%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	54	17	11	140	0	50	3	8	0	6	92
Future Volume (Veh/h)	30	54	17	11	140	0	50	3	8	0	6	92
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	30	54	19	12	140	0	56	3	9	0	7	92
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	140			73			383	288	64	298	297	140
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	140			73			383	288	64	298	297	140
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			89	100	99	100	99	90
cM capacity (veh/h)	1443			1527			501	605	1001	636	597	908
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	152	68	99								
Volume Left	30	12	56	0								
Volume Right	19	0	9	92								
cSH	1443	1527	541	876								
Volume to Capacity	0.02	0.01	0.13	0.11								
Queue Length 95th (m)	0.5	0.2	3.3	2.9								
Control Delay (s)	2.3	0.6	12.6	9.6								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.3	0.6	12.6	9.6								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.1								
Intersection Capacity Utilization				30.7%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱	↰	↱			↰	↱		↰	↱
Traffic Volume (vph)	5	576	169	42	396	3	252	13	138	8	35	25
Future Volume (vph)	5	576	169	42	396	3	252	13	138	8	35	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.999				0.850			0.850
Flt Protected				0.950				0.955			0.991	
Satd. Flow (prot)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Flt Permitted				0.950				0.955			0.991	
Satd. Flow (perm)	0	1883	1601	1789	1882	0	0	1799	1601	0	1866	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	576	169	42	396	3	252	13	138	8	35	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	581	169	42	399	0	0	265	138	0	43	25
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 62.9%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	576	169	42	396	3	252	13	138	8	35	25
Future Volume (Veh/h)	5	576	169	42	396	3	252	13	138	8	35	25
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	576	169	42	396	3	252	13	138	8	35	25
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	399				745			1096	1069	576	1143	1236
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399				745			1096	1069	576	1143	1236
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2				2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	100				95			0	94	73	93	79
cM capacity (veh/h)	1160				863			148	210	517	119	167
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	581	169	42	399	403	68						
Volume Left	5	0	42	0	252	8						
Volume Right	0	169	0	3	138	25						
cSH	1160	1700	863	1700	199	250						
Volume to Capacity	0.00	0.10	0.05	0.23	2.02	0.27						
Queue Length 95th (m)	0.1	0.0	1.2	0.0	231.4	8.2						
Control Delay (s)	0.1	0.0	9.4	0.0	516.8	26.8						
Lane LOS	A		A		F	D						
Approach Delay (s)	0.1		0.9		516.8	26.8						
Approach LOS					F	D						
Intersection Summary												
Average Delay				126.7								
Intersection Capacity Utilization				62.9%	ICU Level of Service				B			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	417	0	0	741	0
Future Volume (vph)	0	0	0	0	0	0	0	417	0	0	741	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	18.6			82.9			172.1			535.6		
Travel Time (s)	1.3			6.0			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	463	0	0	823	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	463	0	0	823	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.3%				ICU Level of Service A							
Analysis Period (min)	15											

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	6	64	64	5	23	102	97	71	8	106	11
Future Volume (vph)	3	6	64	64	5	23	102	97	71	8	106	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.882			0.877			0.937			0.987	
Flt Protected		0.998		0.950			0.950				0.997	
Satd. Flow (prot)	0	1658	0	1789	1652	0	1789	1765	0	0	3521	0
Flt Permitted		0.998		0.950			0.950				0.997	
Satd. Flow (perm)	0	1658	0	1789	1652	0	1789	1765	0	0	3521	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	6	64	64	5	23	102	97	71	8	106	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	64	28	0	102	168	0	0	125	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 29.2%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	64	64	5	23	102	97	71	8	106	11
Future Volume (Veh/h)	3	6	64	64	5	23	102	97	71	8	106	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	6	64	64	5	23	102	97	71	8	106	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	454	500	58	472	470	132	117	168				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	454	500	58	472	470	132	117	168				
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	99	99	94	85	99	97	93	99				
cM capacity (veh/h)	446	436	995	414	454	892	1469	1407				
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	73	64	28	102	168	61	64					
Volume Left	3	64	0	102	0	8	0					
Volume Right	64	0	23	0	71	0	11					
cSH	861	414	761	1469	1700	1407	1700					
Volume to Capacity	0.08	0.15	0.04	0.07	0.10	0.01	0.04					
Queue Length 95th (m)	2.1	4.1	0.9	1.7	0.0	0.1	0.0					
Control Delay (s)	9.6	15.3	9.9	7.6	0.0	1.0	0.0					
Lane LOS	A	C	A	A		A						
Approach Delay (s)	9.6	13.6		2.9		0.5						
Approach LOS	A	B										
Intersection Summary												
Average Delay			5.0									
Intersection Capacity Utilization			29.2%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	64	21	5	68	0	24	0	7	0	0	0
Future Volume (vph)	0	64	21	5	68	0	24	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964								0.969			
Flt Protected					0.996				0.963			
Satd. Flow (prot)	0	1816	0	0	1876	0	0	1758	0	0	1883	0
Flt Permitted					0.996				0.963			
Satd. Flow (perm)	0	1816	0	0	1876	0	0	1758	0	0	1883	0
Link Speed (k/h)	60				60				40			
Link Distance (m)	308.8				150.6				69.4			
Travel Time (s)	18.5				9.0				6.2			
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	64	23	6	68	0	27	0	8	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	74	0	0	35	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.7				3.7				0.0			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	2.4				2.4				4.8			
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Stop			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 17.7%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	64	21	5	68	0	24	0	7	0	0	0
Future Volume (Veh/h)	0	64	21	5	68	0	24	0	7	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	64	23	6	68	0	27	0	8	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	68			87			156	156	76	164	167	68
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68			87			156	156	76	164	167	68
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			97	100	99	100	100	100
cM capacity (veh/h)	1546			1509			809	733	986	797	723	1001
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	87	74	35	0								
Volume Left	0	6	27	0								
Volume Right	23	0	8	0								
cSH	1546	1509	843	1700								
Volume to Capacity	0.00	0.00	0.04	0.00								
Queue Length 95th (m)	0.0	0.1	1.0	0.0								
Control Delay (s)	0.0	0.6	9.5	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.5	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			17.7%	ICU Level of Service						A		
Analysis Period (min)			15									

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	292	53	68	364	6	83	14	26	4	4	2
Future Volume (vph)	8	292	53	68	364	6	83	14	26	4	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998				0.850			0.850
Flt Protected		0.999		0.950				0.959			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1880	0	0	1806	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.959			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1880	0	0	1806	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	292	53	68	364	6	83	14	26	4	4	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	53	68	370	0	0	97	26	0	8	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 57.3%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	292	53	68	364	6	83	14	26	4	4	2
Future Volume (Veh/h)	8	292	53	68	364	6	83	14	26	4	4	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	292	53	68	364	6	83	14	26	4	4	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None				None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	370			345			811	814	292	831	864	367
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	370			345			811	814	292	831	864	367
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			70	95	97	98	99	100
cM capacity (veh/h)	1189			1214			280	293	747	256	274	678
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	300	53	68	370	123	10						
Volume Left	8	0	68	0	83	4						
Volume Right	0	53	0	6	26	2						
cSH	1189	1700	1214	1700	341	331						
Volume to Capacity	0.01	0.03	0.06	0.22	0.36	0.03						
Queue Length 95th (m)	0.2	0.0	1.4	0.0	12.2	0.7						
Control Delay (s)	0.3	0.0	8.1	0.0	21.4	17.3						
Lane LOS	A		A		C	C						
Approach Delay (s)	0.2		1.3		21.4	17.3						
Approach LOS					C	C						
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			57.3%	ICU Level of Service					B			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	77	11	114	200	188	26	1	154	79	23	20	5
Future Volume (vph)	77	11	114	200	188	26	1	154	79	23	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.982				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1850	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1850	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			173.4		160.1		
Travel Time (s)		14.8			34.8			8.9		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	77	11	114	200	188	26	1	154	79	23	20	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	114	200	214	0	0	155	79	23	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	41.2%											
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

														
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2		
Lane Configurations														
Traffic Volume (veh/h)	77	11	114	200	188	26	1	154	79	23	20	5		
Future Volume (Veh/h)	77	11	114	200	188	26	1	154	79	23	20	5		
Sign Control	Stop				Free				Free		Stop			
Grade	0%				0%				0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	77	11	114	200	188	26	1	154	79	23	20	5		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)	7													
Median type					None				None					
Median storage veh														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	759	770	154	233				214				820	836	201
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	759	770	154	233				214				820	836	201
tC, single (s)	7.1	6.5	6.2	4.1				4.1				7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	3.5	4.0	3.3	2.2				2.2				3.5	4.0	3.3
p0 queue free %	71	96	87	85				100				90	92	99
cM capacity (veh/h)	268	281	892	1335				1356				220	258	840
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2							
Volume Total	202	200	214	155	79	23	25							
Volume Left	77	200	0	1	0	23	0							
Volume Right	114	0	26	0	79	0	5							
cSH	618	1335	1700	1356	1700	220	299							
Volume to Capacity	0.33	0.15	0.13	0.00	0.05	0.10	0.08							
Queue Length 95th (m)	10.8	4.0	0.0	0.0	0.0	2.6	2.1							
Control Delay (s)	16.2	8.2	0.0	0.1	0.0	23.2	18.1							
Lane LOS	C	A		A		C	C							
Approach Delay (s)	16.2	3.9		0.0		20.6								
Approach LOS	C					C								
Intersection Summary														
Average Delay	6.6													
Intersection Capacity Utilization	41.2%			ICU Level of Service				A						
Analysis Period (min)	15													
Description: New Intersection														

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	270	0	0	234	0
Future Volume (vph)	0	0	0	0	0	0	0	270	0	0	234	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50				50				70			
Link Distance (m)	23.9				80.1				173.4			
Travel Time (s)	1.7				5.8				8.9			
Confl. Peds. (#/hr)							5			5	5	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	300	0	0	260	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	300	0	0	260	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				3.7			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	4.8				4.8				4.8			
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Free			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 17.5%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	6	68	68	5	24	102	147	71	8	141	11
Future Volume (vph)	3	6	68	68	5	24	102	147	71	8	141	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.881			0.876			0.951			0.990	
Flt Protected		0.998		0.950			0.950				0.998	
Satd. Flow (prot)	0	1656	0	1789	1650	0	1789	1791	0	0	3536	0
Flt Permitted		0.998		0.950			0.950				0.998	
Satd. Flow (perm)	0	1656	0	1789	1650	0	1789	1791	0	0	3536	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	6	68	68	5	24	102	147	71	8	141	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	68	29	0	102	218	0	0	160	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 37.0%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	68	68	5	24	102	147	71	8	141	11
Future Volume (Veh/h)	3	6	68	68	5	24	102	147	71	8	141	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	6	68	68	5	24	102	147	71	8	141	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	540	584	76	544	554	182	152			218		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	540	584	76	544	554	182	152			218		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	93	81	99	97	93			99		
cM capacity (veh/h)	385	389	970	365	405	829	1426			1349		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	77	68	29	102	218	78	82					
Volume Left	3	68	0	102	0	8	0					
Volume Right	68	0	24	0	71	0	11					
cSH	825	365	702	1426	1700	1349	1700					
Volume to Capacity	0.09	0.19	0.04	0.07	0.13	0.01	0.05					
Queue Length 95th (m)	2.3	5.1	1.0	1.8	0.0	0.1	0.0					
Control Delay (s)	9.8	17.1	10.3	7.7	0.0	0.8	0.0					
Lane LOS	A	C	B	A		A						
Approach Delay (s)	9.8	15.1		2.5		0.4						
Approach LOS	A	C										
Intersection Summary												
Average Delay			4.7									
Intersection Capacity Utilization			37.0%		ICU Level of Service					A		
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	68	22	5	72	0	25	0	7	0	0	0
Future Volume (vph)	0	68	22	5	72	0	25	0	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.965						0.970				
Flt Protected					0.996			0.963				
Satd. Flow (prot)	0	1818	0	0	1876	0	0	1759	0	0	1883	0
Flt Permitted					0.996			0.963				
Satd. Flow (perm)	0	1818	0	0	1876	0	0	1759	0	0	1883	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			69.4			68.2	
Travel Time (s)		18.5			9.0			6.2			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	68	24	6	72	0	28	0	8	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	0	0	78	0	0	36	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	17.9%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	68	22	5	72	0	25	0	7	0	0	0
Future Volume (Veh/h)	0	68	22	5	72	0	25	0	7	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	68	24	6	72	0	28	0	8	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	72			92			164	164	80	172	176	72
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72			92			164	164	80	172	176	72
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	100	100	100
cM capacity (veh/h)	1541			1503			798	726	980	787	715	996
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	92	78	36	0								
Volume Left	0	6	28	0								
Volume Right	24	0	8	0								
cSH	1541	1503	833	1700								
Volume to Capacity	0.00	0.00	0.04	0.00								
Queue Length 95th (m)	0.0	0.1	1.0	0.0								
Control Delay (s)	0.0	0.6	9.5	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.5	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay				1.9								
Intersection Capacity Utilization				17.9%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	310	69	85	386	6	96	15	36	4	4	2
Future Volume (vph)	8	310	69	85	386	6	96	15	36	4	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998				0.850			0.850
Flt Protected		0.999		0.950				0.959			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1880	0	0	1806	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.959			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1880	0	0	1806	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	310	69	85	386	6	96	15	36	4	4	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	69	85	392	0	0	111	36	0	8	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	60.2%						ICU Level of Service B					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	310	69	85	386	6	96	15	36	4	4	2
Future Volume (Veh/h)	8	310	69	85	386	6	96	15	36	4	4	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	310	69	85	386	6	96	15	36	4	4	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	392			379			885	888	310	910	954	389
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	392			379			885	888	310	910	954	389
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			61	94	95	98	98	100
cM capacity (veh/h)	1167			1179			246	261	730	218	238	659
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	318	69	85	392	147	10						
Volume Left	8	0	85	0	96	4						
Volume Right	0	69	0	6	36	2						
cSH	1167	1700	1179	1700	312	285						
Volume to Capacity	0.01	0.04	0.07	0.23	0.47	0.04						
Queue Length 95th (m)	0.2	0.0	1.8	0.0	18.2	0.8						
Control Delay (s)	0.3	0.0	8.3	0.0	26.4	19.2						
Lane LOS	A		A		D	C						
Approach Delay (s)	0.2			1.5	26.4	19.2						
Approach LOS					D	C						
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			60.2%		ICU Level of Service				B			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	94	11	121	212	232	26	1	184	92	23	20	5
Future Volume (vph)	94	11	121	212	232	26	1	184	92	23	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.985				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1855	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1855	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			173.4		160.1		
Travel Time (s)		14.8			34.8			8.9		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	94	11	121	212	232	26	1	184	92	23	20	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	105	121	212	258	0	0	185	92	23	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 46.0%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	94	11	121	212	232	26	1	184	92	23	20	5
Future Volume (Veh/h)	94	11	121	212	232	26	1	184	92	23	20	5
Sign Control		Stop			Free			Free		Stop		
Grade		0%			0%			0%		0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	94	11	121	212	232	26	1	184	92	23	20	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	7											
Median type						None	None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	857	868	184	276			258			921	947	245
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	857	868	184	276			258			921	947	245
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	58	95	86	84			100			87	91	99
cM capacity (veh/h)	224	242	858	1287			1307			182	218	794
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	226	212	258	185	92	23	25					
Volume Left	94	212	0	1	0	23	0					
Volume Right	121	0	26	0	92	0	5					
cSH	487	1287	1700	1307	1700	182	255					
Volume to Capacity	0.46	0.16	0.15	0.00	0.05	0.13	0.10					
Queue Length 95th (m)	18.4	4.5	0.0	0.0	0.0	3.2	2.5					
Control Delay (s)	21.1	8.3	0.0	0.0	0.0	27.6	20.6					
Lane LOS	C	A		A		D	C					
Approach Delay (s)	21.1	3.8		0.0		24.0						
Approach LOS	C					C						
Intersection Summary												
Average Delay	7.5											
Intersection Capacity Utilization	46.0%			ICU Level of Service					A			
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	331	0	0	277	0
Future Volume (vph)	0	0	0	0	0	0	0	331	0	0	277	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.9			80.1			173.4			534.3		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	368	0	0	308	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	368	0	0	308	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0			3.7			3.7	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	4.8				4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 20.8%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	6	68	102	5	39	102	147	133	36	141	11
Future Volume (vph)	3	6	68	102	5	39	102	147	133	36	141	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.881			0.867			0.929			0.991	
Flt Protected		0.998		0.950			0.950				0.991	
Satd. Flow (prot)	0	1656	0	1789	1633	0	1789	1750	0	0	3514	0
Flt Permitted		0.998		0.950			0.950				0.991	
Satd. Flow (perm)	0	1656	0	1789	1633	0	1789	1750	0	0	3514	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	6	68	102	5	39	102	147	133	36	141	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	102	44	0	102	280	0	0	188	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.5%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	6	68	102	5	39	102	147	133	36	141	11
Future Volume (Veh/h)	3	6	68	102	5	39	102	147	133	36	141	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	6	68	102	5	39	102	147	133	36	141	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	611	702	76	631	642	214	152			280		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	611	702	76	631	642	214	152			280		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	98	93	67	99	95	93			97		
cM capacity (veh/h)	329	325	970	310	353	792	1426			1280		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	77	102	44	102	280	106	82					
Volume Left	3	102	0	102	0	36	0					
Volume Right	68	0	39	0	133	0	11					
cSH	788	310	694	1426	1700	1280	1700					
Volume to Capacity	0.10	0.33	0.06	0.07	0.16	0.03	0.05					
Queue Length 95th (m)	2.5	10.6	1.5	1.8	0.0	0.7	0.0					
Control Delay (s)	10.1	22.2	10.5	7.7	0.0	2.8	0.0					
Lane LOS	B	C	B	A		A						
Approach Delay (s)	10.1	18.7		2.1		1.6						
Approach LOS	B	C										
Intersection Summary												
Average Delay				5.8								
Intersection Capacity Utilization				43.5%	ICU Level of Service				A			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	68	22	5	72	0	25	9	7	0	3	54
Future Volume (vph)	90	68	22	5	72	0	25	9	7	0	3	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.982						0.977			0.872	
Flt Protected		0.976			0.996			0.970				
Satd. Flow (prot)	0	1823	0	0	1876	0	0	1785	0	0	1673	0
Flt Permitted		0.976			0.996			0.970				
Satd. Flow (perm)	0	1823	0	0	1876	0	0	1785	0	0	1673	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			69.4			68.2	
Travel Time (s)		18.5			9.0			6.2			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	90	68	24	6	72	0	28	10	8	0	3	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	182	0	0	78	0	0	46	0	0	57	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 32.2% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	68	22	5	72	0	25	9	7	0	3	54
Future Volume (Veh/h)	90	68	22	5	72	0	25	9	7	0	3	54
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	90	68	24	6	72	0	28	10	8	0	3	54
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	72			92			400	344	80	357	356	72
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72			92			400	344	80	357	356	72
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			94	98	99	100	99	95
cM capacity (veh/h)	1541			1503			503	543	980	561	534	996
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	182	78	46	57								
Volume Left	90	6	28	0								
Volume Right	24	0	8	54								
cSH	1541	1503	559	953								
Volume to Capacity	0.06	0.00	0.08	0.06								
Queue Length 95th (m)	1.4	0.1	2.0	1.4								
Control Delay (s)	3.9	0.6	12.0	9.0								
Lane LOS	A	A	B	A								
Approach Delay (s)	3.9	0.6	12.0	9.0								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.0								
Intersection Capacity Utilization				32.2%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	310	74	97	386	6	99	15	43	4	4	2
Future Volume (vph)	8	310	74	97	386	6	99	15	43	4	4	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998				0.850			0.850
Flt Protected		0.999		0.950				0.958			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.958			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	310	74	97	386	6	99	15	43	4	4	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	318	74	97	392	0	0	114	43	0	8	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	60.4%						ICU Level of Service B					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	310	74	97	386	6	99	15	43	4	4	2
Future Volume (Veh/h)	8	310	74	97	386	6	99	15	43	4	4	2
Sign Control	Free				Free				Stop		Stop	
Grade	0%				0%				0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	310	74	97	386	6	99	15	43	4	4	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)									1	1		
Median type	None				None							
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	392			384			909	912	310	938	983	389
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	392			384			909	912	310	938	983	389
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			92			58	94	94	98	98	100
cM capacity (veh/h)	1167			1174			235	249	730	205	227	659
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	318	74	97	392	157	10						
Volume Left	8	0	97	0	99	4						
Volume Right	0	74	0	6	43	2						
cSH	1167	1700	1174	1700	308	270						
Volume to Capacity	0.01	0.04	0.08	0.23	0.51	0.04						
Queue Length 95th (m)	0.2	0.0	2.0	0.0	20.7	0.9						
Control Delay (s)	0.3	0.0	8.3	0.0	28.2	20.0						
Lane LOS	A		A		D	C						
Approach Delay (s)	0.2		1.7		28.2	20.0						
Approach LOS					D	C						
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			60.4%			ICU Level of Service			B			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	108	11	121	212	280	35	1	214	100	26	20	5
Future Volume (vph)	108	11	121	212	280	35	1	214	100	26	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.983				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1851	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1851	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			173.4		160.1		
Travel Time (s)		14.8			34.8			8.9		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	108	11	121	212	280	35	1	214	100	26	20	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	119	121	212	315	0	0	215	100	26	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 51.4%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (veh/h)	108	11	121	212	280	35	1	214	100	26	20	5
Future Volume (Veh/h)	108	11	121	212	280	35	1	214	100	26	20	5
Sign Control		Stop			Free			Free			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	108	11	121	212	280	35	1	214	100	26	20	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	935	955	214	314			315			1004	1038	298
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	955	214	314			315			1004	1038	298
tC, single (s)	7.1	6.5	6.2	4.1			4.1			7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			3.5	4.0	3.3
p0 queue free %	45	95	85	83			100			83	90	99
cM capacity (veh/h)	196	214	826	1246			1245			157	192	742
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2					
Volume Total	240	212	315	215	100	26	25					
Volume Left	108	212	0	1	0	26	0					
Volume Right	121	0	35	0	100	0	5					
cSH	398	1246	1700	1245	1700	157	225					
Volume to Capacity	0.60	0.17	0.19	0.00	0.06	0.17	0.11					
Queue Length 95th (m)	29.0	4.7	0.0	0.0	0.0	4.4	2.8					
Control Delay (s)	28.7	8.5	0.0	0.0	0.0	32.3	23.0					
Lane LOS	D	A		A		D	C					
Approach Delay (s)	28.7	3.4		0.0		27.8						
Approach LOS	D					D						
Intersection Summary												
Average Delay			8.9									
Intersection Capacity Utilization			51.4%			ICU Level of Service			A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	331	0	0	393	0
Future Volume (vph)	0	0	0	0	0	0	0	331	0	0	393	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50				50				70			
Link Distance (m)	23.9				80.1				173.4			
Travel Time (s)	1.7				5.8				8.9			
Confl. Peds. (#/hr)							5			5	5	5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	368	0	0	437	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	368	0	0	437	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				3.7			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	4.8				4.8				4.8			
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Free			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 24.0%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	83	83	6	30	102	262	71	8	220	11
Future Volume (vph)	4	8	83	83	6	30	102	262	71	8	220	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.882			0.875			0.968			0.993	
Flt Protected		0.998		0.950			0.950				0.998	
Satd. Flow (prot)	0	1658	0	1789	1648	0	1789	1823	0	0	3546	0
Flt Permitted		0.998		0.950			0.950				0.998	
Satd. Flow (perm)	0	1658	0	1789	1648	0	1789	1823	0	0	3546	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	8	83	83	6	30	102	262	71	8	220	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	83	36	0	102	333	0	0	239	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.0%						ICU Level of Service A					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	83	83	6	30	102	262	71	8	220	11
Future Volume (Veh/h)	4	8	83	83	6	30	102	262	71	8	220	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	8	83	83	6	30	102	262	71	8	220	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	740	778	116	714	748	298	231				333	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	740	778	116	714	748	298	231				333	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	99	97	91	69	98	96	92				99	
cM capacity (veh/h)	269	299	915	266	311	699	1334				1223	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	95	83	36	102	333	118	121					
Volume Left	4	83	0	102	0	8	0					
Volume Right	83	0	30	0	71	0	11					
cSH	718	266	579	1334	1700	1223	1700					
Volume to Capacity	0.13	0.31	0.06	0.08	0.20	0.01	0.07					
Queue Length 95th (m)	3.5	9.8	1.5	1.9	0.0	0.2	0.0					
Control Delay (s)	10.8	24.6	11.6	7.9	0.0	0.6	0.0					
Lane LOS	B	C	B	A		A						
Approach Delay (s)	10.8	20.7		1.9		0.3						
Approach LOS	B	C										
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			46.0%		ICU Level of Service				A			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	83	27	6	88	0	31	0	9	0	0	0
Future Volume (vph)	0	83	27	6	88	0	31	0	9	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964								0.969			
Flt Protected					0.996				0.963			
Satd. Flow (prot)	0	1816	0	0	1876	0	0	1758	0	0	1883	0
Flt Permitted					0.996				0.963			
Satd. Flow (perm)	0	1816	0	0	1876	0	0	1758	0	0	1883	0
Link Speed (k/h)	60				60				40			
Link Distance (m)	308.8				150.6				69.4			
Travel Time (s)	18.5				9.0				6.2			
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	83	30	7	88	0	34	0	10	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	95	0	0	44	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.7				3.7				0.0			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	2.4				2.4				4.8			
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free				Free				Stop			
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 19.6%												
ICU Level of Service A												
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	83	27	6	88	0	31	0	9	0	0	0
Future Volume (Veh/h)	0	83	27	6	88	0	31	0	9	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	83	30	7	88	0	34	0	10	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	88			113			200	200	98	210	215	88
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	88			113			200	200	98	210	215	88
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	100	100	100
cM capacity (veh/h)	1520			1476			756	693	958	741	679	976
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	113	95	44	0								
Volume Left	0	7	34	0								
Volume Right	30	0	10	0								
cSH	1520	1476	794	1700								
Volume to Capacity	0.00	0.00	0.06	0.00								
Queue Length 95th (m)	0.0	0.1	1.3	0.0								
Control Delay (s)	0.0	0.6	9.8	0.0								
Lane LOS		A	A	A								
Approach Delay (s)	0.0	0.6	9.8	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			19.6%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	378	120	139	471	8	139	18	66	5	5	3
Future Volume (vph)	10	378	120	139	471	8	139	18	66	5	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected		0.999		0.950				0.958			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1878	0	0	1804	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.958			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1878	0	0	1804	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	378	120	139	471	8	139	18	66	5	5	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	388	120	139	479	0	0	157	66	0	10	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	71.0%						ICU Level of Service C					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	10	378	120	139	471	8	139	18	66	5	5	3	
Future Volume (Veh/h)	10	378	120	139	471	8	139	18	66	5	5	3	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	10	378	120	139	471	8	139	18	66	5	5	3	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)									1				1
Median type	None				None								
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	479			498			1151	1155	378	1193	1271	475	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	479			498			1151	1155	378	1193	1271	475	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			87			8	89	90	96	97	99	
cM capacity (veh/h)	1083			1066			152	170	669	121	145	590	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	388	120	139	479	223	13							
Volume Left	10	0	139	0	139	5							
Volume Right	0	120	0	8	66	3							
cSH	1083	1700	1066	1700	202	173							
Volume to Capacity	0.01	0.07	0.13	0.28	1.11	0.08							
Queue Length 95th (m)	0.2	0.0	3.4	0.0	80.4	1.8							
Control Delay (s)	0.3	0.0	8.9	0.0	144.1	28.9							
Lane LOS	A		A		F	D							
Approach Delay (s)	0.2		2.0		144.1	28.9							
Approach LOS					F	D							
Intersection Summary													
Average Delay			24.9										
Intersection Capacity Utilization			71.0%	ICU Level of Service				C					
Analysis Period (min)			15										
Description: New Intersection													

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	137	11	147	259	343	26	1	259	125	23	20	5
Future Volume (vph)	137	11	147	259	343	26	1	259	125	23	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.989				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1863	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1863	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			173.4		160.1		
Travel Time (s)		14.8			34.8			8.9		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	11	147	259	343	26	1	259	125	23	20	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	148	147	259	369	0	0	260	125	23	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	58.2%											
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

														
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2		
Lane Configurations														
Traffic Volume (veh/h)	137	11	147	259	343	26	1	259	125	23	20	5		
Future Volume (Veh/h)	137	11	147	259	343	26	1	259	125	23	20	5		
Sign Control	Stop				Free				Free					
Grade	0%				0%				0%					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	137	11	147	259	343	26	1	259	125	23	20	5		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)														
Median type														
Median storage veh														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	1137	1148	259	384				369				1214	1260	356
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	1137	1148	259	384				369				1214	1260	356
tC, single (s)	7.1	6.5	6.2	4.1				4.1				7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	3.5	4.0	3.3	2.2				2.2				3.5	4.0	3.3
p0 queue free %	0	93	81	78				100				77	85	99
cM capacity (veh/h)	131	155	780	1174				1190				101	133	688
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2							
Volume Total	295	259	369	260	125	23	25							
Volume Left	137	259	0	1	0	23	0							
Volume Right	147	0	26	0	125	0	5							
cSH	260	1174	1700	1190	1700	101	158							
Volume to Capacity	1.14	0.22	0.22	0.00	0.07	0.23	0.16							
Queue Length 95th (m)	98.5	6.4	0.0	0.0	0.0	6.2	4.1							
Control Delay (s)	139.1	8.9	0.0	0.0	0.0	50.8	32.0							
Lane LOS	F	A		A		F	D							
Approach Delay (s)	139.1	3.7		0.0		41.0								
Approach LOS	F					E								
Intersection Summary														
Average Delay			33.4											
Intersection Capacity Utilization			58.2%		ICU Level of Service				B					
Analysis Period (min)			15											
Description: New Intersection														

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	485	0	0	385	0
Future Volume (vph)	0	0	0	0	0	0	0	485	0	0	385	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.9			80.1			173.4			534.3		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	539	0	0	428	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	539	0	0	428	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 28.9%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	83	125	6	48	102	262	139	38	220	11
Future Volume (vph)	4	8	83	125	6	48	102	262	139	38	220	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.882			0.867			0.948			0.994	
Flt Protected		0.998		0.950			0.950				0.993	
Satd. Flow (prot)	0	1658	0	1789	1633	0	1789	1786	0	0	3532	0
Flt Permitted		0.998		0.950			0.950				0.993	
Satd. Flow (perm)	0	1658	0	1789	1633	0	1789	1786	0	0	3532	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	4	8	83	125	6	48	102	262	139	38	220	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	125	54	0	102	401	0	0	269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 53.4%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	8	83	125	6	48	102	262	139	38	220	11
Future Volume (Veh/h)	4	8	83	125	6	48	102	262	139	38	220	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	4	8	83	125	6	48	102	262	139	38	220	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	818	906	116	808	842	332	231			401		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	818	906	116	808	842	332	231			401		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	97	91	44	98	93	92			97		
cM capacity (veh/h)	224	245	915	222	267	664	1334			1154		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	95	125	54	102	401	148	121					
Volume Left	4	125	0	102	0	38	0					
Volume Right	83	0	48	0	139	0	11					
cSH	673	222	570	1334	1700	1154	1700					
Volume to Capacity	0.14	0.56	0.09	0.08	0.24	0.03	0.07					
Queue Length 95th (m)	3.7	23.5	2.4	1.9	0.0	0.8	0.0					
Control Delay (s)	11.2	40.4	12.0	7.9	0.0	2.3	0.0					
Lane LOS	B	E	B	A		A						
Approach Delay (s)	11.2	31.8		1.6		1.3						
Approach LOS	B	D										
Intersection Summary												
Average Delay	7.6											
Intersection Capacity Utilization	53.4%			ICU Level of Service					A			
Analysis Period (min)	15											
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	83	27	6	88	0	31	9	9	0	4	60
Future Volume (vph)	98	83	27	6	88	0	31	9	9	0	4	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981						0.975			0.873	
Flt Protected		0.977			0.996			0.969				
Satd. Flow (prot)	0	1822	0	0	1876	0	0	1779	0	0	1675	0
Flt Permitted		0.977			0.996			0.969				
Satd. Flow (perm)	0	1822	0	0	1876	0	0	1779	0	0	1675	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			69.4			68.2	
Travel Time (s)		18.5			9.0			6.2			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	98	83	30	7	88	0	34	10	10	0	4	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	0	0	95	0	0	54	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.2%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	83	27	6	88	0	31	9	9	0	4	60
Future Volume (Veh/h)	98	83	27	6	88	0	31	9	9	0	4	60
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	98	83	30	7	88	0	34	10	10	0	4	60
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	88			113			458	396	98	411	411	88
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	88			113			458	396	98	411	411	88
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			93	98	99	100	99	94
cM capacity (veh/h)	1520			1476			453	504	958	512	494	976
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	211	95	54	64								
Volume Left	98	7	34	0								
Volume Right	30	0	10	60								
cSH	1520	1476	513	920								
Volume to Capacity	0.06	0.00	0.11	0.07								
Queue Length 95th (m)	1.6	0.1	2.7	1.7								
Control Delay (s)	3.8	0.6	12.8	9.2								
Lane LOS	A	A	B	A								
Approach Delay (s)	3.8	0.6	12.8	9.2								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.0								
Intersection Capacity Utilization				34.2%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	378	125	152	471	8	142	18	74	5	5	3
Future Volume (vph)	10	378	125	152	471	8	142	18	74	5	5	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.997				0.850			0.850
Flt Protected		0.999		0.950				0.958			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1878	0	0	1804	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.958			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1878	0	0	1804	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	378	125	152	471	8	142	18	74	5	5	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	388	125	152	479	0	0	160	74	0	10	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	71.2%						ICU Level of Service C					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	10	378	125	152	471	8	142	18	74	5	5	3	
Future Volume (Veh/h)	10	378	125	152	471	8	142	18	74	5	5	3	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hourly flow rate (vph)	10	378	125	152	471	8	142	18	74	5	5	3	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)									1				1
Median type	None				None								
Median storage veh													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	479			503			1177	1181	378	1223	1302	475	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	479			503			1177	1181	378	1223	1302	475	
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	99			86			1	89	89	96	96	99	
cM capacity (veh/h)	1083			1061			144	161	669	113	136	590	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1							
Volume Total	388	125	152	479	234	13							
Volume Left	10	0	152	0	142	5							
Volume Right	0	125	0	8	74	3							
cSH	1083	1700	1061	1700	196	162							
Volume to Capacity	0.01	0.07	0.14	0.28	1.20	0.08							
Queue Length 95th (m)	0.2	0.0	3.8	0.0	91.6	2.0							
Control Delay (s)	0.3	0.0	9.0	0.0	176.1	30.6							
Lane LOS	A		A		F	D							
Approach Delay (s)	0.2		2.2		176.1	30.6							
Approach LOS					F	D							
Intersection Summary													
Average Delay			31.0										
Intersection Capacity Utilization			71.2%	ICU Level of Service				C					
Analysis Period (min)			15										
Description: New Intersection													

Lanes, Volumes, Timings

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

												
Lane Group	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2
Lane Configurations												
Traffic Volume (vph)	152	11	147	259	396	35	1	292	134	27	20	5
Future Volume (vph)	152	11	147	259	396	35	1	292	134	27	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	3.7	3.7	0.3
Storage Length (m)		0.0	50.0	105.0		0.0	0.0		35.0	30.0	0.0	
Storage Lanes		1	1	1		0	0		1	1	1	
Taper Length (m)		0.0		0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.988				0.850		0.850	
Flt Protected		0.950		0.950						0.950		
Satd. Flow (prot)	0	1789	1601	1789	1861	0	0	1883	1601	1789	1601	0
Flt Permitted		0.950		0.950						0.950		
Satd. Flow (perm)	0	1789	1601	1789	1861	0	0	1883	1601	1789	1601	0
Link Speed (k/h)		70			70			70		40		
Link Distance (m)		288.3			675.7			173.4		160.1		
Travel Time (s)		14.8			34.8			8.9		14.4		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	152	11	147	259	396	35	1	292	134	27	20	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	147	259	431	0	0	293	134	27	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(m)		3.7			3.7			3.7		3.7		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		2.4			2.4			2.4		2.4		
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26	26	14	26		14	26		14	26	14	14
Sign Control		Stop			Free			Free		Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	64.1%											
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

4: Starkey Rd / Range Rd 251 & Bellerose Dr & Pinnacle Way

04-01-2025

														
Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWL	SWR	SWR2		
Lane Configurations														
Traffic Volume (veh/h)	152	11	147	259	396	35	1	292	134	27	20	5		
Future Volume (Veh/h)	152	11	147	259	396	35	1	292	134	27	20	5		
Sign Control	Stop				Free				Free		Stop			
Grade	0%				0%				0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Hourly flow rate (vph)	152	11	147	259	396	35	1	292	134	27	20	5		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)	7													
Median type					None				None					
Median storage veh														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	1223	1243	292	426				431				1304	1360	414
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	1223	1243	292	426				431				1304	1360	414
tC, single (s)	7.1	6.5	6.2	4.1				4.1				7.1	6.5	6.2
tC, 2 stage (s)														
tF (s)	3.5	4.0	3.3	2.2				2.2				3.5	4.0	3.3
p0 queue free %	0	92	80	77				100				68	83	99
cM capacity (veh/h)	111	134	747	1133				1129				85	114	639
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	SW 1	SW 2							
Volume Total	310	259	431	293	134	27	25							
Volume Left	152	259	0	1	0	27	0							
Volume Right	147	0	35	0	134	0	5							
cSH	200	1133	1700	1129	1700	85	137							
Volume to Capacity	1.55	0.23	0.25	0.00	0.08	0.32	0.18							
Queue Length 95th (m)	149.2	6.7	0.0	0.0	0.0	9.1	4.9							
Control Delay (s)	312.4	9.1	0.0	0.0	0.0	65.7	37.1							
Lane LOS	F	A		A		F	E							
Approach Delay (s)	312.4	3.4		0.0		51.9								
Approach LOS	F					F								
Intersection Summary														
Average Delay	68.9													
Intersection Capacity Utilization	64.1%			ICU Level of Service					C					
Analysis Period (min)	15													
Description: New Intersection														

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	553	0	0	427	0
Future Volume (vph)	0	0	0	0	0	0	0	553	0	0	427	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.9			80.1			173.4			534.3		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	614	0	0	474	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	614	0	0	474	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.7			3.7		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free			Free			Free		Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 32.4%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	9	101	101	8	36	102	290	71	8	250	11
Future Volume (vph)	5	9	101	101	8	36	102	290	71	8	250	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.881			0.877			0.970			0.994	
Flt Protected		0.998		0.950			0.950				0.999	
Satd. Flow (prot)	0	1656	0	1789	1652	0	1789	1827	0	0	3554	0
Flt Permitted		0.998		0.950			0.950				0.999	
Satd. Flow (perm)	0	1656	0	1789	1652	0	1789	1827	0	0	3554	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	9	101	101	8	36	102	290	71	8	250	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	101	44	0	102	361	0	0	269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 49.3%	ICU Level of Service A											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	9	101	101	8	36	102	290	71	8	250	11
Future Volume (Veh/h)	5	9	101	101	8	36	102	290	71	8	250	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	9	101	101	8	36	102	290	71	8	250	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	806	836	130	776	806	326	261				361	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	806	836	130	776	806	326	261				361	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	97	89	57	97	95	92				99	
cM capacity (veh/h)	237	276	895	233	287	670	1300				1194	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	115	101	44	102	361	133	136					
Volume Left	5	101	0	102	0	8	0					
Volume Right	101	0	36	0	71	0	11					
cSH	690	233	539	1300	1700	1194	1700					
Volume to Capacity	0.17	0.43	0.08	0.08	0.21	0.01	0.08					
Queue Length 95th (m)	4.5	15.6	2.0	1.9	0.0	0.2	0.0					
Control Delay (s)	11.3	31.9	12.3	8.0	0.0	0.5	0.0					
Lane LOS	B	D	B	A		A						
Approach Delay (s)	11.3	25.9		1.8		0.3						
Approach LOS	B	D										
Intersection Summary												
Average Delay				6.0								
Intersection Capacity Utilization				49.3%	ICU Level of Service				A			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	101	33	8	107	0	38	0	11	0	0	0
Future Volume (vph)	0	101	33	8	107	0	38	0	11	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.964						0.970				
Flt Protected					0.996			0.963				
Satd. Flow (prot)	0	1816	0	0	1876	0	0	1759	0	0	1883	0
Flt Permitted					0.996			0.963				
Satd. Flow (perm)	0	1816	0	0	1876	0	0	1759	0	0	1883	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			69.4			68.2	
Travel Time (s)		18.5			9.0			6.2			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	101	37	9	107	0	42	0	12	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	138	0	0	116	0	0	54	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.2%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	101	33	8	107	0	38	0	11	0	0	0
Future Volume (Veh/h)	0	101	33	8	107	0	38	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	0	101	37	9	107	0	42	0	12	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	107			138			244	244	120	256	263	107
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			138			244	244	120	256	263	107
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			94	100	99	100	100	100
cM capacity (veh/h)	1497			1446			706	653	932	688	638	953
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	138	116	54	0								
Volume Left	0	9	42	0								
Volume Right	37	0	12	0								
cSH	1497	1446	746	1700								
Volume to Capacity	0.00	0.01	0.07	0.00								
Queue Length 95th (m)	0.0	0.1	1.8	0.0								
Control Delay (s)	0.0	0.6	10.2	0.0								
Lane LOS		A	B	A								
Approach Delay (s)	0.0	0.6	10.2	0.0								
Approach LOS			B	A								
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			22.2%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	460	135	158	574	9	163	22	73	6	6	3
Future Volume (vph)	13	460	135	158	574	9	163	22	73	6	6	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998				0.850			0.850
Flt Protected		0.999		0.950				0.958			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.958			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	460	135	158	574	9	163	22	73	6	6	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	473	135	158	583	0	0	185	73	0	12	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 82.5%				ICU Level of Service E								
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	460	135	158	574	9	163	22	73	6	6	3
Future Volume (Veh/h)	13	460	135	158	574	9	163	22	73	6	6	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	460	135	158	574	9	163	22	73	6	6	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	583			595			1380	1385	460	1428	1516	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	583			595			1380	1385	460	1428	1516	578
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			84			0	81	88	92	94	99
cM capacity (veh/h)	991			981			100	119	601	74	99	515
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	473	135	158	583	258	15						
Volume Left	13	0	158	0	163	6						
Volume Right	0	135	0	9	73	3						
cSH	991	1700	981	1700	134	108						
Volume to Capacity	0.01	0.08	0.16	0.34	1.93	0.14						
Queue Length 95th (m)	0.3	0.0	4.4	0.0	154.3	3.5						
Control Delay (s)	0.4	0.0	9.4	0.0	499.9	45.0						
Lane LOS	A		A		F	E						
Approach Delay (s)	0.3		2.0		499.9	45.0						
Approach LOS					F	E						
Intersection Summary												
Average Delay			81.0									
Intersection Capacity Utilization			82.5%		ICU Level of Service				E			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	559	0	0	452	0
Future Volume (vph)	0	0	0	0	0	0	0	559	0	0	452	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.9			80.1			173.4			534.3		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	621	0	0	502	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	621	0	0	502	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0			3.7			3.7	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	4.8				4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 32.8%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Lanes, Volumes, Timings

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	9	101	143	8	54	102	290	139	38	250	11
Future Volume (vph)	5	9	101	143	8	54	102	290	139	38	250	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	0.3	3.7	3.7	0.3	3.7	3.7	0.3	3.7	3.7	3.7
Storage Length (m)	0.0		0.0	15.0		0.0	105.0		0.0	0.0		0.0
Storage Lanes	0		0	1		0	1		0	0		0
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.881			0.869			0.951			0.994	
Flt Protected		0.998		0.950			0.950				0.994	
Satd. Flow (prot)	0	1656	0	1789	1637	0	1789	1791	0	0	3536	0
Flt Permitted		0.998		0.950			0.950				0.994	
Satd. Flow (perm)	0	1656	0	1789	1637	0	1789	1791	0	0	3536	0
Link Speed (k/h)		40			60			70			70	
Link Distance (m)		160.1			308.8			534.3			477.5	
Travel Time (s)		14.4			18.5			27.5			24.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	9	101	143	8	54	102	290	139	38	250	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	143	62	0	102	429	0	0	299	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	1.75	0.99	0.99	1.75	0.99	0.99	1.75	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 56.7%	ICU Level of Service B											
Analysis Period (min) 15												
Description: New Intersection												

HCM Unsignalized Intersection Capacity Analysis

1: Starkey Rd / Range Rd 251 & E Estates Way/Trestle Ridge Rd / Township Rd 544A 04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	9	101	143	8	54	102	290	139	38	250	11
Future Volume (Veh/h)	5	9	101	143	8	54	102	290	139	38	250	11
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	9	101	143	8	54	102	290	139	38	250	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	884	964	130	870	900	360	261				429	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	884	964	130	870	900	360	261				429	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	97	96	89	26	97	92	92				97	
cM capacity (veh/h)	196	226	895	194	246	637	1300				1127	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2					
Volume Total	115	143	62	102	429	163	136					
Volume Left	5	143	0	102	0	38	0					
Volume Right	101	0	54	0	139	0	11					
cSH	645	194	529	1300	1700	1127	1700					
Volume to Capacity	0.18	0.74	0.12	0.08	0.25	0.03	0.08					
Queue Length 95th (m)	4.9	36.6	3.0	1.9	0.0	0.8	0.0					
Control Delay (s)	11.8	63.0	12.7	8.0	0.0	2.2	0.0					
Lane LOS	B	F	B	A		A						
Approach Delay (s)	11.8	47.8		1.5		1.2						
Approach LOS	B	E										
Intersection Summary												
Average Delay				10.7								
Intersection Capacity Utilization				56.7%	ICU Level of Service				B			
Analysis Period (min)				15								
Description: New Intersection												

Lanes, Volumes, Timings

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	101	33	8	107	0	38	9	11	0	4	60
Future Volume (vph)	98	101	33	8	107	0	38	9	11	0	4	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	3.7	3.7	3.7	3.7	3.7	0.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979						0.975			0.873	
Flt Protected		0.980			0.996			0.968				
Satd. Flow (prot)	0	1822	0	0	1876	0	0	1778	0	0	1675	0
Flt Permitted		0.980			0.996			0.968				
Satd. Flow (perm)	0	1822	0	0	1876	0	0	1778	0	0	1675	0
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		308.8			150.6			69.4			68.2	
Travel Time (s)		18.5			9.0			6.2			6.1	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Heavy Vehicles (%)	0%	2%	2%	2%	2%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	98	101	37	9	107	0	42	10	12	0	4	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	116	0	0	64	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			4.8			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	0.99	0.99	0.99	0.99	0.99	1.75
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	36.0%											
Analysis Period (min)	15											
ICU Level of Service A												

HCM Unsignalized Intersection Capacity Analysis

2: Pinnacle Way/Entrance Road (TBD) & Trestle Ridge Rd / Township Rd 544A

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	101	33	8	107	0	38	9	11	0	4	60
Future Volume (Veh/h)	98	101	33	8	107	0	38	9	11	0	4	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	0.90	0.90	1.00	1.00	0.90	0.90	0.90	1.00	0.90	1.00
Hourly flow rate (vph)	98	101	37	9	107	0	42	10	12	0	4	60
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	107			138			502	440	120	458	459	107
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			138			502	440	120	458	459	107
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			90	98	99	100	99	94
cM capacity (veh/h)	1497			1446			422	474	932	475	463	953
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	236	116	64	64								
Volume Left	98	9	42	0								
Volume Right	37	0	12	60								
cSH	1497	1446	479	894								
Volume to Capacity	0.07	0.01	0.13	0.07								
Queue Length 95th (m)	1.6	0.1	3.5	1.8								
Control Delay (s)	3.5	0.6	13.7	9.3								
Lane LOS	A	A	B	A								
Approach Delay (s)	3.5	0.6	13.7	9.3								
Approach LOS			B	A								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			36.0%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	460	140	171	574	9	166	22	81	6	6	3
Future Volume (vph)	13	460	140	171	574	9	166	22	81	6	6	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	0.3	3.7	3.7	3.7	3.7	0.3	0.3	3.7	3.7	0.3	3.7	3.7
Storage Length (m)	0.0		130.0	110.0		0.0	0.0		10.0	0.0		10.0
Storage Lanes	0		1	1		0	0		1	0		1
Taper Length (m)	0.0			0.0			0.0			0.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.998				0.850			0.850
Flt Protected		0.999		0.950				0.958			0.976	
Satd. Flow (prot)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Flt Permitted		0.999		0.950				0.958			0.976	
Satd. Flow (perm)	0	1882	1601	1789	1880	0	0	1804	1601	0	1838	1601
Link Speed (k/h)		70			70			70			70	
Link Distance (m)		263.2			245.1			1595.3			138.7	
Travel Time (s)		13.5			12.6			82.0			7.1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	460	140	171	574	9	166	22	81	6	6	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	473	140	171	583	0	0	188	81	0	12	3
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		2.4			2.4			2.4			2.4	
Two way Left Turn Lane												
Headway Factor	1.75	0.99	0.99	0.99	0.99	1.75	1.75	0.99	0.99	1.75	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	82.7%						ICU Level of Service E					
Analysis Period (min)	15											
Description:	New Intersection											

HCM Unsignalized Intersection Capacity Analysis

3: Starkey Rd / Range Rd 251/Range Rd 250 & Highway 37

04-01-2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	460	140	171	574	9	166	22	81	6	6	3
Future Volume (Veh/h)	13	460	140	171	574	9	166	22	81	6	6	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	460	140	171	574	9	166	22	81	6	6	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)										1		
Median type	None					None						
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	583			600			1406	1411	460	1458	1546	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	583			600			1406	1411	460	1458	1546	578
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			82			0	80	87	91	94	99
cM capacity (veh/h)	991			977			95	113	601	68	93	515
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	473	140	171	583	269	15						
Volume Left	13	0	171	0	166	6						
Volume Right	0	140	0	9	81	3						
cSH	991	1700	977	1700	129	101						
Volume to Capacity	0.01	0.08	0.18	0.34	2.08	0.15						
Queue Length 95th (m)	0.3	0.0	4.8	0.0	167.4	3.8						
Control Delay (s)	0.4	0.0	9.5	0.0	567.3	48.3						
Lane LOS	A		A		F	E						
Approach Delay (s)	0.3		2.1		567.3	48.3						
Approach LOS					F	E						
Intersection Summary												
Average Delay			94.0									
Intersection Capacity Utilization			82.7%		ICU Level of Service				E			
Analysis Period (min)			15									
Description: New Intersection												

Lanes, Volumes, Timings

26: Starkey Rd / Range Rd 251 & Ped Crossing

04-01-2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	0	0	627	0	0	494	0
Future Volume (vph)	0	0	0	0	0	0	0	627	0	0	494	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	0	0	0	0	0	0	1883	0	0	1883	0
Flt Permitted												
Satd. Flow (perm)	0	0	0	0	0	0	0	1883	0	0	1883	0
Link Speed (k/h)	50			50			70			70		
Link Distance (m)	23.9			80.1			173.4			534.3		
Travel Time (s)	1.7			5.8			8.9			27.5		
Confl. Peds. (#/hr)							5	5		5	5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	0	0	0	697	0	0	549	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	697	0	0	549	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0			3.7			3.7	
Link Offset(m)	0.0				0.0			0.0			0.0	
Crosswalk Width(m)	4.8				4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	26		14	26		14	26		14	26		14
Sign Control	Free		Free				Free				Free	
Intersection Summary												
Area Type:	Other											
Control Type: Unsignalized												
Intersection Capacity Utilization 36.3%												
ICU Level of Service A												
Analysis Period (min) 15												

Intersection Sign configuration not allowed in HCM analysis.

Appendix C

Intersection Analysis - Sidra

SITE LAYOUT

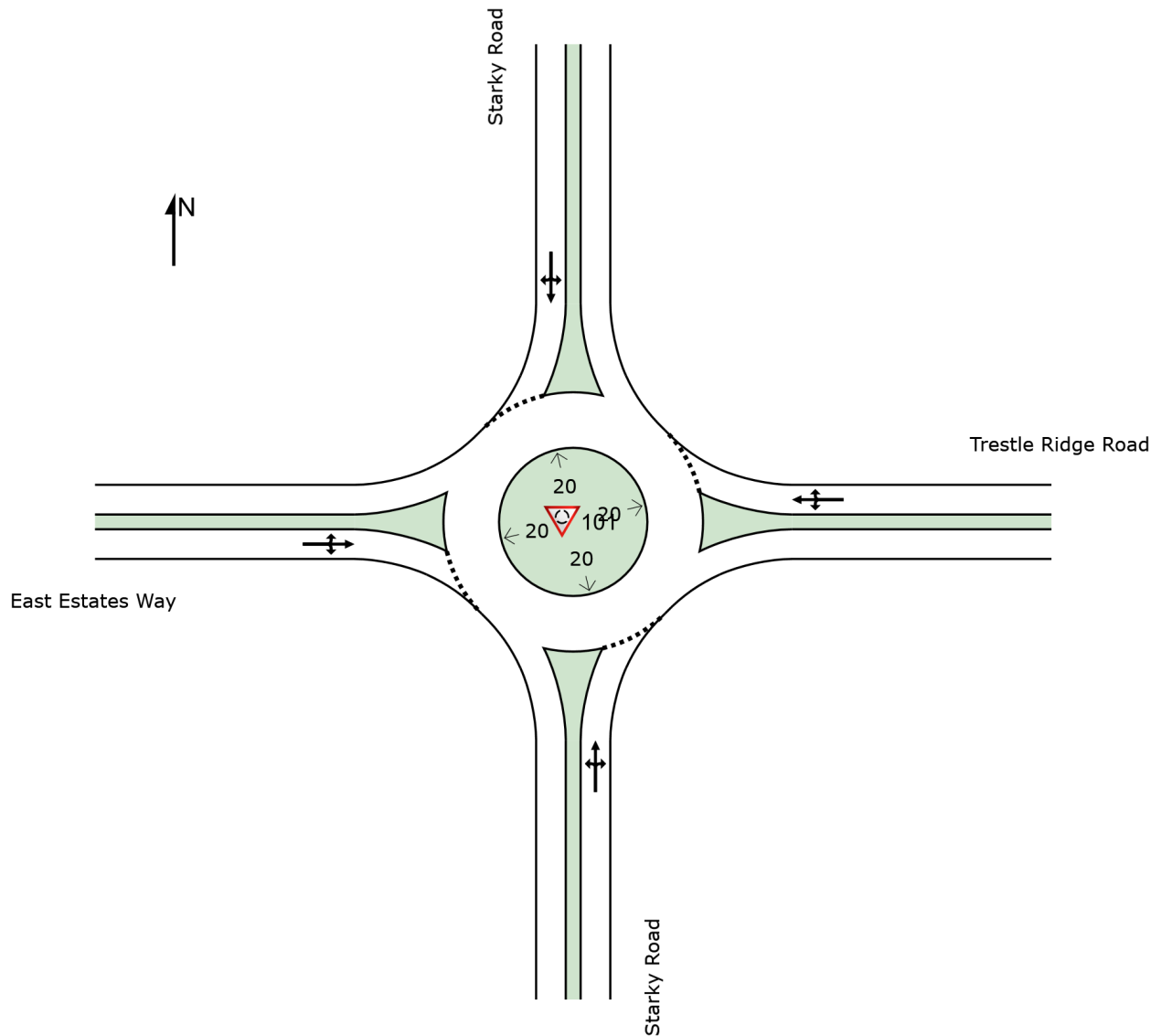
 **Site: 101 [Starkey Road and Trestle Ridge Road (Site Folder: Starkey Road and Trestle Ridge Road)]**

New Site

Site Category: (None)

Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\Users\lorinczs3312\ARCADIS\133341 Pinnacle Village - Internal Documents\6.0_Technical\6.23_Traffic\04_Design-Analysis_2024-06-05\Sidra 2024-11-20\2025-03\Pinnacle Village_v.02.sip9

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2035 BG AM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	15	0.0	15	0.0	0.214	8.8	LOS A	1.3	9.1	0.11	0.41	0.11	53.7
2	T1	All MCs	283	0.0	283	0.0	0.214	4.1	LOS A	1.3	9.1	0.11	0.41	0.11	54.6
3	R2	All MCs	39	0.0	39	0.0	0.214	3.9	LOS A	1.3	9.1	0.11	0.41	0.11	54.2
Approach			337	0.0	337	0.0	0.214	4.3	LOS A	1.3	9.1	0.11	0.41	0.11	54.5
East: Trestle Ridge Road															
4	L2	All MCs	154	0.0	154	0.0	0.153	10.3	LOS B	0.8	5.6	0.46	0.64	0.46	49.9
5	T1	All MCs	3	0.0	3	0.0	0.153	5.6	LOS A	0.8	5.6	0.46	0.64	0.46	50.7
6	R2	All MCs	8	0.0	8	0.0	0.153	5.4	LOS A	0.8	5.6	0.46	0.64	0.46	50.4
Approach			165	0.0	165	0.0	0.153	9.9	LOS A	0.8	5.6	0.46	0.64	0.46	49.9
North: Starky Road															
7	L2	All MCs	7	0.0	7	0.0	0.249	9.6	LOS A	1.5	10.7	0.40	0.46	0.40	52.5
8	T1	All MCs	292	0.0	292	0.0	0.249	5.0	LOS A	1.5	10.7	0.40	0.46	0.40	53.3
9	R2	All MCs	3	0.0	3	0.0	0.249	4.8	LOS A	1.5	10.7	0.40	0.46	0.40	53.0
Approach			302	0.0	302	0.0	0.249	5.1	LOS A	1.5	10.7	0.40	0.46	0.40	53.3
West: East Estates Way															
10	L2	All MCs	11	0.0	11	0.0	0.181	11.1	LOS B	1.0	7.2	0.58	0.62	0.58	52.2
11	T1	All MCs	1	0.0	1	0.0	0.181	6.5	LOS A	1.0	7.2	0.58	0.62	0.58	53.1
12	R2	All MCs	162	0.0	162	0.0	0.181	6.3	LOS A	1.0	7.2	0.58	0.62	0.58	52.8
Approach			174	0.0	174	0.0	0.181	6.6	LOS A	1.0	7.2	0.58	0.62	0.58	52.7
All Vehicles			978	0.0	978	0.0	0.249	5.9	LOS A	1.5	10.7	0.34	0.50	0.34	53.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2035 Total AM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	15	0.0	15	0.0	0.234	8.8	LOS A	1.4	10.0	0.14	0.41	0.14	53.6
2	T1	All MCs	283	0.0	283	0.0	0.234	4.2	LOS A	1.4	10.0	0.14	0.41	0.14	54.5
3	R2	All MCs	60	0.0	60	0.0	0.234	4.0	LOS A	1.4	10.0	0.14	0.41	0.14	54.1
Approach			358	0.0	358	0.0	0.234	4.3	LOS A	1.4	10.0	0.14	0.41	0.14	54.4
East: Trestle Ridge Road															
4	L2	All MCs	221	0.0	221	0.0	0.243	10.4	LOS B	1.4	9.7	0.49	0.64	0.49	50.1
5	T1	All MCs	3	0.0	3	0.0	0.243	5.8	LOS A	1.4	9.7	0.49	0.64	0.49	50.9
6	R2	All MCs	38	0.0	38	0.0	0.243	5.6	LOS A	1.4	9.7	0.49	0.64	0.49	50.6
Approach			262	0.0	262	0.0	0.243	9.7	LOS A	1.4	9.7	0.49	0.64	0.49	50.2
North: Starky Road															
7	L2	All MCs	18	0.0	18	0.0	0.279	10.1	LOS B	1.7	12.2	0.48	0.51	0.48	52.0
8	T1	All MCs	292	0.0	292	0.0	0.279	5.4	LOS A	1.7	12.2	0.48	0.51	0.48	52.9
9	R2	All MCs	3	0.0	3	0.0	0.279	5.2	LOS A	1.7	12.2	0.48	0.51	0.48	52.5
Approach			313	0.0	313	0.0	0.279	5.7	LOS A	1.7	12.2	0.48	0.51	0.48	52.8
West: East Estates Way															
10	L2	All MCs	11	0.0	11	0.0	0.193	11.7	LOS B	1.1	7.9	0.63	0.64	0.63	51.8
11	T1	All MCs	1	0.0	1	0.0	0.193	7.1	LOS A	1.1	7.9	0.63	0.64	0.63	52.7
12	R2	All MCs	162	0.0	162	0.0	0.193	6.9	LOS A	1.1	7.9	0.63	0.64	0.63	52.4
Approach			174	0.0	174	0.0	0.193	7.2	LOS A	1.1	7.9	0.63	0.64	0.63	52.3
All Vehicles			1106	0.0	1106	0.0	0.279	6.4	LOS A	1.7	12.2	0.40	0.53	0.40	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2045 BG AM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	15	0.0	15	0.0	0.249	8.8	LOS A	1.6	11.4	0.13	0.41	0.13	53.6
2	T1	All MCs	336	0.0	336	0.0	0.249	4.2	LOS A	1.6	11.4	0.13	0.41	0.13	54.5
3	R2	All MCs	39	0.0	39	0.0	0.249	4.0	LOS A	1.6	11.4	0.13	0.41	0.13	54.2
Approach			389	0.0	389	0.0	0.249	4.3	LOS A	1.6	11.4	0.13	0.41	0.13	54.5
East: Trestle Ridge Road															
4	L2	All MCs	187	0.0	187	0.0	0.193	10.6	LOS B	1.1	7.4	0.51	0.66	0.51	49.7
5	T1	All MCs	3	0.0	3	0.0	0.193	6.0	LOS A	1.1	7.4	0.51	0.66	0.51	50.5
6	R2	All MCs	9	0.0	9	0.0	0.193	5.8	LOS A	1.1	7.4	0.51	0.66	0.51	50.2
Approach			200	0.0	200	0.0	0.193	10.3	LOS B	1.1	7.4	0.51	0.66	0.51	49.8
North: Starky Road															
7	L2	All MCs	7	0.0	7	0.0	0.289	9.9	LOS A	1.8	12.9	0.46	0.49	0.46	52.2
8	T1	All MCs	327	0.0	327	0.0	0.289	5.2	LOS A	1.8	12.9	0.46	0.49	0.46	53.1
9	R2	All MCs	3	0.0	3	0.0	0.289	5.0	LOS A	1.8	12.9	0.46	0.49	0.46	52.8
Approach			338	0.0	338	0.0	0.289	5.3	LOS A	1.8	12.9	0.46	0.49	0.46	53.1
West: East Estates Way															
10	L2	All MCs	14	0.0	14	0.0	0.236	11.7	LOS B	1.4	9.9	0.64	0.65	0.64	51.8
11	T1	All MCs	2	0.0	2	0.0	0.236	7.1	LOS A	1.4	9.9	0.64	0.65	0.64	52.7
12	R2	All MCs	198	0.0	198	0.0	0.236	6.9	LOS A	1.4	9.9	0.64	0.65	0.64	52.3
Approach			214	0.0	214	0.0	0.236	7.2	LOS A	1.4	9.9	0.64	0.65	0.64	52.3
All Vehicles			1141	0.0	1141	0.0	0.289	6.2	LOS A	1.8	12.9	0.39	0.52	0.39	52.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2045 Total AM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	15	0.0	15	0.0	0.270	8.8	LOS A	1.7	12.1	0.16	0.41	0.16	53.5
2	T1	All MCs	336	0.0	336	0.0	0.270	4.2	LOS A	1.7	12.1	0.16	0.41	0.16	54.4
3	R2	All MCs	60	0.0	60	0.0	0.270	4.0	LOS A	1.7	12.1	0.16	0.41	0.16	54.1
Approach			411	0.0	411	0.0	0.270	4.3	LOS A	1.7	12.1	0.16	0.41	0.16	54.3
East: Trestle Ridge Road															
4	L2	All MCs	255	0.0	255	0.0	0.287	10.8	LOS B	1.7	11.9	0.55	0.66	0.55	49.9
5	T1	All MCs	3	0.0	3	0.0	0.287	6.2	LOS A	1.7	11.9	0.55	0.66	0.55	50.7
6	R2	All MCs	39	0.0	39	0.0	0.287	6.0	LOS A	1.7	11.9	0.55	0.66	0.55	50.4
Approach			297	0.0	297	0.0	0.287	10.2	LOS B	1.7	11.9	0.55	0.66	0.55	50.0
North: Starky Road															
7	L2	All MCs	18	0.0	18	0.0	0.321	10.3	LOS B	2.1	14.7	0.54	0.53	0.54	51.8
8	T1	All MCs	327	0.0	327	0.0	0.321	5.7	LOS A	2.1	14.7	0.54	0.53	0.54	52.7
9	R2	All MCs	3	0.0	3	0.0	0.321	5.5	LOS A	2.1	14.7	0.54	0.53	0.54	52.3
Approach			348	0.0	348	0.0	0.321	5.9	LOS A	2.1	14.7	0.54	0.53	0.54	52.6
West: East Estates Way															
10	L2	All MCs	14	0.0	14	0.0	0.252	12.4	LOS B	1.6	10.9	0.69	0.67	0.69	51.3
11	T1	All MCs	2	0.0	2	0.0	0.252	7.7	LOS A	1.6	10.9	0.69	0.67	0.69	52.2
12	R2	All MCs	198	0.0	198	0.0	0.252	7.5	LOS A	1.6	10.9	0.69	0.67	0.69	51.8
Approach			214	0.0	214	0.0	0.252	7.9	LOS A	1.6	10.9	0.69	0.67	0.69	51.8
All Vehicles			1269	0.0	1269	0.0	0.321	6.7	LOS A	2.1	14.7	0.44	0.55	0.44	52.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2035 BG PM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	107	0.0	107	0.0	0.288	8.8	LOS A	1.9	13.1	0.12	0.47	0.12	53.1
2	T1	All MCs	276	0.0	276	0.0	0.288	4.1	LOS A	1.9	13.1	0.12	0.47	0.12	53.9
3	R2	All MCs	75	0.0	75	0.0	0.288	4.0	LOS A	1.9	13.1	0.12	0.47	0.12	53.6
Approach			458	0.0	458	0.0	0.288	5.2	LOS A	1.9	13.1	0.12	0.47	0.12	53.7
East: Trestle Ridge Road															
4	L2	All MCs	87	0.0	87	0.0	0.123	10.6	LOS B	0.6	4.5	0.50	0.65	0.50	50.5
5	T1	All MCs	6	0.0	6	0.0	0.123	6.0	LOS A	0.6	4.5	0.50	0.65	0.50	51.3
6	R2	All MCs	32	0.0	32	0.0	0.123	5.8	LOS A	0.6	4.5	0.50	0.65	0.50	51.0
Approach			125	0.0	125	0.0	0.123	9.2	LOS A	0.6	4.5	0.50	0.65	0.50	50.7
North: Starky Road															
7	L2	All MCs	8	0.0	8	0.0	0.215	9.8	LOS A	1.2	8.5	0.40	0.48	0.40	52.5
8	T1	All MCs	232	0.0	232	0.0	0.215	5.1	LOS A	1.2	8.5	0.40	0.48	0.40	53.3
9	R2	All MCs	12	0.0	12	0.0	0.215	4.9	LOS A	1.2	8.5	0.40	0.48	0.40	53.0
Approach			252	0.0	252	0.0	0.215	5.3	LOS A	1.2	8.5	0.40	0.48	0.40	53.3
West: East Estates Way															
10	L2	All MCs	4	0.0	4	0.0	0.095	10.3	LOS B	0.5	3.5	0.47	0.56	0.47	52.7
11	T1	All MCs	8	0.0	8	0.0	0.095	5.6	LOS A	0.5	3.5	0.47	0.56	0.47	53.6
12	R2	All MCs	87	0.0	87	0.0	0.095	5.4	LOS A	0.5	3.5	0.47	0.56	0.47	53.2
Approach			100	0.0	100	0.0	0.095	5.7	LOS A	0.5	3.5	0.47	0.56	0.47	53.2
All Vehicles			935	0.0	935	0.0	0.288	5.8	LOS A	1.9	13.1	0.29	0.51	0.29	53.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road- 2035 Total PM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	107	0.0	107	0.0	0.357	9.0	LOS A	2.5	17.7	0.23	0.46	0.23	52.8
2	T1	All MCs	276	0.0	276	0.0	0.357	4.3	LOS A	2.5	17.7	0.23	0.46	0.23	53.7
3	R2	All MCs	146	0.0	146	0.0	0.357	4.1	LOS A	2.5	17.7	0.23	0.46	0.23	53.3
Approach			529	0.0	529	0.0	0.357	5.2	LOS A	2.5	17.7	0.23	0.46	0.23	53.4
East: Trestle Ridge Road															
4	L2	All MCs	132	0.0	132	0.0	0.186	10.8	LOS B	1.0	7.3	0.54	0.65	0.54	50.5
5	T1	All MCs	6	0.0	6	0.0	0.186	6.1	LOS A	1.0	7.3	0.54	0.65	0.54	51.3
6	R2	All MCs	51	0.0	51	0.0	0.186	5.9	LOS A	1.0	7.3	0.54	0.65	0.54	50.9
Approach			188	0.0	188	0.0	0.186	9.3	LOS A	1.0	7.3	0.54	0.65	0.54	50.6
North: Starky Road															
7	L2	All MCs	40	0.0	40	0.0	0.252	10.1	LOS B	1.5	10.4	0.46	0.52	0.46	52.0
8	T1	All MCs	232	0.0	232	0.0	0.252	5.4	LOS A	1.5	10.4	0.46	0.52	0.46	52.8
9	R2	All MCs	12	0.0	12	0.0	0.252	5.2	LOS A	1.5	10.4	0.46	0.52	0.46	52.5
Approach			283	0.0	283	0.0	0.252	6.1	LOS A	1.5	10.4	0.46	0.52	0.46	52.7
West: East Estates Way															
10	L2	All MCs	4	0.0	4	0.0	0.101	10.7	LOS B	0.5	3.8	0.53	0.59	0.53	52.5
11	T1	All MCs	8	0.0	8	0.0	0.101	6.1	LOS A	0.5	3.8	0.53	0.59	0.53	53.4
12	R2	All MCs	87	0.0	87	0.0	0.101	5.9	LOS A	0.5	3.8	0.53	0.59	0.53	53.0
Approach			100	0.0	100	0.0	0.101	6.1	LOS A	0.5	3.8	0.53	0.59	0.53	53.0
All Vehicles			1101	0.0	1101	0.0	0.357	6.2	LOS A	2.5	17.7	0.37	0.52	0.37	52.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\lorinczs3312\ARCADIS\133341 Pinnacle Village - Internal Documents\6.0_Technical\6.23_Traffic\04_Design-Analysis_2024-06-05\Sidra 2024-11-20\2025-03\Pinnacle Village_v.02.sip9

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2045 BG PM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	107	0.0	107	0.0	0.308	8.8	LOS A	2.1	14.5	0.13	0.46	0.13	53.1
2	T1	All MCs	305	0.0	305	0.0	0.308	4.2	LOS A	2.1	14.5	0.13	0.46	0.13	53.9
3	R2	All MCs	75	0.0	75	0.0	0.308	4.0	LOS A	2.1	14.5	0.13	0.46	0.13	53.6
Approach			487	0.0	487	0.0	0.308	5.1	LOS A	2.1	14.5	0.13	0.46	0.13	53.7
East: Trestle Ridge Road															
4	L2	All MCs	106	0.0	106	0.0	0.153	10.9	LOS B	0.8	5.8	0.53	0.66	0.53	50.4
5	T1	All MCs	8	0.0	8	0.0	0.153	6.2	LOS A	0.8	5.8	0.53	0.66	0.53	51.2
6	R2	All MCs	38	0.0	38	0.0	0.153	6.1	LOS A	0.8	5.8	0.53	0.66	0.53	50.9
Approach			153	0.0	153	0.0	0.153	9.4	LOS A	0.8	5.8	0.53	0.66	0.53	50.6
North: Starky Road															
7	L2	All MCs	8	0.0	8	0.0	0.246	9.9	LOS A	1.4	10.1	0.44	0.49	0.44	52.3
8	T1	All MCs	263	0.0	263	0.0	0.246	5.3	LOS A	1.4	10.1	0.44	0.49	0.44	53.2
9	R2	All MCs	12	0.0	12	0.0	0.246	5.1	LOS A	1.4	10.1	0.44	0.49	0.44	52.8
Approach			283	0.0	283	0.0	0.246	5.4	LOS A	1.4	10.1	0.44	0.49	0.44	53.1
West: East Estates Way															
10	L2	All MCs	5	0.0	5	0.0	0.119	10.6	LOS B	0.7	4.6	0.52	0.58	0.52	52.5
11	T1	All MCs	9	0.0	9	0.0	0.119	5.9	LOS A	0.7	4.6	0.52	0.58	0.52	53.4
12	R2	All MCs	106	0.0	106	0.0	0.119	5.8	LOS A	0.7	4.6	0.52	0.58	0.52	53.1
Approach			121	0.0	121	0.0	0.119	6.0	LOS A	0.7	4.6	0.52	0.58	0.52	53.1
All Vehicles			1044	0.0	1044	0.0	0.308	5.9	LOS A	2.1	14.5	0.32	0.51	0.32	53.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Trestle Ridge Road - 2045 Total PM (Site Folder: Starkey Road and Trestle Ridge Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	107	0.0	107	0.0	0.378	9.0	LOS A	2.7	19.1	0.24	0.46	0.24	52.8
2	T1	All MCs	305	0.0	305	0.0	0.378	4.4	LOS A	2.7	19.1	0.24	0.46	0.24	53.7
3	R2	All MCs	146	0.0	146	0.0	0.378	4.2	LOS A	2.7	19.1	0.24	0.46	0.24	53.3
Approach			559	0.0	559	0.0	0.378	5.2	LOS A	2.7	19.1	0.24	0.46	0.24	53.4
East: Trestle Ridge Road															
4	L2	All MCs	151	0.0	151	0.0	0.218	11.0	LOS B	1.3	8.8	0.57	0.66	0.57	50.3
5	T1	All MCs	8	0.0	8	0.0	0.218	6.4	LOS A	1.3	8.8	0.57	0.66	0.57	51.1
6	R2	All MCs	57	0.0	57	0.0	0.218	6.2	LOS A	1.3	8.8	0.57	0.66	0.57	50.8
Approach			216	0.0	216	0.0	0.218	9.6	LOS A	1.3	8.8	0.57	0.66	0.57	50.5
North: Starky Road															
7	L2	All MCs	40	0.0	40	0.0	0.180	10.1	LOS B	1.0	7.1	0.46	0.54	0.46	51.8
8	T1	All MCs	146	0.0	146	0.0	0.180	5.4	LOS A	1.0	7.1	0.46	0.54	0.46	52.7
9	R2	All MCs	12	0.0	12	0.0	0.180	5.3	LOS A	1.0	7.1	0.46	0.54	0.46	52.3
Approach			198	0.0	198	0.0	0.180	6.4	LOS A	1.0	7.1	0.46	0.54	0.46	52.5
West: East Estates Way															
10	L2	All MCs	5	0.0	5	0.0	0.115	10.3	LOS B	0.6	4.3	0.48	0.56	0.48	52.6
11	T1	All MCs	9	0.0	9	0.0	0.115	5.7	LOS A	0.6	4.3	0.48	0.56	0.48	53.5
12	R2	All MCs	106	0.0	106	0.0	0.115	5.5	LOS A	0.6	4.3	0.48	0.56	0.48	53.2
Approach			121	0.0	121	0.0	0.115	5.8	LOS A	0.6	4.3	0.48	0.56	0.48	53.2
All Vehicles			1094	0.0	1094	0.0	0.378	6.3	LOS A	2.7	19.1	0.37	0.53	0.37	52.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

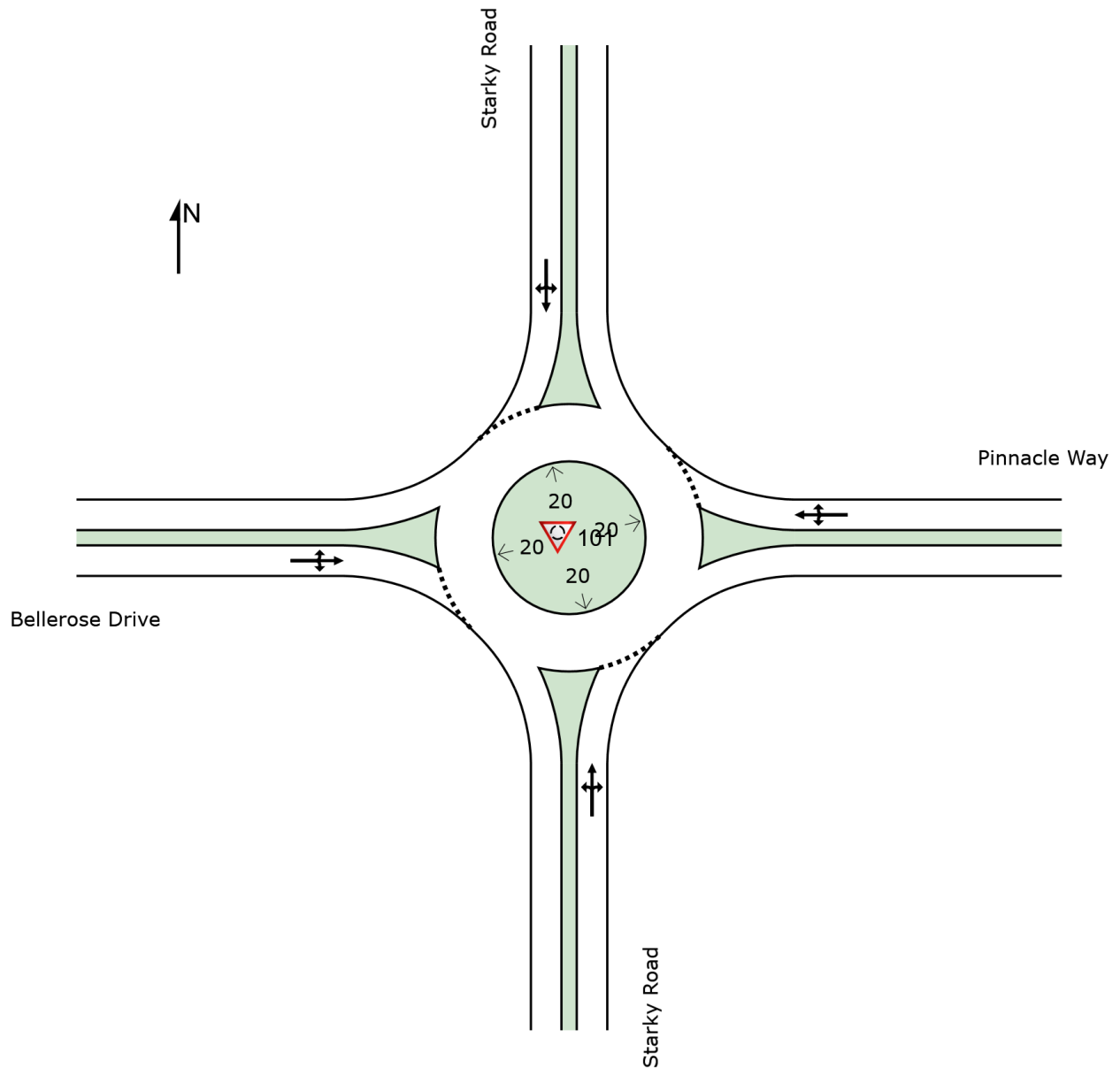
 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way (Site Folder: Starky Road and Bellerose Dr/Pinnacle Way)]**

New Site

Site Category: (None)

Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\Users\lorinczs3312\ARCADIS\133341 Pinnacle Village - Internal Documents\6.0_Technical\6.23_Traffic\04_Design-Analysis_2024-06-05\Sidra 2024-11-20\2025-03\Pinnacle Village_v.02.sip9

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2035 BG AM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	143	0.0	143	0.0	0.320	9.3	LOS A	2.3	16.0	0.38	0.51	0.38	51.8
2	T1	All MCs	252	0.0	252	0.0	0.320	4.7	LOS A	2.3	16.0	0.38	0.51	0.38	52.7
3	R2	All MCs	23	0.0	23	0.0	0.320	4.5	LOS A	2.3	16.0	0.38	0.51	0.38	52.3
Approach			418	0.0	418	0.0	0.320	6.3	LOS A	2.3	16.0	0.38	0.51	0.38	52.3
East: Pinnacle Way															
4	L2	All MCs	41	0.0	41	0.0	0.068	11.1	LOS B	0.4	2.6	0.57	0.66	0.57	50.2
5	T1	All MCs	18	0.0	18	0.0	0.068	6.5	LOS A	0.4	2.6	0.57	0.66	0.57	51.0
6	R2	All MCs	4	0.0	4	0.0	0.068	6.3	LOS A	0.4	2.6	0.57	0.66	0.57	50.7
Approach			63	0.0	63	0.0	0.068	9.5	LOS A	0.4	2.6	0.57	0.66	0.57	50.5
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.496	10.1	LOS B	3.8	26.5	0.53	0.51	0.53	52.2
8	T1	All MCs	455	0.0	455	0.0	0.496	5.5	LOS A	3.8	26.5	0.53	0.51	0.53	53.0
9	R2	All MCs	151	0.0	151	0.0	0.496	5.3	LOS A	3.8	26.5	0.53	0.51	0.53	52.7
Approach			606	0.0	606	0.0	0.496	5.5	LOS A	3.8	26.5	0.53	0.51	0.53	52.9
West: Bellerose Drive															
10	L2	All MCs	96	0.0	96	0.0	0.360	11.9	LOS B	2.4	17.0	0.70	0.68	0.70	50.9
11	T1	All MCs	21	0.0	21	0.0	0.360	7.2	LOS A	2.4	17.0	0.70	0.68	0.70	51.8
12	R2	All MCs	207	0.0	207	0.0	0.360	7.1	LOS A	2.4	17.0	0.70	0.68	0.70	51.4
Approach			324	0.0	324	0.0	0.360	8.5	LOS A	2.4	17.0	0.70	0.68	0.70	51.3
All Vehicles			1412	0.0	1412	0.0	0.496	6.6	LOS A	3.8	26.5	0.52	0.55	0.52	52.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2035 Total AM (Site Folder: Starky Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Starky Road															
1	L2	All MCs	143	0.0	143	0.0	0.338	9.4	LOS A	2.5	17.3	0.39	0.50	0.39	51.8
2	T1	All MCs	268	0.0	268	0.0	0.338	4.7	LOS A	2.5	17.3	0.39	0.50	0.39	52.6
3	R2	All MCs	26	0.0	26	0.0	0.338	4.6	LOS A	2.5	17.3	0.39	0.50	0.39	52.3
Approach			438	0.0	438	0.0	0.338	6.2	LOS A	2.5	17.3	0.39	0.50	0.39	52.3
East: Pinnacle Way															
4	L2	All MCs	47	0.0	47	0.0	0.077	11.3	LOS B	0.4	2.9	0.58	0.67	0.58	50.1
5	T1	All MCs	18	0.0	18	0.0	0.077	6.6	LOS A	0.4	2.9	0.58	0.67	0.58	50.9
6	R2	All MCs	4	0.0	4	0.0	0.077	6.5	LOS A	0.4	2.9	0.58	0.67	0.58	50.5
Approach			69	0.0	69	0.0	0.077	9.8	LOS A	0.4	2.9	0.58	0.67	0.58	50.3
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.552	10.3	LOS B	4.5	31.5	0.57	0.52	0.57	52.0
8	T1	All MCs	507	0.0	507	0.0	0.552	5.7	LOS A	4.5	31.5	0.57	0.52	0.57	52.8
9	R2	All MCs	165	0.0	165	0.0	0.552	5.5	LOS A	4.5	31.5	0.57	0.52	0.57	52.5
Approach			674	0.0	674	0.0	0.552	5.6	LOS A	4.5	31.5	0.57	0.52	0.57	52.7
West: Bellerose Drive															
10	L2	All MCs	100	0.0	100	0.0	0.388	12.4	LOS B	2.7	18.8	0.75	0.70	0.75	50.6
11	T1	All MCs	21	0.0	21	0.0	0.388	7.7	LOS A	2.7	18.8	0.75	0.70	0.75	51.4
12	R2	All MCs	207	0.0	207	0.0	0.388	7.6	LOS A	2.7	18.8	0.75	0.70	0.75	51.0
Approach			328	0.0	328	0.0	0.388	9.0	LOS A	2.7	18.8	0.75	0.70	0.75	50.9
All Vehicles			1509	0.0	1509	0.0	0.552	6.7	LOS A	4.5	31.5	0.56	0.56	0.56	52.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2045 BG AM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Starky Road															
1	L2	All MCs	175	0.0	175	0.0	0.389	9.5	LOS A	3.0	21.3	0.44	0.52	0.44	51.6
2	T1	All MCs	300	0.0	300	0.0	0.389	4.9	LOS A	3.0	21.3	0.44	0.52	0.44	52.4
3	R2	All MCs	23	0.0	23	0.0	0.389	4.7	LOS A	3.0	21.3	0.44	0.52	0.44	52.1
Approach			498	0.0	498	0.0	0.389	6.5	LOS A	3.0	21.3	0.44	0.52	0.44	52.1
East: Pinnacle Way															
4	L2	All MCs	41	0.0	41	0.0	0.075	11.8	LOS B	0.4	3.0	0.63	0.69	0.63	49.9
5	T1	All MCs	18	0.0	18	0.0	0.075	7.1	LOS A	0.4	3.0	0.63	0.69	0.63	50.6
6	R2	All MCs	4	0.0	4	0.0	0.075	7.0	LOS A	0.4	3.0	0.63	0.69	0.63	50.3
Approach			63	0.0	63	0.0	0.075	10.1	LOS B	0.4	3.0	0.63	0.69	0.63	50.1
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.600	10.6	LOS B	5.2	36.3	0.64	0.55	0.64	51.7
8	T1	All MCs	535	0.0	535	0.0	0.600	6.0	LOS A	5.2	36.3	0.64	0.55	0.64	52.6
9	R2	All MCs	177	0.0	177	0.0	0.600	5.8	LOS A	5.2	36.3	0.64	0.55	0.64	52.2
Approach			713	0.0	713	0.0	0.600	5.9	LOS A	5.2	36.3	0.64	0.55	0.64	52.5
West: Bellerose Drive															
10	L2	All MCs	114	0.0	114	0.0	0.472	13.3	LOS B	3.7	25.9	0.81	0.74	0.86	50.0
11	T1	All MCs	21	0.0	21	0.0	0.472	8.6	LOS A	3.7	25.9	0.81	0.74	0.86	50.8
12	R2	All MCs	253	0.0	253	0.0	0.472	8.5	LOS A	3.7	25.9	0.81	0.74	0.86	50.5
Approach			387	0.0	387	0.0	0.472	9.9	LOS A	3.7	25.9	0.81	0.74	0.86	50.3
All Vehicles			1661	0.0	1661	0.0	0.600	7.2	LOS A	5.2	36.3	0.62	0.59	0.63	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2045**
Total AM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle
Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Starky Road															
1	L2	All MCs	175	0.0	175	0.0	0.407	9.5	LOS A	3.3	22.9	0.46	0.52	0.46	51.5
2	T1	All MCs	317	0.0	317	0.0	0.407	4.9	LOS A	3.3	22.9	0.46	0.52	0.46	52.4
3	R2	All MCs	26	0.0	26	0.0	0.407	4.7	LOS A	3.3	22.9	0.46	0.52	0.46	52.0
Approach			518	0.0	518	0.0	0.407	6.5	LOS A	3.3	22.9	0.46	0.52	0.46	52.1
East: Pinnacle Way															
4	L2	All MCs	47	0.0	47	0.0	0.084	12.0	LOS B	0.5	3.4	0.65	0.70	0.65	49.7
5	T1	All MCs	18	0.0	18	0.0	0.084	7.3	LOS A	0.5	3.4	0.65	0.70	0.65	50.4
6	R2	All MCs	4	0.0	4	0.0	0.084	7.1	LOS A	0.5	3.4	0.65	0.70	0.65	50.1
Approach			69	0.0	69	0.0	0.084	10.5	LOS B	0.5	3.4	0.65	0.70	0.65	49.9
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.658	11.2	LOS B	6.5	45.7	0.70	0.59	0.72	51.5
8	T1	All MCs	587	0.0	587	0.0	0.658	6.5	LOS A	6.5	45.7	0.70	0.59	0.72	52.3
9	R2	All MCs	192	0.0	192	0.0	0.658	6.3	LOS A	6.5	45.7	0.70	0.59	0.72	52.0
Approach			780	0.0	780	0.0	0.658	6.5	LOS A	6.5	45.7	0.70	0.59	0.72	52.2
West: Bellerose Drive															
10	L2	All MCs	118	0.0	118	0.0	0.511	14.5	LOS B	4.4	30.7	0.87	0.79	0.98	49.1
11	T1	All MCs	21	0.0	21	0.0	0.511	9.9	LOS A	4.4	30.7	0.87	0.79	0.98	49.9
12	R2	All MCs	253	0.0	253	0.0	0.511	9.7	LOS A	4.4	30.7	0.87	0.79	0.98	49.6
Approach			392	0.0	392	0.0	0.511	11.2	LOS B	4.4	30.7	0.87	0.79	0.98	49.5
All Vehicles			1759	0.0	1759	0.0	0.658	7.7	LOS A	6.5	45.7	0.66	0.62	0.70	51.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2035 BG PM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Starky Road															
1	L2	All MCs	273	0.0	273	0.0	0.518	9.8	LOS A	4.4	30.9	0.51	0.54	0.51	51.2
2	T1	All MCs	361	0.0	361	0.0	0.518	5.2	LOS A	4.4	30.9	0.51	0.54	0.51	52.0
3	R2	All MCs	27	0.0	27	0.0	0.518	5.0	LOS A	4.4	30.9	0.51	0.54	0.51	51.7
Approach			661	0.0	661	0.0	0.518	7.1	LOS A	4.4	30.9	0.51	0.54	0.51	51.6
East: Pinnacle Way															
4	L2	All MCs	24	0.0	24	0.0	0.072	13.3	LOS B	0.4	3.1	0.74	0.72	0.74	49.4
5	T1	All MCs	21	0.0	21	0.0	0.072	8.7	LOS A	0.4	3.1	0.74	0.72	0.74	50.2
6	R2	All MCs	5	0.0	5	0.0	0.072	8.5	LOS A	0.4	3.1	0.74	0.72	0.74	49.9
Approach			51	0.0	51	0.0	0.072	10.9	LOS B	0.4	3.1	0.74	0.72	0.74	49.8
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.386	10.7	LOS B	2.6	18.3	0.59	0.57	0.59	51.9
8	T1	All MCs	273	0.0	273	0.0	0.386	6.1	LOS A	2.6	18.3	0.59	0.57	0.59	52.8
9	R2	All MCs	132	0.0	132	0.0	0.386	5.9	LOS A	2.6	18.3	0.59	0.57	0.59	52.4
Approach			405	0.0	405	0.0	0.386	6.1	LOS A	2.6	18.3	0.59	0.57	0.59	52.7
West: Bellerose Drive															
10	L2	All MCs	144	0.0	144	0.0	0.295	10.4	LOS B	1.9	13.2	0.55	0.61	0.55	51.2
11	T1	All MCs	12	0.0	12	0.0	0.295	5.8	LOS A	1.9	13.2	0.55	0.61	0.55	52.0
12	R2	All MCs	155	0.0	155	0.0	0.295	5.6	LOS A	1.9	13.2	0.55	0.61	0.55	51.7
Approach			311	0.0	311	0.0	0.295	7.9	LOS A	1.9	13.2	0.55	0.61	0.55	51.5
All Vehicles			1427	0.0	1427	0.0	0.518	7.1	LOS A	4.4	30.9	0.55	0.57	0.55	51.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2035 Total PM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Starky Road															
1	L2	All MCs	273	0.0	273	0.0	0.579	10.0	LOS B	5.3	37.4	0.58	0.55	0.58	51.0
2	T1	All MCs	417	0.0	417	0.0	0.579	5.4	LOS A	5.3	37.4	0.58	0.55	0.58	51.9
3	R2	All MCs	37	0.0	37	0.0	0.579	5.2	LOS A	5.3	37.4	0.58	0.55	0.58	51.5
Approach			726	0.0	726	0.0	0.579	7.1	LOS A	5.3	37.4	0.58	0.55	0.58	51.5
East: Pinnacle Way															
4	L2	All MCs	28	0.0	28	0.0	0.087	14.2	LOS B	0.5	3.8	0.79	0.75	0.79	48.8
5	T1	All MCs	21	0.0	21	0.0	0.087	9.5	LOS A	0.5	3.8	0.79	0.75	0.79	49.5
6	R2	All MCs	5	0.0	5	0.0	0.087	9.3	LOS A	0.5	3.8	0.79	0.75	0.79	49.2
Approach			55	0.0	55	0.0	0.087	11.9	LOS B	0.5	3.8	0.79	0.75	0.79	49.1
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.430	10.8	LOS B	3.1	21.4	0.63	0.58	0.63	51.8
8	T1	All MCs	307	0.0	307	0.0	0.430	6.2	LOS A	3.1	21.4	0.63	0.58	0.63	52.7
9	R2	All MCs	141	0.0	141	0.0	0.430	6.0	LOS A	3.1	21.4	0.63	0.58	0.63	52.3
Approach			449	0.0	449	0.0	0.430	6.2	LOS A	3.1	21.4	0.63	0.58	0.63	52.6
West: Bellerose Drive															
10	L2	All MCs	160	0.0	160	0.0	0.321	10.7	LOS B	2.1	14.8	0.59	0.63	0.59	51.0
11	T1	All MCs	12	0.0	12	0.0	0.321	6.1	LOS A	2.1	14.8	0.59	0.63	0.59	51.8
12	R2	All MCs	155	0.0	155	0.0	0.321	5.9	LOS A	2.1	14.8	0.59	0.63	0.59	51.5
Approach			326	0.0	326	0.0	0.321	8.3	LOS A	2.1	14.8	0.59	0.63	0.59	51.2
All Vehicles			1557	0.0	1557	0.0	0.579	7.3	LOS A	5.3	37.4	0.60	0.58	0.60	51.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2045 BG PM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle Way)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	332	0.0	332	0.0	0.622	10.2	LOS B	6.1	42.7	0.63	0.57	0.63	50.8
2	T1	All MCs	417	0.0	417	0.0	0.622	5.6	LOS A	6.1	42.7	0.63	0.57	0.63	51.6
3	R2	All MCs	27	0.0	27	0.0	0.622	5.4	LOS A	6.1	42.7	0.63	0.57	0.63	51.2
Approach			776	0.0	776	0.0	0.622	7.5	LOS A	6.1	42.7	0.63	0.57	0.63	51.2
East: Pinnacle Way															
4	L2	All MCs	24	0.0	24	0.0	0.088	15.0	LOS B	0.6	4.0	0.83	0.76	0.83	48.4
5	T1	All MCs	21	0.0	21	0.0	0.088	10.3	LOS B	0.6	4.0	0.83	0.76	0.83	49.1
6	R2	All MCs	5	0.0	5	0.0	0.088	10.1	LOS B	0.6	4.0	0.83	0.76	0.83	48.8
Approach			51	0.0	51	0.0	0.088	12.5	LOS B	0.6	4.0	0.83	0.76	0.83	48.7
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.482	11.4	LOS B	3.6	25.1	0.70	0.62	0.70	51.5
8	T1	All MCs	319	0.0	319	0.0	0.482	6.7	LOS A	3.6	25.1	0.70	0.62	0.70	52.4
9	R2	All MCs	156	0.0	156	0.0	0.482	6.5	LOS A	3.6	25.1	0.70	0.62	0.70	52.0
Approach			476	0.0	476	0.0	0.482	6.7	LOS A	3.6	25.1	0.70	0.62	0.70	52.3
West: Bellerose Drive															
10	L2	All MCs	166	0.0	166	0.0	0.366	10.9	LOS B	2.5	17.7	0.63	0.64	0.63	51.0
11	T1	All MCs	12	0.0	12	0.0	0.366	6.2	LOS A	2.5	17.7	0.63	0.64	0.63	51.8
12	R2	All MCs	189	0.0	189	0.0	0.366	6.0	LOS A	2.5	17.7	0.63	0.64	0.63	51.5
Approach			367	0.0	367	0.0	0.366	8.2	LOS A	2.5	17.7	0.63	0.64	0.63	51.3
All Vehicles			1669	0.0	1669	0.0	0.622	7.6	LOS A	6.1	42.7	0.66	0.60	0.66	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

🚧 Site: 101 [Starkey Road and Bellerose Dr/Pinnacle Way - 2045
Total PM (Site Folder: Starkey Road and Bellerose Dr/Pinnacle
Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Starky Road															
1	L2	All MCs	332	0.0	332	0.0	0.686	10.5	LOS B	7.4	51.5	0.72	0.59	0.72	50.6
2	T1	All MCs	473	0.0	473	0.0	0.686	5.9	LOS A	7.4	51.5	0.72	0.59	0.72	51.4
3	R2	All MCs	37	0.0	37	0.0	0.686	5.7	LOS A	7.4	51.5	0.72	0.59	0.72	51.0
Approach			841	0.0	841	0.0	0.686	7.7	LOS A	7.4	51.5	0.72	0.59	0.72	51.0
East: Pinnacle Way															
4	L2	All MCs	28	0.0	28	0.0	0.107	16.1	LOS B	0.7	5.1	0.88	0.78	0.88	47.6
5	T1	All MCs	21	0.0	21	0.0	0.107	11.5	LOS B	0.7	5.1	0.88	0.78	0.88	48.3
6	R2	All MCs	5	0.0	5	0.0	0.107	11.3	LOS B	0.7	5.1	0.88	0.78	0.88	48.0
Approach			55	0.0	55	0.0	0.107	13.8	LOS B	0.7	5.1	0.88	0.78	0.88	47.9
North: Starky Road															
7	L2	All MCs	1	0.0	1	0.0	0.531	11.8	LOS B	4.4	30.6	0.74	0.65	0.77	51.4
8	T1	All MCs	354	0.0	354	0.0	0.531	7.2	LOS A	4.4	30.6	0.74	0.65	0.77	52.2
9	R2	All MCs	165	0.0	165	0.0	0.531	7.0	LOS A	4.4	30.6	0.74	0.65	0.77	51.8
Approach			520	0.0	520	0.0	0.531	7.1	LOS A	4.4	30.6	0.74	0.65	0.77	52.1
West: Bellerose Drive															
10	L2	All MCs	182	0.0	182	0.0	0.397	11.2	LOS B	2.8	19.7	0.67	0.66	0.67	50.8
11	T1	All MCs	12	0.0	12	0.0	0.397	6.5	LOS A	2.8	19.7	0.67	0.66	0.67	51.6
12	R2	All MCs	189	0.0	189	0.0	0.397	6.4	LOS A	2.8	19.7	0.67	0.66	0.67	51.3
Approach			383	0.0	383	0.0	0.397	8.6	LOS A	2.8	19.7	0.67	0.66	0.67	51.0
All Vehicles			1799	0.0	1799	0.0	0.686	7.9	LOS A	7.4	51.5	0.72	0.62	0.73	51.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

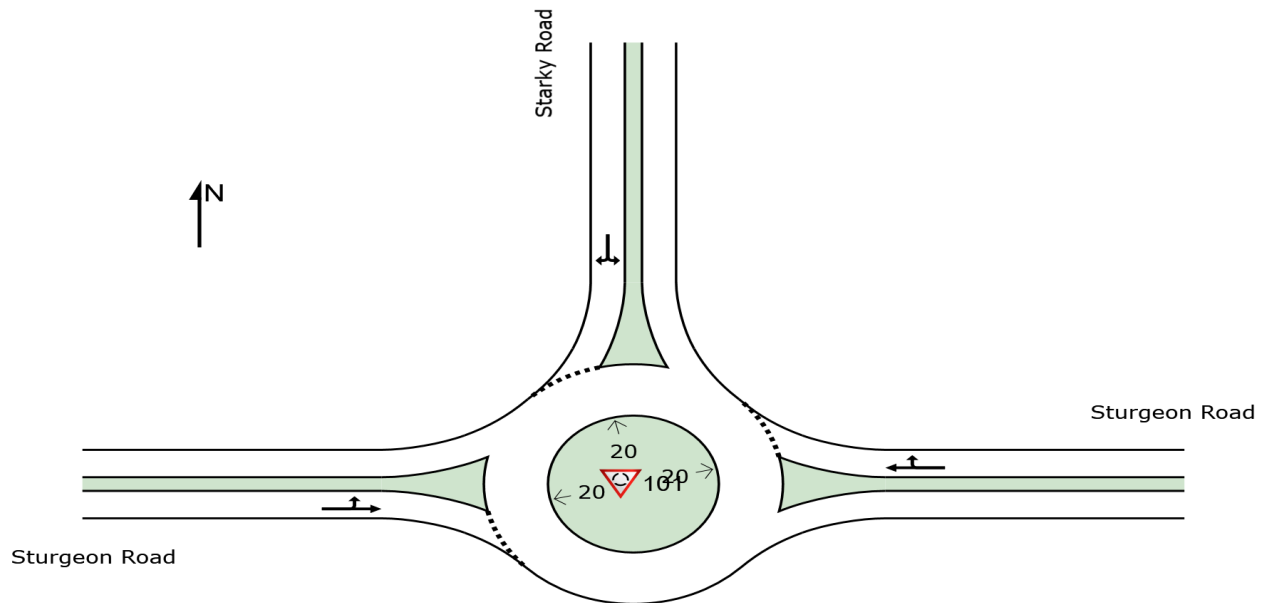
 Site: 101 [Starkey Road and Sturgeon Road (Site Folder: Starkey Road and Sturgeon Road)]

New Site

Site Category: (None)

Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: C:\Users\lorinczs3312\ARCADIS\133341 Pinnacle Village - Internal Documents\6.0_Technical\6.23_Traffic\04_Design-Analysis_2024-06-05\Sidra 2024-11-20\2025-03\Pinnacle Village_v.02.sip9

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2025 BG AM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	184	2.0	184	2.0	0.280	5.4	LOS A	1.8	12.9	0.49	0.51	0.49	53.2
6	R2	All MCs	128	2.0	128	2.0	0.280	5.2	LOS A	1.8	12.9	0.49	0.51	0.49	52.9
Approach			313	2.0	313	2.0	0.280	5.3	LOS A	1.8	12.9	0.49	0.51	0.49	53.1
North: Starky Road															
7	L2	All MCs	344	2.0	344	2.0	0.520	10.1	LOS B	4.3	32.2	0.56	0.59	0.56	50.6
9	R2	All MCs	261	20.0	261	20.0	0.520	5.7	LOS A	4.3	32.2	0.56	0.59	0.56	50.6
Approach			605	9.8	605	9.8	0.520	8.2	LOS A	4.3	32.2	0.56	0.59	0.56	50.6
West: Sturgeon Road															
10	L2	All MCs	223	2.0	223	2.0	0.380	11.0	LOS B	2.6	18.6	0.63	0.64	0.63	50.2
11	T1	All MCs	157	2.0	157	2.0	0.380	6.3	LOS A	2.6	18.6	0.63	0.64	0.63	51.1
Approach			380	2.0	380	2.0	0.380	9.1	LOS A	2.6	18.6	0.63	0.64	0.63	50.6
All Vehicles			1298	5.6	1298	5.6	0.520	7.8	LOS A	4.3	32.2	0.56	0.59	0.56	51.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2025 Total AM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	184	2.0	184	2.0	0.293	5.4	LOS A	1.9	13.8	0.50	0.52	0.50	53.2
6	R2	All MCs	141	2.0	141	2.0	0.293	5.2	LOS A	1.9	13.8	0.50	0.52	0.50	52.8
Approach			325	2.0	325	2.0	0.293	5.3	LOS A	1.9	13.8	0.50	0.52	0.50	53.0
North: Starky Road															
7	L2	All MCs	382	2.0	382	2.0	0.539	10.1	LOS B	4.6	32.6	0.56	0.59	0.56	50.7
9	R2	All MCs	277	2.0	277	2.0	0.539	5.3	LOS A	4.6	32.6	0.56	0.59	0.56	51.2
Approach			659	2.0	659	2.0	0.539	8.1	LOS A	4.6	32.6	0.56	0.59	0.56	50.9
West: Sturgeon Road															
10	L2	All MCs	228	2.0	228	2.0	0.398	11.3	LOS B	2.8	19.7	0.66	0.66	0.66	50.1
11	T1	All MCs	157	2.0	157	2.0	0.398	6.6	LOS A	2.8	19.7	0.66	0.66	0.66	50.9
Approach			385	2.0	385	2.0	0.398	9.4	LOS A	2.8	19.7	0.66	0.66	0.66	50.4
All Vehicles			1369	2.0	1369	2.0	0.539	7.8	LOS A	4.6	32.6	0.58	0.59	0.58	51.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2035 BG AM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	224	2.0	224	2.0	0.374	5.9	LOS A	2.7	19.2	0.60	0.56	0.60	52.8
6	R2	All MCs	167	2.0	167	2.0	0.374	5.7	LOS A	2.7	19.2	0.60	0.56	0.60	52.5
Approach			392	2.0	392	2.0	0.374	5.8	LOS A	2.7	19.2	0.60	0.56	0.60	52.7
North: Starky Road															
7	L2	All MCs	453	2.0	453	2.0	0.710	11.8	LOS B	8.5	64.2	0.78	0.66	0.84	49.9
9	R2	All MCs	342	20.0	342	20.0	0.710	7.6	LOS A	8.5	64.2	0.78	0.66	0.84	49.9
Approach			795	9.7	795	9.7	0.710	10.0	LOS A	8.5	64.2	0.78	0.66	0.84	49.9
West: Sturgeon Road															
10	L2	All MCs	279	2.0	279	2.0	0.532	12.8	LOS B	4.6	32.7	0.80	0.73	0.87	49.2
11	T1	All MCs	191	2.0	191	2.0	0.532	8.2	LOS A	4.6	32.7	0.80	0.73	0.87	50.0
Approach			469	2.0	469	2.0	0.532	10.9	LOS B	4.6	32.7	0.80	0.73	0.87	49.6
All Vehicles			1656	5.7	1656	5.7	0.710	9.3	LOS A	8.5	64.2	0.74	0.66	0.79	50.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2035 Total AM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	224	2.0	224	2.0	0.391	5.9	LOS A	2.9	20.4	0.62	0.56	0.62	52.8
6	R2	All MCs	181	2.0	181	2.0	0.391	5.8	LOS A	2.9	20.4	0.62	0.56	0.62	52.4
Approach			405	2.0	405	2.0	0.391	5.9	LOS A	2.9	20.4	0.62	0.56	0.62	52.6
North: Starky Road															
7	L2	All MCs	493	2.0	493	2.0	0.726	11.9	LOS B	9.0	64.2	0.79	0.66	0.84	50.1
9	R2	All MCs	360	2.0	360	2.0	0.726	7.0	LOS A	9.0	64.2	0.79	0.66	0.84	50.5
Approach			853	2.0	853	2.0	0.726	9.8	LOS A	9.0	64.2	0.79	0.66	0.84	50.3
West: Sturgeon Road															
10	L2	All MCs	285	2.0	285	2.0	0.561	13.7	LOS B	5.2	36.8	0.84	0.77	0.95	48.8
11	T1	All MCs	191	2.0	191	2.0	0.561	9.0	LOS A	5.2	36.8	0.84	0.77	0.95	49.6
Approach			476	2.0	476	2.0	0.561	11.8	LOS B	5.2	36.8	0.84	0.77	0.95	49.1
All Vehicles			1734	2.0	1734	2.0	0.726	9.4	LOS A	9.0	64.2	0.76	0.67	0.82	50.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2045 BG AM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	274	2.0	274	2.0	0.487	6.5	LOS A	3.9	28.0	0.73	0.61	0.73	52.3
6	R2	All MCs	200	2.0	200	2.0	0.487	6.3	LOS A	3.9	28.0	0.73	0.61	0.73	52.0
Approach			474	2.0	474	2.0	0.487	6.4	LOS A	3.9	28.0	0.73	0.61	0.73	52.2
North: Starky Road															
7	L2	All MCs	541	2.0	541	2.0	0.900	19.9	LOS B	21.3	161.4	1.00	1.01	1.46	44.9
9	R2	All MCs	409	20.0	409	20.0	0.900	16.0	LOS B	21.3	161.4	1.00	1.01	1.46	44.9
Approach			951	9.8	951	9.8	0.900	18.2	LOS B	21.3	161.4	1.00	1.01	1.46	44.9
West: Sturgeon Road															
10	L2	All MCs	337	2.0	337	2.0	0.737	18.2	LOS B	9.5	68.0	1.00	0.93	1.36	46.1
11	T1	All MCs	233	2.0	233	2.0	0.737	13.6	LOS B	9.5	68.0	1.00	0.93	1.36	46.8
Approach			569	2.0	569	2.0	0.737	16.3	LOS B	9.5	68.0	1.00	0.93	1.36	46.4
All Vehicles			1994	5.7	1994	5.7	0.900	14.9	LOS B	21.3	161.4	0.94	0.89	1.26	46.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2045 Total AM (Site Folder: Starky Road and Sturgeon Road)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	274	2.0	274	2.0	0.505	6.6	LOS A	4.1	29.4	0.74	0.62	0.74	52.3
6	R2	All MCs	214	2.0	214	2.0	0.505	6.4	LOS A	4.1	29.4	0.74	0.62	0.74	51.9
Approach			487	2.0	487	2.0	0.505	6.5	LOS A	4.1	29.4	0.74	0.62	0.74	52.1
North: Starky Road															
7	L2	All MCs	581	2.0	581	2.0	0.908	20.0	LOS C	22.5	159.9	1.00	1.02	1.46	45.1
9	R2	All MCs	427	2.0	427	2.0	0.908	15.2	LOS B	22.5	159.9	1.00	1.02	1.46	45.5
Approach			1008	2.0	1008	2.0	0.908	18.0	LOS B	22.5	159.9	1.00	1.02	1.46	45.3
West: Sturgeon Road															
10	L2	All MCs	343	2.0	343	2.0	0.782	20.9	LOS C	11.1	79.3	1.00	1.03	1.49	44.6
11	T1	All MCs	233	2.0	233	2.0	0.782	16.3	LOS B	11.1	79.3	1.00	1.03	1.49	45.3
Approach			576	2.0	576	2.0	0.782	19.0	LOS B	11.1	79.3	1.00	1.03	1.49	44.9
All Vehicles			2072	2.0	2072	2.0	0.908	15.6	LOS B	22.5	159.9	0.94	0.93	1.30	46.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2025 BG PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Sturgeon Road															
5	T1	All MCs	102	2.0	102	2.0	0.304	6.0	LOS A	2.0	13.9	0.56	0.57	0.56	53.2
6	R2	All MCs	212	2.0	212	2.0	0.304	5.8	LOS A	2.0	13.9	0.56	0.57	0.56	52.8
Approach			314	2.0	314	2.0	0.304	5.8	LOS A	2.0	13.9	0.56	0.57	0.56	52.9
North: Starky Road															
7	L2	All MCs	239	2.0	239	2.0	0.290	9.3	LOS A	1.9	14.5	0.34	0.56	0.34	51.0
9	R2	All MCs	129	20.0	129	20.0	0.290	4.7	LOS A	1.9	14.5	0.34	0.56	0.34	51.0
Approach			368	8.3	368	8.3	0.290	7.7	LOS A	1.9	14.5	0.34	0.56	0.34	51.0
West: Sturgeon Road															
10	L2	All MCs	308	2.0	308	2.0	0.417	10.3	LOS B	2.9	20.6	0.54	0.61	0.54	50.4
11	T1	All MCs	166	2.0	166	2.0	0.417	5.7	LOS A	2.9	20.6	0.54	0.61	0.54	51.3
Approach			475	2.0	475	2.0	0.417	8.7	LOS A	2.9	20.6	0.54	0.61	0.54	50.7
All Vehicles			1157	4.0	1157	4.0	0.417	7.6	LOS A	2.9	20.6	0.48	0.58	0.48	51.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2025 Total PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	102	2.0	102	2.0	0.350	6.2	LOS A	2.4	16.8	0.60	0.58	0.60	53.1
6	R2	All MCs	253	2.0	253	2.0	0.350	6.0	LOS A	2.4	16.8	0.60	0.58	0.60	52.7
Approach			355	2.0	355	2.0	0.350	6.0	LOS A	2.4	16.8	0.60	0.58	0.60	52.8
North: Starky Road															
7	L2	All MCs	263	2.0	263	2.0	0.316	9.3	LOS A	2.2	16.4	0.35	0.56	0.35	50.9
9	R2	All MCs	140	20.0	140	20.0	0.316	4.8	LOS A	2.2	16.4	0.35	0.56	0.35	50.9
Approach			403	8.3	403	8.3	0.316	7.7	LOS A	2.2	16.4	0.35	0.56	0.35	50.9
West: Sturgeon Road															
10	L2	All MCs	327	2.0	327	2.0	0.444	10.5	LOS B	3.2	22.5	0.57	0.62	0.57	50.3
11	T1	All MCs	166	2.0	166	2.0	0.444	5.9	LOS A	3.2	22.5	0.57	0.62	0.57	51.1
Approach			494	2.0	494	2.0	0.444	9.0	LOS A	3.2	22.5	0.57	0.62	0.57	50.6
All Vehicles			1252	4.0	1252	4.0	0.444	7.7	LOS A	3.2	22.5	0.51	0.59	0.51	51.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2035 BG PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	124	2.0	124	2.0	0.448	6.9	LOS A	3.3	23.5	0.72	0.64	0.72	52.6
6	R2	All MCs	294	2.0	294	2.0	0.448	6.7	LOS A	3.3	23.5	0.72	0.64	0.72	52.3
Approach			418	2.0	418	2.0	0.448	6.8	LOS A	3.3	23.5	0.72	0.64	0.72	52.4
North: Starky Road															
7	L2	All MCs	313	2.0	313	2.0	0.391	9.5	LOS A	3.0	22.4	0.42	0.56	0.42	50.7
9	R2	All MCs	173	20.0	173	20.0	0.391	5.0	LOS A	3.0	22.4	0.42	0.56	0.42	50.7
Approach			485	8.4	485	8.4	0.391	7.9	LOS A	3.0	22.4	0.42	0.56	0.42	50.7
West: Sturgeon Road															
10	L2	All MCs	403	2.0	403	2.0	0.571	11.5	LOS B	4.9	34.6	0.70	0.67	0.72	49.8
11	T1	All MCs	203	2.0	203	2.0	0.571	6.9	LOS A	4.9	34.6	0.70	0.67	0.72	50.6
Approach			606	2.0	606	2.0	0.571	9.9	LOS A	4.9	34.6	0.70	0.67	0.72	50.0
All Vehicles			1509	4.1	1509	4.1	0.571	8.4	LOS A	4.9	34.6	0.62	0.63	0.63	50.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2035 Total PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	124	2.0	124	2.0	0.508	7.5	LOS A	4.1	29.5	0.77	0.68	0.80	52.3
6	R2	All MCs	339	2.0	339	2.0	0.508	7.4	LOS A	4.1	29.5	0.77	0.68	0.80	51.9
Approach			463	2.0	463	2.0	0.508	7.4	LOS A	4.1	29.5	0.77	0.68	0.80	52.0
North: Starky Road															
7	L2	All MCs	339	2.0	339	2.0	0.421	9.5	LOS A	3.4	25.3	0.44	0.56	0.44	50.7
9	R2	All MCs	185	20.0	185	20.0	0.421	5.0	LOS A	3.4	25.3	0.44	0.56	0.44	50.7
Approach			524	8.4	524	8.4	0.421	7.9	LOS A	3.4	25.3	0.44	0.56	0.44	50.7
West: Sturgeon Road															
10	L2	All MCs	423	2.0	423	2.0	0.605	12.3	LOS B	5.7	40.4	0.75	0.70	0.81	49.4
11	T1	All MCs	203	2.0	203	2.0	0.605	7.6	LOS A	5.7	40.4	0.75	0.70	0.81	50.1
Approach			626	2.0	626	2.0	0.605	10.8	LOS B	5.7	40.4	0.75	0.70	0.81	49.6
All Vehicles			1614	4.1	1614	4.1	0.605	8.9	LOS A	5.7	40.4	0.65	0.65	0.69	50.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2045 BG PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	151	2.0	151	2.0	0.586	9.3	LOS A	5.7	40.5	0.86	0.77	0.99	51.2
6	R2	All MCs	345	2.0	345	2.0	0.586	9.1	LOS A	5.7	40.5	0.86	0.77	0.99	50.9
Approach			496	2.0	496	2.0	0.586	9.1	LOS A	5.7	40.5	0.86	0.77	0.99	51.0
North: Starky Road															
7	L2	All MCs	373	2.0	373	2.0	0.481	9.8	LOS A	4.1	31.0	0.53	0.57	0.53	50.5
9	R2	All MCs	205	20.0	205	20.0	0.481	5.3	LOS A	4.1	31.0	0.53	0.57	0.53	50.5
Approach			578	8.4	578	8.4	0.481	8.2	LOS A	4.1	31.0	0.53	0.57	0.53	50.5
West: Sturgeon Road															
10	L2	All MCs	482	2.0	482	2.0	0.728	14.9	LOS B	9.3	66.2	0.88	0.81	1.09	47.9
11	T1	All MCs	247	2.0	247	2.0	0.728	10.2	LOS B	9.3	66.2	0.88	0.81	1.09	48.7
Approach			729	2.0	729	2.0	0.728	13.3	LOS B	9.3	66.2	0.88	0.81	1.09	48.2
All Vehicles			1803	4.0	1803	4.0	0.728	10.5	LOS B	9.3	66.2	0.76	0.72	0.88	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

 **Site: 101 [Starkey Road and Sturgeon Road - 2045 Total PM**
(Site Folder: Starky Road and Sturgeon Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
East: Sturgeon Road															
5	T1	All MCs	151	2.0	151	2.0	0.662	10.9	LOS B	7.4	52.6	0.93	0.84	1.15	50.1
6	R2	All MCs	391	2.0	391	2.0	0.662	10.7	LOS B	7.4	52.6	0.93	0.84	1.15	49.7
Approach			541	2.0	541	2.0	0.662	10.8	LOS B	7.4	52.6	0.93	0.84	1.15	49.8
North: Starky Road															
7	L2	All MCs	399	2.0	399	2.0	0.496	9.8	LOS A	4.4	31.6	0.54	0.57	0.54	50.6
9	R2	All MCs	218	2.0	218	2.0	0.496	5.0	LOS A	4.4	31.6	0.54	0.57	0.54	51.1
Approach			617	2.0	617	2.0	0.496	8.1	LOS A	4.4	31.6	0.54	0.57	0.54	50.7
West: Sturgeon Road															
10	L2	All MCs	502	2.0	502	2.0	0.769	16.5	LOS B	11.0	78.0	0.93	0.88	1.24	46.9
11	T1	All MCs	247	2.0	247	2.0	0.769	11.8	LOS B	11.0	78.0	0.93	0.88	1.24	47.7
Approach			749	2.0	749	2.0	0.769	14.9	LOS B	11.0	78.0	0.93	0.88	1.24	47.2
All Vehicles			1907	2.0	1907	2.0	0.769	11.5	LOS B	11.0	78.0	0.80	0.77	0.99	49.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix D

Intersection Treatment Warrants



Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	5,750
Minor (intersecting) Road A.A.D.T	1,920
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	320
Opposing volume (V_{opp}), veh/h:	160
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	760

OUTPUT	Value
Percent left-turns in advancing volume:	31.9%
Percent trucks in left turn volume:	4.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	2.2%
Calculated conflicts per hour, veh/h:	7.0

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

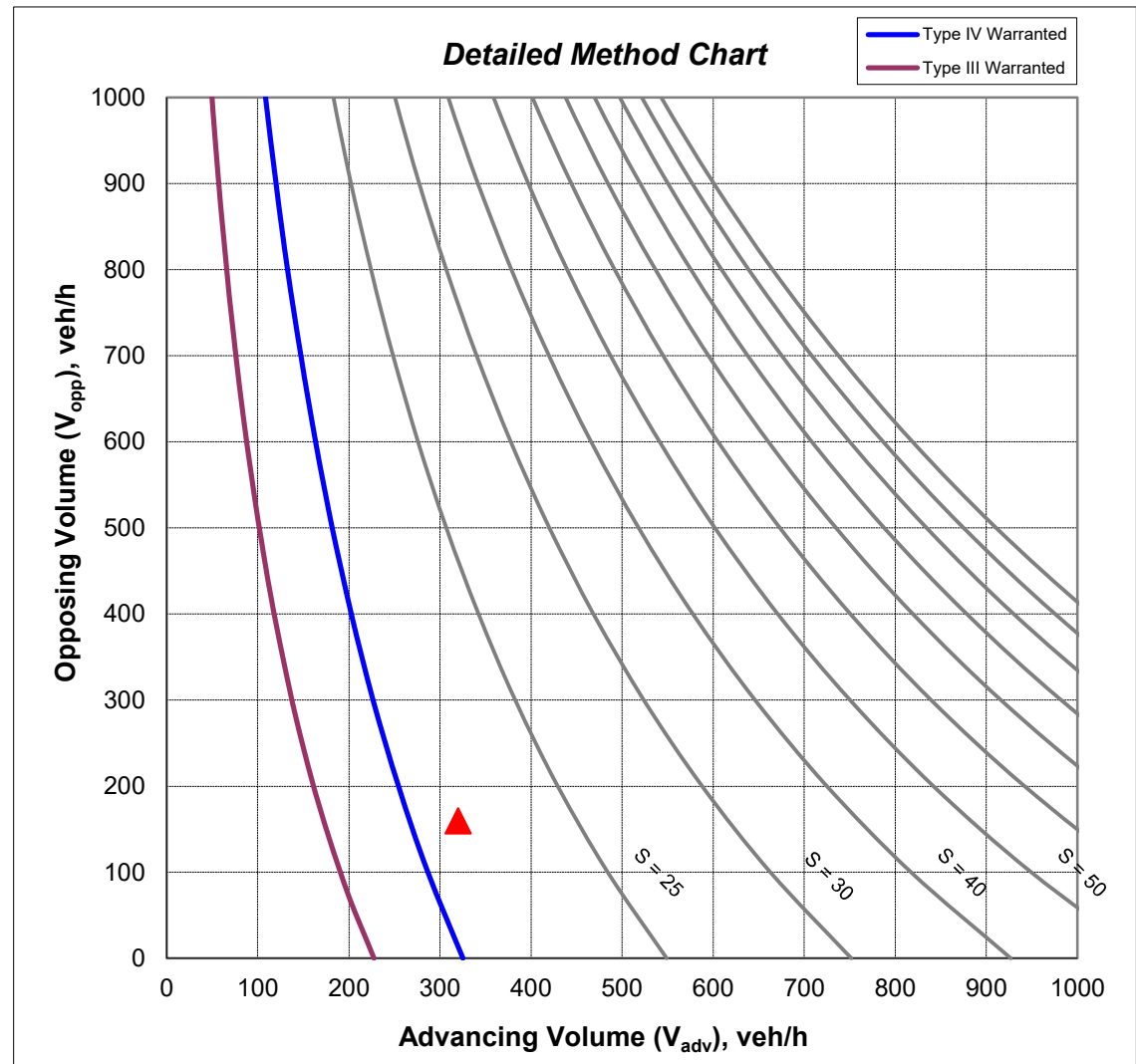
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: NB
Period: PM Peak

Year of Analysis: 2025 (Backgroun
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	3,140
Minor (intersecting) Road A.A.D.T	1,920
Left turn volume (V_{LT}), veh/h:	8
Advancing volume (V_{adv}), veh/h:	160
Opposing volume (V_{opp}), veh/h:	320
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	5.0%
Percent trucks in left turn volume:	12.5%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.2%
Calculated conflicts per hour, veh/h:	0.3

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

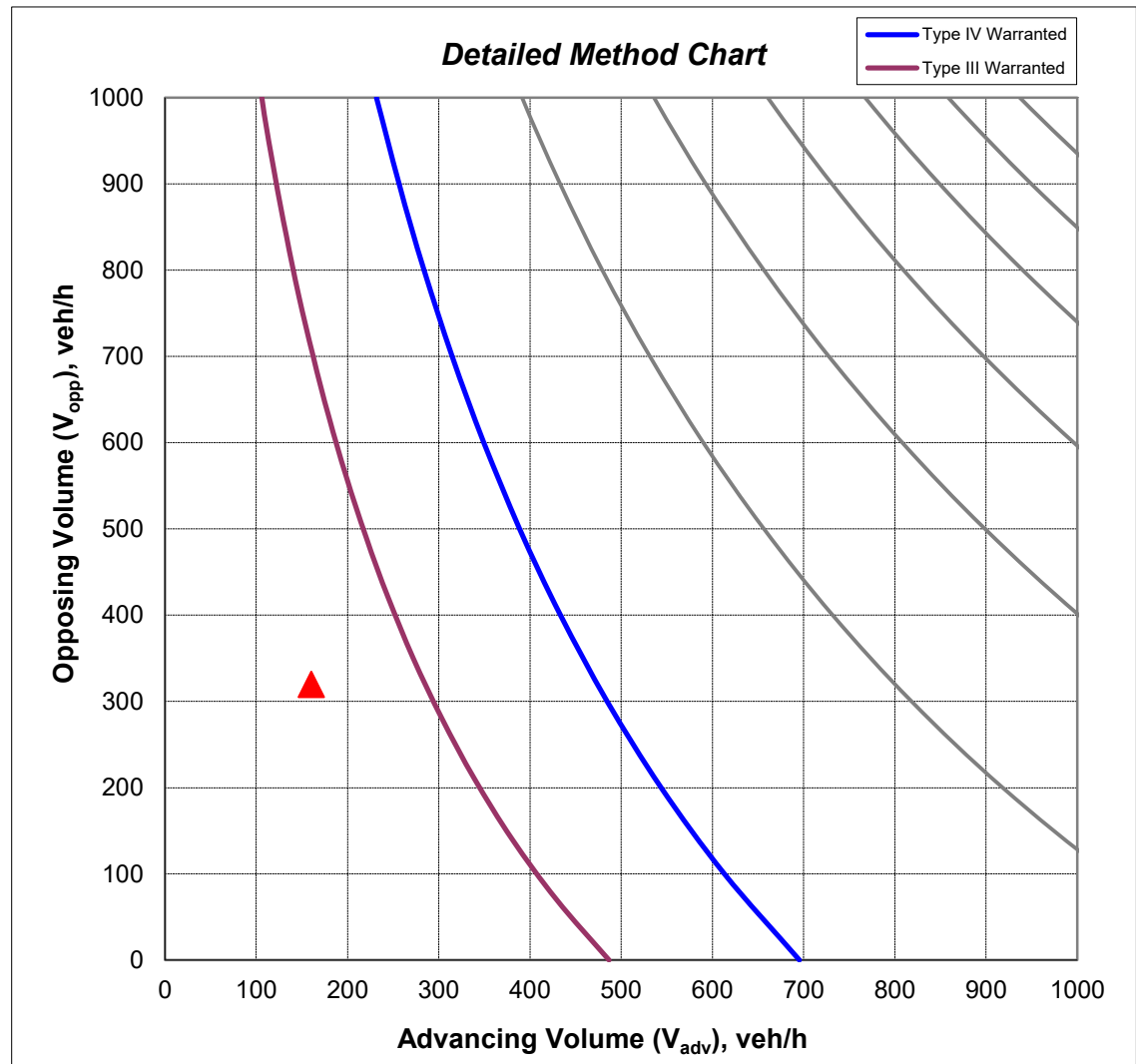
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: SB
Period: PM Peak

Year of Analysis: 2025 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	8,270
Minor (intersecting) Road A.A.D.T	2,150
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	435
Opposing volume (V_{opp}), veh/h:	239
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	760

OUTPUT	Value
Percent left-turns in advancing volume:	23.4%
Percent trucks in left turn volume:	4.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	4.0%
Calculated conflicts per hour, veh/h:	17.5

Use Detailed Method

Type IV	RT Lane warranted
Additional Storage Not Required	<i>base storage requirement</i> - <i>- standard storage length</i> - <i>+ additional truck storage</i> - = total additional storage required -

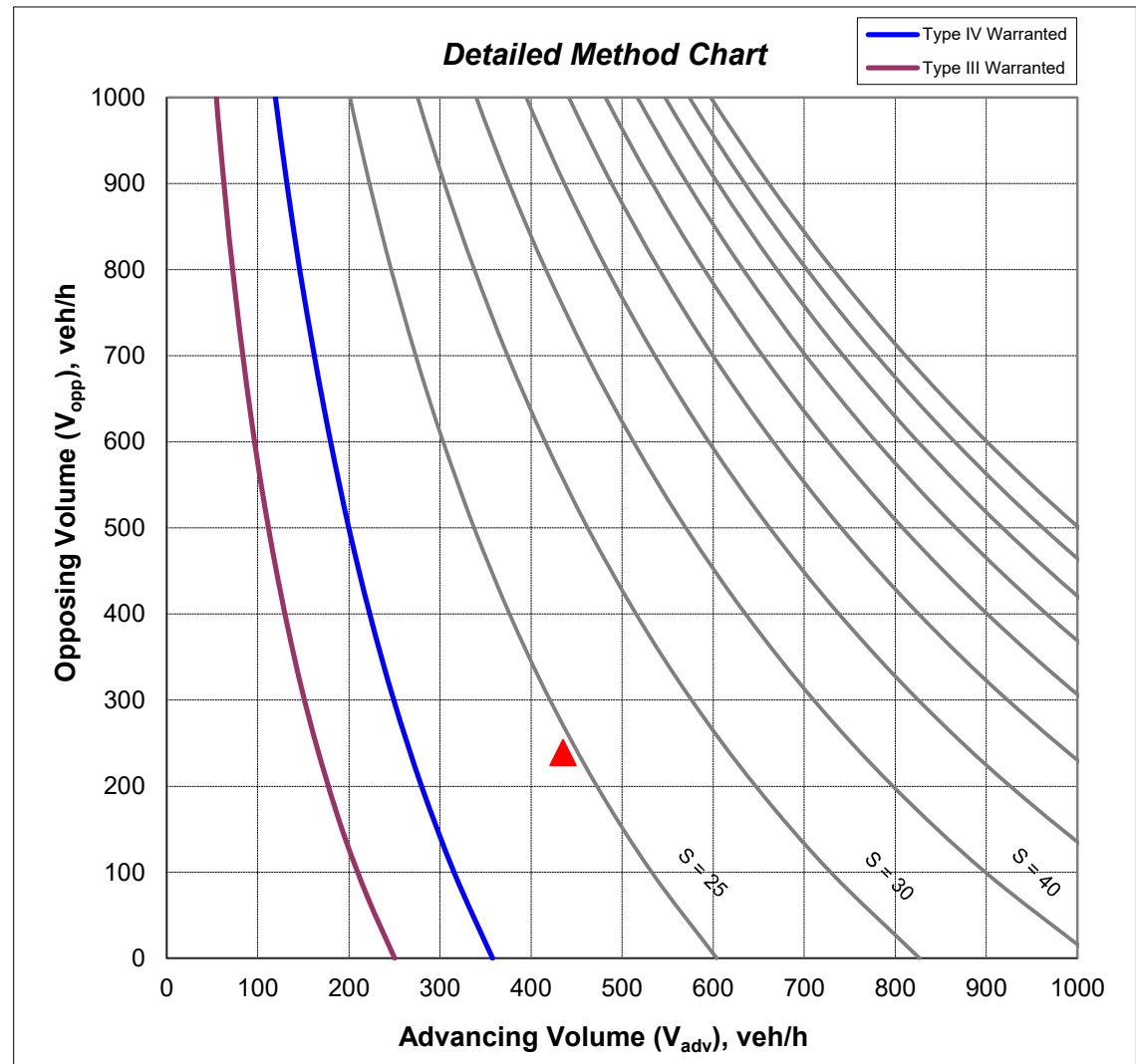
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: NB
Period: PM Peak

Year of Analysis: 2035 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	5,050
Minor (intersecting) Road A.A.D.T	2,150
Left turn volume (V_{LT}), veh/h:	8
Advancing volume (V_{adv}), veh/h:	239
Opposing volume (V_{opp}), veh/h:	435
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	3.3%
Percent trucks in left turn volume:	12.5%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.3%
Calculated conflicts per hour, veh/h:	0.8

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd

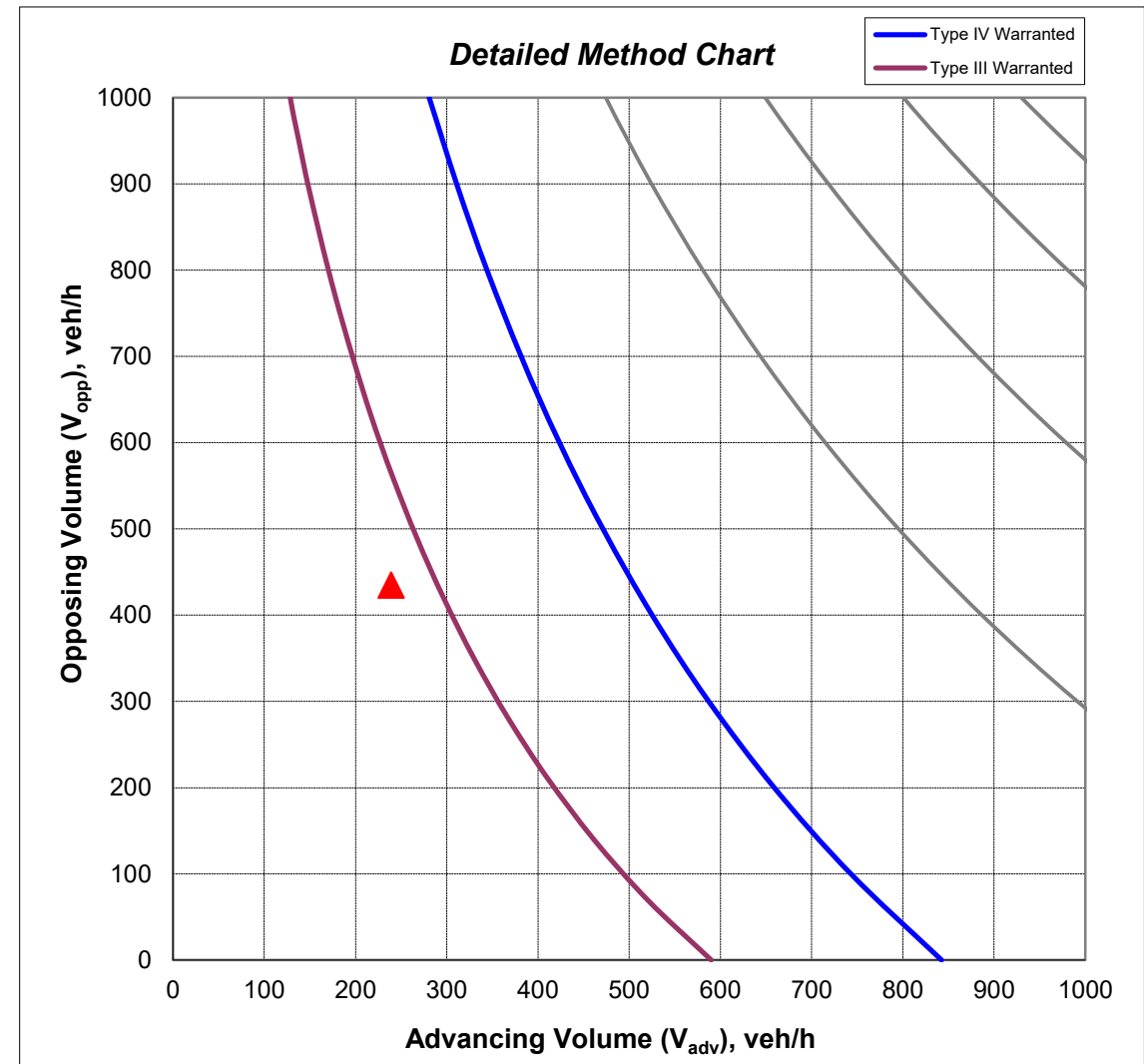
Direction: SB

Year of Analysis: 2035 (Backgrou

Minor Rd: Trestle Ridge Rd / E Estates

Period: PM Peak

Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	9,610
Minor (intersecting) Road A.A.D.T	2,420
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	463
Opposing volume (V_{opp}), veh/h:	269
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	760

OUTPUT	Value
Percent left-turns in advancing volume:	22.0%
Percent trucks in left turn volume:	4.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	4.7%
Calculated conflicts per hour, veh/h:	21.6

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

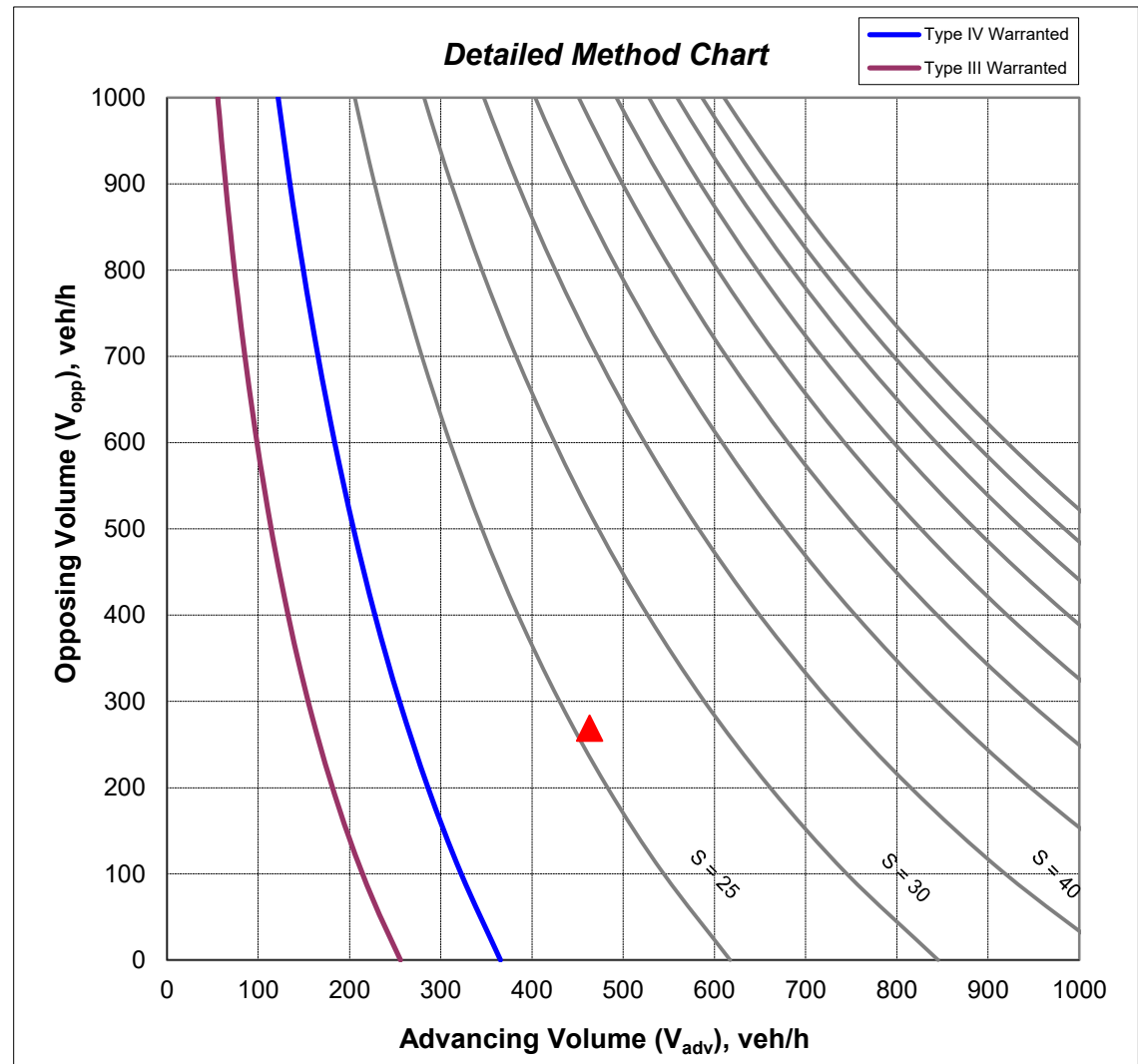
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: NB
Period: PM Peak

Year of Analysis: 2045 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	5,660
Minor (intersecting) Road A.A.D.T	2,420
Left turn volume (V_{LT}), veh/h:	8
Advancing volume (V_{adv}), veh/h:	269
Opposing volume (V_{opp}), veh/h:	463
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	3.0%
Percent trucks in left turn volume:	12.5%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.4%
Calculated conflicts per hour, veh/h:	1.1

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

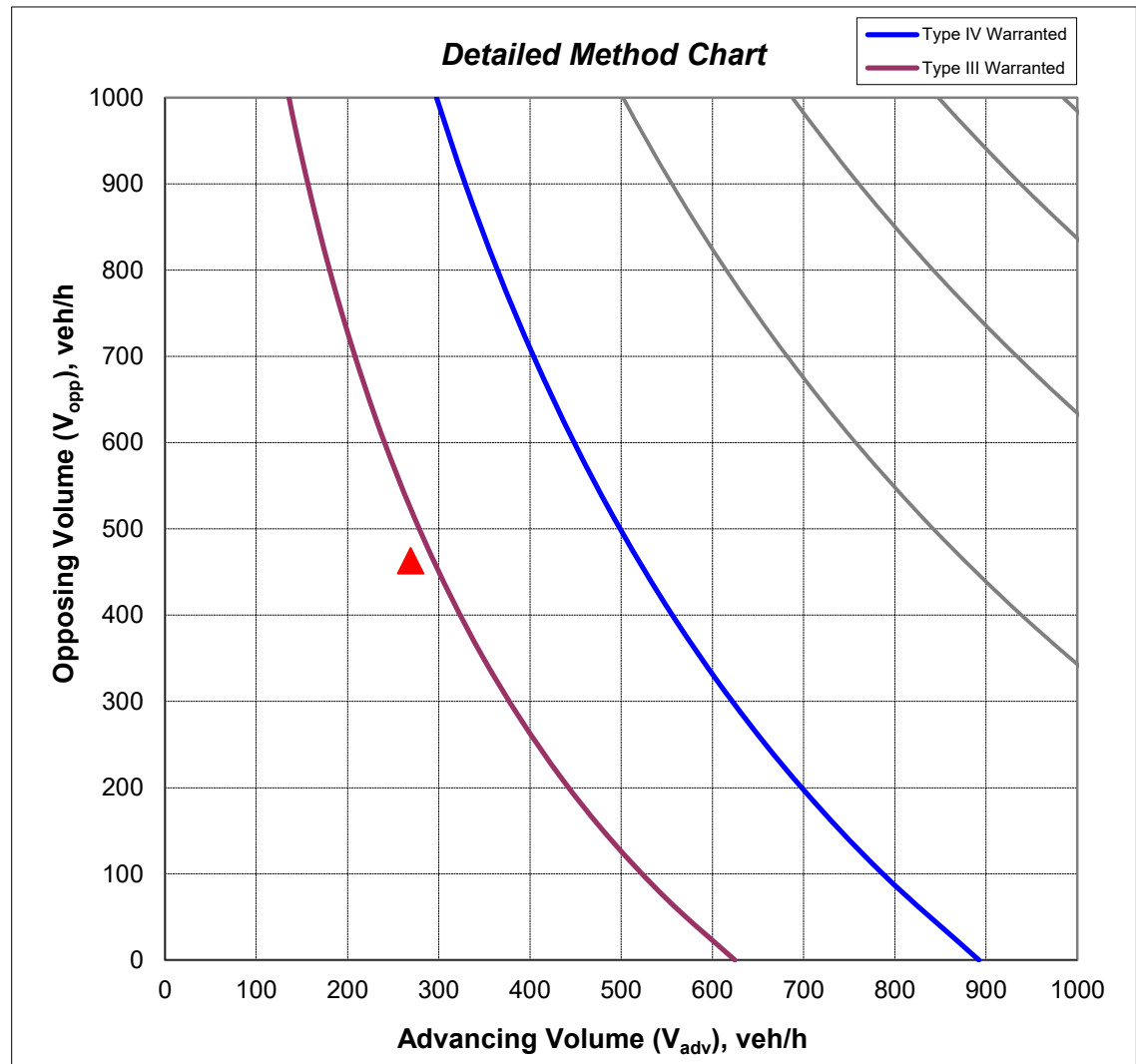
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: SB
Period: PM Peak

Year of Analysis: 2045 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	6,760
Minor (intersecting) Road A.A.D.T	3,370
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	382
Opposing volume (V_{opp}), veh/h:	188
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	1,253

OUTPUT	Value
Percent left-turns in advancing volume:	26.7%
Percent trucks in left turn volume:	4.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	3.0%
Calculated conflicts per hour, veh/h:	11.4

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

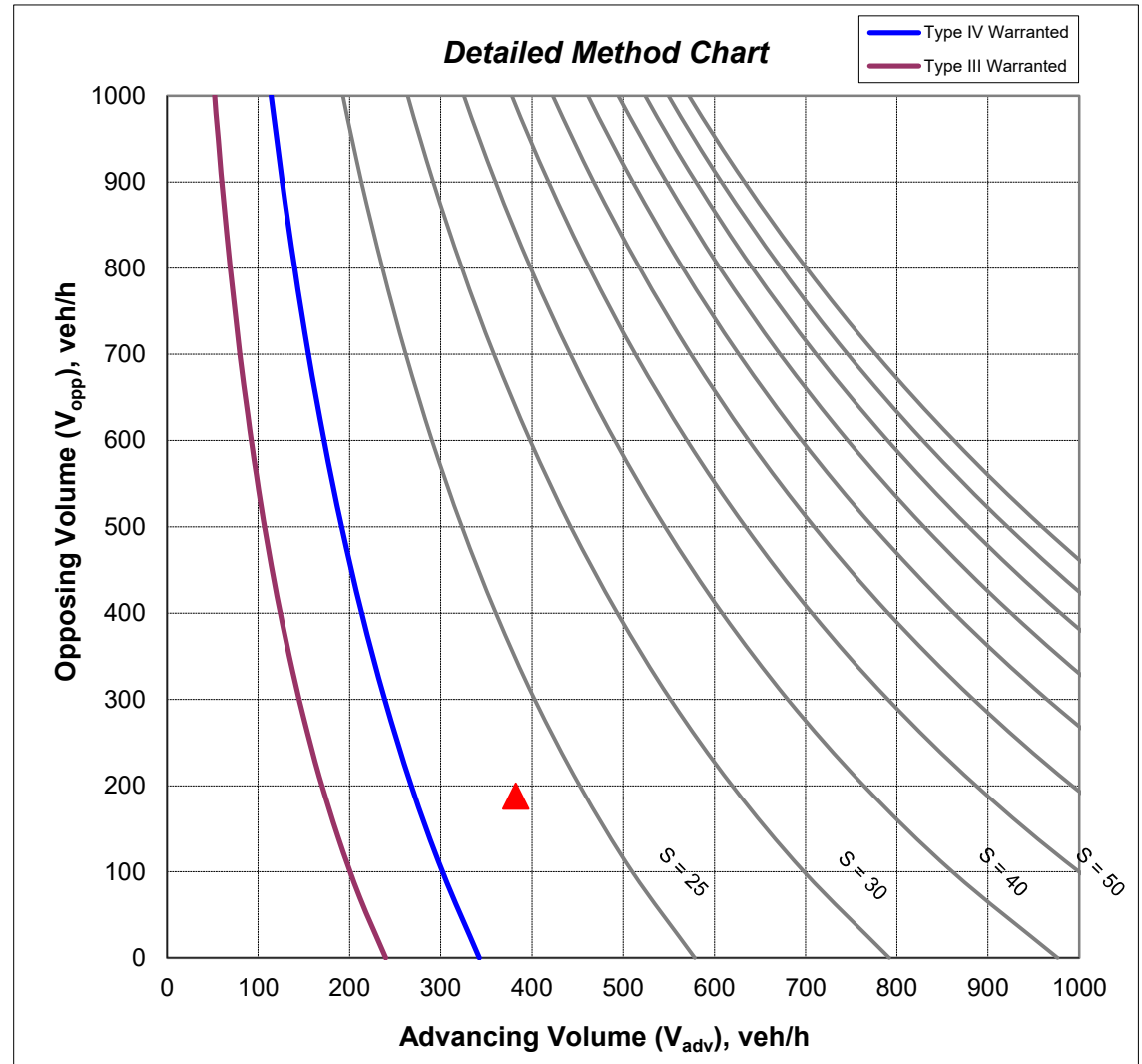
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: NB
Period: PM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	3,570
Minor (intersecting) Road A.A.D.T	3,370
Left turn volume (V_{LT}), veh/h:	36
Advancing volume (V_{adv}), veh/h:	188
Opposing volume (V_{opp}), veh/h:	382
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	19.1%
Percent trucks in left turn volume:	2.8%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.9%
Calculated conflicts per hour, veh/h:	1.7

Use Detailed Method

Type III

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

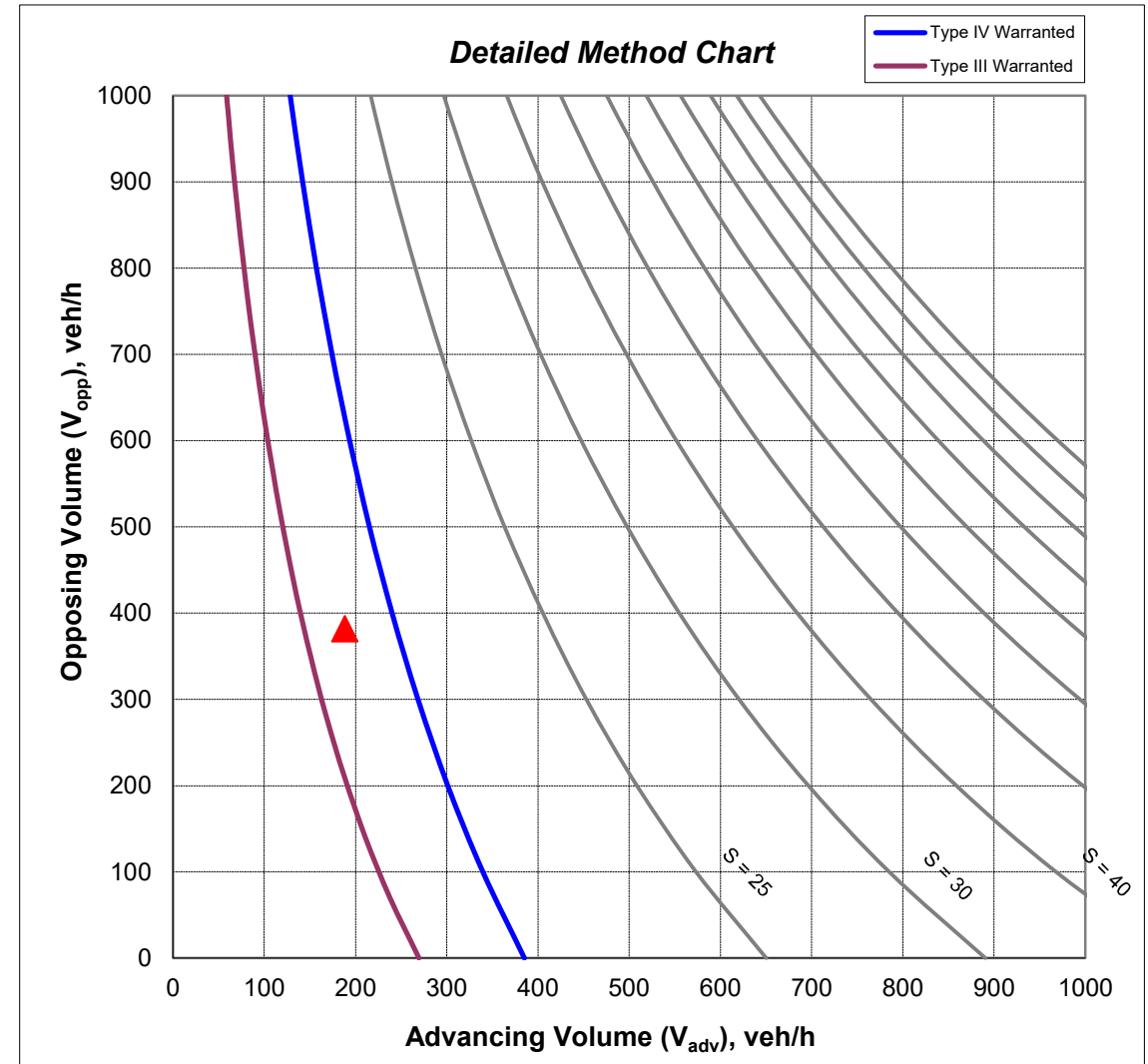
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: SB
Period: PM Peak

Year of Analysis: 2025 (total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	9,390
Minor (intersecting) Road A.A.D.T	3,750
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	503
Opposing volume (V_{opp}), veh/h:	269
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	1,308

OUTPUT	Value
Percent left-turns in advancing volume:	20.3%
Percent trucks in left turn volume:	1.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	5.2%
Calculated conflicts per hour, veh/h:	26.0

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd

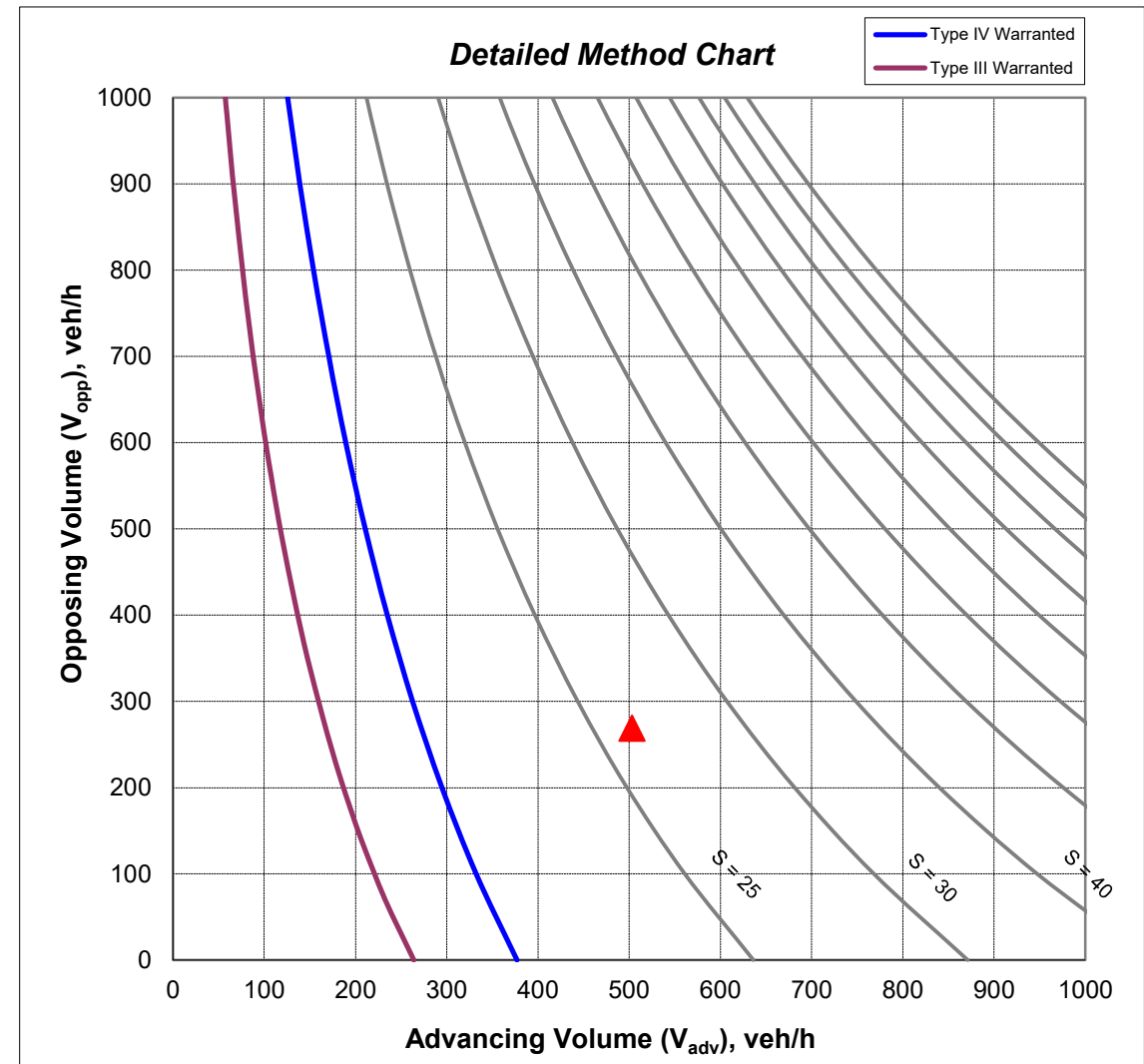
Direction: NB

Year of Analysis: 2035 (total)

Minor Rd: Trestle Ridge Rd / E Estates

Period: PM Peak

Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	5,530
Minor (intersecting) Road A.A.D.T	3,750
Left turn volume (V_{LT}), veh/h:	38
Advancing volume (V_{adv}), veh/h:	269
Opposing volume (V_{opp}), veh/h:	503
Left turn truck volume, trucks/h:	2
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	14.1%
Percent trucks in left turn volume:	5.3%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	1.9%
Calculated conflicts per hour, veh/h:	5.0

Use Detailed Method

Type IV

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

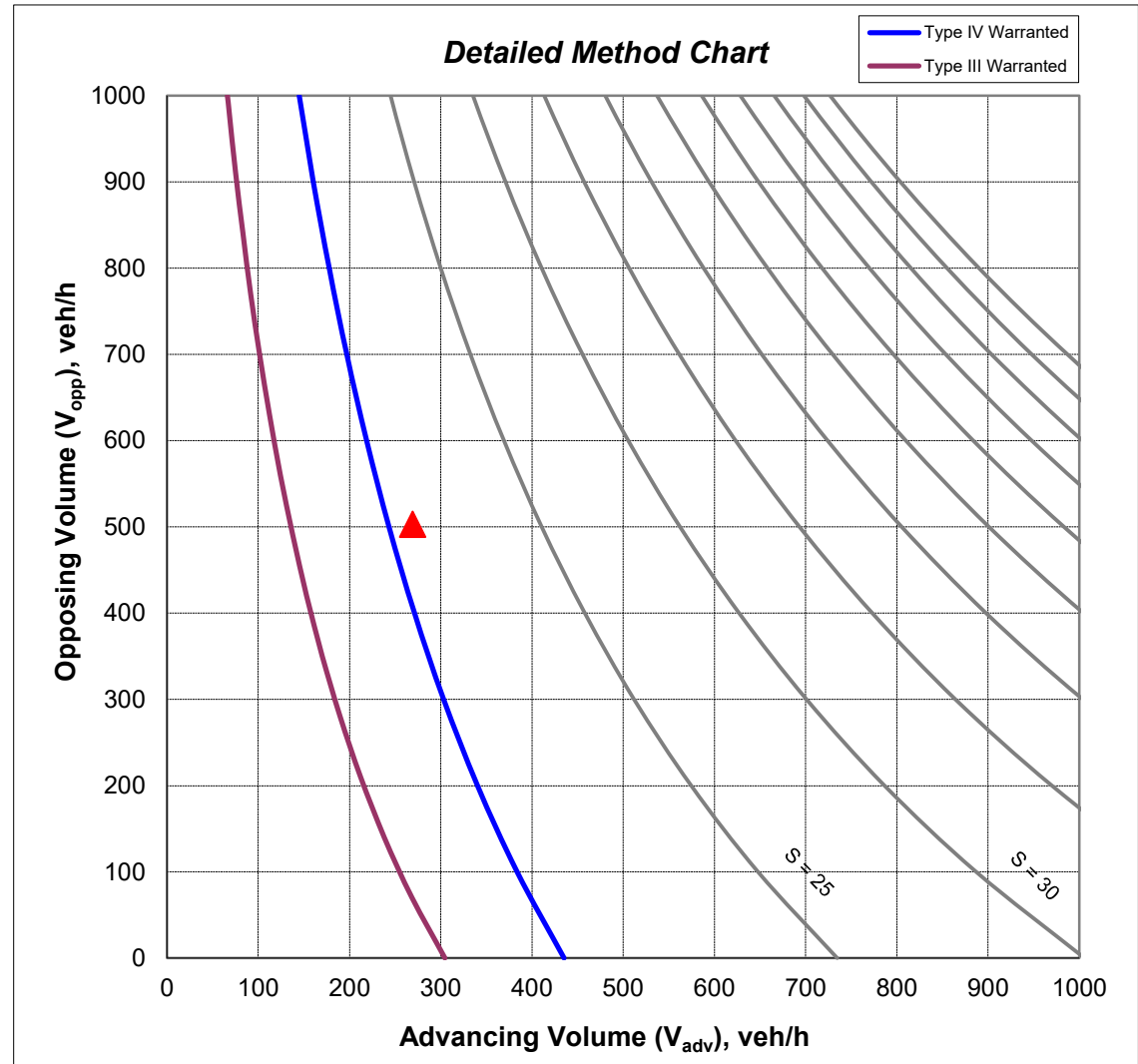
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Trestle Ridge Rd / E Estates

Direction: SB
Period: PM Peak

Year of Analysis: 2035 (total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	10,370
Minor (intersecting) Road A.A.D.T	4,020
Left turn volume (V_{LT}), veh/h:	102
Advancing volume (V_{adv}), veh/h:	531
Opposing volume (V_{opp}), veh/h:	299
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	1,308

OUTPUT	Value
Percent left-turns in advancing volume:	19.2%
Percent trucks in left turn volume:	4.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	5.9%
Calculated conflicts per hour, veh/h:	31.5

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd

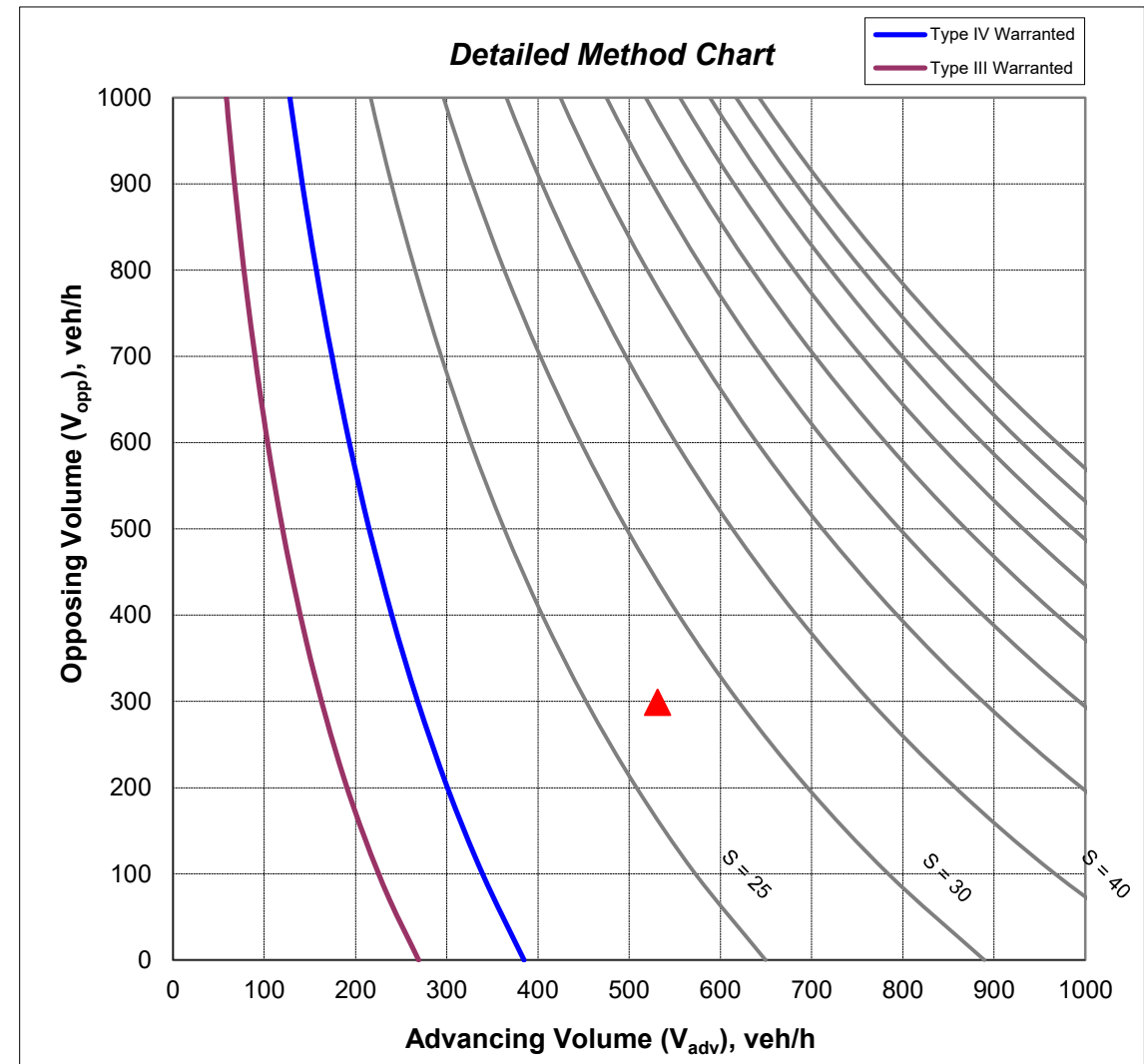
Direction: NB

Year of Analysis: 2045 (Total)

Minor Rd: Trestle Ridge Rd / E Estates

Period: PM Peak

Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	6,140
Minor (intersecting) Road A.A.D.T	4,020
Left turn volume (V_{LT}), veh/h:	38
Advancing volume (V_{adv}), veh/h:	299
Opposing volume (V_{opp}), veh/h:	531
Left turn truck volume, trucks/h:	2
Right turn volume (V_{RT}), veh/day:	60

OUTPUT	Value
Percent left-turns in advancing volume:	12.7%
Percent trucks in left turn volume:	5.3%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	2.2%
Calculated conflicts per hour, veh/h:	6.7

Use Detailed Method

Type IV

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd

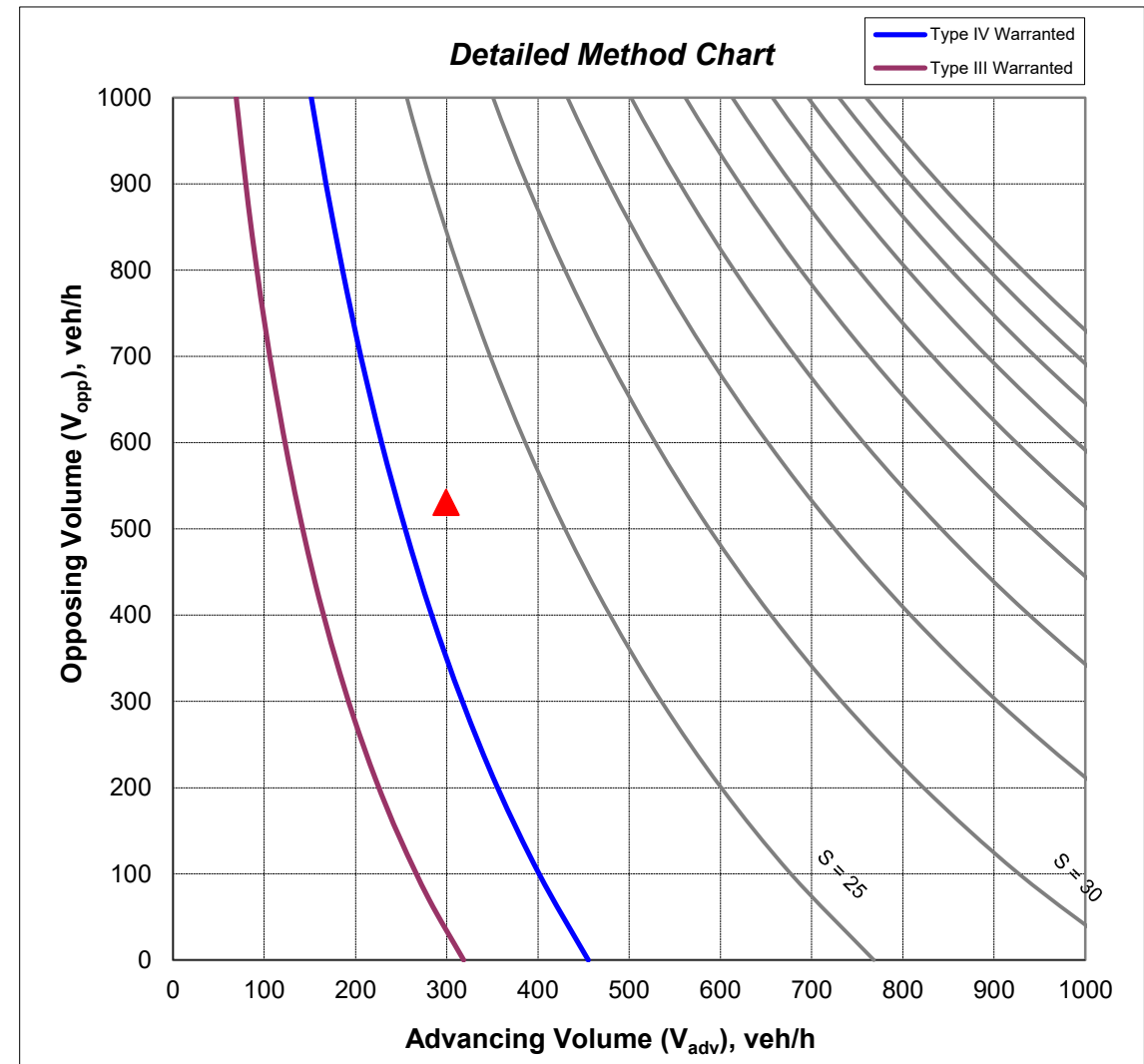
Direction: SB

Year of Analysis: 2045 (total)

Minor Rd: Trestle Ridge Rd / E Estates

Period: PM Peak

Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	1,920
Minor (intersecting) Road A.A.D.T	600
Left turn volume (V_{LT}), veh/h:	7
Advancing volume (V_{adv}), veh/h:	101
Opposing volume (V_{opp}), veh/h:	48
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	6.9%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.0%
Calculated conflicts per hour, veh/h:	0.0

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

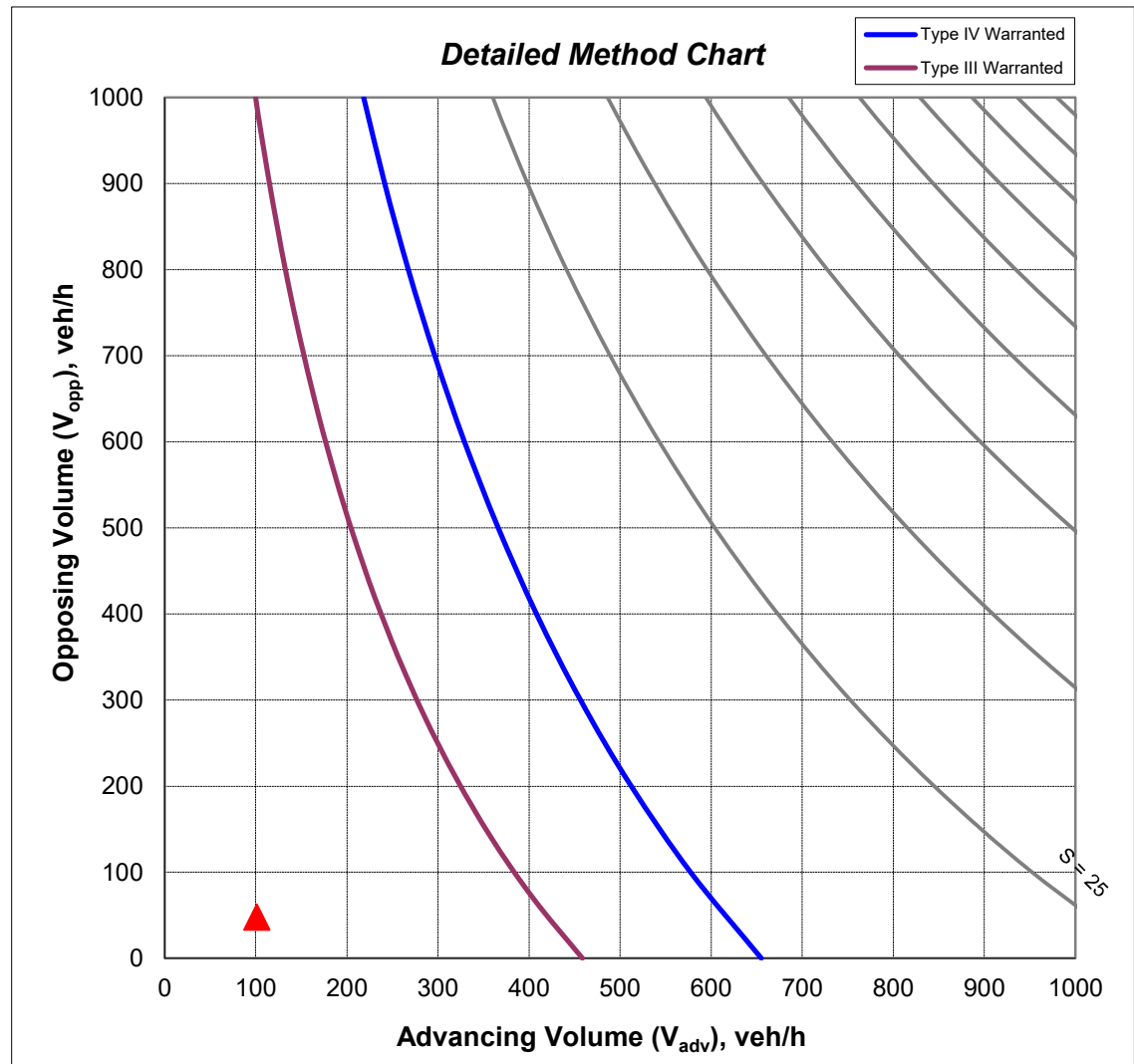
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2025 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	2,150
Minor (intersecting) Road A.A.D.T	730
Left turn volume (V_{LT}), veh/h:	9
Advancing volume (V_{adv}), veh/h:	124
Opposing volume (V_{opp}), veh/h:	58
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	7.3%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.1

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

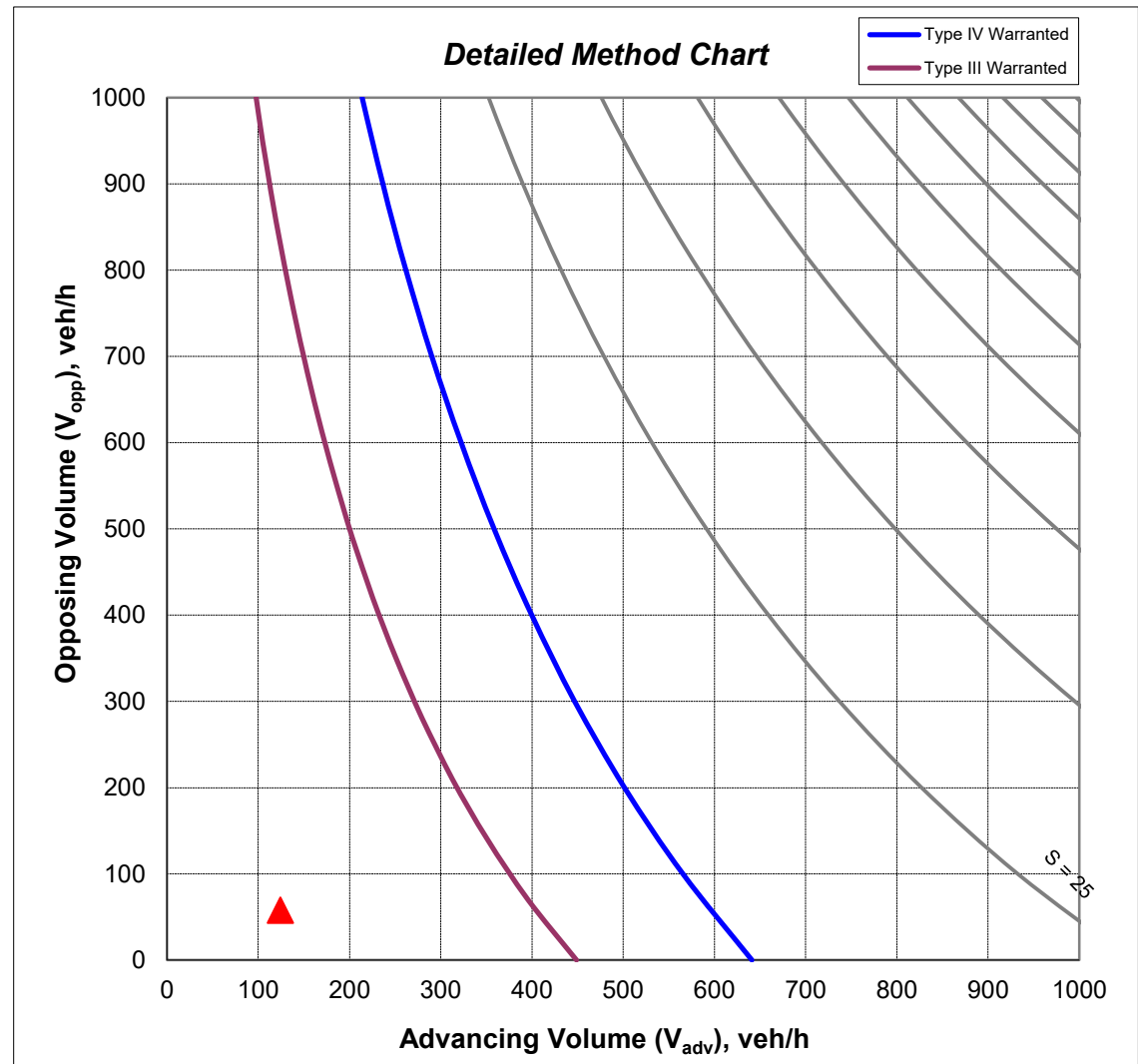
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2035 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	2,420
Minor (intersecting) Road A.A.D.T	890
Left turn volume (V_{LT}), veh/h:	11
Advancing volume (V_{adv}), veh/h:	151
Opposing volume (V_{opp}), veh/h:	71
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	7.3%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.2

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

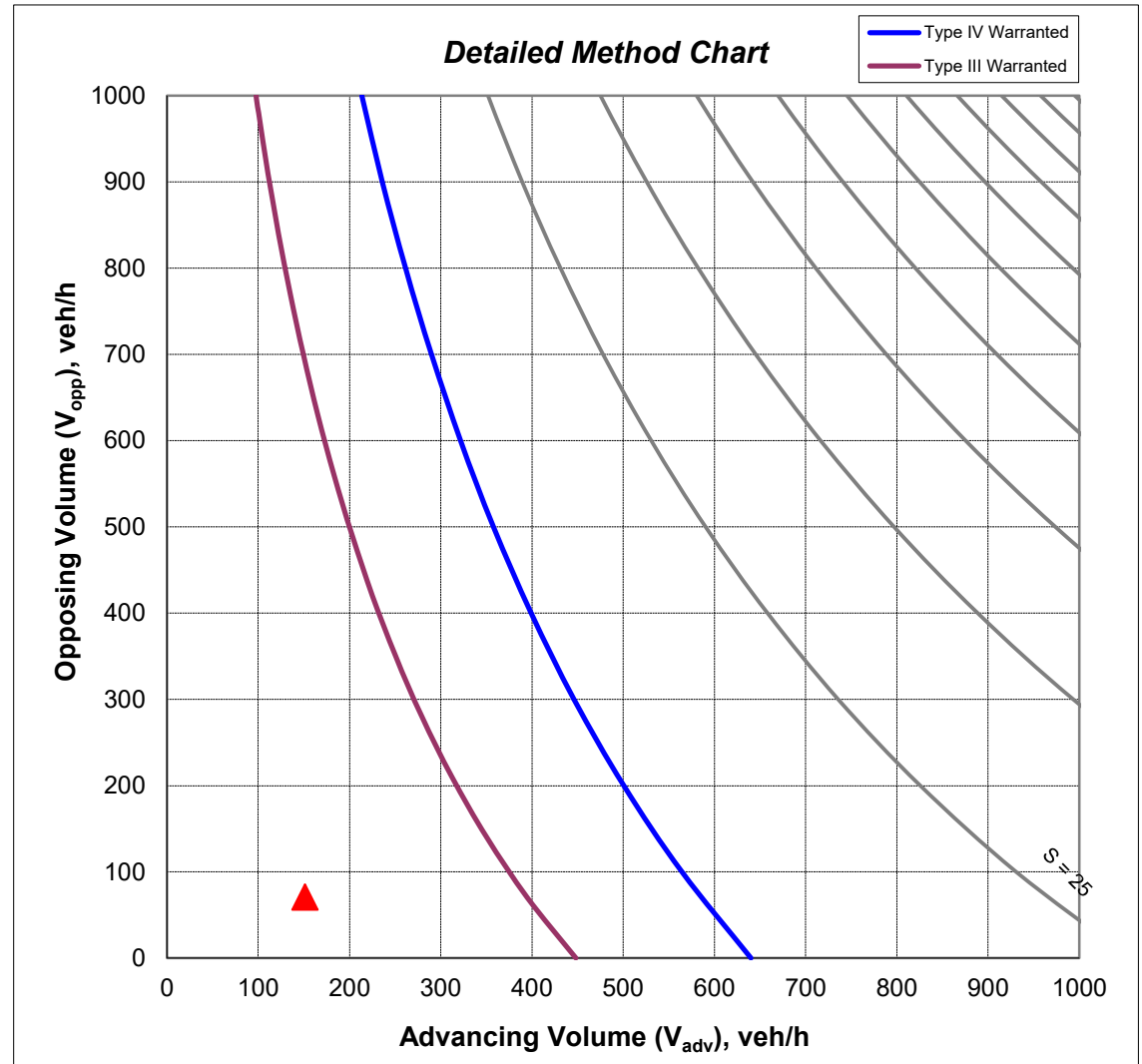
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2045 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	3,370
Minor (intersecting) Road A.A.D.T	1,560
Left turn volume (V_{LT}), veh/h:	90
Advancing volume (V_{adv}), veh/h:	180
Opposing volume (V_{opp}), veh/h:	77
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	244

OUTPUT	Value
Percent left-turns in advancing volume:	50.0%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.6%
Calculated conflicts per hour, veh/h:	1.2

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

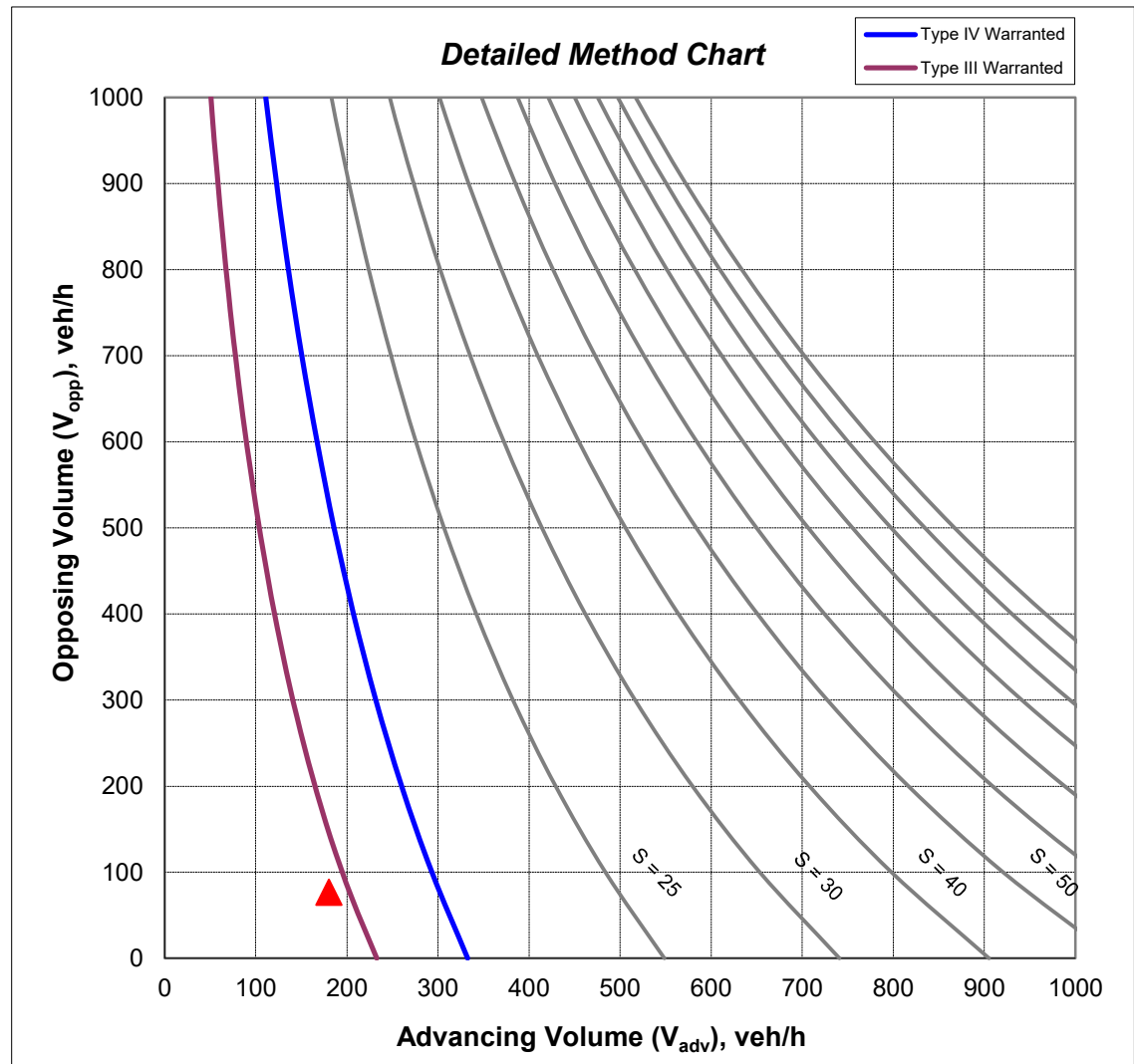
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: EB
Period: PM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	3,370
Minor (intersecting) Road A.A.D.T	1,560
Left turn volume (V_{LT}), veh/h:	7
Advancing volume (V_{adv}), veh/h:	101
Opposing volume (V_{opp}), veh/h:	180
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	6.9%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.1

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

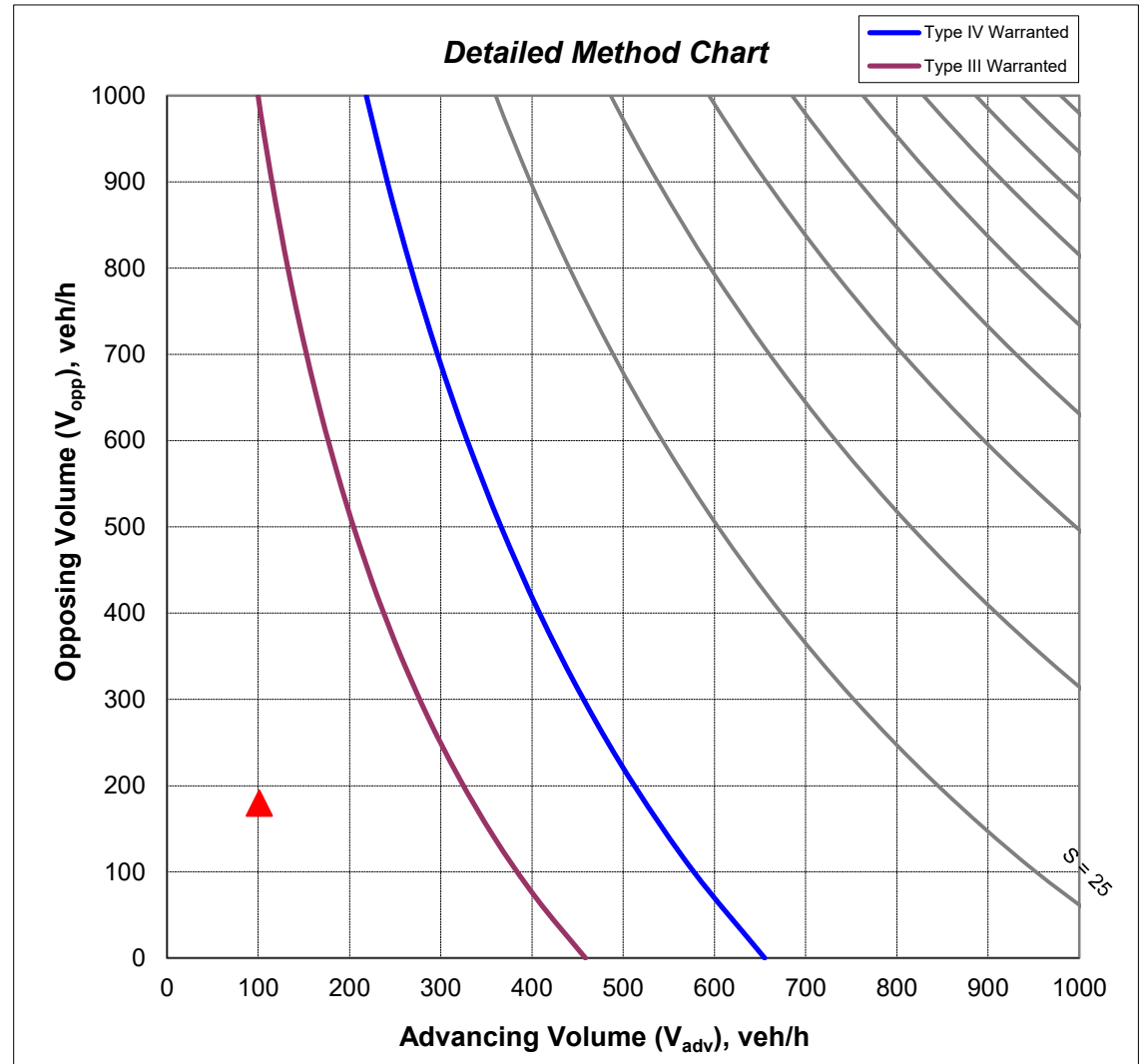
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	50
Main Road A.A.D.T.	3,750
Minor (intersecting) Road A.A.D.T	1,730
Left turn volume (V_{LT}), veh/h:	98
Advancing volume (V_{adv}), veh/h:	208
Opposing volume (V_{opp}), veh/h:	94
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	298

OUTPUT	Value
Percent left-turns in advancing volume:	47.1%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	2.45%
Calculated probability of conflicting arrival:	0.9%
Calculated conflicts per hour, veh/h:	1.9

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

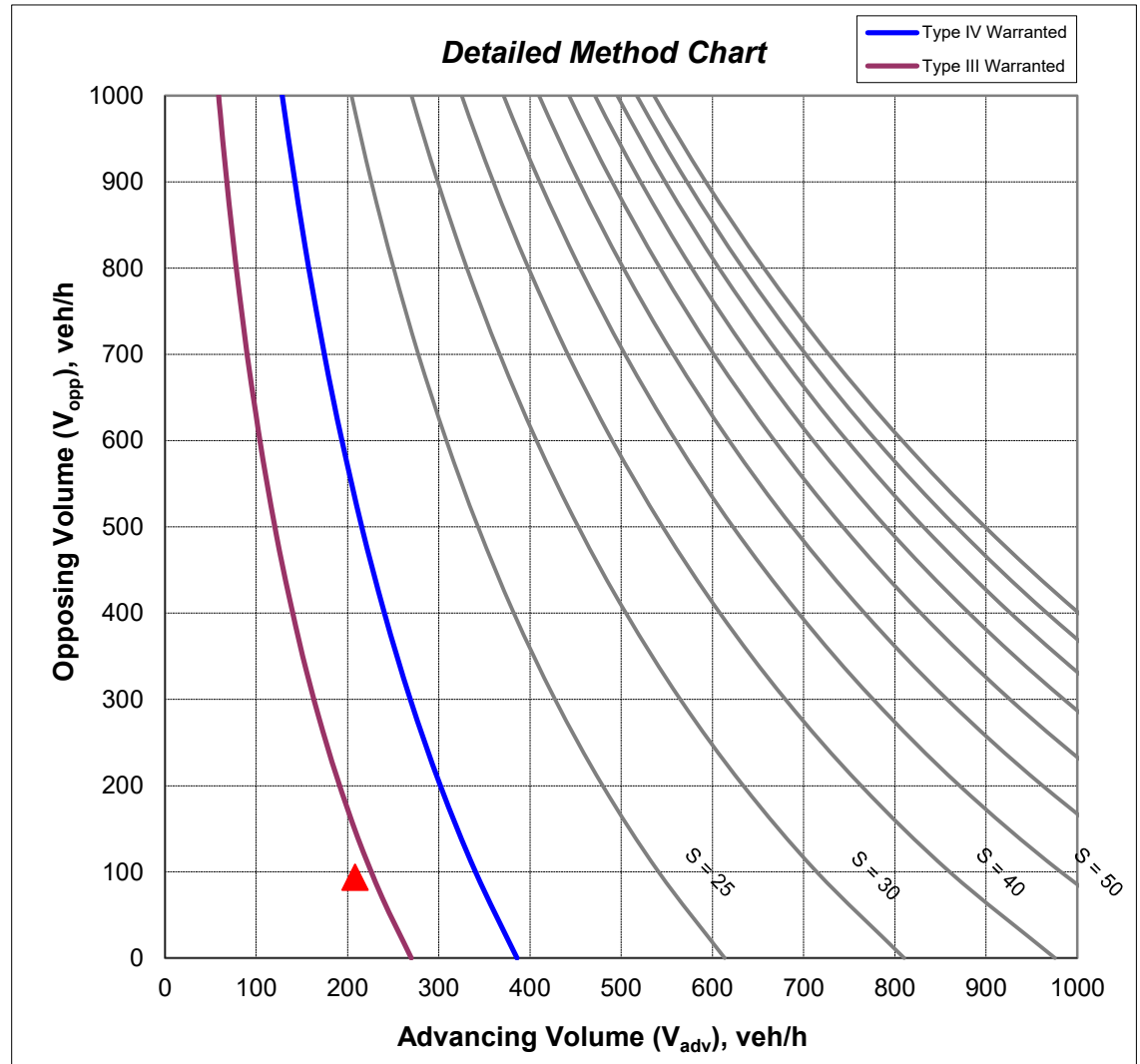
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: EB
Period: PM Peak

Year of Analysis: 2035 Total
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	3,750
Minor (intersecting) Road A.A.D.T	1,730
Left turn volume (V_{LT}), veh/h:	9
Advancing volume (V_{adv}), veh/h:	122
Opposing volume (V_{opp}), veh/h:	88
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	7.4%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.1

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

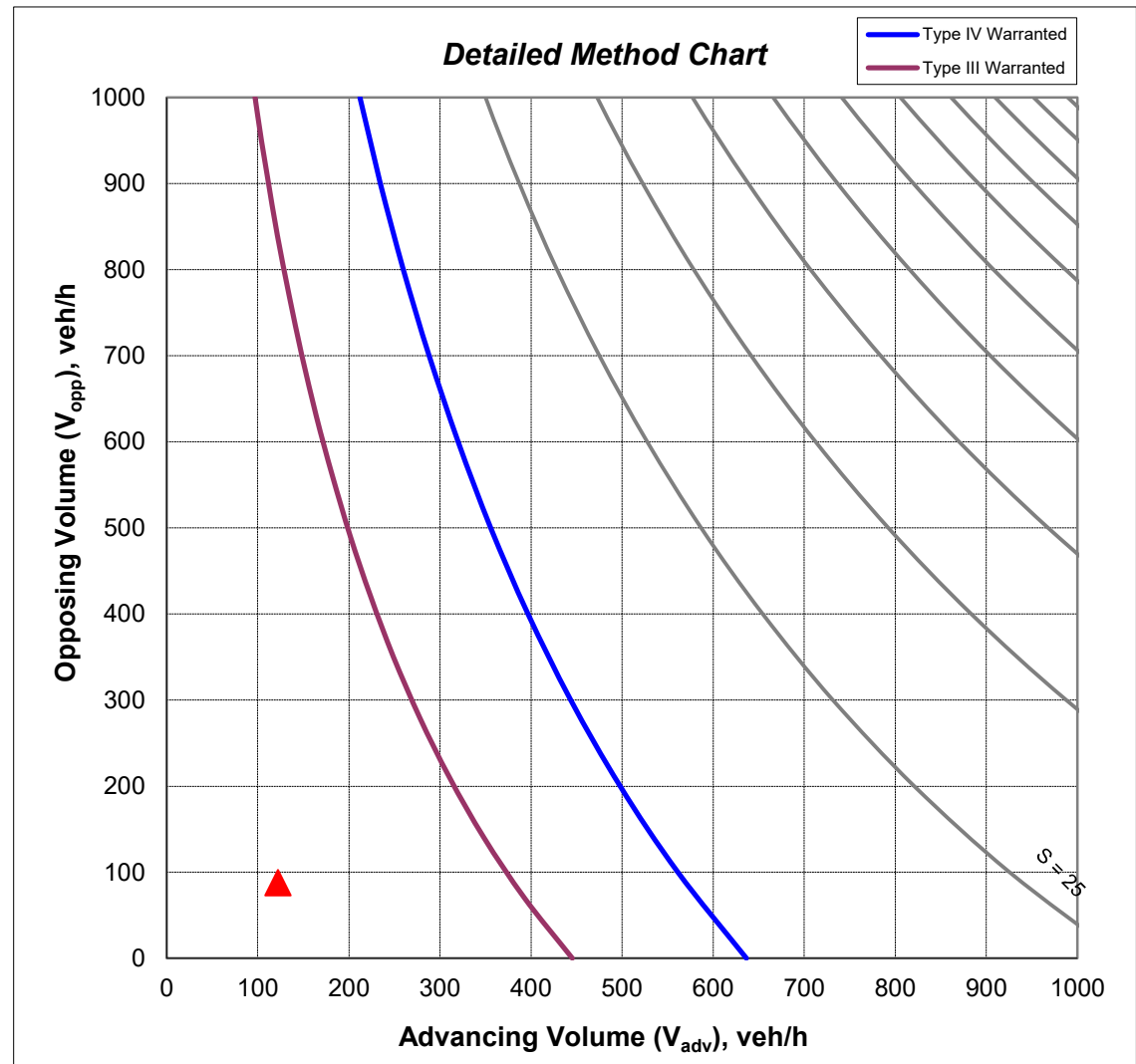
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2035 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	50
Main Road A.A.D.T.	4,020
Minor (intersecting) Road A.A.D.T	1,730
Left turn volume (V_{LT}), veh/h:	98
Advancing volume (V_{adv}), veh/h:	232
Opposing volume (V_{opp}), veh/h:	115
Left turn truck volume, trucks/h:	1
Right turn volume (V_{RT}), veh/day:	363

OUTPUT	Value
Percent left-turns in advancing volume:	42.2%
Percent trucks in left turn volume:	1.0%
Probability of conflict threshold:	2.45%
Calculated probability of conflicting arrival:	1.2%
Calculated conflicts per hour, veh/h:	2.7

Use Detailed Method

Type III

RT Lane
warranted

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

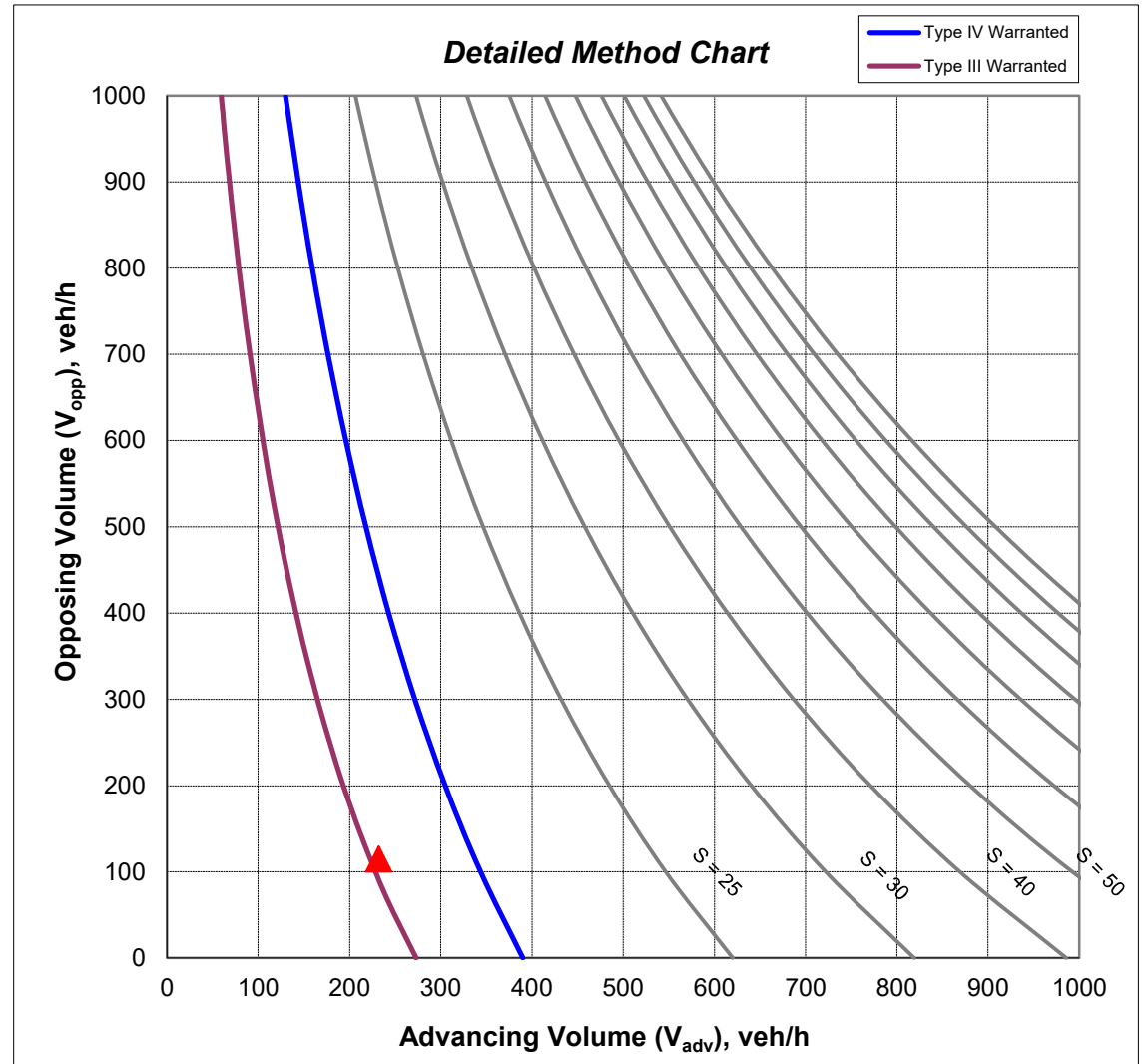
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: EB
Period: PM Peak

Year of Analysis: 2045 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	70
Main Road A.A.D.T.	4,020
Minor (intersecting) Road A.A.D.T	1,728
Left turn volume (V_{LT}), veh/h:	11
Advancing volume (V_{adv}), veh/h:	151
Opposing volume (V_{opp}), veh/h:	101
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	-

OUTPUT	Value
Percent left-turns in advancing volume:	7.3%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.83%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.2

Use Detailed Method

Type II

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

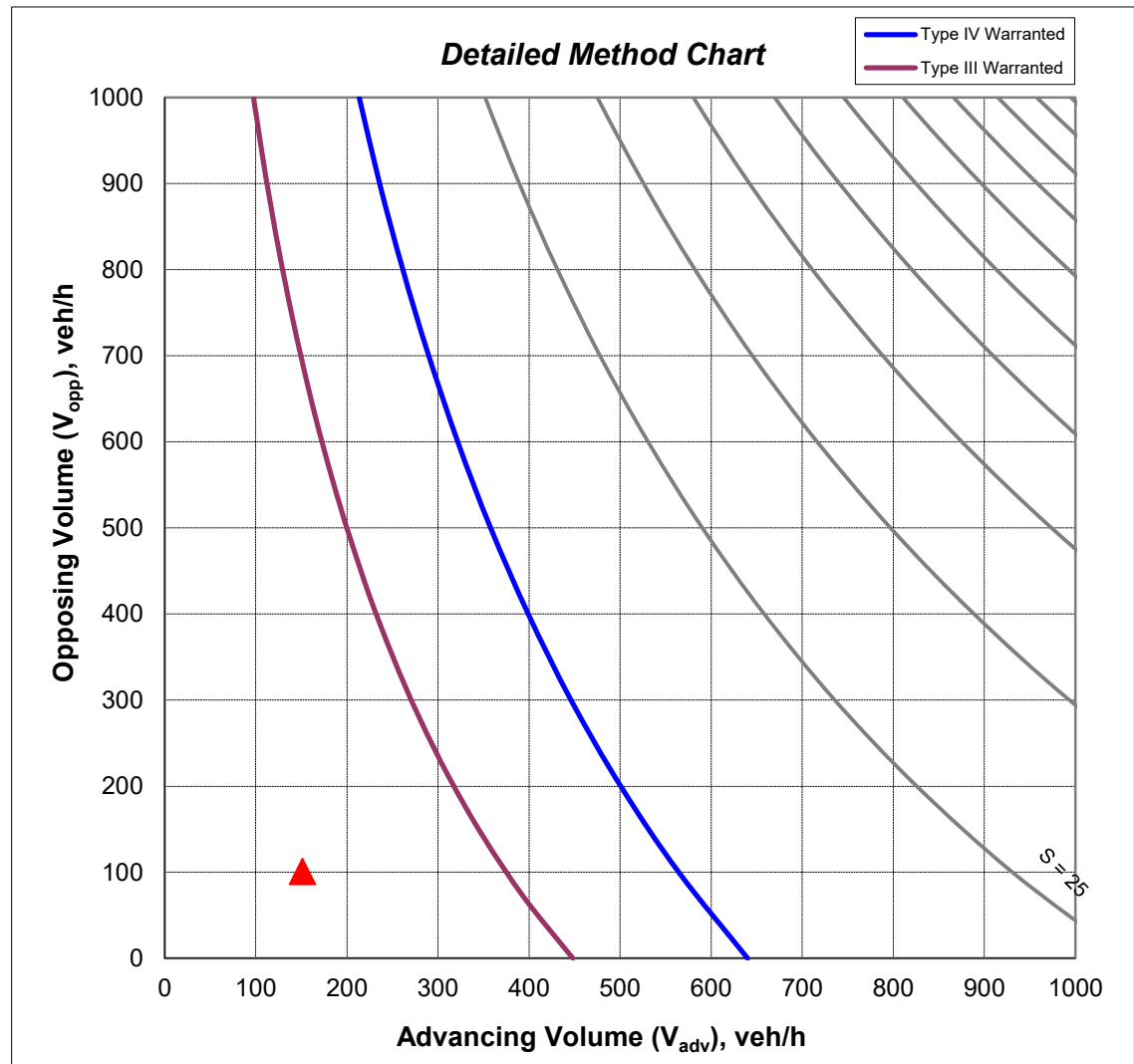
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Trestle Ridge Road
Minor Rd: Pinnacle Way / Village

Direction: WB
Period: AM Peak

Year of Analysis: 2045 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,500
Minor (intersecting) Road A.A.D.T	5,000
Left turn volume (V_{LT}), veh/h:	212
Advancing volume (V_{adv}), veh/h:	470
Opposing volume (V_{opp}), veh/h:	277
Left turn truck volume, trucks/h:	10
Right turn volume (V_{RT}), veh/day:	260

OUTPUT	Value
Percent left-turns in advancing volume:	45.1%
Percent trucks in left turn volume:	4.7%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	7.1%
Calculated conflicts per hour, veh/h:	33.1

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

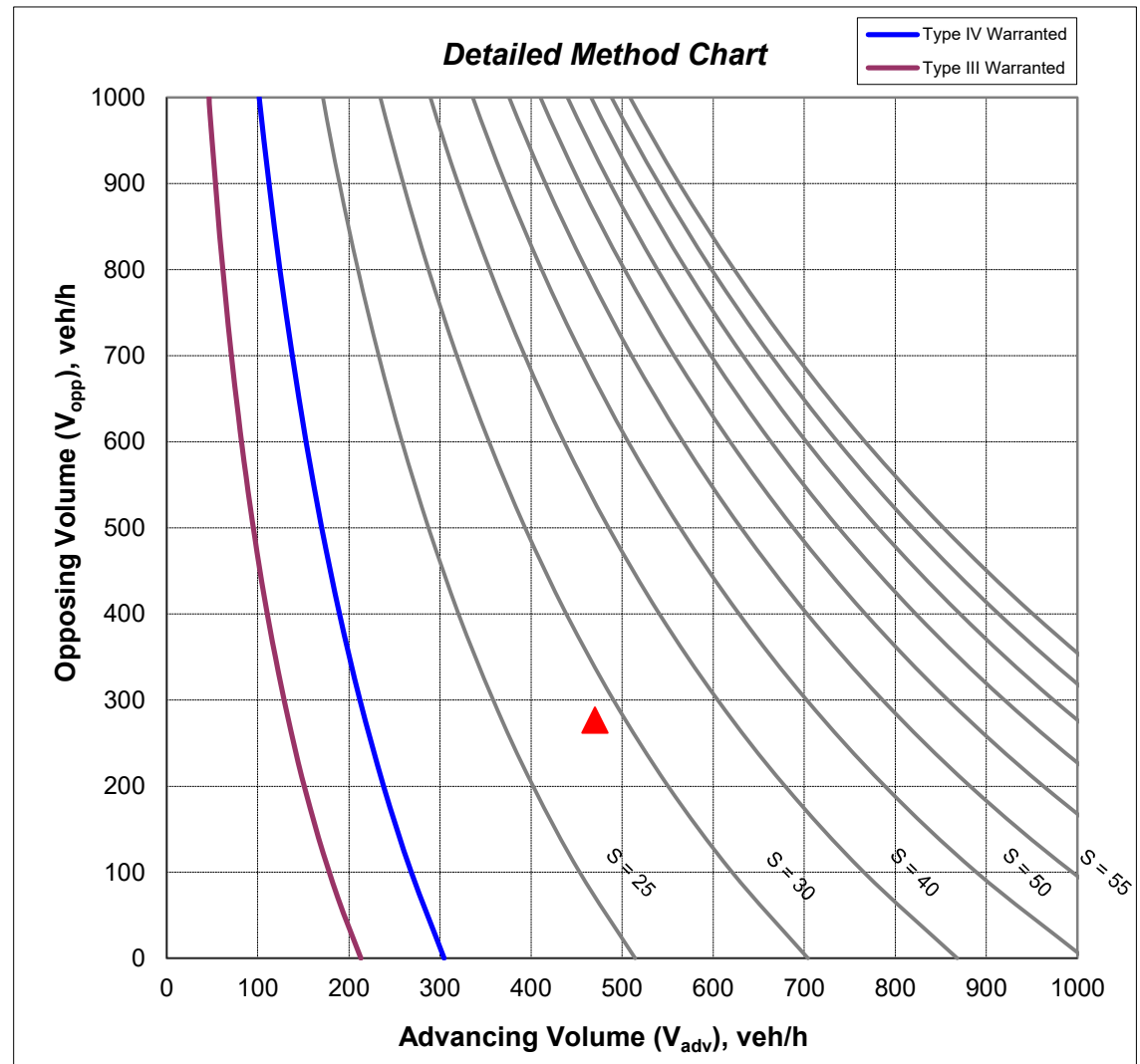
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Bellerose Dr / Pinnacle Way

Direction: NB
Period: PM Peak

Year of Analysis: 2025 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,500
Minor (intersecting) Road A.A.D.T	5,000
Left turn volume (V_{LT}), veh/h:	1
Advancing volume (V_{adv}), veh/h:	277
Opposing volume (V_{opp}), veh/h:	470
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	854

OUTPUT	Value
Percent left-turns in advancing volume:	0.4%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.2

Use Detailed Method

Type II

RT Lane
warranted

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

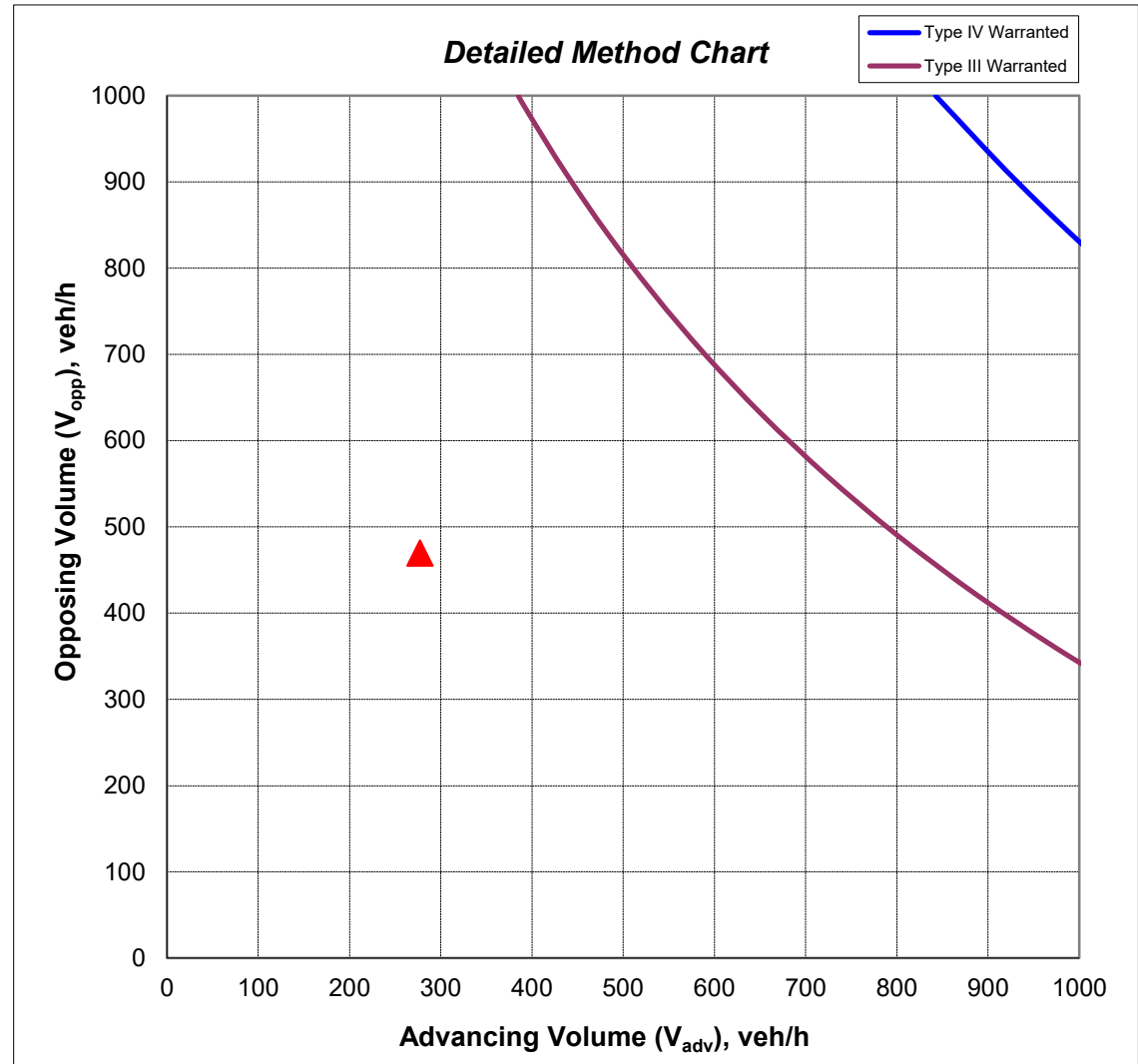
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Bellerose Dr / Pinnacle Way

Direction: SB
Period: PM Peak

Year of Analysis: 2025 (Backgrou
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	8,400
Minor (intersecting) Road A.A.D.T	5,220
Left turn volume (V_{LT}), veh/h:	212
Advancing volume (V_{adv}), veh/h:	527
Opposing volume (V_{opp}), veh/h:	315
Left turn truck volume, trucks/h:	5
Right turn volume (V_{RT}), veh/day:	328

OUTPUT	Value
Percent left-turns in advancing volume:	40.2%
Percent trucks in left turn volume:	2.4%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	9.4%
Calculated conflicts per hour, veh/h:	49.5

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	30 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	10 m

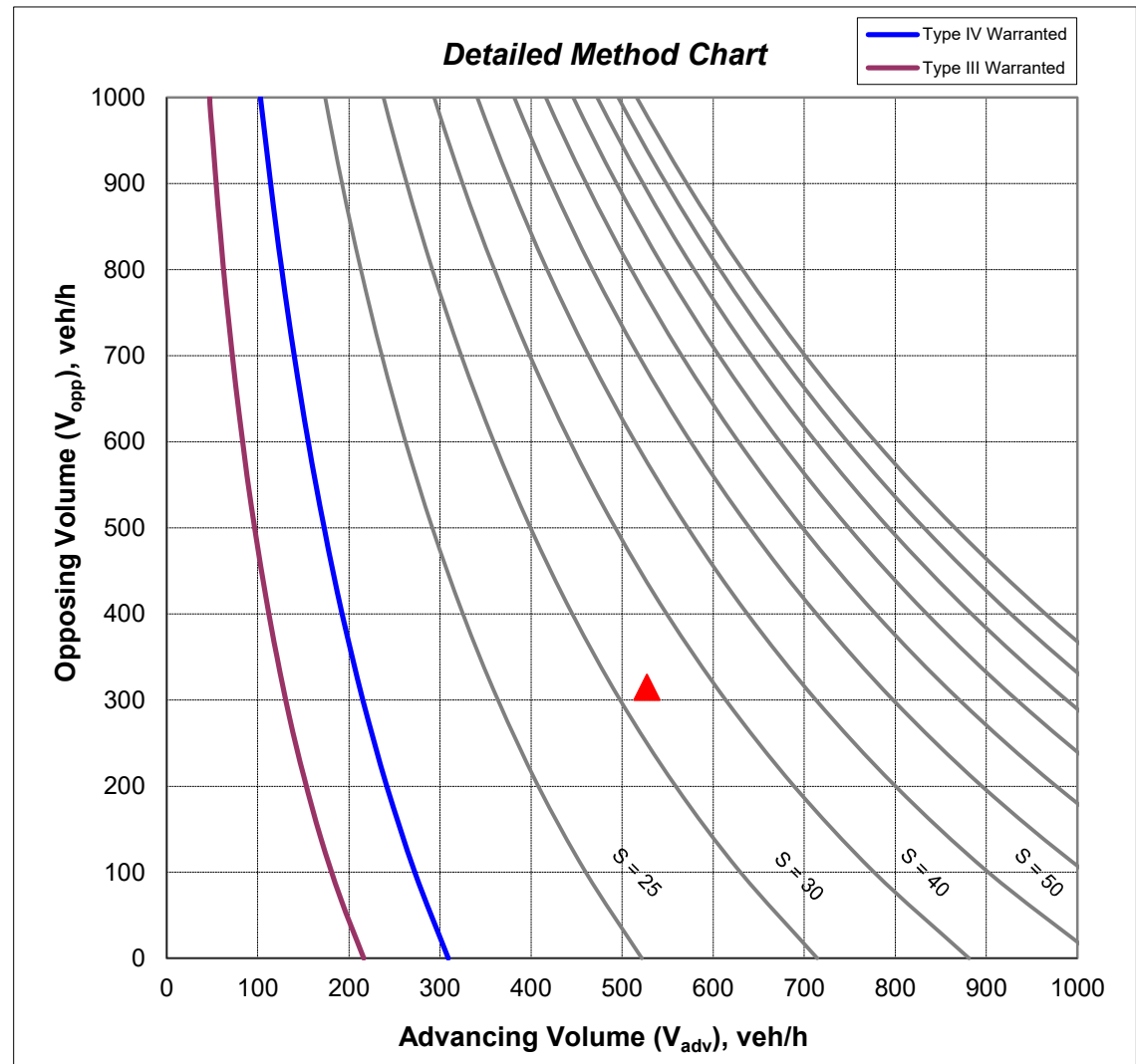
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd
Minor Rd: Bellerose Dr / Pinnacle Way

Direction: NB
Period: PM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	8,400
Minor (intersecting) Road A.A.D.T	5,220
Left turn volume (V_{LT}), veh/h:	1
Advancing volume (V_{adv}), veh/h:	315
Opposing volume (V_{opp}), veh/h:	527
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	963

OUTPUT	Value
Percent left-turns in advancing volume:	0.3%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.1%
Calculated conflicts per hour, veh/h:	0.2

Use Detailed Method

Type II

RT Lane
warranted

Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Range Rd 251 / Starkey Rd

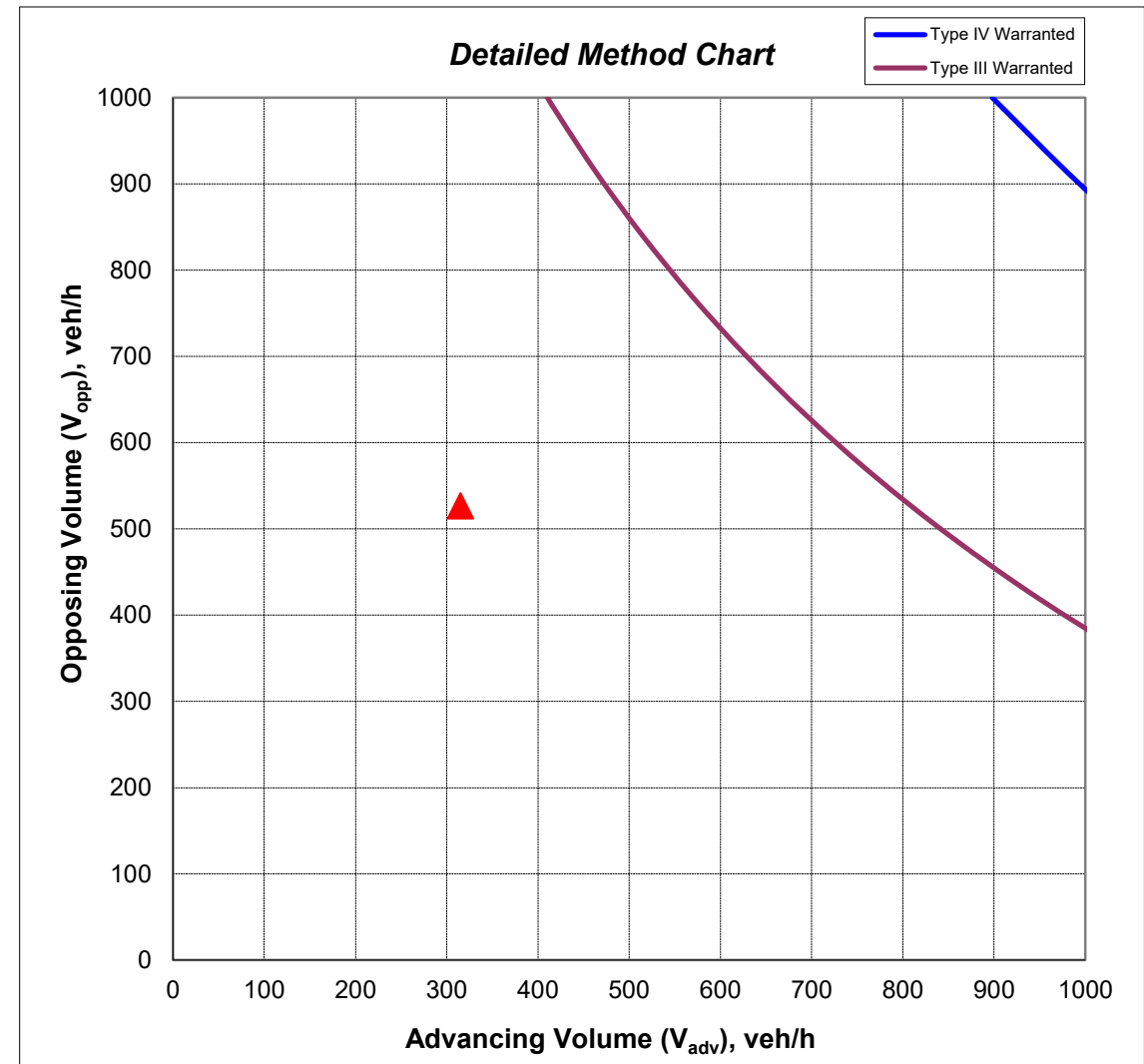
Minor Rd: Bellerose Dr / Pinnacle Way

Direction: SB

Period: PM Peak

Year of Analysis: 2025 (Total)

Date of Analysis: 28-Mar-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,850
Minor (intersecting) Road A.A.D.T	2,870
Left turn volume (V_{LT}), veh/h:	8
Advancing volume (V_{adv}), veh/h:	387
Opposing volume (V_{opp}), veh/h:	474
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	904

OUTPUT	Value
Percent left-turns in advancing volume:	2.1%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.6%
Calculated conflicts per hour, veh/h:	2.3

Use Detailed Method

Type III		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

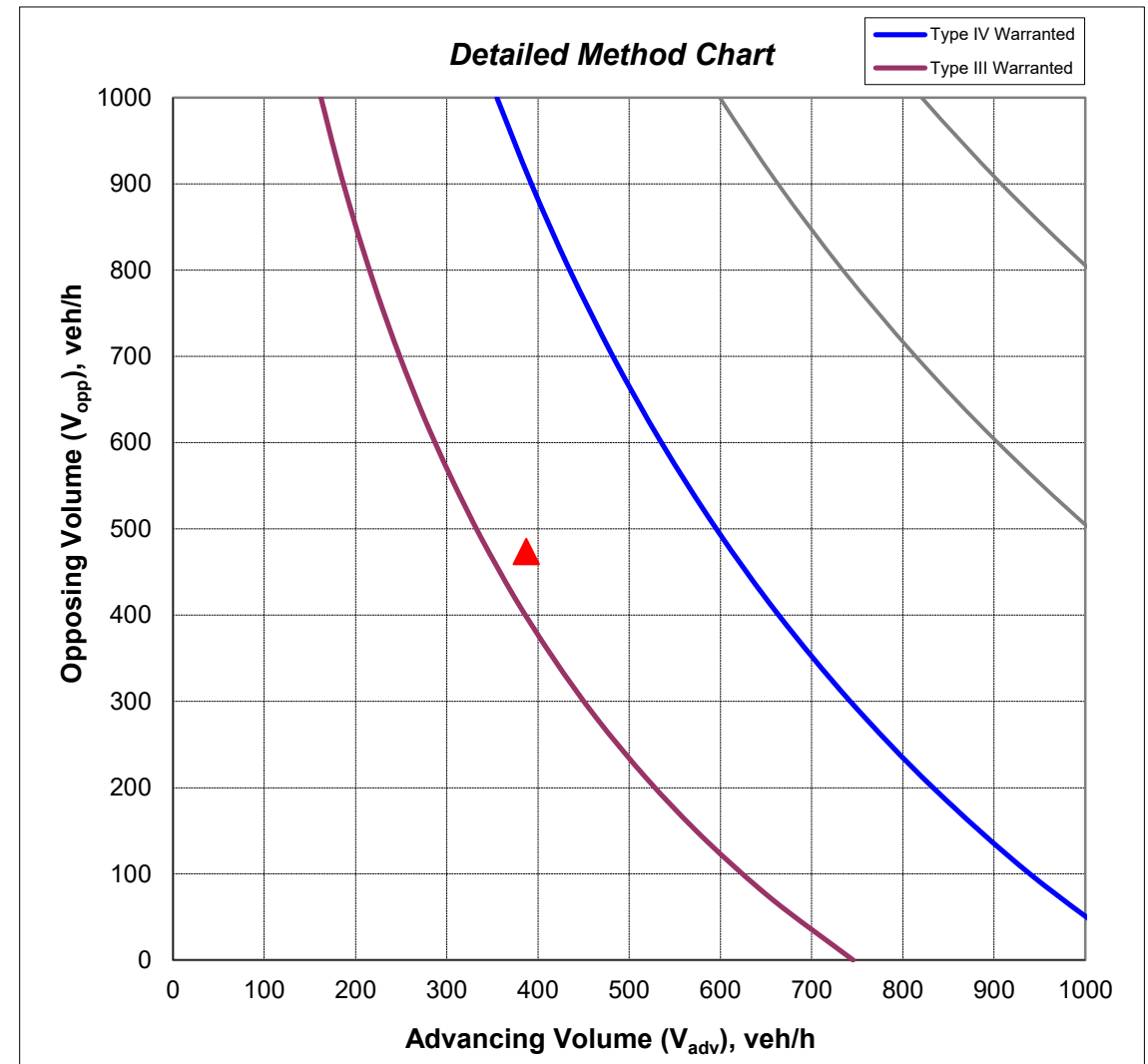
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2025 (BG)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,030
Minor (intersecting) Road A.A.D.T	2,870
Left turn volume (V_{LT}), veh/h:	85
Advancing volume (V_{adv}), veh/h:	477
Opposing volume (V_{opp}), veh/h:	387
Left turn truck volume, trucks/h:	2
Right turn volume (V_{RT}), veh/day:	42

OUTPUT	Value
Percent left-turns in advancing volume:	17.8%
Percent trucks in left turn volume:	2.4%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	5.5%
Calculated conflicts per hour, veh/h:	26.2

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37

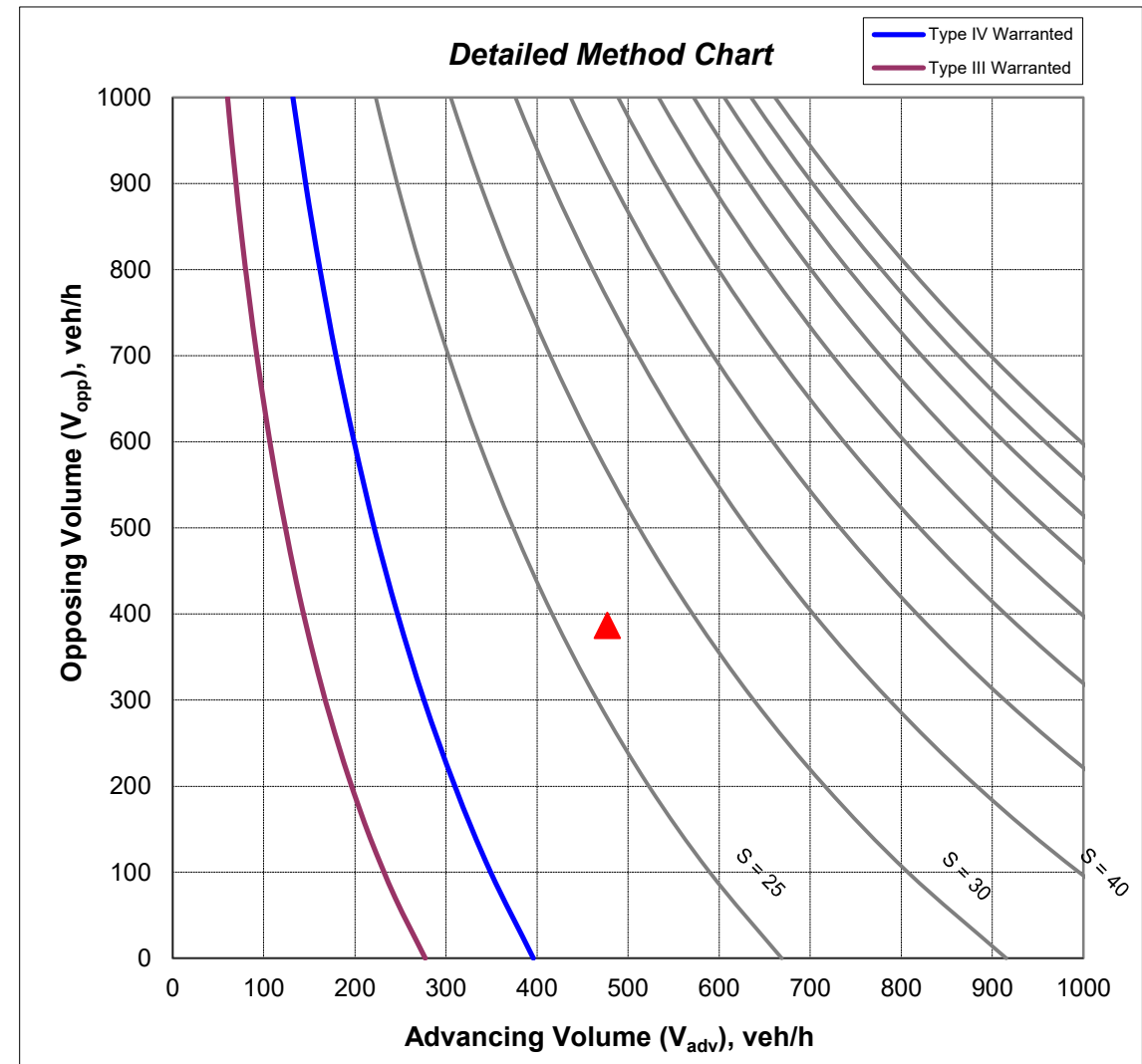
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB

Period: PM Peak

Year of Analysis: 2025 (BG)

Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	10,110
Minor (intersecting) Road A.A.D.T	4,590
Left turn volume (V_{LT}), veh/h:	10
Advancing volume (V_{adv}), veh/h:	508
Opposing volume (V_{opp}), veh/h:	618
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	1,373

OUTPUT	Value
Percent left-turns in advancing volume:	2.0%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	1.4%
Calculated conflicts per hour, veh/h:	6.9

Use Detailed Method

Type III		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

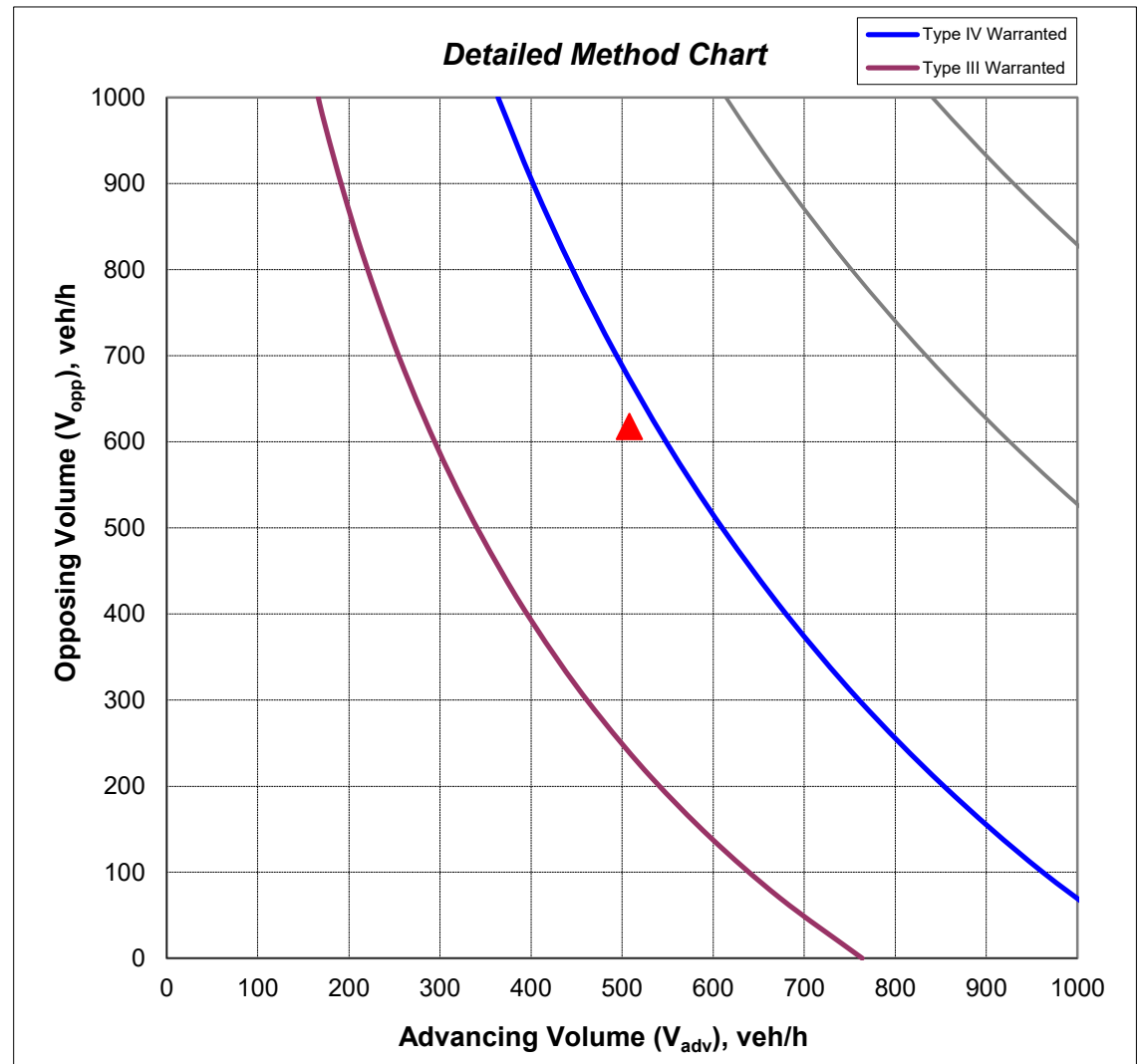
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2035 (BG)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	9,110
Minor (intersecting) Road A.A.D.T	4,590
Left turn volume (V_{LT}), veh/h:	139
Advancing volume (V_{adv}), veh/h:	618
Opposing volume (V_{opp}), veh/h:	508
Left turn truck volume, trucks/h:	3
Right turn volume (V_{RT}), veh/day:	52

OUTPUT	Value
Percent left-turns in advancing volume:	22.5%
Percent trucks in left turn volume:	2.2%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	14.3%
Calculated conflicts per hour, veh/h:	88.3

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	40 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	20 m

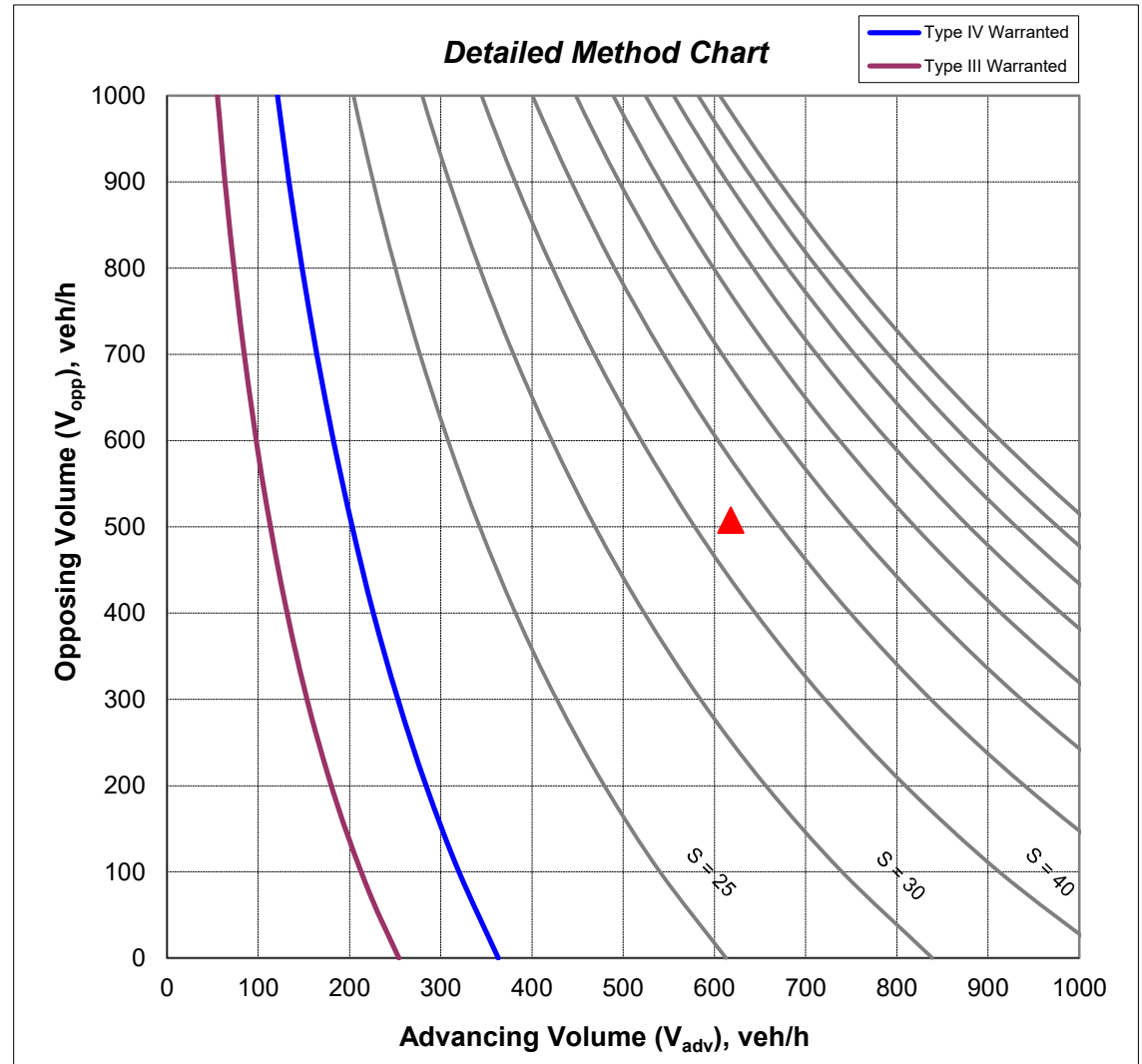
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB
Period: PM Peak

Year of Analysis: 2035 (BG)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	12,150
Minor (intersecting) Road A.A.D.T	5,250
Left turn volume (V_{LT}), veh/h:	13
Advancing volume (V_{adv}), veh/h:	608
Opposing volume (V_{opp}), veh/h:	741
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	1,588

OUTPUT	Value
Percent left-turns in advancing volume:	2.1%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	2.7%
Calculated conflicts per hour, veh/h:	16.5

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

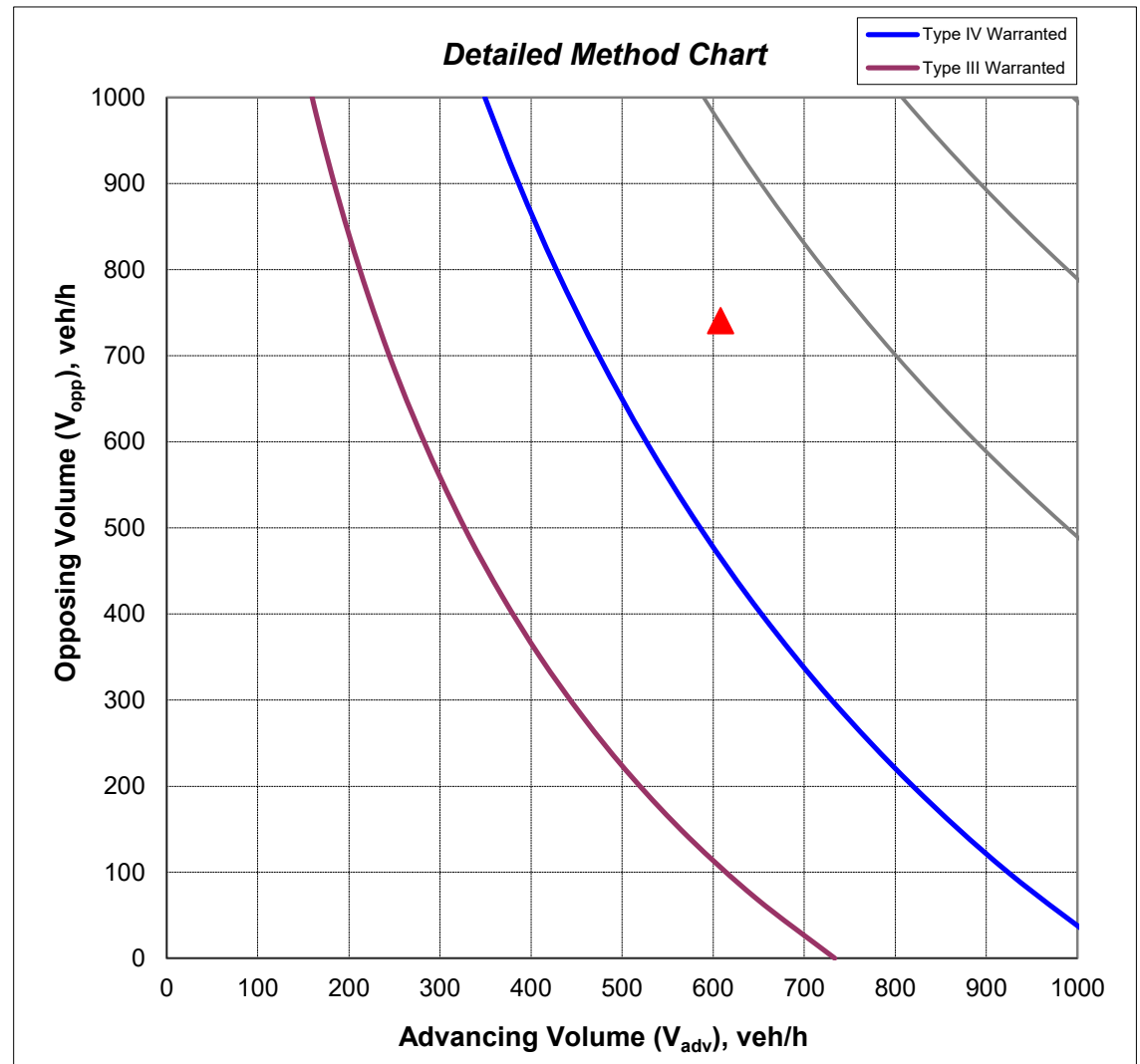
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2045 (BG)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	10,940
Minor (intersecting) Road A.A.D.T	5,250
Left turn volume (V_{LT}), veh/h:	158
Advancing volume (V_{adv}), veh/h:	741
Opposing volume (V_{opp}), veh/h:	608
Left turn truck volume, trucks/h:	3
Right turn volume (V_{RT}), veh/day:	63

OUTPUT	Value
Percent left-turns in advancing volume:	21.3%
Percent trucks in left turn volume:	1.9%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	24.5%
Calculated conflicts per hour, veh/h:	181.2

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	55 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	35 m

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37

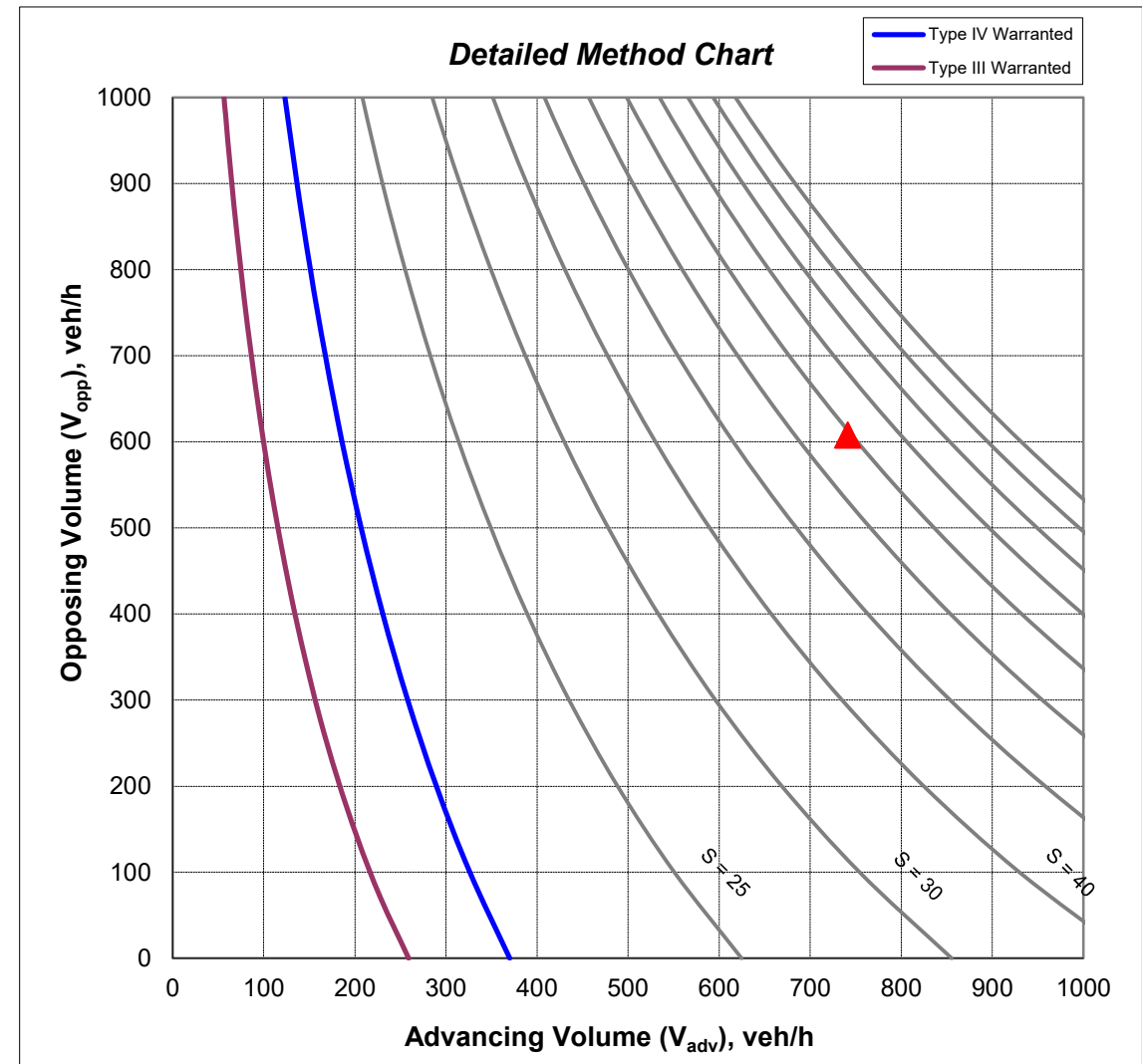
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB

Period: PM Peak

Year of Analysis: 2045 (BG)

Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,920
Minor (intersecting) Road A.A.D.T	3,140
Left turn volume (V_{LT}), veh/h:	8
Advancing volume (V_{adv}), veh/h:	392
Opposing volume (V_{opp}), veh/h:	489
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	943

OUTPUT	Value
Percent left-turns in advancing volume:	2.0%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	0.6%
Calculated conflicts per hour, veh/h:	2.5

Use Detailed Method

Type III		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

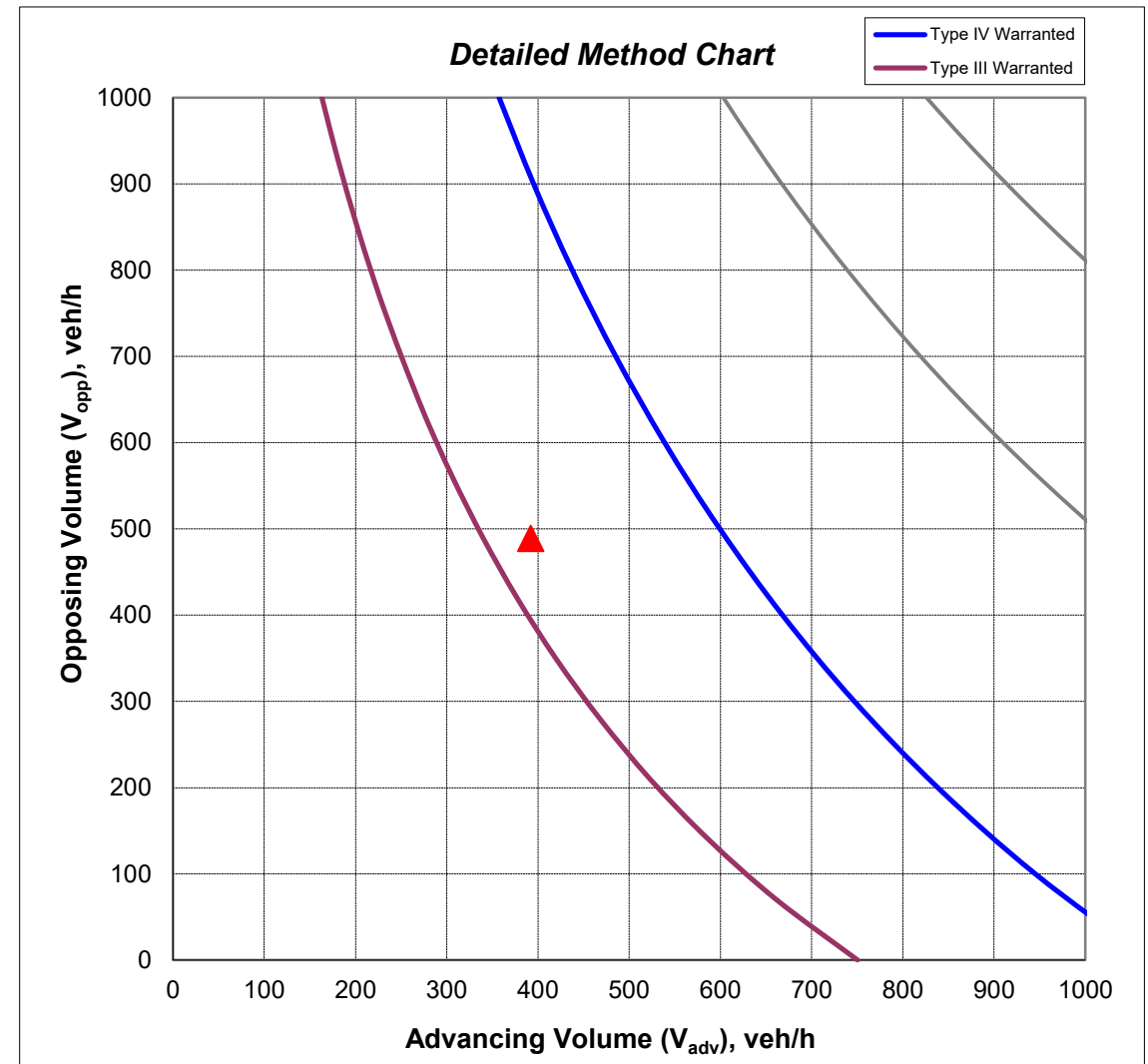
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	7,220
Minor (intersecting) Road A.A.D.T	3,140
Left turn volume (V_{LT}), veh/h:	97
Advancing volume (V_{adv}), veh/h:	489
Opposing volume (V_{opp}), veh/h:	392
Left turn truck volume, trucks/h:	2
Right turn volume (V_{RT}), veh/day:	42

OUTPUT	Value
Percent left-turns in advancing volume:	19.8%
Percent trucks in left turn volume:	2.1%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	6.3%
Calculated conflicts per hour, veh/h:	31.0

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	25 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	5 m

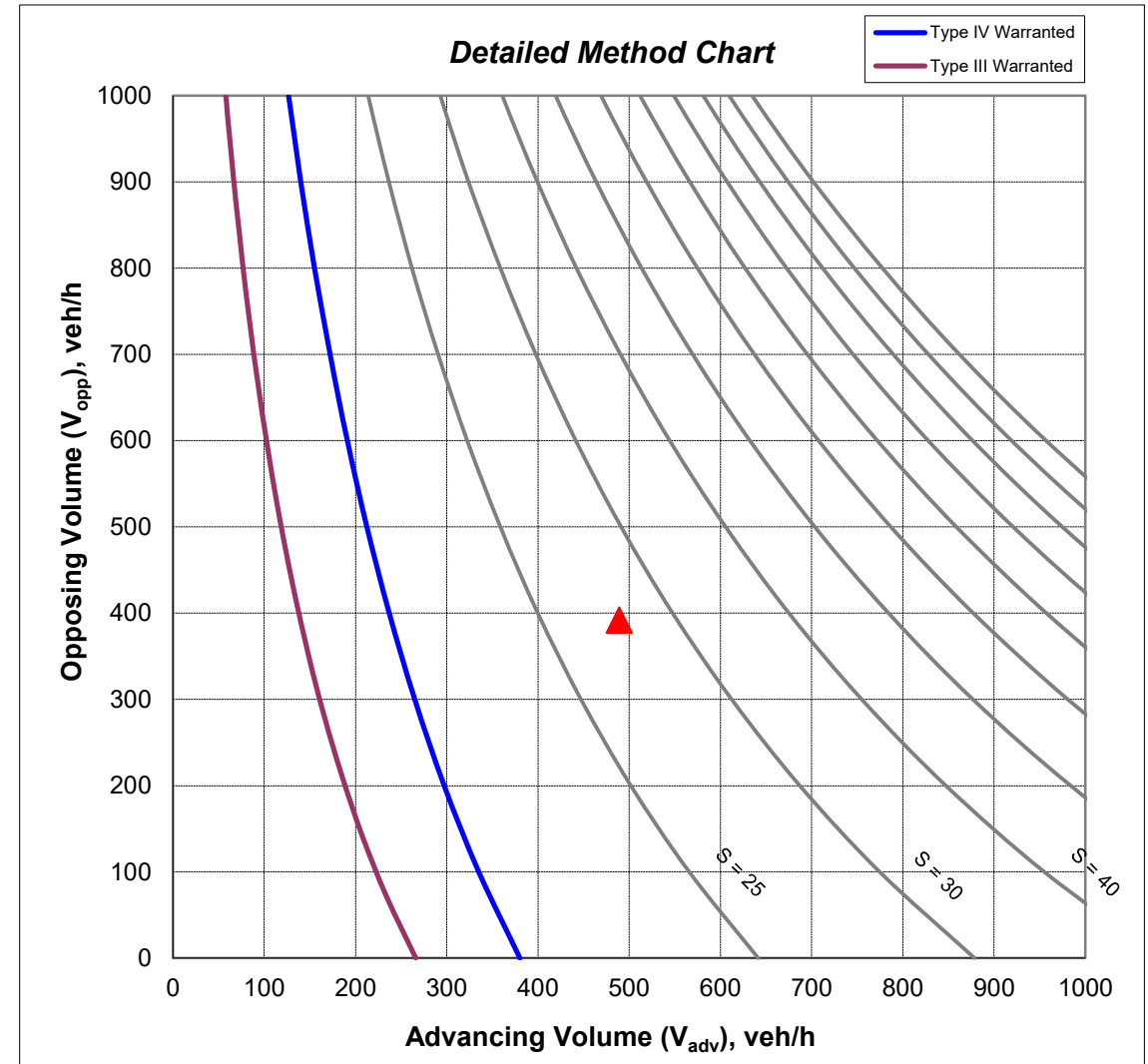
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB
Period: PM Peak

Year of Analysis: 2025 (Total)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	10,200
Minor (intersecting) Road A.A.D.T	4,880
Left turn volume (V_{LT}), veh/h:	10
Advancing volume (V_{adv}), veh/h:	513
Opposing volume (V_{opp}), veh/h:	631
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	1,416

OUTPUT	Value
Percent left-turns in advancing volume:	1.9%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	1.4%
Calculated conflicts per hour, veh/h:	7.2

Use Detailed Method

Type III		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

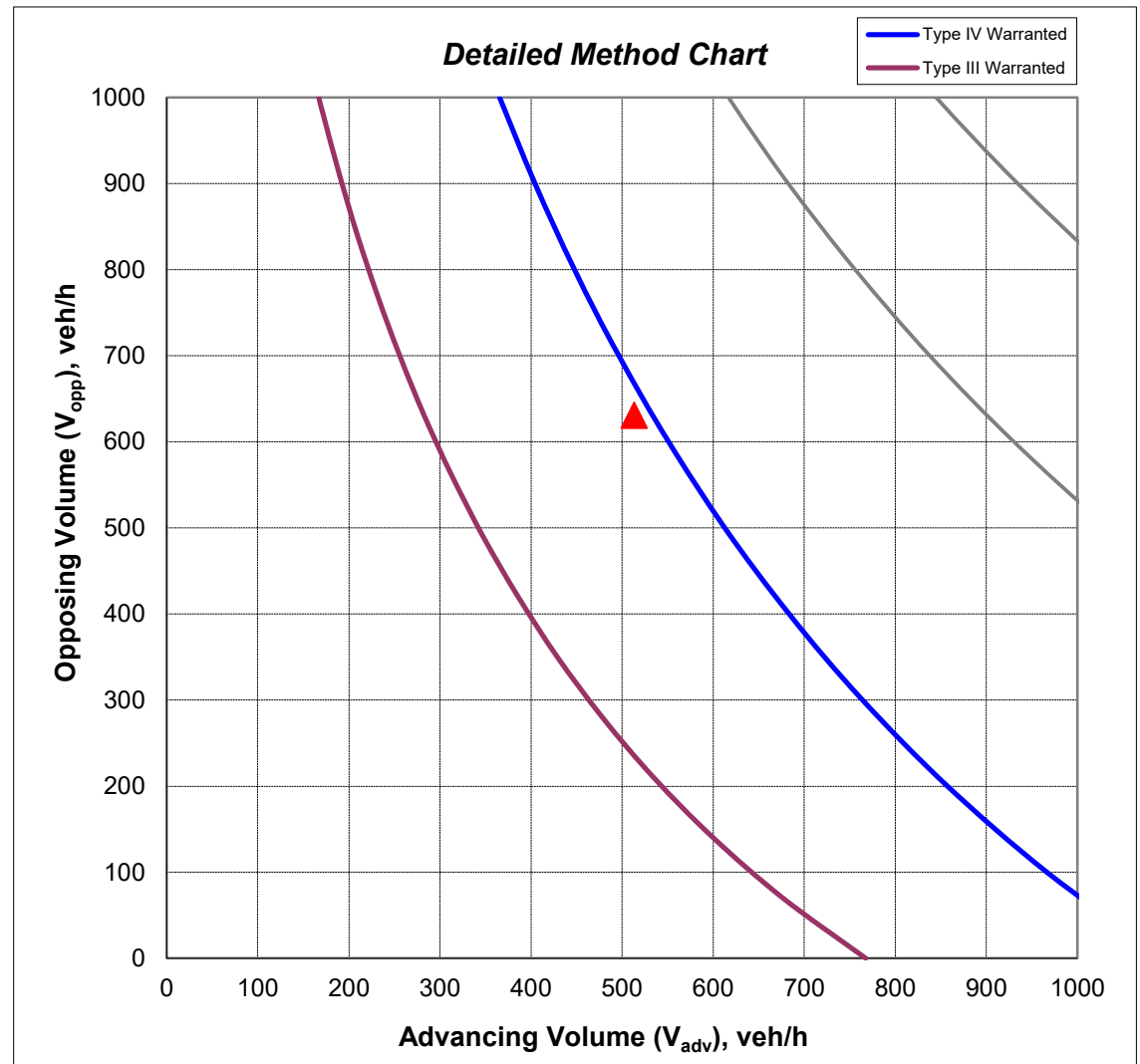
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2035 (Total)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	9,320
Minor (intersecting) Road A.A.D.T	4,880
Left turn volume (V_{LT}), veh/h:	152
Advancing volume (V_{adv}), veh/h:	775
Opposing volume (V_{opp}), veh/h:	513
Left turn truck volume, trucks/h:	3
Right turn volume (V_{RT}), veh/day:	52

OUTPUT	Value
Percent left-turns in advancing volume:	19.6%
Percent trucks in left turn volume:	2.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	20.6%
Calculated conflicts per hour, veh/h:	159.3

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	50 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	30 m

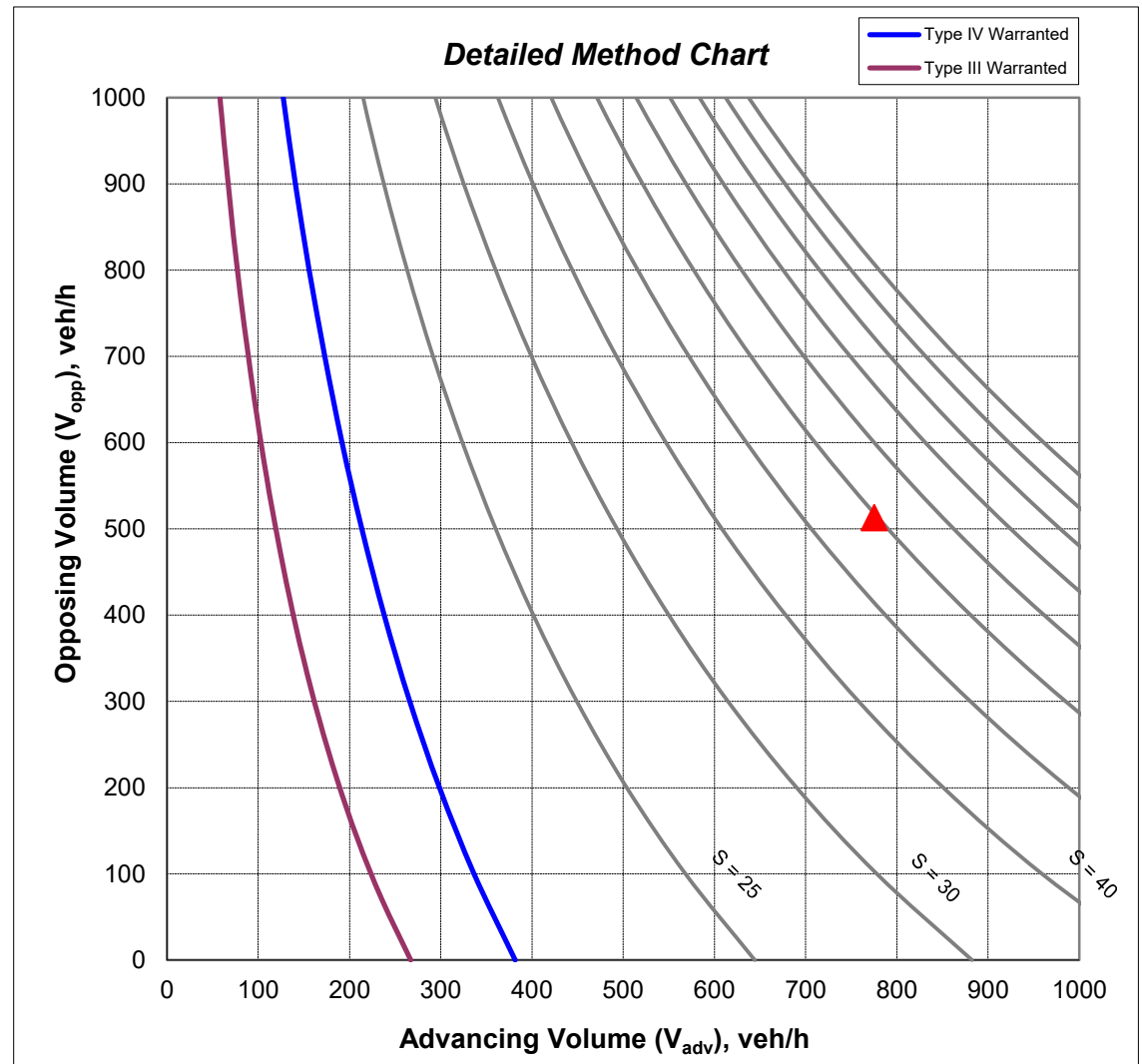
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB
Period: PM Peak

Year of Analysis: 2035 (Total)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	12,230
Minor (intersecting) Road A.A.D.T	5,540
Left turn volume (V_{LT}), veh/h:	13
Advancing volume (V_{adv}), veh/h:	613
Opposing volume (V_{opp}), veh/h:	754
Left turn truck volume, trucks/h:	-
Right turn volume (V_{RT}), veh/day:	1,631

OUTPUT	Value
Percent left-turns in advancing volume:	2.1%
Percent trucks in left turn volume:	0.0%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	2.8%
Calculated conflicts per hour, veh/h:	17.2

Use Detailed Method

Type IV		RT Lane warranted
Additional Storage Not Required	base storage requirement	-
	- standard storage length	-
	+ additional truck storage	-
	= total additional storage required	-

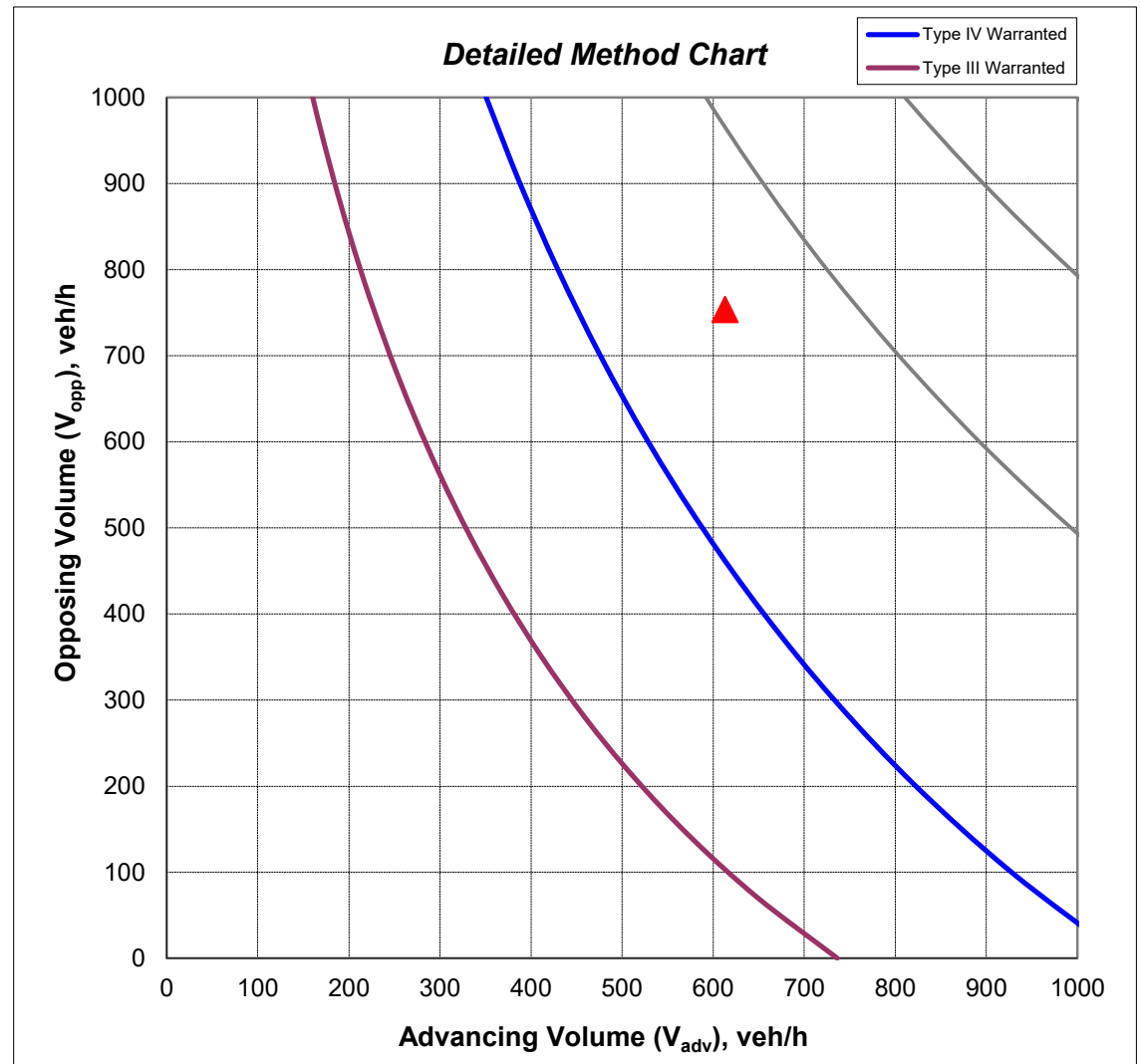
CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37
Minor Rd: Range Rd 251 / Starkey Rd

Direction: EB
Period: PM Peak

Year of Analysis: 2045 (Total)
Date of Analysis: 01-Apr-2025





Intersection Analysis Rural Two-Lane Undivided Highways

INPUT	Value
85 th percentile speed, km/h:	80
Main Road A.A.D.T.	11,140
Minor (intersecting) Road A.A.D.T	5,540
Left turn volume (V_{LT}), veh/h:	171
Advancing volume (V_{adv}), veh/h:	754
Opposing volume (V_{opp}), veh/h:	613
Left turn truck volume, trucks/h:	3
Right turn volume (V_{RT}), veh/day:	63

OUTPUT	Value
Percent left-turns in advancing volume:	22.7%
Percent trucks in left turn volume:	1.8%
Probability of conflict threshold:	1.52%
Calculated probability of conflicting arrival:	26.8%
Calculated conflicts per hour, veh/h:	201.7

Use Detailed Method

Type IV

Additional Storage Required	base storage requirement	65 m
	- standard storage length	20 m
	+ additional truck storage	0 m
	= total additional storage required	45 m

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway (gap), s:	5.0
Average time to clear, s:	1.9

Main Rd: Highway 37

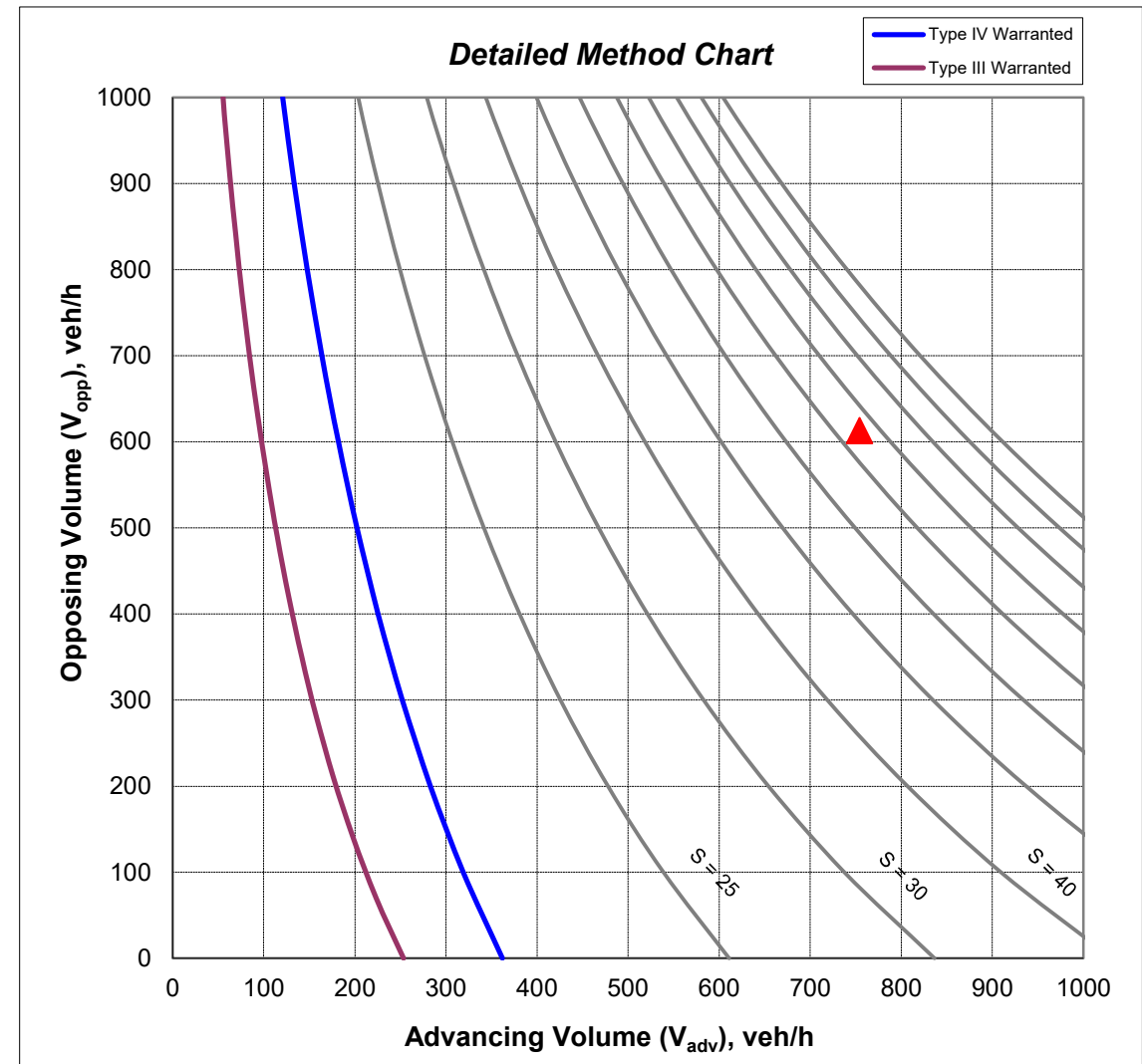
Minor Rd: Range Rd 251 / Starkey Rd

Direction: WB

Period: PM Peak

Year of Analysis: 2045 (Total)

Date of Analysis: 01-Apr-2025



Appendix E

Signal Warrant Calculation



AT - Traffic Signal Warrant Analysis

Main Street (name)	Range Rd 251/Starkey Rd	Direction (EW or NS)	NS
Side Street (name)	E Estates Way / Trestle Ridge Rd	Direction (EW or NS)	EW
Quadrant / Int #	1	Comments	2045 Total
CHECK SHEET			

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please hit 'Page Down'

Road Authority:	AT
City:	Sturgeon County
Analysis Date:	2025 Mar 28, Fri
Count Date:	2022 Oct 05, Wed
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Range Rd 251/Starkey Rd	NB	1				1			1
Range Rd 251/Starkey Rd	SB		1				1		1
E Estates Way / Trestle Ridge Rd	WB				1				
E Estates Way / Trestle Ridge Rd	EB				1				

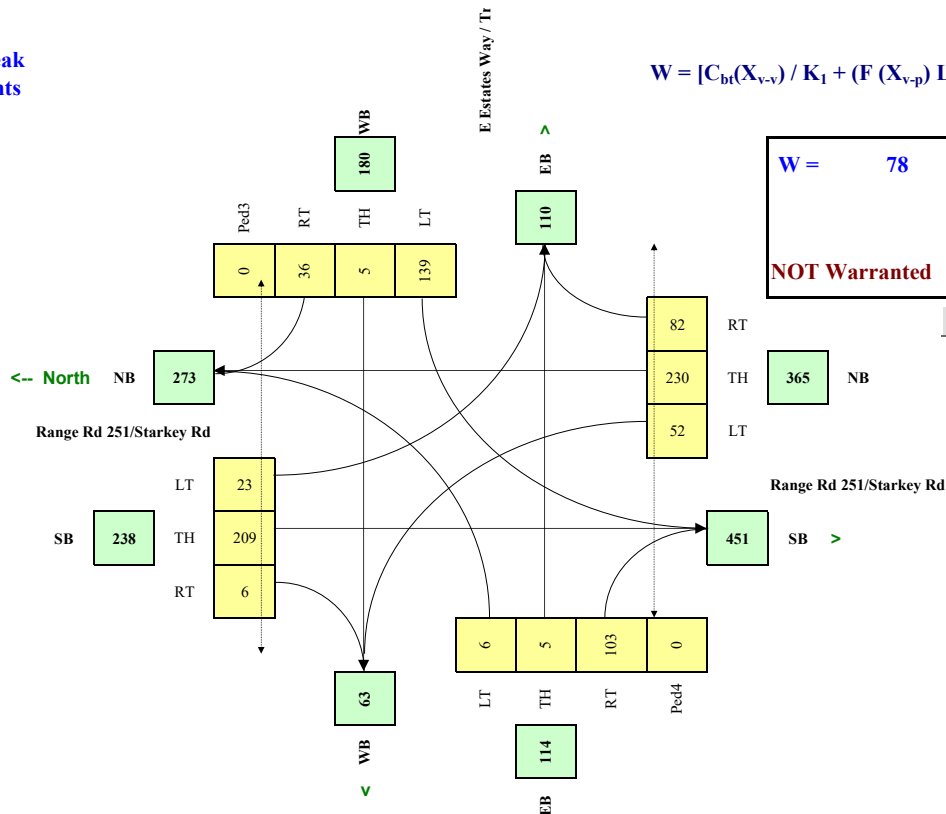
re the E Estates Way / Trestle Ridge Rd WB right turns significantly impeded by through movements? (y/n)
re the E Estates Way / Trestle Ridge Rd EB right turns significantly impeded by through movements? (y/n)

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Range Rd 251/Starkey Rd	NS	70	4.0%	n	0.0
E Estates Way / Trestle Ridge Rd	EW	60	3.0%	n	

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	11	247	44	13	241	2	188	2	29	10	2	146	0	0	0	0
press 'Set Peak Hours' Button to set the peak hour periods	14	319	57	17	311	3	242	3	37	13	2	188	0	0	0	0
	50	141	68	19	122	5	70	4	26	2	4	49	0	0	0	0
	54	155	74	20	134	6	76	4	29	3	5	54	0	0	0	0
	81	231	111	30	199	9	114	6	43	4	7	80	0	0	0	0
	102	290	139	38	250	11	143	8	54	5	9	101	0	0	0	0
Total (6-hour peak)	312	1,383	493	138	1,256	36	833	28	217	37	29	618	0	0	0	0
Average (6-hour peak)	52	230	82	23	209	6	139	5	36	6	5	103	0	0	0	0

Average 6-hour Peak Turning Movements





AT - Traffic Signal Warrant Analysis

Main Street (name)	E Estates Way / Trestle Ridge Rd
Side Street (name)	Pinnacle Way / Pinnacle Village
Quadrant / Int #	3
	CHECK SHEET

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please hit 'Page Down'

Direction (EW or NS)	EW
Direction (EW or NS)	NS
Comments	2045 Total

Road Authority:	AT
City:	Sturgeon County
Analysis Date:	2025 Mar 28, Fri
Count Date:	2022 Sep 29, Thu
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th-RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
E Estates Way / Trestle Ridge Rd	WB				1				1
E Estates Way / Trestle Ridge Rd	EB				1				1
Pinnacle Way / Pinnacle Village	NB				1				
Pinnacle Way / Pinnacle Village	SB				1				

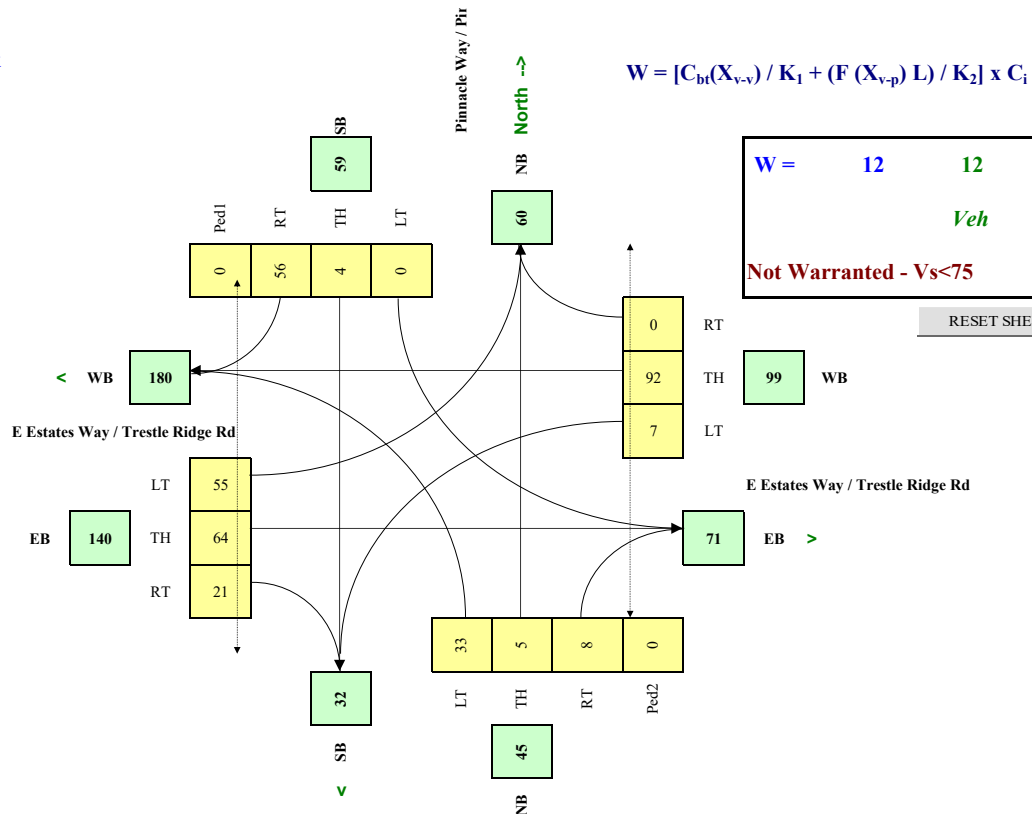
Are the Pinnacle Way / Pinnacle Village NB right turns significantly impeded by through movements? (y/n) n
Are the Pinnacle Way / Pinnacle Village SB right turns significantly impeded by through movements? (y/n) n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
E Estates Way / Trestle Ridge Rd	EW	70	3.0%	n	0.0
Pinnacle Way / Pinnacle Village	NS	40	0.0%	n	

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB			Ped1	Ped2	Ped3	Ped4
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	NS	NS	EW	EW
	W Side	E Side	N Side	S Side	W Side	E Side	N Side	S Side	W Side	E Side	N Side	S Side	W Side	E Side	N Side	S Side
	39	2	6	0	5	71	8	108	0	23	42	13	0	0	0	0
	50	3	8	0	6	92	11	140	0	30	54	17	0	0	0	0
	18	4	5	0	2	28	4	50	0	46	48	16	0	0	0	0
	18	4	5	0	2	29	4	51	0	47	48	16	0	0	0	0
	34	8	10	0	4	54	7	96	0	88	91	30	0	0	0	0
	38	9	11	0	4	60	8	107	0	98	101	33	0	0	0	0
Total (6-hour peak)	197	31	45	0	22	333	42	552	0	332	383	124	0	0	0	0
Average (6-hour peak)	33	5	8	0	4	56	7	92	0	55	64	21	0	0	0	0

Average 6-hour Peak Turning Movements





AT - Traffic Signal Warrant Analysis

Main Street (name)	Range Rd 251/Starkey Rd	Direction (EW or NS)	NS
Side Street (name)	Bellerose Dr / Pinnacle Way	Direction (EW or NS)	EW
Quadrant / Int #	2	Comments	2045 Background
CHECK SHEET			

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Road Authority:	AT
City:	Sturgeon County
Analysis Date:	2025 Mar 28, Fri
Count Date:	2022 Oct 04, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th-RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Range Rd 251/Starkey Rd	NB	1				1			1
Range Rd 251/Starkey Rd	SB		1				1		1
Bellerose Dr / Pinnacle Way	WB			1					
Bellerose Dr / Pinnacle Way	EB		1				1		

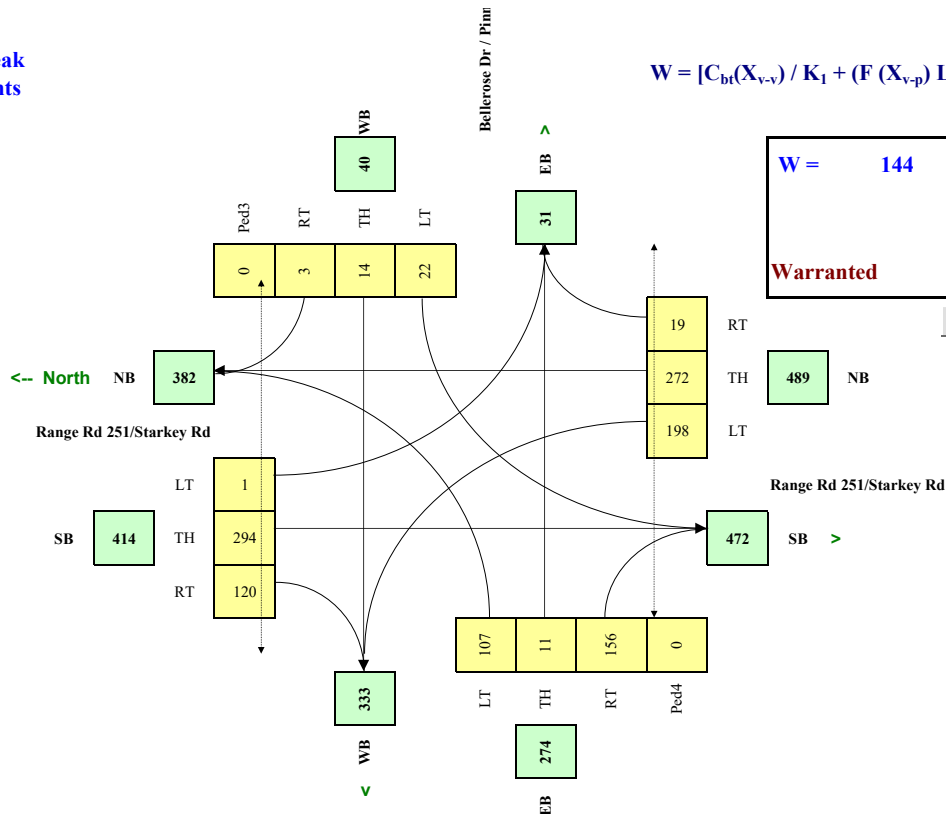
Are the Bellerose Dr / Pinnacle Way WB right turns significantly impeded by through movements? (y/n)

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Range Rd 251/Starkey Rd	NS	70	4.0%	n	0.0
Bellerose Dr / Pinnacle Way	EW	70	3.0%	n	

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	128	220	17	1	392	130	30	13	3	83	15	185	0	0	0	0
press 'Set Peak Hours' Button to set the peak hour periods	166	285	22	1	508	168	39	17	4	108	20	240	0	0	0	0
	148	186	12	0	143	70	11	9	2	74	5	85	0	0	0	0
	150	188	12	0	144	70	11	10	2	75	5	86	0	0	0	0
	283	355	23	1	272	133	21	18	4	142	10	161	0	0	0	0
	315	396	26	1	303	148	23	20	5	158	11	180	0	0	0	0
Total (6-hour peak)	1,190	1,631	113	4	1,762	719	135	87	21	640	67	937	0	0	0	0
Average (6-hour peak)	198	272	19	1	294	120	22	14	3	107	11	156	0	0	0	0

Average 6-hour Peak Turning Movements





AT - Traffic Signal Warrant Analysis

Main Street (name)	Range Rd 251/Starkey Rd	Direction (EW or NS)	NS
Side Street (name)	Bellerose Dr / Pinnacle Way	Direction (EW or NS)	EW
Quadrant / Int #	2	Comments	2045 Total
CHECK SHEET			

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Road Authority:	AT
City:	Sturgeon County
Analysis Date:	2025 Mar 28, Fri
Count Date:	2022 Oct 04, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Range Rd 251/Starkey Rd	NB	1				1			1
Range Rd 251/Starkey Rd	SB		1				1		1
Bellerose Dr / Pinnacle Way	WB			1					
Bellerose Dr / Pinnacle Way	EB		1				1		

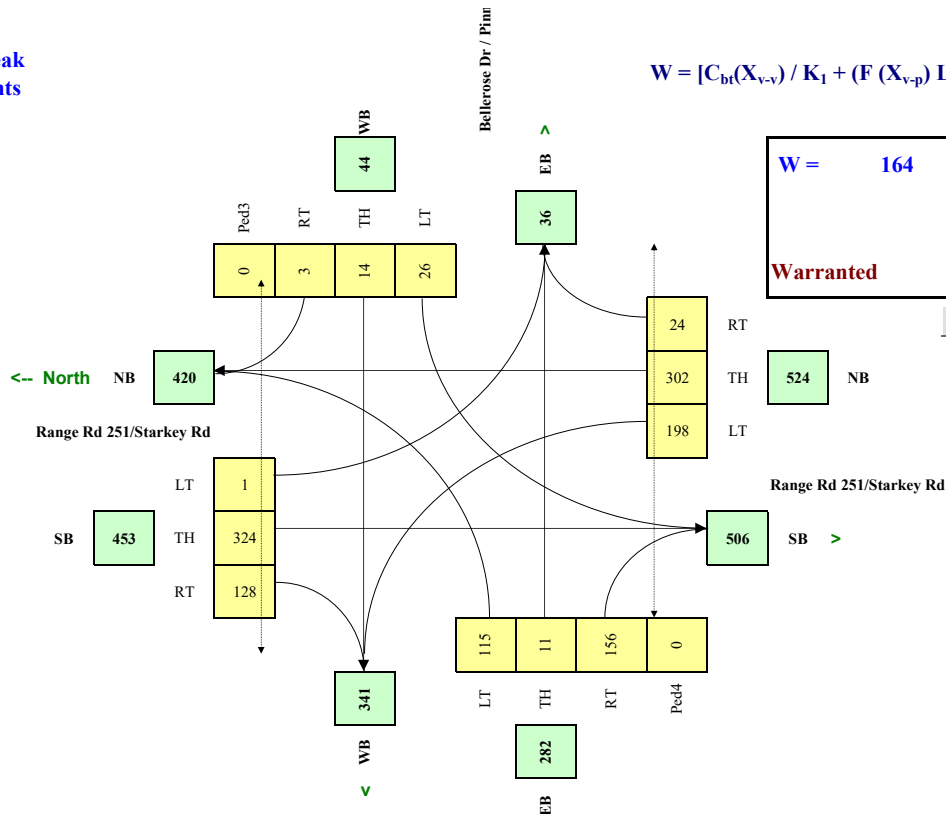
Are the Bellerose Dr / Pinnacle Way WB right turns significantly impeded by through movements? (y/n)

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Range Rd 251/Starkey Rd	NS	70	4.0%	n	0.0
Bellerose Dr / Pinnacle Way	EW	70	3.0%	n	

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	128	232	19	1	431	141	35	13	3	86	15	185	0	0	0	0
press 'Set Peak Hours' Button to set the peak hour periods	166	301	25	1	558	182	45	17	4	112	20	240	0	0	0	0
	148	211	16	0	158	74	13	9	2	81	5	85	0	0	0	0
	150	214	17	0	160	75	13	10	2	82	5	86	0	0	0	0
	283	403	31	1	301	141	24	18	4	155	10	161	0	0	0	0
	315	449	35	1	336	157	27	20	5	173	11	180	0	0	0	0
Total (6-hour peak)	1,190	1,810	143	4	1,944	769	157	87	21	690	67	937	0	0	0	0
Average (6-hour peak)	198	302	24	1	324	128	26	14	3	115	11	156	0	0	0	0

Average 6-hour Peak Turning Movements





AT - Traffic Signal Warrant Analysis

Main Street (name)	Hwy 37	Direction (EW or NS)	EW
Side Street (name)	Range Rd 251/Starkey Rd	Direction (EW or NS)	NS
Quadrant / Int #	4	Comments	2045 Background
CHECK SHEET			

for Warrant Calculation Results,
please hit 'Page Down'

Road Authority:	AT
City:	Sturgeon County
Analysis Date:	2025 Apr 02, Wed
Count Date:	2022 Oct 04, Tue
Date Entry Format:	(yyyy-mm-dd)

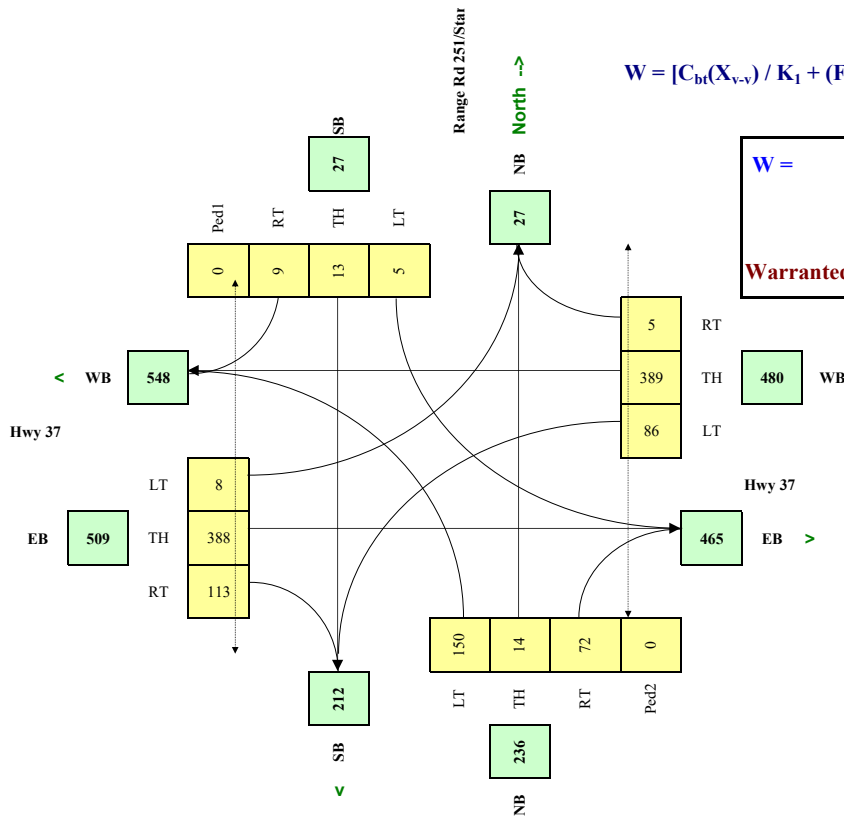
Lane Configuration		Excl LT	Th & LT	Through	Th-RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 37	WB	1				1			1
Hwy 37	EB		1				1		1
Range Rd 251/Starkey Rd	NB		1				1		
Range Rd 251/Starkey Rd	SB		1				1		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 37	EW	70	2.0%	n	0.0
Range Rd 251/Starkey Rd	NS	70	2.0%	n	

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	191	10	97	6	27	19	29	306	2	4	445	129	0	0	0	0
	247	13	126	8	35	25	38	396	3	5	576	167	0	0	0	0
	77	10	34	3	3	1	74	270	4	6	216	63	0	0	0	0
	78	10	35	3	3	1	75	273	4	6	219	64	0	0	0	0
	146	20	65	5	5	3	142	515	8	12	413	121	0	0	0	0
	163	22	73	6	6	3	158	574	9	13	460	135	0	0	0	0
Total (6-hour peak)	901	85	430	31	79	52	516	2,334	31	46	2,328	679	0	0	0	0
Average (6-hour peak)	150	14	72	5	13	9	86	389	5	8	388	113	0	0	0	0

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_i$$

W =	142	142	0
		Veh	Ped
Warranted			
RESET SHEET			



AT - Traffic Signal Warrant Analysis

Main Street (name)	Hwy 37	Direction (EW or NS)	EW
Side Street (name)	Range Rd 251/Starkey Rd	Direction (EW or NS)	NS
Quadrant / Int #	4	Comments	2045 Total
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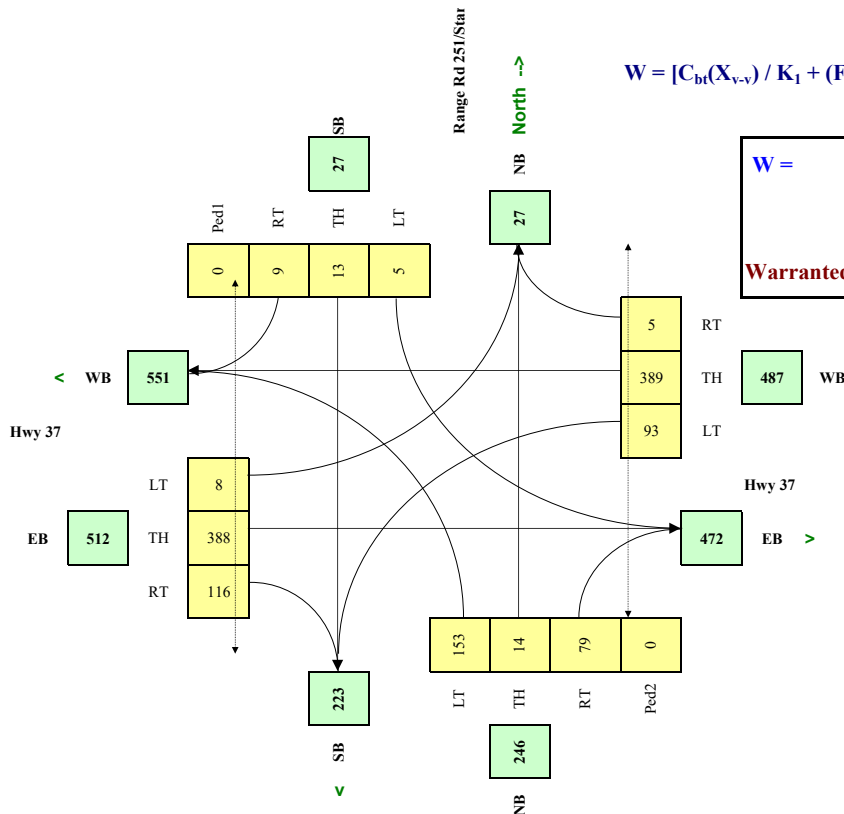
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Hwy 37	WB	1				1			1
Hwy 37	EB		1				1		1
Range Rd 251/Starkey Rd	NB		1				1		
Range Rd 251/Starkey Rd	SB		1				1		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	20,495
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Hwy 37	EW	70	2.0%	n	0.0
Range Rd 251/Starkey Rd	NS	70	2.0%	n	

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
	195	10	107	6	27	19	32	306	2	4	445	130	0	0	0	0
	252	13	138	8	35	25	42	396	3	5	576	169	0	0	0	0
	78	10	38	3	3	1	80	270	4	6	216	66	0	0	0	0
	79	10	39	3	3	1	81	273	4	6	219	67	0	0	0	0
	149	20	73	5	5	3	153	515	8	12	413	126	0	0	0	0
	166	22	81	6	6	3	171	574	9	13	460	140	0	0	0	0
Total (6-hour peak)	918	85	475	31	79	52	560	2,334	31	46	2,328	698	0	0	0	0
Average (6-hour peak)	153	14	79	5	13	9	93	389	5	8	388	116	0	0	0	0

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_i$$

W =	148	148	0
		Veh	Ped
Warranted			
RESET SHEET			

Appendix F

Illumination Warrant



Main Road Name: Trestle Ridge Road (Township Rd 544A)
Minor Road Name: Pinnacle Way
City of Edmonton, AB
Warrant Undertaken by Mladen Pecanac
Company name: Arcadis
Date: 2024-06-06

Item No.	Classification Factor	Rating Factor 'R'					Weight Subcategory (If Applicable)	Weight 'W'	Enter 'R' Here	Score 'R' x 'W'	
		0	1	2	3	4					
Geometric Factors (G)											
1	Channelization	None	Right and/or Left Turn Lanes on Minor Approach Only	Right Turn Lane(s) Only on Major Leg(s)	Left Turn Lane(s) on Major Leg(s)	Left and Right Turn Lanes on All Legs	Raised and Operating Speed Less than 70 km/h on at Least One Channelized Approach or	15	0	0	Only One 'R' Value is To Be Entered for These Three Rows!
							Raised and Operating Speed Less than 70 km/h or More on at Least One Channelized Approach or	20		0	
							Pained Only	5		0	
2	Approach Sight Distance on the Most Constrained Approach (Relative to Recommended Minimum Intersection Sight Distance)	100 % or More	75% to 99%	50% to 74%	25% to 49%	<25%		10	0	0	
3	Horizontal Curvature (Radius) at or Immediately Before Intersection on Any Leg for Posted Speed Limit of:	110 km/hr: 90 or 100 km/hr: 70 or 80 km/hr: 60 km/hr:	Tangent	>1800 m	1150 to 1800 m	750 to 1150 m	< 750 m	5	0	0	
			Tangent	>1400 m	950 to 1400 m	600 to 950 m	<600 m				
			Tangent	>950 m	550 to 950 m	340 to 550 m	<340 m				
			Tangent	>575 m	320 to 575 m	190 to 320 m	<190 m				
4	Angle of Intersection or Offset Intersection	90 Degree Angle	80 or 100 Degree Angle	-	70 or 110 Degree Angle	<70 or> 110 Degree or Offset Intersection		5	0	0	
5	Downhill Approach Grades at or Immediately Before Intersection on Any Leg	<3.0%	3.1 to 3.9% and Meets Design Guidelines for Type and Speed of Road	4.0 to 4.9% and Meets Design Guidelines for Type and Speed of Road	5.0 to 7.0% and Meets Design Guidelines for Type and Speed of Road	>7.0% or Exceeds Maximum Gradient for Type and Speed of Road		3	0	0	
6	Number of legs	-	3	4	5	6 or More		3	2	6	
Subtotal Geometric Factors										6	G
Operational Factors (O)											
If the Intersection is Signalized, Illumination is Warranted											
If the Intersection is NOT Signalized, Points Should Be Calculated on the Basis of Either the AADT Factor or the Signalization Warrant Factor											
7	Either AADT (2-way) (See Note 1):										Only One 'R' Value is To Be Entered for These Two Rows!
	On Major Road and	<1000	1000 to 2000	2000 to 3000	3000 to 5000	>5000		10	3	30	
	On Minor Road	<500	500 to 1000	1000 to 1500	1500 to 2000	>2000		20		0	
	or										
	Signalization Warrant (See Note 1)	Intersection Not Signalized and Volume-Based Signal Warrant is Less than 20% Satisfied	Intersection Not Signalized and Volume-Based Warrant is 20% to 40% Satisfied	Intersection Not Signalized and Volume-Based Warrant is 40% to 60% Satisfied	Intersection Not Signalized and Volume-Based Warrant is 60% to 80% Satisfied	Intersection Not Signalized and Volume-Based Warrant is over 80% Satisfied		30		0	
8	Regular Nighttime Hourly Pedestrian Volume (See Note 2)	No Pedestrian	Up to 10	10 to 30	30 to 50	Over 50		10	1	10	
9	Intersecting Roadway Classifications	No Primary Road Involved	Primary/Rural Major, Primary/Rural Minor, or Primary/Designated Community Access	Primary/Secondary	Primary/Primary	Intersection Includes Divided Highway		5	1	5	
10	Operating Speed or Posted Speed limit on Major Road (See Note 3)	50 km/h or Less	60 km/h	70 km/h	80 km/h	90 km/h or Over		5	1	5	
11	Operating Speed or Posted Speed limit on Minor Road (See Note 3)	50 km/h or Less	60 km/h	70 km/h	80 km/h	91 km/h or Over		5	0	0	
Subtotal Operational Factors										50	O
Environmental Factors (E)											
12	Lighted Development Within 150 m Radius of Intersection	-	In One Quadrant	In Two Quadrant	In Three Quadrants	In Four Quadrants	5	5	2	10	
Subtotal Environmental Factors										10	E
Collision Factors (A)											
13	Average Annual Nighttime Collision Frequency (See Note 4) or Rate over Last Three Year (Only Collisions Potentially Attributable to Inadequate Lighting)	0 Collisions per Year	1 Collisions per Year	-	3 or More Collisions Per Year OR At Least 1.5 Collisions Per Million Entering Vehicles Per Year and an Average Ratio of All Night-to-Day Collisions of at Least 1.5	1 or 2 Collisions	15	1	15	Only One 'R' Value is To Be Entered for These Two Rows	
						3 or More Collisions Per Year or Rate ≥ 1.5 Collisions/MEV	30		0		
Subtotal Collisions Factors										15	A
G + O + E + A = Total Warranting Points Warranting Condition.											
Difference ±										81	D

Notes:

- If the intersection is not signalized, the user could choose EITHER the AADT factor OR the signalization factor. The points from either factor, but not both factors, may be used for the warrant point calculations.
- The number of certain types of:
The number of child pedestrians (ages 12 and under) should be multiplied by two, and the number of senior pedestrians (age 65 and over) should be multiplied by 1.5.
- 85th percentile nighttime speed should be used, if available. Otherwise, the posted speed may be used
- Reported collisions, rounded to the nearest whole number