
Appendices

Appendix A ~ Terms of Reference

June 9, 2010
File No. 6332-18

Sir/Madam
Hatch Ltd.
201, 121 Research Drive
Saskatoon, SK S7N 1K2

Dear Sir/Madam:

**Re: Request for Proposals: Improvements to the Intersection of Idylwyld Drive
and Circle Drive Functional Study of Improvements**

The City of Saskatoon is seeking proposals from qualified engineering consultants for the above-noted project, the details of which are contained in the attached Terms of Reference. Please note that this project mainly focuses on improvements to accommodate expected truck turning movements while also looking at the overall improvements to the interchange and the Circle Drive corridor between Avenue C and Millar Avenue.

If your firm is interested and is able to complete this assignment, submit five (5) paper copies and an electronic copy (PDF format) of your proposal to:

Infrastructure Services, City Hall (3rd Floor), 222 - 3rd Avenue North, Saskatoon, S7K 0J5 no later than
4:00pm Friday July 23, 2010

The proposal should not exceed ten pages in length and must contain the following information:

- A one page executive summary of the clear advantages and strengths of the Consultant or team of Consultants that would differentiate it or the team from the other proponents.
- Full name, address and telephone number of the submitting office of the Consultant, and if applicable, the name, address and telephone number of any branch office or affiliate which will assist in the project.
- A detailed work plan and schedule.
- A detailed discussion of the proposed methodology and benefits of that particular approach.
- A detailed organizational chart of the key personnel who will be involved with the project and a description of how their work relates to the project.
- A clearly stated maximum cost for the proposed Engineering Services.

Consultants are also required to submit one (1) copy of their corporate and team resumes as a separate document.

Proposals will be reviewed for completeness, understanding of the issues and approach to the study. The contract will be awarded based on an evaluation criteria detailed in these terms of reference. The City of Saskatoon reserves the right to short-list and interview consultants, if necessary.

June 14, 2010
Page 2

For further information, please contact myself at 975-3657.

Yours truly,

Lanre Akindipe, EIT
Traffic Systems Engineer

LA:tm

Enclosure

Request for Proposals
**Detailed Design Study – Improvements to the Intersection of Idylwyld Drive
& Circle Drive**
Terms of Reference

Transportation Branch, Infrastructure Services, City of Saskatoon

1.0 Introduction

The Circle Drive corridor (between Ave C and Millar Avenue) experiences significant congestion and delays during periods of peak usage throughout a typical weekday especially at the existing diamond interchange at the intersection of Circle and Idylwyld Drive. With the completion of the South River Crossing (South Circle Drive) in 2012 significant changes to the traffic volumes and turning movements are expected at this intersection. Among the changes expected will be the restriction of Idylwyld Drive to local truck traffic and the subsequent changes in the south-bound ramp left and right turn volumes, as well as increases in east-bound left turns onto the north-bound ramp.

This project includes the functional study of improvements that will be required to improve the operation and function of this interchange while also giving consideration to improving the Circle drive corridor between Avenue C and Millar Avenue.

2.0 Scope and Study Objectives

The scope of the project is to develop a detailed functional design - for intersection improvements and recommendations for signage and or signal changes at the intersection. All improvements must remain within the existing right-of-way; no recommendations for major property acquisition will be considered.

An earlier operational review and redesign study was completed for Circle Drive between Millar Avenue and Idylwyld Drive (Bunt & Associates Eng. Ltd., 2005); some or all of the recommendations of that earlier study may be included in the operational analysis of the Circle Drive corridor. Recent AM & PM turning movement counts for the on and off ramp at the intersection are attached as Figures 1a & 1b.

2.1 Technical requirements:

- Assess the current use of the corridor (between Avenue C and Millar Avenue) and the intersection of Circle & Idylwyld drive.
- Improvements to the existing diamond intersection may include alternatives such as:
 - Diverging diamond,
 - Single point interchange,
 - Dual-lane ramps,
 - Signal timing and coordination plans,
 - Designation of additional EB/NB truck routes.
- The focus of these improvements must be to accommodate the expected changes in truck turning movements as well as an overall improvement in the function of the interchange.

2.2 Study Area

The study area is identified on the attached plan.

3.0 Study Administration

This study will be directed by a steering committee consisting of:

- Lanre Akindipe, Traffic Systems Engineer, City of Saskatoon,
- Don Cook, Planning & Design Engineer, City of Saskatoon,
- Goran Lazic, Traffic Operations Engineer, City of Saskatoon,
- David LeBoutillier, Planning & Design Engineer, City of Saskatoon
- Geoffrey Meinert, Senior Project Manager, Saskatchewan Ministry of Highways & Infrastructure (MHI)

4.0 Services to be provided by the Consultant

The consultant is expected to deliver a comprehensive functional plan based on a traffic projection for a target City population of 300,000.

The study should include:

- A summary of study issues, design considerations and design criteria;
- Preparation of design alternatives (at least 3 are expected)
- An evaluation and analysis of alternatives including cost estimation;
- Preparation of a recommended functional plan.
- A simulation / animation will be required to demonstrate the utilization of the recommended option.

The functional design should include:

- Geotechnical review of area conditions, foundation requirements and embankments / excavation considerations;
- Pedestrian and cyclist considerations and accommodation;
- Utility impacts and potential relocation requirements;
- Traffic signal relocation and/or operational recommendations;
- Storm water drainage plan;
- Guide signing and pavement markings consideration and
- A construction staging strategy.

The consultant will also be expected to provide a statement on the following issues:

- Project aesthetics & landscaping; and,
- Roadway illumination.

It is anticipated that a consultation with stakeholders will be held as well as two open house events to present the recommended plan to the public and receive comments on the plan from the public. The consultant will be responsible for organizing and facilitating the open houses. The City will pay for advertising the open houses.

5.0 City's Obligation

As a part of the study, the City will provide the following:

- Digital mapping information,
- All relevant reports on the study area including the 2005 Bunt & Associates Eng Report
- Existing traffic volume data,
- Saskatchewan Ministry of Highways & Infrastructure truck classification count movements for Highways 16, 11 & 7.
- Copies of VISUM 11.0 PrT (car-only) transportation models:
 - PM & AM Peak Hours for base year (2006), population 205,000,
 - PM Peak Hour for city populations of 300,000 and 400,000
 - Supporting documentation.

6.0 Products or Deliverables

The consultant will provide:

- 5 copies of the draft final report,
- 5 copies of the final report,
- An electronic copy of the final report in PDF format,
- All drawings compatible with AutoCAD format,
- Electronic copies of all media created and gathered during the public consultation component of this project.

7.0 Standard Clauses for Proposal Preparation and Acceptance

7.1 Cost of Preparation/Proprietary or Intellectual Property Rights

All costs incurred by a proponent in the preparation of its RFP submission or in providing additional information necessary for the evaluation of its submission shall be borne by the proponent.

7.2 Intention of the City

It is the intention of the City to obtain a proposal most suitable to its interests and what it wishes to accomplish. Therefore, notwithstanding any other term or condition, express or implied, of this RFP, the City has right to:

- (a) Waive any irregularity, insufficiency or non-compliance in any proposal submitted;
- (b) Accept or reject all or part of any proposal;
- (c) Negotiate with a proponent to modify its proposal to best suit the needs of the City;
- (d) Accept the proposal, which it, in its sole discretion, determines to be most favorable to the interests of the City;
- (e) Reject any or all proposals.

Furthermore and for greater certainty, the City reserves the right to determine, in its sole discretion, whether a proposal is compliant, non-compliant, regular or irregular.

7.3 Rejection of Proposal

Without limiting the City's rights under Intention of the City (Article 7.2 above), the City reserves the right to reject any proposal which:

- (a) Is incomplete, obscure, irregular or unrealistic;
- (b) Has non-authorized (not initialed) erasures or corrections in the proposal offer or any schedule thereto;
- (c) Contains a defect or fails in some way to comply with the RFP;
- (d) Omits or fails to include any one or more items in the proposal offer for which a price is required by the RFP;
- (e) Fails to complete the information required by the RFP to be furnished with a proposal or fails to complete the information required whether the same purports to be completed or not;
- (f) Is accompanied by an insufficient or irregular bid or proposal security in an unsatisfactory form or insufficiently executed or of an insufficient amount may be rejected by the City.

Further, a proposal may be rejected on the basis of a proponent's completion schedule and/or non-compliance with federal, provincial and municipal legislation.

7.4 Use of Discretion

Where expressly or by implication, the City is entitled or required to exercise its discretion, and for greater certainty the use of the word “may” is deemed to confer such a discretion, the City is entitled to exercise such a discretion without any obligation of any kind whatsoever to any or all proponents. A proponent is not entitled to assume that the City will conduct itself in a particular manner or in accordance with any set of principles or guidelines or any industry custom or practice. The City’s evaluation of a proposal is final. The manner in which the City evaluates a proposal or reaches its decisions is not subject to any form of review or appeal unless otherwise expressly provided.

8.0 Proposal Selection

8.1 Step 1: Mandatory Requirements

Proposals, which do not comply with the mandatory requirements, may be disqualified.

8.2 Step 2: Rated Criteria Evaluation

The City will only award points in accordance with the evaluation matrix in Table 1 below. The City will consider the following in applying the evaluation criteria and allocating available points:

Table 1: Evaluation Matrix	Maximum Available Points
Project methodology and technical approach	20
Clear understanding of the project requirements	10
Qualifications of designated project manager	5
Qualifications of transportation engineering personnel and relevant experience	10
Integration and compatibility of the various elements of the proposal	6
Adaptability and flexibility of the proposal	14
Degree of innovation to problem solving	20
Project schedule, milestones and controls	5
General quality of proposal, including completeness, readability and layout	5
TOTAL MAXIMUM AVAILABLE POINTS	95

8.3 Step 3: Price Evaluation

All prices and amounts supplied by the proponent are deemed to be the basis of the proponent's offer and shall be binding on the proponent. Price will be assigned a maximum of 5 evaluation points. The points scored by each proposal will be based on a proportional formula in Table 2 below.

Table 2: Price Evaluation Formula	Maximum Available Points
$5 - [5 \times (\text{This proposal's guaranteed maximum price} - \text{Lowest guaranteed maximum price}) / \text{Lowest guaranteed maximum price}]$	5

Example: Consider two proposals; A and B. Proposal A has the lowest guaranteed price of \$100,000. Proposal B's price is \$125,000. Proposal A having the lowest price will be awarded the full 5 points, while points earned by proposal B will be calculated based on the formula below:
 $\text{Earned Points} = 5 - [5 \times (125,000 - 100,000) / 100,000] = 5 - 1.25 = 3.75$

8.4 Step 4: Final Evaluation

The final scoring of each proposal will be determined in accordance with the evaluation matrices. The proposal with the highest total score as calculated on Table 3 will be deemed to be the preferred proposal.

Once the preferred proponent has been identified, the City may enter into discussions with that proponent to clarify any outstanding issues and to identify and finalize those portions of the proposal, including negotiation of any changes, which will form part of the agreement.

If discussions are unsuccessful, the City reserves the right to enter contract discussions with the next highest rated proponent or to decide not to award a contract.

Table 3: Final Evaluation	Maximum Available Points
This is a total number of points earned in Step 2 and Step 3	100

8.5 Proposal Acceptance Period

All proposals shall be kept open for acceptance by the City for ninety (90) days after the date of submission unless subsequently revised by addendum.

8.6 Confidentiality

The City acknowledges that proposals may contain information in the nature of a proponent's trade secrets or commercial, financial, labour relations, scientific or technical information of or about a proponent. The City acknowledges and agrees that proposals in response to this RFP are provided in confidence and protected from disclosure to the extent permissible under law.

The City is bound by the Local Authority Freedom of Information and Protection of Privacy Act (Saskatchewan) and all documents submitted to the City will be subject to the protection and disclosure provisions of this Act.

8.7 City Clarification

The City reserves the right to seek proposal clarification from the proponent to assist in making evaluations. Failure to provide an adequate written response within the period specified in writing by the City upon receiving a request for clarification from the City may, at the sole discretion of the City, result in disqualification of the proposal.

8.8 Negotiations

The City reserves the right to negotiate with the preferred proponent.

8.9 Acceptance of Proposal

No act of the City other than a notice in writing constitutes an acceptance of a proposal. Such acceptance shall bind the successful proponent to execute in a manner satisfactory to the City Solicitor where applicable the contract documents constituting the agreement, to furnish the bonds and insurance material required by the contract documents or to be responsible for the damages provided in the proposal form herewith. Where applicable, the other rights and obligations contained in the provisions of the RFP documents shall ensure for the benefit of and be binding upon the parties only with the formal execution of the agreement.

8.10 Formal Agreement

The successful proponent will be required to enter into an Engineering Services Agreement with the City. Such an agreement will be prepared by the Office of the City Solicitor.

The Engineering Services Agreement shall consist of:

- Request for Proposals,
- Proposal submitted by the successful Consultant,
- The schedule of fees and/or maximum upset cost of the Engineering Services rendered.

The successful consultant shall ensure that all the Professional registration requirements (Engineering, Consulting and other) in the Province of Saskatchewan are met. As well, prior to the signing of the Engineering Services Agreement, the consultant must provide proof of public liability, and professional liability insurance.

9.0 Other Information

9.1 Invited Consultants

The following firms have been invited to submit a proposal for this project:

- AECOM
- Associated Engineering Ltd.
- CH2M Hill
- Genivar
- Hatch Ltd.
- HDR | iTRANS
- MMM Group Consulting
- Stantec Consulting Ltd.

9.2 Schedule

The goal is to have completion by November 30th, 2010; proponents are to outline if that is reasonable.

9.3 Estimated Project Cost

The estimated project cost for this project is \$80,000; proposals should address this estimate. If this project cannot be completed within that estimated cost, proponents should discuss the work that will not be completed, as well as propose and justify the additional work and costs.

9.4 Approval

City Council must approve the awarding of contracts in excess of \$100,000.

10.0 Submission of Proposals

Consultants are required to submit five (5) paper copies and an electronic copy in PDF format of their proposal, which should include the following items and other requirements:

- A one page executive summary of the clear advantages and strengths of the Consultant or team of Consultants that would differentiate it or the team from the other proponents.
- Full name, address and telephone number of the submitting office of the Consultant, and if applicable, the name, address and telephone number of any branch office or affiliate which will assist in the project.
- A detailed work plan and schedule.
- A detailed discussion of the proposed methodology and benefits of that particular approach.
- A detailed organizational chart of the key personnel who will be involved with the project and a description of how their work relates to the project.
- A clearly stated maximum cost for the proposed Engineering Services.
- The proposal should not exceed ten (10) pages.

Consultants are also required to submit one (1) copy of their corporate and team resumes as a separate document.

10.1 Deadline for submission of proposals:

4:00pm Friday July 23rd, 2010

10.2 Submit a paper proposal, in writing to:

**Lanre Akindipe, EIT
Traffic Systems Engineer, Transportation Branch
City of Saskatoon, Infrastructure Services Department
222 – 3rd Avenue North
Saskatoon, SK S7K 0J5**

and an electronic pdf copy to olanrewaju.akindipe@saskatoon.ca

10.3 For more information or clarification please contact:

**Lanre Akindipe, EIT
Traffic Systems Engineer, Transportation Branch
City of Saskatoon, Infrastructure Services Department
222 – 3rd Avenue North
Saskatoon, SK S7K 0J5**

**Phone: (306) 975-3657
FAX: (306) 975-2971
Email: olanrewaju.akindipe@saskatoon.ca**

Figure 1a - Circle Drive & Idylwyld Drive on_off ramp PM Peak Hour Data

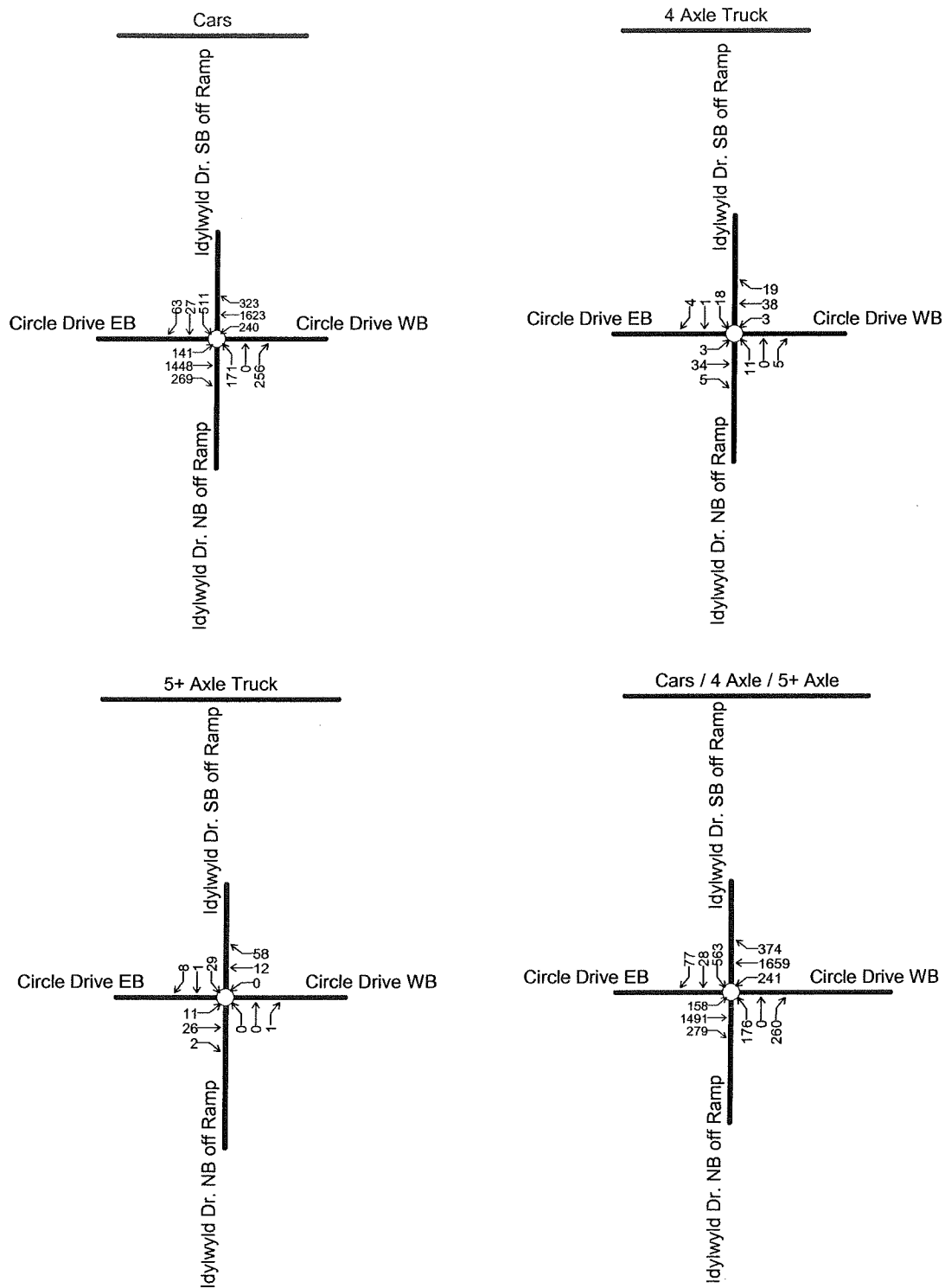
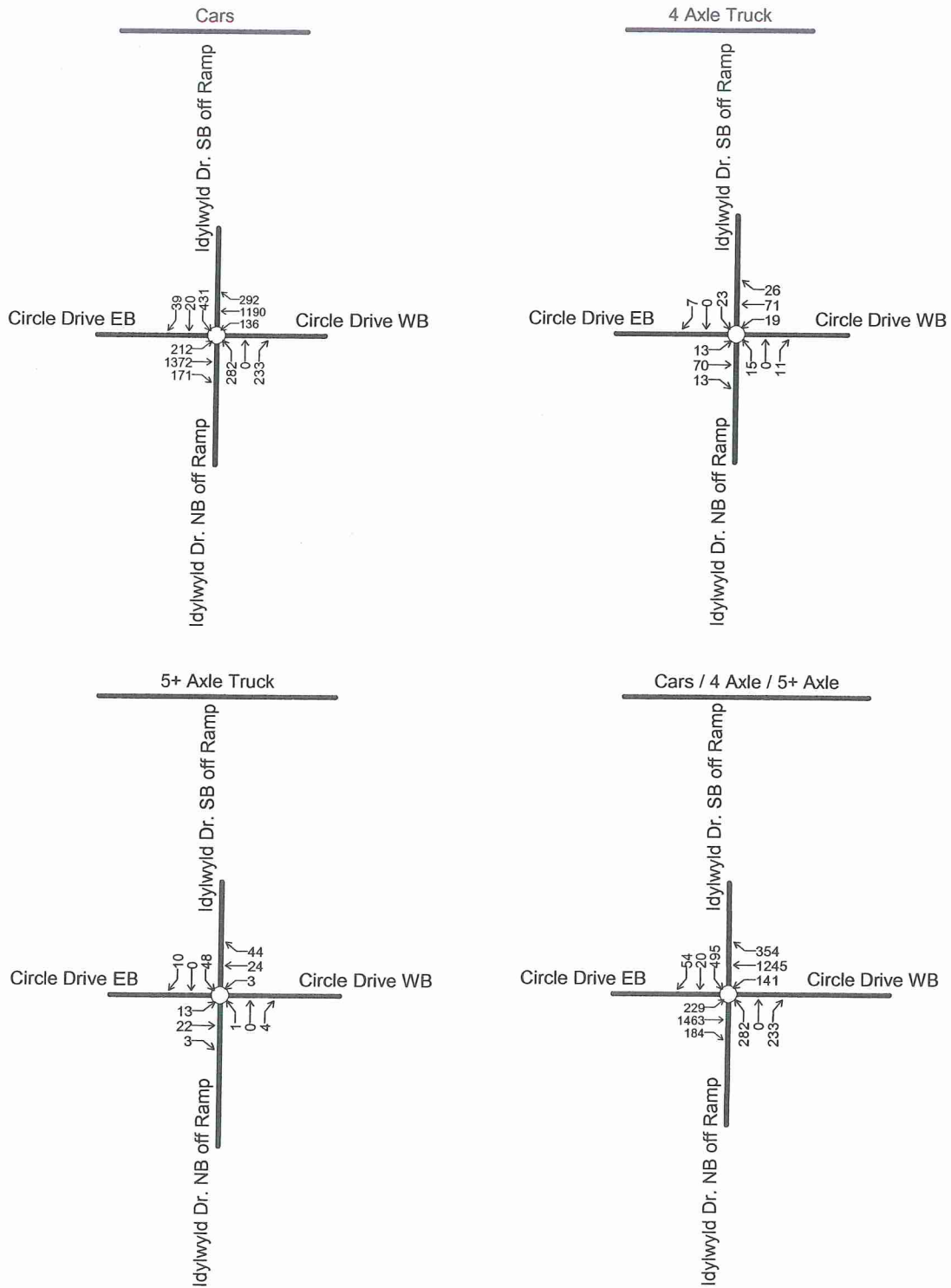


Figure 1b - Circle Drive & Idylwyld Drive on_off ramp AM Peak Hour Data



Appendix B ~ Stakeholder Consultations

Minutes Of Meeting

PROJECT NAME:
Idylwyld – Circle Drive Functional Improvements

MIN-HMM-NSBA279129.20101117

PROJECT NO.: 279129

ATTENDEES:

Lanre Akindipe (COS)
Brent Banda (Banda Marketing)
Leslie Bell (HMM)
Clay Dowling (Ghost Transportation)
John Hemingway (HMM)
Gord Hundebay (COS)
Howard Jone (NSBA)
David LeBoutillier (COS)
Geoff Meinert (Sask Highways)
Marine Melchiorre (COS)
Ed Miller (HMM)
Jim Nowakowski (JNE Welding)
Robert Shames (HMM)
Steve Stowkowy (HMM)
Lisa Thibodeau (COS)
Greg Trew (NSBA)

DISTRIBUTION:

HMM & COS

North Saskatoon Business Association Stakeholder Meeting

DATE: November 17, 2010

LOCATION: JNE Welding, 3915 Thatcher Drive, Saskatoon, SK

PURPOSE: Share Study Findings and Obtain Input from the NSBA

ITEM		ACTION BY:	DUE DATE:
1. Welcome & Introduction of Participants			
1.1	JNE Welding were thanked for use of their facilities for this meeting.		
2. Statement of Meeting Objectives			
2.1	It is desired to make the NSBA aware of the study work completed to date and to solicit input from the NSBA on the solutions proposed.		
3. Presentation of Study Work			
3.1	Traffic analysis and functional design considerations were presented by J. Hemingway.		

ITEM	ACTION BY:	DUE DATE:
4. Input & Questions from NSBA		
4.1	<p>C. Dowling</p> <ul style="list-style-type: none"> Remove trucks from Circle Drive North (between Warman Road and Avenue C) 53' trucks (dual trailers) have difficulty navigating existing turns due to wide turning radius required <ul style="list-style-type: none"> Trucks will get bigger Traffic will increase Saskatoon is not a 'Truck Friendly' city. Improve turning lane radius at Millar Ave and Circle Drive and ramp onto NB lane to Idylwyld South Bridge opening will result in additional congestion at the Circle Drive North - Idylwyld interchange Signage (especially for truck routes) needs to be improved Traffic light synchronization needs to be improved Red light cameras work New FCL fuelling station at 51st and Millar is not a good thing (this will lead to more truck traffic congestion) Increase planning activities for future traffic to avoid similar problems experienced at Circle Drive North Work 24 hours per day during construction to reduce traffic restrictions 	
4.2	<p>G. Trew</p> <ul style="list-style-type: none"> Restrict lengths of trucks in City Limits It is disappointing that the North Bridge is not in the Province's 5 year plan for construction. It is preferred that the City and Province address the solution to "fix" the problem (i.e. North Bridge) now rather than wait 	
4.3	<p>K. Moen</p> <p>Would a P-3 project improve speed at which the North Bridge is implemented?</p> <ul style="list-style-type: none"> Answer: P-3 is best for projects greater than a value of \$250 million The North Bridge project with complete route around City is expected to cost ~\$500 million. (Note that the annual budget for SK Highways is \$500 million) <p>Can concrete "jersey barriers" be implemented instead of medians to increase the amount of lanes on Circle Drive North?</p> <ul style="list-style-type: none"> Answer: Yes. Note that additional lanes will make it difficult for pedestrian traffic to cross Circle Drive. This may gain one lane overall. 	
4.4	<p>J. Nowakowski</p> <ul style="list-style-type: none"> Upgrades to Dalmeny Road must be given serious consideration to reduce traffic on Circle Drive Users of South Bridge will end up at the Circle Drive 	

ITEM		ACTION BY:	DUE DATE:
	North – Idylwyld interchange unless an alternate route is provided for them to access highway #16		
4.5	What is the estimated cost for improvements at interchange (Circle Drive North – Idylwyld) and corridor between Idylwyld and Warman Road? <ul style="list-style-type: none"> • Answer: Order-of-magnitude costs: \$10 million for Interchange, \$5 million for corridor improvements (limited) • This will give a 15% increase in service (move Level of Service (LOS) from F to E or from E to D) • Improvements will be consumed in a few years and LOS will drop again. 		
4.6	What is split of local versus through traffic in corridor? <ul style="list-style-type: none"> • Answer: Through traffic was estimated to be 10% (1999 data), but is expected to be more like 25% currently 		
5. Questions from Design Team			
5.1	M. Melchiorre Are there any business access concerns? <ul style="list-style-type: none"> • Answer: Reducing traffic on Circle Drive North would be better for local businesses • Too much traffic increases difficulty in getting on and off Circle Drive to businesses 		
5.2	R. Shamess Would it be useful to have a service road for business access along the corridor? <ul style="list-style-type: none"> • Answer: This would not likely reduce business access since service would not be worse than it is currently 		
6. Next Steps			
6.1	<ul style="list-style-type: none"> • Fix problem intersections (as per discussions with STA on Nov 17.) • Push for long term solutions (eg Dalmeny Road, Circle Drive North) 	D. LeBoutillier	

Minutes Of Meeting

PROJECT NAME:
Idylwyld – Circle Drive Functional Improvements

MIN-HMM-STA279129.20101117

PROJECT NO.: 279129

ATTENDEES:

Lanre Akindipe (COS)
 Leslie Bell (HMM)
 Bob Crawford (NRT)
 Scott Johnson (Siemens Transport)
 John Hemingway (HMM)
 Gord Hundebay (COS)
 Gordon Kenney (NRT)
 Craig Kezama (FCL)
 David Lawlor (FCL)
 David LeBoutillier (COS)
 Geoff Meinert (Sask Highways)
 Marine Melchiorre (COS)
 Ed Miller (HMM)
 Reg Quiring (QLine)
 Wayne Ridsdale (Ridsdale Transport)
 Robert Shamess (HMM)
 Steve Stowkowy (HMM)
 Lisa Thibodeau (COS)

DISTRIBUTION:

HMM & COS

Saskatoon Trucking Association Stakeholder Meeting

DATE: November 17, 2010

LOCATION: Siemens Training & Development Centre, 806 – 47th Street E, Saskatoon SK

PURPOSE: Share Study Findings and Obtain Input from the STA

ITEM		ACTION BY:	DUE DATE:
1. Welcome & Introduction of Participants			
1.1	Siemens Transport were thanked for use of their facilities for this meeting.		
2. Statement of Meeting Objectives			
2.1	It is desired to make the STA aware of the study work completed to date and to solicit input from the STA on the solutions proposed.		
3. Presentation of Study Work			
3.1	Traffic analysis and functional design considerations were		

ITEM		ACTION BY:	DUE DATE:
	presented by J. Hemingway.		
4. Input & Questions from STA			
4.1	S Johnson: Can traffic be directed to Warman Road? Answer: Yes.		
4.2	W. Ridsdale: Why not install an overhead lane above existing Circle Drive from Warman Road to Avenue C. Answer: There is insufficient room for inlet and outlet of traffic to this overhead lane.		
4.3	Impact of Circle Drive South <ul style="list-style-type: none"> If trucks must travel all the way around to the Circle Drive North – Idylwyld intersection, they will not take Circle Drive South Bridge Upgrade of the Dalmeny Road to access Hwy #16 via Circle Drive South bridge would likely convince truckers to take this route Truckers are more likely to stay on the existing route through the City (Circle Drive East/North to Idylwyld North) unless an advantage is obtained from taking another route. 		
5. Question from G. Meinert			
5.1	Where would trucks prefer to travel if there were no restrictions (given that the Circle Drive North route is at capacity and that the North Bridge is a long way from implementation)? S. Johnson: Warman Road and 51 st Street. <ul style="list-style-type: none"> Many trucks originate or have a stop in the north end of the city There are fuelling stations on 51st St. Warman Road / 51st St requires upgrades (as indicated in 6. below) in order to improve truck traffic flow 		
6. Map showing Long Range route plans was presented by D. LeBoutillier			
6.1	Input from STA was summarized: <ul style="list-style-type: none"> Install signage to direct trucks through Warman Road and 51st St to reduce traffic on Circle Drive Add additional lanes on Warman Road (north and south bound) Install dual turnoffs from Circle Drive WB to Warman Road NB Install an additional left turning lane from Warman Road NB to 51st WB Install dual turning lanes from 51st EB to Warman Road SB Install dual turning lanes from Warman Road SB to Circle 		

ITEM		ACTION BY:	DUE DATE:
	Drive EB		
6.2	COS to take this input under consideration for short term planning needs.	D. LeBoutillier	
7. Closing			
7.1	<ul style="list-style-type: none">• The STA members were thanked for their participation• Siemens was thanked for use of their boardroom to facilitate this discussion.• Final report will be issued by HMM in January.	HMM	Jan. 31/10

Appendix C ~ Literature Review

Literature Review

1. Swanson, H.A., *“River Crossing Study for the City of Saskatoon”*, Reid Crowther & Partners Ltd., Calgary, AB, November, 1999.

Study assessed and prioritized river crossing needs in relation to several alternative land use scenarios. Nine network alternatives were developed and tested. They included adding one lane each way to the existing Circle Drive bridge; constructing the southwest extension of Circle Drive as a four-lane freeway; and constructing the first two lanes of an ultimate four-lane arterial at a north river crossing (Marquis Drive to McOrmand Drive).

The results of the network analysis indicated that, at the 250,000 population level, both the north and south river crossings achieved the best overall system performance. The roadway system assessment concluded that improving the existing Circle Drive bridge created network problems between Warman Drive and Airport Drive.

Study concludes that two river crossings are needed by the time the City reaches the 250,000 population level. The south river crossing will be needed before the north crossing.

2. Trialpha Consulting Limited, *“Saskatoon Long Range Transportation Planning Study: Final Report”*, Report No. 199100.01, Saskatoon, SK, April, 2001.

This study addresses long-term growth in traffic on both City and provincial roadways. One objective of the study was to ensure that long-term capacity will be available to accommodate east-west travel across the South Saskatchewan River.

The study considers potential joint-use river crossing options to address City and provincial needs. The study examines alternatives to the north and south river crossings identified in previous studies.

It concludes that at the 250,000 population level two new river crossings are required, one north and one south. The north crossing connects McOrmand Drive with Wanuskewan Drive. Initially, the east – north perimeter route would be a two lane arterial facility.

At the 400,000 population level a second north river bridge is required.

Idylwyld Drive – Circle Drive Interchange Functional Planning Study

The study notes that the west perimeter route is the lowest priority and may not be required once the east portion of the perimeter route is operating between Hwy. 11S and Hwy. 16W. This will be the key truck routing in the future.

The study provides a good snapshot of traffic volumes in the 1999 base year and presents the results of a comprehensive origin – destination survey of movements through a series of external gateways. The study provides 24-hour trip tables for internal – external (outbound) interchanges and 2-hour peak period trip tables for internal – external, external – internal and external – external interchanges.

It is noted that the percentage of through trip type (including through with stop and through non-stop) on average was less than 10 percent of total trips. Roadways with the highest through traffic include Highway 16 East and West and Highway 11 South.

3. City of Saskatoon, Saskatchewan Highways and Transportation, Rural Municipality of Gorman Park No. 344, *“Saskatchewan Long Term Transportation Planning Study: Discussion Paper”*, Saskatoon, SK, May, 2002.

The proposed rationale and location for the east and north perimeter road is accepted. While the rationale for the south and west perimeter road is accepted, the alignment is rejected in favour of the existing corridor on the north side of the CNR bridge. Saskatchewan Highways and Transportation to take lead role in the protection of the corridors for the east and west perimeter roads. Public consultation to take place in connection with further functional planning of the routes.

4. Bunt & Associates Engineering (Alberta) Ltd., *“Circle Drive: Millar Avenue to Idylwyld Drive Operational Review and Redesign Study: Final Report”*, Calgary, AB, March, 2005.

Study commissioned to identify steps necessary to resolve congestion problems evident along this section of Circle Drive. The study presents a long-term vision for this roadway and identifies the steps necessary to move toward this goal by identifying short-term improvements.

No quick fix for the roadway. Fixing the congestion problems would require either an expressway standard roadway or a one-way couplet urban arterial system through the corridor. These alternatives would involve the acquisition of the railway right-of-way south of Circle Drive.

Idylwyld Drive – Circle Drive Interchange Functional Planning Study

The following short term improvements are recommended:

- Increase the existing 7-lane cross section to eight lanes (adding one through lane each way);
- Reconstruct side street accesses to better accommodate turn movements by trucks;
- Revise and optimize directional signage locations and messaging to simplify and clarify the driver decision process;
- Improve sight lines and optimize driver awareness of traffic conditions by eliminating superfluous street furniture, amalgamating and/or eliminating access driveways and simplifying intersection operations; and
- Adjust signal phasing and timing to make the best available use of the City's standard 110-second cycle length. Implement safety phasing, i.e., protected left turn phases for movements across three or more through lanes.

The following intermediate term improvements are recommended;

- Amalgamate the Home Depot/Venture Crescent (West) intersections and relocate the Home Depot signal;
- Re-align Faithful Avenue and Quebec Avenue to provide continuous north – south movement; and
- Develop new connection to Warman Road from 46th Street and a fly-over of 46th Street across Idylwyld Drive to provide continuous connection parallel to Circle Drive from Warman Drive to Avenue C.

Optional treatments for some of these improvements are presented for further development and assessment.

The flowing long-term improvements are recommended:

- Acquisition of the rail right-of-way south of Circle Drive and development of an arterial roadway in this corridor;
- Re-organize Circle drive and new parallel road as a one-way couplet; or
- Develop a freeway standard facility in the rail corridor.

5. Stantec Consulting Ltd., *"Circle Drive South River Crossing Functional Planning Study"*, Saskatoon, SK, July, 2007.

This report presents a functional planning study for the southwest quadrant of the Circle Drive perimeter road (referred to as the south river crossing). Traffic projections based on City's TModel2 transportation demand model (weekday p.m. peak hour of the 250,000 population level).

Idylwyld Drive – Circle Drive Interchange Functional Planning Study

Study projects 1,140 veh/h northbound and 1,080 veh/h southbound traffic volumes at the south section of Circle Drive at Lorne Avenue. The projected peak hour volumes just east of the 17th Street extension are 970 veh/h westbound and 1,220 veh/h eastbound.

This report does not provide guidance as to the degree of traffic that is diverted from other routes through the City or the amount of truck traffic that may use this facility.

6. Stantec Consulting Ltd., *"Circle Drive South: Information Meeting"*, Information Meeting Handout Notes, Saskatoon, SK, May 2010.

Benefits of the bridge are noted: traffic studies indicate new south bridge will carry approximately 27,500 veh/d when City at 250,000 population. Studies also indicate a 35 percent reduction in traffic currently using the Idylwyld Drive bridge during the weekday afternoon peak hour.

Bridge to open to traffic by September 30, 2010.

7. City of Saskatoon, *"Traffic Characteristics Report: 2009"*, Transportation Branch, Infrastructure Services Department, Saskatoon, SK, 2010.

Report provides historical count information for the 2000 – 2009 period for counting stations in Circle and Idylwyld Drives. Travel characteristics in terms of growth in traffic volumes over the last few years, the hourly fluctuation in volumes during the day, seasonal adjustment factors for traffic volumes, and travel time contours for various routes in the city.

Of note is the comparison of travel time for going around the city via Idylwyld Drive and via Circle Drive. The report indicates that times are approximately 13 minutes from the junction of Hwys. 11 South and 16 East to the intersection of Hwy 12 (Idylwyld Drive) and Circle Drive.

Non-auto mode of travel is in the range of 23 percent (a.m. peak hour) to 19 percent (p.m. peak hour).

8. Siromaskul, S., *"Diverging Diamond Interchange Design 101: Things to Know Before You Start"*, Paper presented at the Institute of Transportation Engineers Annual Conference, Vancouver, BC, August, 2010.

Close attention should be given to the adjacent signal timing to ensure spillback does not reach the interchange.

Each signal in the DDI should be timed as a 2-phase signal regardless of whether or not all movements in the DDI are signal controlled. The DDI movement to be coordinated with the adjacent signals will not always be the through movement. Synchro can provide a good starting point for the signal timing of a DDI. Synchro does not handle merging and weaving accurately.

The intersection spacing and how the intersections work with the adjacent street intersections is the key to knowing how effective the DDI design will be. Micro-simulation using VISSIM is recommended. SimTraffic has constraints with the oblique angles of intersection created at the signalized crossings in the DDI design. The unsignalized diverges that are fundamental to the DDI are treated by Synchro/SimTraffic as unsignalized intersections. Synchro/ SimTraffic can lead to significant underestimation of the operational capacity of the DDI design.

DDI has the benefit that traffic merging into the freeway will not be as platooned as with other designs (Diamond and SPUI). Utah DDI design guideline indicates volume threshold when DDI begins to break down. DDI advantage is that fewer lanes are needed on the structure. SPUI and DDI are more suited to handle high left turn volumes. SPUI is more efficient where high through volumes are also present. DDI can improve capacity of the interchange by 15 – 25 percent while reducing delay in high volume locations by up to 60 percent. SPUI is better able to handle progression along the cross road (only one signal and improved intersection spacing). If weaving becomes an issue, signalizing the ramp movements can mitigate the weaving problem and remove the need for auxiliary lanes.

Consider signalizing the turning movements when:

- There are significant pedestrian volumes
- There are significant traffic volumes and pedestrian volumes
- The turning roads have more than one lane
- Merging and weaving operations become an issue

DDI should be built as flat as possible. The crossing angle ideally should be 40 degrees, but some in the 25 degree range have been considered (higher angles reduce the potential for wrong way travel and reduce the walk times and clearance intervals for pedestrians). The tighter the ramp terminals are together, the more difficult it is to provide offset signal timing that will allow for continuous flow in each direction. Local access has been maintained as close as 100 feet (30 metres) from the ramp

terminals, with the closest signalized intersections being about 500 feet (150 metres) away.

The design speed of the curves should be less than the design speed of the approaching roadway. It is suggested to be 10 – 15 mi/h (15 – 20 km/h) less than the design speed of the approaching road. High percentage of trucks in the traffic stream with a 20 mi/h (30 km/h) speed began to impair the operation of the interchange. Dual left turn lanes have been designed for the side-by-side turning of trucks at 10 – 15 mi/h (15 – 20 km/h). Pedestrians have to make four crossings instead of two, but they are shorter and report concludes that pedestrian safety is probably improved with the DDI.

9. Orchard, Hiltz & McCliment Inc., *“Diverging Diamond Interchange”*, MI, 2010.

Cons of DDI include violation of driver expectancy by forcing the driver to drive on the left of opposing traffic. Speed is an important factor for the safe and effective function of a DDI because two directions of travel must cross at a skewed intersection. The reverse curves of a DDI are based on a 35 mi/h (56 km/h) or lower speed intersections. Nearby signalized intersections may also reduce the effectiveness of a DDI. A DDI works best when there are proportionately fewer pass through trips on the cross road.

Idylwyld Drive – Circle Drive Interchange Functional Planning Study

Site Visit Notes – September 1, 2010

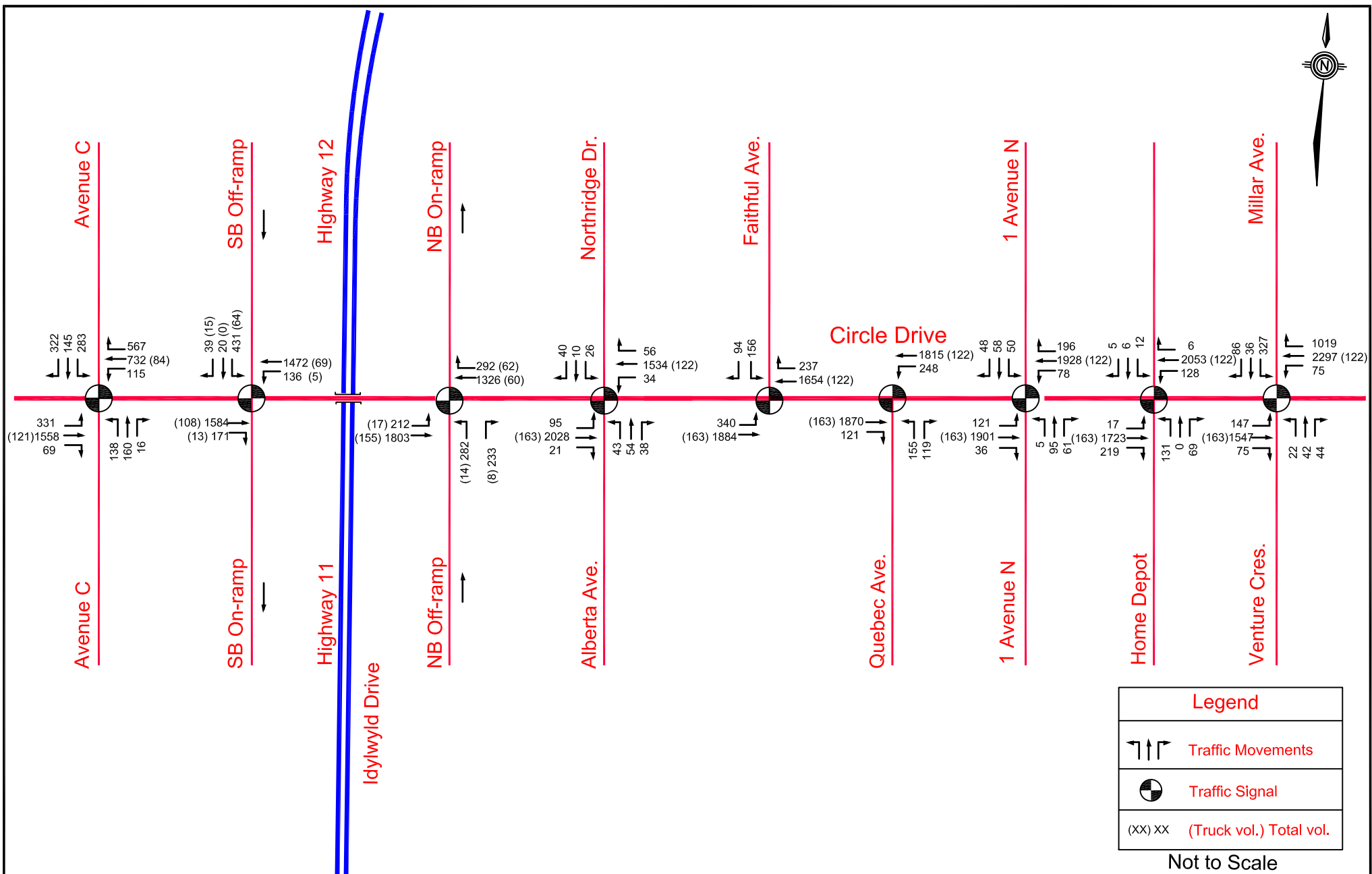
A site visit was conducted on September 1, 2010 with representatives of the City of Saskatoon, Saskatchewan Department of Highways and Infrastructure and the consultant. The time of the visit was approximately 1:30 p.m. to 3:00 p.m. and it commenced at the Travel Lodge property (NW corner of the Idylwyld Drive and Circle Drive interchange) and progressed to the east as far as Faithful Avenue along the north side, and return to the interchange area. The following points were noted:

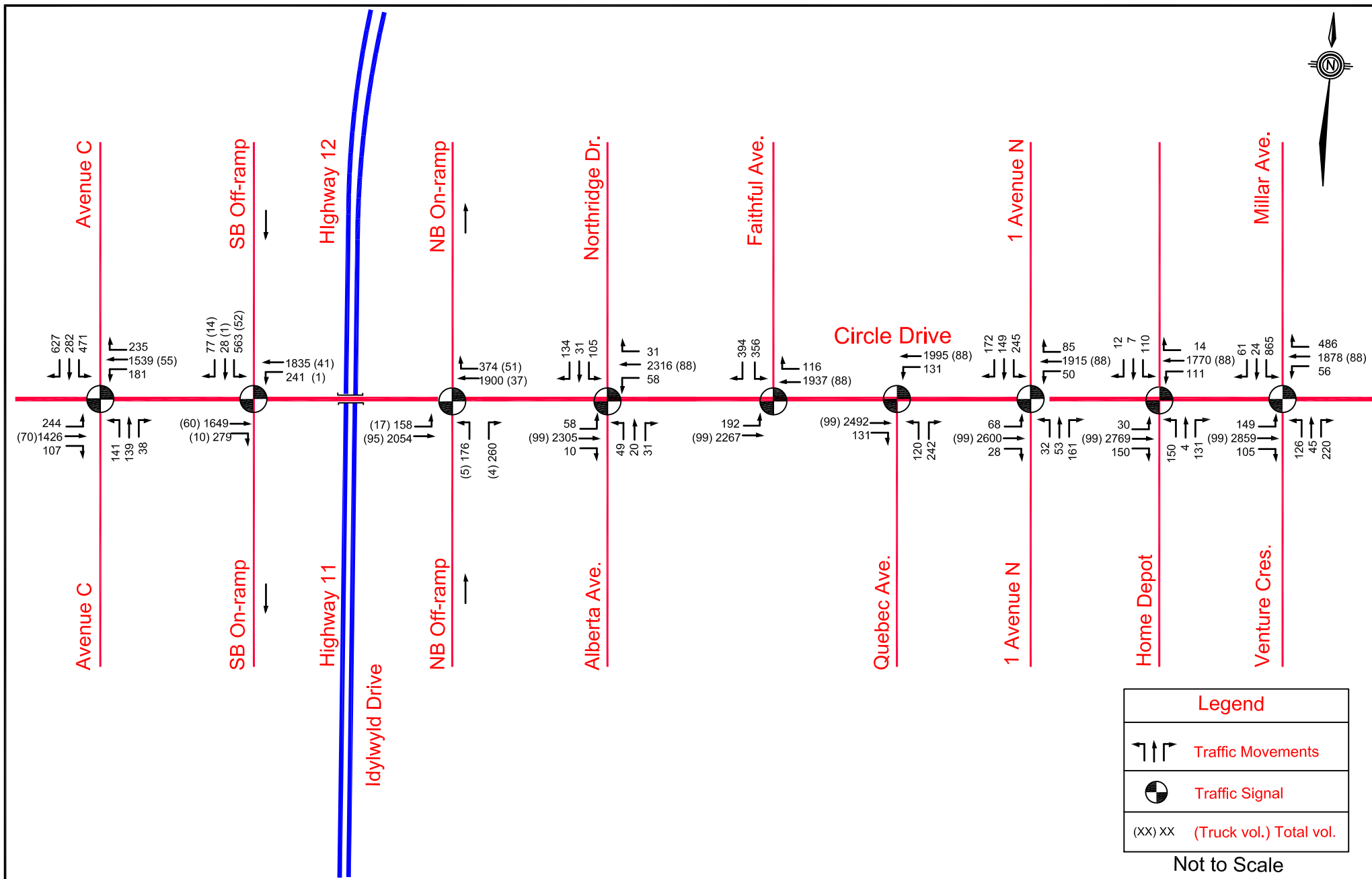
1. The Circle Drive corridor is characterized by several closely spaced signalized and unsignalized intersections, with a general spacing of approximately 150 – 190 metres (less than 200m).
2. The background traffic signal cycle length is approximately 110 sec. While the corridor has three basic lanes in each direction, the current signal phasing includes protected and permissive left turns across three opposing traffic lanes.
3. The adjacent land uses include highway commercial and fast food establishments with numerous driveways to Circle Drive. The Travel Lodge has a direct access to/from its parking area to the exit ramp from the southbound Idylwyld Drive.
4. The City has recently signed that all trucks are to use the outer (right) traffic lane. The effect of this is to create a barrier for traffic wishing to access the local driveways along the corridor. We witnessed many conflicts between vehicles turning through the queues of trucks and other vehicles in the right lanes to access these driveways.
5. There are very few pedestrian facilities along the corridor. Sidewalks exist along the north side only and they stop just past Northridge Drive. Pedestrian tracks are present and some movements across Circle Drive were noted during our visit in early afternoon.

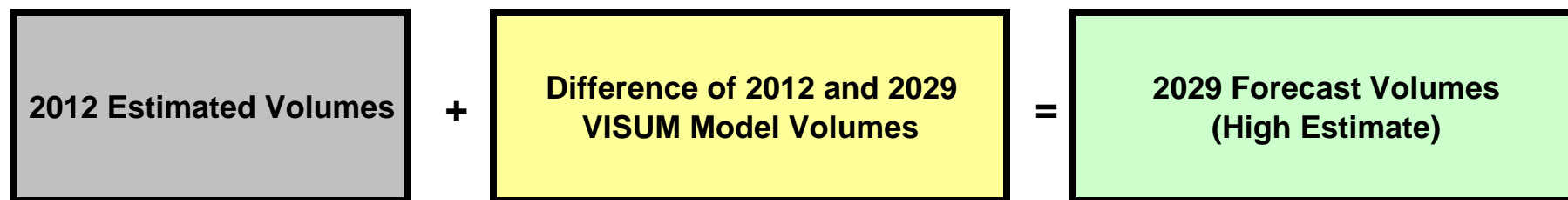
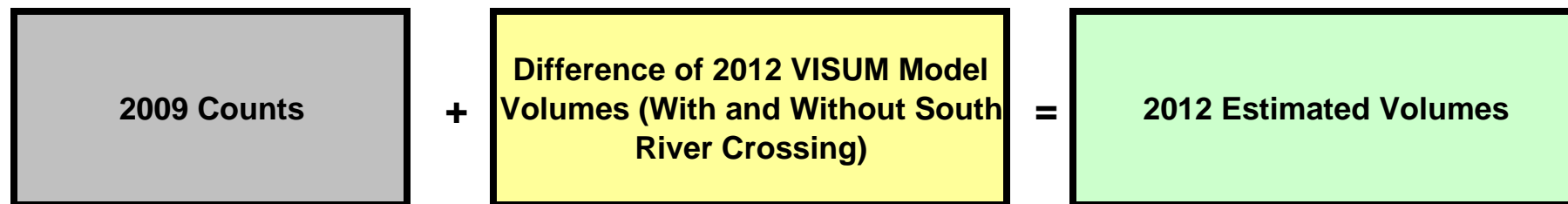
Idylwyld Drive – Circle Drive Interchange Functional Planning Study

6. Queues of vehicles on the southbound exit ramp from Idylwyld Drive were common and consisted primarily of left turning traffic. Right turn movements were caught with the left turning traffic as well as the ramp was only a single lane ramp and there was not a queue jump lane for the right turning vehicles.
7. The critical movements are the southbound left, the eastbound left and westbound right at the interchange. The City noted that these patterns may change somewhat when the 'local traffic only' restrictions are imposed next year.
8. Opportunities to shift some of the traffic from the Circle Drive corridor were discussed. These included use of the local streets for the eastbound left which can divert to Idylwyld Drive south of Circle Drive. Ontario Avenue was found to be the logical routing as a crossing of the existing railway lines exists today with gates and lights. Shifting the westbound rights to a parallel road with connection to the freeway (43 rd. Street proposal in the Bunt report) will be difficult due to the location of the 51st. Street interchange ramps to the north.
9. The City noted that the existing structure was widened recently by adding an extra through lane in each direction (too bad added width for sidewalks was also not part of the plan but it wouldn't connect to anything anyway).
10. There may be opportunities to connect the jog between Faithful Avenue and Quebec Avenues as recommended in the Bunt report.

Appendix D ~ Base Traffic Volumes

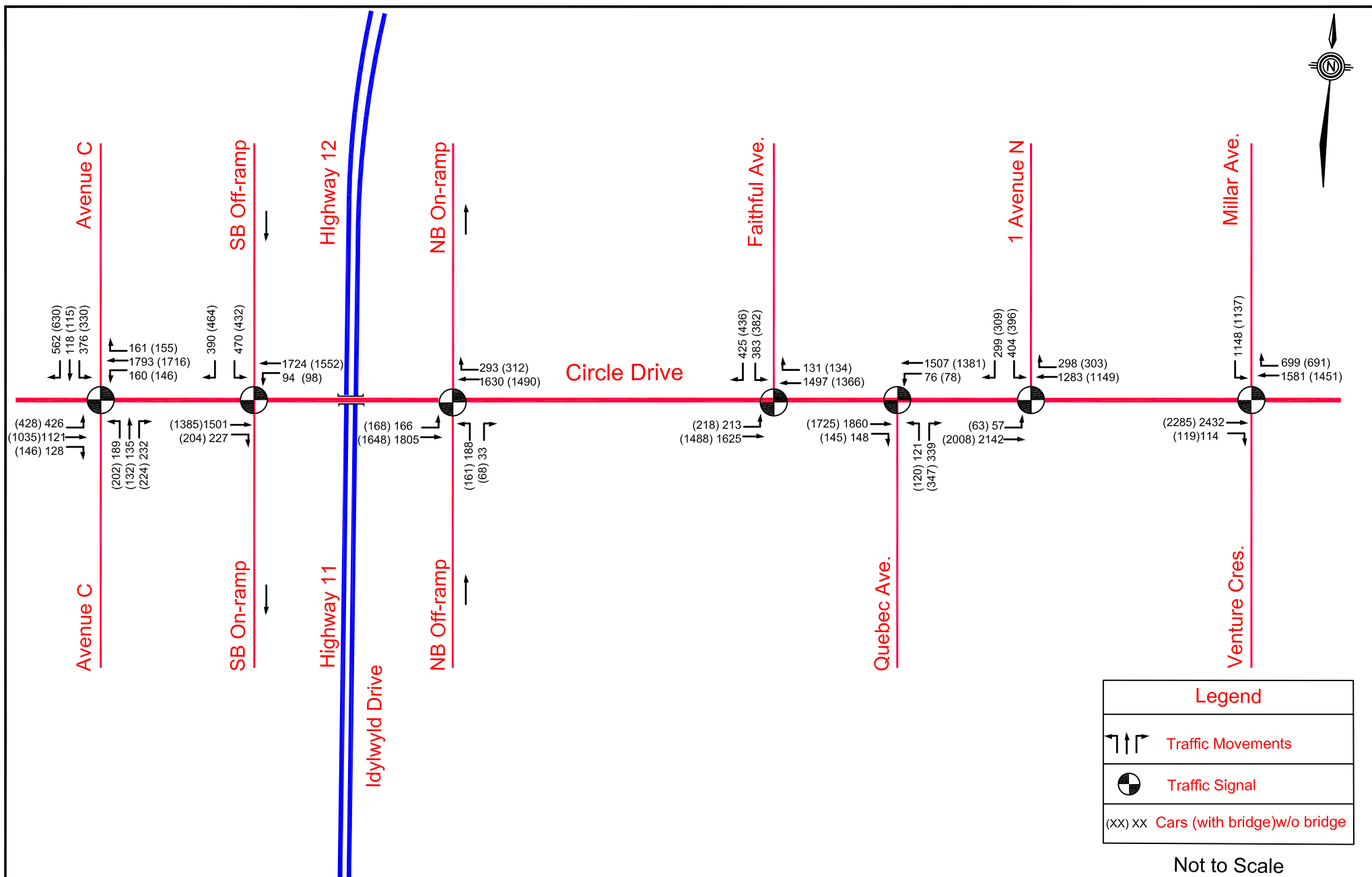


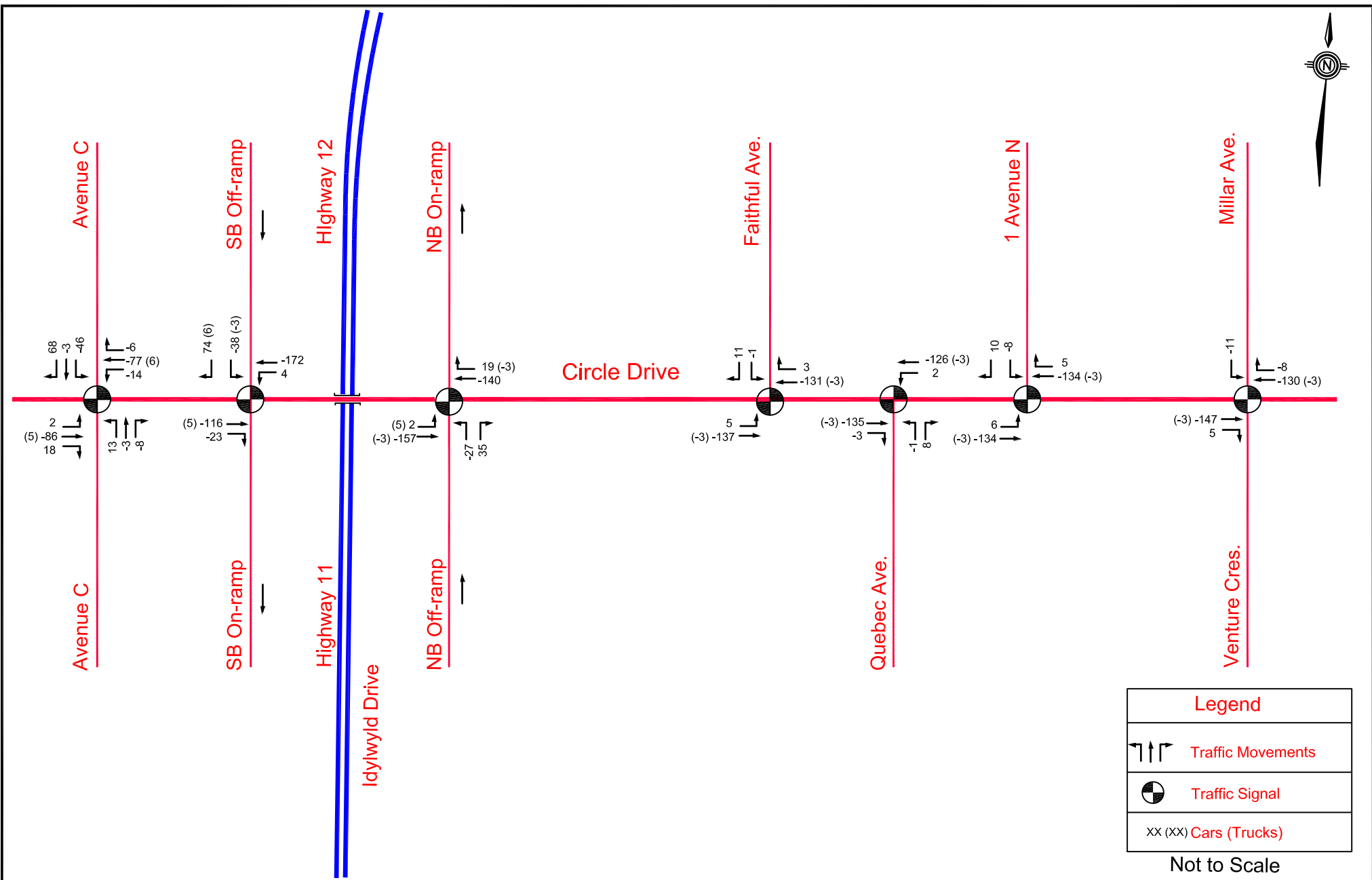


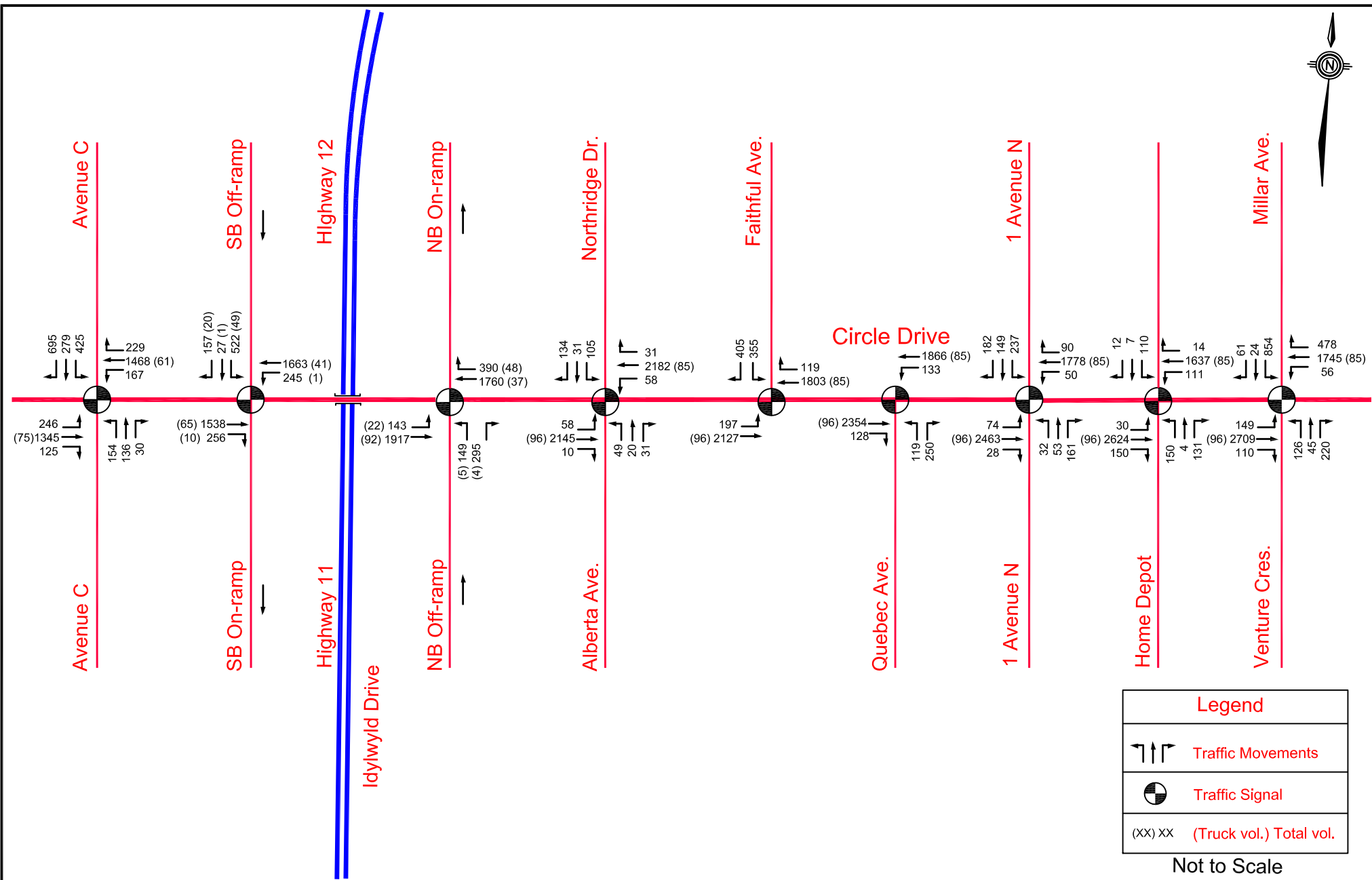


Note: Please note that 2029 forecast volumes (low estimate) are based on just the City of Saskatoon's VISUM model outputs

Figure D-3 ~ 2012 and 2029 Forecasted Volumes Development Methodology







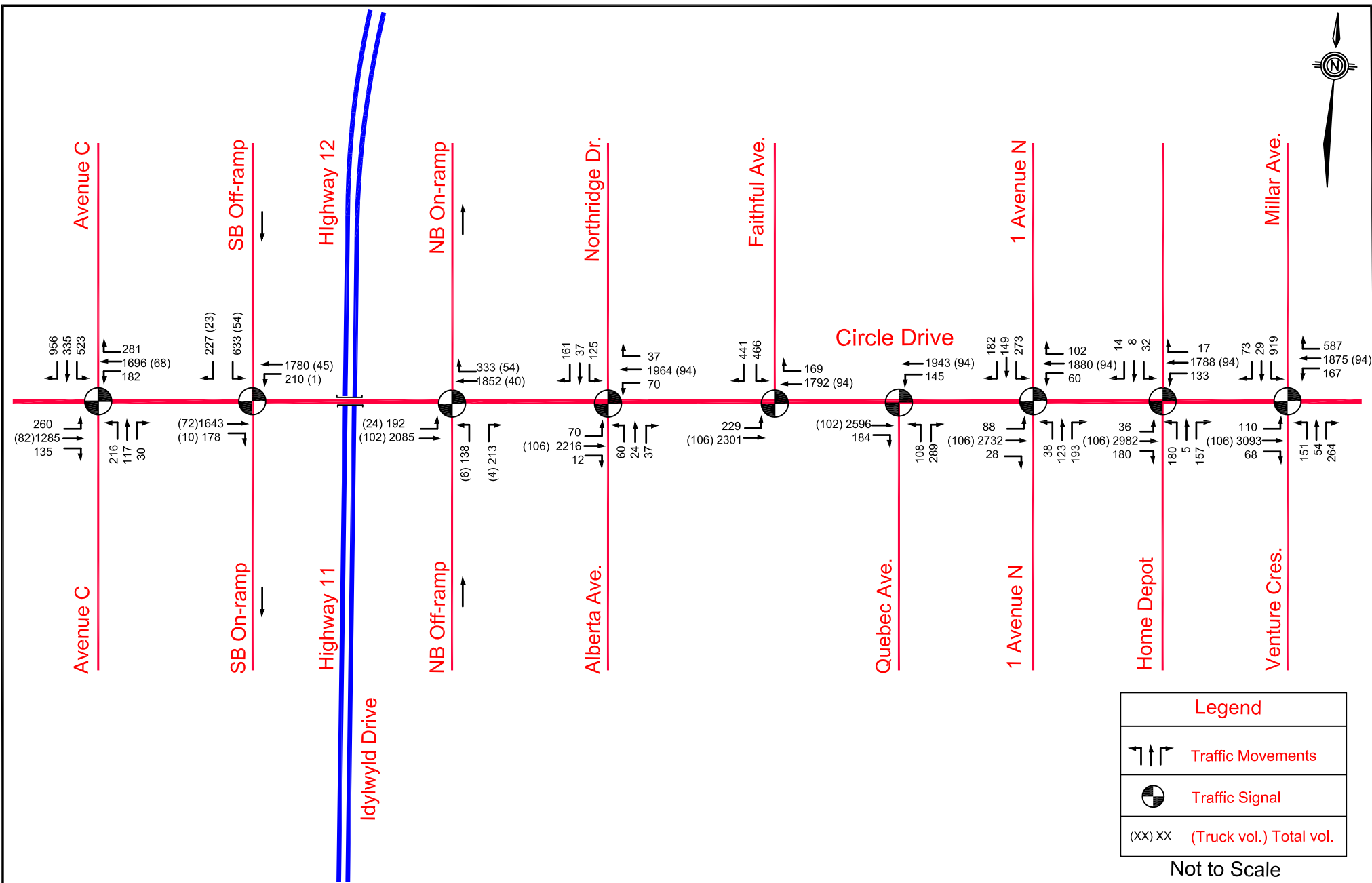
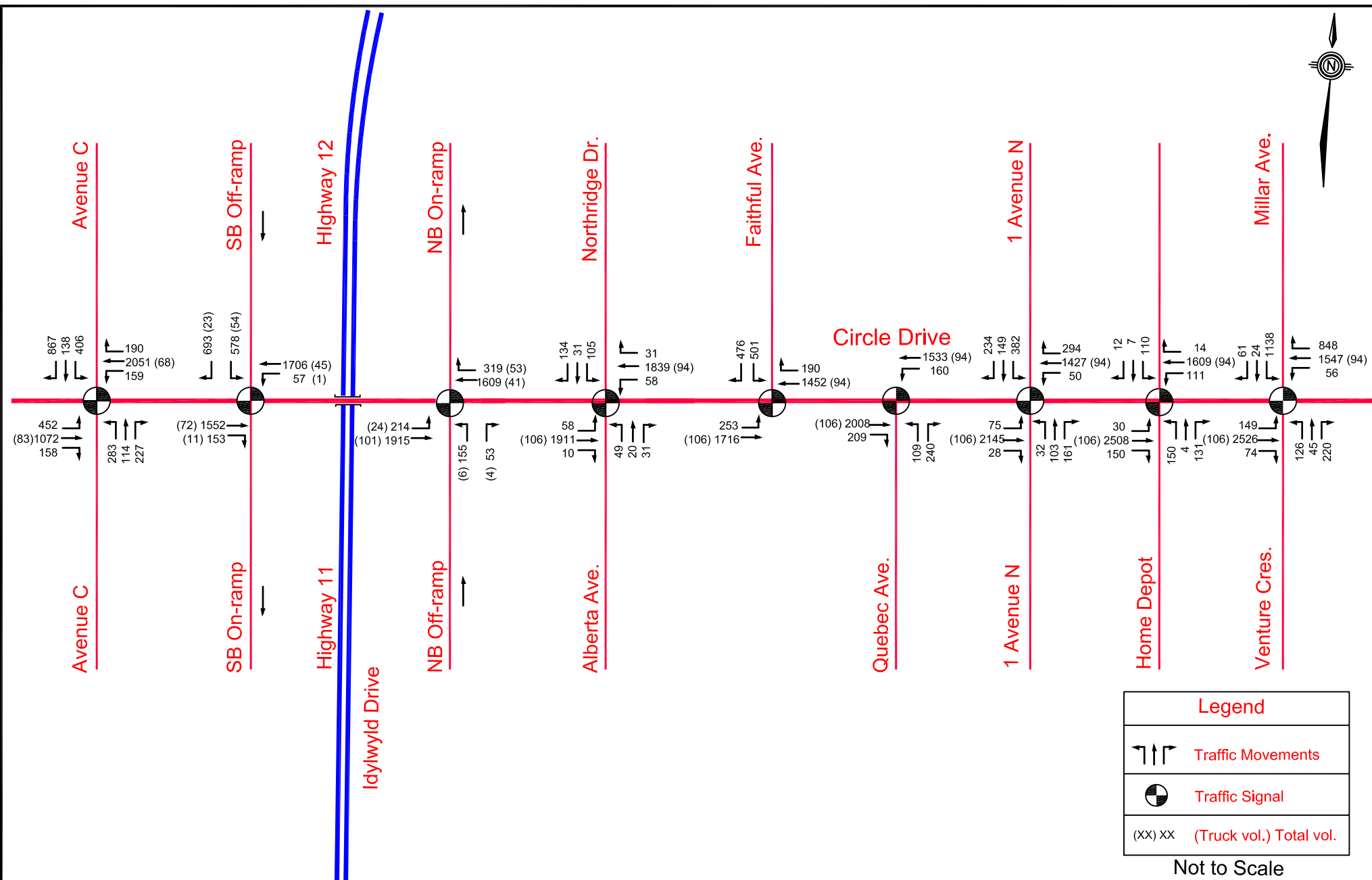


Figure D-7 ~ 2029 Projected Volumes, PM Peak Hour (High Estimate)



Appendix E ~ Development of Truck Trip Table

Truck Trip Table Development

Volumes

The analysis of truck traffic patterns was based on truck data provided by the Saskatchewan Department of Highways and Infrastructure (MHI) through the City that provided annual average daily traffic (AADT) and truck annual average daily traffic (TAADT) volumes for counting stations along major routes in and around the City. Selected data for the 0162200MDA and B stations provided truck data on Idylwyld Drive for the years 2002 and 2006. Similar data was provided for 2009 as summarized in Table 1.

Table 1: Annual Traffic Volumes (Auto and Truck) on Idylwyld Drive, North of Circle Drive for the years 2002 – 2009.

Year	AADT(2W) (veh/d)	TADT (NB) (veh/d)	TADT (SB) (veh/d)
2002	35,382	472	944
2006	32,951	630	1,623
2009	28,610	1,600	1,660

Data for 2009 truck movements on the northbound on and southbound off ramps from/to Circle Drive respectively had daily truck volumes of 1,040 veh/d and 870 veh/d respectively. Using these data, daily truck movements in 2009 were developed for all ramps from Idylwyld Drive at Circle Drive (see Figure 1). These 24-hour volumes were compared to the peak hourly observed truck movements and appropriate 'k' factors developed. Generally, peak hour to daily factors for trucks were found to be in the range of 0.065 – 0.077. These factors were then applied to develop daily and/or hourly truck volumes that were not readily available from the count data. The PM peak hourly and daily truck volumes are summarized together in Figure 1.

Through - Local

Origin - destination data from roadside surveys conducted in June, 1999 were consulted to determine the through and local proportions of traffic using Idylwyld Drive north of Circle Drive.¹ Table 2 summarizes the results.

Table 2: Through and Local Truck Proportions, Idylwyld Drive, North of Circle Drive²

Route	Total Daily Traffic	Daily Heavy Truck Traffic	Percent Through (all vehicles)	Daily Through Trucks
Hwy 12	8175	873 (31.8%)	3.0	26
Hwy 11 North	5610	769 (28.0%)	5.4	42
Hwy 16 West	5294	1102 (40.2%)	18.3	202
		2,744 (100.0%)		270

Overall, the through proportion of truck movements in the northern part of the City using Idylwyld Drive is estimated to be approximately 9.8 percent (270/2744). For this study, is assumed that up to 10 percent of the truck traffic on the study area roads if classed as through truck traffic, i.e., trucks not having either an origin or destination within the study area.

In 2011 the City will be implementing restrictions on truck movements on Idylwyld Drive where only local trucks will be permitted on this facility. As noted on Figure 2, of the 72 trucks/h and 45 trucks/h southbound and northbound on Idylwyld Drive south of Circle Drive, 65 and 41 trucks/h are estimated to be serving the local, or Saskatoon area. The remaining 7 and 4 southbound and northbound trucks respectively are classed as through trucks which would be affected by the local truck restriction. These trucks would divert to Circle Drive in a pattern similar to the existing pattern.

¹ Assumes contributions from the Hwy. 12, Hwy. 11 North and Hwy. 16 West stations in the roadside survey.

² Source: Auto and Truck Daily volumes from Table 1, Section 2 of the 2001 Long Term Transportation Planning Study; Through / Local truck proportions from Table 10, Section 2.3 of this same study.

Overall, it is estimated that between 9 – 10 percent of the southbound and northbound trucks currently using Idylwyld Drive may divert to Circle Drive when the ‘local traffic only’ restriction is imposed by the City.

Using the estimates for local – local truck traffic interchanges and the internal – external and external – internal truck tables contained in Appendix C of the Long Term Planning Study, a composite truck trip table for 2012 was developed and is contained in Appendix A. This table incorporates a future growth rate of approximately 2.3 percent per annum³ in expanding the 2009 observed truck volumes and the 1999 truck non-local truck trip table to a forecast for the year 2012.

South River Crossing

The base year for traffic analysis in this study has been taken as the year 2012. This year was selected to be consistent with the scheduled opening of the south river crossing. In preparing forecasts for this base year, two approaches have been taken:

1. Scale back the auto traffic inputs to the 300,000 population level VISUM model to an equivalent 2012 level, combine with the forecast 2012 truck trip table and re-run the model to obtain 2012 traffic assignment of autos and trucks;
2. Scale the observed 2009 volumes on Circle Drive to the equivalent 2012 volumes, using traffic growth rate derived from historical counts and adjust these volumes for the effect of the local traffic only restriction on Idylwyld Drive and for the south river crossing.

³ Assumes a 2006 population of 200,000 and a 2012 population of 230,000, yielding a compound annual growth rate of approximately 2.36 percent.

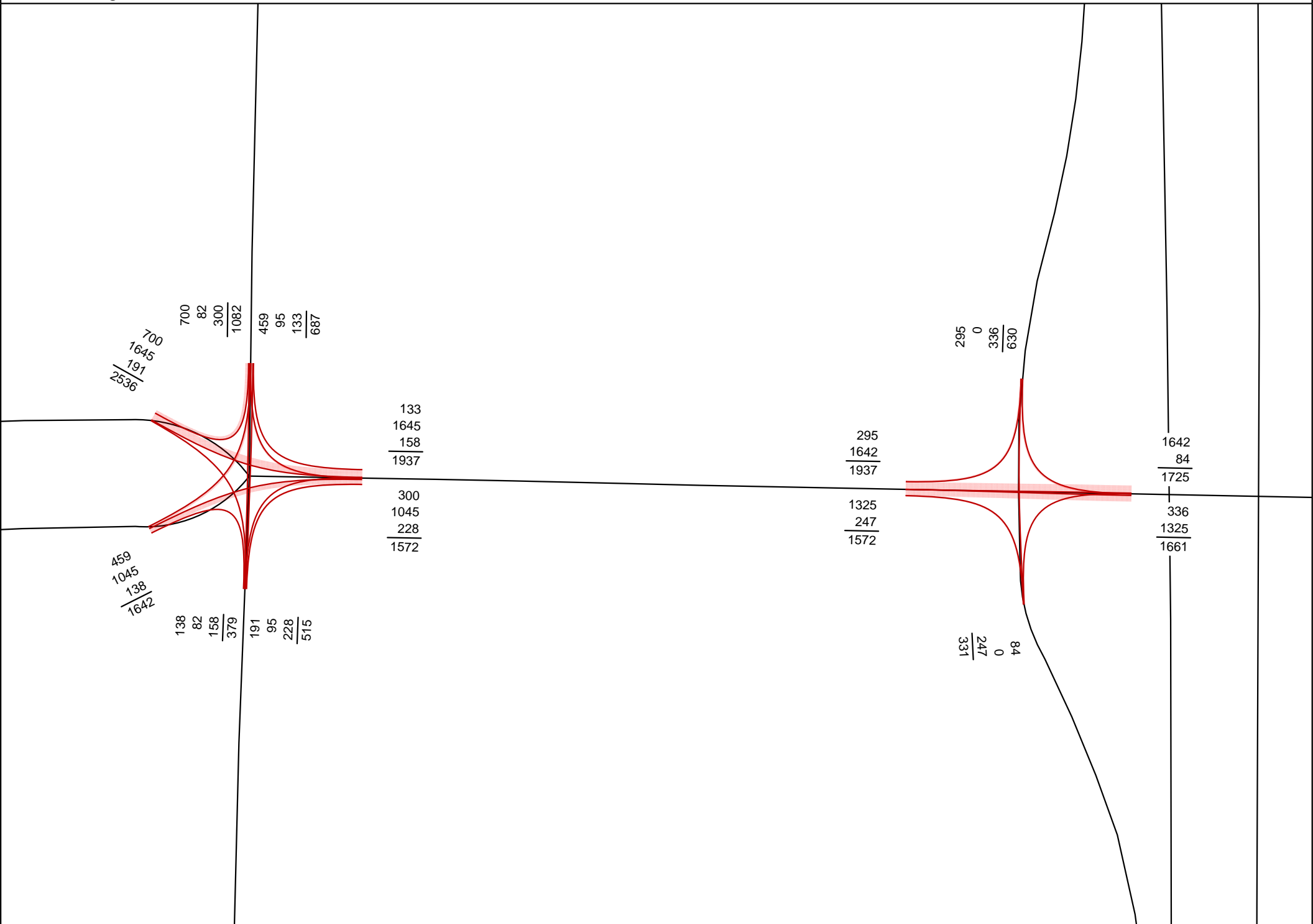
Based on the second approach, the effect of the south river crossing will be to divert approximately 400 southbound and 300 northbound vehicles during the p.m. 2-hour peak period, or approximately 300 southbound and 200 northbound vehicles per hour in the PM peak hour to Circle Drive west link. This estimate is based on 100 percent of the traffic to/from Hwy. 219 South and 50 percent of the traffic to/from Hwy. 11 South diverting to the west section of Circle Drive and the south River Crossing. This traffic is assumed to be taken from Idylwyld Drive (50 percent) and Circle Drive east link (50 percent). Approximately 6 trucks/h southbound 5 trucks/h northbound are expected to divert to the west Circle Drive route, based on the truck trip table derived from the count data.

Appendices

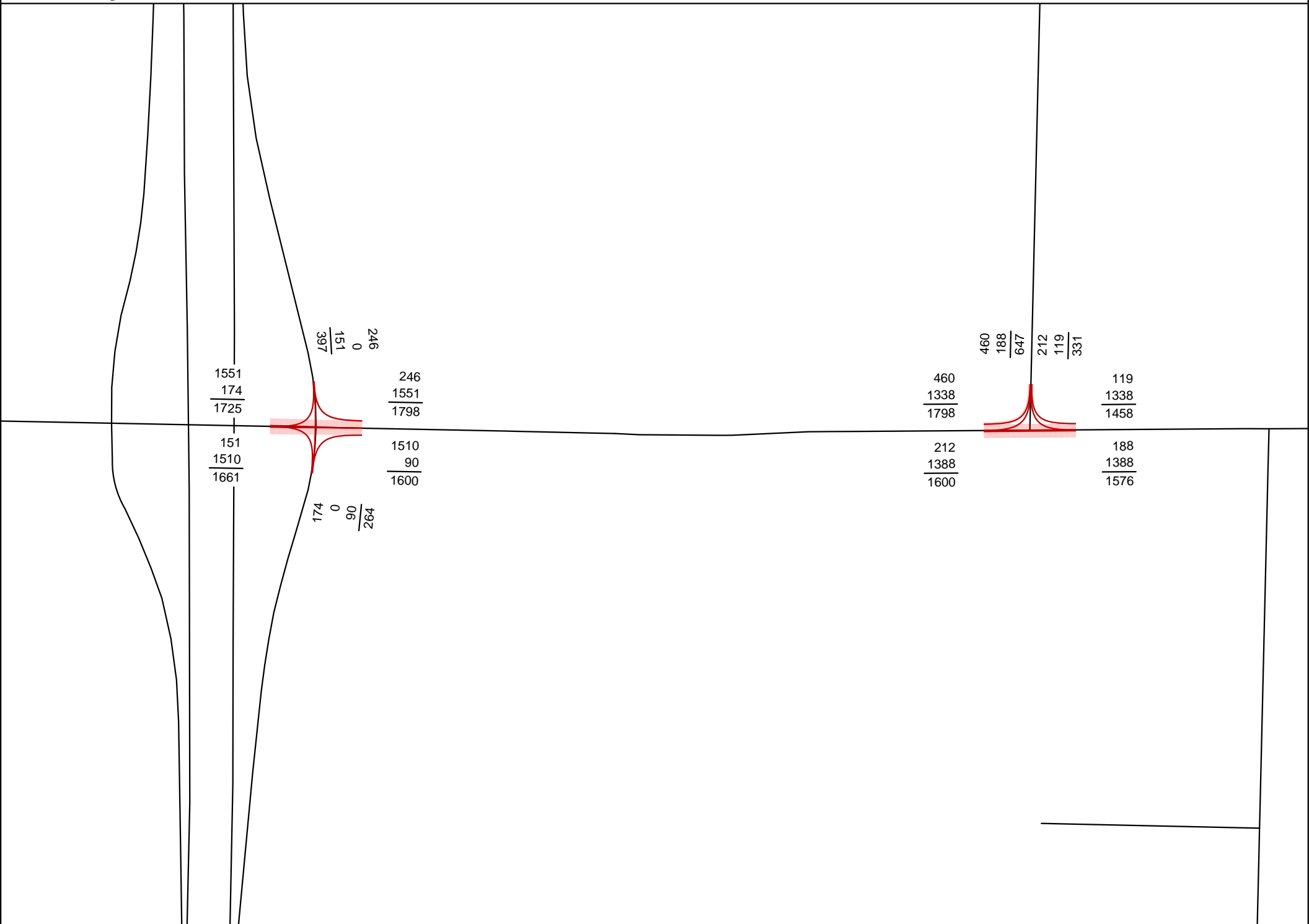
A – 2012 P.M. Peak Hour Truck Trip Table (With South River Crossing Diversion)

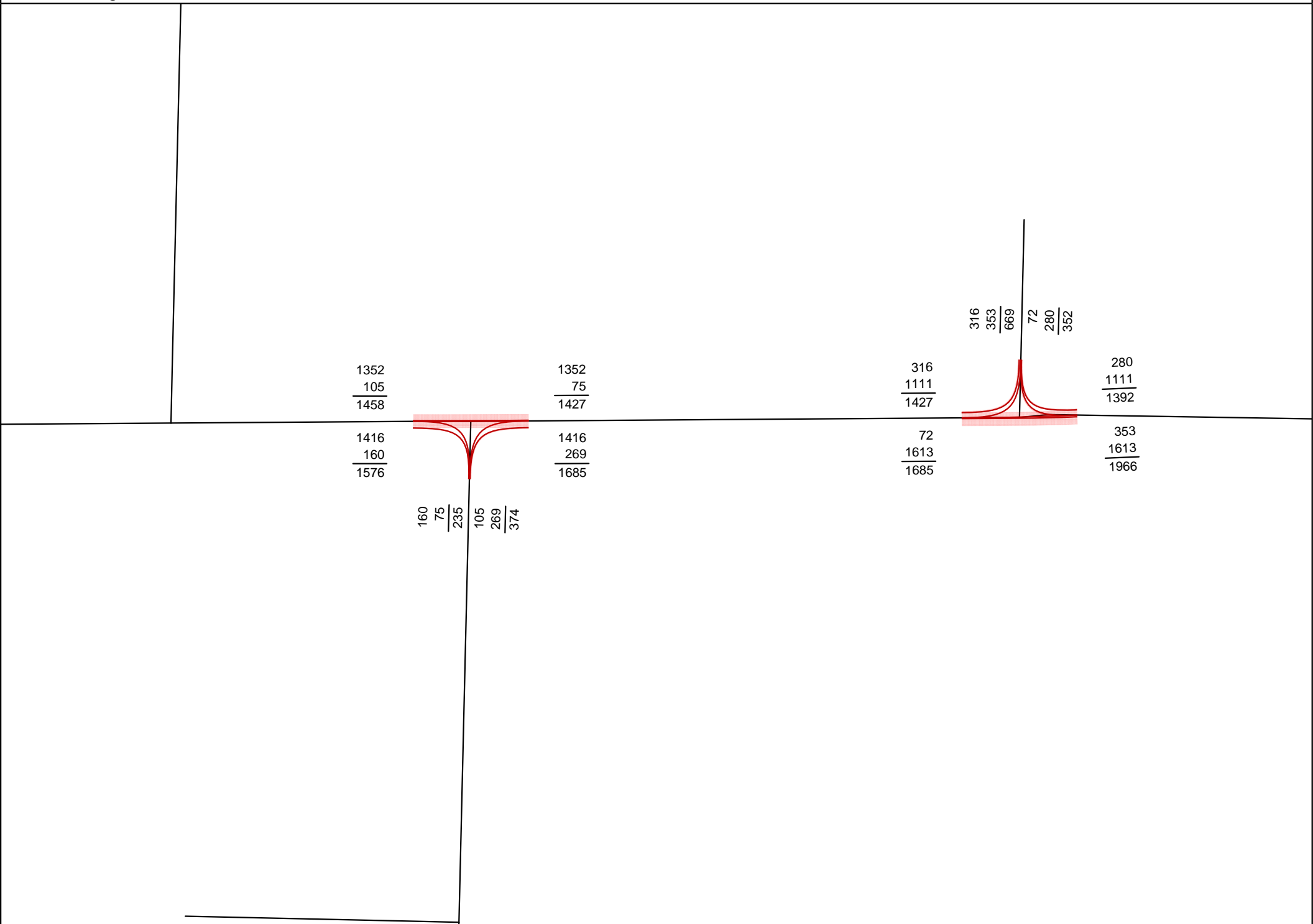
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
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7	17	9	3	4	8	11	0	7	0	1	2	1	1	2	1	0	0	0	0	0	0	0	0	67
8	5	3	1	1	2	3	6	0	0	1	0	1	3	1	0	0	0	0	0	0	0	0	0	28
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Appendix F ~ City of Saskatoon VISUM Model Output Sheets



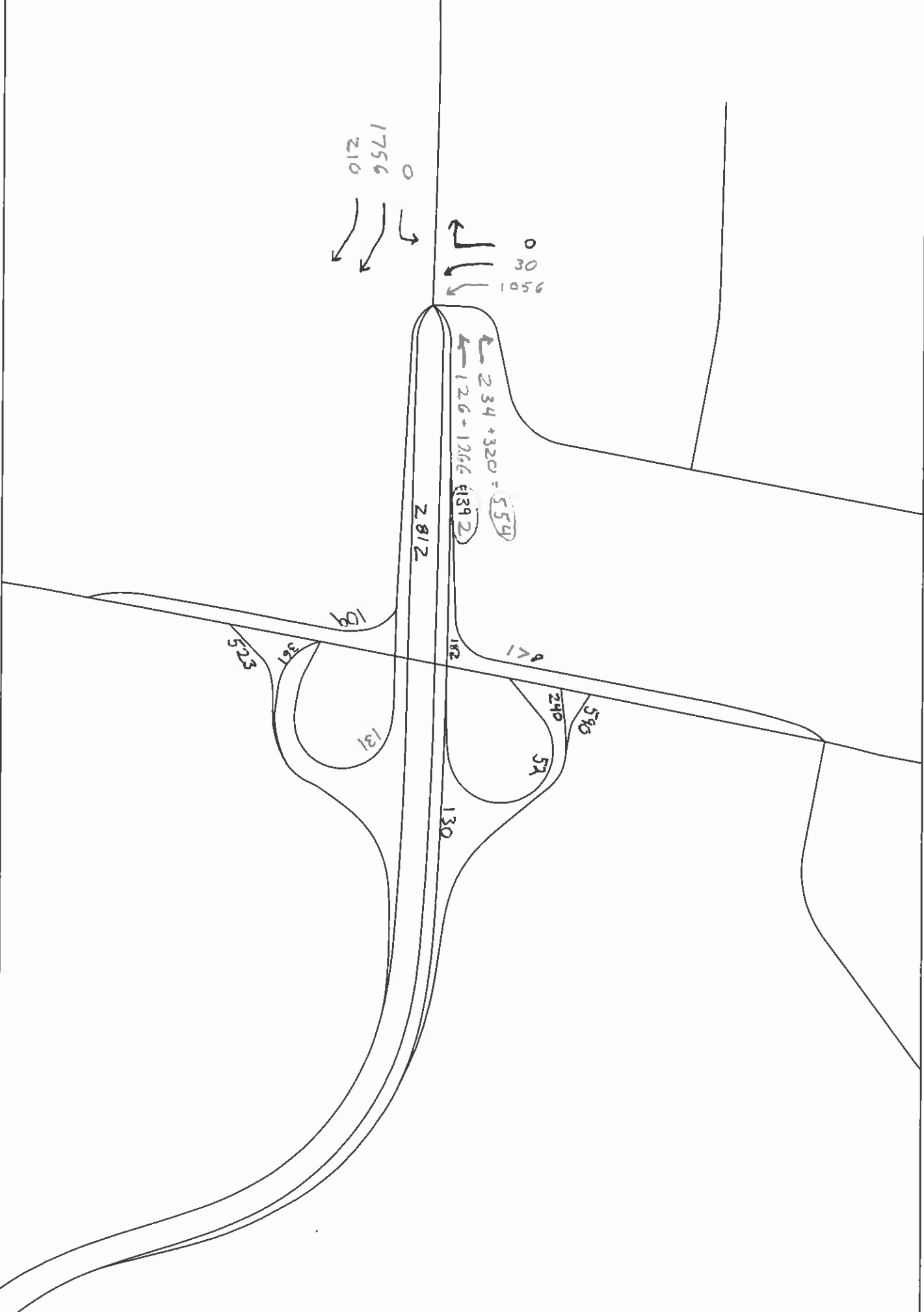
2006 Turning Movement





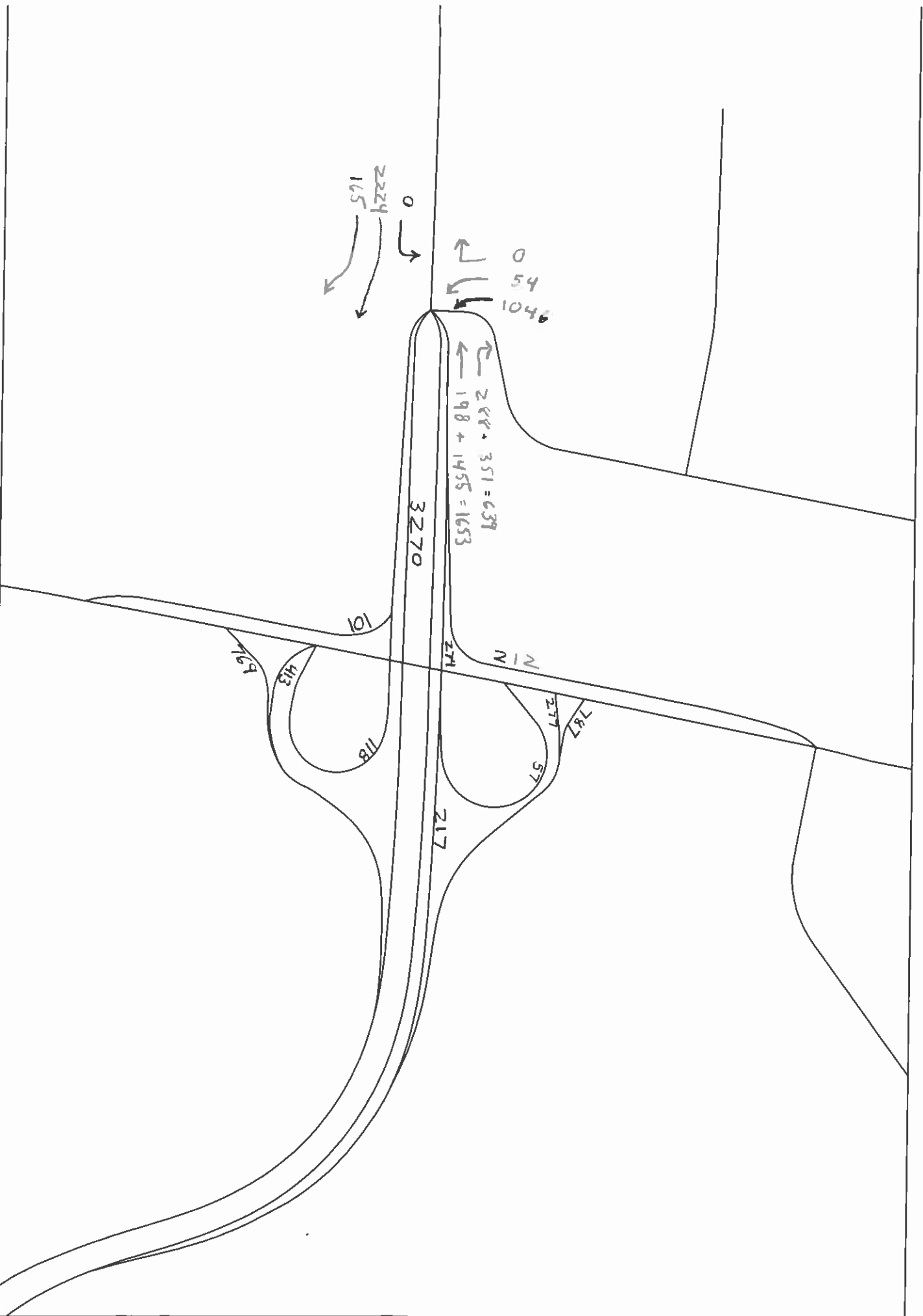
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Turning Movement



2009

0424 Turning Movement



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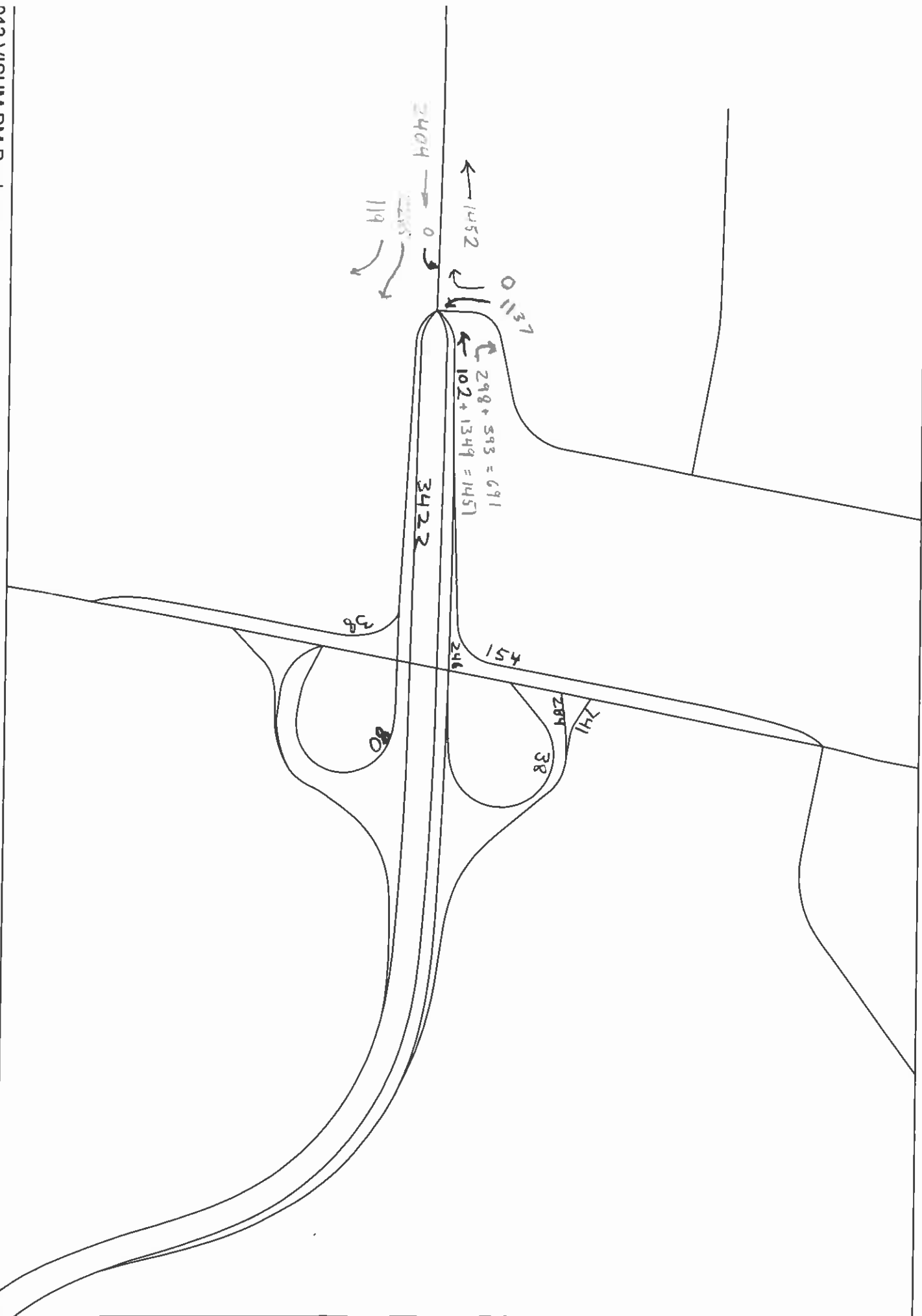
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2012

012 Turning Movement



2029

048 Turning Movement

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116 + 1443 = 1559

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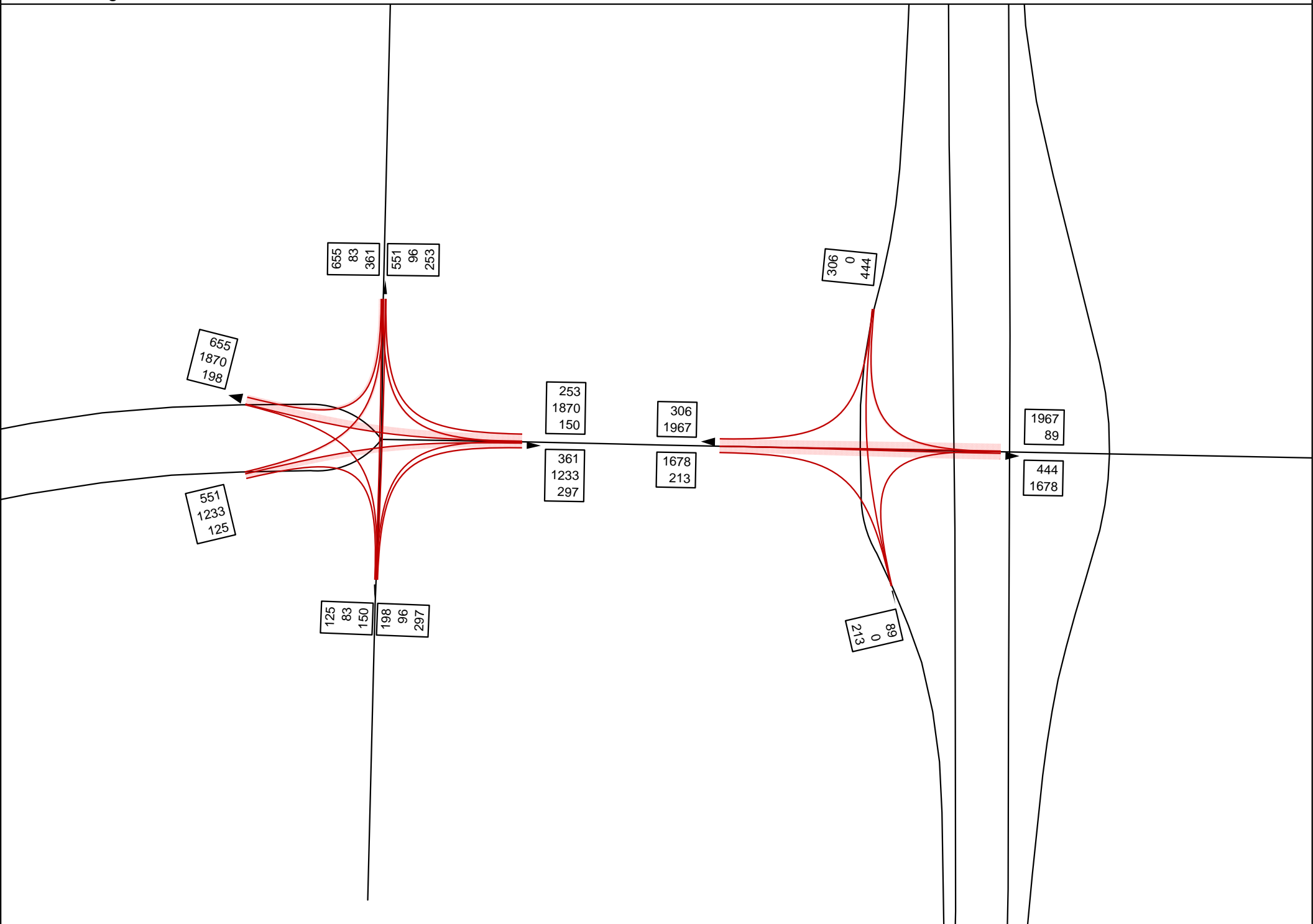
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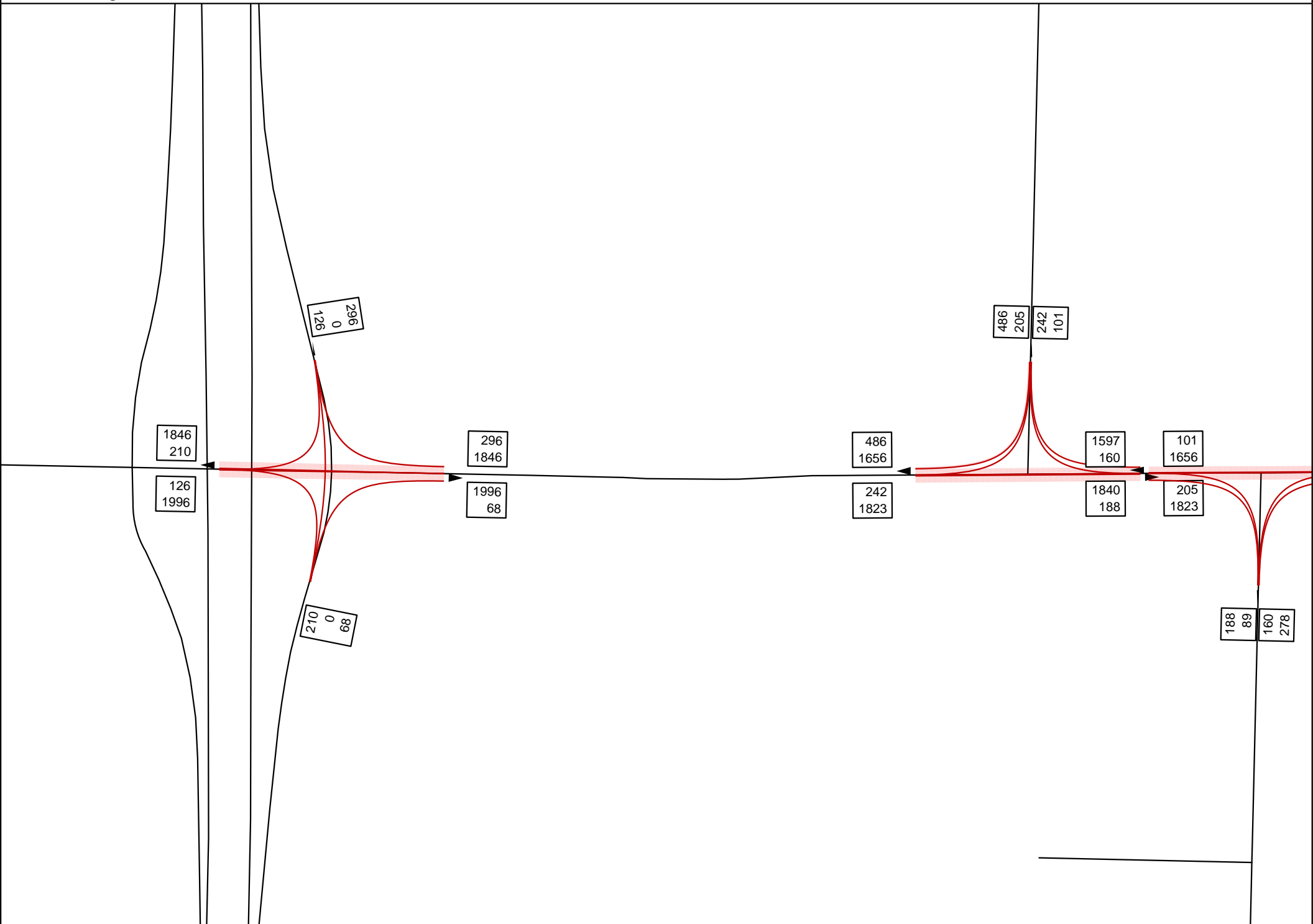
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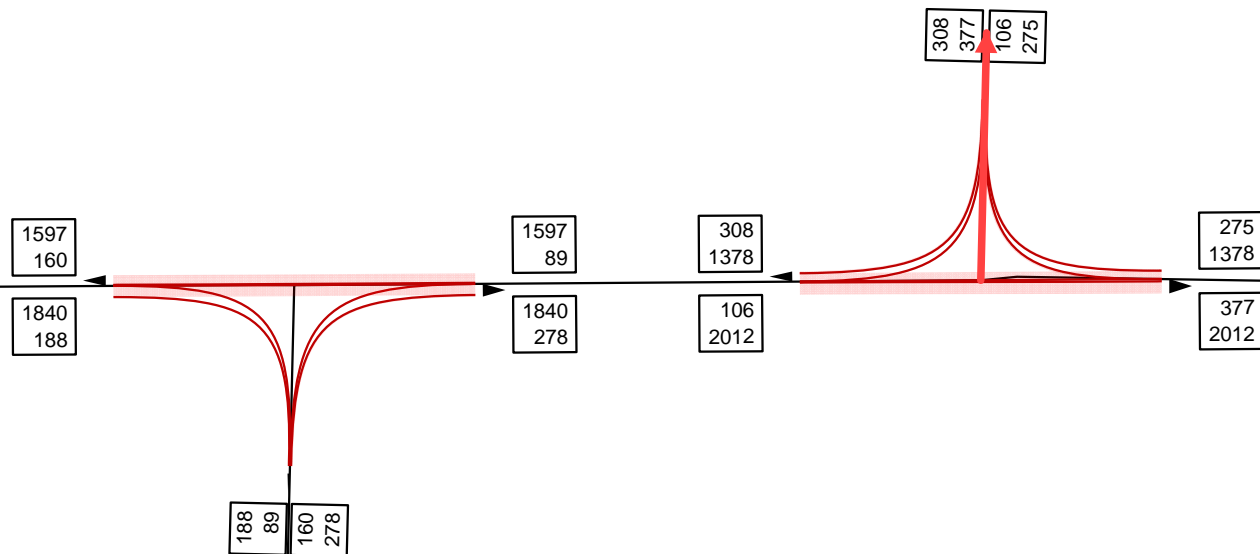
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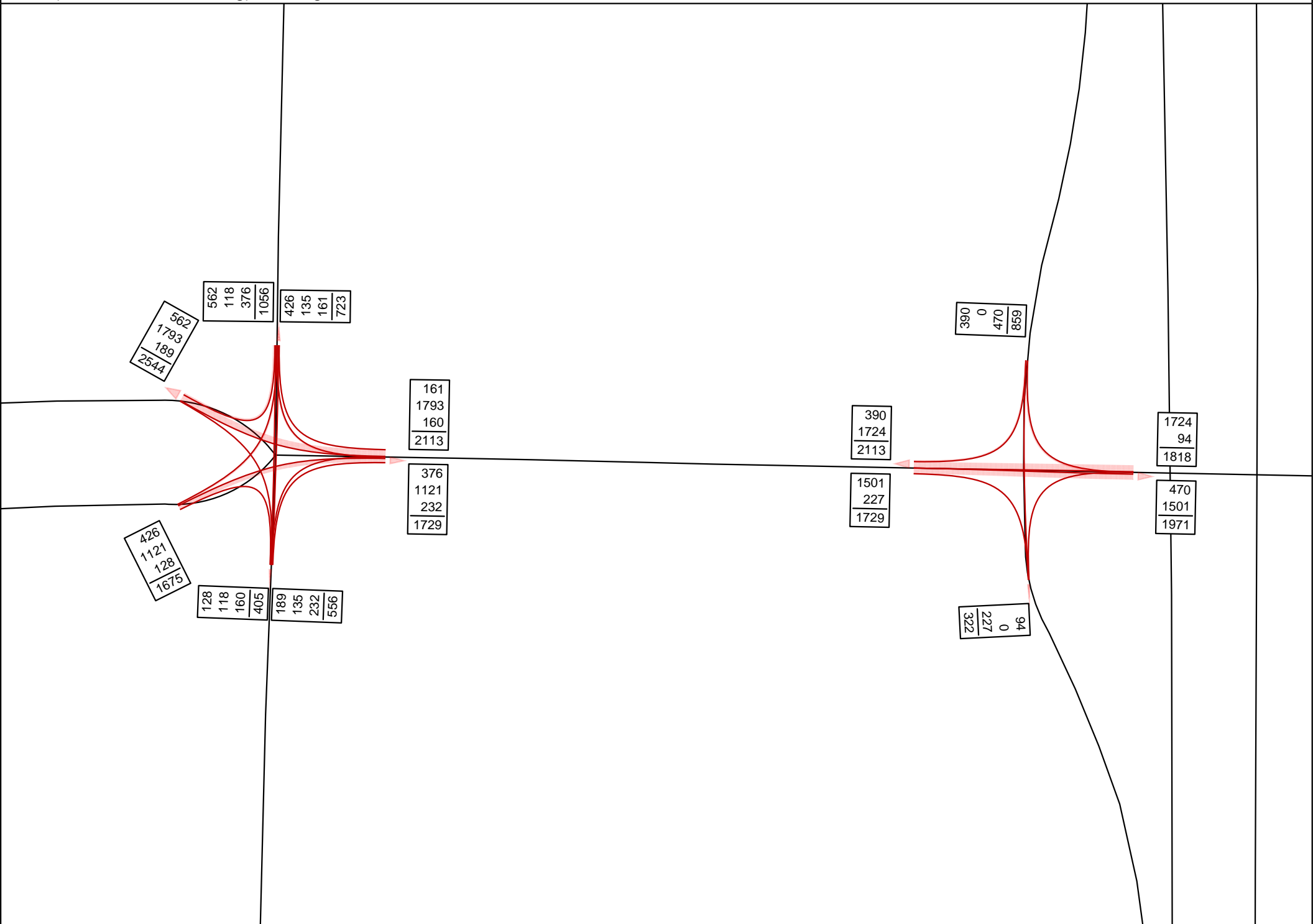
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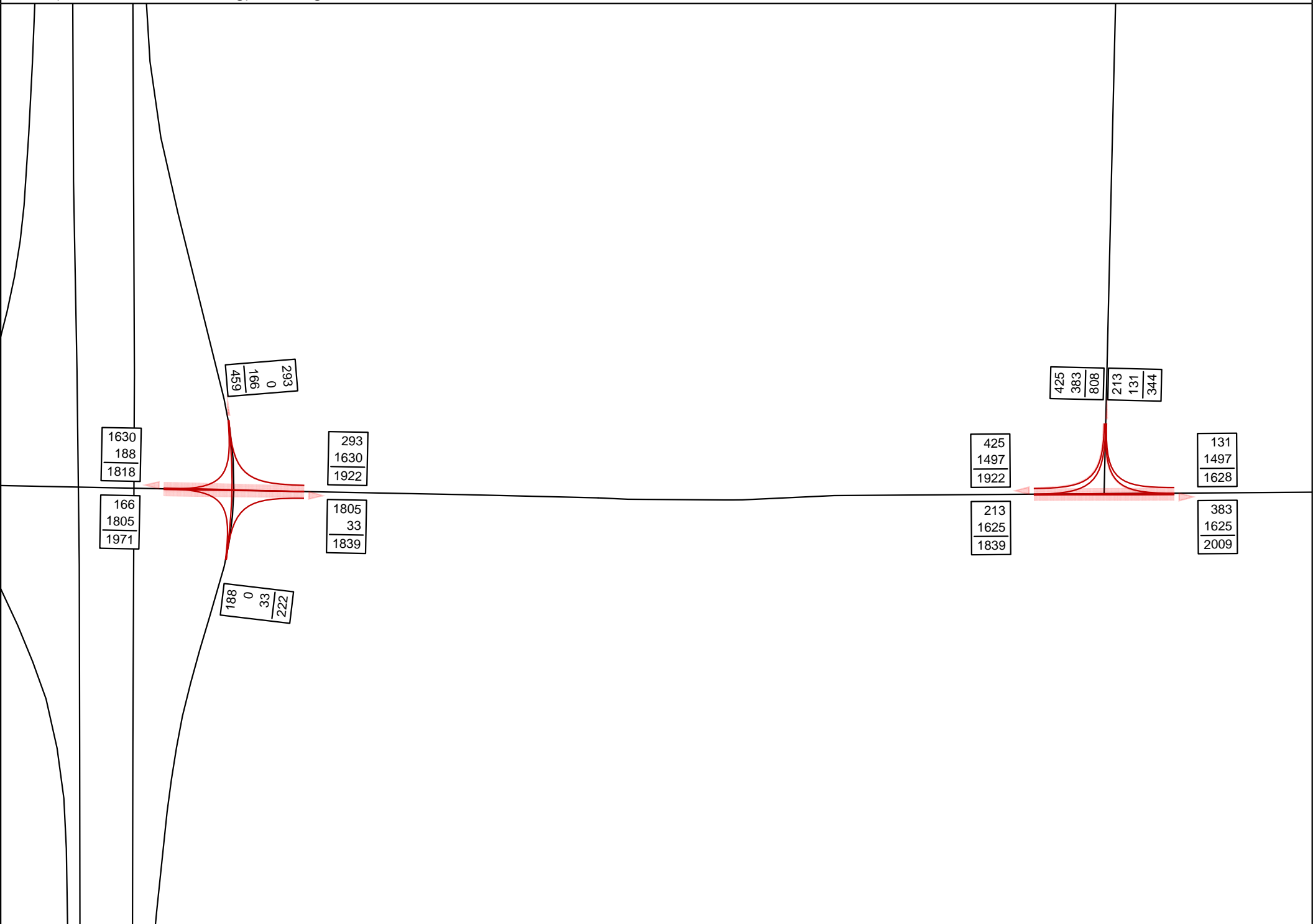
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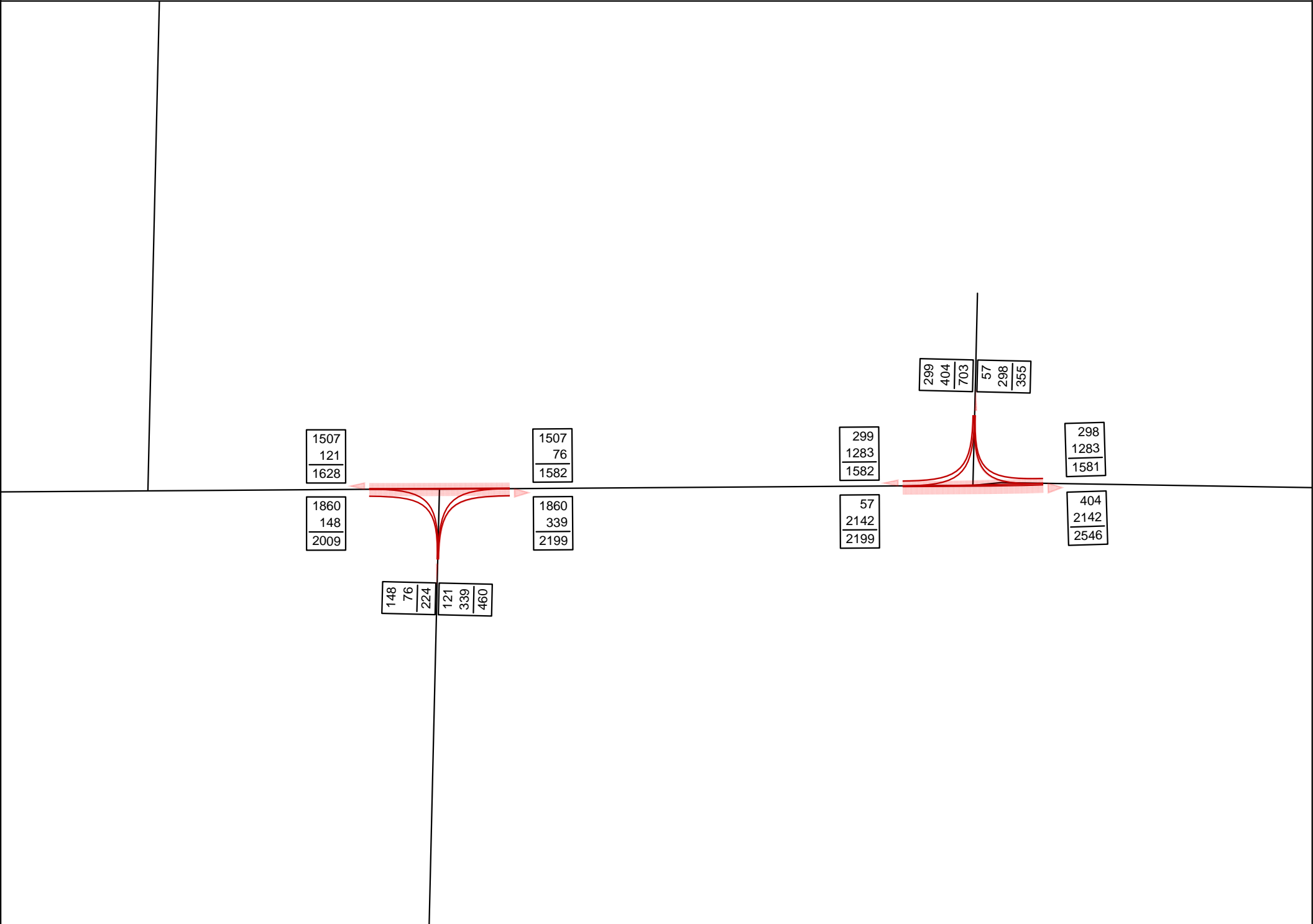






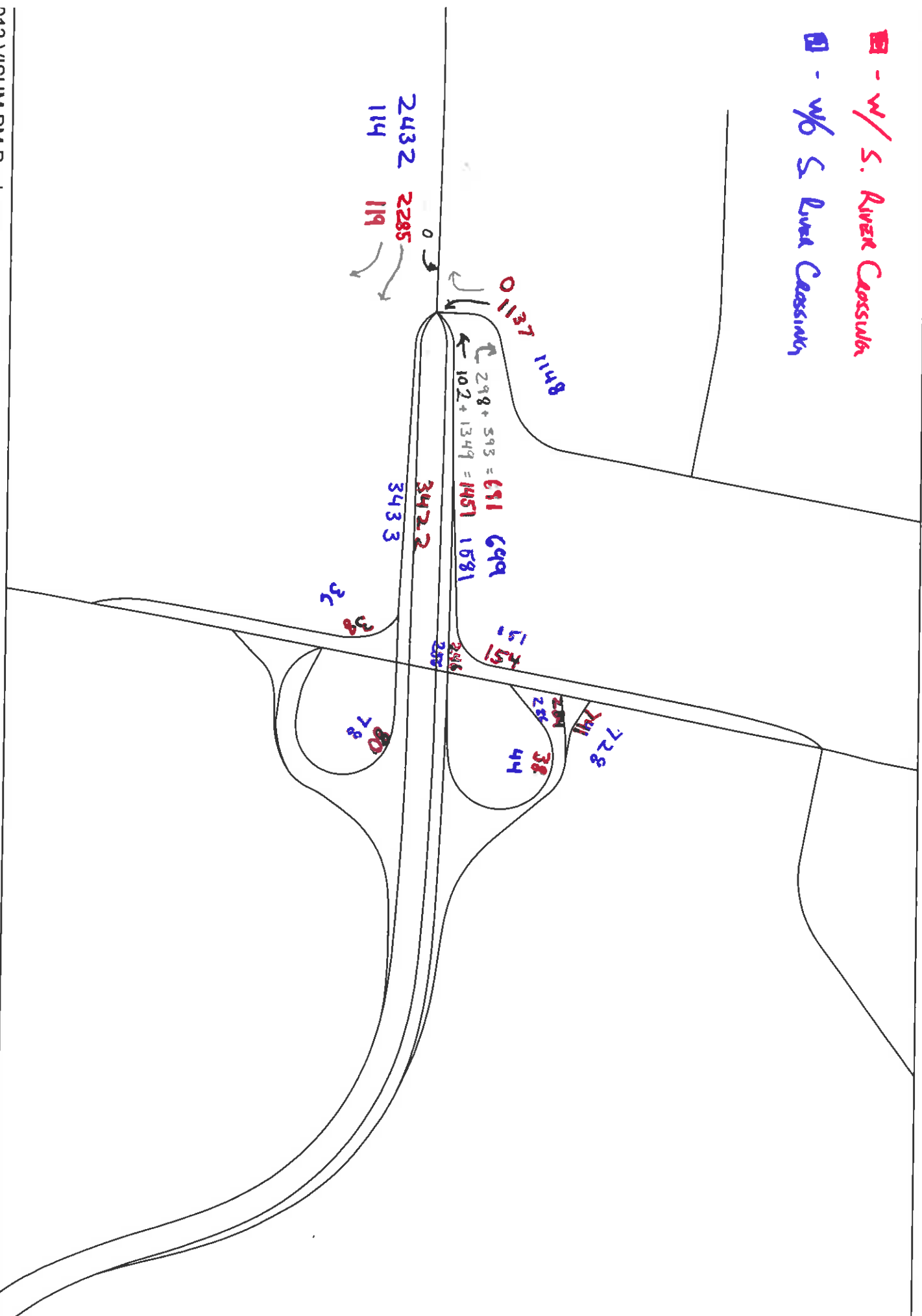


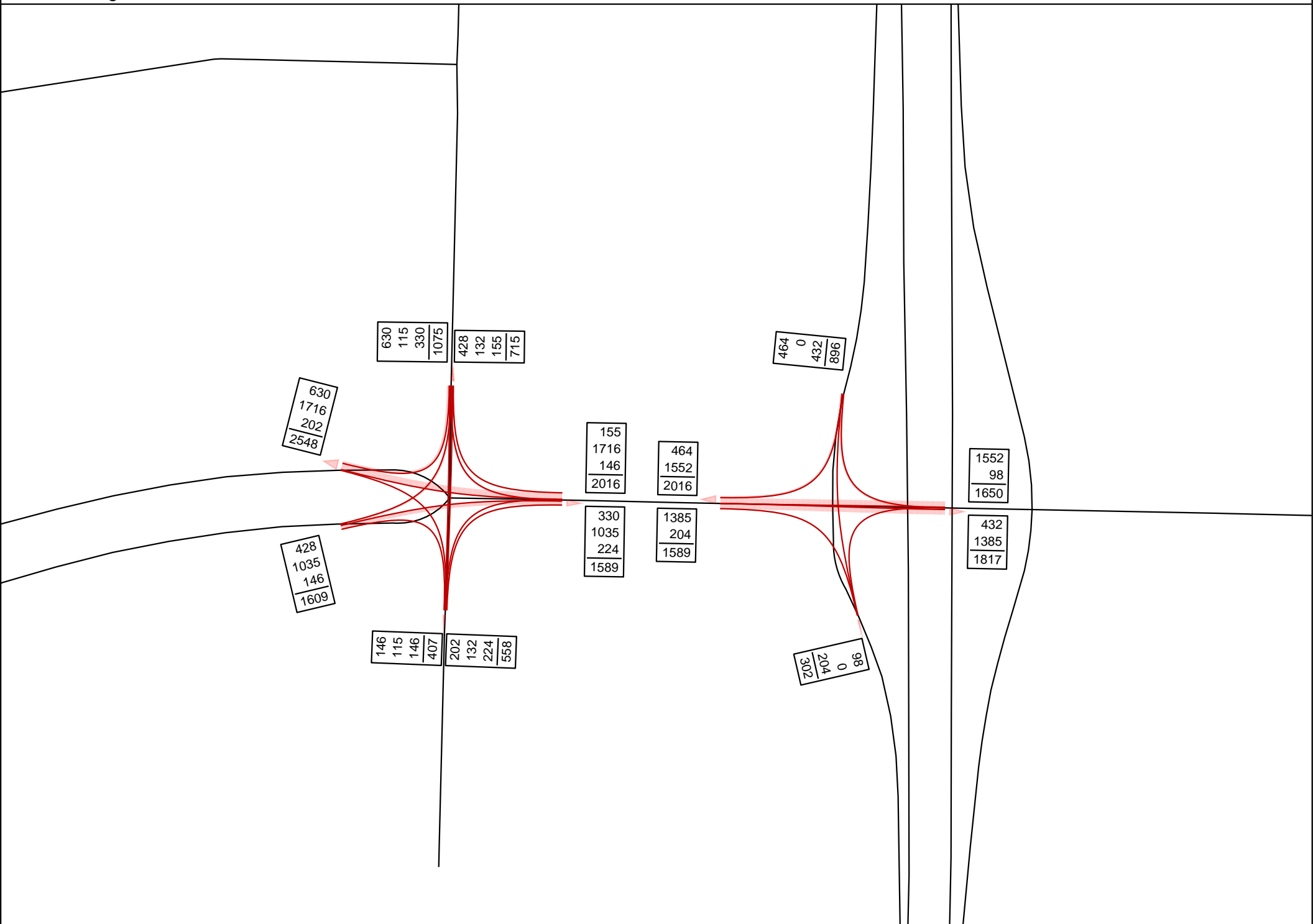


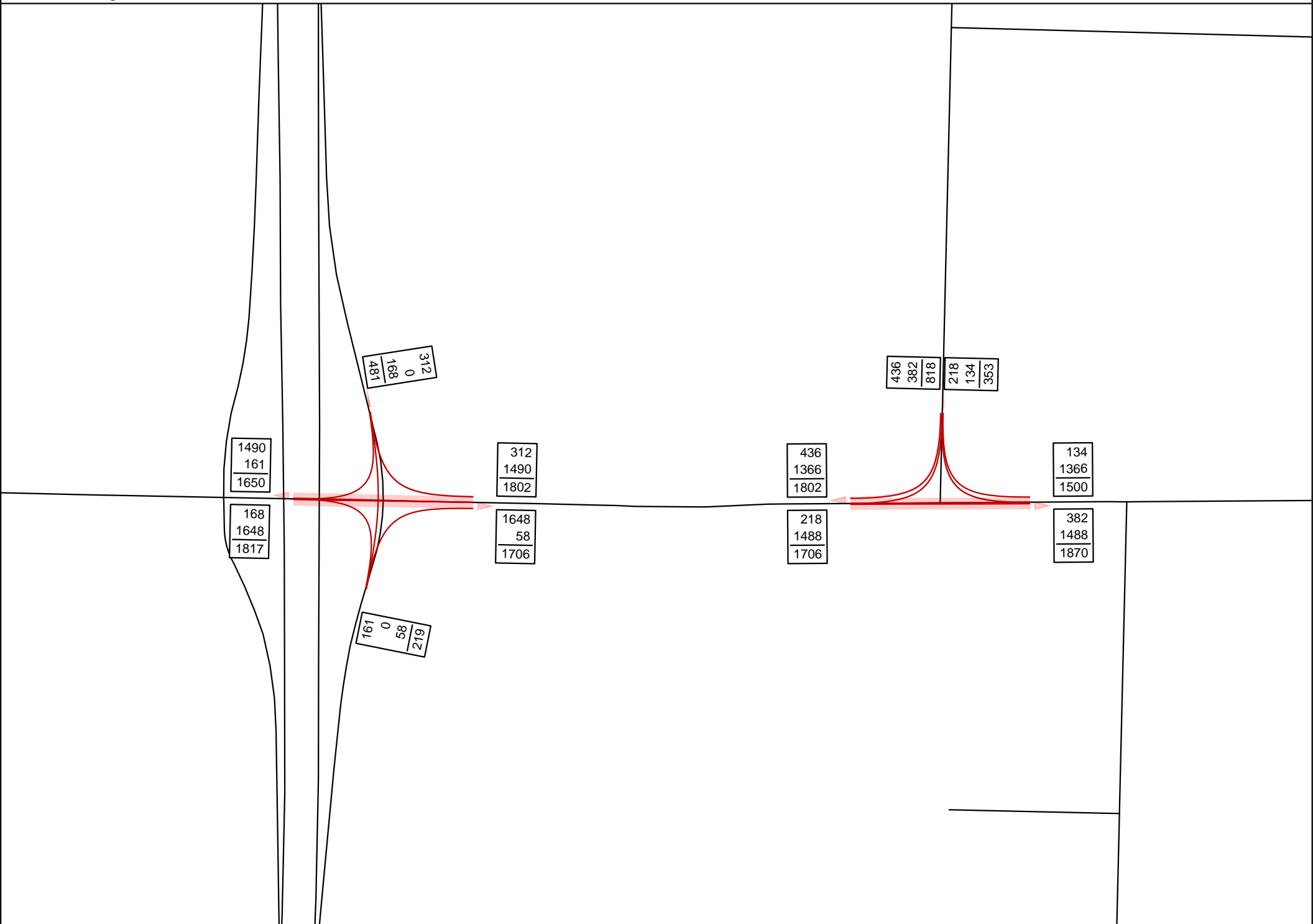


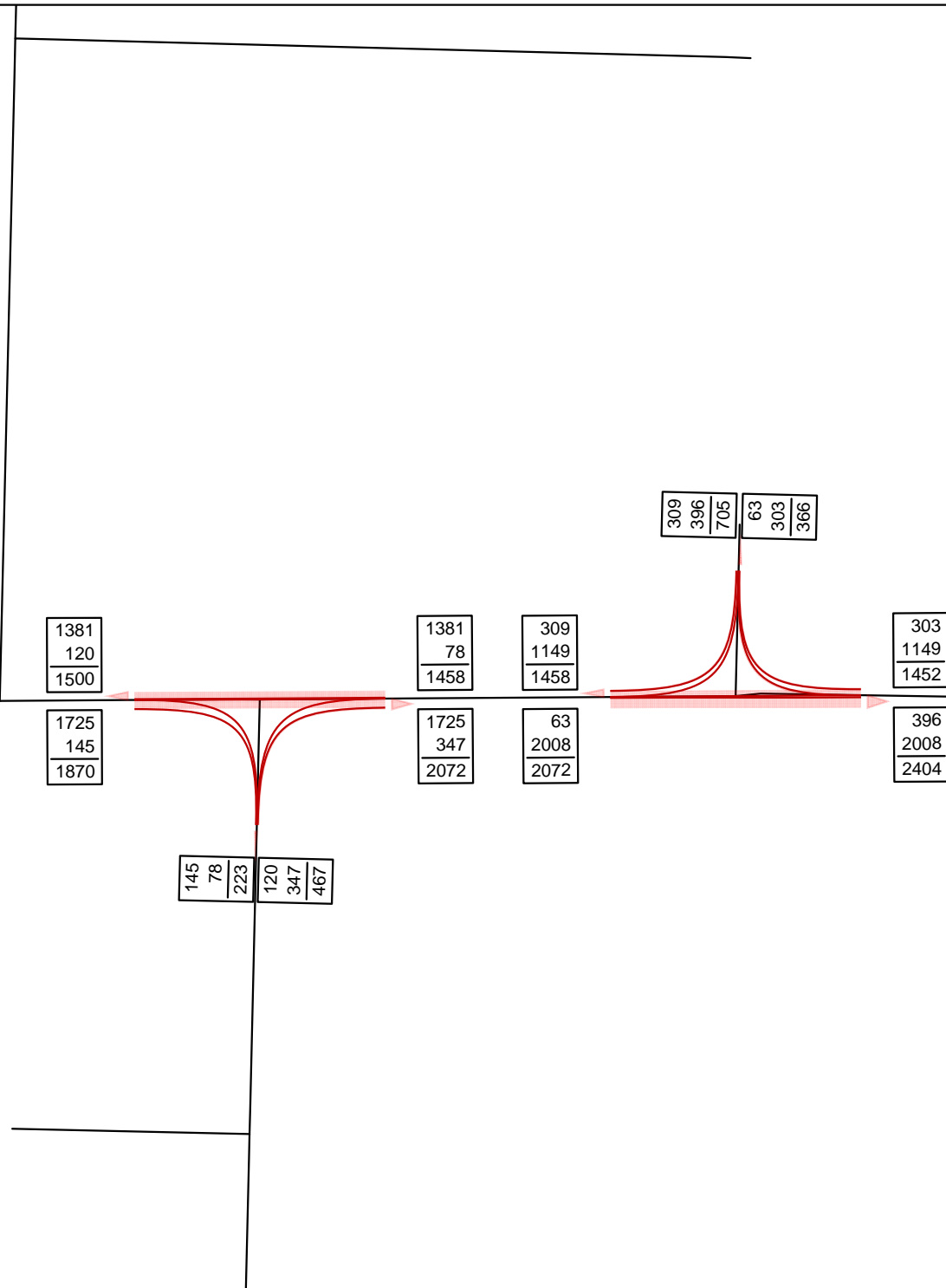
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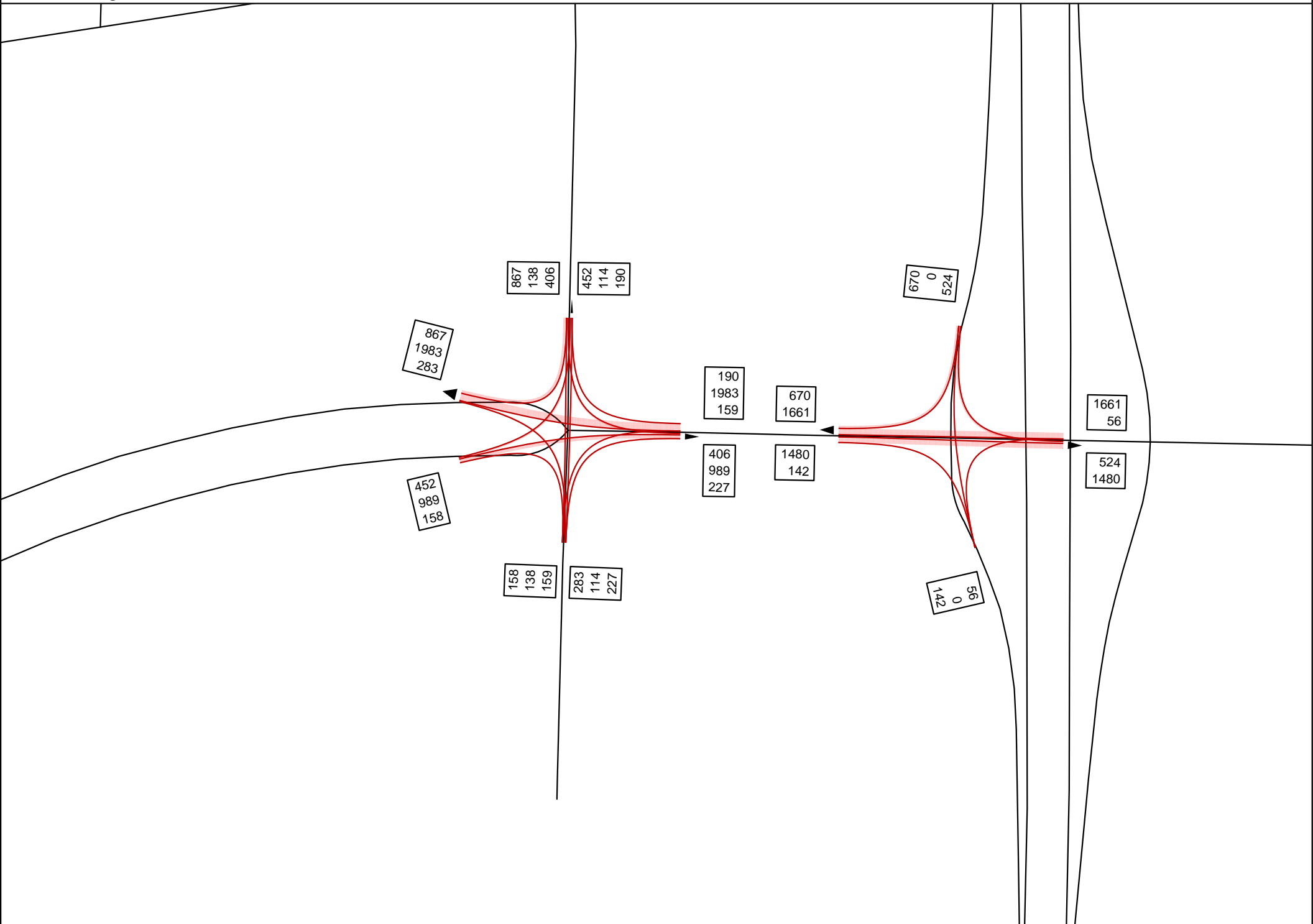
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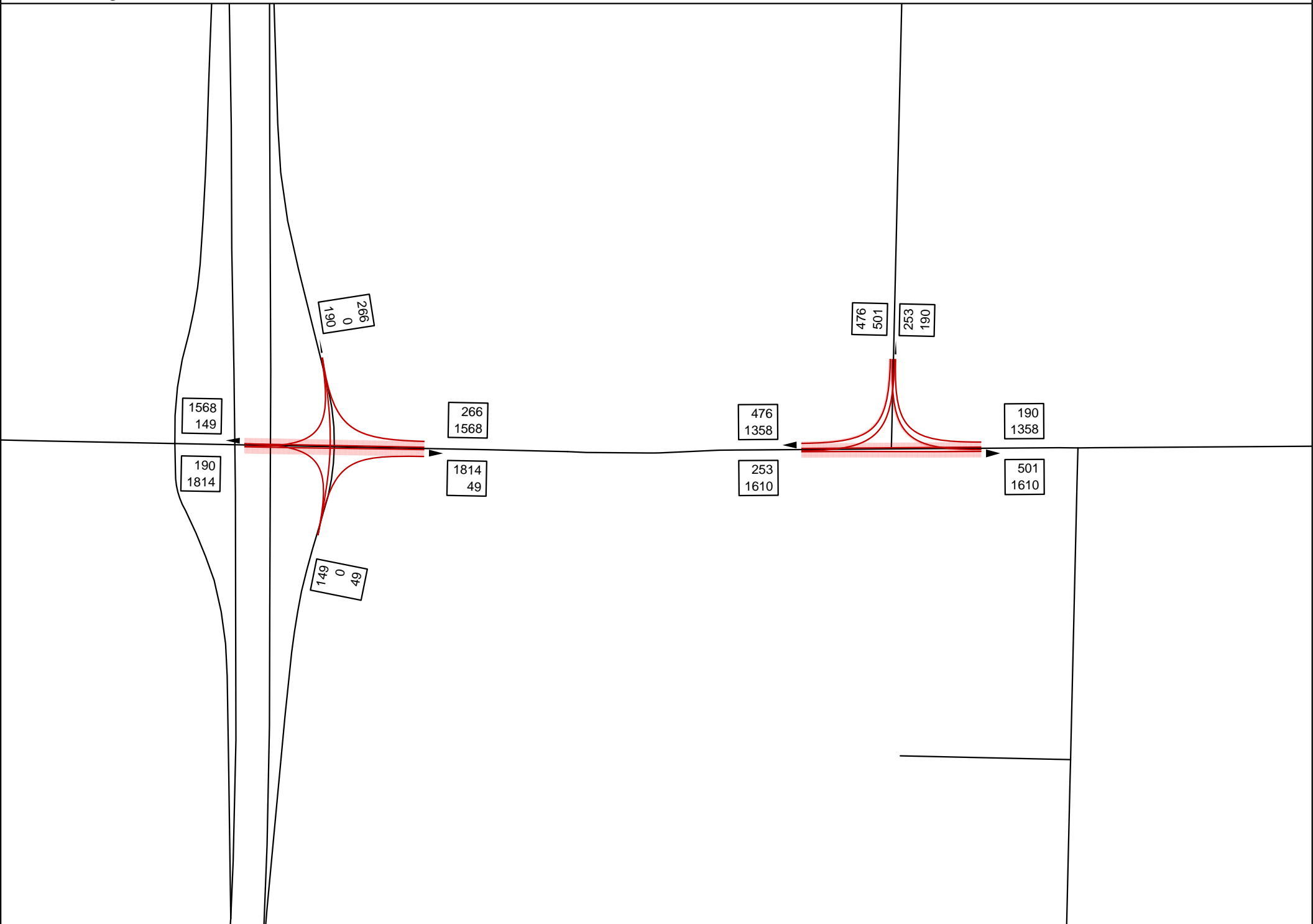


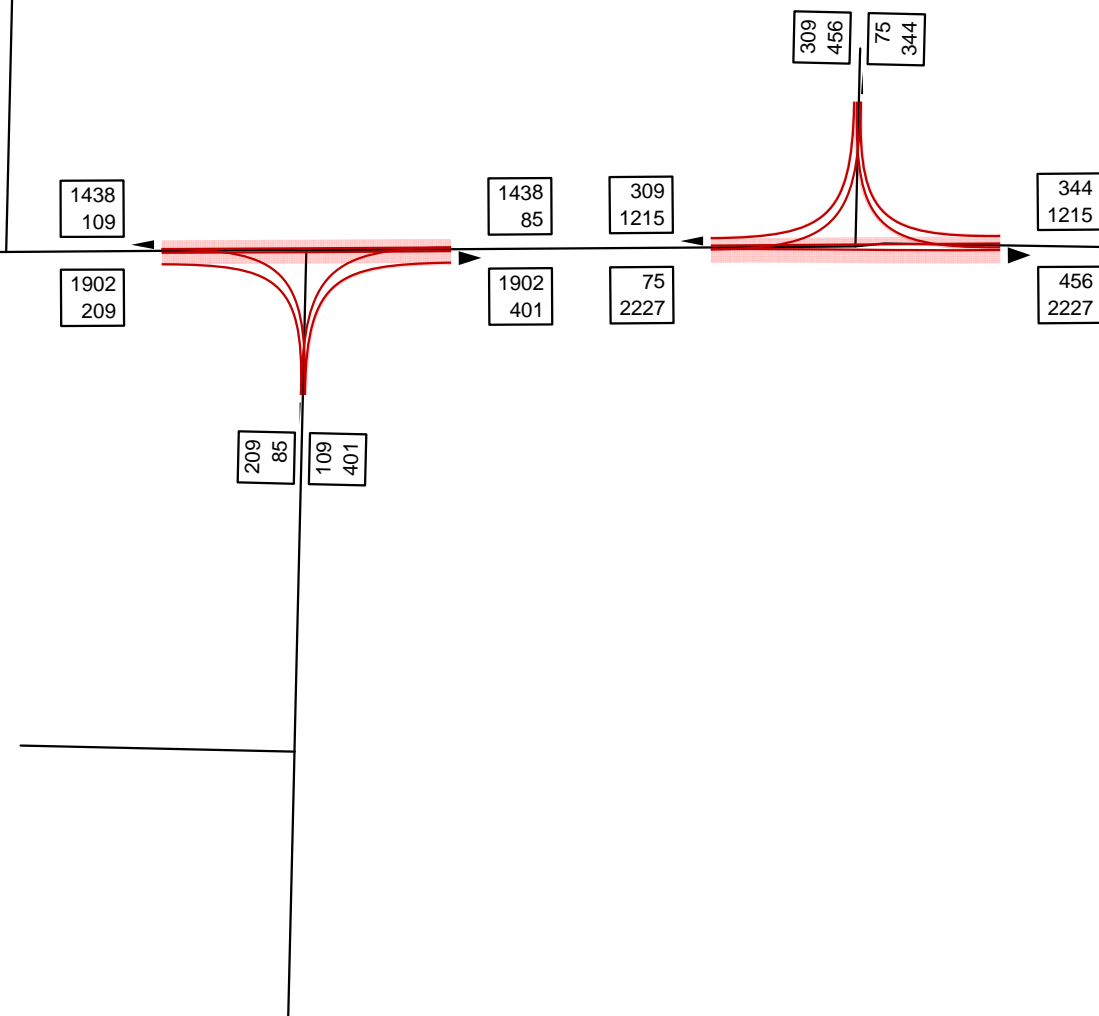












Appendix G ~ Improvement Alternatives

G1 ~ Optimization Alternative



NOTES:

1. USE 3.5m FOR LANE WIDTH WITH A 0.5m CURB UNLESS OTHERWISE NOTED.

2. USE 1.0m FOR BOULEVARD WIDTH AND 1.5m SIDEWALK UNLESS OTHERWISE NOTED.

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Drawn	D.N.	Ch'kd	-	2011/02/16	
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Field Notes

Stamp

TITLE

IDYLWYLD DRIVE & CIRCLE DRIVE
FUNCTIONAL DESIGN

OPTIMUM DESIGN

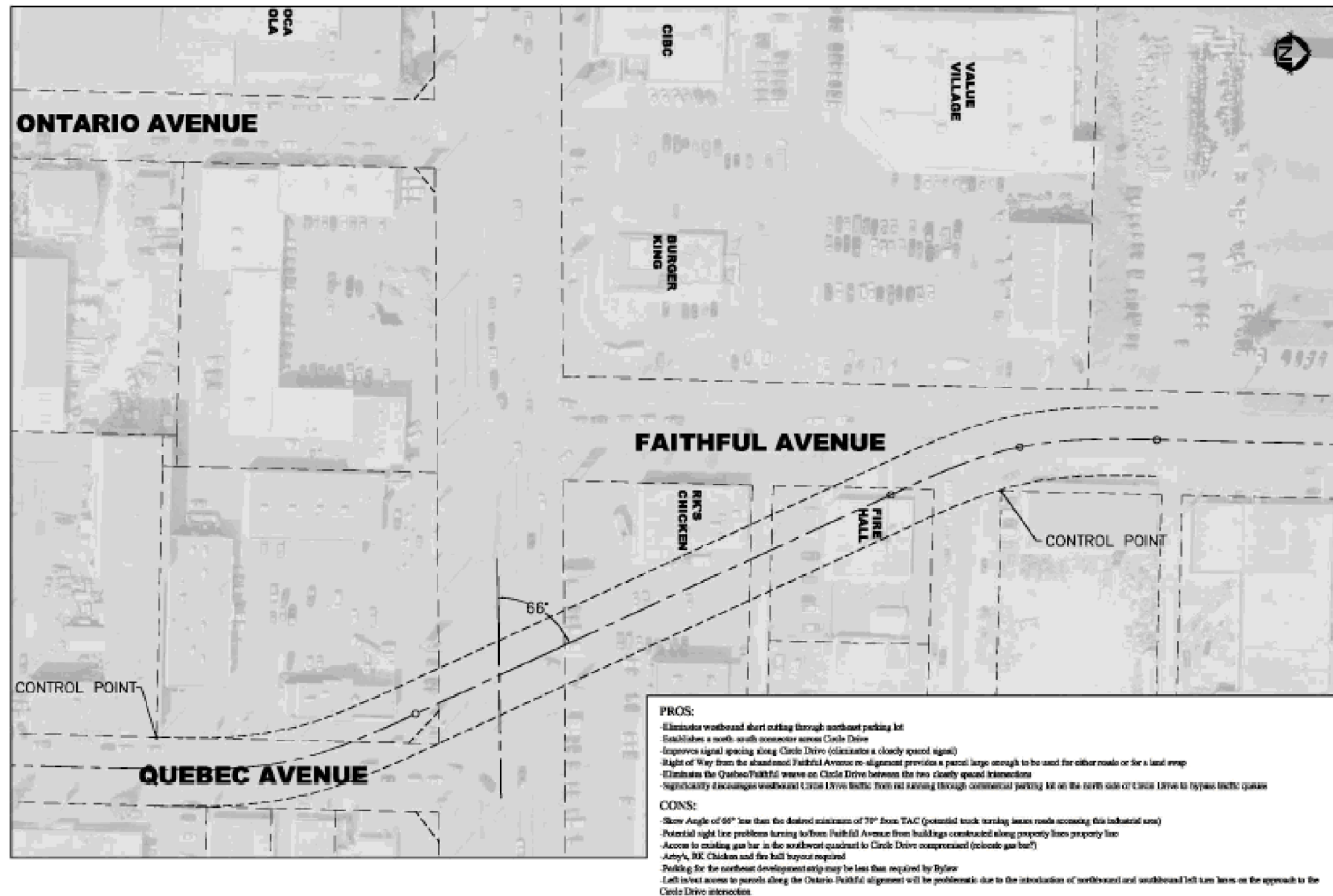
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Drawing No SHEET 1 OF 5	

G2 ~ Diverging Diamond Interchange (DDI) Alternative

G3 ~ Single Point Urban Interchange Alternative

G4 ~ Flyover (Grade Separation) Alternatives

G5 ~ Intersection Alternatives



1073-01
N.T.S.

BUNT
ASSOCIATES

CIRCLE DRIVE

Realignment of Quebec/Faithful - Option 1

Exhibit
5.5a

NOTES:

Nº	Date	By	REVISIONS			MANU C/A		
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Drawn	D.N.	Ch'kd	—					
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TITLE IDYLWYLD DRIVE & CIRCLE DRIVE FUNCTIONAL DESIGN	
FAITHFUL AVENUE & QUEBEC AVENUE	
Project NO 279129	FIGURE G5
	Drawing NO SHEET 1 of 1

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Drawing NO
SHEET 2 OF 3



Field Notes
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TITLE	IDYLWYLD DRIVE & CIRCLE DRIVE FUNCTIONAL DESIGN
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Project No 279129	FIGURE G5
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Drawing NO	
SHEET 3 OF 3	

G6 ~ 8-Lane Corridor Widening Alternative



NOTES:


1. USE 3.5m FOR LANE WIDTH WITH A 0.5m CURB UNLESS OTHERWISE NOTED.

2. USE 1.0m FOR BOULEVARD WIDTH AND 1.5m SIDEWALK UNLESS OTHERWISE NOTED.

NO	Date	By	REVISIONS		MANU CAD
Design	R.S.	Ch'kd	R.S.	Date	
Drawn	D.N.	Ch'kd	-	2010/12/20	
Scale	0 5 10 15 20 25				References
1:1000	<div></div>				
SCALE IN METERS					

Field Notes

Stamp



8 LANE ROAD STRUCTURE

TITLE

IDYLYWLD DRIVE & CIRCLE DRIVE
FUNCTIONAL DESIGN

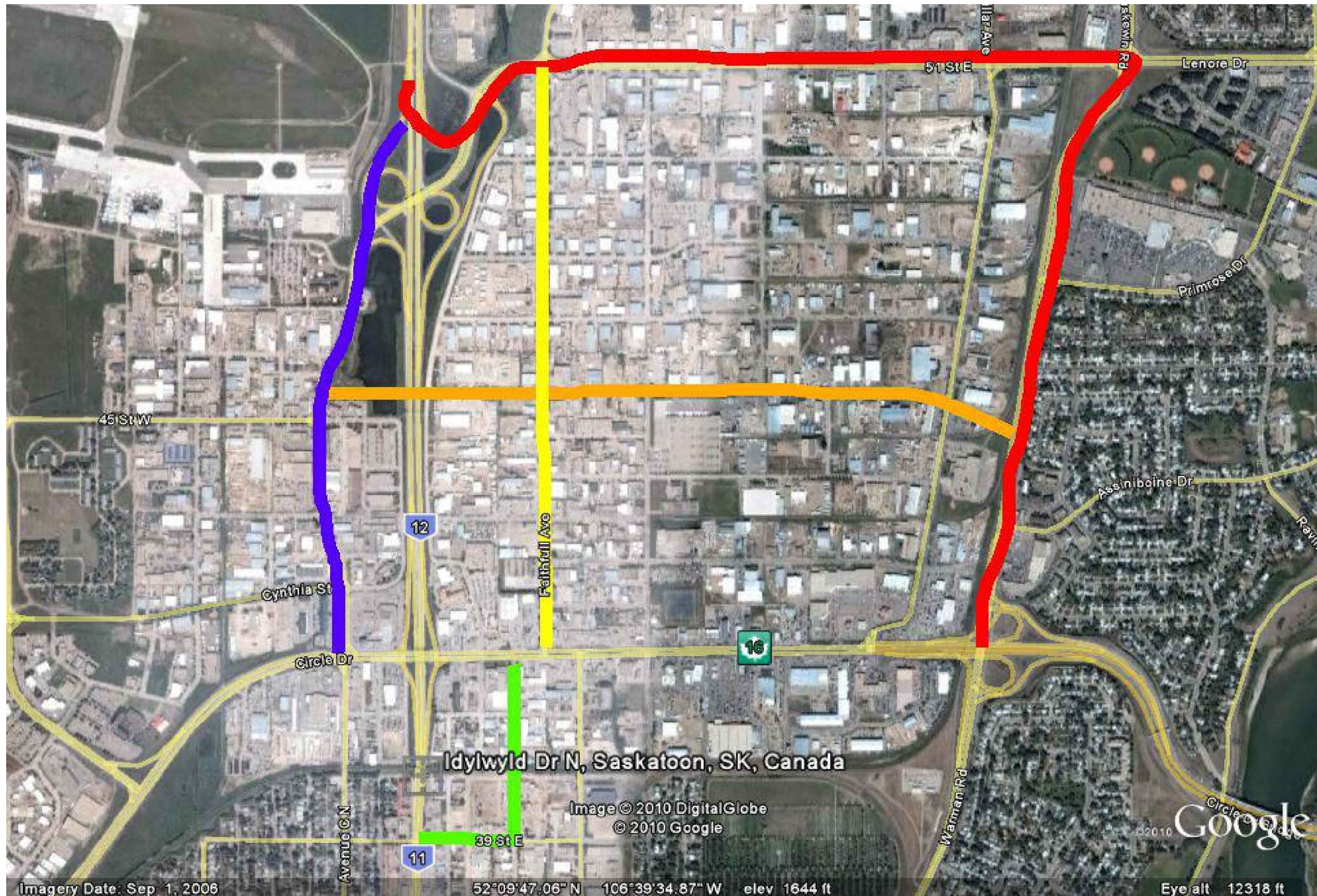
Project NO

279129

FIGURE G6

Drawing NO
SHEET 1 OF 5

G7 ~ Routing Alternatives



No	Date	By	REVISIONS				MANU	CN
Design	R.S.	Ch'kd	R.S.	Date				
Drawn	D.N.	Ch'kd	-	2010/12/20				
Scale NTS					References			


**Hatch Mott
MacDonald**

Project NO	279129	FIGURE G7
		Drawing NO SHEET 1 OF 1

G8 ~ Cost Estimates

City of Saskatoon
Idylwyld Drive/Circle Drive Functional Design

Preliminary Cost Estimate

Item No.	Description	Unit	Amount	Unit Cost	Item Cost
<u>Interchange Optimization including Ramp Improvements</u>					
1	Excavation	m3	9,000.0	\$20.00	\$180,000
2	Pavement Structure				
2.1	HMA (140mm)	m2	6,500.0	\$60.00	\$390,000
2.2	Granular A (150mm)	m3	2,000.0	\$50.00	\$100,000
2.3	Granular B (600mm)	m3	5,000.0	\$45.00	\$225,000
3	Curb and Gutter	m	1,500.0	\$90.00	\$135,000
4	Removal and relocation of guard rail	m	420.0	\$100.00	\$42,000
5	Signalized Intersection	L.S.	2.0	\$120,000.00	\$240,000
				Total	\$1,312,000
<div> <div>Minor Items (20%)\$262,400</div> <div>Drainage / Utilities (25%)\$328,000</div> <div>Sub-Total\$1,902,400</div> <div>Contingency (20%)\$380,480</div> <div>Engineering (15%)\$285,360</div> <div>Sub-Total\$2,568,240</div> <div>GST (5%)\$128,412</div> <div>PST (5%)\$128,412</div> <div>Total\$2,825,064</div> </div>					

<u>Intersection Optimizations</u>					
1	Excavation	m3	7000.0	\$20.00	\$140,000
2	Pavement Structure				
2.1	HMA (140mm)	m2	6,500.0	\$60.00	\$390,000
2.2	Granular A (150mm)	m3	2,000.0	\$50.00	\$100,000
2.3	Granular B (600mm)	m3	5,000.0	\$45.00	\$225,000
3	Curb and Gutter	m	250.0	\$90.00	\$22,500
4	Sidewalk	m2	30.0	\$55.00	\$1,650
<div> <div>Sub-Total\$879,150</div> <div>Minor Items (20%)\$78,000</div> <div>Drainage / Utilities (25%)\$97,500</div> <div>Sub-Total\$1,054,650</div> <div>Contingency (20%)\$210,930</div> <div>Engineering (15%)\$158,198</div> <div>Sub-Total\$1,599,278</div> <div>GST (5%)\$79,964</div> <div>PST (5%)\$79,964</div> <div>Total\$2,478,428</div> </div>					

<u>Grand Total (Section A + B)</u>					<u>\$5,303,492</u>
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City of Saskatoon
Idylwyld Drive/Circle Drive Functional Design

Preliminary Cost Estimate

Item No.	Description	Unit	Amount	Unit Cost	Item Cost
<u>Grade Separation of "Problem Movements"</u>					
1	Excavation	m3	1,000.0	\$20.00	\$20,000
2	Pavement Structure				
2.1	HMA (140mm)	m2	6,375.0	\$60.00	\$382,500
2.2	Granular A (150mm)	m3	950.0	\$50.00	\$47,500
2.3	Granular B (600mm)	m3	3,800.0	\$45.00	\$171,000
3	Removal and relocation of guard rail	m	420.0	\$100.00	\$42,000
4	Flyover Structure Northbound On-Ramp	m2	3,159.0	\$3,500.00	\$11,056,500
5	Flyover Structure Southbound Off-Ramp	m2	4,725.0	\$3,500.00	\$16,537,500
				Total	<u>\$28,257,000</u>

Minor Items Excluding Structure Works (20%)	\$124,200
Drainage / Utilities Excluding Structure Works (25%)	\$155,250
Sub-Total	<u>\$28,536,450</u>
Contingency (20%)	\$5,707,290
Engineering (15%)	\$4,280,468
Sub-Total	<u>\$38,524,208</u>
GST (5%)	\$1,926,210
PST (5%)	\$1,926,210
Total	<u>\$42,376,628</u>

<u>Intersection Optimizations</u>					
1	Excavation	m3	7000.0	\$20.00	\$140,000
2	Pavement Structure				
2.1	HMA (140mm)	m2	6,500.0	\$60.00	\$390,000
2.2	Granular A (150mm)	m3	2,000.0	\$50.00	\$100,000
2.3	Granular B (600mm)	m3	5,000.0	\$45.00	\$225,000
3	Curb and Gutter	m	250.0	\$90.00	\$22,500
4	Sidewalk	m2	30.0	\$55.00	\$1,650

Sub-Total	\$879,150
Minor Items (20%)	\$0
Drainage / Utilities (25%)	\$0
Sub-Total	<u>\$879,150</u>
Contingency (20%)	\$175,830
Engineering (15%)	\$131,873
Sub-Total	<u>\$1,186,853</u>
GST (5%)	\$59,343
PST (5%)	\$59,343
Total	<u>\$2,066,003</u>

Grand Total (Section A + B) **\$44,442,631**

Preliminary Cost Estimate

Minor Items Excluding Structure Works (20%)	\$243,800
Drainage / Utilities Excluding Structure Works (25%)	\$304,750
Sub-Total	<u>\$8,767,550</u>
Contingency (20%)	\$1,753,510
Engineering (15%)	\$1,315,133
Sub-Total	<u>\$11,836,193</u>
GST (5%)	\$591,810
PST (5%)	\$591,810
<u>Total</u>	<u>\$13,019,812</u>

	<u>Grand Total (Section A + B)</u>	<u>\$15,085,814</u>
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City of Saskatoon
Idylwyld Drive/Circle Drive Functional Design

Preliminary Cost Estimate

Item No.	Description	Unit	Amount	Unit Cost	Item Cost
8 lane Widening of Circle Drive					
1	Excavation	m3	12,000.0	\$20.00	\$240,000
2	Pavement Structure				
2.1	HMA (140mm)	m2	11,000.0	\$60.00	\$660,000
2.2	Granular A (150mm)	m3	1,700.0	\$50.00	\$85,000
2.3	Granular B (600mm)	m3	6,500.0	\$45.00	\$292,500
3	Curb and Gutter	m	3,400.0	\$90.00	\$306,000
4	Signalized Intersection	L.S.	5.0	\$120,000.00	\$600,000
5	Widening of Structure	m2	630.0	\$3,500.00	\$2,205,000
				Total	<u>\$4,388,500</u>
<div> <div>Minor Items (20%)</div> <div>\$877,700</div> </div> <div> <div>Drainage / Utilities (25%)</div> <div>\$1,097,125</div> </div> <div> <div>Sub-Total</div> <div><u>\$6,363,325</u></div> </div> <div> <div>Contingency (20%)</div> <div>\$1,272,665</div> </div> <div> <div>Engineering (15%)</div> <div>\$954,499</div> </div> <div> <div>Sub-Total</div> <div><u>\$8,590,489</u></div> </div> <div> <div>GST (5%)</div> <div>\$429,524</div> </div> <div> <div>PST (5%)</div> <div>\$429,524</div> </div> <div> <div>Total</div> <div><u>\$9,449,538</u></div> </div>					