

### As approved from the July 9, 2023, Council Meeting

City Council adopted the 132 Avenue Functional Study and Supplementary Report and the GHD Functional Study amendment. The report outlines amendments proposed by an applicant to improve access to a property located at the southeast corner of 132 Avenue and 100 Street.

### As approved from the July 14, 2014, Council Meeting

Council approved the 132 Functional Study with two amendments:

1. One will create a right-hand slip lane on 100 Street Northbound, at the midpoint between 132 Ave. and 136 Ave.
2. The other will exclude sidewalks on the north side of 132 Ave. between 97 Street and 100 Street

This document sets the guidelines for continued development on 132 Ave, between 84 St. and 116 St., as the City approaches the 90,000 population mark. It will be used to determine future roadway requirements, intersection, locations, and recommended upgrades.

Future expansion and development is already forthcoming for the 132 Ave. corridor and prompt implementation of the Functional Study will be crucial to continued growth of the City and road safety.

### Notes

Functional Study (Pages 5-115)

Prepared by: Focus Corporation

October 12, 2023

Supplementary Report to Functional Planning Study 132nd Avenue Final Report (Pages 116-182)

Prepared by: Focus Corporation

July 16, 2014

Amendment (Pages 183-199)

Prepared by: GHD

December 21, 2022

# Functional Planning Study and Supplementary

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# FUNCTIONAL PLANNING STUDY

## 132ND AVENUE FINAL REPORT VOLUME 1 OF 2

PROJECT NUMBER: 020200335 | OCTOBER 2012



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# FOCUS

PREPARED FOR  
CITY OF GRANDE PRAIRIE



**Prepared By: FOCUS CORPORATION**

**Project No: 020200335**

**October 12, 2012**

# CORPORATE AUTHORIZATION

This report, "132nd Avenue - Functional Planning Study", was prepared by Focus Corporation for The City of Grande Prairie. The material in it reflects the judgment of Focus Corporation, in light of the information available at the time of preparation. Any use of the information by a third party, or any reliance on or decisions made on it are the responsibility of such third parties. Focus Corporation accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made, or actions taken, based upon information contained in the report.

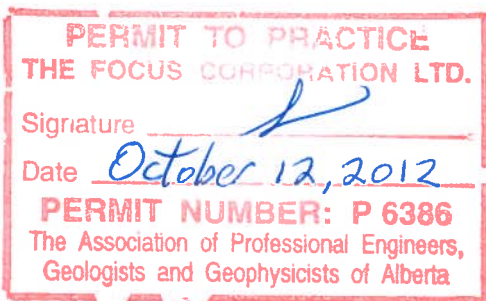


Professional Seal

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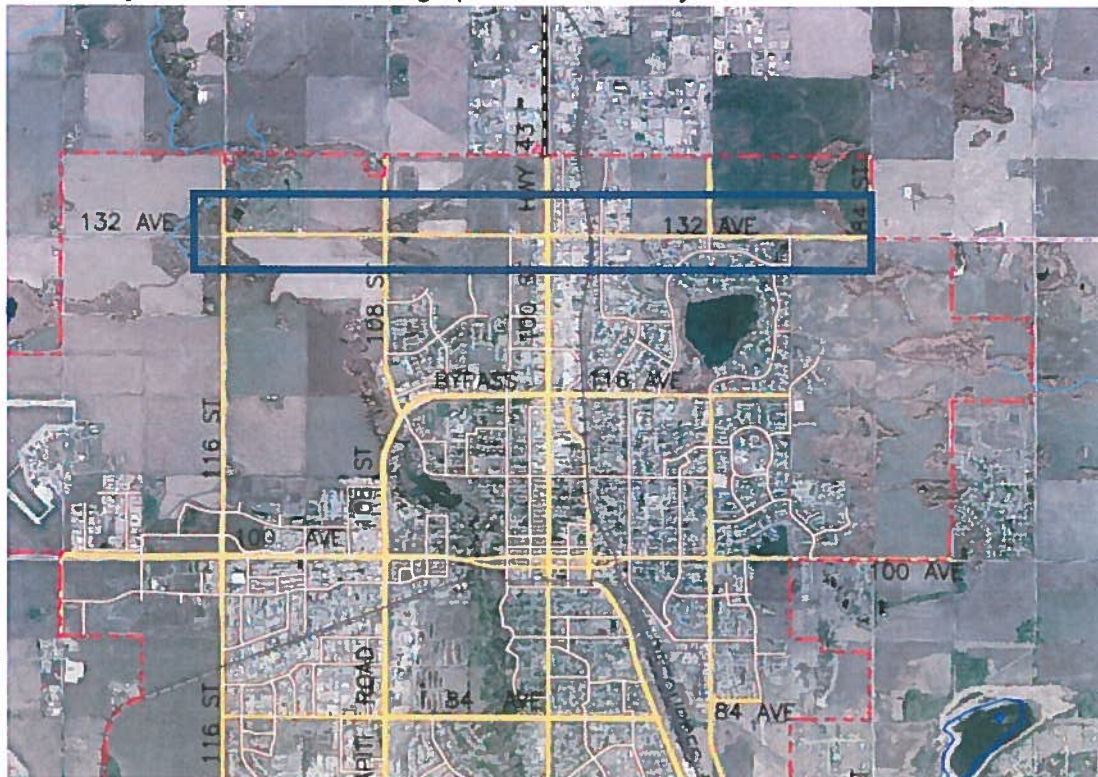
## EXECUTIVE SUMMARY

The City of Grande Prairie has experienced significant growth during the past decade. The growth in population and thus rapid expansion of the City's boundaries has increased the pressure on the existing and planned infrastructure. In order to be responsive to the rapidly growing demand, and maintain the competitive edge of the communities, the City has conducted intense efforts to revise and update its Master Transportation Plan that was originally prepared in 2002. Once the existing developments and planned growth areas, as well as those regions anticipated for further developments, were taken into consideration the 2002 plan seemed irrelevant and a new Master Transportation Plan was developed.

As a part of the new plan, a section of 132nd Avenue between 84th and 116th Street was identified as a corridor that must be urbanized and upgraded due to rapid expansion in the lands adjacent to the arterial. The adjacent areas to this section accommodate a mix use of residential, industrial and commercial land uses. The area is therefore experiencing a high portion of heavy trucks with its daily traffic flow. The section between 99<sup>th</sup> and 101<sup>st</sup> Street is currently experiencing high traffic collisions when compared to other intersections in the City, in particular around 100<sup>th</sup> Street where unsafe weaving sections exists. **Figure 1-1** presents the section in a regional context.

**Volume 2 of 2** of this report presents the proposed Functional Plans for the three population scenarios (65,000 , 78,000 and 90,000).

Figure 1-1 132nd Avenue Functional Planning Study Corridor  
Source: City of Grande Prairie Geographic Information System



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## ALIGNMENT

The alignment of the corridor will not shift significantly through time. The proposed improvements for the Population 65,000 and 78,000 scenarios will be constructed upon the existing conditions centerline. It is anticipated, however, since the corridor will undergo major reconstruction to accommodate the Population 90,000 (Ultimate) scenario, some shifts to the existing centerline are to be proposed.

## TRAFFIC ENGINEERING

In order to identify the required roadway improvements in the long term, as well as a time horizon, the traffic numbers for the 65,000, 78,000 and 90,000 scenarios generated from the new Travel Demand Model (ISL – August 2011) were used. These traffic numbers are presented in **Appendix 1**.

The corridor was modeled in Synchro 7 to identify the geometric improvements that are required to ensure responsiveness to the increasing demand over time. General analytical criteria to identify proper laning configuration are as follows:

- All intersections should accommodate Level of Service (LOS) D or better
- All individual movements should operate at LOS D or better; and
- Maximum volume / capacity (v/c) ratio not to exceed 0.9.

In addition to using the future traffic volumes, signal warrant studies (SWS) were conducted to identify those intersections that require signalization through study horizons. These SWS are presented in **Appendix 2**.

## OPEN HOUSE RESULTS

Focus, in collaboration with the City of Grande Prairie, organized two Open Houses on January 26 and June 5<sup>th</sup>, 2012 to present the interim and final recommendations, respectively. **Appendix 3** contains the latter Open House comments received from visitors and stakeholders. The first Open House comments were incorporated into the planning elements, which were refined to be presented again in the second event. The main concerns expressed during the second Open House involved requests to maintain the direct accesses onto the 132<sup>nd</sup> Avenue, specifically between the highly populated 97<sup>th</sup> to 102<sup>nd</sup> Street intersections. These concerns have been addressed throughout the planning phase where applicable, and are discussed in more detail in Section 2.3.

## GEOMETRIC DESIGN

General design criteria (Section 3.1) govern the roadway design elements. The design criteria is developed based on the following standards:

- The City of Grande Prairie Design Manual – Section 14: Roadway Design Standards, October 2011; and
- Geometric Design Guide for Canadian Roads – Transportation Association of Canada – 1999 (TAC Manual).

The City of Grande Prairie has made a commitment to expand the 132nd Avenue into an urbanized divided arterial with a four-lane cross section for the Ultimate scenario and an intention to signalize all full-movement intersections. Therefore, the geometric improvements developed for the Ultimate horizon are developed based on this commitment.

The traffic numbers and analysis for the Populations 65,000 and 78,000 scenarios indicated that an undivided arterial with a two-lane cross section can provide the desired LOS within the study time frames.

The corridor's improvements are generally developed based on 80 km/hour design speed (posted 70 km/hour) except for the section between 97th to 102nd Streets where the design speed is reduced to 60 km/hour (posted 50 km/hour). For the future scenarios, 132nd Avenue is provided with exclusive left-turn lanes, while the crossing collectors have it where warranted. In some intersections, and due to high volume, exclusive right-turn lanes are also provided. Since the corridor is a designated truck route, the design vehicle is set at WB-21 trucks.

Since 100th Street is currently signalized, it is assumed that it will maintain its grade-crossing nature and traffic control systems through time.

The vertical alignment for the corridor is currently fairly flat, and is not anticipated to change significantly for the future horizons.

Turning bays are planned based on the minimum requirements from the TAC manual. The turning bays are subsequently undergone AutoTurn analysis to ensure WB-21 movements are well accommodated and can proceed through the major intersections conflict free. Cross-sections are developed based on the City of Grande Prairie's adopted standards, recommendations from the City, Open House comments where applicable as well as value analysis sessions.

The recommended designs for each intersection have undergone turning template analysis for all scenarios. This is to ensure that the proposed designs will provide adequate space to safely accommodate concurrent movement of WB-21 design trucks. Once the final comments from the draft design are received, a final analysis will be conducted.

## ACCESS MANAGEMENT

The current conditions provide numerous accesses directly to the 132nd Avenue from adjacent sites. These accesses are creating serious conflicting weaving sections along the 132nd Avenue, which will turn into hazardous spots if left unimproved. Some of the recommendations made to improve the access patterns along the 132nd Avenue are as follows:

### Existing Conditions:

- Convert service road's direct access to 132nd Avenue at 100th Street to right-in/right-out by constructing a raised concrete median on 132<sup>nd</sup> Avenue from 101<sup>st</sup> Street to 99<sup>th</sup> Street.
- Access points east and west of 100<sup>th</sup> Street intersection will be reconfigured to right-in/right-out.

### Population 65,000:

- Convert 99th Street north leg intersection into a right-in/right-out
- Convert the 99th Street south leg intersection into a right-in/right-out
- Convert the 101st Street south leg intersection into a right-in/right-out
- Close two south lanes east and west of 100<sup>th</sup> Street; and
- Close service road's direct access to 132<sup>nd</sup> Avenue at 100<sup>th</sup> Street intersection.

### Population 78,000:

- Close 99th Street north leg intersection and convert to a cul-de-sac.
- Close the 101st Street south leg intersection and convert to a cul-de-sac.

### Population 90,000:

- Maintain an access-free corridor between 84th and 116th Street and direct all off-corridor traffic onto the crossing collectors.
- For existing lots between 97th and 102nd Streets it is proposed to have direct access to 132nd Avenue with a right-in/right-out configuration as there are no other options.

## GEOTECHNICAL AND ENVIRONMENTAL IMPACTS

At this stage of the study, no geotechnical and/or environmental assessment have been conducted for the study corridor. Once detailed design phases are initiated further analysis will be required to assess the following and potentially other issues:

- Identify environmentally sensitive areas within the construction zones
- Acquire additional right-of-way (ROW) between 97<sup>th</sup> and 102<sup>nd</sup> Street intersections for the upcoming expansions
- Conduct a Level 2 environmental assessment prior to additional right-of-way acquisition between the rail tracks and 102<sup>nd</sup> Street
- The bridge crossing over the Bear Creek River located to the east of 116th Street will require more detailed assessment in terms of environmental and geotechnical concerns
- Assess the existing conditions of the asphalt, base and sub-base

- Develop a timeline for rehabilitations; and
- Identify underground utilities along the construction zone.

### UTILITY AND DRAINAGE IMPACTS

The existing utilities were identified during the study. At the detailed design stage a thorough review of utilities in place at that time should be undertaken to ensure that all utilities have been identified and accurately located. Depth of cover should be determined at that time as well and any requirements for protection of underground utilities and pipelines or requirement to relocate buried or above ground utilities should be determined.

The City of Grande Prairie Storm Drainage Master Plan (2004), Area Structure Plans, and Storm Sewer Design reports from Outline Plans along the Study area of 132nd Avenue have been used to determine the quantity and location of storm-water management for 132nd Avenue corridor.

### COST ESTIMATE

A high level cost estimate, using historical unit and population growth rates, are developed at a policy and decision making level. These cost estimates, with the assumptions reflected in Section 6, are not for any tender documents as they will require refinements during the detailed design stage.

### NOISE REDUCTION

Since the corridor will provide access to the adjacent residential developments, a combination of man-made berms and fences will be utilized for noise reduction purposes as per the City of Grande Prairie typical arterial road cross sections at the residential areas. Since most of the residential sites are (will be) developed to the south of the 132nd Avenue, the noise reduction mitigations must be planned and implemented there as well. Some of these locations are conceptually reflected in the Population 90,000 drawings in **Volume 2 of 2** of this report.

## FUNCTIONAL PLANNING STUDY – VOLUME 1 of 2

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Population 90,000 103 St to 97 St. Drawing # 00335-03

Population 90,000 92 St to 88 St Drawing #00335-04

Population 90,000 84 St Drawing # 00335-05

Population 90,000 116 St to 104A St Row Plan Drawing 00335-06

Population 90,000 103 St to 88 St Row Plan Drawing #00335-07

Population 90000 84 ST row Plan Drawing #00335-08

Population 78,000 116 St to 112 St Drawing # 00335-11

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Plan & Profile STA 5+250 to 6+750 Drawing # 00335-34

Plan & Profile STA 6+750 to 8+150 Drawing # 00335-35

## 1.1 GENERAL BACKGROUND

As a part of the new plan, a section of 132nd Avenue between 84th and 116th Street was identified as a corridor that must be urbanized and upgraded due to rapid expansion in the lands adjacent to the arterial. The adjacent areas to this section accommodate a mix use of residential, industrial and commercial land uses. The area is therefore experiencing a high portion of heavy trucks with its daily traffic flow. The section between 99<sup>th</sup> and 101<sup>st</sup> Street is currently experiencing high traffic collisions when compared to other intersections in the City, in particular around 100<sup>th</sup> Street where unsafe weaving sections exists. **Figure 1-1** presents the section in a regional context.

## 1.2 FUNCTIONAL DESIGN OBJECTIVES

The study area is the 132 Avenue corridor from the junction of 116 Street to the junction of 84 Street. The study's multiple objectives include the following:

- Develop design standards for the corridor planning horizon (ultimate and initial) considering the existing constraints of the area
- Develop and recommend 132 Avenue lane requirements and develop road cross section(s) including bikeways / walkways requirements
- Develop and recommend intersections configurations that will accommodate the projected traffic demands with reasonable flexibility to accommodate some variation in the future traffic patterns while providing best overall value (operational, safety, cost etc.) to the City and the general public
- Determine ultimate ROW requirements based on the above and prepare land plans
- Suggest posted speeds (and transitions, where required) for consistency of operations
- Consider and integrate a pedestrian accommodation strategy
- Develop access management and construction staging plans for the 132nd Avenue corridor
- Determine roadway and utilities alignments for the Ultimate scenario (90,000 Population)
- Address storm-water management issues and develop recommendations which will meet current regulatory requirements
- Review and identify noise attenuation requirements along 132 Avenue corridor
- Produce plans / profiles showing existing centerline elevations and drainage patterns; and
- Develop estimates of quantities and construction costs for proposed stages of development.

## 1.3 FUNCTIONAL PLANNING METHODOLOGY

The study team used a multi-approach methodology to ensure all aspects of the projects are covered. The City provided Focus with a preferred concept for the Ultimate scenario (Population 90,000). The concept was further evaluated and evolved through comments from the City, Open House discussions as well as numerous internal value engineering sessions. As a result, some of the proposed intersections were relocated to reflect the Area Structure Plan (ASP) objectives. In addition, the design was developed with the minimum additional land acquisition required. As for the Populations 65,000 and 78,000, they were developed around the existing centerline to avoid excessive and unnecessary construction costs, yet adequately serving the planned adjacent developments to the corridor.

## 2 FUNCTIONAL GEOMETRIC DESIGN

The following sections will discuss the functional design issue and individual elements of the network. These issues are identified during the discussions with City, Open House comments, and internal value engineering sessions.

### 2.1 DESIGN CRITERIA

In order to maintain a consistent approach, a criteria is developed to govern all design efforts throughout the study along the 132nd Avenue corridor. The design criteria is based on the regional standards including:

- The City of Grande Prairie Design Manual – Section 14: Roadway Design Standards, October 2011
- Geometric Design Guide for Canadian Roads – Transportation Association of Canada - 1999

**Table 2-1** presents the design criteria used for this functional planning study.

**Table 2-1**  
**Design Criteria – 132nd Avenue Corridor**

Item	Population 90,000	Population 78,000	Population 65,000	Comments / Notes
Legal Classification	UAD 80	2RAD	2RAU	
Posted Speed (km/hr)	50/70	50/70	50/70	50 between 97th and 102nd Streets
Design Speed (km/hr)	60/80	60/80	60/80	60km/hr between 97th and 102nd Streets
Basic Lanes	4	2	2	Existing 4 lanes between 101 Street & Railroad tracks
Minimum Radius (m)	20	15	15	
Equiv. Min.....Sag	16	16	16	
K Factor..... Crest	36	36	36	
Max. Grade	6%	6%	6%	4% Desired
Max. Super-elevation	N/A	N/A	N/A	
Minimum S.S.D.	140	140	140	
Lane Width (meters)	4-4.20	4-4.20	4-4.20	4.0 between 97th and 102nd Streets
Design Vehicle	WB-21	WB-21	WB-21	
Median Width (meters)	5.0	5.0	N/A	
ROW width	Ultimate	Existing	Existing	

Notes:

Reference: The City of Grande Prairie Design Manual – Section 14: Roadway Design Standards, October 2011 – Table 14.2 and Section 14, Pages 11 and 12

## 2.2 VALUE ANALYSIS

Value Analysis (VA) is conducted throughout the functional planning and design phase as a mean to maximize the value and benefits of the project. The VA efforts were required to identify some of the unique situations where conventional engineering practices may not have been responsive. The VA has been conducted using "round the table" discussions and brainstorming to overcome certain issues. Some of these changes are based on the results from the Synchro analysis (Section 3). The outcomes of the VA are as follows.

1. Population 65,000 Scenario will require rehabilitation rather than major construction and upgrades. Therefore, it is cost effective to plan them along the existing centerline
2. Population 65,000 will involve upgrading the 132nd Avenue into four-lane undivided arterial between 97th and 102nd Street, including the required relevant upgrades to accommodate this objective
3. For the Populations 78,000; develop a divided cross-section from 92nd to 102nd Street along the 132nd Avenue; and
4. Ultimate (Population 90,000) scenario will convert the remaining sections of the arterial from a 2-lane rural undivided into an urban 4-lane divided arterial which changes the link's designation. It will also require some shifts to the centerline
5. For the earlier scenarios, urbanization may not be cost effective since for the Ultimate horizon, the expansion will require further excavation and relocation of the utilities. Urbanization is proposed for the Population 78,000 scenario where the 132nd Avenue will be upgraded into a four-lane divided arterial between 92nd and 102th Streets, including the required relevant upgrades to accommodate this objective
6. For the earlier scenarios, major underground and surface utilities may not be feasible to plan and construct, unless they are designed for the Ultimate scenario and ensure no rework will be required during the implementation phases
7. 92nd and 97th Street intersections are not warranted for a traffic signal for the Population 65,000. However, and due to certain physical and operational concerns, it has been decided to install traffic signals at both intersections
8. 110th Street will be a full-movement intersection with stop sign, for the Ultimate scenario; and
9. 99th Street north leg t-intersection is and will be creating unwanted and unsafe weaving and conflicting sections. While a right-in/right-out configuration would be maintained for the Population 65,000, it is recommended that the access be closed and converted to a cul-de-sac in the later stages.

## 2.3 OPEN HOUSE RESULTS

Focus Corporation design team, in collaboration with the City of Grande Prairie held an Open House on January 26, 2012 to present the Population 90,000 (Ultimate) scenario concept to the stakeholders. Standardized comment sheets were distributed so visitors could submit their thoughts, concerns and issues. All received notes were reviewed in detail and documented. Subsequently, applicable comments were reviewed and discussed during the VA sessions. Finally, some of them were found beneficial to the project and community, and thus were considered for implementation. Some of the major

changes to the Population 90,000 (Ultimate) design as outcomes of the Open House are as follows:

1. Closure of 101st Street south leg, and convert it to a cul-de-sac
2. Closure of 99th Street north leg, and convert it to a cul-de-sac
3. Tie the proposed design into the existing 92nd Street cross section and existing ROW
4. Implement 1.5 meter wide sidewalks where possible/feasible
5. Shift 106th Street to be 104A Street to comply with the relevant Area Structure Plan (ASP)
6. Shift proposed 132nd Avenue road centerline north approximately 2.36 west of 102nd Street to stagger the existing Atco pipeline right-of-way
7. Consider a full-movement intersection for the 110th Street; and
8. 114th Street to remain a right-in/right-out.

The above changes, and some other minor comments made during the Open House were incorporated into the Ultimate scenario concepts. These comments were subsequently, incorporated into each Populations horizon scenarios where applicable, feasible and relevant.

A second Open House was held on June 5, 2012 to ensure the stakeholders are communicated with the refined proposed improvements for the three horizon years. **Appendix 3** includes a copy of the inputs received during the second Open House.

Major and on-going concerns from the stakeholders are as follows. These concerns are generally discussed as follows, along with the proposed response.

1. Full closure of 99<sup>th</sup> Street north leg will have adverse impact on adjacent commercial properties access patterns, including PetroCanada facility located to the north east corner of the 100<sup>th</sup> Street intersection.
2. Consider establishing a two-way-left-turn-lane (TWLTL) between 97<sup>th</sup> and 100<sup>th</sup> Streets.

Full closure of 99<sup>th</sup> Street north leg will be inevitable due to the close proximity to the 100<sup>th</sup> Street intersection. 132<sup>nd</sup> Avenue upgrade, along with increase traffic volumes, will create an unsafe weaving section in a short distance between the two intersections. Safety risks will be mitigated if the 99<sup>th</sup> Street north leg is closed, and the traffic is rerouted onto alternative roadways.

A two-way-left-turn-lane (TWLTL) may be considered to local collectors where driving distances between intersections are providing adequate sight, reaction and stopping distances. The main use of TWLTL is for local collectors where the traffic volumes are evenly distributed at both directions with a relatively consistent traffic movement pattern. The short distance between 97<sup>th</sup> and 100<sup>th</sup> Street intersections is certainly not qualified for a TWLTL. The tangible distance, considering the left turn lanes at both intersections, is

less than 200 meters. Such short distance and considering numerous full movement access points will be operational, will create a weaving section with intense conflict potentials. Such an implementation will require further right-of-way land across all population scenarios.

## 2.4 GEOMETRIC IMPROVEMENTS

This section presents the geometric improvements that are recommended for each of the study population horizons. The crossing collectors may be added during time to provide access to the adjacent lands designated for future developments.

### 2.4.1 Existing Conditions

There are a number of potential improvements that may be considered for the existing conditions. These improvements, at this stage, are developed conceptually and will require further detailed analysis and design prior to implementation. Some of these improvements include, but may not be limited to:

1. Conduct a detailed road safety audit throughout the corridor to ensure conflicting sections are identified and mitigated properly
2. Close the service road direct accesses onto the 132nd Avenue. The moving traffic must access the corridor via major intersections. Alternatively, a right-in/right-out may be considered if applicable, feasible and relevant. It must be confirmed by the future detailed planning, traffic engineering and design efforts; and
3. Construct a raised median from 101<sup>st</sup> to 99<sup>th</sup> Street north leg. Service roads located to the east and west of 100<sup>th</sup> Street intersection will be converted to right-in/right-out.

### 2.4.2 Population 65,000 Scenario

The Population 65,000 scenario will be the first phase in the 132nd Avenue improvements. Since a major upgrade (e.g. adding lanes, implementing a divided cross-section, etc.) is not considered at this scenario, major works will be done in terms of rehabilitation and some minor ground works. Major improvements recommended for this scenario are as follows. The functional plans are included in **Volume 2 of 2** of this report.

1. Conduct a detailed access management review to ensure safety is maintained throughout the corridor. The section between 104th to 97th Streets will require special attention since numerous direct accesses to the 132nd Avenue and in close proximity to the major intersections (e.g. 100th Street) will create conflicting weaving patterns which increase the safety risks for motorists.
2. Maintain a four-lane cross section for the 132nd Avenue 100th to 97th Streets
3. Implement exclusive lanes for southbound, northbound, eastbound and westbound right turn movements at 100th Street intersection
4. Signalization of 92nd and 97th Street
5. Implement a new 104A Street south leg to comply with the ASP. The new T-intersection will have a full direction configuration. Depending on the 132nd Avenue overlay conditions between 102th and 108th Street, it may be paved or gravel. The

pavement timeline must be planned considering the steady increase in traffic to reduce road maintenance requirements, and also reduce dust. The upgrade will be development driven.

6. Implement the north leg of 103rd Street to comply with the ASP. The new T-intersection will have a full direction configuration. Depending on the 132nd Avenue overlay conditions between 102th and 108th Street, it may be paved or gravel. The upgrade will be development driven.
7. Convert 101th Street t-intersection into right-in/right-out; and
8. Convert 99th Street south leg T-intersection into right-in/right-out.
9. Convert 99th Street north leg T-intersection into right-in/right-out.

#### 2.4.3 Population 78,000 Scenario

For the Population 78,000 Scenario, the 132nd Avenue will be upgraded to a divided four-lane arterial from 102nd to 92nd Streets. The remaining sections will maintain the previous cross-section. Some additional improvements are as follows which are presented in **Volume 2 of 2** of this report.

1. Add a north leg to 104A Street intersection to make a four-leg all-directional facility. The upgrade will be development driven.
2. Add a south leg to 84th Street intersection to make a four-leg all-directional facility.
3. Consider asphalt pavement for the 132nd Avenue section between 108th and 102nd Streets. The pavement timeline must be planned considering the steady increase in traffic to reduce road maintenance requirements, and also reduce dust.
4. Upgrade 100th Street into a 6-lane cross -section in the vicinity of the 132nd Avenue intersection subject to Alberta Transportation approval and funding.
5. At 100th Street intersection, add double left-turn lane to the north leg to serve the southbound left-turn left movement subject to Alberta Transportation approval and funding.
6. Maintain right-in/right-out for the 101st and 99th Streets south legs intersections; and
7. Full closure of 99th Street north leg and convert to a cul-de-sac.

#### 2.4.4 Population 90,000 (Ultimate) Scenario

For the Ultimate scenario, 132nd Avenue will be converted into a divided urban 4-lane arterial. It will require additional ROW, as well as major utilities implementation. **Volume 2 of 2** of this report shows the details of the recommended changes. Some of the major improvements for the Ultimate stage are as follows:

1. Upgrade the entire corridor to a four-lane, divided arterial. Note that the corridor is upgraded between 102nd to 92nd Streets in earlier improvements
2. Add a north leg at the proposed location for 114th Street to implement a right-in/right-out intersection. The upgrade will be development driven.
3. Implement a new all directional four-leg signalized intersection at the proposed location for the 112th Street. This is to comply with the ASP. The upgrade will be development driven.

4. Implement a new all directional four-leg, stop sign controlled, intersection at the proposed location for the 110th Street. This is to comply with the ASP. The upgrade will be development driven.
5. Consider signalization at 84th, 88th 101st, 102nd, 103rd, 104A and 108th Street; and
6. Add additional turning lanes as presented in the plans for the 100th Street intersection. The upgrade is subject to Alberta Transportation approval and funding.

## 2.5 TURNING BAYS AND CROSS-SECTIONS DESIGN

The design efforts are conducted using the following manuals:

- The City of Grande Prairie Design Manual – Section 14: Roadway Design Standards, October 2011
- Geometric Design Guide for Canadian Roads – Transportation Association of Canada – 1999, Sections 2.3.5 and 2.3.8

## 2.6 TURNING TEMPLATE ANALYSIS

The recommended designs for each intersection have undergone turning template analysis conceptually. This is to ensure that the proposed designs will provide adequate space to safely accommodate concurrent movement of WB-21 design trucks. The analysis is usually conducted in conjunction with traffic engineering practices including proper signal timing and phasing, thus will be redone during the detailed design phase(s). In addition, in certain cases further expansions might be considered.

## 2.7 ACCESS MANAGEMENT

Access management is a critical issue with the existing conditions. These issues require details assessment to ensure traffic is properly and safely circulated from the adjacent sites onto the corridor as well as the crossing collectors.

The current conditions provide numerous accesses directly to the 132nd Avenue from adjacent sites. These accesses are creating serious conflicting weaving sections along the 132nd Avenue, which will turn into hazardous spots if left unimproved.

100th Street intersection is a serious point of concern in terms of access management. Currently, 99th Street north and south leg for two t-intersections which are closely distanced. The north leg is forming an all directional t-intersection in a close proximity with 100th Street intersection. The existing configuration is thus creating numerous conflicting movements, with a worsening situation as the traffic volume increases through time. This is true for other driveway accesses between 102nd and 97th Street on both sides of the 132nd Avenue.

In order to define a beneficial, yet safe access management pattern, the design criteria focused on minimizing conflict areas and weaving sections where the traffic could safely be redirected to the collectors to access the main corridor. Traffic flow redirection onto the crossing collectors are the main reasons behind considering improvements to

intersections such as adding turning bays and thru lanes, and signalization at some intersections, thus maximizing the investments' benefits.

As previously mentioned, 99th Street north and south legs t-intersections will require special attention. The north leg will divert a traffic flow directly onto the 132nd Avenue which would potentially proceed through the 100th Street intersection to either travel west (thru) or turn left onto the south leg. Given the relatively short distance from the t-intersection's centerline to the turning bay tapers, it can be clearly concluded that a conflicting weaving section is (will be) created. The adjacent sites may access the 132nd Avenue from 100th and 97th Street intersections. While the City is investing to upgrade these two intersections, there is no need for direct access between these two intersections.

In light of the above preliminary access management considerations, and based on the available information as well as the weaving analysis, the following timeline and responsive improvements are recommended:

#### **2.7.1 Existing Conditions**

- Convert service road's direct access to 132nd Avenue at 100th Street to right-in/right-out by constructing a raised concrete median on 132<sup>nd</sup> Avenue from 101<sup>st</sup> Street to 99<sup>th</sup> Street.
- Convert lanes east and west of 100th Street intersection to right-in/right-out

#### **2.7.2 Population 65,000**

- Convert 99th Street north leg intersection into a right-in/right-out
- Convert the 99th Street south leg intersection into a right-in/right-out
- Convert the 101st Street south leg intersection into a right-in/right-out
- Close service road's direct access to 132nd Avenue at 100th Street; and
- Close lanes east and west of 100th Street on south side of 132nd Avenue.

#### **2.7.3 Population 78,000**

- Close 99th Street north leg intersection and convert to a cul-de-sac.
- Close the 101st Street south leg intersection and convert to a cul-de-sac.

#### **2.7.4 Population 90,000**

- Maintain an access-free corridor between 84th and 116th Street and direct all off-corridor traffic onto the crossing collectors.
- For existing lots between 97th and 102nd Streets it is proposed to have direct access to 132nd Avenue with a right-in/right-out configuration as there are no other options.

## 2.8 ACTIVE TRANSPORTATION

The adjacent lands to the corridor accommodates residential, industrial, commercial and recreational sites. The current rural cross section does not provide an Active Transportation friendly environment. The subsequent improvements for the Populations 65,000 and 78,000 scenarios may not economically address Active Transportation initiatives including dedicated cycling lanes, sidewalks, marked cross-walks, etc. However, for the Ultimate Scenario, the following recommendation is made to consider:

- Conduct a full pedestrian crossing warrant study review for all major intersection to develop and implement appropriate crossing devices. This is important for the major intersections adjacent to the residential and recreational sites.

## 2.9 UNRESOLVED DESIGN ISSUES

There are a number of design issues that will need to consider and address during the detailed design phases. Some of these issues include, but may not be limited to:

- While turning templates to accommodate WB-21 design trucks are used to verify the recommended geometries at this planning stage, a more detailed review must be conducted at the detailed design stage. Turning paths must be reviewed in conjunction with the proposed signal timing phases, and the laning spaces to ensure concurrent movements can be achieved where applicable.
- The railway grade crossing located to the west of the 97th Street intersection will require a Detailed Safety Review when any upgrade to the 132nd Avenue at that section is considered. Generally, once a cross-section expands, the safety requirements for the railway crossing may need certain upgrades.

### 3 TRAFFIC ENGINEERING

City of Grand Prairie has experienced a significant growth beyond anticipations outlined in the Master Transportation Plan (MSP) of 2002. Therefore, the City conducted a new MSP in 2009 (ISL, 2009 and 2011). The revised TMP incorporated the new Area Structure Plans for various parts of the City, as well as other demographic factors to generate macro-level traffic volumes for the Populations 65,000 , 78,000 and 90,000 Scenarios. These traffic volumes, included in **Appendix 1**, reflect the PM peak hour demand. The traffic numbers were subsequently used and modified to suit existing ASP and Official Community Plan (OCP) for the purpose of this functional planning study.

#### 3.1 MEASURES OF EFFECTIVENESS

Three (3) sets of Synchro 7 models were developed to assess the operational conditions throughout the corridor, as well as the level of service (LOS) associated with each intersection for each population scenario.

The measures of effectiveness (MOEs) to assess the functionality of the intersections are developed and interpreted based upon the Highway Capacity Manual (Washington DC: Transportation Research Board, 2010). They were extracted utilizing the intersection capacity reports generated by the Synchro 7 models. Considered MOEs for the traffic performance include (v/c) ratio, delay, and a delay-based traffic level of service (LOS) indicator ranging from LOS A (ideal) to LOS F (over-saturated) conditions. As a target for design parameter, the following is considered appropriate for the study area:

- Signalized Intersections – LOS D and v/c < 0.90 for all movements
- Non-signalized Intersections – LOS D for individual movements

The main objective of the developing MOEs is to identify the optimum and responsive capacity requirements for each intersection. In addition, they will ensure that the upgrades are planned and implemented effectively.

The upgrades resulting from the Synchro models are reflected in Sections 2.4.2 to 2.4.4, and are presented conceptually in the **Volume 2 of 2** of this report.

#### 3.2 SIGNAL WARRANT STUDIES

The section of 132nd Avenue under study has currently one signalized intersection at 100th Street. Based on the PM peak hour traffic volumes for each Population Scenario (**Appendix 1**), a Signal Warrant Study (SWS) was conducted for each intersection (*Transportation Association of Canada – 1997*). **Table 3-1** summarizes the SWS results for each intersection. **Appendix 2** includes the SWS sheets.

It is recommended that the City of Grande Prairie continue to monitor and re-evaluate the locations of traffic signals as currently there is little to no pedestrian traffic volumes along this corridor.

**Table 3-1  
Signal Warrant Studies**

Intersection	Population 90,000	Population 78,000	Population 65,000	Comments / Notes
116th Street	Not Warranted	Not Warranted	Not Warranted	
108th Street	Not Warranted	Not Warranted	Not Warranted	
104A Street	Not Warranted	Not Warranted	Not Warranted	
102nd Street	Not Warranted	Not Warranted	Not Warranted	
97th Street	Not Warranted	Not Warranted	Not Warranted	
92nd Street	Not Warranted	Not Warranted	Not Warranted	
84th Street	Warranted	Not Warranted	Not Warranted	

Notes:

Reference: Signal Warrant Study Worksheet (*Transportation Association of Canada – 1997*)

Based on the above findings, most of the intersections will not be warranted for signalization for corresponding Populations scenarios. However, it was decided during the Value Analysis sessions (Section 2.2) that due to high-level traffic volume development, and considering some of the geometrics and safety concerns, 92nd and 97th Street intersections should be recommended for signalization as a part of Population 78,000 Scenario upgrades.

## 4 BACKGROUND INFORMATION

This section discusses some of the background information which is not directly impacting the recommended geometric configuration at this stage. They are, however, of special importance to consider and address during more detailed stages of design and construction.

### 4.1 GEOTECHNICAL AND ENVIRONMENTS

At this stage of the study, no geotechnical and/or environmental assessment have been conducted for the study corridor. Once detailed design phases are initiated further analysis will be required to assess the following and potentially other issues:

- Identify environmentally sensitive areas within the construction zones
- Acquire additional right-of-way (ROW) between 97<sup>th</sup> and 102<sup>nd</sup> Street intersections for the upcoming expansions
- Conduct a Level 2 environmental assessment prior to additional right-of-way acquisition between the rail tracks and 102<sup>nd</sup> Street
- The bridge crossing over the Bear Creek River located to the east of 116th Street will require more detailed assessment in terms of environmental and geotechnical concerns
- Assess the existing conditions of the asphalt, base and sub-base
- Develop a timeline for rehabilitations; and
- Identify underground utilities along the construction zone.

### 4.2 UTILITIES

The following utilities were identified during the study. At the detailed design stage a thorough review of utilities in place at that time should be undertaken to ensure that all utilities have been identified and accurately located. Depth of cover should be determined at that time as well and any requirements for protection of underground utilities and pipelines or requirement to relocate buried or above ground utilities should be determined. The utility locations and pipelines which will be encountered along 132nd Avenue are shown in **Table 4-1**. These locations are shown in the plans included in **Volume 2 of 2** of this report (DWS 00335-31 to 00335-35).

**Table 4-1**  
**Utility Locations**

Owner	Location Chainage	Details
Atco Gas	3+850 to 4+150	Parallels on north side
	3+950	Local service crossing
	4+000	Local service crossing
	4+150	Line crossing

	4+400 to 4+830	Parallels on south side
	4+420	Line crossing
	4+550	Local service crossing
	4+640	Local service crossing
	4+770	Local service crossing
	4+830	Line crossing
	4+830 to 5+080	Parallels on north side
Atco Pipelines (High Pressure)	1+000 to 2+870	Parallels on north side
	2+870 to 3+920	Parallels on south side
	3+920	Line crossing
Atco Electric (Overhead Lines)	0+980 to 7+540	Parallels on north side
	0+980	Line crossing
	3+990	Line crossing
	4+060	Line crossing
	4+145	Line crossing
	4+360	Line crossing
	4+390	Line crossing
	4+840	Line crossing
	5+240	Line crossing
	5+890	Line crossing
	6+730	Line crossing
	7+540	Line crossing (Transmission Line)
Aquatera (Watermain)	3+900 to 4+120	200mm, parallels in center
	3+900	150mm crossing
	3+950	150mm service south
	4+000	150mm service south
	4+120 to 4+930	200mm, parallels north of center
	4+140	150mm, line and hydrant south
	4+210	150mm, hydrant south
	4+390	200mm crossing / 150mm hydrant north
	4+430	200mm line north
	4+480	150mm line south
	4+550	150mm, hydrant north

	4+560	200mm line north
	4+640	200mm line south
	4+670	150mm, hydrant north
	4+810	550mm transmission line crossing
	4+820	200mm crossing
	4+830	250mm line north
	4+920	150mm, hydrant north
	4+930 to 5+230	200mm, parallels on north side
	5+230	200mm crossing
	6+720 to 4+820 (PROPOSED)	Water transmission line, parallel in center
Aquatera (Sanitary)	3+890	200mm crossing
	4+140	250mm crossing
	4+390 to 4+940	200mm, parallels in center
	4+390	200mm line south
	4+430	200mm line north
	4+560	200mm line north
	4+810	200mm crossing
	5+900 to 7+540 (PROPOSED)	375mm sanitary trunk, parallel to road and crossing
City of Grande Prairie (Storm)	0+850 to 1+400 (PROPOSED)	Ditch, parallels on north side
	1+400 to 2+000 (PROPOSED)	1050mm, parallels on north side
	2+000 to 2+850 (PROPOSED)	600mm, parallels on north side
	2+850 to 4+120 (PROPOSED)	750mm, parallels on north side
	4+200 to 4+240	300mm, parallels in center
	4+200	Catchbasin connection
	4+240	700mm crossing
	4+320 to 4+420	500mm, parallels in center
	4+320	500mm line north / Catchbasin connection north / Local service connection south
	4+420	300mm crossing
	4+440 to 4+480	450mm, parallels on north side
	4+440	450mm line north

	4+480	375mm line south
	4+700 to 5+500 (PROPOSED)	450mm, parallels on south side
	5+500 to 6+700 (PROPOSED)	750mm, parallels on south side
	6+700 to 7+200 (PROPOSED)	900mm, parallels on south side
	7+200 to 7+550 (PROPOSED)	1350mm, parallels on south side
	5+050	Culvert crossing
	5+100	Culvert crossing
	5+890 to 5+910	Culvert parallels on south side
	6+700 to 6+900	525mm, parallels on south side
	6+710 to 6+720	Culvert parallels on south side
Telus (Phone Lines)	0+852 to 2+640	Parallels on south side (Underground)
	0+960	Line crossing (Underground)
	0+980	Line crossing (Underground)
	3+880 to 4+150	Parallels on north side (Underground)
	3+990	Line crossing (Underground)
	4+060	Three lines crossing (Underground)
	4+140	Line crossing (Underground)
	4+210	Temporary line crossing (Overhead)
	4+300 to 5+240	Parallel on south side (Underground)
	4+300 to 7+720	Two lines parallel on south side (Underground)
	4+300	Line crossing (Conduit)
	4+350	Line crossing (Underground)
	4+490	Line crossing (Underground)
	4+430 to 4+470	Parallels on north side (Underground)
	4+470 to 4+560	Parallels on north side (Overhead)
	4+810	Two lines crossing (Underground)
	4+830	Line crossing (Underground)
	4+880	Line crossing (Underground)
	5+860	Two lines crossing (Underground)
	7+500	Line crossing (Underground)
	7+510	Two lines crossing (Underground)
	7+540	Two lines crossing (Underground)
	7+520 to 7+720	Parallels on north side (Underground)

### 4.3 DRAINAGE

The City of Grande Prairie Storm Drainage Master Plan (2004), Area Structure Plans, and Storm Sewer Design reports from Outline Plans along the Study area of 132nd Avenue have been used to determine the quantity and location of storm-water management for 132nd Avenue corridor. The Storm Drainage Master Plan provides a preliminary estimate for planning of storm-water management systems. (Page 3-6, Table 3.3) Using the design criteria for major storm of a maximum of 5 l/s/ha and a 1:100 year event, 24 hour storm, and an average “c” coefficient of 0.70 an assumption of 500 cubic meter per hectare of road right of way has been used to determine the storage volume requirement for 132nd Avenue. Storm pond locations and storage requirements for the ultimate 132nd Avenue road right of way area are provided in **Table 4-2**. These locations are shown in the plans included in **Volume 2 of 2** of this report (DWS 00335-31 to 00335-35).

**Table 4-2**  
**Stormwater Requirements**

Chainage	Pond Location	Storage Requirements (cubic meters)
North Half of R.O.W. (Sta 1+000 to Sta 2+060)	Arbour Hills ASP (S.W.1/4 Sec.3 Twp.72 Rge.6 W.6.M.)	1,270
South Half of R.O.W. (Sta 1+000 to Sta 2+060)	Hidden Valley ASP (N.W.1/4 Sec.34 Twp.71 Rge.6 W.6.M.)	1,170
North Half of R.O.W. (Sta 2+060 to Sta 2+350)	Arbour Hills ASP (S.E.1/4 Sec.3 Twp.72 Rge.6 W.6.M.)	350
North Half of R.O.W. (Sta 2+350 to Sta 2+640)	Arbour Hills ASP (S.E.1/4 Sec.3 Twp.72 Rge.6 W.6.M.)	340
South Half of R.O.W. (Sta 2+060 to Sta 2+640)	Hidden Valley ASP (N.E.1/4 Sec.34 Twp.71 Rge.6 W.6.M.)	710
North Half of R.O.W. (Sta 2+640 to Sta 3+430) & Full R.O.W. (Sta 3+430 to Sta 4+120)	Arbour Hills ASP (S.W.1/4 Sec.2 Twp.72 Rge.6 W.6.M.)	2,640
South Half of R.O.W. (Sta 2+640 to Sta 3+430)	Royal Oaks North OP (N.W.1/4 Sec.35 Twp.71 Rge.6 W.6.M.)	890
Full R.O.W. (Sta 4+700 to Sta 5+500)	Northeast ASP (S.E.1/4 Sec.1 Twp.72 Rge.6 W.6.M.)	1,720
Full R.O.W. (Sta 5+500 to Sta 7+530)	Kingsgate Landing OP (N.E.1/4 Sec.31 Twp.71 Rge.5 W.6.M.)	4,610

## 5 CONSTRUCTION STAGING

Construction Staging is an integral component of a complete design package. This is especially true when it should address concerns associated with the construction of a multi-stage multi-scenario assignment such as the 132nd Avenue Improvements.

The complete improvements planned for the entire corridor include existing conditions to the Ultimate scenario that will take years to implement. Incorporation of constructability perspectives into any design efforts will ensure reworks and disruptions to the daily traffic flows are minimized. During the functional planning study stage, and for the Population 65,000 and 78,000 Scenarios, most of the improvements are planned around and within the existing centerline and right of way, respectively. The design will make the use of the existing base and sub-base where possible to avoid extensive earthwork. This is because the Ultimate scenario will require a major upgrade to the corridor, including urbanization (adding curbs, gutters, etc.) which will require significant expansion of the sub-layers including base and sub-base. In addition, the earlier scenarios are intended to minimize additional underground infrastructure, except for where necessary due to adjacent developments' infrastructure requirements. The Population 90,000 scenario will require a more detailed construction staging as it will require significant upgrades to the corridor including centerline realignment, expanding on the cross-sections, potential relocation and/or installation of underground utilities, etc.

There are certain risks associated with this project in particular, or any construction activity in general. These risks will include, but may not be limited to:

- Partial or full lane closure
- Limited sight distance
- Residential and commercial site access; and
- Pedestrian and cyclist path disruption.

Similar projects, during the construction stage, have led to serious disruptions to the local traffic and adjacent site access. These situations are often the result of lack of proper risk assessment during the design process.

A Traffic Management Strategy (TMS) which is developed during the detailed design will identify all the potential risks associated with various stages of construction. It will also set a framework to mitigate those risks by outlining the required components for a Traffic Management Plan for each stage and work zone. A Traffic Management Plan (TMP) is prepared to guide the contractors into safe yet efficient construction phases. Traffic management is not an activity that can be performed once during the project and then never dealt with again.

Recommended tasks to complete and present the TMP's for this projects are set as follows:

1. Review design objectives
2. Identify proper incremental Work Zones that will accommodate construction phases

3. Conduct a Risk Assessment to categorize the work zones requirements
4. Based on the Risk Assessment outcome, a proper Traffic Management Strategy, and subsequently Traffic Management Plan will be developed. Based on the risk assessment outcome, the TMP may include the following components:
  - Traffic Control Plan(s)
  - Public Information Plan; and
  - Incident Response Plan or Incident Management Plan.
5. The Implementation Plan will identify responsibilities and procedures to ensure that traffic management sub plans are developed and implemented in a coordinated manner. Qualifications, duties and responsibilities for supervisory and management personnel responsible for implementing a TMP shall also be identified.

## 6 COST ESTIMATE

### 6.1 BASIC ASSUMPTIONS

The high level cost estimates are developed based on certain assumptions including the following:

- The unit costs, listed in Section 6.3, are derived from historical construction assignments in the region. The cost estimates are shown at their present value, and are not extrapolated to reflect an inflation rate or projected increase of fees in the future.
- Only the improvements along the 132nd Avenue corridor are taken into considerations
- There are no considerations for major utilities relocation or construction, surface or underground
- There are no considerations for the bridge expansion if found applicable in later stages
- The cost estimates are not based on any surveying information
- The estimate is subject to environmental and geotechnical investigations
- The additional land acquisition costs are not included
- The cost estimates do not include the laning reconfigurations and upgrades at existing intersections
- The cost estimates do not include construction operational costs including road closure, traffic re-route, etc.
- Detailed cost estimates are to be developed during detailed design stages; and
- These estimates will not be appropriate for any tender documents.

At the time of budgeting for this work inflationary factors and more recent unit prices should be used to determine a more appropriate cost estimate.

## 6.2 UNITS AND FINAL COST ESTIMATES

Basic cost units and the corresponding totals for each scenario are listed in **Table 6-2**.

**Table 6-2**  
**Cost Units and Totals**

Item	Unit Cost	65,000 Population	
		Quantity	Total
Traffic Signal (each)	\$ 345,000	2	\$ 690,000
2-Lane Gravel to 2-Lane Paved (per meter)	\$ 1,000	1,300	\$ 1,300,000
2-Lane Paved to 4-Lane Paves (per meter)	\$ 2,500		
<b>Total</b>			<b>~\$ 2,000,000</b>

Item	Unit Cost	78,000 Population	
		Quantity	Total
Traffic Signal (each)	\$ 345,000		
2-Lane Gravel to 2-Lane Paved (per meter)	\$ 1,000	1,700	\$ 1,700,000
2-Lane Paved to 4-Lane Paves (per meter)	\$ 2,500	2,000	\$ 5,000,000
<b>Total</b>			<b>~\$ 7,000,000</b>

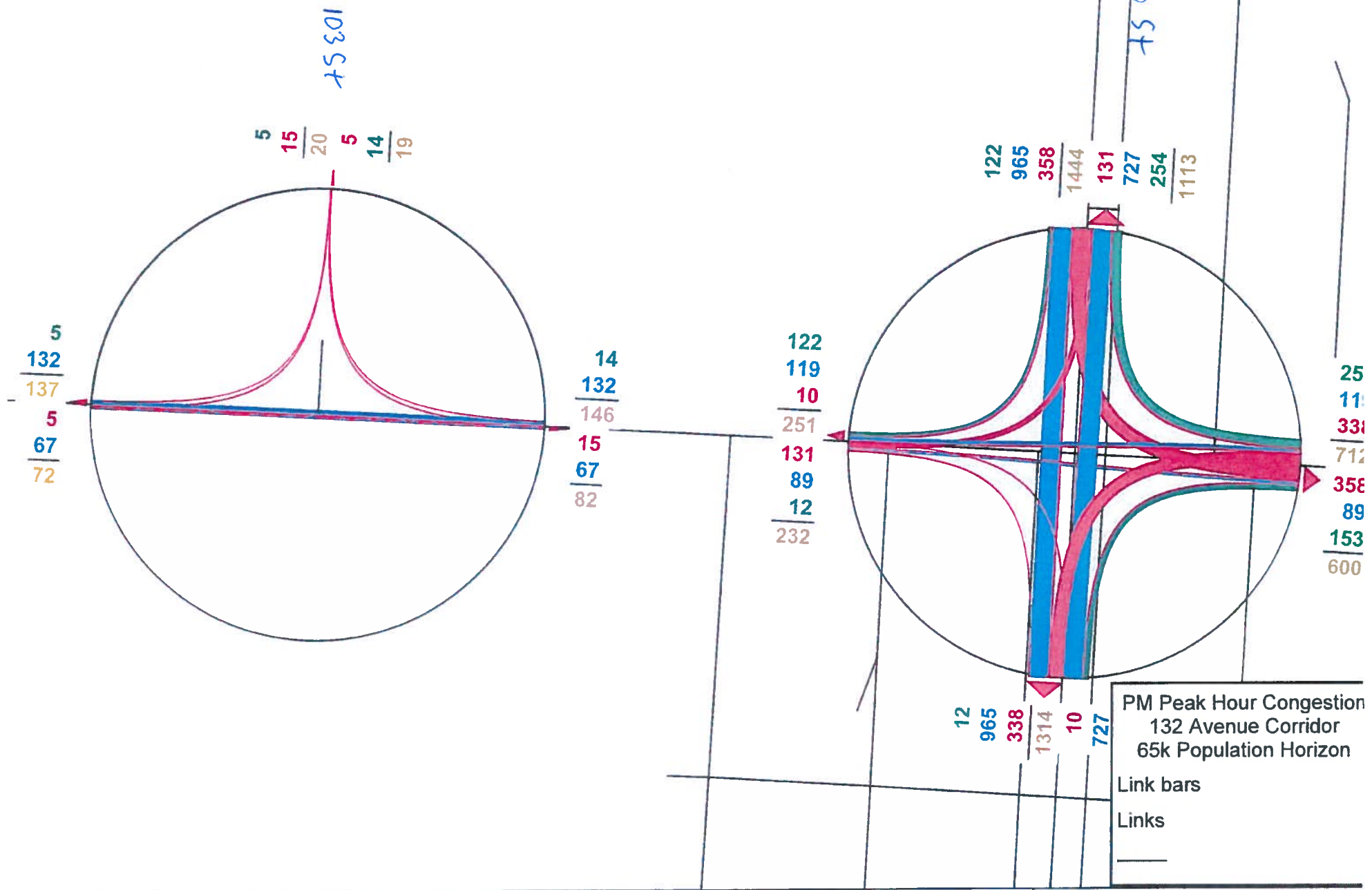
Item	Unit Cost	90,000 Population	
		Quantity	Total
Traffic Signal (each)	\$ 345,000	7	\$ 2,415,000
2-Lane Gravel to 2-Lane Paved (per meter)	\$ 1,000		
2-Lane Paved to 4-Lane Paves (per meter)	\$ 2,500	4,700	\$ 11,750,000
<b>Total</b>			<b>~\$ 15,000,000</b>

## **APPENDIX 1**

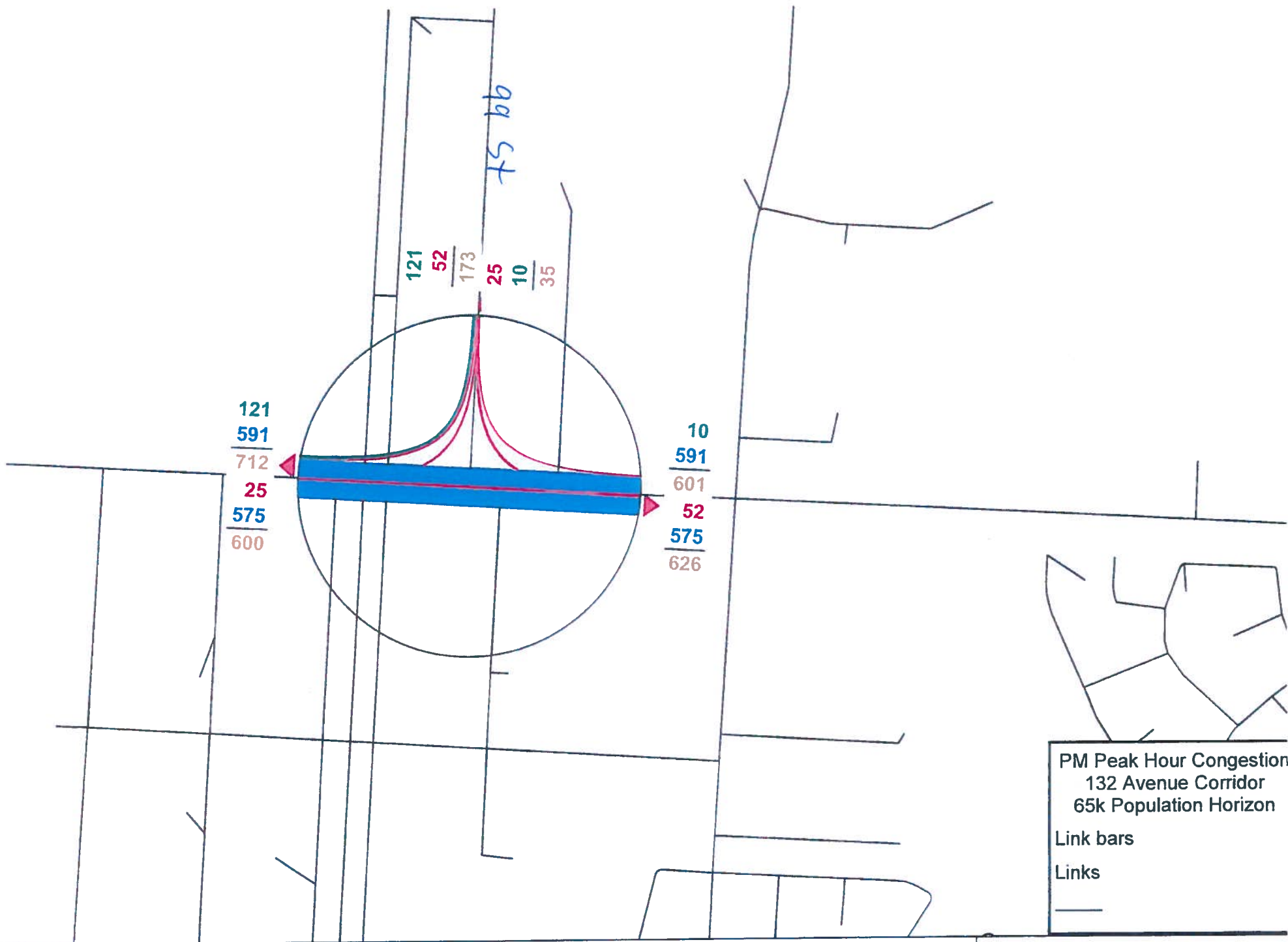
### **FUNCTIONAL PLANNING TRAFFIC VOLUMES**



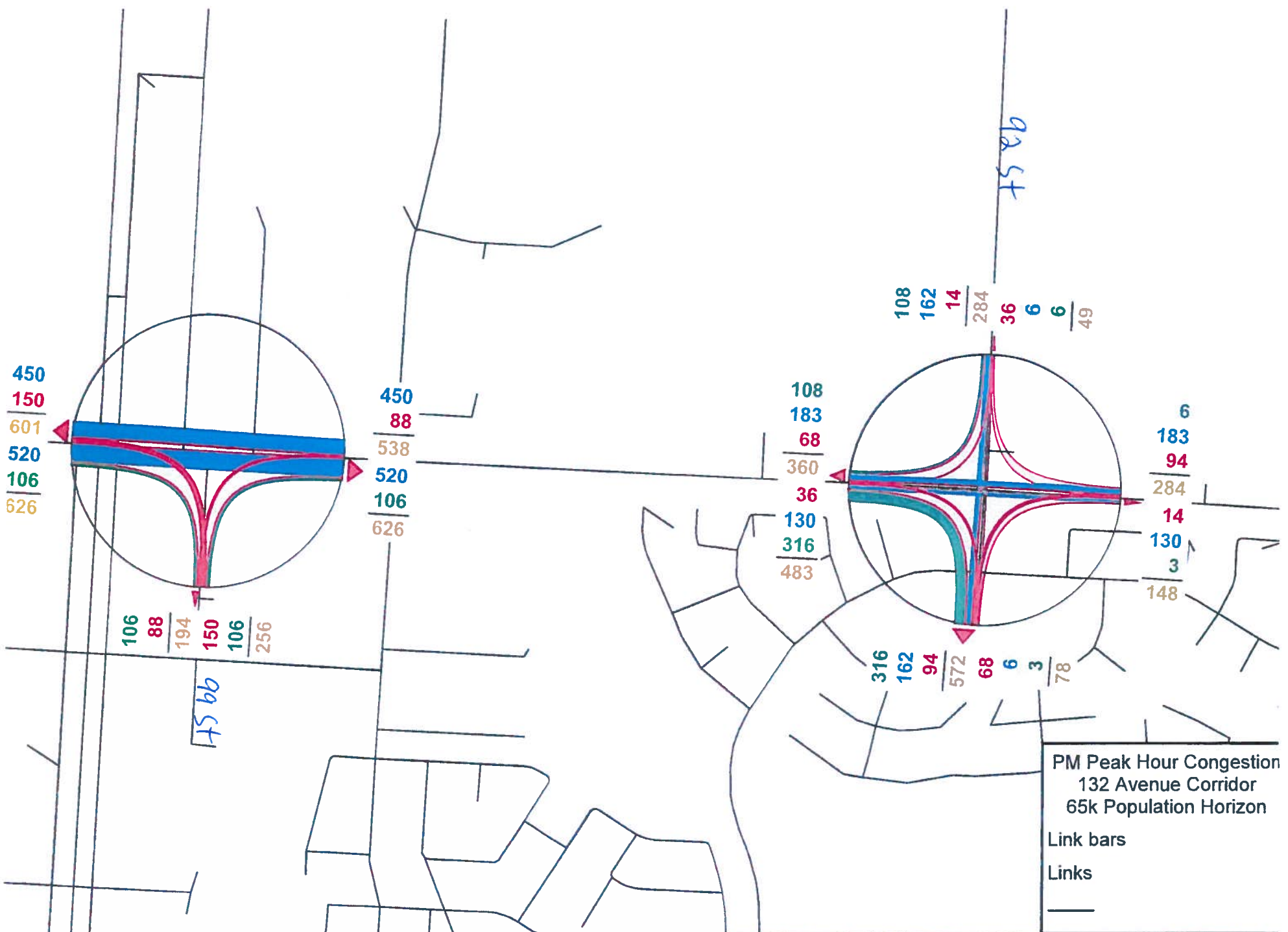
100 St & 150 St



99 St. N.



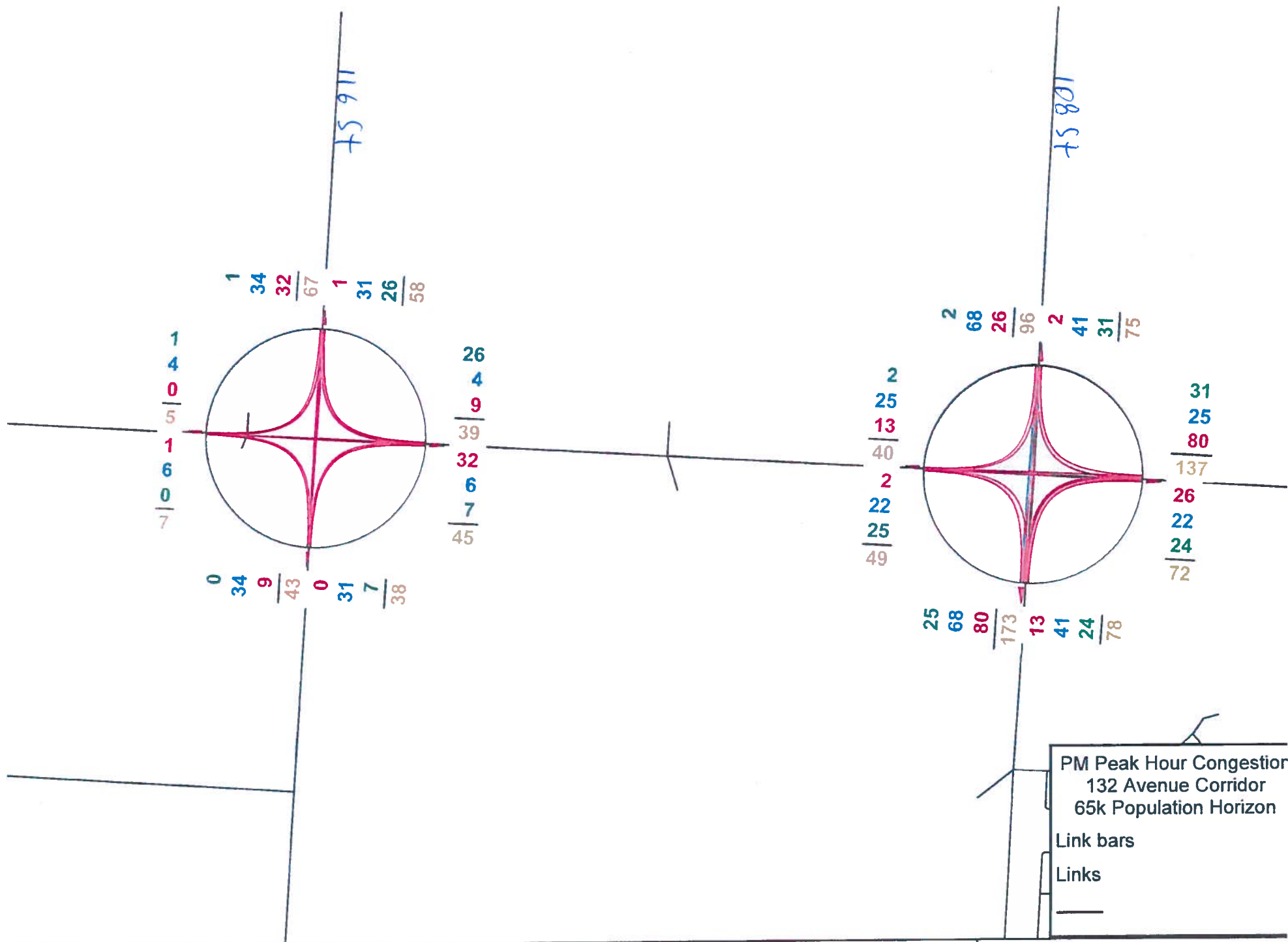
qst + 5bb + 5eb



PM Peak Hour Congestion  
132 Avenue Corridor  
65k Population Horizon

Link bars  
Links

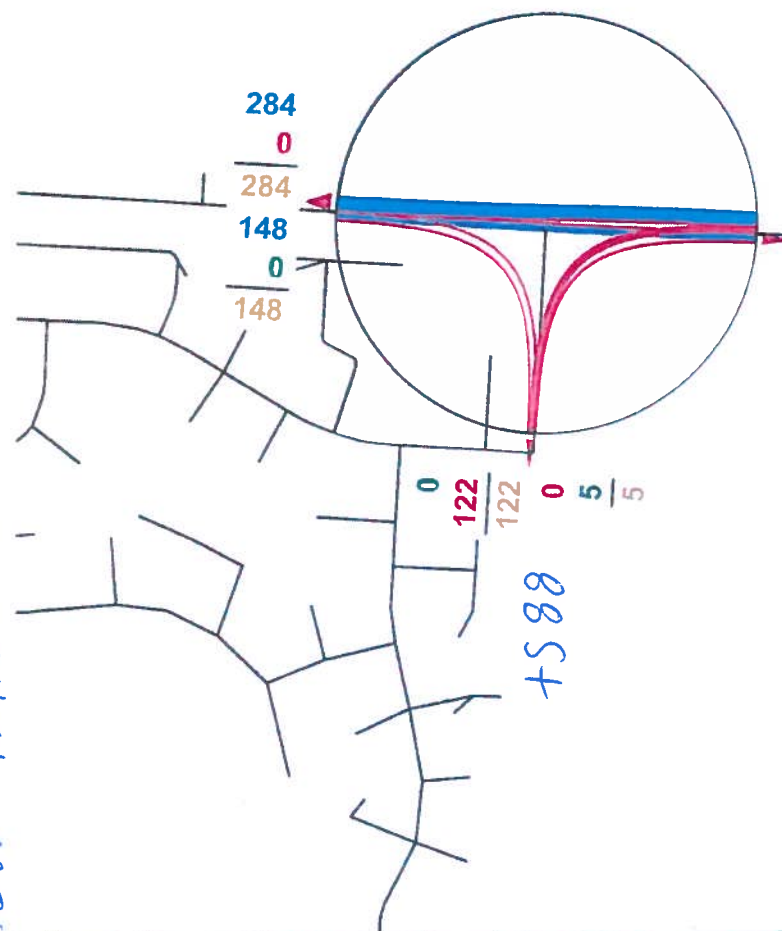
75 911 & 75 801



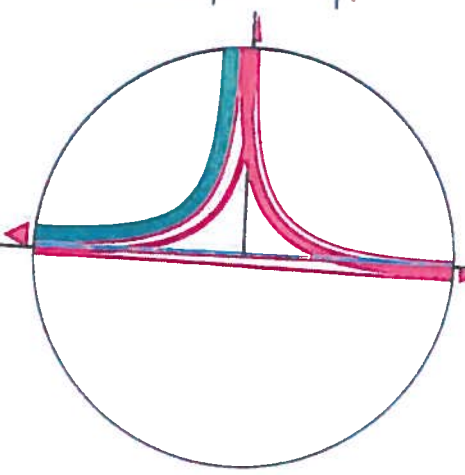
PM Peak Hour Congestion  
132 Avenue Corridor  
65k Population Horizon

Link bars  
Links

+588 +548



$$\begin{array}{r}
 284 \\
 122 \\
 \hline
 405 \\
 148 \\
 5 \\
 \hline
 153
 \end{array}
 +
 \begin{array}{r}
 314 \\
 91 \\
 \hline
 405 \\
 93 \\
 34 \\
 \hline
 128
 \end{array}$$

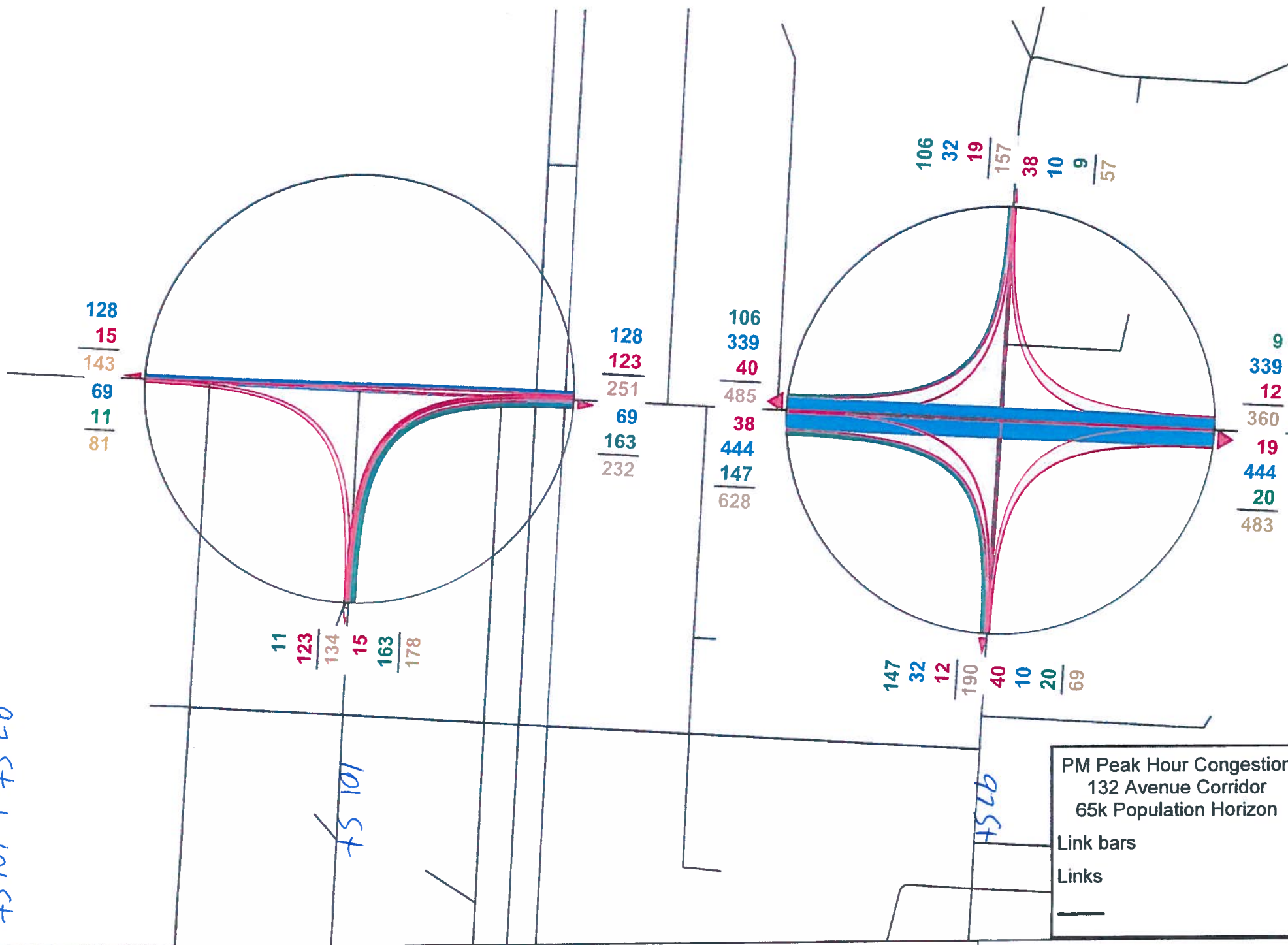


$$\begin{array}{r}
 27 \\
 91 \\
 \hline
 118 \\
 207 \\
 34 \\
 \hline
 242
 \end{array}$$

+548

PM Peak Hour Congestion  
 132 Avenue Corridor  
 65k Population Horizon  
 Link bars  
 Links

75101 + 75101

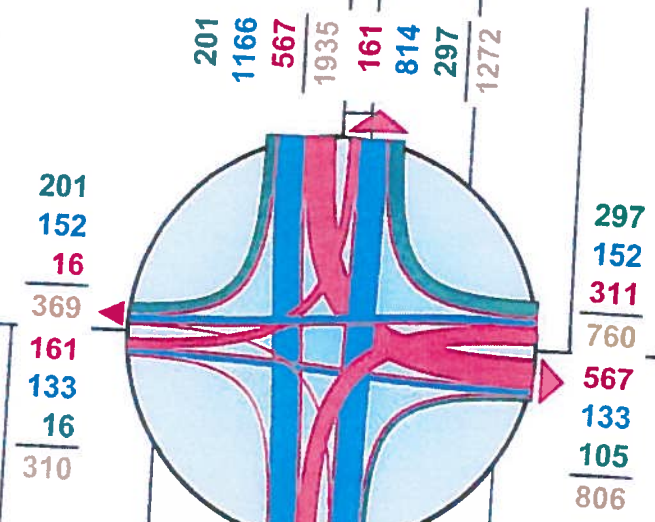
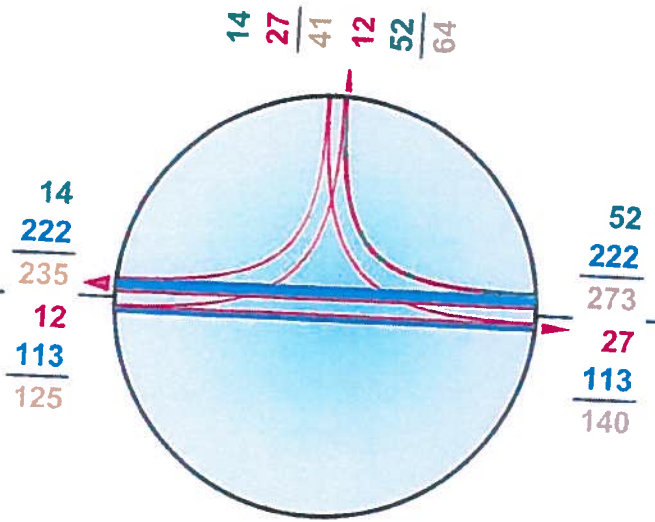




100 St + 7501

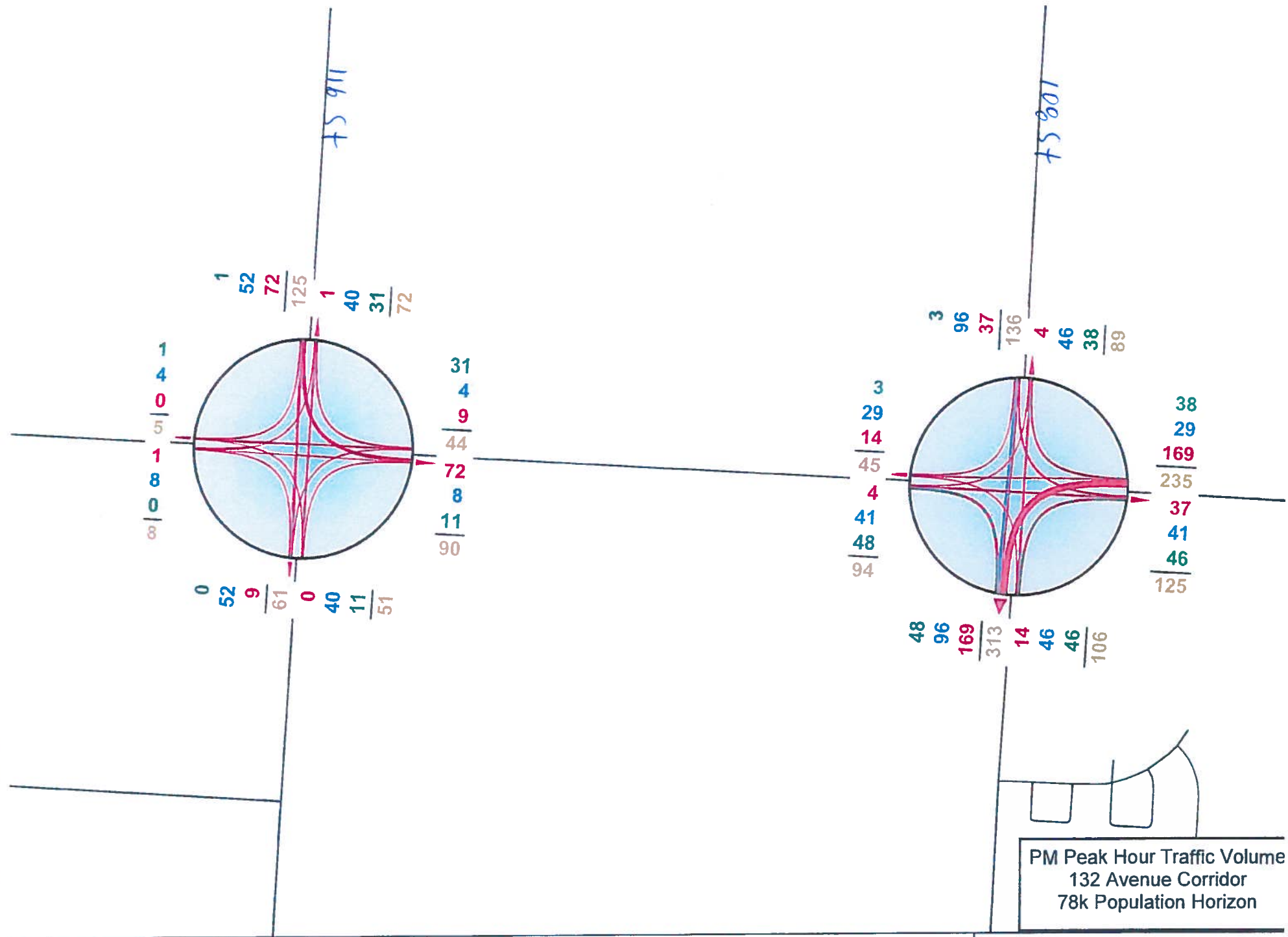
7501

100 St  
7501



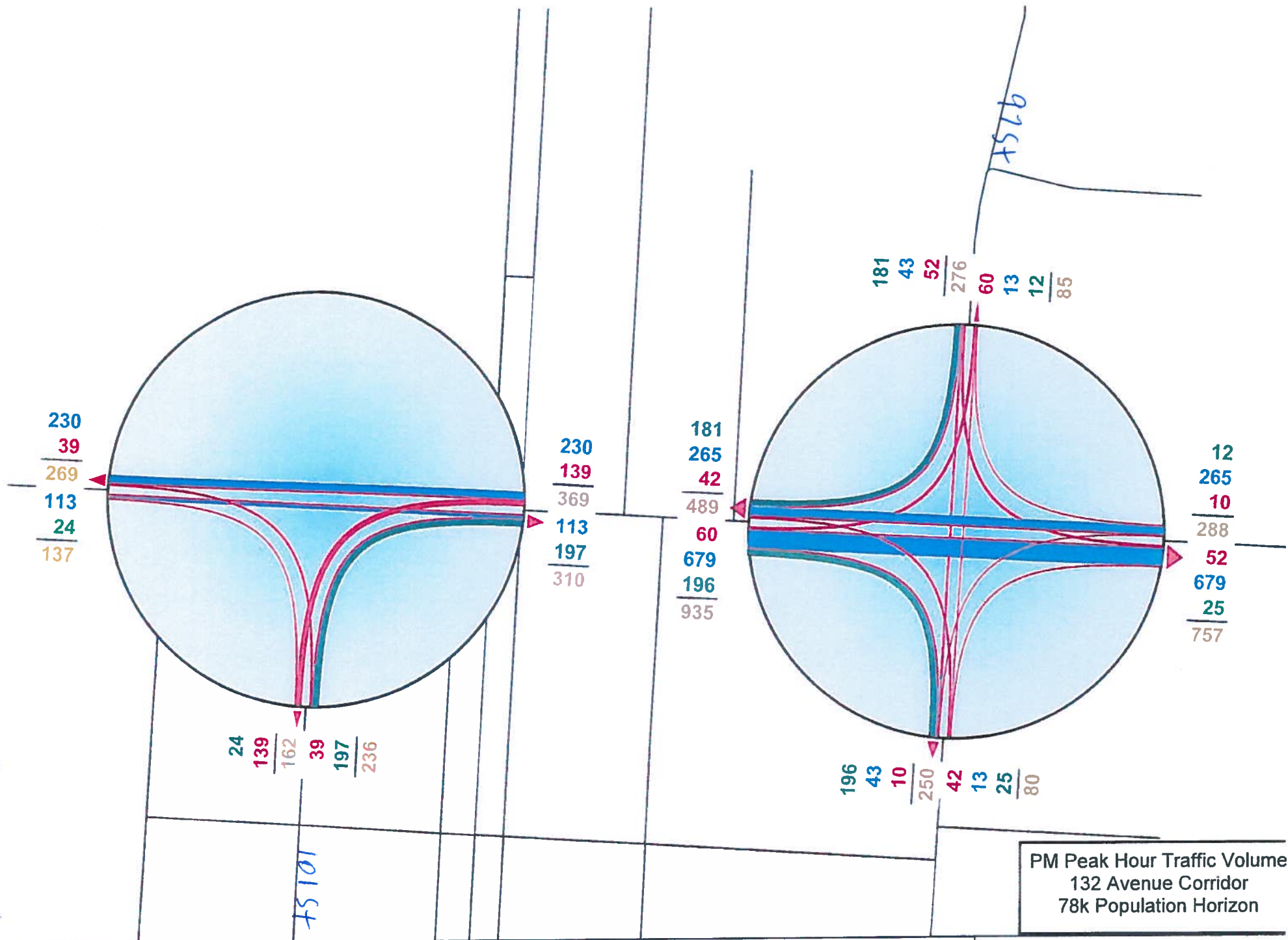
PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

75 911 + 75 801



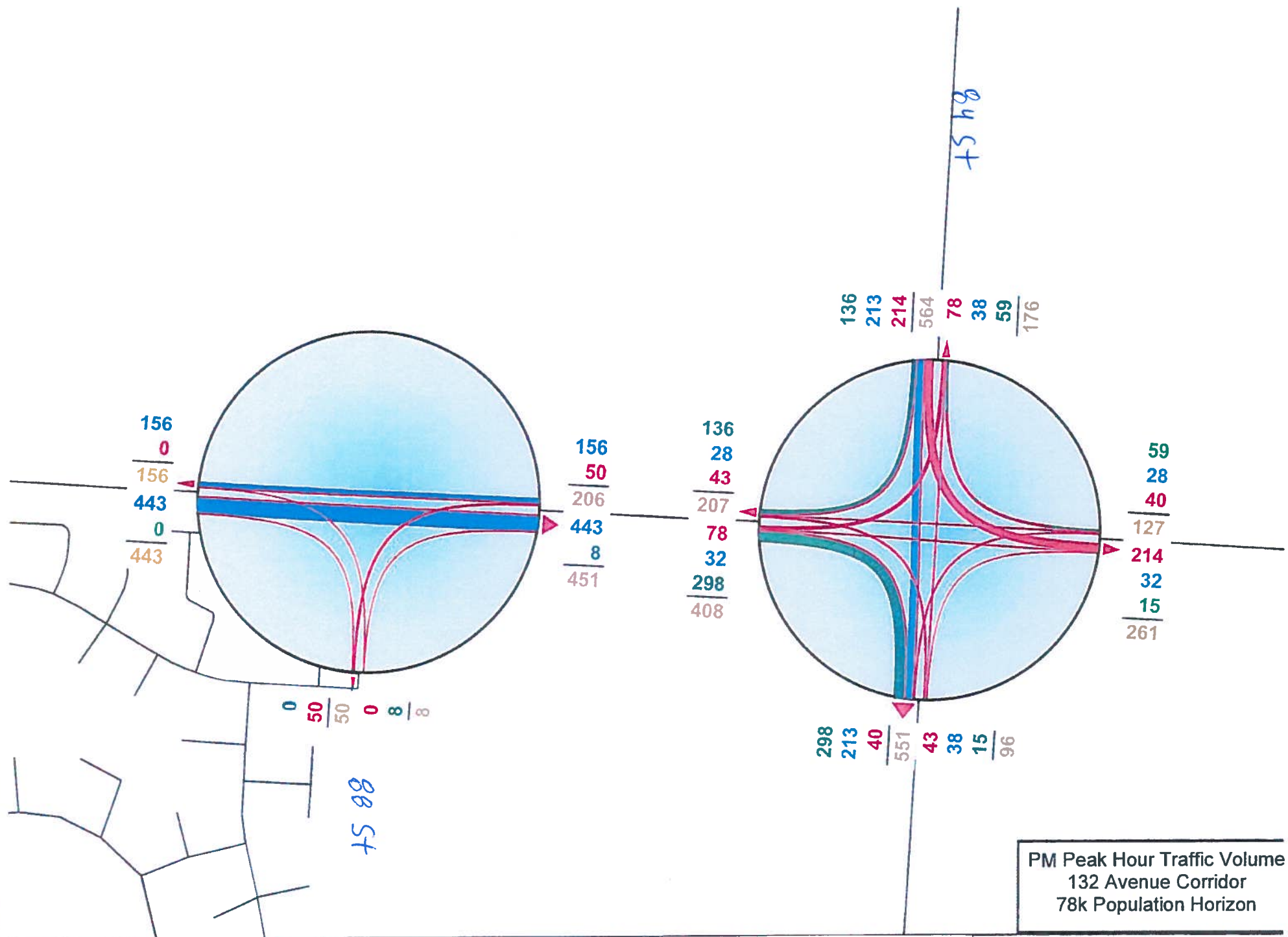
PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

75101 & 75101b



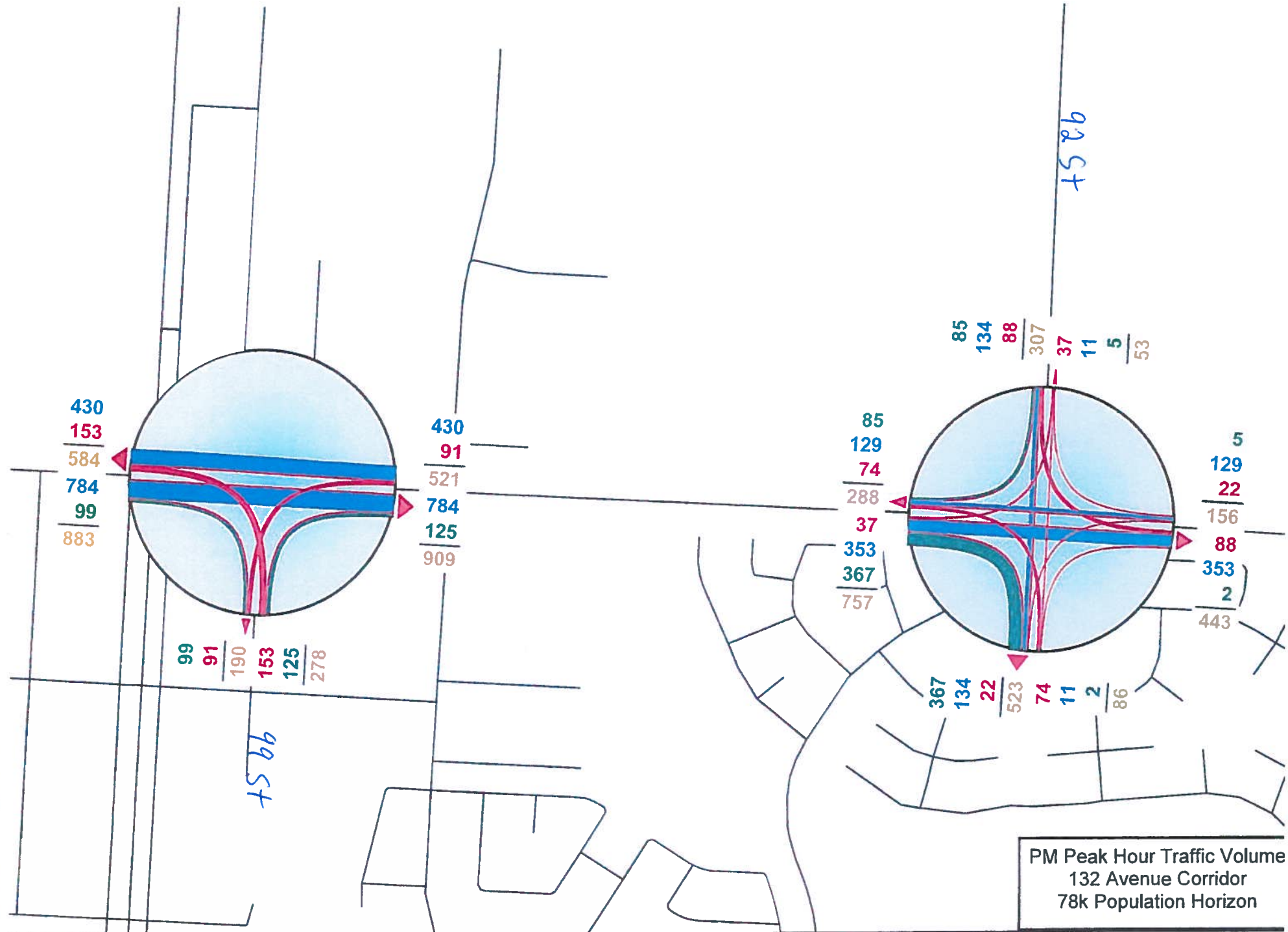
PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

7588 + 7568



PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

92 St & 75 St



PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

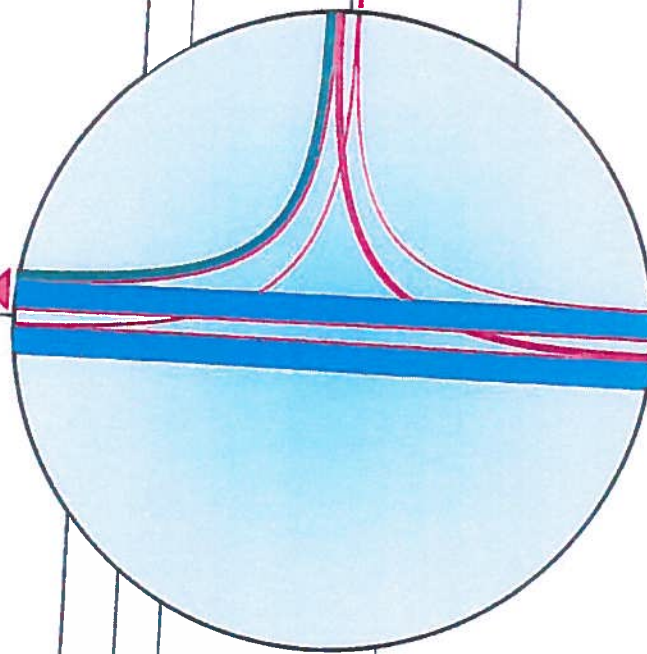
99 St. N.

99 St

187  
573  
760  
27  
778  
806

187  
105  
292  
27  
10  
38

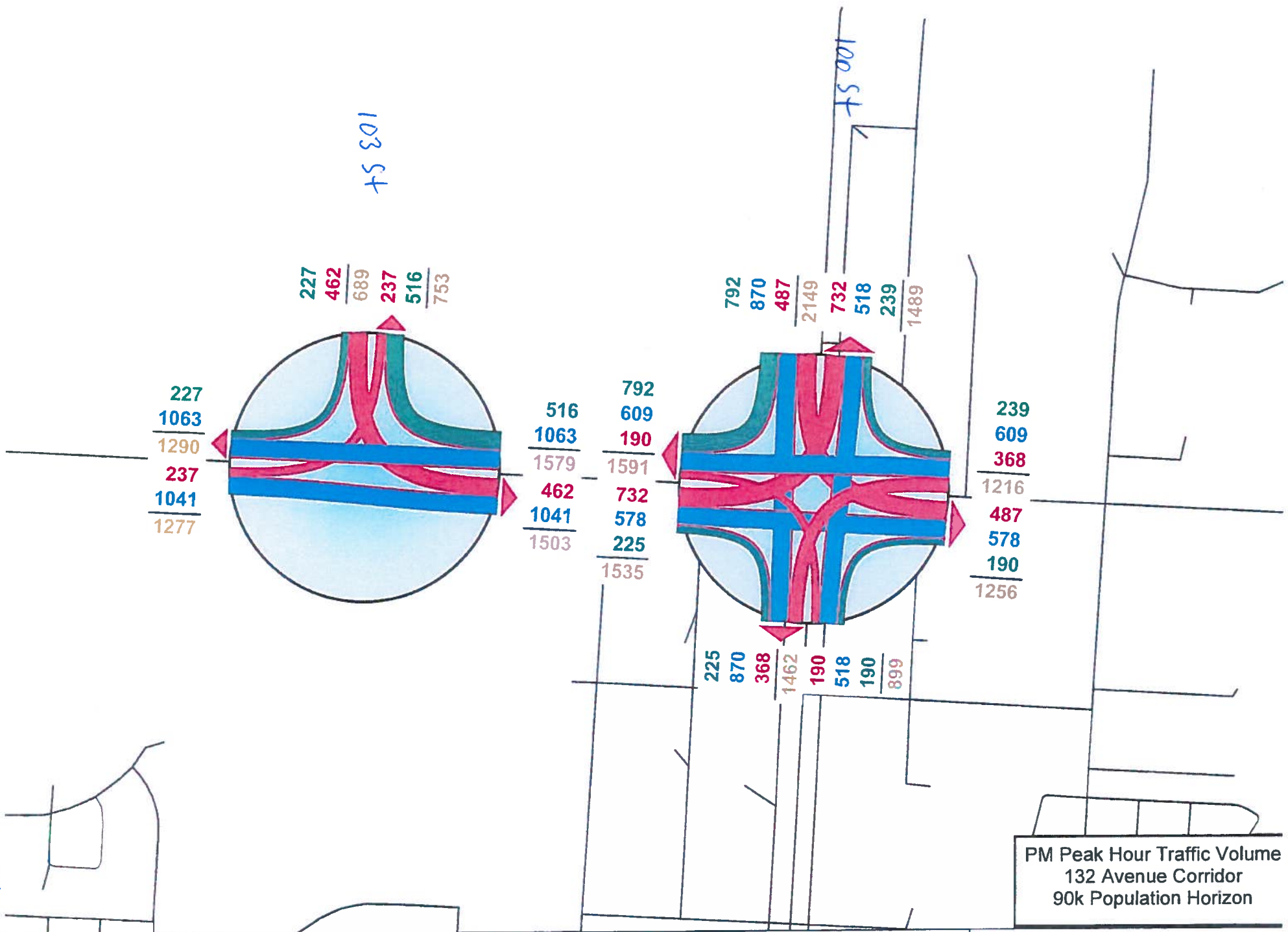
10  
573  
584  
105  
778  
883



PM Peak Hour Traffic Volume  
132 Avenue Corridor  
78k Population Horizon

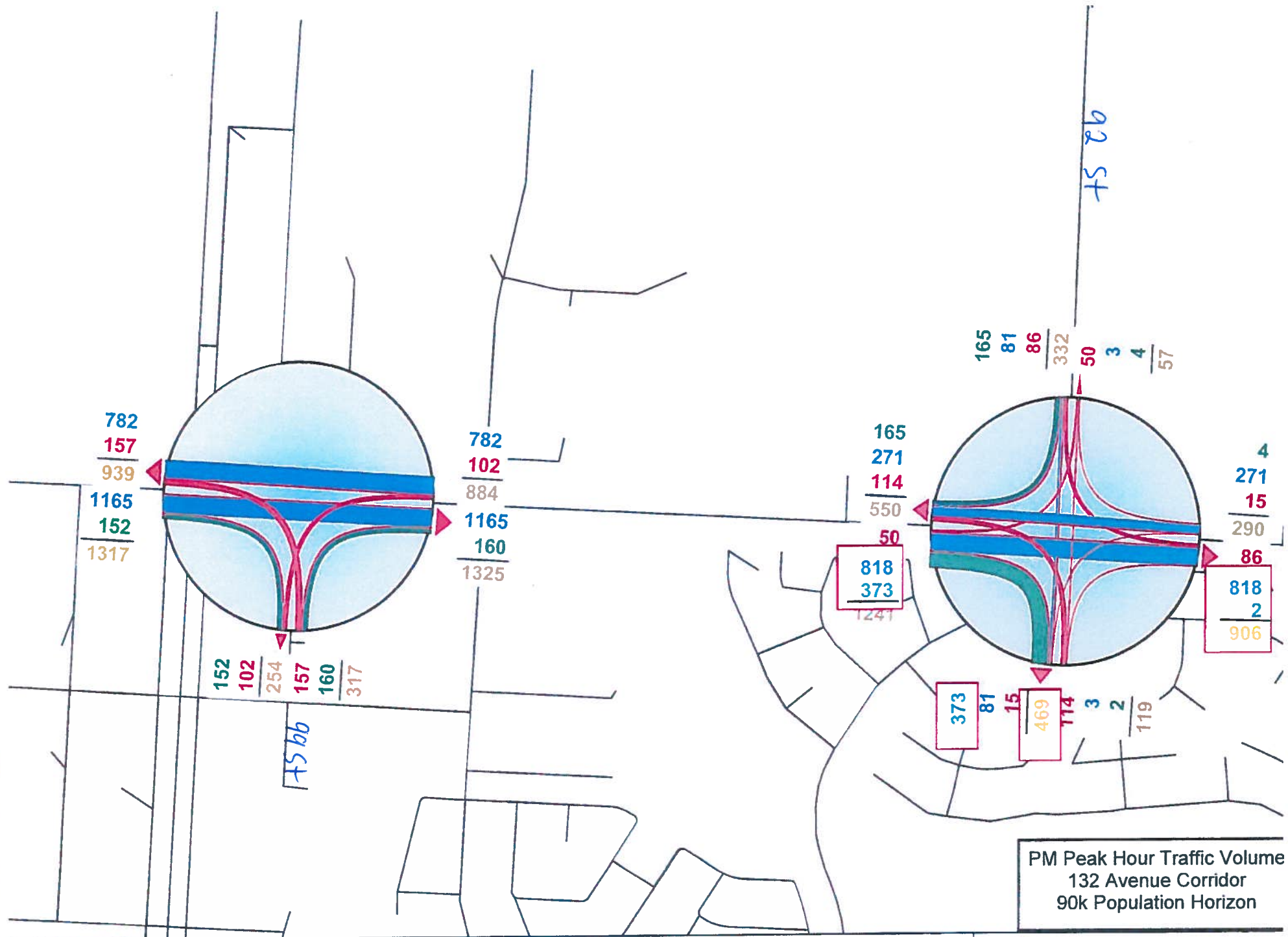


100 St + 103 St

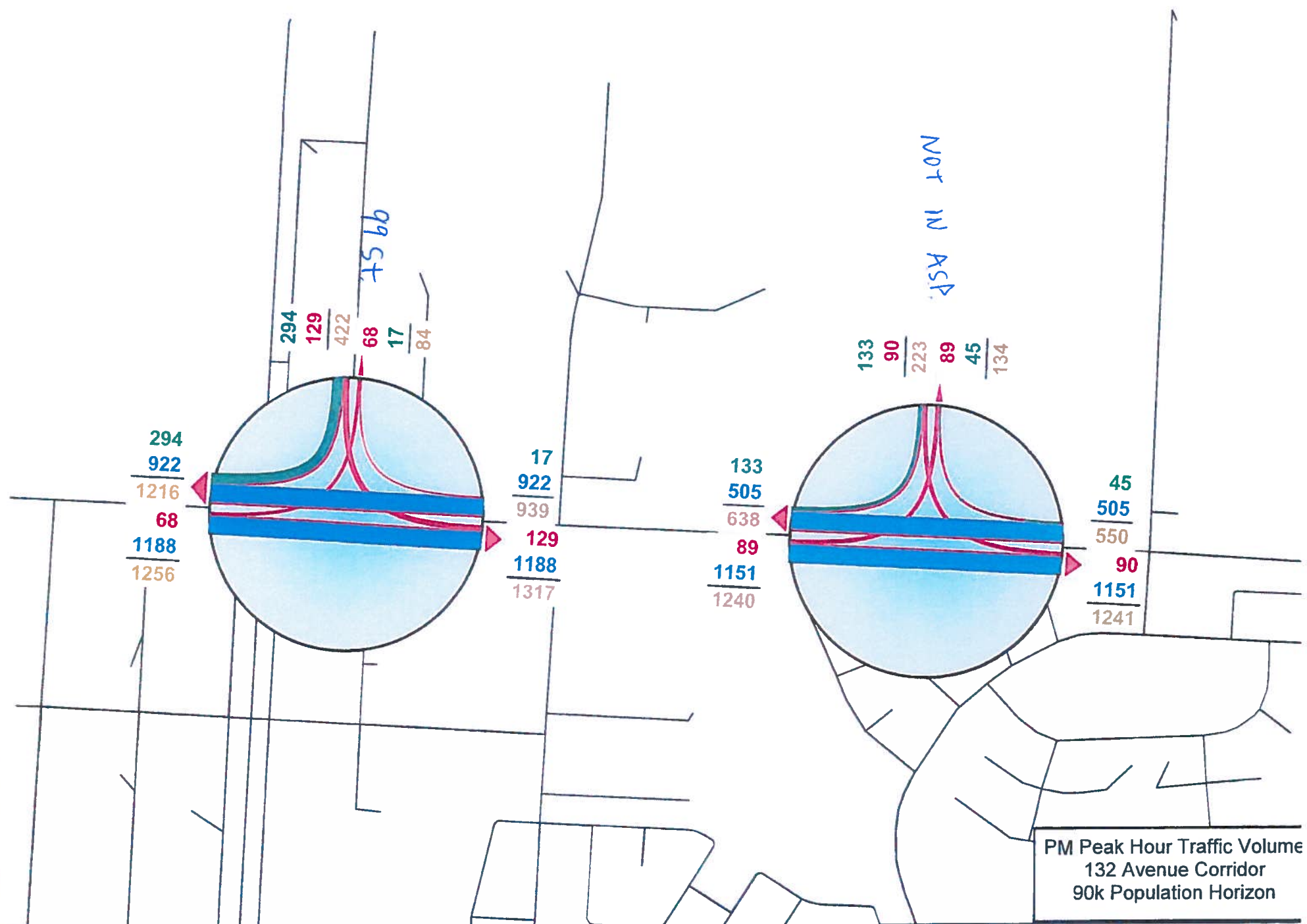


PM Peak Hour Traffic Volume  
132 Avenue Corridor  
90k Population Horizon

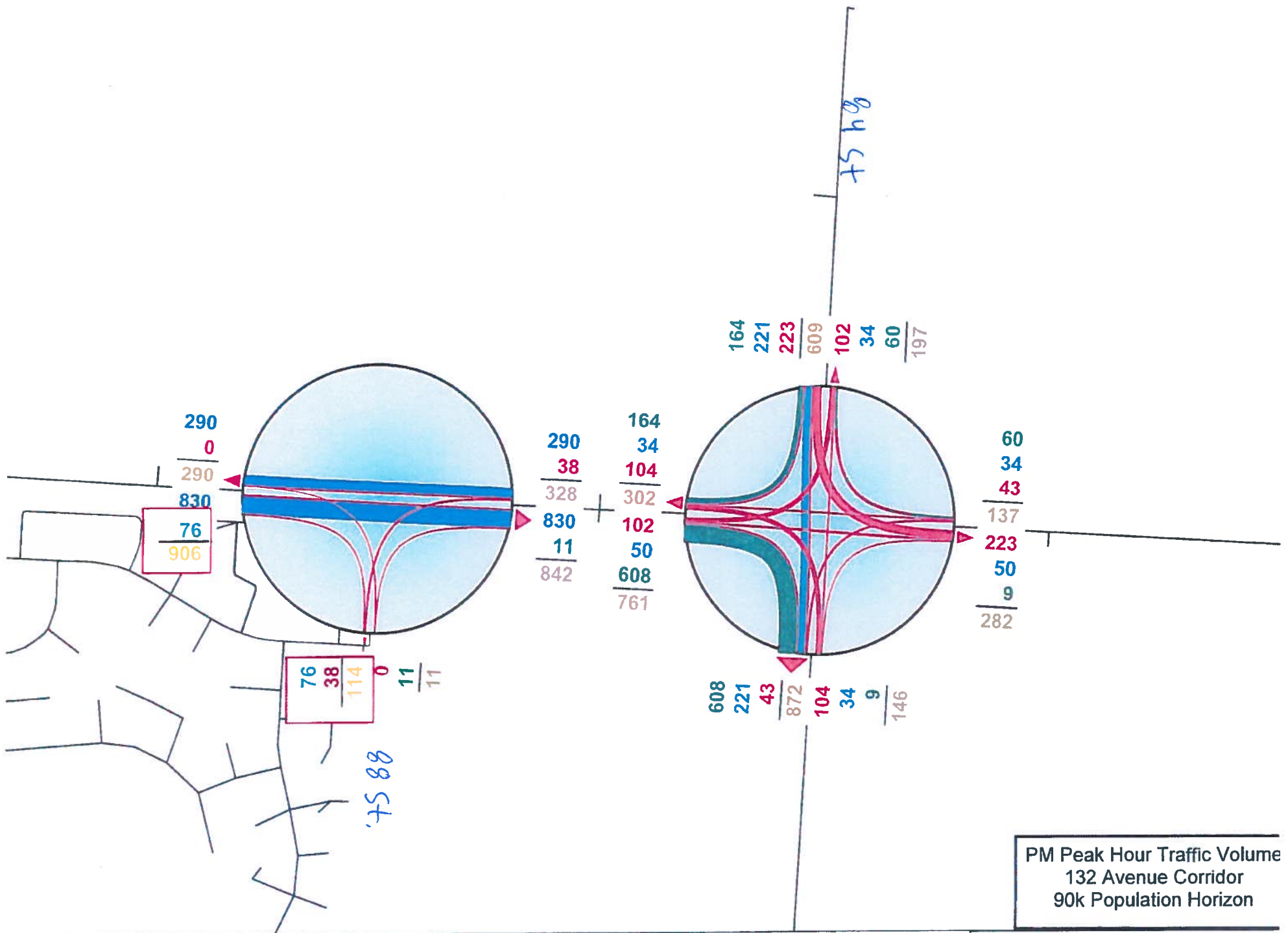
92 St + 99 St S.



99 St. N

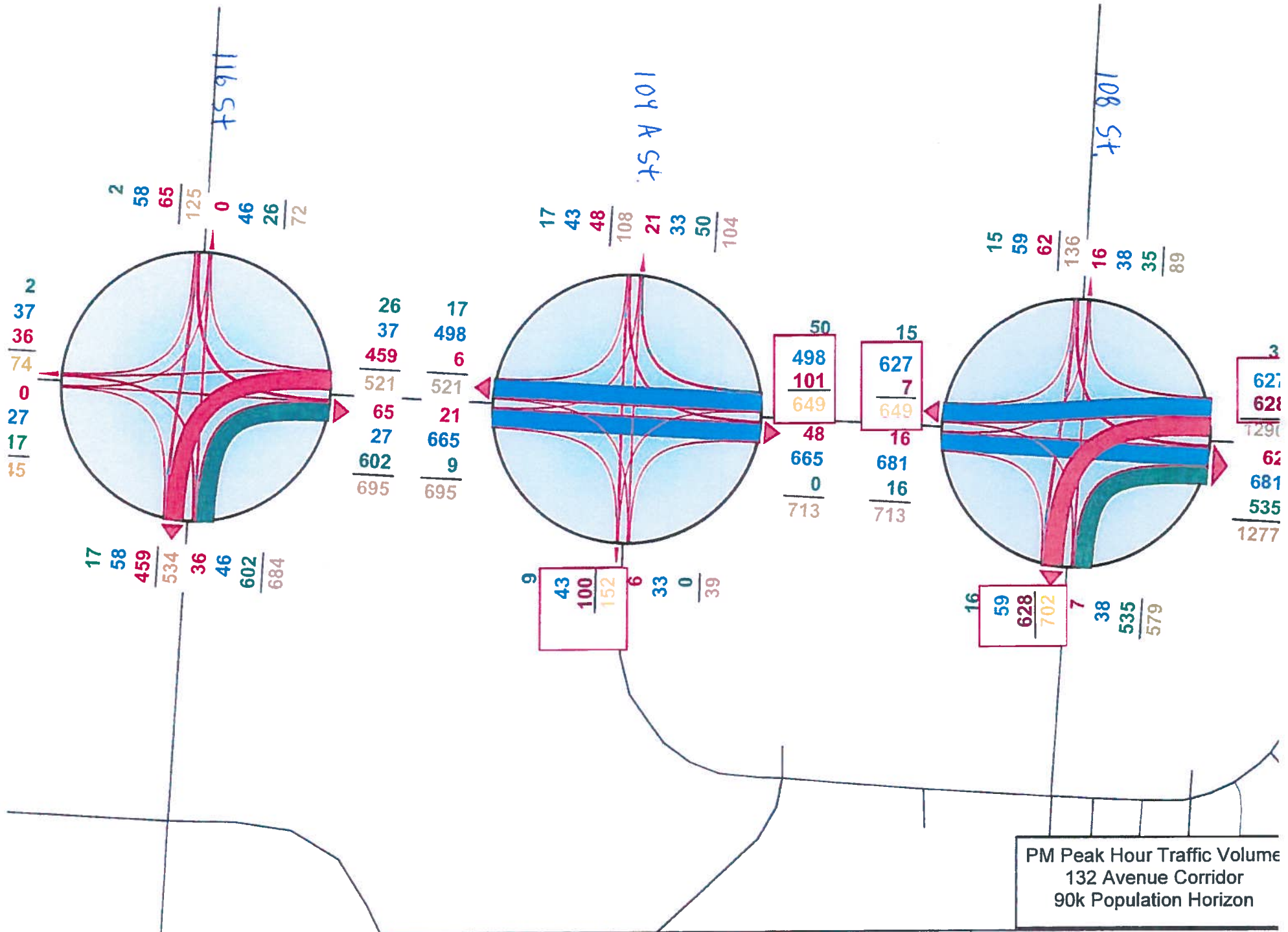


7588 + 7568

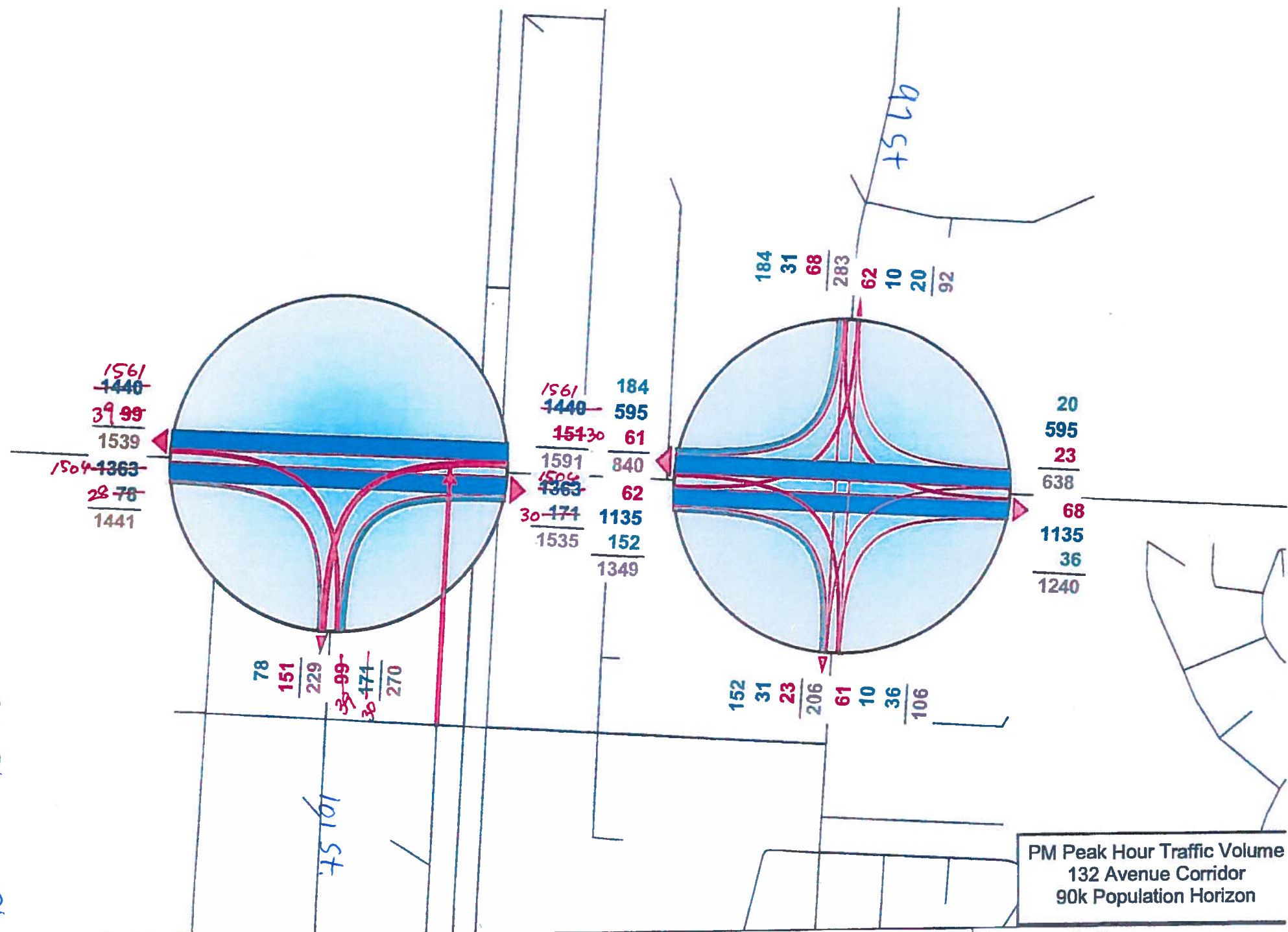


PM Peak Hour Traffic Volume  
132 Avenue Corridor  
90k Population Horizon

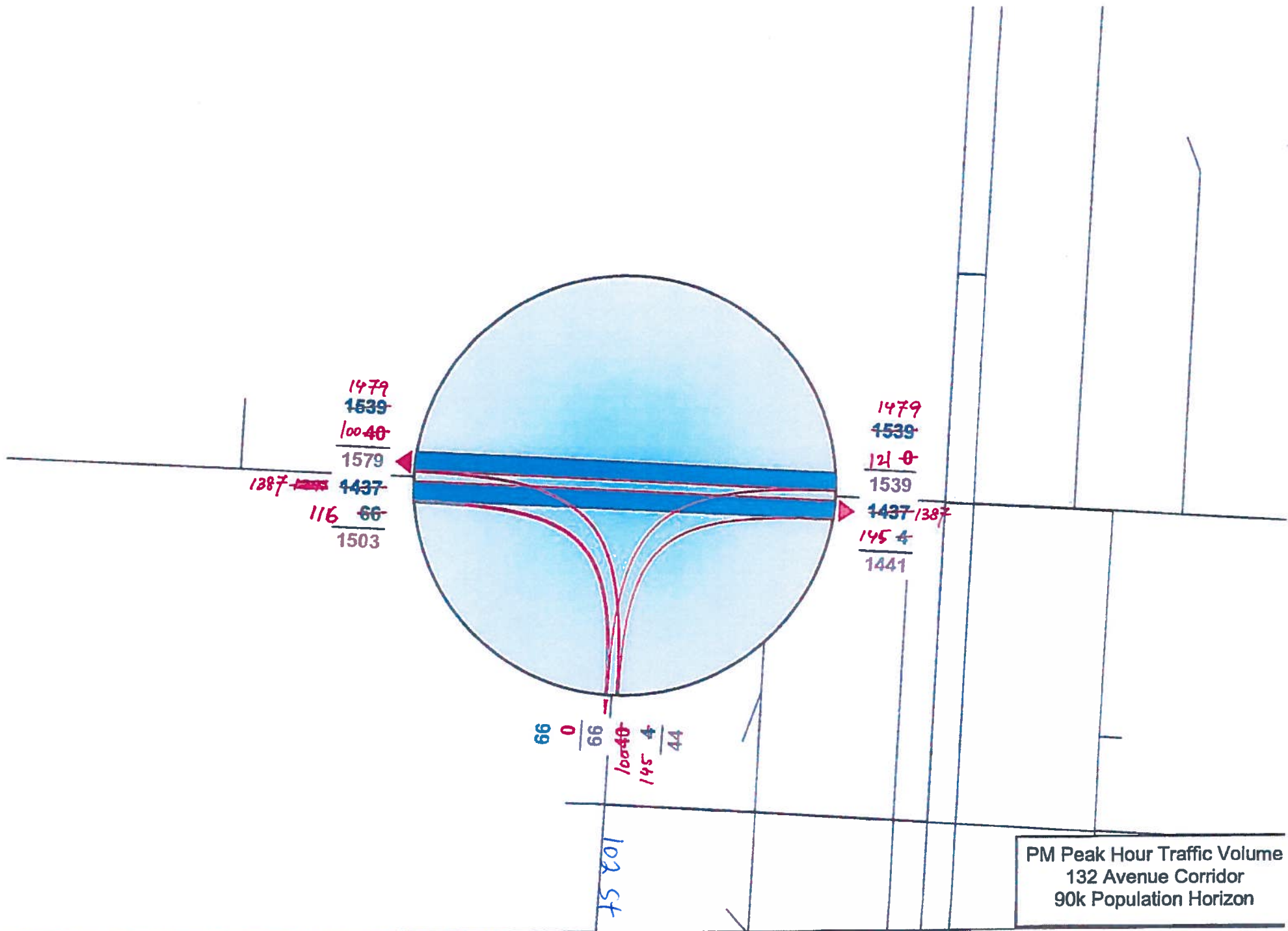
108 St. / 104 Ave. / 116 St.



75 101 + 75 66



PM Peak Hour Traffic Volume  
132 Avenue Corridor  
90k Population Horizon



## **APPENDIX 2**

### SIGNAL WARRANT STUDIES

## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW
Side Street (name)	92 St	Direction (EW or NS)	NS
Quadrant / Int #	6	Traffic Signal Warrant Analysis	
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Grande Prairie - 65K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	1	0	0	0	1	0	1,000	1
132 Avenue EB	EB	1	0	1	0	1	0	1,000	2
92 St NB	NB	0	0	0	1	0	0		
92 St SB	SB	0	1	0	0	0	0		

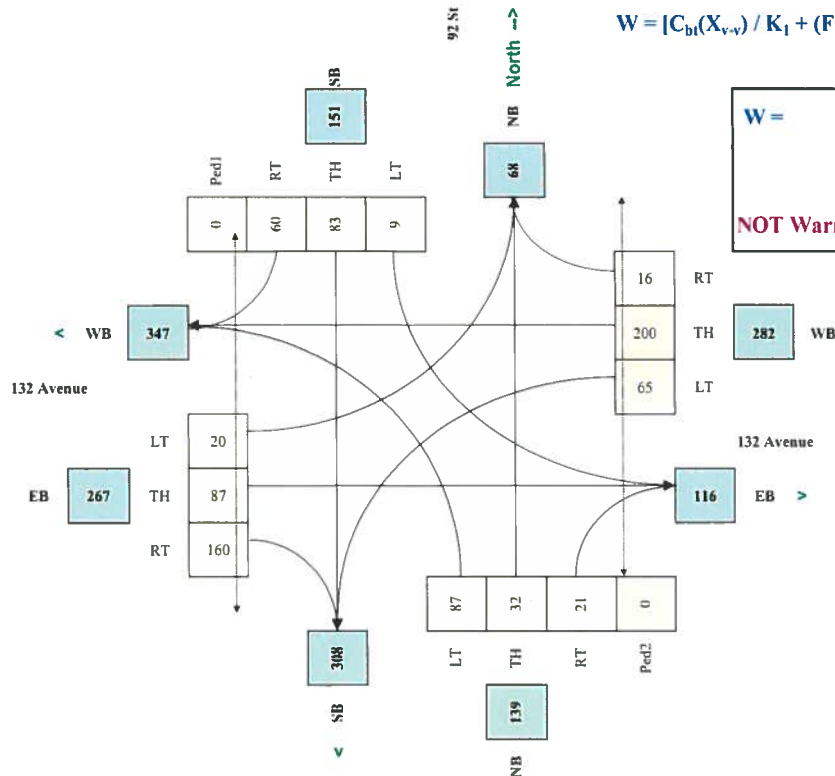
Are the 92 St NB right turns significantly impeded by through movements? (y/n) n

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
92 St	NS	50	5.0%	n	0.0

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	316	162	94	10	10	36	110	300	68	10	130	14				
8:30 - 9:30	34	5	5	7	81	54	47	150	5	18	65	158				
11:00 - 12:00	34	5	5	7	81	54	47	150	5	18	65	158				
12:00 - 13:00	34	5	5	7	81	54	47	150	5	18	65	158				
16:00 - 17:00	68	10	10	14	162	108	94	300	10	36	130	316				
17:00 - 18:00	34	5	5	7	81	54	47	150	5	18	65	158				
Total (6-hour peak)	520	192	124	52	496	360	392	1,200	98	118	520	962	0	0	0	0
Average (6-hour peak)	87	32	21	9	83	60	65	200	16	20	87	160	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 =	79	79	0
		Veh	Ped
NOT Warranted			

RESET SHEET

## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW
Side Street (name)	97 St	Direction (EW or NS)	NS
Quadrant / Int #	6	Comments	Traffic Signal Warrant Analysis
for Warrant Calculation Results, please hit 'Page Down'			
CHECK SHEET			

Road Authority:	City of Grande Prairie - 65K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, Tue
Date Entry Format:	(yyyy-mm-dd)

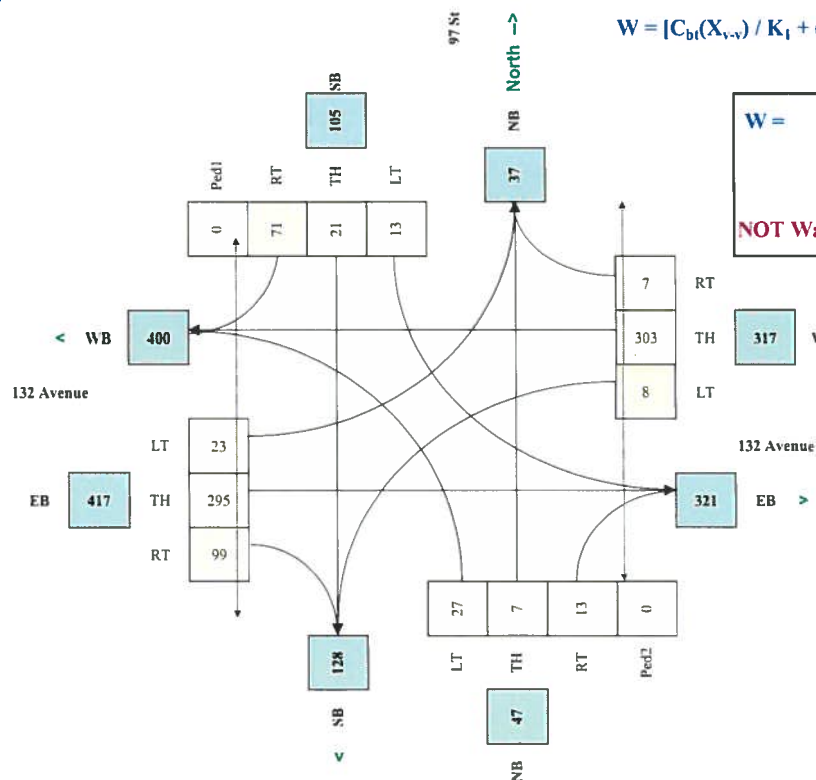
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
132 Avenue WB	WB	1	0	0	0	1	0	1,000	1
132 Avenue EB	EB	1	0	1	0	1	0	1,000	2
97 St NB	NB	0	0	0	1	0	1		
97 St SB	SB	1	0	0	0	1	0		

Are the 97 St NB right turns significantly impeded by through movements? (y/n) n  
 Are the 97 St SB right turns significantly impeded by through movements? (y/n) n

Other input	Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	80	5.0%	n	0.0
97 St NS	50	5.0%	n	0.0

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	40	10	20	20	32	106	12	454	10	38	442	147				
8:30 - 9:30	20	5	10	10	16	53	6	227	5	16	221	75				
11:00 - 12:00	20	5	10	10	16	53	6	227	5	16	221	75				
12:00 - 13:00	20	5	10	10	16	53	6	227	5	16	221	75				
16:00 - 17:00	40	10	20	20	32	106	12	454	10	38	442	147				
17:00 - 18:00	20	5	10	10	16	53	6	227	5	16	221	75				
Total (6-hour peak)	160	40	80	80	128	424	48	1,816	40	140	1,768	594	0	0	0	0
Average (6-hour peak)	27	7	13	13	21	71	8	303	7	23	295	99	0	0	0	0

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p}) L) / K_2] \times C_1$$

W =	40	40	0
		Veh	Ped
NOT Warranted			

RESET SHEET

## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments: <b>Traffic Signal Warrant Analysis</b>
Side Street (name)	102	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
CHECK SHEET				

Road Authority:	City of Grande Prairie - 65K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th & RT	Th & LT	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
132 Avenue WB	WB	1	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	0	1,000	1
102 NB	NB	0	0	0	1	0	0	1		
102 SB	SB	0	0	0	0	0	0	0		

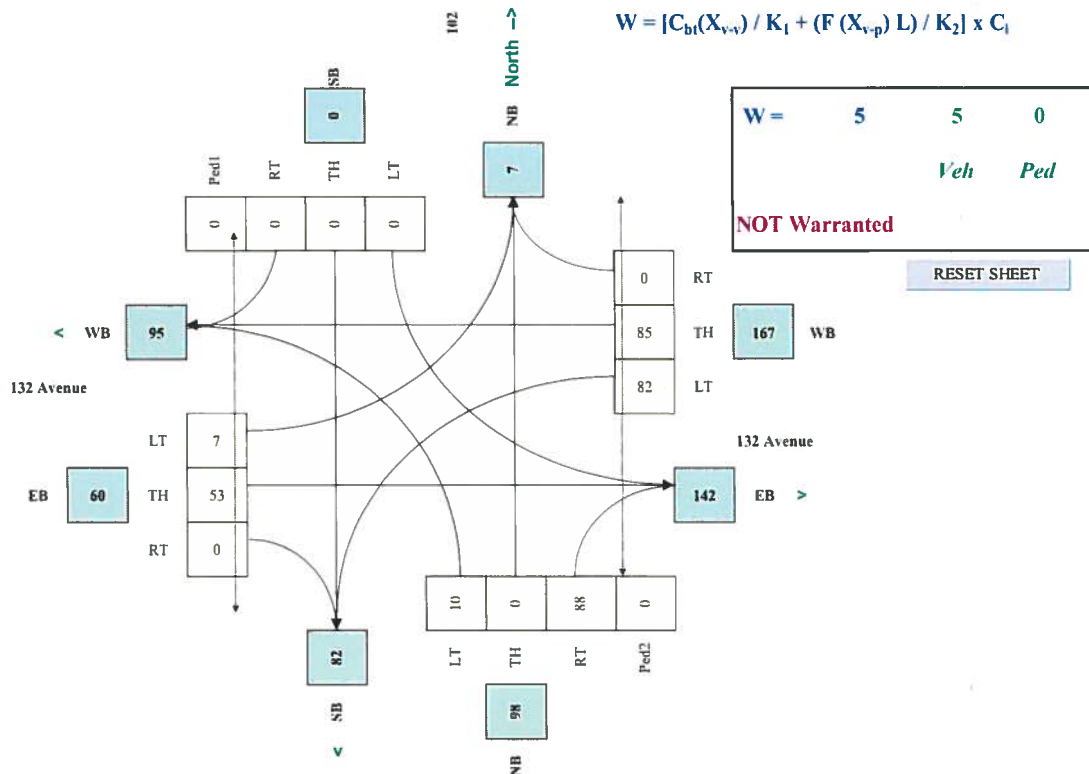
Are the 102 NB right turns significantly impacted by through movements? (y/n) n

Demographics		
Elem. School Mobility Challenge	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Other Input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	EW	80	5.0%	n	0.0
102 NS	NS	50	5.0%	n	0.0

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	15		133				123	128		11	80					
8:30 - 9:30	7		66				61	64		5	40					
11:00 - 12:00	7		66				61	64		5	40					
12:00 - 13:00	7		66				61	64		5	40					
16:00 - 17:00	15		133				123	128		11	80					
17:00 - 18:00	7		66				61	64		5	40					
Total (6-hour peak)	58	0	538	0	0	0	490	512	0	42	320	0	0	0	0	0
Average (6-hour peak)	10	0	88	0	0	0	82	85	0	7	53	0	0	0	0	0

### Average 6-hour Peak Turning Movements



## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW
Side Street (name)	104	Direction (EW or NS)	NS
Quadrant / Int #	6	Comments <b>Traffic Signal Warrant Analysis</b>	
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Grande Prairie - 65K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
104 NB	NB	0	0	0	0	0	0		
104 SB	SB	0	0	0	1	0	0		

Are the 104 SB right turns significantly impeded by through movements? (y/n)

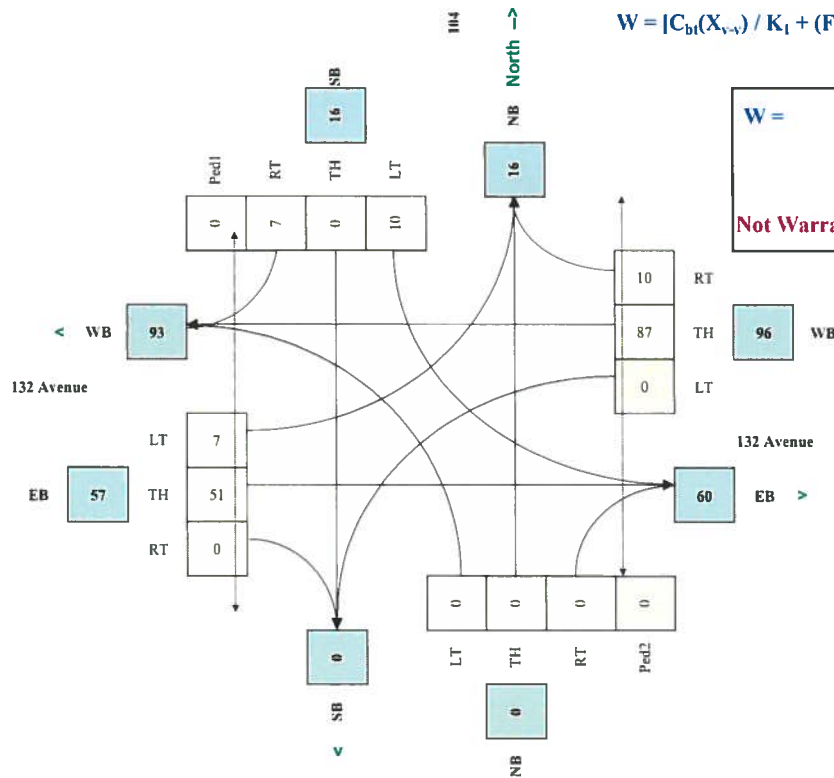
n

Other Input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	EW	80	5.0%	n	0.0
104 NS	NS	50	5.0%	n	0.0

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30				15	0	10	0	130	15	10	76	0				
8:30 - 9:30				7	0	5	0	65	7	5	38	0				
11:00 - 12:00				7	0	5	0	65	7	5	38	0				
12:00 - 13:00				7	0	5	0	65	7	5	38	0				
16:00 - 17:00				15	0	10	0	130	14	10	76	0				
17:00 - 18:00				7	0	5	0	65	7	5	38	0				
<b>Total (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>58</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>520</b>	<b>57</b>	<b>40</b>	<b>304</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>87</b>	<b>10</b>	<b>7</b>	<b>51</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_1$$

W =	1	1	0	
	Veh		Ped	
Not Warranted - Vs<75				

RESET SHEET

# City of Grande Prairie - 65k Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 65k
Side Street (name)	108	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments	Traffic Signal Warrant Analysis	Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	1	0	0	0	1	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
108 NB	NB	0	0	0	1	0	0		
108 SB	SB	0	0	0	1	0	0		

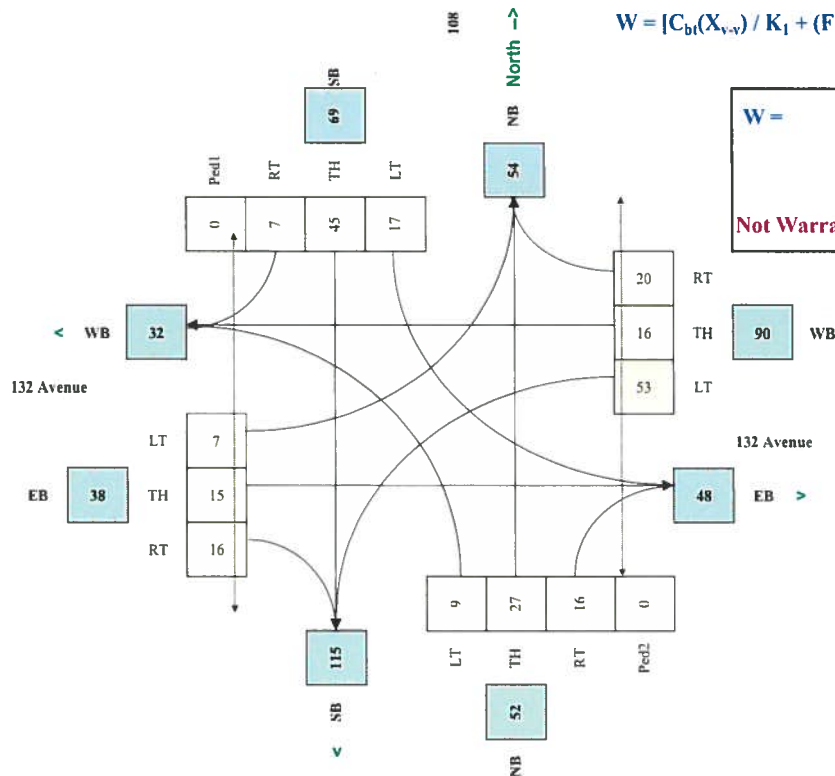
Are the 108 NB right turns significantly impacted by through movements? (y n)

Are the 108 SB right turns significantly impacted by through movements? (y n)

Other Input	Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	80	5.0%	n	0.0
108 NS	50	5.0%	n	0.0

Set Peak Hours												Ped1	Ped2	Ped3	Ped4
Traffic Input												NS	NS	EW	EW
NB			SB			WB			EB			W Side	E Side	N Side	S Side
LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT				
7:30 - 8:30	14	41	24	26	68	10	80	25	31	10	22	25			
8:30 - 9:30	7	20	12	13	34	5	40	12	15	5	11	12			
11:00 - 12:00	7	20	12	13	34	5	40	12	15	5	11	12			
12:00 - 13:00	7	20	12	13	34	5	40	12	15	5	11	12			
16:00 - 17:00	14	41	24	26	68	10	80	25	31	10	22	25			
17:00 - 18:00	7	20	12	13	34	5	40	12	15	5	11	12			
Total (6-hour peak)	54	162	96	104	272	40	320	98	122	40	88	98	0	0	0
Average (6-hour peak)	9	27	16	17	45	7	53	16	20	7	15	16	0	0	0

## Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_1$$

W =	9	9	0
		Veh	Ped
Not Warranted - Vs<75			

RESET SHEET

## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 65K
Side Street (name)	116 St	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments <b>Traffic Signal Warrant Analysis</b>		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2012 Mar 06, Tue
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th & RT	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
132 Avenue WB	WB	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
116 St NB	NB	1	0	0	0	1	0		
116 St SB	SB	1	0	0	0	1	0		

Are the 116 St NB right turns significantly impeded by through movements? (y/n)

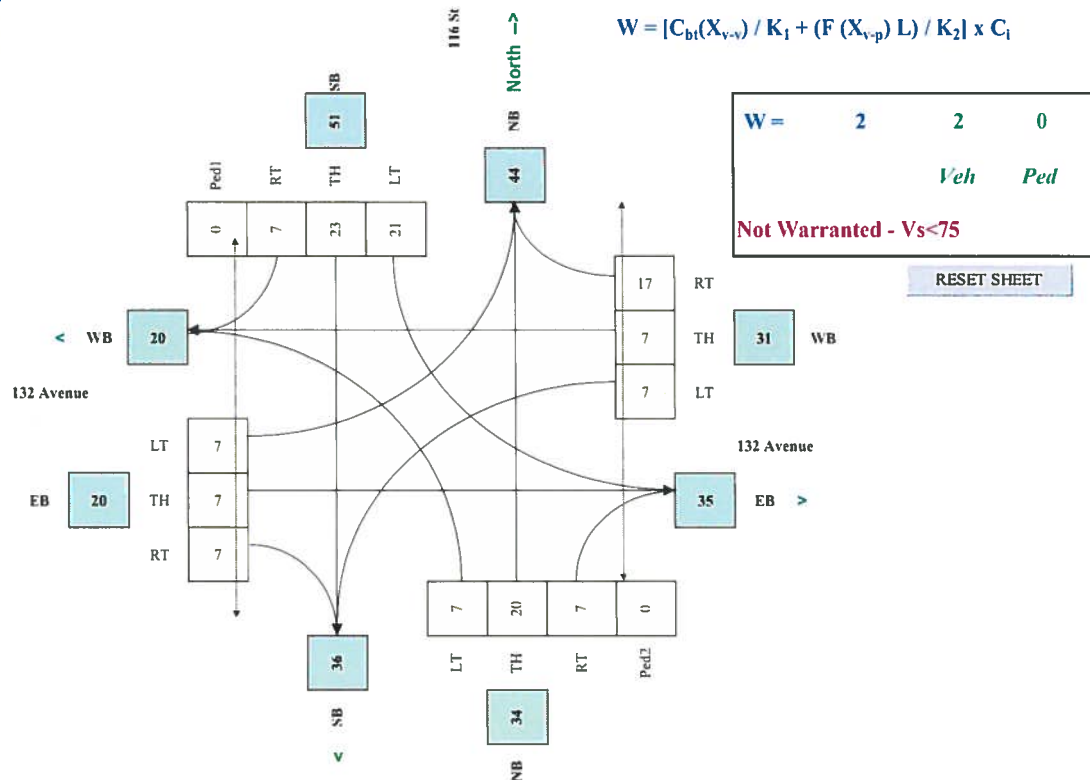
Are the 116 St SB right turns significantly impeded by through movements? (y/n)

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Other Input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW		80	5.0%	n	0.0
116 St NS		50	5.0%	n	0.0

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	10	31	10	32	34	10	10	10	26	10	10	10				
8:30 - 9:30	5	15	5	16	17	5	5	5	13	5	5	5				
11:00 - 12:00	5	15	5	16	17	5	5	5	13	5	5	5				
12:00 - 13:00	5	15	5	16	17	5	5	5	13	5	5	5				
16:00 - 17:00	10	31	10	32	34	10	10	10	26	10	10	10				
17:00 - 18:00	5	15	5	16	17	5	5	5	13	5	5	5				
<b>Total (6-hour peak)</b>	<b>40</b>	<b>122</b>	<b>40</b>	<b>128</b>	<b>136</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>104</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>7</b>	<b>20</b>	<b>7</b>	<b>21</b>	<b>23</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>17</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 65K
Side Street (name)	92 St	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments: Traffic Signal Warrant Analysis		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'				Count Date:	2012 Mar 06, Tue
CHECK SHEET				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
132 Avenue WB	WB	1	0	0	0	1	0	1,000	1
132 Avenue EB	EB	1	0	1	0	1	0	1,000	2
92 St NB	NB	0	0	0	1	0	0		
92 St SB	SB	0	1	0	0	0	1		

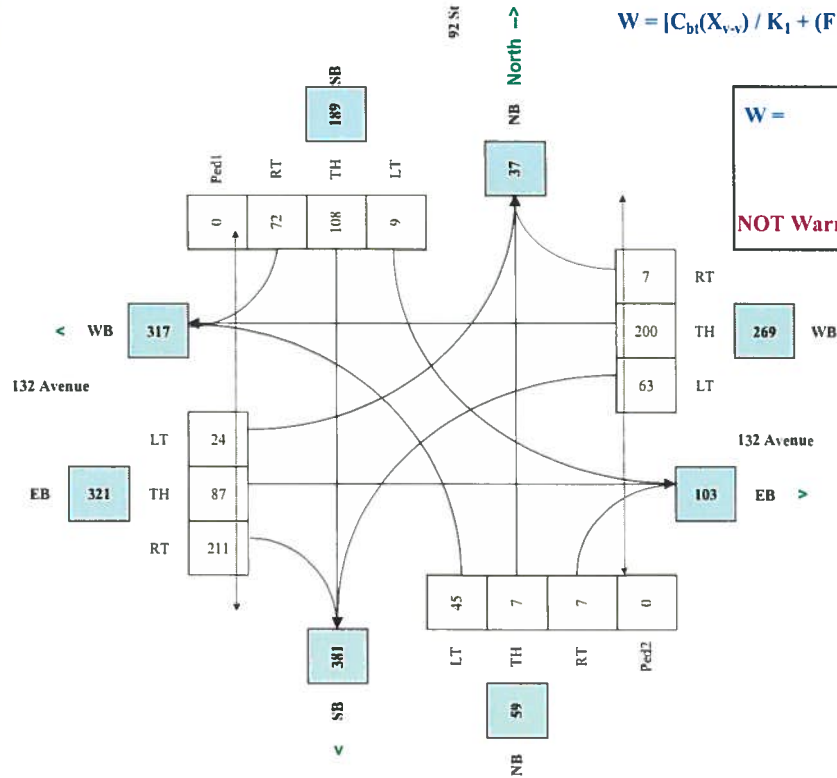
Are the 92 St NB right turns significantly impacted by through movements? (y n) n

Other Input		Speed (km/h)	Truck %	Bus Rt (y n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
92 St	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y n)	n
Senior's Complex	(y n)	n
Pathway to School	(y n)	n
Metro Area Population	(#)	50,000
Central Business District	(y n)	n

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	68	10	10	14	162	108	94	300	10	36	130	316				
8:30 - 9:30	34	5	5	7	81	54	47	150	5	18	65	158				
11:00 - 12:00	34	5	5	7	81	54	47	150	5	18	65	158				
12:00 - 13:00	34	5	5	7	81	54	47	150	5	18	65	158				
16:00 - 17:00	68	10	10	14	162	108	94	300	10	36	130	316				
17:00 - 18:00	34	5	5	7	81	54	47	150	5	18	65	158				
<b>Total (6-hour peak)</b>	<b>272</b>	<b>40</b>	<b>40</b>	<b>56</b>	<b>648</b>	<b>432</b>	<b>376</b>	<b>1,200</b>	<b>40</b>	<b>144</b>	<b>520</b>	<b>1,264</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>45</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>108</b>	<b>72</b>	<b>63</b>	<b>200</b>	<b>7</b>	<b>24</b>	<b>87</b>	<b>211</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p}) L) / K_2] \times C_1$$

W =	75	75	0
	Veh		Ped
<b>NOT Warranted</b>			

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 78K
Side Street (name)	97 St	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments: Traffic Signal Warrant Analysis		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'				Count Date:	2012 Mar 06, Tue
CHECK SHEET				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
132 Avenue WB	WB	1	0	1	0	1	0	1,000	2
132 Avenue EB	EB	1	0	2	0	0	1	1,000	2
97 St NB	NB	0	0	0	1	0	1		
97 St SB	SB	0	0	0	1	0	0		

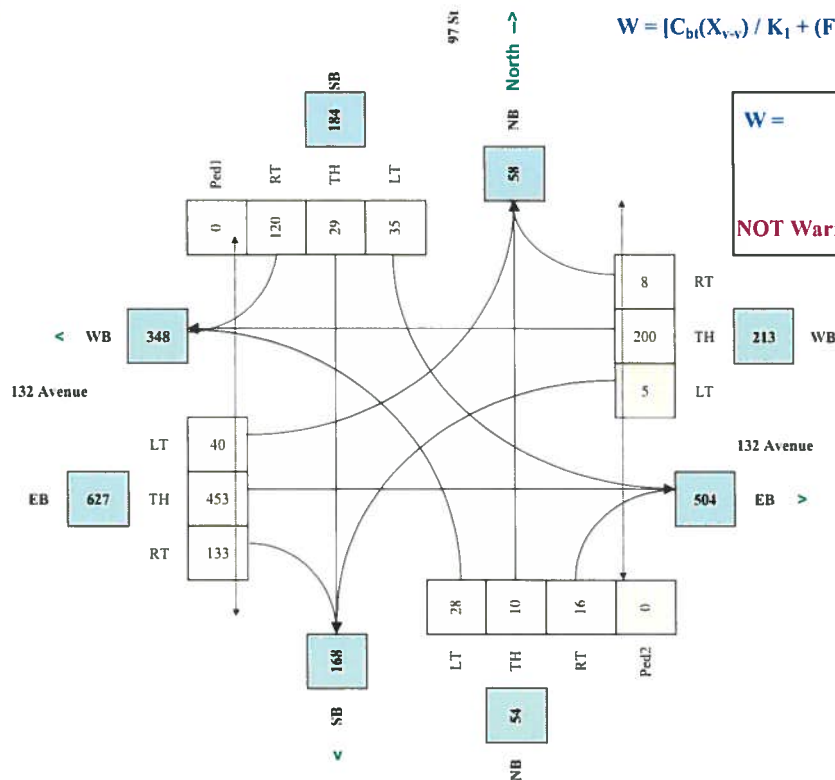
Are the 97 St NB right turns significantly impeded by through movements? (y/n) n  
 Are the 97 St SB right turns significantly impeded by through movements? (y/n) n

Other input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	EW	80	5.0%	n	0.0
97 St NS	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	42	15	25	52	44	180	5	300	12	60	680	200				
8:30 - 9:30	21	7	12	26	22	90	5	150	6	30	340	100				
11:00 - 12:00	21	7	12	26	22	90	5	150	6	30	340	100				
12:00 - 13:00	21	7	12	26	22	90	5	150	6	30	340	100				
16:00 - 17:00	42	15	25	52	44	180	5	300	12	60	680	200				
17:00 - 18:00	21	7	12	26	22	90	5	150	6	30	340	100				
Total (6-hour peak)	168	58	98	208	176	720	30	1,200	48	240	2,720	800	0	0	0	0
Average (6-hour peak)	28	10	16	35	29	120	5	200	8	40	453	133	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 =	57	57	0
	Veh		Ped
<b>NOT Warranted</b>			

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <b>Traffic Signal Warrant Analysis</b>
Side Street (name)	102	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
CHECK SHEET				

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, Tue
Date Entry Format:	(yyyy-mm-dd)

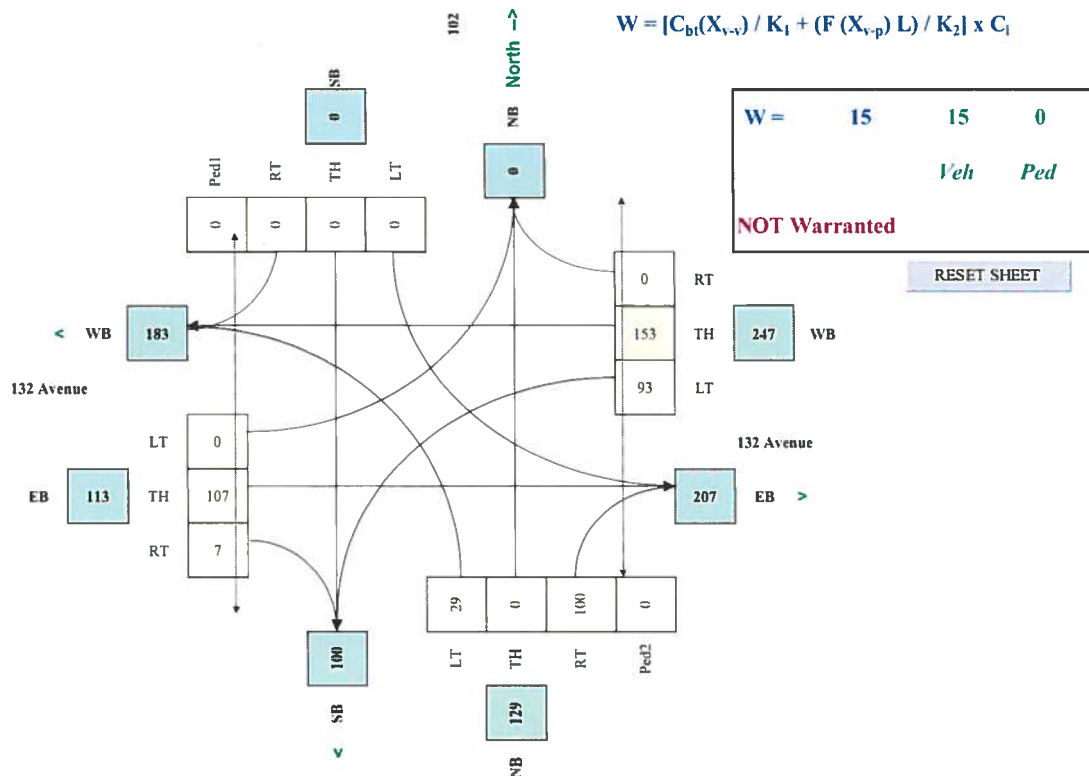
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
132 Avenue	WB	1	0	1	0	0	0	1,000	1
132 Avenue	EB	0	0	0	0	1	0	1,000	1
102	NB	1	0	0	0	0	1		
102	SB	0	0	0	0	0	0		

Demographics	(y n)	n
Elem. School Mobility Challenged	(y n)	n
Senior's Complex	(y n)	n
Pathway to School	(y n)	n
Metro Area Population	(#)	50,000
Central Business District	(y n)	n

Other Input		Speed (km/h)	Truck %	Bus Rt (y n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
102	NS	50	5.0%	n	0.0

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	44		150				140	230			160	10				
8:30 - 9:30	22		75				70	115			80	5				
11:00 - 12:00	22		75				70	115			80	5				
12:00 - 13:00	22		75				70	115			80	5				
16:00 - 17:00	44		150				140	230			160	10				
17:00 - 18:00	22		75				70	115			80	5				
<b>Total (6-hour peak)</b>	<b>176</b>	<b>0</b>	<b>600</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>560</b>	<b>920</b>	<b>0</b>	<b>0</b>	<b>640</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>29</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>93</b>	<b>153</b>	<b>0</b>	<b>0</b>	<b>107</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



# City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW
Side Street (name)	104	Direction (EW or NS)	NS
Quadrant / Int #	6	Comments	
CHECK SHEET		Traffic Signal Warrant Analysis	

for Warrant Calculation Results, please hit 'Page Down'

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
104 NB	NB	0	0	0	0	0	0		
104 SB	SB	0	0	0	1	0	0		

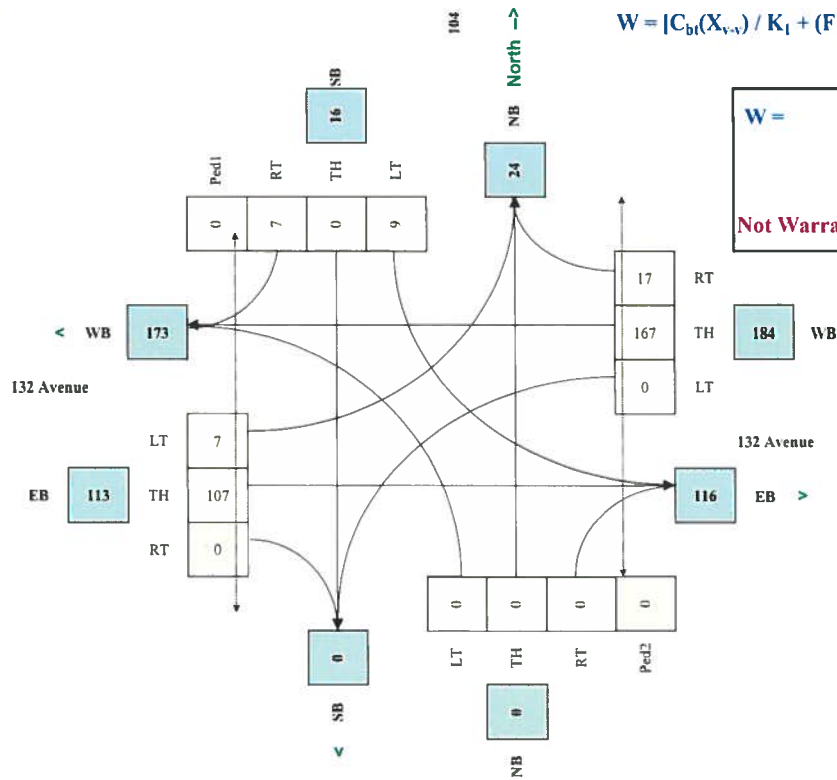
Are the 104 SB right turns significantly impeded by through movements? (y n)

Other Input		Speed (Km/h)	Truck %	Bus Rt (y n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
104	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y n)	n
Senior's Complex	(y n)	n
Pathway to School	(y n)	n
Metro Area Population	(#)	50,000
Central Business District	(y n)	n

Set Peak Hours												Ped1	Ped2	Ped3	Ped4
Traffic Input												NS	NS	EW	EW
NB			SB			WB			EB			W Side	E Side	N Side	S Side
LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT				
7:30 - 8:30			14		10		250	26	10	160					
8:30 - 9:30			7		5		125	13	5	80					
11:00 - 12:00			7		5		125	13	5	80					
12:00 - 13:00			7		5		125	13	5	80					
16:00 - 17:00			14		10		250	26	10	160					
17:00 - 18:00			7		5		125	13	5	80					
Total (6-hour peak)	0	0	56	0	40	0	1,000	104	40	640	0	0	0	0	0
Average (6-hour peak)	0	0	9	0	7	0	167	17	7	107	0	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 =	3	3	0
		Veh	Ped
Not Warranted - Vs<75			

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <b>Traffic Signal Warrant Analysis</b>
Side Street (name)	104A	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
		CHECK SHEET		

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	0	0	0	1	0	0	0	1,000	1
132 Avenue EB	0	0	0	1	0	0	0	1,000	1
104A NB	0	0	0	1	0	0	0		
104A SB	0	0	0	1	0	0	0		

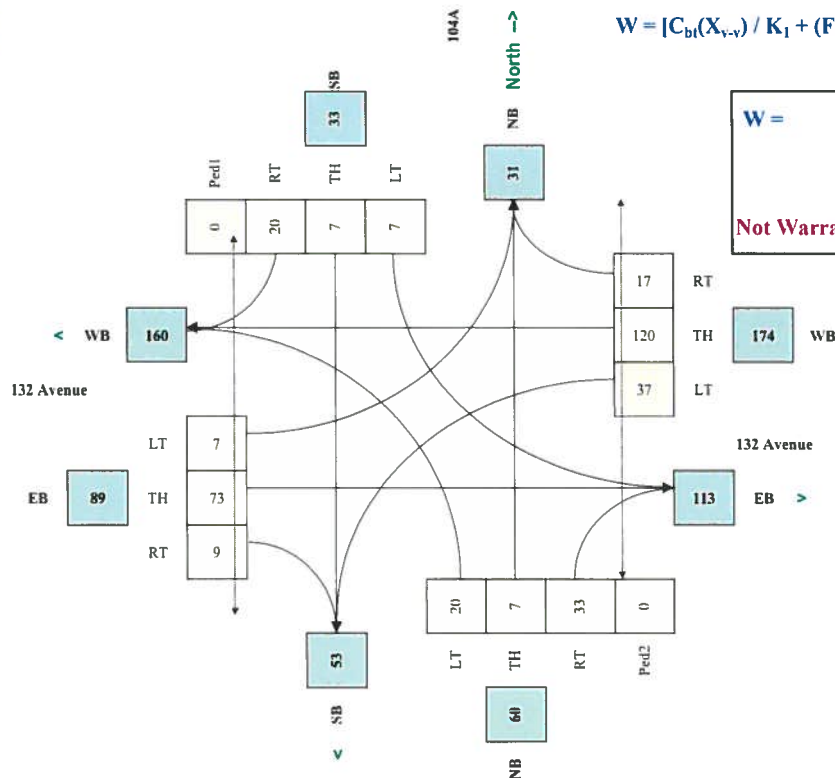
Are the 104A NB right turns significantly impacted by through movements? (y/n) **n**  
 Are the 104A SB right turns significantly impacted by through movements? (y/n) **n**

Other input	Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	40	5.0%	n	0.0
104A NS	50	5.0%	n	0.0

Demographics		
Elton School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
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						
7:30 - 8:30	30	10	50	10	10	30	55	180	26	10	110	14				
8:30 - 9:30	15	5	25	5	5	15	28	90	13	5	55	7				
11:00 - 12:00	15	5	25	5	5	15	28	90	13	5	55	7				
12:00 - 13:00	15	5	25	5	5	15	28	90	13	5	55	7				
16:00 - 17:00	30	10	50	10	10	30	55	180	26	10	110	14				
17:00 - 18:00	15	5	25	5	5	15	28	90	13	5	55	7				
<b>Total (6-hour peak)</b>	<b>120</b>	<b>40</b>	<b>200</b>	<b>40</b>	<b>40</b>	<b>120</b>	<b>222</b>	<b>720</b>	<b>104</b>	<b>40</b>	<b>440</b>	<b>56</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>20</b>	<b>7</b>	<b>33</b>	<b>7</b>	<b>7</b>	<b>20</b>	<b>37</b>	<b>120</b>	<b>17</b>	<b>7</b>	<b>73</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 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 =	11	11	0
	Veh		Ped
Not Warranted - Vs<75			

RESET SHEET

## City of Grande Prairie - 78k Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 78k
Side Street (name)	108	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments <b>Traffic Signal Warrant Analysis</b>		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2012 Mar 06, Tue
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th RT+LT	Th & RT	Excl RT	Up-Stream Signal (m)	# of Thru Lanes
132 Avenue WB	WB	1	0	0	0	1	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
108 NB	NB	0	0	0	1	0	0		
108 SB	SB	0	0	0	1	0	0		

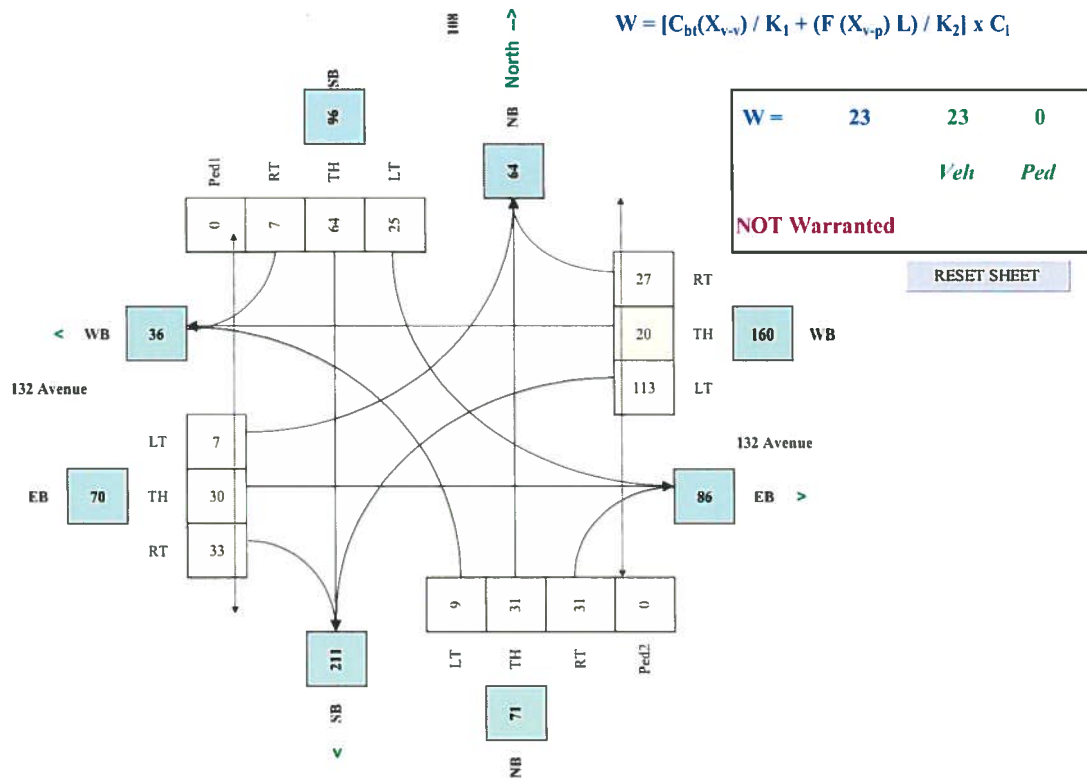
Are the 108 NB right turns significantly impeded by through movements? (y/n) n  
 Are the 108 SB right turns significantly impeded by through movements? (y/n) n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
108	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Traffic Input	Net Peak Hours												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	14	46	46	37	96	10	170	30	40	10	45	50				
8:30 - 9:30	7	23	23	19	48	5	85	15	20	5	23	25				
11:00 - 12:00	7	23	23	19	48	5	85	15	20	5	23	25				
12:00 - 13:00	7	23	23	19	48	5	85	15	20	5	23	25				
16:00 - 17:00	14	46	46	37	96	10	170	30	40	10	45	50				
17:00 - 18:00	7	23	23	19	48	5	85	15	20	5	23	25				
<b>Total (6-hour peak)</b>	<b>56</b>	<b>184</b>	<b>184</b>	<b>150</b>	<b>384</b>	<b>40</b>	<b>680</b>	<b>120</b>	<b>160</b>	<b>40</b>	<b>182</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>9</b>	<b>31</b>	<b>31</b>	<b>25</b>	<b>64</b>	<b>7</b>	<b>113</b>	<b>20</b>	<b>27</b>	<b>7</b>	<b>30</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 78K
Side Street (name)	116 St	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments <b>Traffic Signal Warrant Analysis</b>		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
116 St NB	NB	1	0	0	0	1	0		
116 St SB	SB	1	0	0	0	1	0		

Are the 116 St NB right turns significantly impeded by through movements? (y/n) n

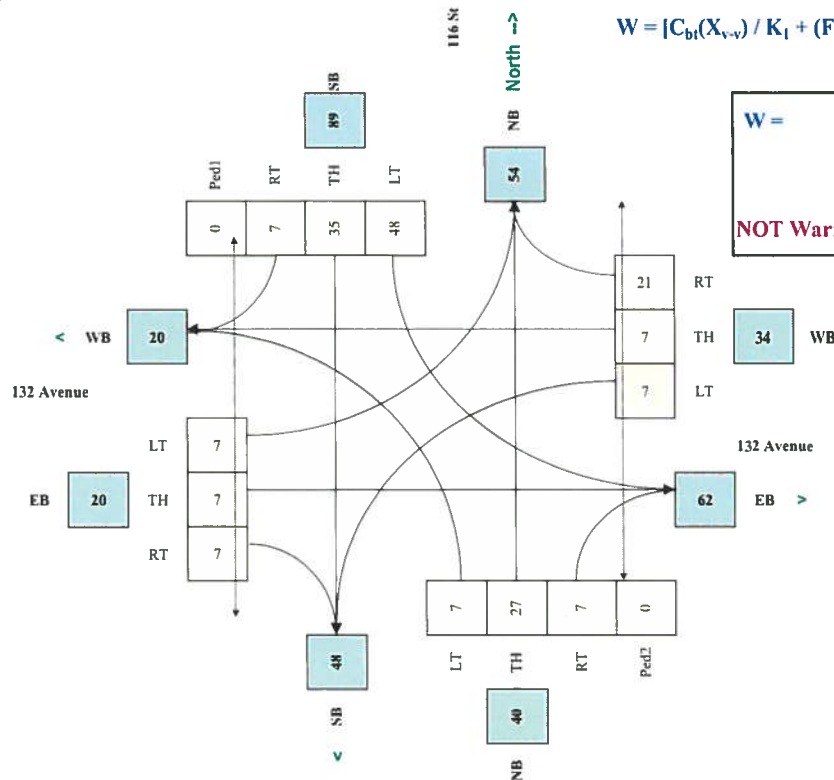
Are the 116 St SB right turns significantly impeded by through movements? (y/n) n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
116 St	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	10	40	11	72	52	10	10	10	31	10	10	10				
8:30 - 9:30	5	20	5	36	26	5	5	5	16	5	5	5				
11:00 - 12:00	5	20	5	36	26	5	5	5	16	5	5	5				
12:00 - 13:00	5	20	5	36	26	5	5	5	16	5	5	5				
16:00 - 17:00	10	40	11	72	52	10	10	10	31	10	10	10				
17:00 - 18:00	5	20	5	36	26	5	5	5	16	5	5	5				
<b>Total (6-hour peak)</b>	<b>40</b>	<b>160</b>	<b>42</b>	<b>288</b>	<b>208</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>126</b>	<b>40</b>	<b>40</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>7</b>	<b>27</b>	<b>7</b>	<b>48</b>	<b>35</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>21</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 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 =	4	4	0
	Veh Ped		
<b>NOT Warranted</b>			

RESET SHEET

## City of Grande Prairie - 90K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW
Side Street (name)	92 St	Direction (EW or NS)	NS
Quadrant / Int #	6	Comments	Traffic Signal Warrant Analysis
CHECK SHEET			

for Warrant Calculation Results, please hit 'Page Down'

Road Authority:	City of Grande Prairie - 90K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
132 Avenue	WB	1	0	1	0	1	1,000	1
132 Avenue	EB	1	0	1	0	1	1,000	1
92 St	NB	1	0	1	1	0		
92 St	SB	1	0	2	0	1		

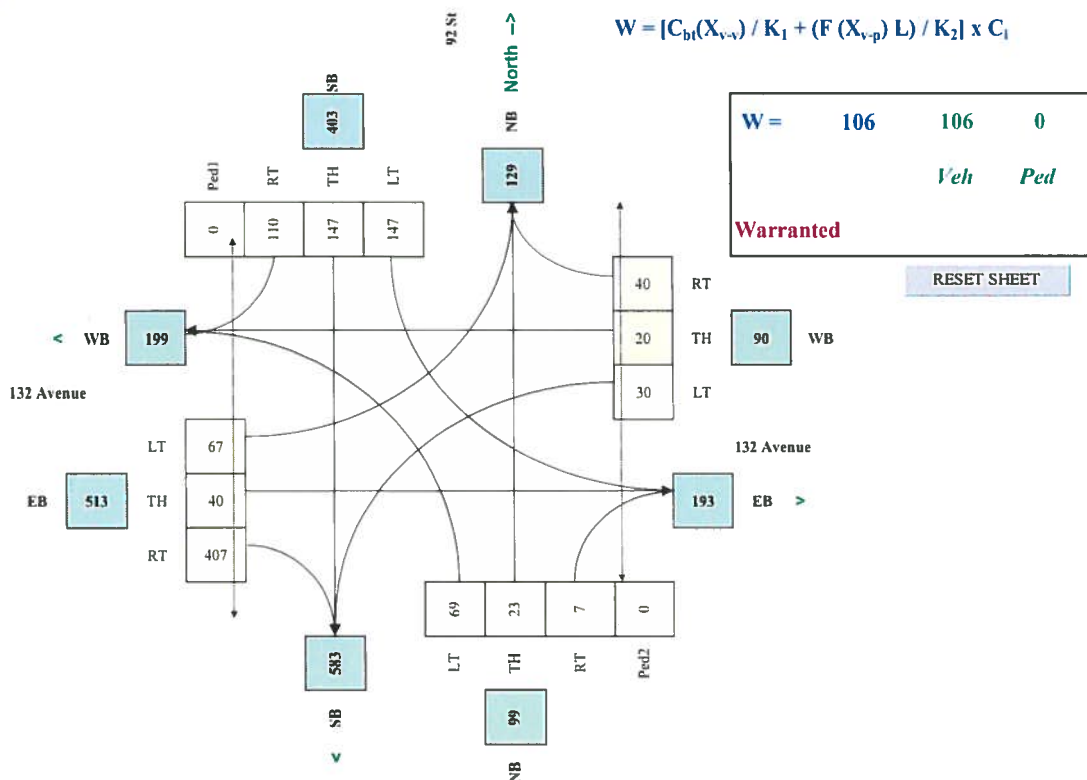
Are the 92 St NB right turns significantly impeded by through movements? (y/n)	n
Are the 92 St SB right turns significantly impeded by through movements? (y/n)	n

Other Input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
92 St	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenge	(y n)	n
Senior's Complex	(y n)	n
Pathway to School	(y n)	n
Metro Area Population	(#)	50,000
Central Business District	(y n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	104	34	10	220	220	165	45	30	60	100	60	610				
8:30 - 9:30	52	17	5	110	110	82	22	15	30	50	30	305				
11:00 - 12:00	52	17	5	110	110	82	22	15	30	50	30	305				
12:00 - 13:00	52	17	5	110	110	82	22	15	30	50	30	305				
16:00 - 17:00	104	34	10	220	220	165	45	30	60	100	60	610				
17:00 - 18:00	52	17	5	110	110	82	22	15	30	50	30	305				
Total (6-hour peak)	416	136	40	880	880	658	178	120	240	400	240	2,440	0	0	0	0
Average (6-hour peak)	69	23	7	147	147	110	30	20	40	67	40	407	0	0	0	0

### Average 6-hour Peak Turning Movements



## City of Grande Prairie - 65K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <div style="background-color: #ADD8E6; padding: 5px; border: 1px solid black;">Traffic Signal Warrant Analysis</div>
Side Street (name)	92 St	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'			CHECK SHEET	

Road Authority:	City of Grande Prairie - 65K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB		1	0	0	0	1	0	1,000	1
132 Avenue EB		1	0	1	0	1	0	1,000	2
92 St NB		0	0	0	1	0	0		
92 St SB		0	1	0	0	0	1		

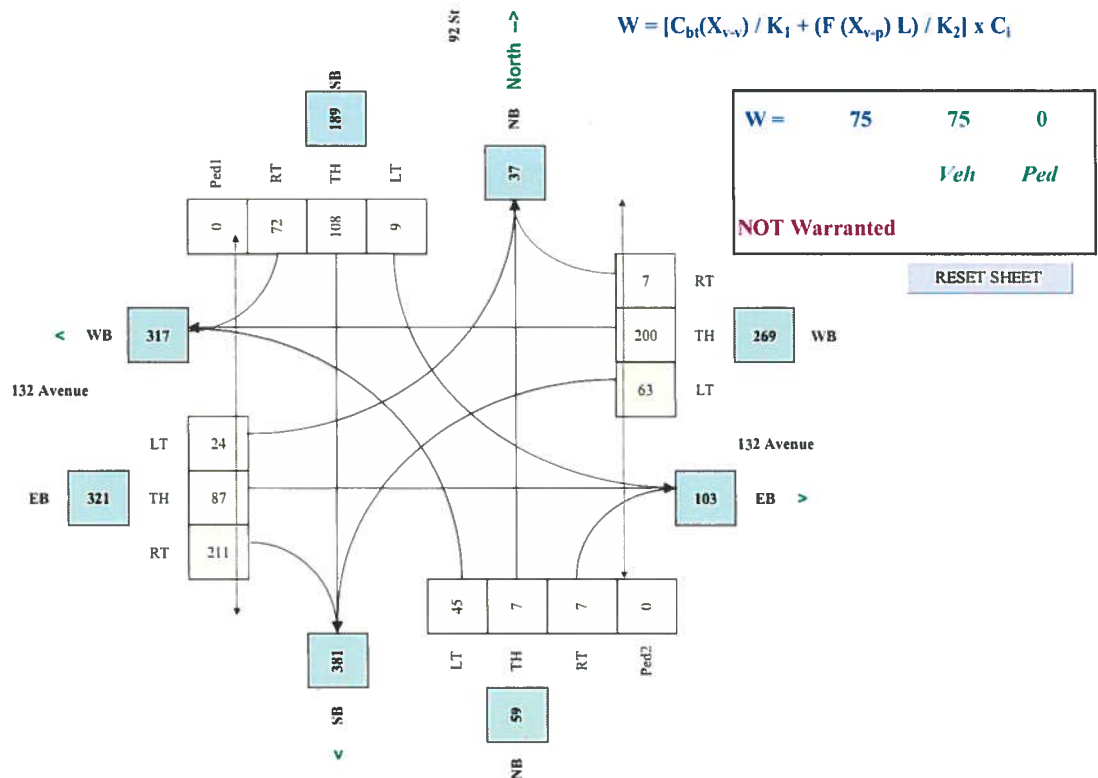
Are the 92 St NB right turns significantly impeded by through movements? (y/n)

Other input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
92 St	NS	50	5.0%	n	0.0

Demographics		
Elem School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
Central Business District	(y/n)	n

Set Peak Hours	Traffic Input												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	68	10	10	14	162	108	94	300	10	36	130	316				
8:30 - 9:30	34	5	5	7	81	54	47	150	5	18	65	158				
11:00 - 12:00	34	5	5	7	81	54	47	150	5	18	65	158				
12:00 - 13:00	34	5	5	7	81	54	47	150	5	18	65	158				
16:00 - 17:00	68	10	10	14	162	108	94	300	10	36	130	316				
17:00 - 18:00	34	5	5	7	81	54	47	150	5	18	65	158				
<b>Total (6-hour peak)</b>	<b>272</b>	<b>40</b>	<b>40</b>	<b>56</b>	<b>648</b>	<b>432</b>	<b>376</b>	<b>1,200</b>	<b>40</b>	<b>144</b>	<b>520</b>	<b>1,264</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>45</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>108</b>	<b>72</b>	<b>63</b>	<b>200</b>	<b>7</b>	<b>24</b>	<b>87</b>	<b>211</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <b>Traffic Signal Warrant Analysis</b>
Side Street (name)	97 St	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
CHECK SHEET				

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	WB	1	0	1	0	1	0	1,000	2
132 Avenue EB	EB	1	0	2	0	0	1	1,000	2
97 St NB	NB	0	0	0	1	0	1		
97 St SB	SB	0	0	0	1	0	0		

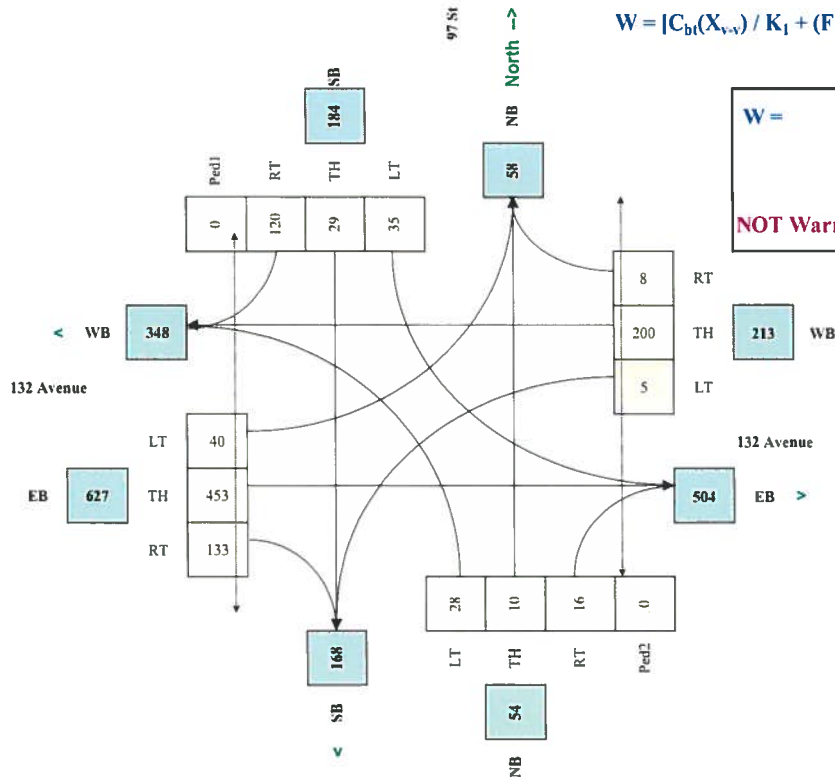
Are the 97 St NB right turns significantly impacted by through movements? (y/n) **n**  
 Are the 97 St SB right turns significantly impacted by through movements? (y/n) **n**

Other Input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
97 St	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

Traffic Input	Set Peak Hours												Ped			
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	42	15	25	52	44	180	5	300	12	60	680	200				
8:30 - 9:30	21	7	12	26	22	90	5	150	6	30	340	100				
11:00 - 12:00	21	7	12	26	22	90	5	150	6	30	340	100				
12:00 - 13:00	21	7	12	26	22	90	5	150	6	30	340	100				
16:00 - 17:00	42	15	25	52	44	180	5	300	12	60	680	200				
17:00 - 18:00	21	7	12	26	22	90	5	150	6	30	340	100				
<b>Total (6-hour peak)</b>	<b>168</b>	<b>58</b>	<b>98</b>	<b>208</b>	<b>176</b>	<b>720</b>	<b>30</b>	<b>1,200</b>	<b>48</b>	<b>240</b>	<b>2,720</b>	<b>800</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>28</b>	<b>10</b>	<b>16</b>	<b>35</b>	<b>29</b>	<b>120</b>	<b>5</b>	<b>200</b>	<b>8</b>	<b>40</b>	<b>453</b>	<b>133</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p}) L) / K_2] \times C_i$$

<b>W =</b>	<b>57</b>	<b>57</b>	<b>0</b>
	<b>Veh</b>	<b>Ped</b>	
<b>NOT Warranted</b>			

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue
Side Street (name)	102
Quadrant / Int #	6
CHECK SHEET	

for Warrant Calculation  
Results, please hit 'Page  
Down'

Direction (EW or NS)	EW
Direction (EW or NS)	NS
Comments	Traffic Signal Warrant Analysis

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, Tue
Date Entry Format:	(yyyy-mm-dd)

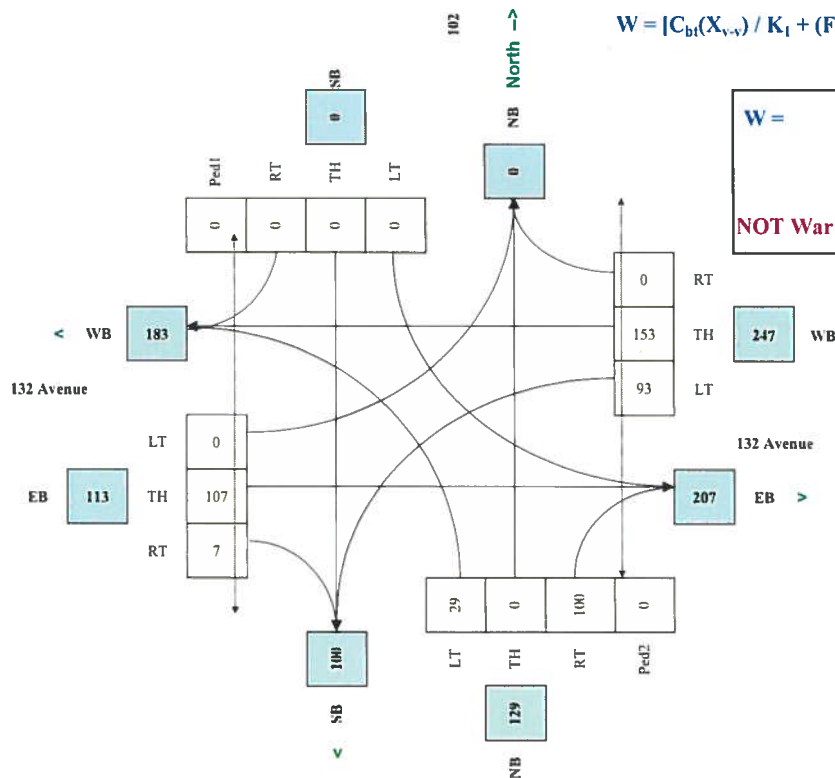
Lane Configuration		Excl LT	Th & LT	Through	Th & RT & LT	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
132 Avenue WB	WB	1	0	1	0	0	0	1,000	1
132 Avenue EB	EB	0	0	0	0	1	0	1,000	1
102 NB	NB	1	0	0	0	0	1		
102 SB	SB	0	0	0	0	0	0		

Other Input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
102	NS	50	5.0%	n	0.0

Set Peak Hours	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
7:30 - 8:30	44		150				140	230			160	10				
8:30 - 9:30	22		75				70	115			80	5				
11:00 - 12:00	22		75				70	115			80	5				
12:00 - 13:00	22		75				70	115			80	5				
16:00 - 17:00	44		150				140	230			160	10				
17:00 - 18:00	22		75				70	115			80	5				
Total (6-hour peak)	176	0	600	0	0	0	560	920	0	0	640	40	0	0	0	0
Average (6-hour peak)	29	0	100	0	0	0	93	153	0	0	107	7	0	0	0	0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

### 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 =	15	15	0
		Veh	Ped
NOT Warranted			

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 78K
Side Street (name)	104	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments: <b>Traffic Signal Warrant Analysis</b>		Analysis Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'				Count Date:	2012 Mar 06, Tue
CHECK SHEET				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
132 Avenue	WB	0	0	0	1	0	0	1,000	1
132 Avenue	EB	0	0	0	1	0	0	1,000	1
104	NB	0	0	0	0	0	0		
104	SB	0	0	0	1	0	0		

Are the 104 SB right turns significantly impeded by through movements? (y/n) n

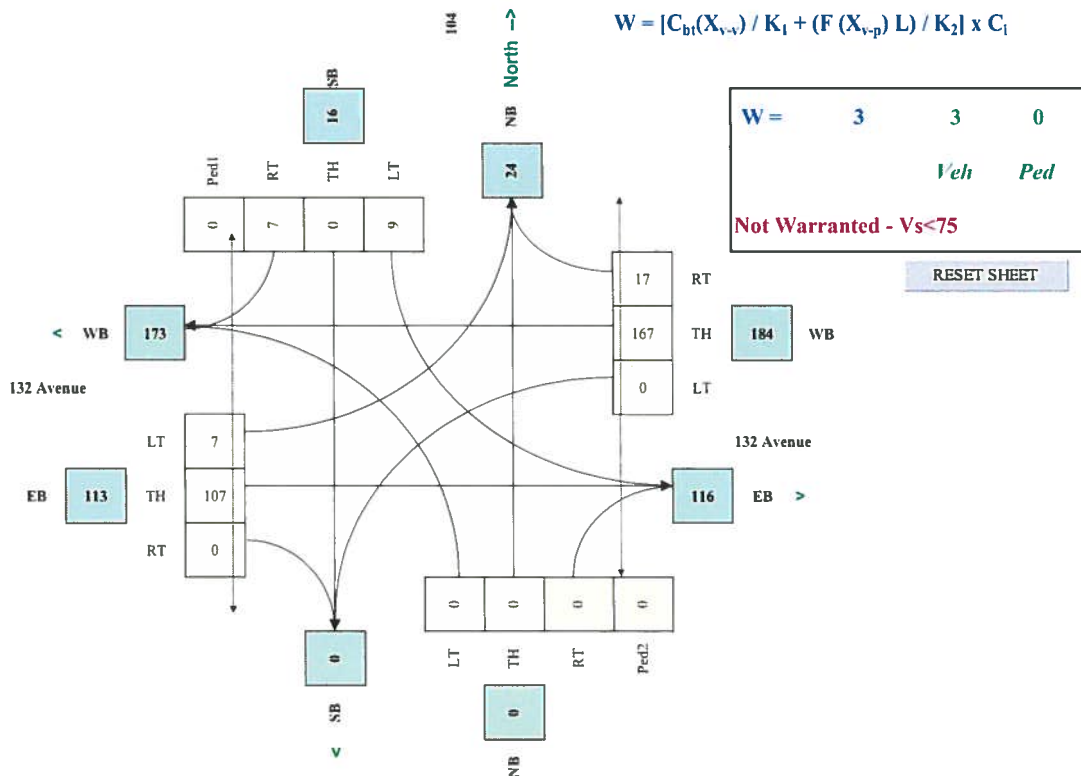
Other Input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue	EW	80	5.0%	n	0.0
104	NS	50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30				14		10		250	26	10	160					
8:30 - 9:30				7		5		125	13	5	80					
11:00 - 12:00				7		5		125	13	5	80					
12:00 - 13:00				7		5		125	13	5	80					
16:00 - 17:00				14		10		250	26	10	160					
17:00 - 18:00				7		5		125	13	5	80					
Total (6-hour peak)	0	0	0	56	0	40	0	1,000	104	40	640	0	0	0	0	0
Average (6-hour peak)	0	0	0	9	0	7	0	167	17	7	107	0	0	0	0	0

### Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \times C_1$$



## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <div style="background-color: #e0f0ff; padding: 5px; border: 1px solid #0070c0;">Traffic Signal Warrant Analysis</div>
Side Street (name)	104A	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
CHECK SHEET				

Road Authority:	City of Grande Prairie - 78K
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	0	0	0	1	0	0	0	1,000	1
132 Avenue EB	0	0	0	1	0	0	0	1,000	1
104A NB	0	0	0	1	0	0	0		
104A SB	0	0	0	1	0	0	0		

Are the 104A NB right turns significantly impeded by through movements? (y/n) n

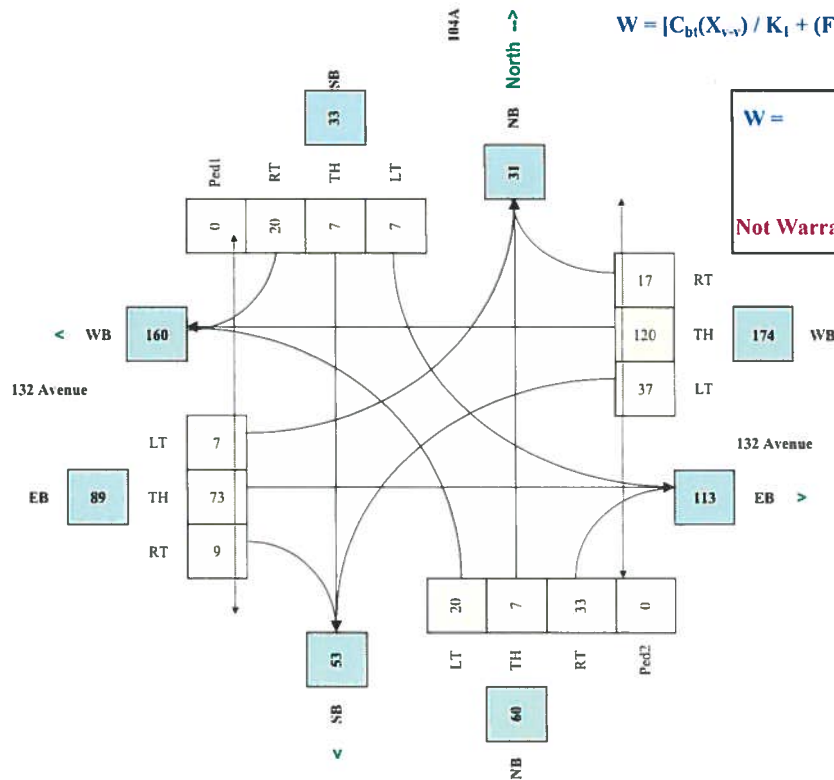
Are the 104A SB right turns significantly impeded by through movements? (y/n) n

Other Input	Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	80	5.0%	n	0.0
104A NS	50	5.0%	n	0.0

Set Peak Hours												Ped1	Ped2	Ped3	Ped4	
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	30	10	50	10	10	30	55	180	26	10	110	14				
8:30 - 9:30	15	5	25	5	5	15	28	90	13	5	55	7				
11:00 - 12:00	15	5	25	5	5	15	28	90	13	5	55	7				
12:00 - 13:00	15	5	25	5	5	15	28	90	13	5	55	7				
16:00 - 17:00	30	10	50	10	10	30	55	180	26	10	110	14				
17:00 - 18:00	15	5	25	5	5	15	28	90	13	5	55	7				
Total (6-hour peak)	120	40	200	40	40	120	222	720	104	40	440	56	0	0	0	0
Average (6-hour peak)	20	7	33	7	7	20	37	120	17	7	73	9	0	0	0	0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

### 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 =	11	11	0
	Veh		Ped
Not Warranted - Vs<75			

RESET SHEET

## City of Grande Prairie - 78k Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Comments <b>Traffic Signal Warrant Analysis</b>
Side Street (name)	108	Direction (EW or NS)	NS	
Quadrant / Int #	6			
for Warrant Calculation Results, please hit 'Page Down'				
CHECK SHEET				

Road Authority:	City of Grande Prairie - 78k
City:	Grande Prairie
Analysis Date:	2012 Mar 06, Tue
Count Date:	2012 Mar 06, 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
132 Avenue WB	1	0	0	0	0	1	0	1,000	1
132 Avenue EB	0	0	0	0	1	0	0	1,000	1
108 NB	0	0	0	0	1	0	0		
108 SB	0	0	0	0	1	0	0		

Are the 108 NB right turns significantly impeded by through movements? (y/n) **n**  
 Are the 108 SB right turns significantly impeded by through movements? (y/n) **n**

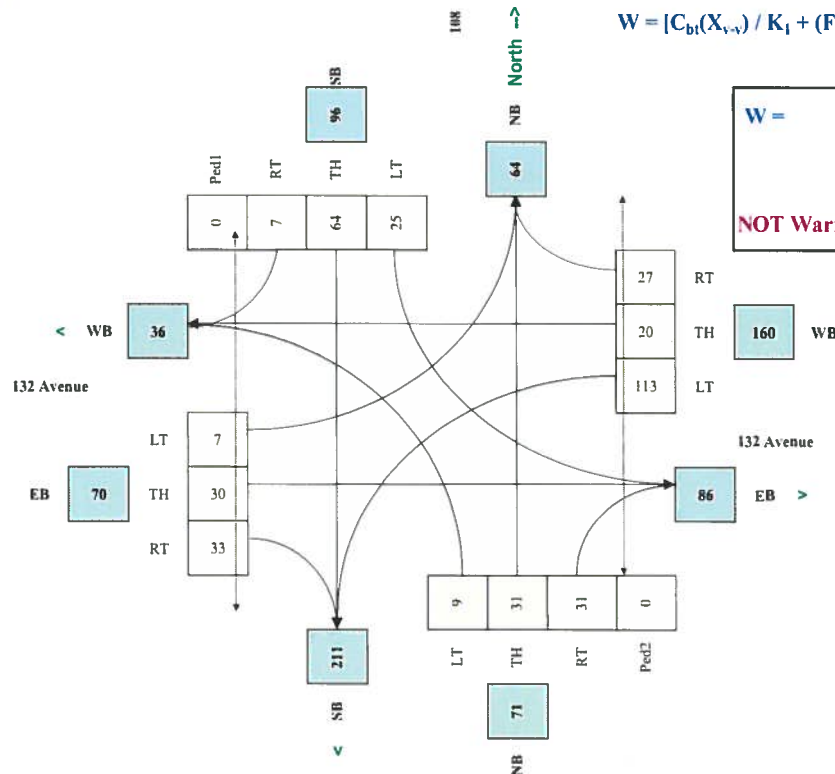
Other Input		Speed (km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW		80	5.0%	n	0.0
108 NS		50	5.0%	n	0.0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	50,000
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
7:30 - 8:30	14	46	46	37	96	10	170	30	40	10	45	50	W Side	E Side	N Side	S Side
8:30 - 9:30	7	23	23	19	48	5	85	15	20	5	23	25				
11:00 - 12:00	7	23	23	19	48	5	85	15	20	5	23	25				
12:00 - 13:00	7	23	23	19	48	5	85	15	20	5	23	25				
16:00 - 17:00	14	46	46	37	96	10	170	30	40	10	45	50				
17:00 - 18:00	7	23	23	19	48	5	85	15	20	5	23	25				
<b>Total 6-hour peak</b>	<b>56</b>	<b>184</b>	<b>184</b>	<b>150</b>	<b>384</b>	<b>40</b>	<b>680</b>	<b>120</b>	<b>160</b>	<b>40</b>	<b>182</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Average (6-hour peak)</b>	<b>9</b>	<b>31</b>	<b>31</b>	<b>25</b>	<b>64</b>	<b>7</b>	<b>113</b>	<b>20</b>	<b>27</b>	<b>7</b>	<b>30</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 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 =	23	23	0	
		Veh	Ped	
<b>NOT Warranted</b>				

RESET SHEET

## City of Grande Prairie - 78K Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	132 Avenue	Direction (EW or NS)	EW	Road Authority:	City of Grande Prairie - 78K
Side Street (name)	116 St	Direction (EW or NS)	NS	City:	Grande Prairie
Quadrant / Int #	6	Comments: <span style="background-color: #ADD8E6; padding: 5px;">Traffic Signal Warrant Analysis</span>		Analysis Date:	2012 Mar 06, Tue
CHECK SHEET				Count Date:	2012 Mar 06, Tue
for Warrant Calculation Results, please hit 'Page Down'				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
132 Avenue WB	WB	0	0	0	1	0	0	1,000	1
132 Avenue EB	EB	0	0	0	1	0	0	1,000	1
116 St NB	NB	1	0	0	0	1	0		
116 St SB	SB	1	0	0	0	1	0		

Are the 116 St NB right turns significantly impeded by through movements? (y/n) n

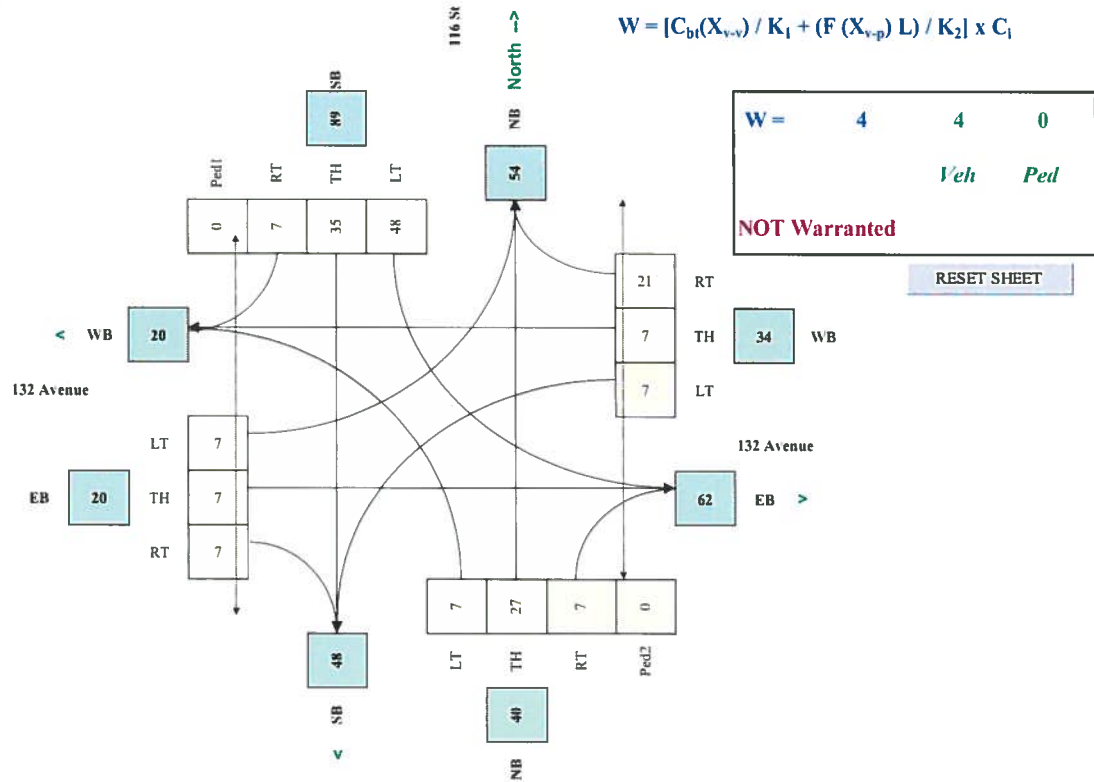
Are the 116 St SB right turns significantly impeded by through movements? (y/n) n

Other Input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
132 Avenue EW	EW	80	5.0%	n	0.0
116 St NS	NS	50	5.0%	n	0.0

Set Peak Hours													Ped1	Ped2	Ped3	Ped4
Traffic Input	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:30 - 8:30	10	40	11	72	52	10	10	10	31	10	10	10				
8:30 - 9:30	5	20	5	36	26	5	5	5	16	5	5	5				
11:00 - 12:00	5	20	5	36	26	5	5	5	16	5	5	5				
12:00 - 13:00	5	20	5	36	26	5	5	5	16	5	5	5				
16:00 - 17:00	10	40	11	72	52	10	10	10	31	10	10	10				
17:00 - 18:00	5	20	5	36	26	5	5	5	16	5	5	5				
Total (6-hour peak)	40	160	42	288	208	40	40	40	126	40	40	40	0	0	0	0
Average (6-hour peak)	7	27	7	48	35	7	7	7	21	7	7	7	0	0	0	0

Demographics		
Elem. School Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population (#)		50,000
Central Business District	(y/n)	n

### Average 6-hour Peak Turning Movements



## **APPENDIX 3**

### OPEN HOUSE COMMENTS

**JANUARY 26, 2012**  
**OPEN HOUSE**

NAME	COMPANY	CONTACT
BRAD VALL	AQUATERA	bvall@AQUATERA.CA
BRUCE WARDSE	ATCO ELECTRIC	
Kristine D.	city of GP	
Matt Hintze	city of GP	
RANDY MONTGOMERY	Harry's Auto	marryp@telusplanet.net
GREG QUAPP	QUAPP EQ LTD.	
Dan Whelton	City of GP	
Doug Baggett.	ATCO Electric	doug.baggett@atcoelectric.com
Kelly Montgomery	R+K LAND	PM 0252
Jeff Keddies	Keddies	876-4893 jefk@keddies.com
Mike Gourley	Scheffer Andrew Ltd	m.gourley@schafferandrew.com (780) 732-7939
SCOTT PRANTZ	PRUDENTIAL LANDS	scott@prudentiallands.com
Henry Hamm	Prudential Lands	henry@dirhamhomes.com
DOAN SILVANIUK	GRAND EQUIPMENT LTD.	
Timothy Lam	Aquatera	
Michael Brouse	VICTORY CHURCH	780-814-2601
Stuart Cleland	Bear Creek Golf.	780 229-0429
BRIAN & JACKIE FURMAN		780-532-3440.

## PUBLIC OPEN HOUSE

### 132<sup>nd</sup> AVENUE FUNCTIONAL DESIGN January 26, 2012

The purpose of this meeting is to obtain comments in regards to our proposal. Please use this sheet to provide any comments or concerns that you might have. Including your name on this comment sheet is optional. Thank you for your time. Your input is appreciated.

#### COMMENTS

Needs to happen sooner not later!!  
116 St. needs work now! Lighting @  
132 Ave.

You may wish to provide the following information as applicable - this is strictly optional.

The personal information contained on this form is collected to solely be used for the purpose(s) of identifying issues from various stakeholders and the public for the planning of the 132<sup>nd</sup> Avenue Roadway.

Name: B. J. Furman  
Phone: 780-532-3440

Company \_\_\_\_\_  
E-mail: bfurman@coool.ca

Thank you for attending the Open House and for providing us with your valuable feedback. Please leave your completed form with an Open House Facilitator, or return via fax or e-mail by no later than February 13, 2012 to:

ATTN: Sylvain Cadieux / Focus Corporation  
Tel (780) 539-3222 / Fax: (780) 539-3343  
Email: [sylvain.cadieux@focus.ca](mailto:sylvain.cadieux@focus.ca)

## PUBLIC OPEN HOUSE

### 132<sup>nd</sup> AVENUE FUNCTIONAL DESIGN January 26, 2012

The purpose of this meeting is to obtain comments in regards to our proposal. Please use this sheet to provide any comments or concerns that you might have. Including your name on this comment sheet is optional. Thank you for your time. Your input is appreciated.

#### COMMENTS

1. Why is the RoW widening 9 m on south side and only 3.95 m on north side through Hidden Valley?
2. Can the first intersection west of 108 Street be all-directional?
3. Would it be possible to provide a RI/RO intersection at 114 Street into Hidden Valley?
4. The left turn bays 112 St look too short.
5. Do we need right turn bays and islands at 114 street?
6. Please ensure that the road profiles match as much as possible with proposed development grading in Hidden Valley to the south, especially in the north-east quarter of Hidden Valley.
7. Please contact Scheffer Andrew Ltd. at the address below if you require any further information or explanation.

**Marinus Scheffer, M. Sc., P. Eng. | Principal**

Direct: 780.732.7786 | Cell: 780.719.5173

Fax: 780.732.7878 | Office: 780.732.7800

**Scheffer Andrew Ltd. | Planners & Engineers**

12204 - 145 Street NW Edmonton, AB T5L 4V7 | [www.schefferandrew.com](http://www.schefferandrew.com)

Thank you for attending the Open House and for providing us with your valuable feedback. Please leave your completed form with an Open House Facilitator, or return via fax or e-mail by no later than February 13, 2012 to:

ATTN: Sylvain Cadieux / Focus Corporation

Tel (780) 539-3222 / Fax: (780) 539-3343

Email: [sylvain.cadieux@focus.ca](mailto:sylvain.cadieux@focus.ca)

**JUNE 14, 2012**  
**OPEN HOUSE**

# ATTENDANCE SHEET – 132 AVENUE FUNCTIONAL STUDY

Name	Company	Phone	E-Mail
Bryan Roche	INAAN CONTRACTING LTD GP MASONRY LTD	780 532-6006	bryan.roche@inaan.com
PAUL PLYNN	Petro-Canada	780-50-3789	paulplynn@telus.net
Don Peaney	Chamber	780 532-5340	don@GPCham.com
Glenn Reddie	GP FRED	780 532-4888	glenn@reddies.com
Miles Davis	SUNCOR	403-461-6580	mdavis@suncor.com
Jeff Reddie	Reddies	780 532-4888	
Danielle Commander	Chamber	780 532-5340	
ALEX G -			
SCOTT PRADTZ	PRUDENTIAL LANDS	816-5279	scott@prudentiallands.com
RAMONA KZELMAN	GRANDE EQUIPMENT	831-0053	grandeqn@telusplanet.net
GRANT GAMBISICH	NORTH GATE HOLDING / CUSTOM TANK	831-8682	GCORP@TELUS.NET
Dan Whelth	Gth		
Stuart Longmate	CTM		
Janet Longmate	Longmate Holdings	516-2044	jlongmate@gmail.com
CHARLES LONGMATE	WINDERMERE HOLDINGS	831-8103	
Kelly Montgomery	RAILWAY STONE R+K LAND CO.	814-0252	TUFFTRK@TELUSPLANET.N
GREG QUAPP	QUAPP EQUIPMENT E. QUAPP FARM IMP.	532-6827	GREGQUAPP@GMAIL.COM
Harb Paul	County of GP	532-7393	
Tom Charlton	Lishman	403 261 1117	TOM.CHARTON@E.A.CUSTOMARY.com

## ATTENDANCE SHEET – 132 AVENUE FUNCTIONAL STUDY

Norman Kyle  
Senior Transportation Analyst, Engineering Services  
C/O City of Grande Prairie  
P.O. Bag 4000  
Grande Prairie, AB  
Canada T8V 6V3

June 13, 2012

**Re: Transportation Functional Study: 132 Avenue Grande Prairie.**

To Mr. Kyle,

We appreciate the opportunity to comment on the functional study presented today. We agree with the plans shown in figures 1,2,3 and 5.

The Grande Prairie & District Chamber of Commerce would like to put forward the following suggestions:

1. At the intersection 100<sup>th</sup> street and 132<sup>nd</sup> avenue,
  - a. The stop lines east and west on 132<sup>nd</sup> avenue could be relocated to behind the service road entrances. This would open the intersection and provide greater visibility and they're by increasing the overall safety of the intersection. We suggest this change be made in the near future.
  - b. Access to be maintained to the services roads connecting 132<sup>nd</sup> avenue along 100<sup>th</sup> street.
2. Along 132<sup>nd</sup> between 100<sup>th</sup> street and 95<sup>th</sup> street,
  - a. Instead of the "typical artillery 4-lane road" from 99<sup>th</sup> street to 95<sup>th</sup> street, make this a "typical 2 way center left turn road" layout.
  - b. Center turning lanes at 99<sup>th</sup> Street to enable left turning traffic off of 132<sup>nd</sup> avenue onto 99<sup>th</sup> Street, both directions
3. Move the optional secondary access to the Albinati industrial area (off 100st) from 135 avenue to 140 avenue (From manufactured homes/princess auto to the north of western budget hotels)
4. Maintain the access to the service roads to the east and west of 100th street.

Thank you for your time in considering our suggestions on this functional study. Please contact myself at 780-532-5340 or [dan@gpchamber.com](mailto:dan@gpchamber.com) if you have any further questions or need clarification on any of the suggestions presented within.

Sincerely,

  
Dan Percy  
CEO, Grande Prairie & District Chamber of Commerce

**PUBLIC OPEN HOUSE****132<sup>nd</sup> AVENUE FUNCTIONAL PLANNING****June 14, 2012**

The purpose of this meeting is to obtain comments in regards to our proposal. Please use this sheet to provide any comments or concerns that you might have. Including your name on this comment sheet is optional. Thank you for your time. Your input is appreciated.

**COMMENTS**

We own the Petro-Canada facility. Can you please investigate the ability to maintain access to 99st at the 65,000 stage. (Perhaps by left turning lane)?

We will be immediately impacted by the median in 2013. ~~At~~ At 65,000 our site is effectively cutoff.

Please look into the 99st staying open with a turning lane at 65,000.

Thank you.

You may wish to provide the following information as applicable - this is strictly optional.

The personal information contained on this form is collected to solely be used for the purpose(s) of identifying issues from various stakeholders and the public for the planning of the 132<sup>nd</sup> Avenue Roadway.

Name: Miles Davis

Company: SUNCOR ENERGY

Phone: 403-461-6580

E-mail: mdavis@suncor.com

Thank you for attending the Open House and for providing us with your valuable feedback. Please leave your completed form with an Open House Facilitator, or return via fax or e-mail by no later than **June 29, 2012** to:

ATTN: Sylvain Cadieux / Focus Corporation

Tel (780) 539-3222 / Fax: (780) 539-3343

Email: [sylvain.cadieux@focus.ca](mailto:sylvain.cadieux@focus.ca)

# FOCUS

## FUNCTIONAL PLANNING STUDY

132ND AVENUE

VOLUME 2 of 2

PREPARED FOR  
CITY OF GRANDE PRAIRIE

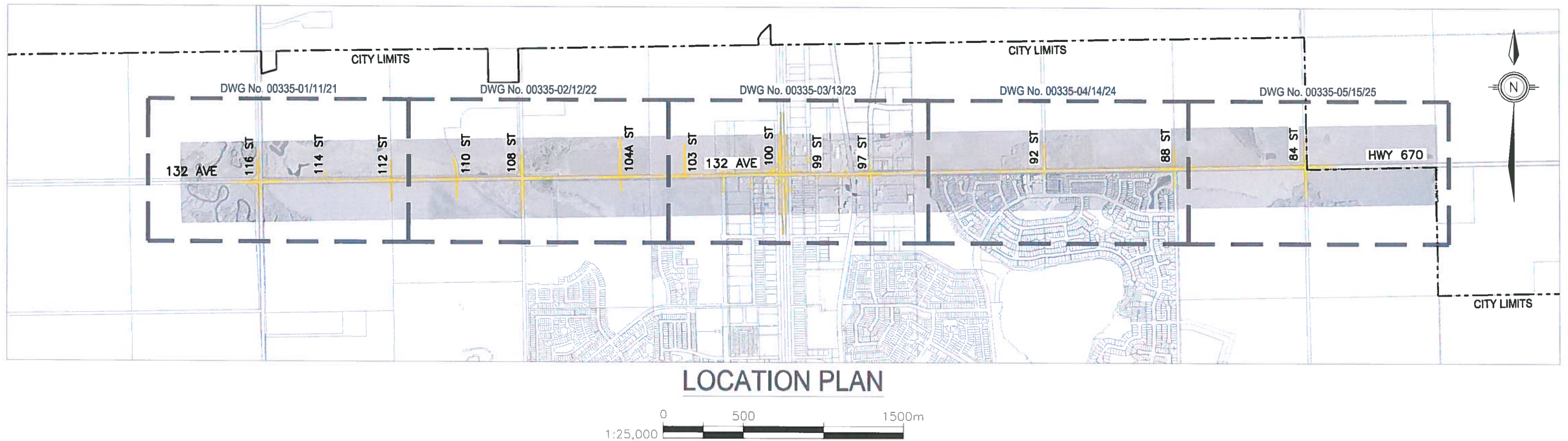


Prepared By: FOCUS Corporation

Project No: 020200335

October 12, 2012

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 15 August 2012





# CITY OF GRANDE PRAIRIE 132ND AVE FUNCTIONAL PLANNING STUDY

## VOLUME 2 of 2

DRAWING LIST	
020200335-00	TITLE SHEET
POPULATION 90,000	
020200335-01	116 ST to 112 ST
020200335-02	110 ST to 104A ST
020200335-03	103 ST to 97 ST
020200335-04	92 ST to 88 ST
020200335-05	84 ST
ROW REQUIREMENTS (POPULATION 90,000)	
020200335-06	116 ST to 104A ST ROW PLAN
020200335-07	103 ST to 88 ST ROW PLAN
020200335-08	84 ST ROW PLAN
POPULATION 78,000	
020200335-11	116 ST to 112 ST
020200335-12	110 ST to 104A ST
020200335-13	103 ST to 97 ST
020200335-14	92 ST to 88 ST
020200335-15	84th ST
POPULATION 65,000	
020200335-21	116 ST to 112 ST
020200335-22	110 ST to 104A ST
020200335-23	103 ST to 97 ST
020200335-24	92 ST to 88 ST
020200335-25	84 ST
UTILITY/STORM WATER	
020200335-31	PLAN AND PROFILE STA 0+850 to 1+950
020200335-32	PLAN AND PROFILE STA 1+950 to 3+450
020200335-33	PLAN AND PROFILE STA 3+600 to 5+100
020200335-34	PLAN AND PROFILE STA 5+250 to 6+750
020200335-35	PLAN AND PROFILE STA 6+750 to 8+150

DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH





10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

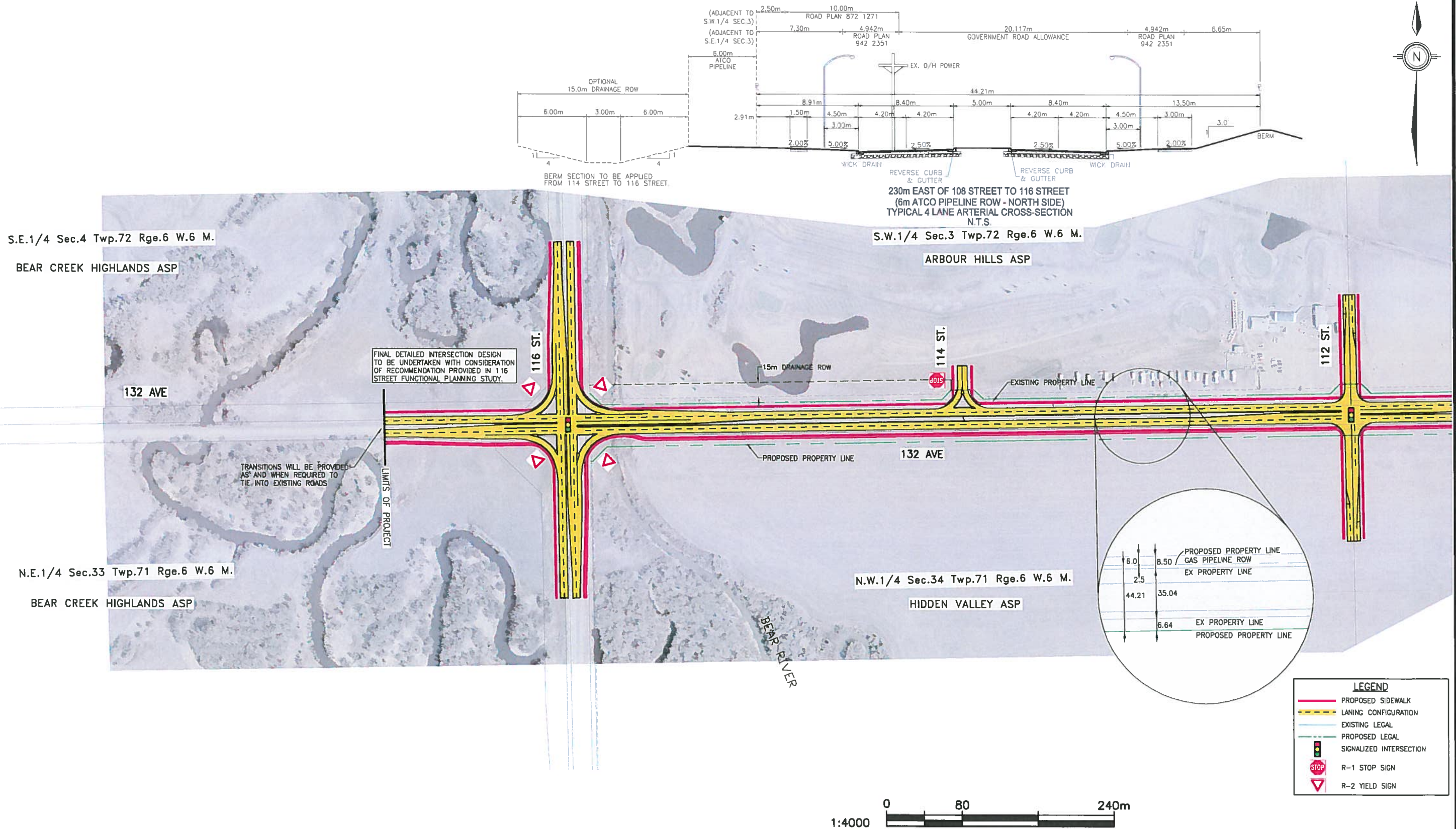
CITY OF GRANDE PRAIRIE  
132ND AVE FUNCTIONAL PLANNING STUDY  
TITLE SHEET

REV. No. **B**  
2012-08-15

OFFICE No. **0202**

DRAWING No. **00335-00**

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 15 August 2012



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH

**GRANDE**  
prairie  
CANADA

resourceful spirit, growing opportunity

**FOCUS**

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION

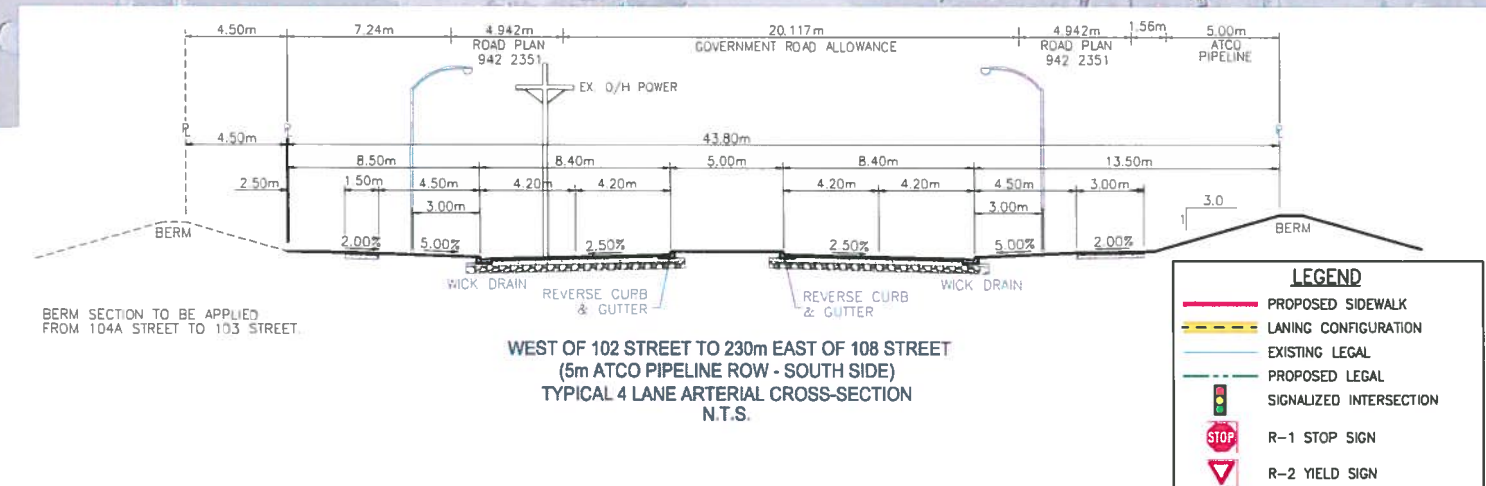
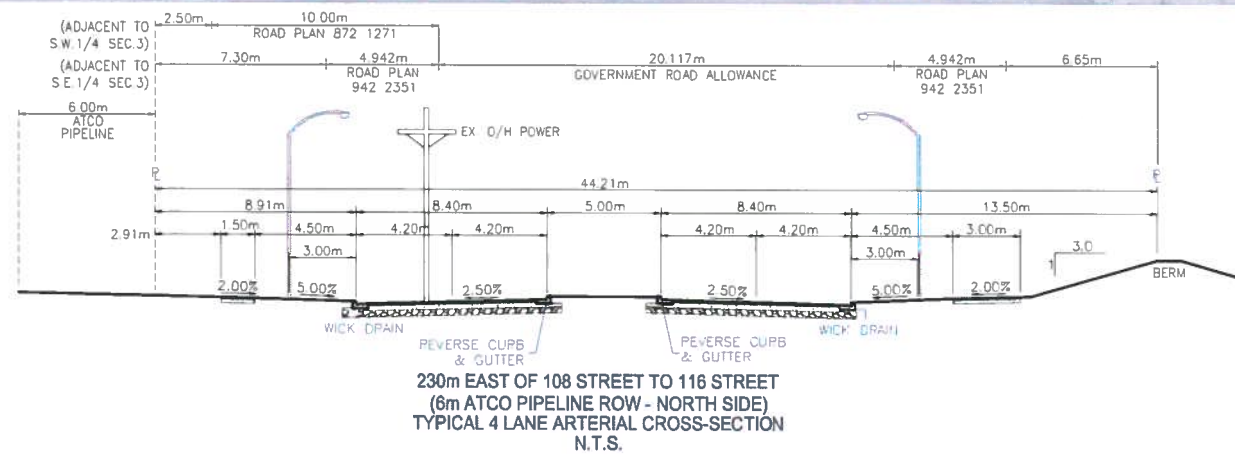
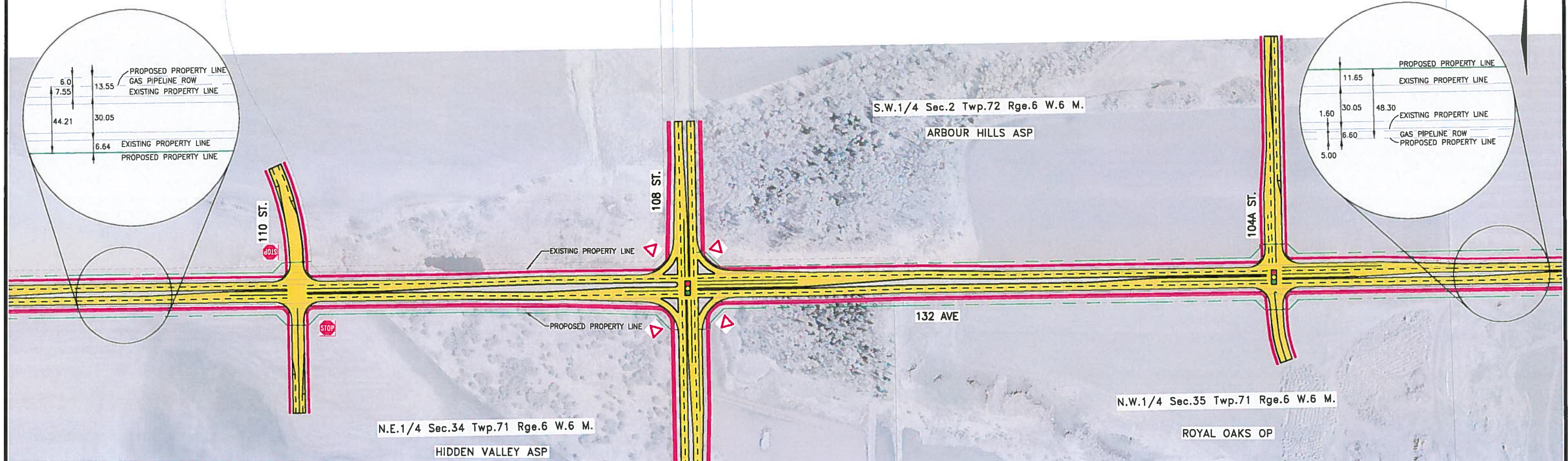
POPULATION 90,000

116 ST to 112 ST

REV. No.  
B  
2012-08-15

OFFICE No.  
0202

DRAWING No.  
00335-01



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



# FOCUS

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION

POPULATION 90,000

110 ST to 104A ST

REV. No.

B

2012-08-15

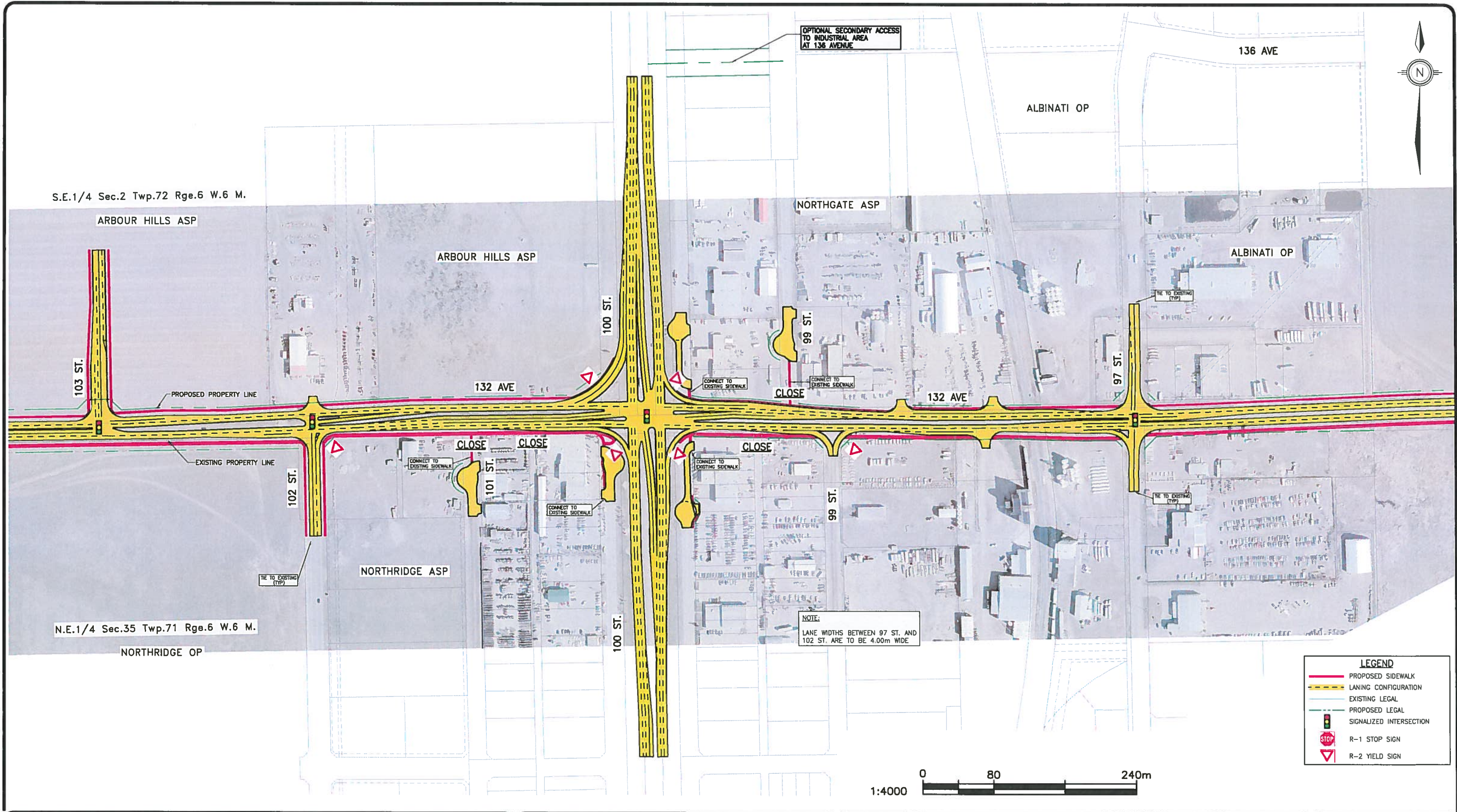
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0202

DRAWING No.

00335-02

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2012-08-15	B	FOR FINAL SUBMISSION	DR	AH
2012-10-12	C	FOR FINAL SUBMISSION	DR	AH



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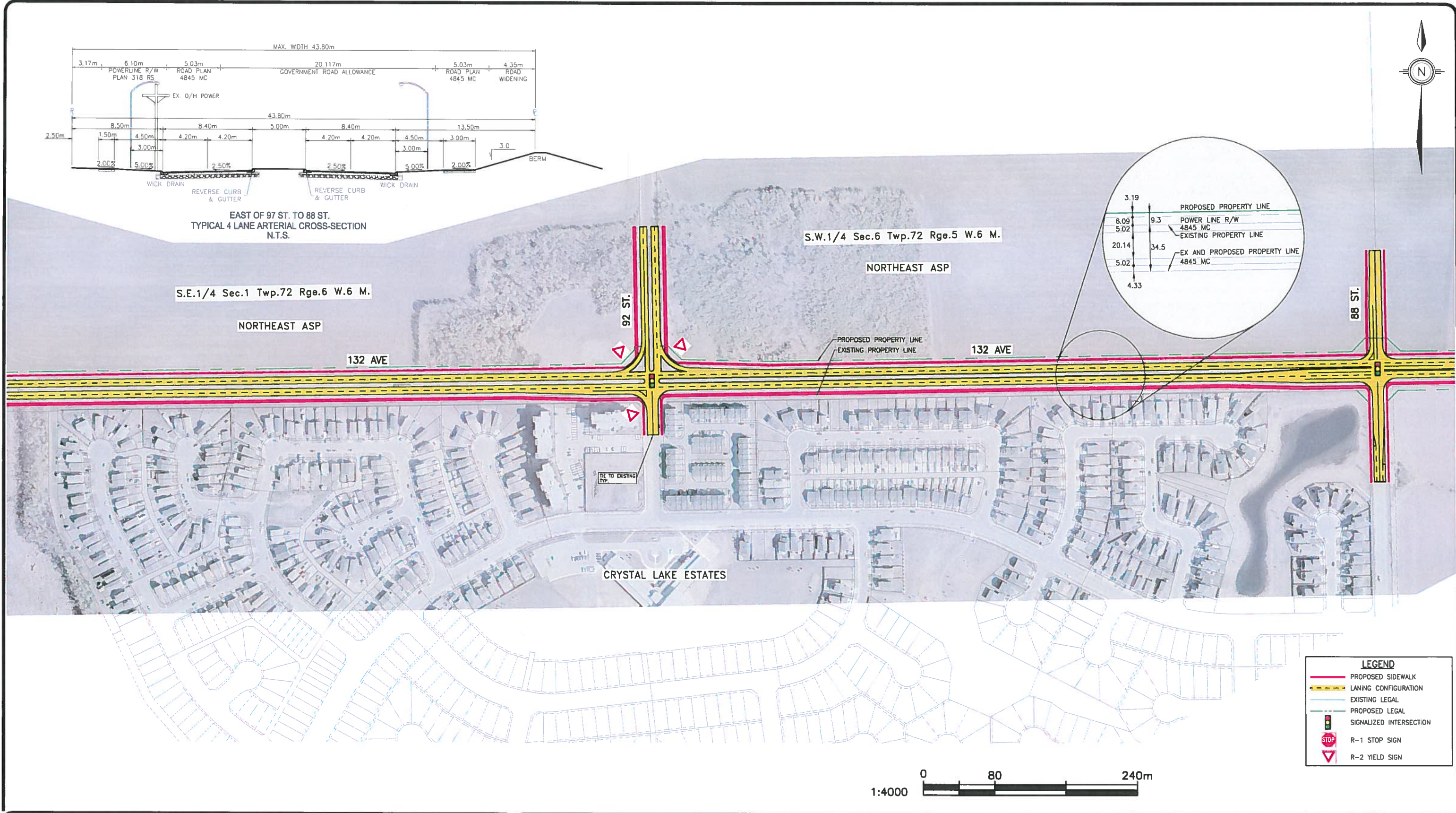


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
103 ST to 97 ST

REV. No.	C
2012-10-12	
OFFICE No.	0202
DRAWING No.	00335-03

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DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH
2012-10-12	C	FOR FINAL SUBMISSION	DR	AH

**GRANDE**  
prairie  
CANADA

resourceful spirit, growing opportunity

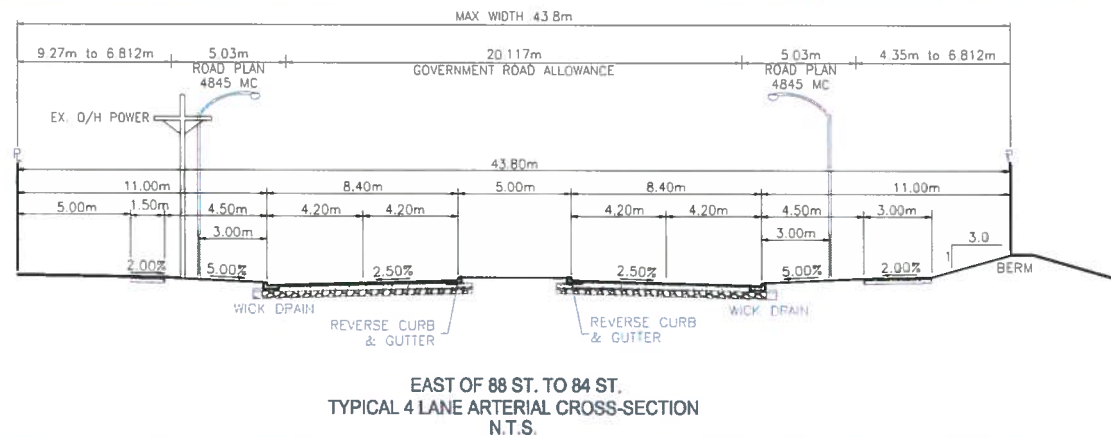
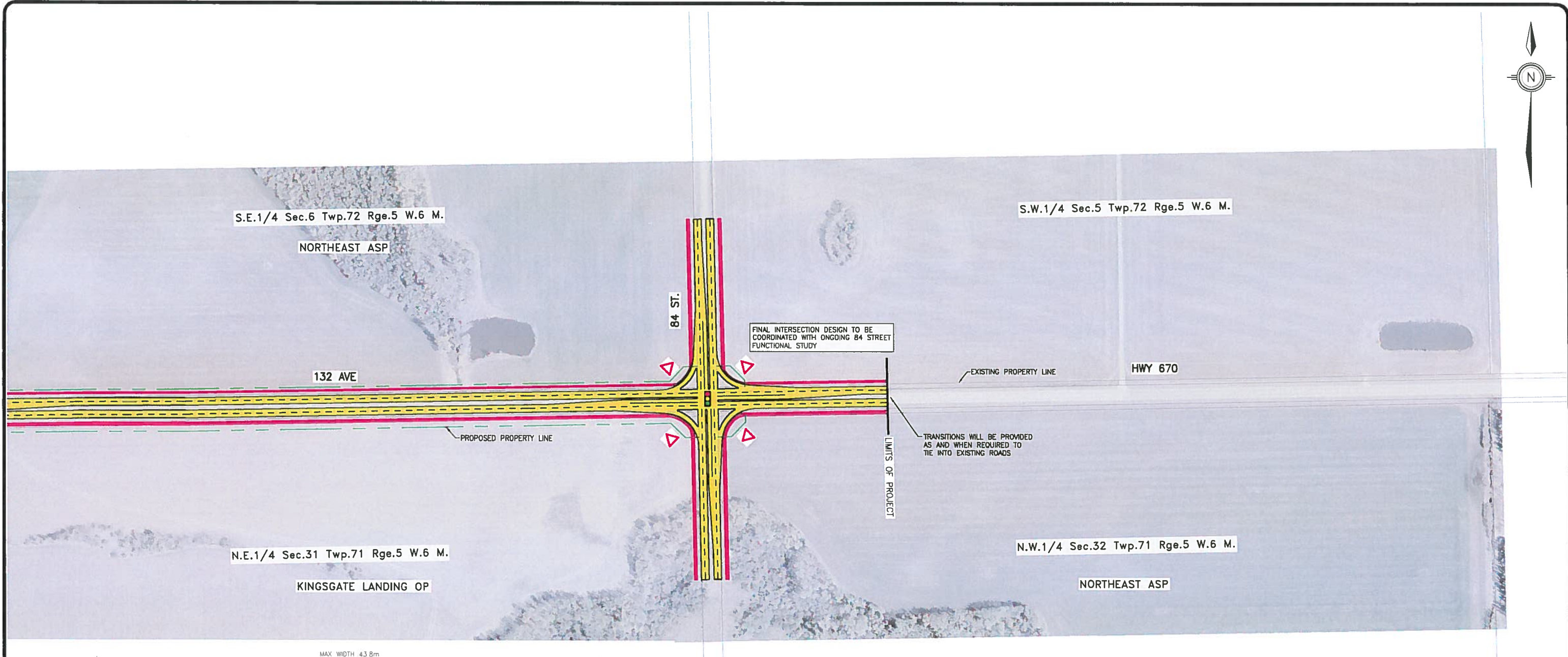
**FOCUS**

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
92 ST to 88 ST

REV. No.	C
2012-10-12	
OFFICE No.	0202
DRAWING No.	00335-04

V:\Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 12 October 2012



LEGEND	
	PROPOSED SIDEWALK
	LANING CONFIGURATION
	EXISTING LEGAL
	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN

DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH
2012-10-12	C	FOR FINAL SUBMISSION	DR	AH



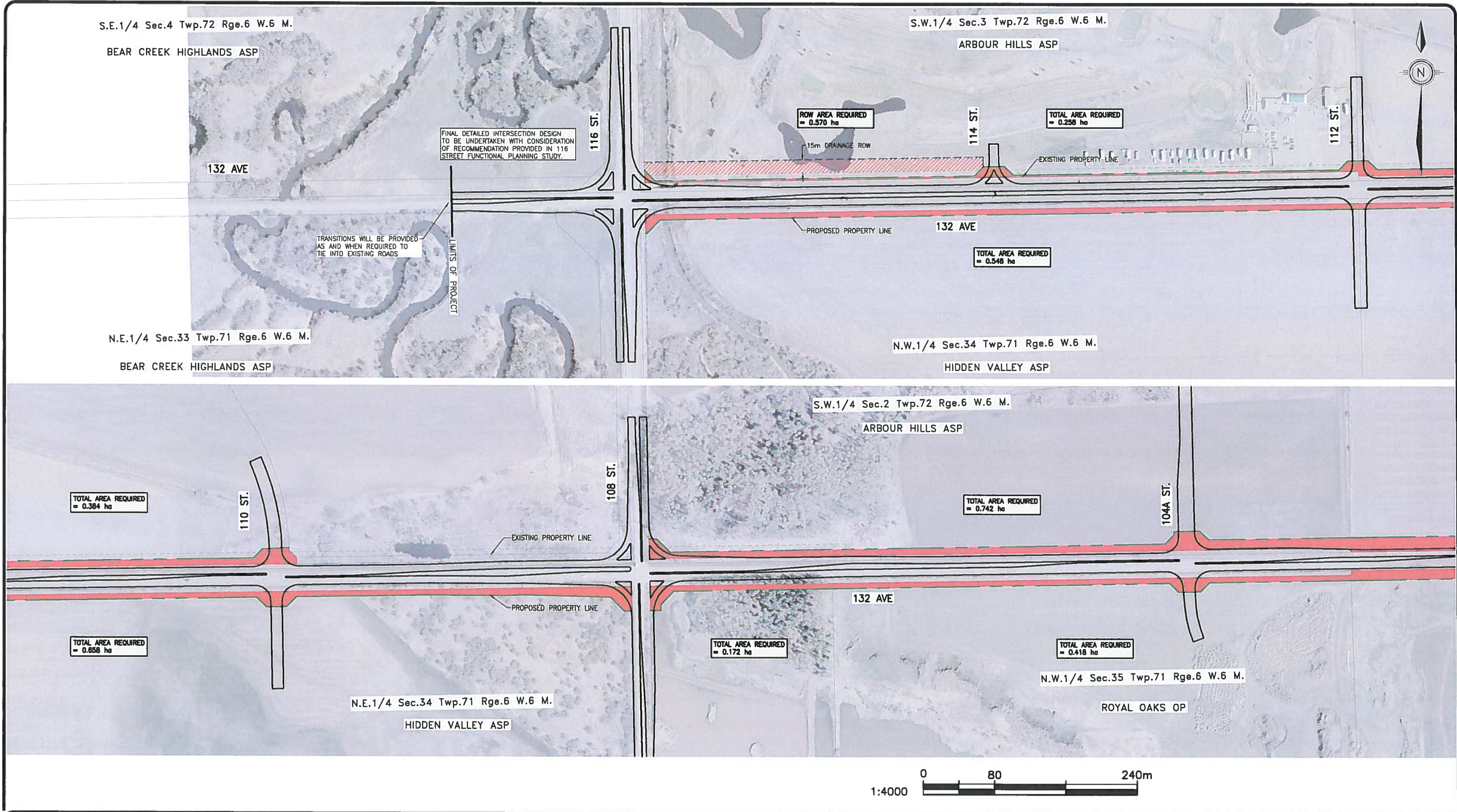
**FOCUS**

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
84 ST

REV. No.	C
2012-10-12	
OFFICE No.	0202
DRAWING No.	00335-05

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 15 August 2012



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
116 ST to 104A ST ROW PLAN

REV. No.	B
2012-08-15	
OFFICE No.	0202
DRAWING No.	00335-06

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 12 October 2012



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH
2012-10-12	C	FOR FINAL SUBMISSION	DR	AH



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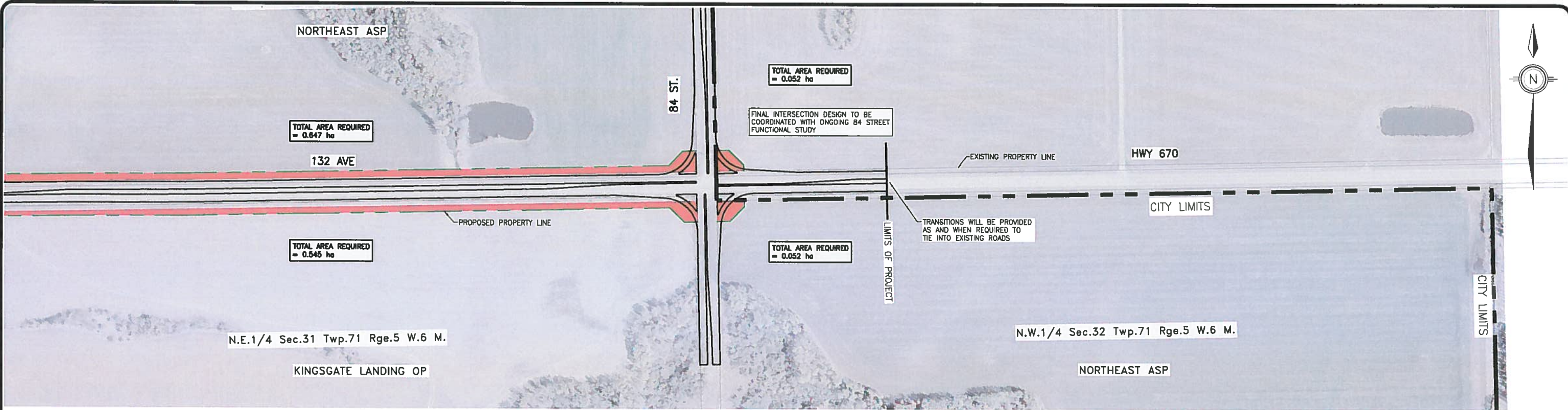


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
103 ST to 88 ST ROW PLAN

REV. No.	C
2012-10-12	
OFFICE No.	0202
DRAWING No.	00335-07

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (90K Population).dwg Plotted 15 August 2012



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 90,000  
84 ST ROW PLAN

REV. No.	B
	2012-08-15
OFFICE No.	0202
DRAWING No.	00335-08

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (78K Population).dwg Plotted 15 August 2012

S.E.1/4 Sec.4 Twp.72 Rge.6 W.6 M.

BEAR CREEK HIGHLANDS ASP

S.W.1/4 Sec.3 Twp.72 Rge.6 W.6 M.

ARBOUR HILLS ASP

132 AVE

116 ST.

FINAL DETAILED INTERSECTION DESIGN  
TO BE UNDERTAKEN WITH CONSIDERATION  
OF RECOMMENDATION PROVIDED IN 116  
STREET FUNCTIONAL PLANNING STUDY.

TRANSITIONS WILL BE PROVIDED  
AS AND WHEN REQUIRED TO  
TIE INTO EXISTING ROADS

LIMITS OF PROJECT

EXISTING PROPERTY LINE

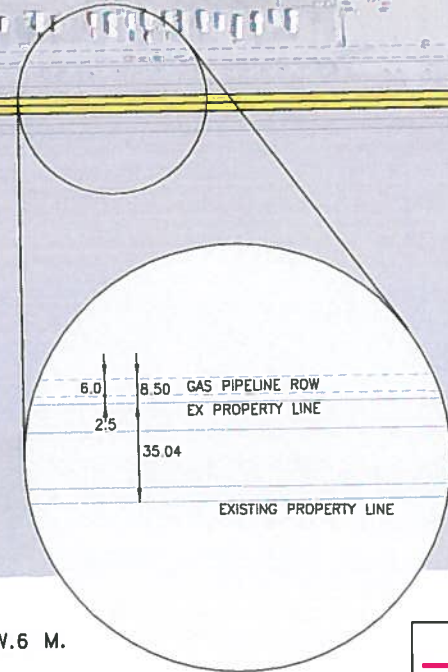
N.E.1/4 Sec.33 Twp.71 Rge.6 W.6 M.

BEAR CREEK HIGHLANDS ASP

BEAR RIVER

N.W.1/4 Sec.34 Twp.71 Rge.6 W.6 M.

HIDDEN VALLEY ASP



LEGEND	
	PROPOSED SIDEWALK
	LANING CONFIGURATION
	EXISTING LEGAL
	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

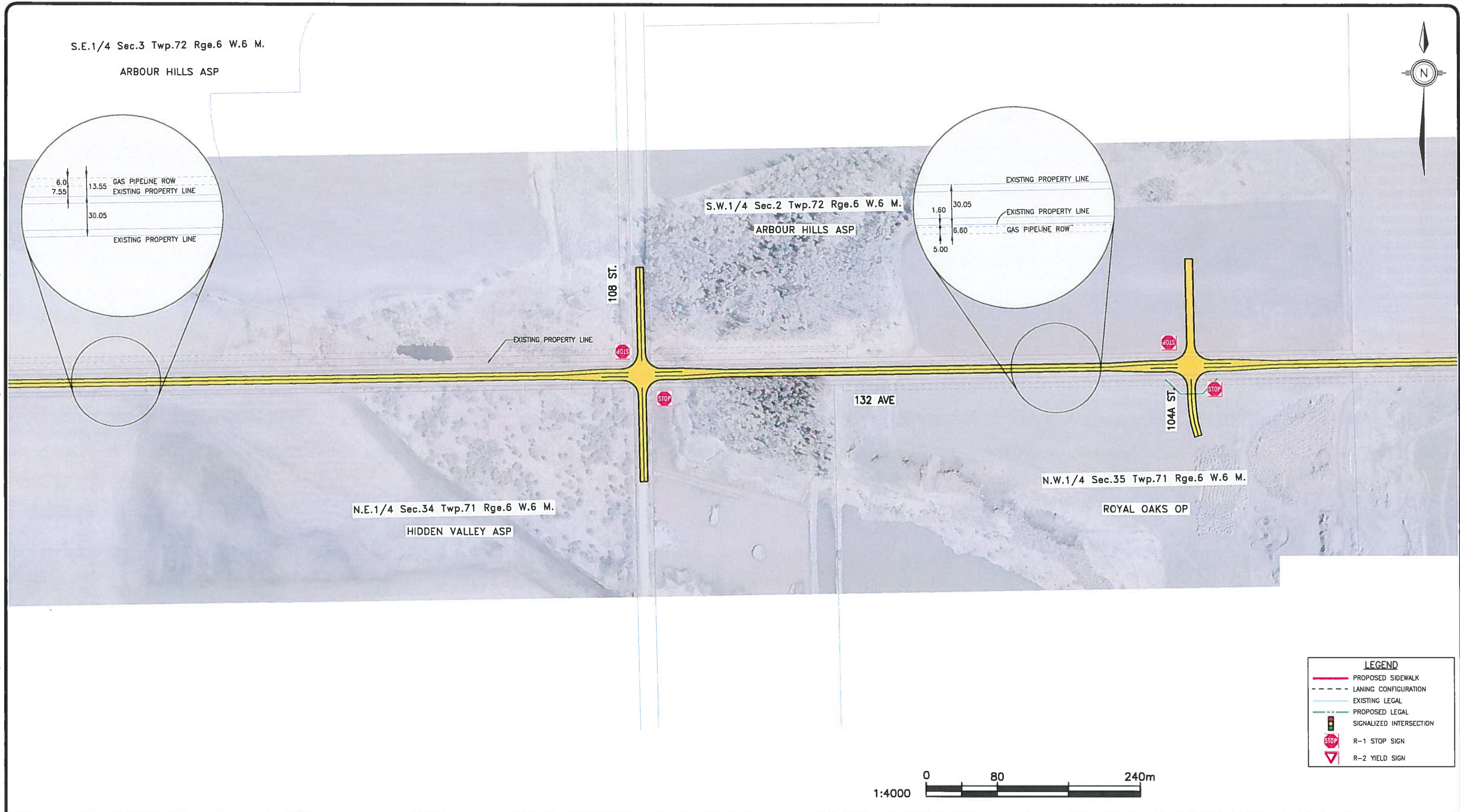
132ND AVE ULTIMATE LANING CONFIGURATION

POPULATION 78,000

116 ST to 112 ST

REV. No.	B
	2012-08-15
OFFICE No.	0202
DRAWING No.	00335-11

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (78K Population).dwg Plotted 15 August 2012



LEGEND	
	PROPOSED SIDEWALK
	LANING CONFIGURATION
	EXISTING LEGAL
	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN

DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



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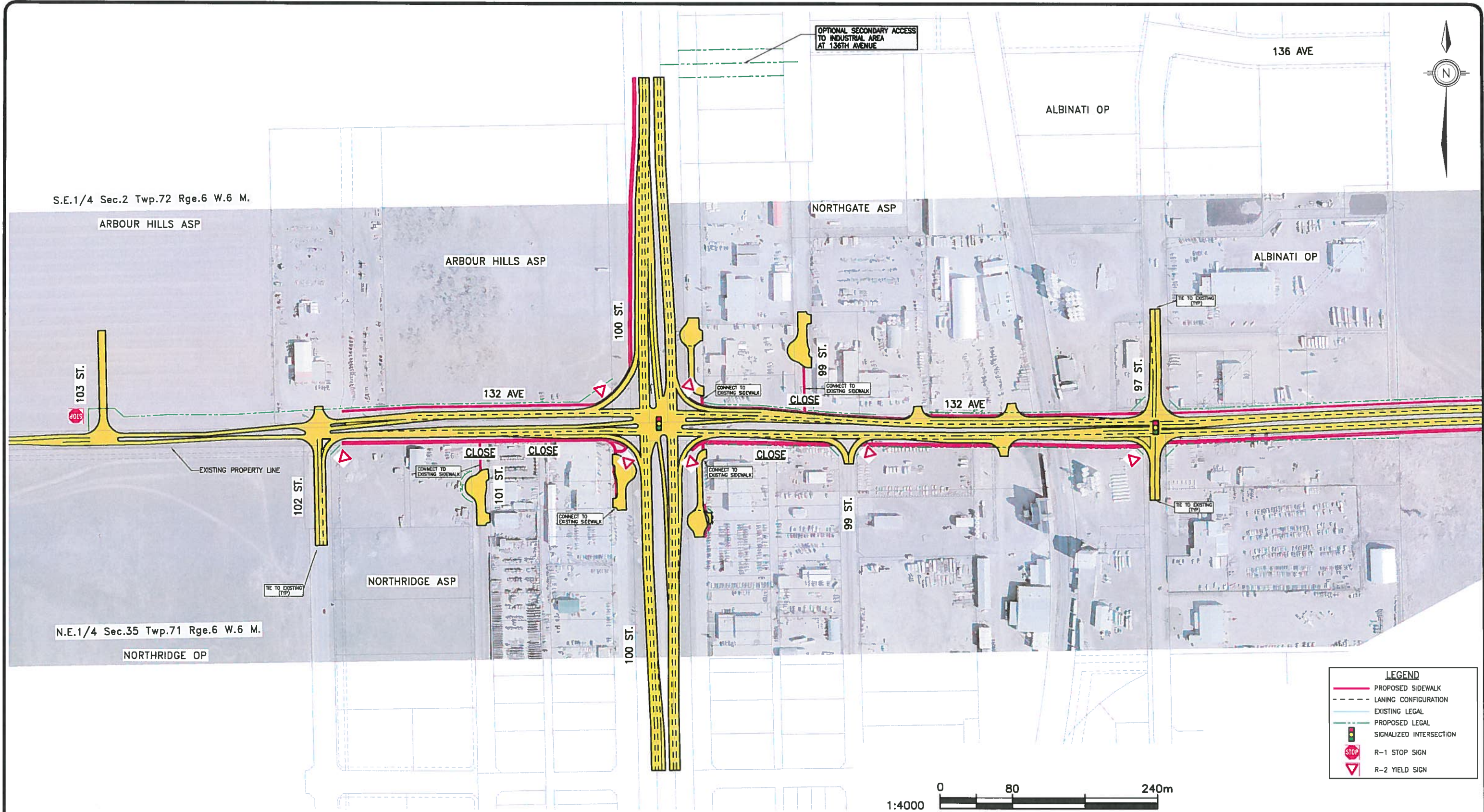


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 78,000  
110 ST to 104A ST

REV. No.	B
2012-08-15	
OFFICE No.	0202
DRAWING No.	00335-12

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (78K Population).dwg Plotted 11 October 2012



LEGEND	
	PROPOSED SIDEWALK
	LANING CONFIGURATION
	EXISTING LEGAL
	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN

DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH
2012-10-12	C	FOR FINAL SUBMISSION	DR	AH



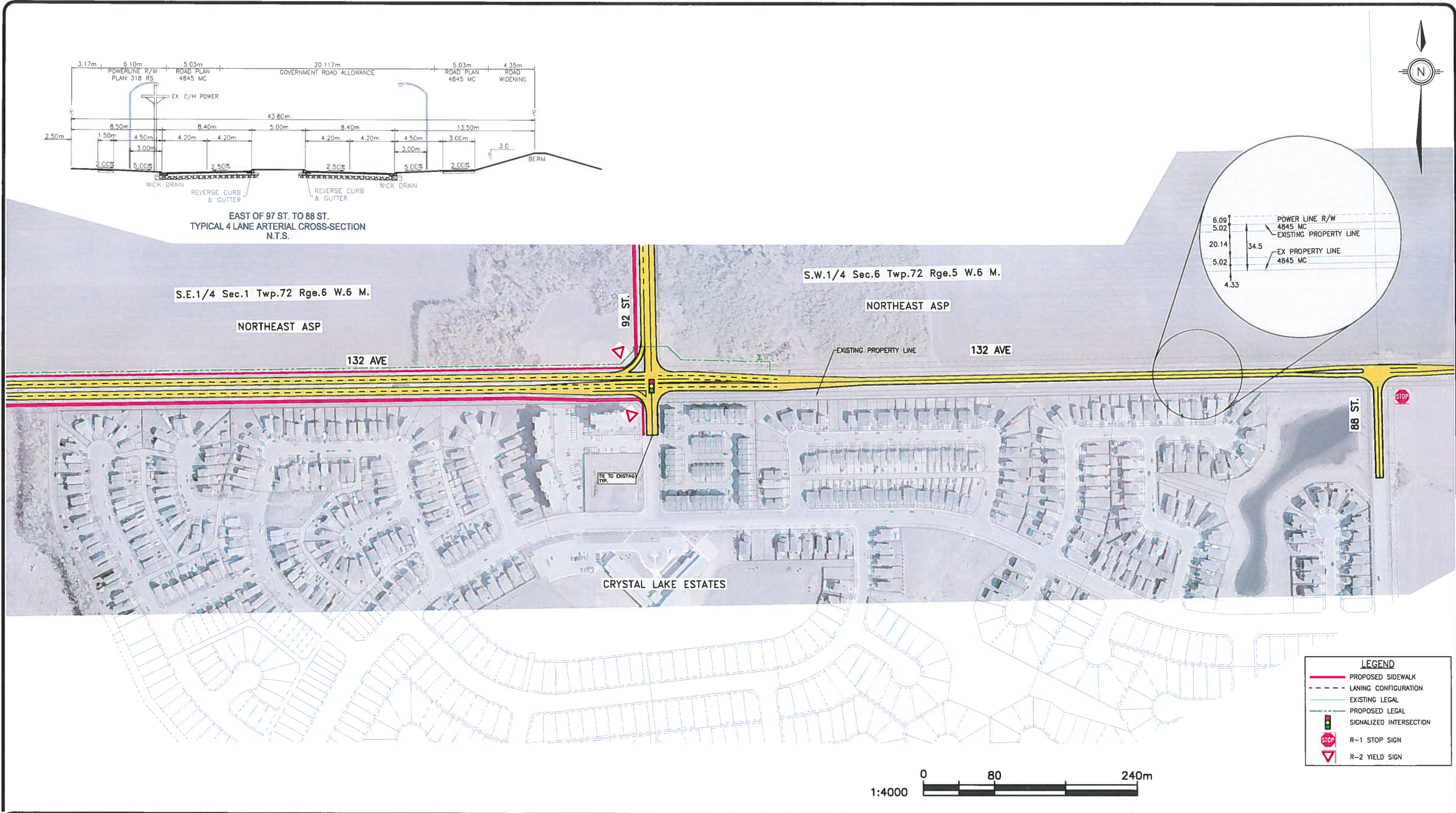
**FOCUS**

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 78,000  
103 ST to 97 ST

REV. No.	C
2012-10-12	
OFFICE No.	0202
DRAWING No.	00335-13

V:\\_Projects\020200335 132 Ave Functional Study\03 Cad\020200335-WD1 (78K Population).dwg Plotted 15 August 2012



DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	DRAFT	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION	DR	AH

**GRANDE prairie** CANADA

resourceful spirit, growing opportunity

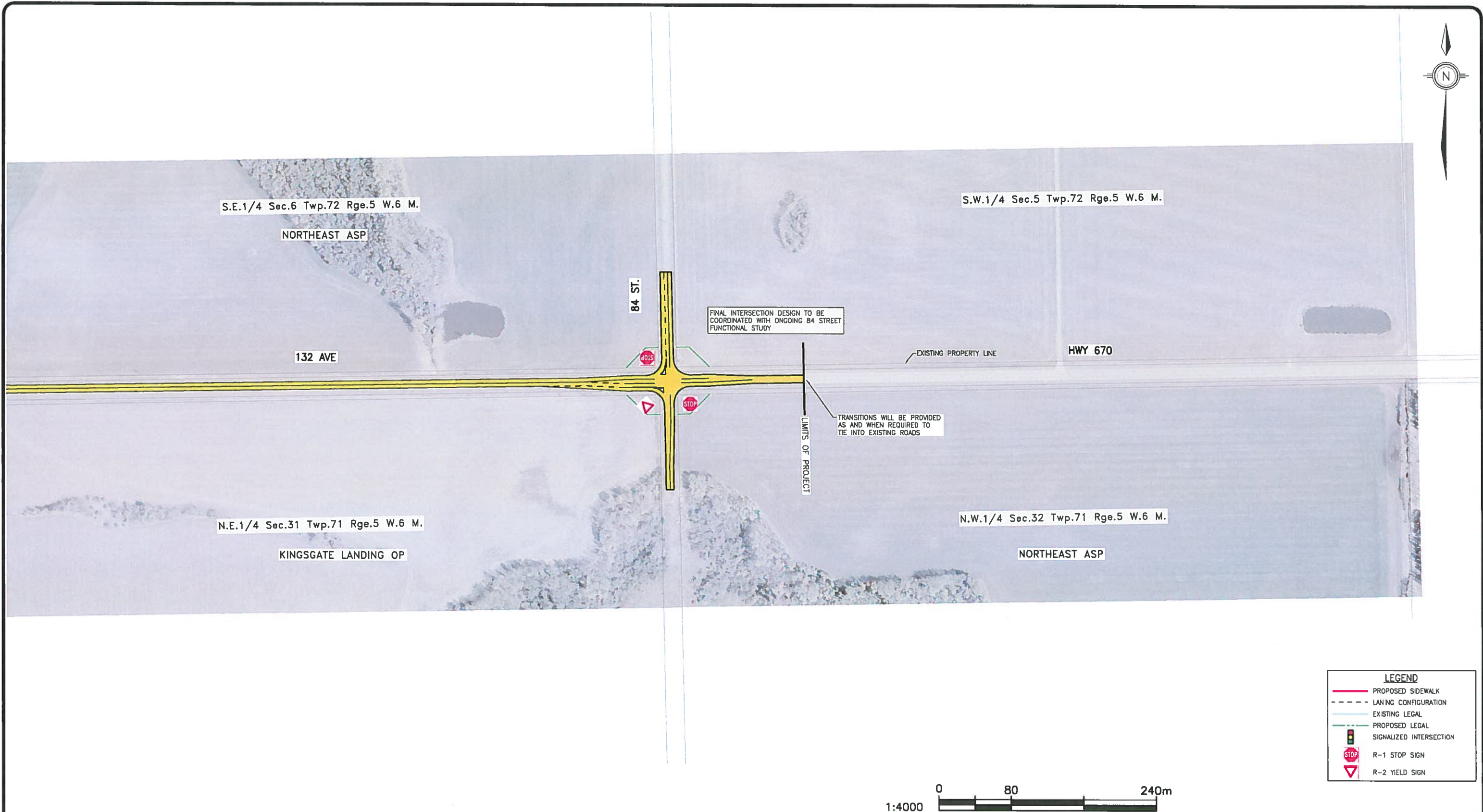
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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 78,000  
92 ST to 88 ST

REV. No.	B
2012-08-15	
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DRAWING No.	00335-14

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	LANING CONFIGURATION
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	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN

DATE	REV	DESCRIPTION	BY	APPR.
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2012-08-15	B	FOR FINAL SUBMISSION	DR	AH



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132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 78,000  
84 ST

REV. No.	B
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DRAWING No.	00335-15

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S.E.1/4 Sec.4 Twp.72 Rge.6 W.6 M.

BEAR CREEK HIGHLANDS ASP

S.W.1/4 Sec.3 Twp.72 Rge.6 W.6 M.

ARBOUR HILLS ASP

132 AVE

FINAL DETAILED INTERSECTION DESIGN  
TO BE UNDERTAKEN WITH CONSIDERATION  
OF RECOMMENDATION PROVIDED IN 116  
STREET FUNCTIONAL PLANNING STUDY.

116 ST.

EXISTING PROPERTY LINE

132 AVE

TRANSITIONS WILL BE PROVIDED  
AS AND WHEN REQUIRED TO  
TIE INTO EXISTING ROADS

LIMITS OF PROJECT

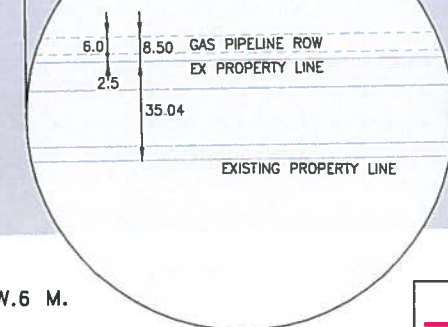
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BEAR CREEK HIGHLANDS ASP

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HIDDEN VALLEY ASP

BEAR CREEK



LEGEND	
	PROPOSED SIDEWALK
	LANING CONFIGURATION
	EXISTING LEGAL
	PROPOSED LEGAL
	SIGNALIZED INTERSECTION
	R-1 STOP SIGN
	R-2 YIELD SIGN



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PHONE 770.539.3222

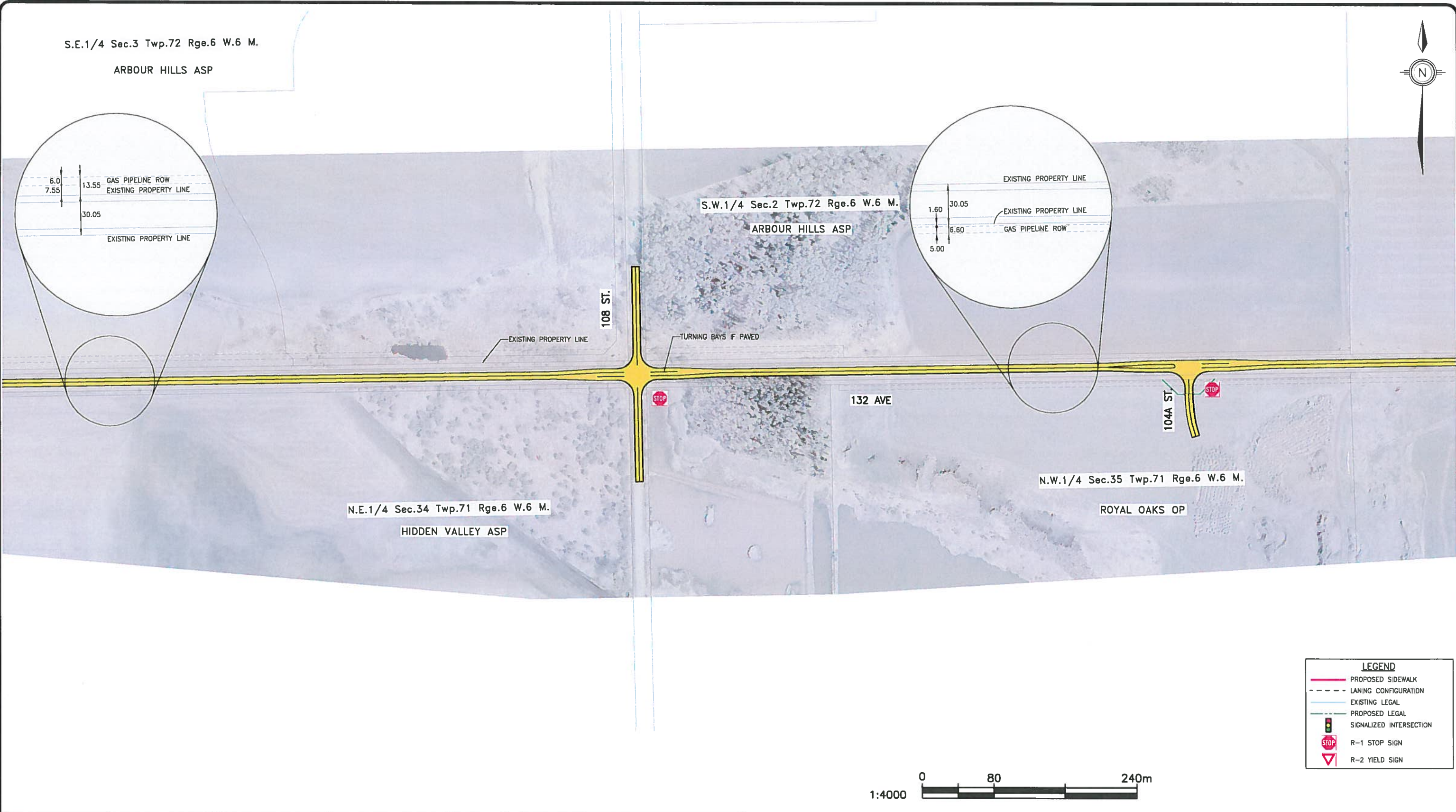
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POPULATION 65,000

116 ST to 112 ST

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DRAWING No.	00335-21

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PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 65,000  
110 ST to 104A ST

LEGEND

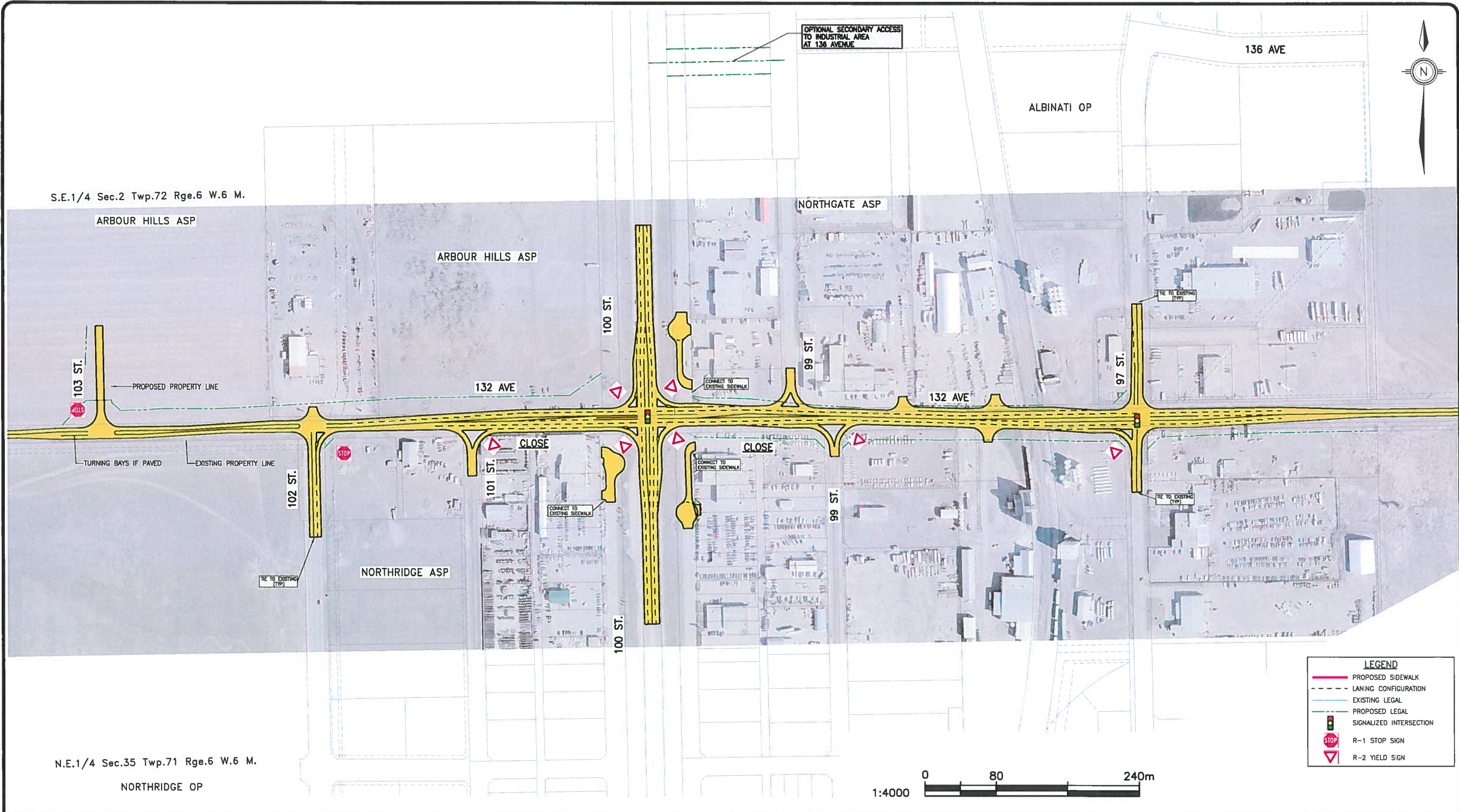
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- LANING CONFIGURATION
- EXISTING LEGAL
- PROPOSED LEGAL
- SIGNALIZED INTERSECTION
- R-1 STOP SIGN
- R-2 YIELD SIGN

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2012-08-15

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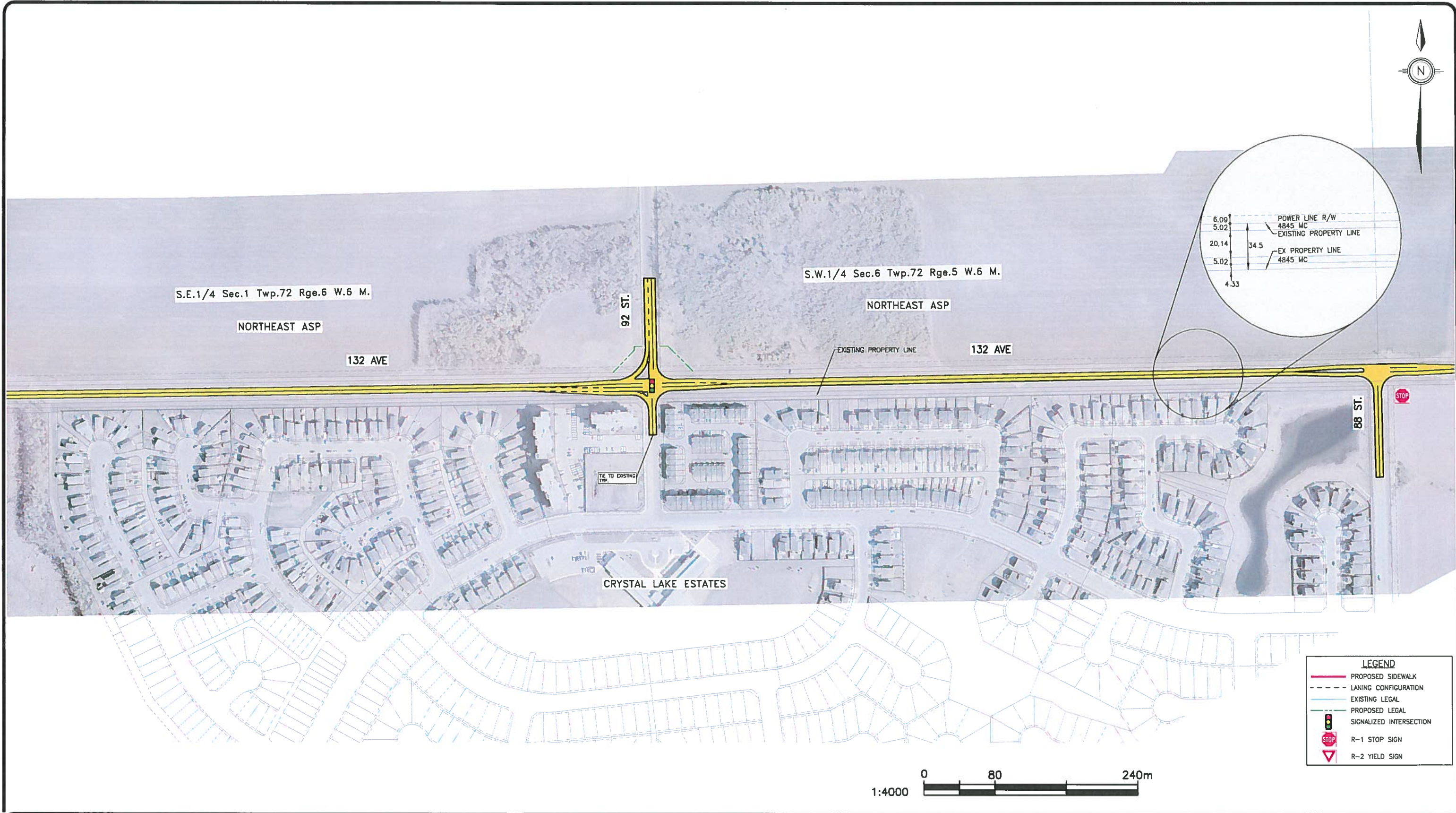


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING CONFIGURATION  
POPULATION 65,000  
103 ST to 97 ST

REV. No.	B
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prairie CANADA  
resourceful spirit, growing opportunity

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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

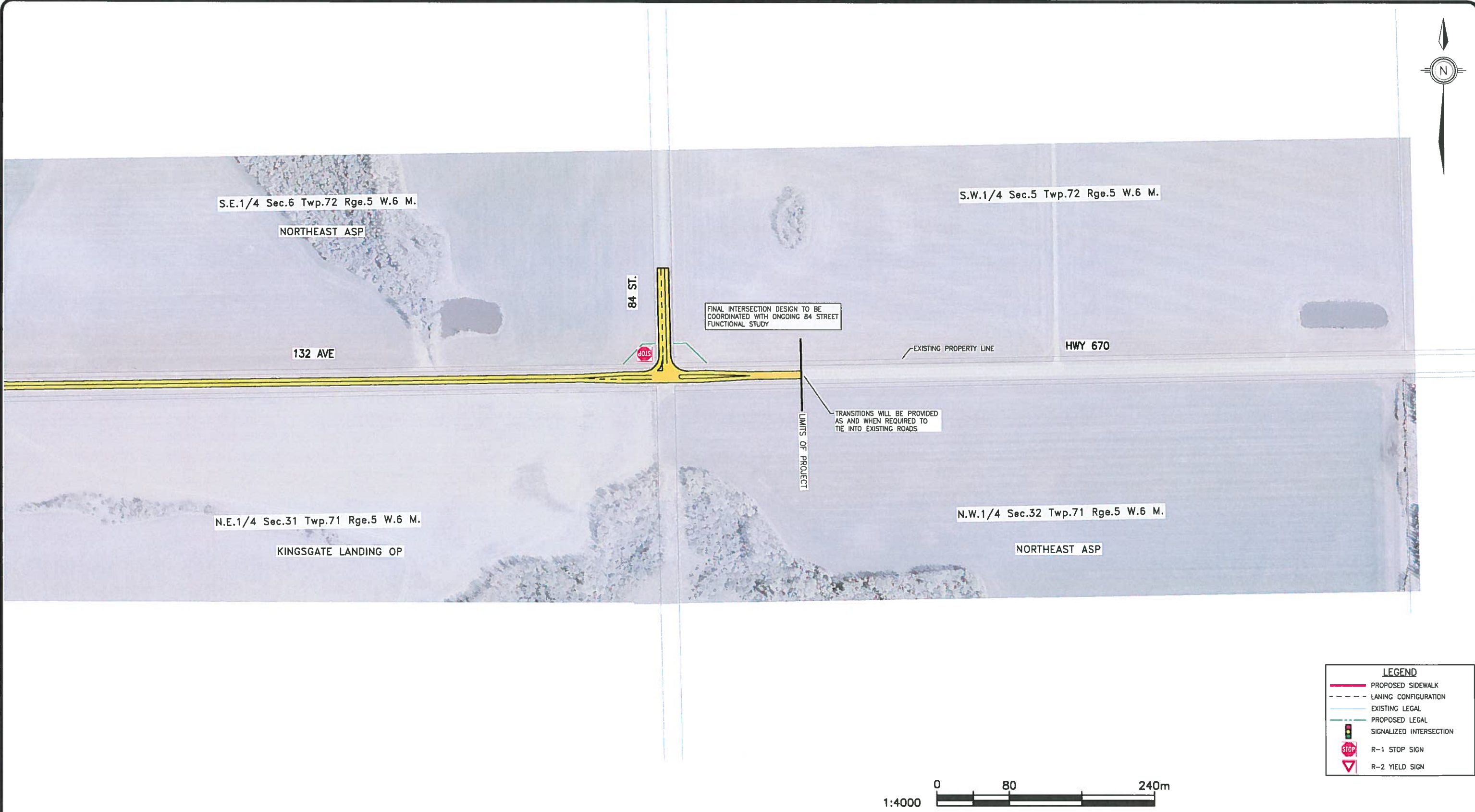
132ND AVE ULTIMATE LANING CONFIGURATION

POPULATION 65,000

92 ST to 88 ST

REV. No.  
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OFFICE No.  
0202  
DRAWING No.  
00335-24

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**LEGEND**

- PROPOSED SIDEWALK
- LANING CONFIGURATION
- EXISTING LEGAL
- PROPOSED LEGAL
- SIGNALIZED INTERSECTION
- R-1 STOP SIGN
- R-2 YIELD SIGN



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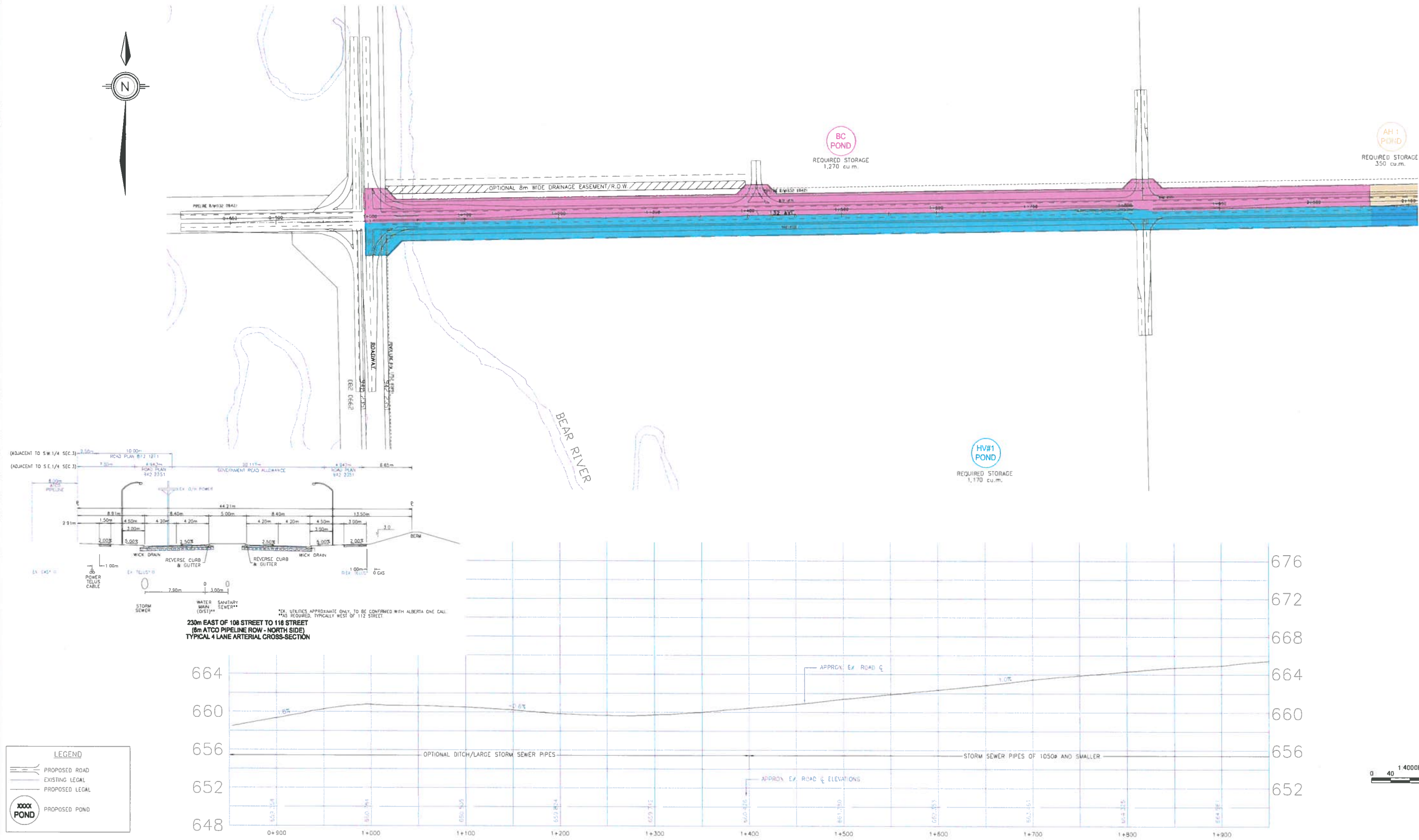


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

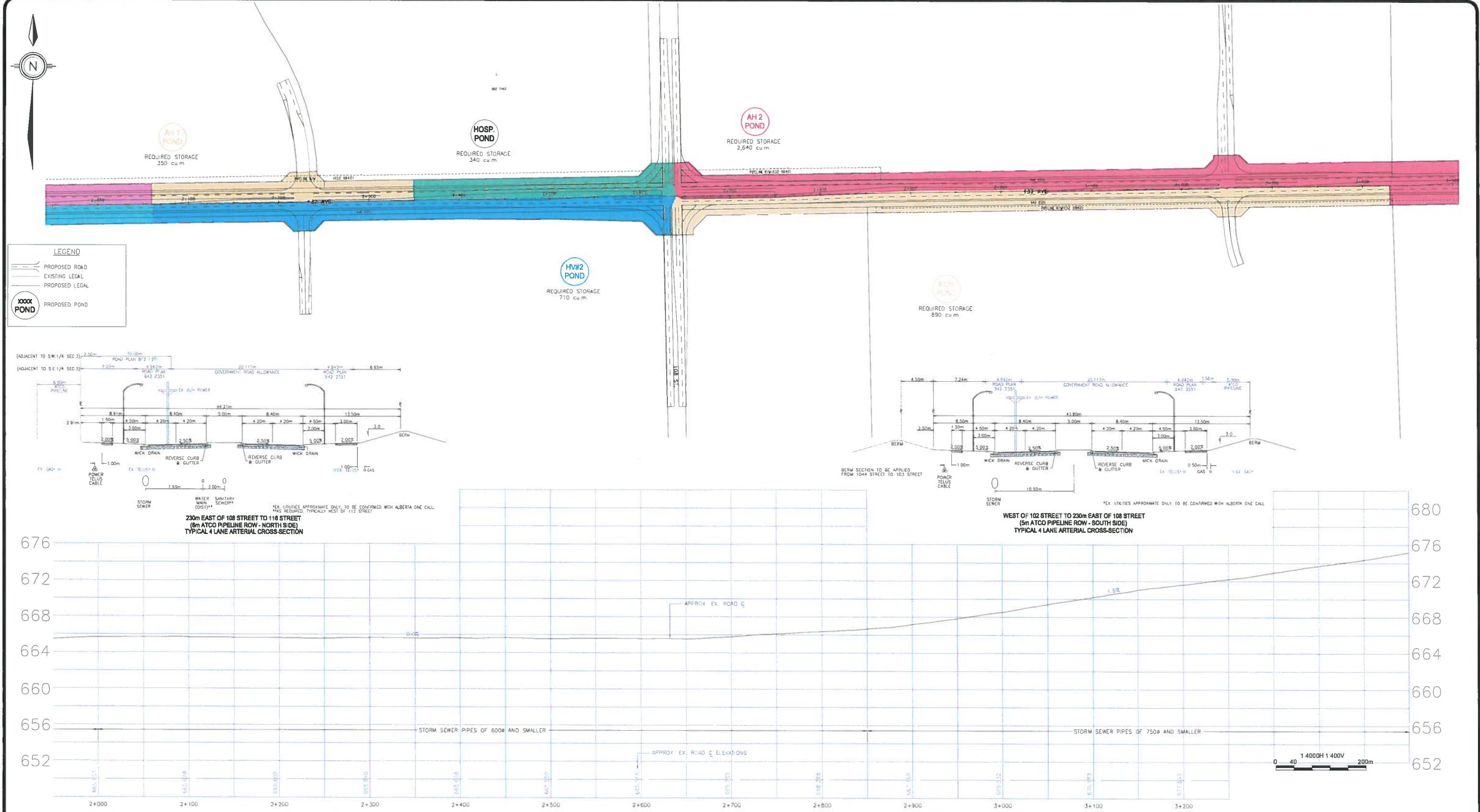
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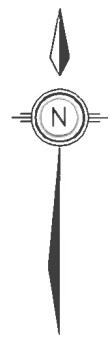


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 780.539.3222

CITY OF GRANDE PRAIRIE  
132ND AVE FUNCTIONAL PLANNING STUDY  
PLAN & PROFILE STA. 1+950 to 3+450

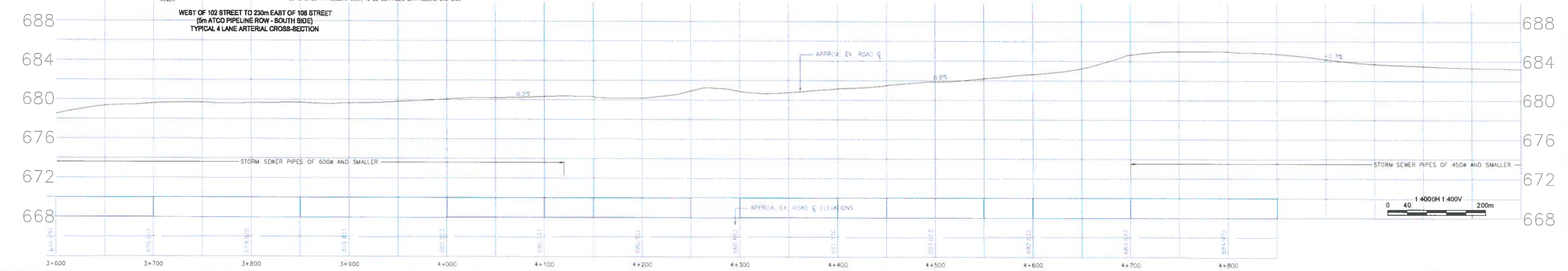
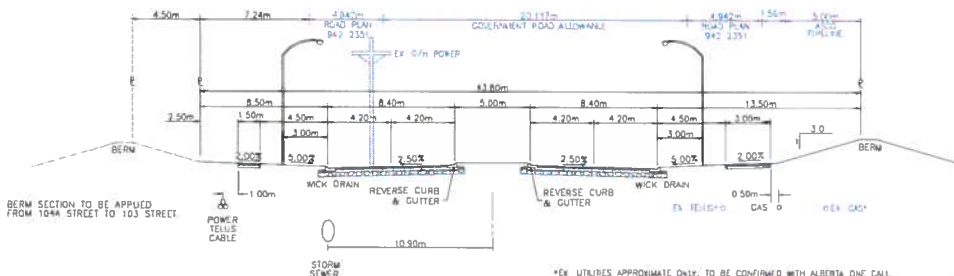
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DRAWING No.	00335-32

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**LEGEND**

- PROPOSED ROAD
- EXISTING LEGAL
- PROPOSED LEGAL
- PROPOSED POND



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2012-08-15	B	FOR FINAL SUBMISSION.	DR	AH

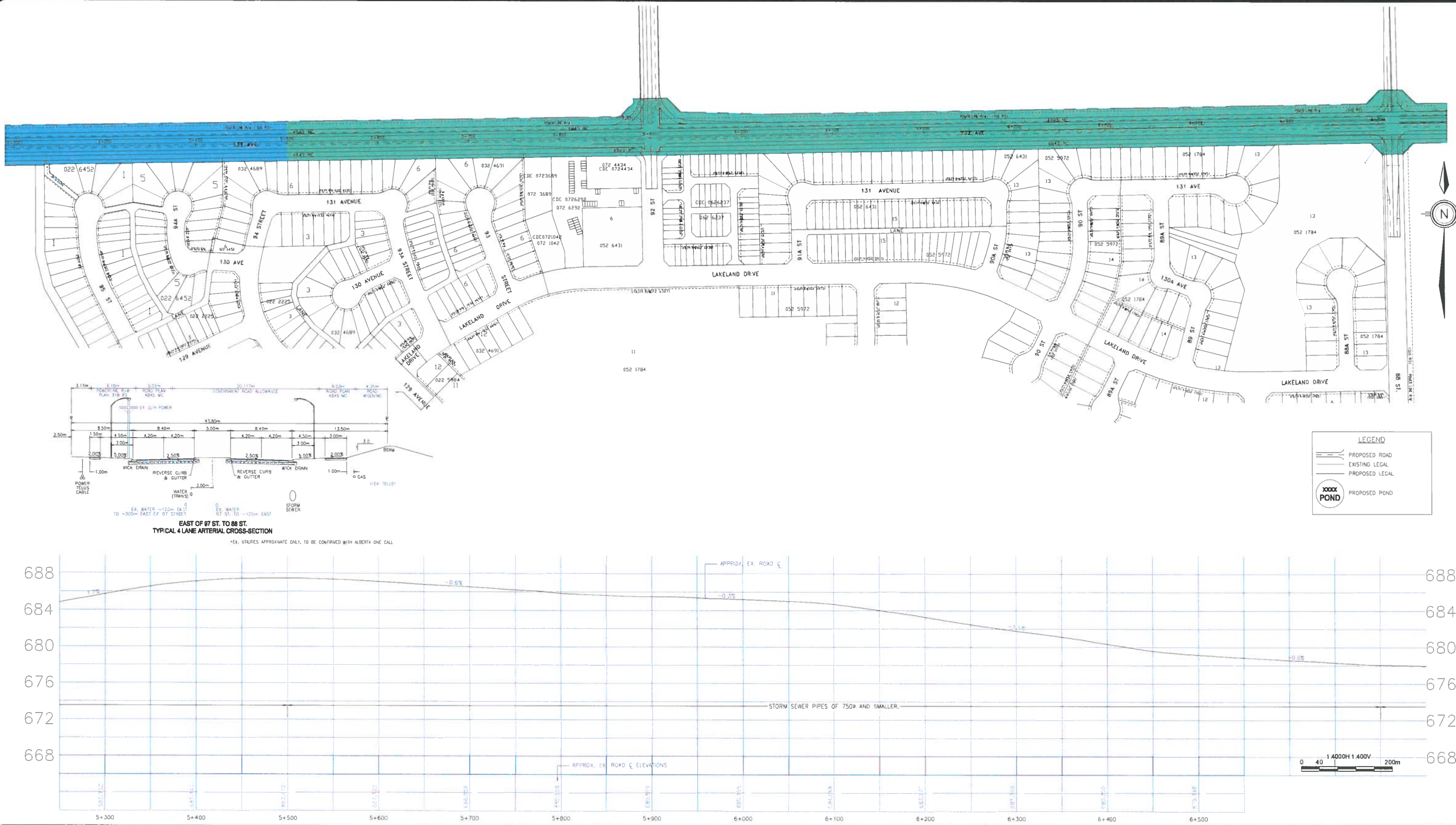
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CITY OF GRANDE PRAIRIE  
132ND AVE FUNCTIONAL PLANNING STUDY  
PLAN & PROFILE STA. 3+600 to 5+100

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 780.539.3222

REV. No.	B
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OFFICE No.	0202
DRAWING No.	00335-33

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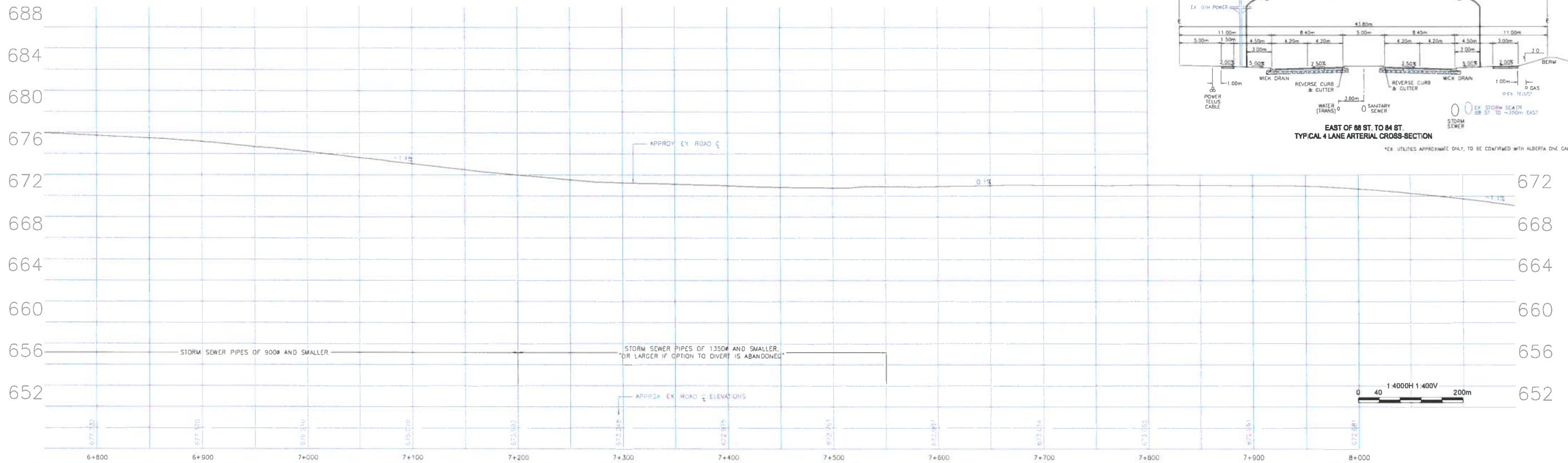
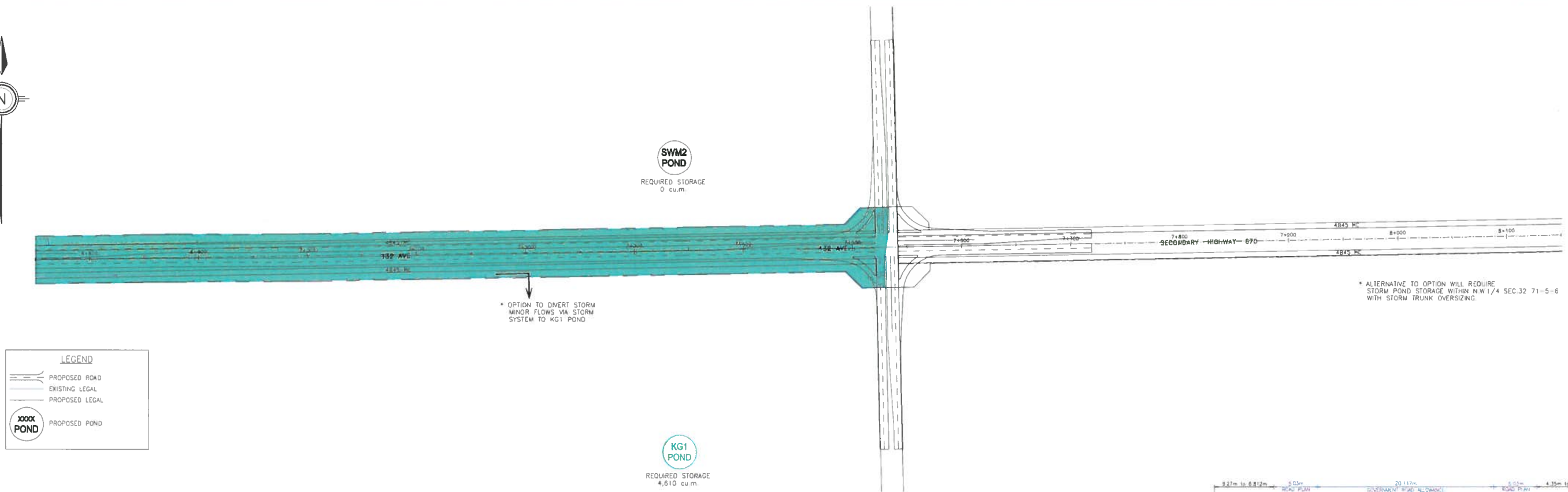
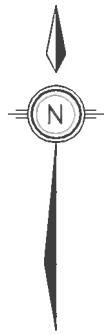


10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 780.539.3222

CITY OF GRANDE PRAIRIE  
132ND AVE FUNCTIONAL PLANNING STUDY  
PLAN & PROFILE STA. 5+250 to 6+750

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2012-08-15	
OFFICE No.	0202
DRAWING No.	00335-34

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DATE	REV	DESCRIPTION	BY	APPR.
2012-03-30	A	FOR REVIEW	DR	AH
2012-08-15	B	FOR FINAL SUBMISSION.	DR	AH



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132ND AVE FUNCTIONAL PLANNING STUDY  
PLAN & PROFILE STA. 6+750 to 8+150

10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 780.539.3222

REV. No.	B
2012-08-15	
OFFICE No.	0202
DRAWING No.	00335-35

City of Grande Prairie

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## Supplementary Report to Functional Planning Study 132nd Avenue Final Report (Dated October 2012) July 2014



## CORPORATE AUTHORIZATION

This Supplement Report to the "Functional Planning Study – 132nd Avenue Final Report" dated October 2012 was prepared by Focus Corporation for the City of Grande Prairie. The material in it reflects the judgment of Focus Corporation, in light of the information available at the time of preparation of this report. Any use of the information by a third party, or any reliance on or decisions made on it are the responsibility of such third parties. Focus Corporation accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made, or actions taken, based upon information contained in this report.



### Professional Seal

Prepared by:  
Peter Leung, P. Eng.  
Transportation Manager  
Northern Alberta Region

<b>PERMIT TO PRACTICE</b>	
<b>FOCUS CORPORATION</b>	
Signature	
Date	July 16/14
<b>PERMIT NUMBER: P 6386</b>	
The Association of Professional Engineers, Geologists and Geophysicists of Alberta	

### Permit to Practice

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## Executive Summary

132 Avenue is a major east-west arterial road in the northern part of the City of Grande Prairie. Due to continuous growth and development in the City and lands adjacent to this roadway, the portion between 84 Street and 116 Street will require upgrades to meet current traffic volumes, and also traffic volumes as a result of strong regional growth. This corridor includes 100 Street (Highway 43), which is part of the Provincial Highway network that connects to Highway 43 and Highway 2 to the north. The lands are also separated by a railway crossing west of 97 Street.

A functional planning study for this 132 Avenue Corridor was started in 2009. It was put on hold pending results and updated traffic volume projection from the Transportation Master Plan (TMP) in 2011. Two public open houses were held on January 26 and June 5, 2012 to present interim and final recommendations. A report titled "Functional Planning Study 132 Avenue Final Report" and associated functional plans were submitted to the City in October 2012.

Stakeholders including the Grande Prairie Chamber of Commerce and local business and property owners have since expressed concerns the proposed long term improvements to 132 Avenue would sterilize their business as some accesses will be restricted or eliminated. The City then engaged Focus Corporation to provide a further supplementary study to address the concerns.

A design charrette, facilitated by staff from the City, Brenda Walton of Kairos Creative Solutions Inc., and experienced transportation engineers from Focus' Transportation Department in Edmonton, was held on October 9, 2013. The charrette was well attended by business and property owners, and members of council. The major concerns were safety at the intersection of 132 Avenue and 100 Street, access restriction, lack of connecting road network, and increasing traffic volumes. A follow-up charrette was held on February 6, 2014 to follow-up on the concerns and issues raised.

The purpose of this supplementary report to the "Functional Planning Study 132 Avenue Final Report" dated October 2012 is to provide recommendations and address concerns raised by stakeholders at the charrettes and the subsequent open house held on February 24, 2014, and one-on-one meetings with stakeholders held on February 24, 2014, and April 7, 2014. It is suggested that the revised 90,000 population plan be used as the "ultimate" plan. All future development plans will be reviewed to ensure compatibility.

This supplementary report recommends that for the short term, a median be constructed on 132 Avenue, across the 100 Street service roads intersections on both the east and west sides, to restrict turning movements to right-in/right-out only. For the long term, centre left turn lanes can be provided to support all-direction turning movements for some existing accesses. However, some accesses and road intersections will be restricted to right-in/right-out only. The alley between 100 Street and 101 Street on the south side of 132 Avenue should be extended to 128 Avenue. Please refer to Section 1 for detailed discussions and Section 4 for a summary of the recommendations.

Other concerns/issues raised in the design charrette and open house are addressed in Section 3. Plans showing land requirements and potential surplus road right-of-way can be found in **Appendix C**.

## 1.0 INTRODUCTION

132 Avenue is a major east-west arterial road in the northern part of the City of Grande Prairie. The portion between 84 Street and 116 Street has been identified by the City as a corridor that will require immediate and long term upgrades in order to meet the continuous growth of the City. Land uses adjacent to 132 Avenue include residential, established commercial and industrial developments, and undeveloped lands. This corridor includes 100 Street (Highway 43), which is part of the Provincial Highway network that connects to Highway 43 and Highway 2 to the north. The lands are also separated by a railway crossing west of 97 Street.

In 2009, the City commissioned Focus Corporation to provide a functional planning study for this 132 Avenue Corridor. The study was put on hold in 2011 pending results from the Transportation Master Plan (TMP). Updated traffic volumes from new Travel Demand Model (ISL – August 2011) were incorporated into the study in 2011. Two public open houses were held on January 26 and June 5, 2012 to present interim and final recommendations. A report titled "Functional Planning Study 132 Avenue Final Report" and associated functional plans were submitted to the City in October 2012.

Stakeholders including the Grande Prairie Chamber of Commerce and local business and property owners have since expressed concerns the proposed long term improvements to 132 Avenue may sterilize their business as some accesses will be restricted or eliminated. The stakeholders would like to be part of the process to decide what upgrades are feasible. The City has agreed to involve the stakeholders in the planning process. Please refer to **Appendix E** for Chamber of Commerce's "132 Avenue Report to Grande Prairie City Council" dated February 23<sup>rd</sup>, 2014.

The City then engaged Focus Corporation to provide a further study to address the concerns raised by the business community. Instead of another round of stakeholder interviews and open house, Focus' Public Involvement Sub-consultant, Kairos Creative Solutions Inc., suggested to invite all stakeholders and council members to a design charrette. The charrette would be facilitated by staff from the City, Brenda Walton of Kairos, and experienced transportation engineers from Focus' Transportation Department in Edmonton who were not previously involved in the original study. This would allow for new ideas and options to be developed.

A charrette was held on October 9, 2013, at the Podollan Inns in the City of Grande Prairie. The charrette was well attended by 27 participants, among them business and property owners, and members of council. The major concerns were safety at the intersection of 132 Avenue and 100 Street, access restriction, lack of connecting road network, and increasing traffic volumes. Please refer to **Appendix A** for "Summary Notes from 132 Avenue Charrette held on October 9, 2013". A follow-up charrette was held on February 6, 2014 to address the concerns and issues raised. A subsequent open house was held on February 24, 2014 (refer to **Appendix B** for summary of feedback), and one-on-one meetings with stakeholders were held on February 24, 2014, and April 7, 2014.

The purpose of this supplementary report to the "Functional Planning Study 132 Avenue Final Report" dated October 2012 is to provide recommendations and to address concerns raised by stakeholders at the charrettes, subsequent open house, and one-on-one meetings.

## **1.1 Supplementary Report Approach**

The intent of this supplementary report is not to replace the "Functional Planning Study 132 Avenue Final Report" dated October 2012. Rather, it provides recommendations to modify the access management along 132 Avenue, options to improve the road network within the study area, and a different approach to construction staging.

In general, the ultimate lane configuration is still based on the 90,000 population scenario in the original October 2012 report. However, instead of staging construction based on population growth levels of 65,000 and 78,000, it is recommended that improvements be based on demand due to new developments, re-developments, and change in land use within the study area. They will be reviewed on a case by case basis to ensure compatibility and minimize future construction disruption and throw-away relative to the ultimate plan. As this report is conceptual only, modification such as turn bay and auxiliary lane requirements will be necessary to accommodate future developments. It should be noted that the ultimate plan may require updating in the future as the City of Grande Prairie overall road network system and development pattern may change over time as the population level reaches 90,000.

This report will not re-visit other background information contained in the original report, such as geotechnical, environmental, drainage, and utilities.

## 2.0 STUDY AREA ISSUES/CONCERNS

This section addresses issues/concerns raised by stakeholders. Recommendations are provided.

### 2.1 132 Avenue / 100 Street / Service Roads Intersection

Close proximity of the service road accesses to the 132 Avenue and 100 Street intersection creates safety concerns. The existing all-directional accesses at the service road must be restricted to reduce traffic conflict points. A median should be constructed across the service road intersections on both the east and west sides of 100 Street to force turning movements to right-in/right-out only. Concrete barriers can be installed in the interim. This restriction will improve safety and capacity at the intersection. The restricted movements will have to utilize the all directional accesses off the 100 Street service roads at approximately 136 Avenue to the north, and 128 Avenue to the south of 132 Avenue. The proposed median on the east side of 100 Street should be extended east to create an eastbound to northbound left turn lane at 99 Street. Currently jersey barriers are being used to delineate the left turn movements. "No U-turns" signs are recommended to be installed at the ends of these new medians. Refer to **Figure 1**.

In the ultimate plan, service road access to 132 Avenue on both the north and south sides should be eliminated as the original report recommended. North of 132 Avenue and on the east side of 100 Street, it is recommended to connect 139 Avenue to 100 Street. The main access to 100 Street for the proposed Trader Ridge Development (Arbour Hills ASP) on the west side of 100 Street should line up with 139 Avenue to the east. The 139 Avenue / 100 Street intersection will become all-directional, with right and left turn bay requirements to be determined at subdivision stage. The spacing between 132 Avenue and 139 Avenue will allow the 139 Avenue / 100 Street intersection to be signalized. The existing service road access at 139 Avenue will be restricted to right-out onto 139 Avenue east bound only. "No Stopping" signs will be installed on both sides of 139 Avenue between 100 Street and 99 Street. The existing service road access to 100 Street at approximately 136 Avenue will remain open. However, westbound to southbound left turns onto 100 Street will be prohibited. Signalization of this 136 Avenue / 100 Street intersection is not allowed due to its close proximity to the existing signalized intersection at 132 Avenue and the future signalized 139 Avenue intersection. A right-in/right-out access for the Trader Ridge Development onto 100 Street south of 136 Avenue is acceptable. This access must be located north of the taper for the southbound left turn lanes on 100 Street. An east-west road connecting the 100 Street service road and 99 Street at approximately 136 Avenue is recommended. Road right-of-way will have to be acquired via opportunity purchase or future redevelopment.

A cul-de-sac can be constructed at the northerly 100 Street service road access to the Petro-Can site. Alternatively, the cul-de-sac can be extended south towards 132 Avenue, subject to the preference of the adjacent property owner, and the approval of the City. Refer to **Figure 2**. The portion of service road between the cul-de-sac and 132 Avenue can be closed off and the surplus road right-of-way could be sold to the adjacent property owner.

At the southeast quadrant, a service road cul-de-sac can be constructed at the south property line of the Windsor Ford site. A right-in only access off 100 Street can be provided to the most southerly access to

Windsor Ford (**Figure 2**). However, this access may be subject to approval by Alberta Transportation. Surplus service road right-of-way between this access and 132 Avenue may be made available for sale to Windsor Ford.

At the southwest quadrant, a service road cul-de-sac is proposed to be constructed at the northerly access to the Northgate Honda site. A southbound slip ramp off 100 Street onto the service road is proposed at approximately 100 m south of 132 Avenue. This slip ramp will provide access for vehicle transport truck trailer units to the service road for loading/unloading. Alberta Transportation approval for this slip ramp may be required.

Pedestrian accommodation should be considered. Please refer to **Figure 2** for sidewalk connectivity.

## 2.2 Accesses Along 132 Avenue

Existing 132 Avenue is an undivided arterial, with an urban cross-section from the railway crossing to west of 100 Street. A 2-lane rural cross-section exists east of the tracks and further west of 100 Street. Current accesses and side street intersections are unrestricted and all-directional. The original October 2012 Functional Planning Study report recommended that ultimate 132 Avenue be divided, resulting in closure of some accesses/road intersections, and restriction to right-in/right-out only.

Business and property owners are concerned as elimination or restriction of existing accesses will significantly impact their businesses. At the charrette, a "continuous two-way left-turn lane" as the centre lane of 132 Avenue was suggested by the Focus Team, instead of a concrete raised median.

The use of a continuous two-way left-turn lane (2WLTL) as a centre lane of an undivided arterial road is an effective means of accommodating left turns where the access requirements on both sides are frequent and cannot be significantly reduced. A 2WLTL is a viable solution especially where a raised centre median cannot be feasibly incorporated due to the negative impact on adjacent land uses. The implementation of a 2WLTL in a commercial area is usually a retrofit situation where access has not been adequately controlled. In industrial areas, a 2WLTL may be appropriate in consideration of the inherent low volumes and speeds as well as the manoeuvring requirements of large trucks.

TAC indicates that a 2WLTL is best suited for urban roads with operating speeds of 50 to 60 km/h, and up to 70 km/h may be tolerated. Two-way left-turn lanes operate successfully for arterial roads with volumes of up to 35,000 veh/d, and a seven-lane cross-section. The City of Edmonton has success with 2WLTL on some of its major truck route arterials with high traffic volumes, including trucks, such as 97 Street, 99 Street, and 149 Street. The projected "ultimate" traffic volumes on 132 Avenue between 100 Street and 97 Street are very comparable to those on 99 Street and 149 Street in the City of Edmonton. Both 99 Street and 149 Street are five lane roadways within the 2WLTL sections. 97 Street in Edmonton is a seven-lane truck route with traffic volume of almost 45,000. It is a Dangerous Goods Truck Route and Truck Route from Yellowhead Trail north, connecting to Highway 28.

TAC also suggests that a continuous right-turn auxiliary lane could safely accommodate the turning traffic into and out of the adjacent developments. Auxiliary lane access provisions along arterials are generally best suited to commercial and industrial land uses.

We have re-examined the corridor and recommend that the originally proposed median could be replaced with a 2WLTL in the centre to accommodate some existing accesses. However, its implementation is subject to review by Roadways Maintenance as snow removal operation may be compromised. With the proposal of auxiliary lanes, the originally proposed access/intersection closures may become right-in/right-out or right-in only accesses. No more than one access per property will be allowed. Provision of auxiliary lanes may require acquisition of additional right-of-way. **Appendix C** provides plans showing proposed land acquisitions. **Figure 2** illustrates the following recommendations for access on 132 Avenue:

- Access to 101 Street on the south side will be right-in only. However, a two-way cul-de-sac on 101 Street is proposed for south of this right-in only access to provide access to the adjacent businesses.
- Access to alley east of 101 Street on the south side will be right-in only.
- Access for the Trader Ridge Development on the north side of 132 Avenue will be right-out only at 101 Street, all-directional and signalized at 102 Street, and right-in/right-out only at 103 Street.
- Access to 99 Street on both the north and south sides will be right-in/right-out only.
- It is recommended that the proposed Petro Can access on 99 Street be located as far north as possible.
- Right-out only for the Windsor Ford access west of 99 Street.
- Between 99 Street and the railway tracks, accesses will remain all-directional via a proposed 2WLTL. The extra wide accesses on the north side should be reduced in width for better access management. It is recommended that an access be located at the east end of the property (Lot 3A), with another right-in/right-out only shared access located between Lot 1A & Lot 3A. This access arrangement will be further reviewed should re-development and/or change in land use occur. Joint-use access for both the north and south sides should be considered and encouraged to improve the efficiency of the 2WLTL. However, it is noted that on the north side, the easterly property is about 1m higher than the westerly property at the property line. Regrading of the properties will be required.
- A right-in/right-out access to 132 Avenue is proposed for the property on the south side of 132 Avenue east of 97 Street. The property owner has requested that the access be located as far east as practical.
- Access to the property on the north side of 132 Avenue east of 97 Street will be via 97 Street.

For illustration purposes, curb return accesses are shown on **Figure 2**. Commercial crossings may be more compatible with the existing use and less disruptive to road drainage. In order to enhance access

management, it is strongly recommended that business/property owners review their internal on-site parking, traffic circulation, and storage for efficiency and improvements.

### 2.3 Road Network in Study Area

The study area is divided into east and west by a north-south railway, with the only crossing at 132 Avenue. With the provision of additional railway crossings north and south of 132 Avenue, the road network system within the study area will definitely improve. However, CN has indicated that it will not entertain any new crossings, especially with demands for additional spur lines and requirements for railcar storage. The closest crossing south of 132 Avenue is at 116 Avenue. North of 132 Avenue, the next crossing is at 148 Avenue.

It is recommended that 139 Avenue be connected to 100 Street. This connection provides an opportunity for a signalized intersection with the new access to the proposed Trader Ridge Development on the west side of 100 Street. 140 Avenue will be closed from 100 Street to approximately 150m to the west. On the east side, a cul-de-sac is proposed for the service road. Access from 139 Avenue and 100 Street to the service road is not allowed. However, a right-out only from the service road cul-de-sac onto 139 Avenue eastbound will be provided. No stopping will be allowed along 139 Avenue. The existing service road connection to 100 Street at approximately 136 Avenue will remain open. Westbound to southbound left turns onto 100 Street will be prohibited. In order to improve the road network, a connection for 136 Avenue from 99 Street to 100 Street is recommended. Right-of-way will have to be acquired.

The alley on the south side of 132 Avenue between 100 Street and 101 Street should be extended south to 128 Avenue. Alternatively, the option to provide an east-west connection either to the 100 Street service road or to 101 Street should be investigated. Both extending the alley to 128 Avenue and providing an east-west connection would be ideal. Land acquisition will be required to provide an east-west connection for the alley between 100 Street and 101 Street.

Please refer to Appendix C for drawings showing right-of-way requirements and potential surplus road right-of-way. Road right-of-way could be acquired via:

- Direct purchase / Opportune purchase
- Land exchange
- Development requirements

Existing gravelled roads should be paved to encourage utilization and eliminate gravel from being dragged by traffic onto the adjacent paved roads. In particular, the following gravel roadways should be considered for paving:

- 128 Avenue (100 Street – 101 Street)
- 128 Avenue (99 Street – 100 Street)
- 99 Street (128 Avenue – 132 Avenue)
- 101 Street (128 Avenue – 132 Avenue)

An improved road network will assist in future transit route planning, resulting in the study area being better served. It will also enhance emergency response.

### 3.0 OTHER CONSIDERATIONS

At the charrette held on October 9, 2013, the follow-up charrette held on February 6, 2014, and subsequent open house, one-on-one meetings and e-mails from stakeholders, other considerations/issues were presented. This section provides discussions and recommendations.

1. Instead of a centre continuous two-way left-turn lane, that the centre lane be used as a reverse lane to accommodate am and pm peak hour flows. The peak hour reverse lane is considered only when there are distinct peak hour volumes. It tends to create confusion among drivers who are not familiar with the route. It is not applicable to our situation. It does not resolve access issues and is therefore not recommended.
2. Can a centre continuous two-way left-turn lane be provided between 101 Street and 102 Street? Access to lands between 101 Street and 102 Street are not restricted like the area east of 100 Street, by the service road and railway tracks. Proposed developments will be obligated by TAC guidelines for proper access and intersection spacing. A centre continuous two-way left-turn lane is not applicable and is therefore not recommended.
3. There are safety concerns regarding snow covered continuous two-way left-turn lane. This is an operation issue and must be resolved in conjunction with snow removal on 132 Avenue.
4. A left slip lane can create snow removal issues. Again, this is an operation issue. All raised islands are to be properly marked/signed.
5. Geometry of slip lanes could be an issue based on vehicular size. The storage length of the 2WLTL should be maximized as much as possible. Where feasible, joint use accesses are strongly recommended. Access will be reviewed should re-development and/or change in land use occur.
6. There are concerns with improper use of the centre continuous two-way left-turn lane. The centre continuous two-way left-turn lane has been utilized successfully in major urban centres such as the City of Edmonton, on truck routes with similar traffic volumes.
7. Right-in/right-out may possibly cut access options down, and increase travel time/distance. Where an all-directional access cannot be provided due to safety and operational concerns, a right-in/right-out access may be the best option. With the proposed improvements to the area road network system, the increase travel time/distance would be kept to a minimum. Business and property owners should also review internal on-site parking and traffic circulation for potential access improvements. Where possible, shared accesses should be considered to reduce the number of accesses along the corridor.
8. Right-in/right-out accesses may create unsafe vehicle movements. One option to enhance safety is to provide an auxiliary lane to accommodate right-in/right-out accesses. Again, where possible, shared accesses should be considered.

9. Line-up 99 Street north and south of 132 Avenue. 99 Street north and south of 132 Avenue is too far apart to line up without major land/business acquisitions and construction. There is no significant benefit to connect 99 Street.
10. Highway 43 East needs work. Highway 43 is under the jurisdiction of Alberta Transportation and is outside the scope of this supplementary report.
11. There are drainage concerns north and south of 132 Avenue. A drainage study is outside the scope of the 132 Avenue Functional Planning Study. However, it is always a good engineering practice to conduct a drainage study to ensure any proposed road improvements are compatible with the long term drainage plans.
12. Currently there are bottlenecks where traffic goes from two lanes to one lane (each direction). In the long term plans, 132 Avenue will become a four lane arterial. In the interim, the proposed road network improvements should ease the situation somewhat.
13. Divert traffic and re-route heavy trucks. Refer to comments for 12 above. It should be noted that the City has a limited number of truck routes in a region of large trucks. However, some existing businesses such as fast food outlets welcome high traffic volume.
14. Timing will depend on available budget and/or new developments.
15. Pedestrian accommodation is a necessity. Sidewalk connectivity has been reviewed and provided.
16. Construct a traffic circle at 132 Avenue and 100 Street. Retrofitting a traffic circle requires major land and potential business acquisition. There are always issues with restriction and removal of accesses close to the traffic circle. A traffic circle is not recommended here.
17. Can a full intersection or an eastbound to northbound left turn lane at 132 Avenue / 99 Street be provided? At the ultimate stage, there will be 3 westbound lanes and the beginning of the taper for the double left turn lanes onto 100 Street, and a median at 99 Street. It will be unsafe to provide an access more than the proposed right-in/right-out configuration. 99 Street is also too close to 100 Street to be signalized.
18. Access concerns for the Keddie's properties, Lots 1A & 3A, Plan 022-4701, east of 99 Street and fronting onto the north side of 132 Avenue: at the ultimate stage, additional road widening will be required to accommodate the auxiliary lane and the sidewalk. There will also be a median in front of Lot 1A. A right-in/right-out joint access is recommended for Lots 1A & Lot 3A. In addition, an all directional access can be provided for Lot 3A at its most easterly boundary. Ideally, a joint access with the adjacent property to the east is preferred. Internal traffic circulation is anticipated to be impacted. Refer to **Figure 2**.
19. Access for property at 9724 – 132 Avenue, immediately west of the railway crossing, on the north side of 132 Avenue: property owner is concerned about the easterly access being shifted west, and

the westerly access being eliminated at the ultimate stage. At the ultimate stage, the easterly access will have to move west. This is to accommodate an already short westbound left turn bay onto the property on the south side of 132 Avenue, as the space is limited by the railway tracks to the east. The existing westerly access will not be allowed. It will be very difficult to restrict it to right-out only. For proper access management, it is recommended that accesses onto 132 Avenue be restricted and reduced to no more than one per property, in order to improve capacity for the corridor. For this property, it is suggested that internal traffic circulation and stocking / storage options be examined. This access and the opposite access to the south should be close to being lined up. Having a shared access with the adjacent property to the west would be a good option, noting that some internal regrading will be required. Refer to **Figure 2**.

20. Proposed Trader Ridge Development (Arbour Hills ASP) at the northwest quadrant of 132 Avenue and 100 Street: all directional and signalized intersections at 139 Avenue / 100 Street and 132 Avenue / 102 Street; right-in/right-out accesses at south of 136 Avenue / 100 Street and 132 Avenue / 103 Street are acceptable. A right-out only access at 101 Street can be supported. However, the right-in movements should be restricted as it is too close to 100 Street where southbound to westbound double right turn lanes are proposed for the ultimate stage. Refer to **Figures 2 & 3**.
21. Northeast quadrant of 132 Avenue and 100 Street, when the service road access at 132 Avenue is closed, access to the Petro Can property via the service road will be at 136 Avenue. No additional slip ramp off 100 Street is permitted. However, appropriate "way-finding" signs can be installed. The proposed service road cul-de-sac can be adjusted north and south within the property limits. Refer to **Figures 2, 3, 4 & 5**.
22. For the southwest quadrant of 132 Avenue and 100 Street, there is a concern that vehicle transport truck trailer units may not be able to make the turnaround within the service road and leave the car dealership. Upon further review, a southbound right-in slip ramp off 100 Street onto the service road is proposed. The proposed cul-de-sac at the north end of the service road has also be moved further north at the request of the property owner. Refer to **Figures 2, 3, 4 & 5**. Additional appropriate traffic signage will be required along the service road.
23. There are concerns that when 139 Avenue is connected to 100 Street, that access to the service road will be prohibited. Upon further review, a right-out access from the service road onto 139 Avenue is proposed. Refer to **Figure 6** for configuration and truck turning template.
24. Traffic signal phasing will be revised according to various staging requirements.

## 4.0 SUMMARY OF RECOMMENDATIONS

There are safety concerns along the corridor, especially at the intersection of 132 Avenue and 100 Street. Modifications to the intersection can be implemented to reduce conflict points, enhance safety, and slightly improve capacity.

Use the 90,000 population scenario as the "ultimate" plan. Any new developments or re-developments will have to be reviewed on a case by case basis to ensure compatibility and minimize future construction disruption and throw-away costs. Some of the long term recommendations can be advanced if opportunities present via new developments and/or change in land use.

It should be noted that all figures and drawings in this report are conceptual only, and are subject to preliminary and detailed design. Detailed design must be in compliance with the City's latest design and construction standards, and TAC geometric design guidelines.

### 4.1 Short Term

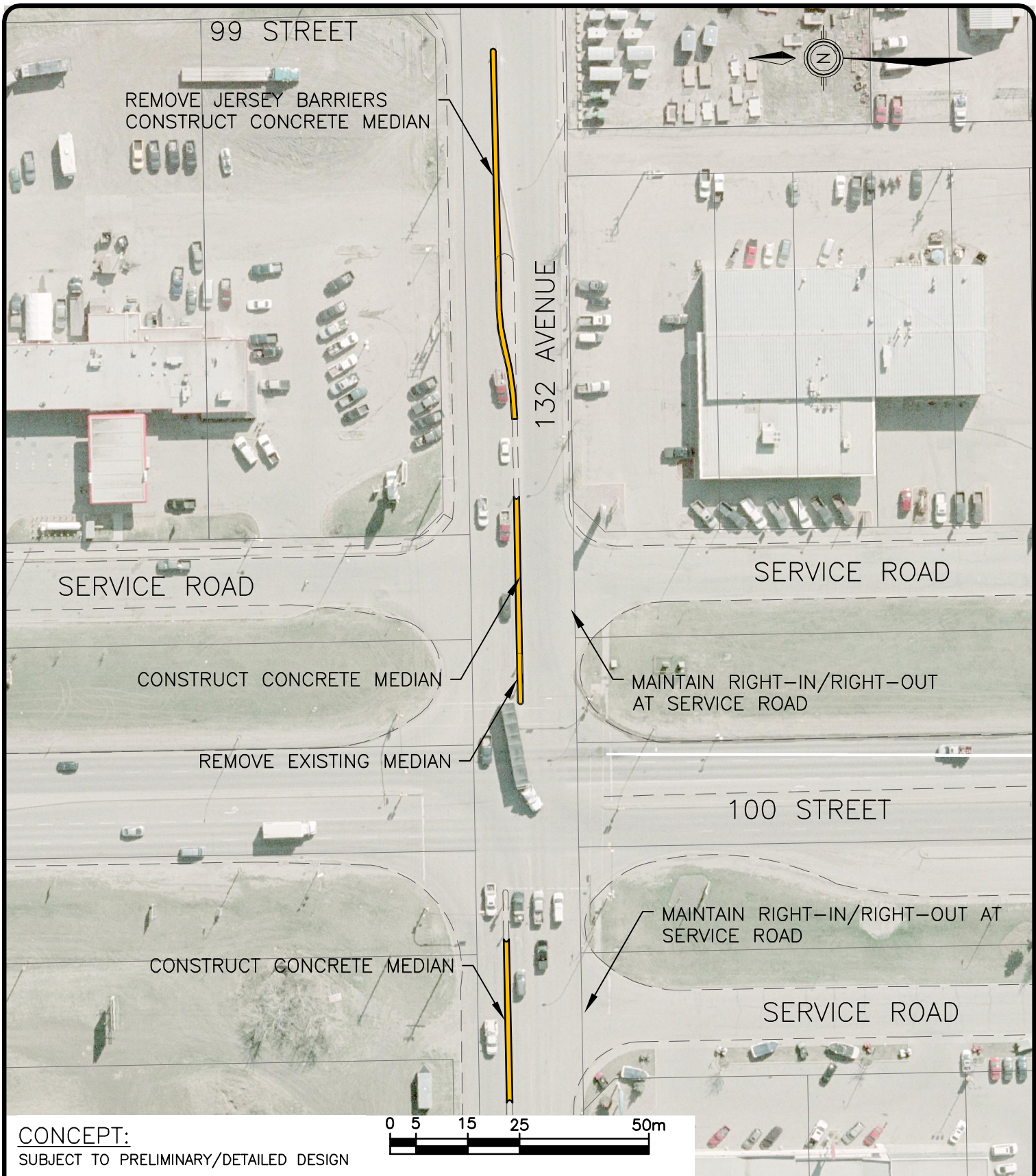
1. Construct a median on 132 Avenue across the service road intersections on both the east and west sides of 100 Street. This will eliminate conflict points for traffic turning left onto and out of the service roads, and for traffic going through the service roads crossing 132 Avenue. On the east side, extend the median to provide an eastbound to northbound lane at 99 Street. Currently jersey barriers are being used to delineate the lane turn lane. "No U-turns" signs are recommended to be installed at the ends of these new medians. Refer to **Figure 1**.
2. Maintain right-in/right-out accesses for the service roads at 132 Avenue. Restricted movements will have to utilize the all directional accesses off the service road to 100 Street at approximately 136 Avenue to the north, and 128 Avenue to the south of 132 Avenue.

### 4.2 Long Term

1. Extend median on 132 Avenue from 100 Street to east of 99 Street on south side. Maintain right-in/right-out access for 99 Street, for both north and south sides of 132 Avenue. Refer to **Figure 2**.
2. Southeast quadrant of 132 Avenue and 100 Street (Windsor Ford), close off service road access to 132 Avenue. Construct cul-de-sac on service road at the most southerly property line of Windsor Ford. Provide right-in only access to 100 Street at south end of property. Provide right-out only access to 132 Avenue at mid-point of north property boundary. Potential surplus service road right-of-way between 132 Avenue and the cul-de-sac can be made available for sale to the adjacent property owner. Refer to **Figure 2** and **Appendix C, Dwg #ROW 6**.
3. Northeast quadrant of 132 Avenue and 100 Street (Petro-Can), close off service road access to 132 Avenue. Construct service road cul-de-sac at the north end of the Petro-Can property, or alternately, move the cul-de-sac further south towards 132 Avenue. Potential surplus service road right-of-way can be made available for sale to the adjacent property owner. Refer to **Figure 2** and **Appendix C, Dwg #ROW 6**.

4. Southwest quadrant of 132 Avenue and 100 Street (Northgate Honda), close off service road access to 132 Avenue. Construct cul-de-sac at the service road access and as far north as possible. A southbound slip ramp off 100 Street onto the service road is proposed at approximately 100 m south of 132 Avenue, subject to Alberta Transportation approval. This slip ramp will provide access for vehicle transport truck trailer units to the service road for loading/unloading. Refer to **Figures 2, 3, 4 & 5**.
5. Northwest quadrant of 132 Avenue and 100 Street, the proposed major access of the Trader Ridge Development to 100 Street should line up with 139 Avenue on the east side. This intersection is to be signalized. Right-turn and left-turn bay requirements will be subject to subdivision development approval. A right-in/right-out access for the Trader Ridge Development off 100 Street south of 136 Avenue is acceptable. For accesses off 132 Avenue, there will be a right-out only at 101 Street, an all-directional and signalized at 102 Street, and a right-in/right-out only at 103 Street. Refer to **Figure 3**.
6. 139 Avenue on the east side should be connected to 100 Street. A service road cul-de-sac will be constructed south of 139 Avenue. A right-out only access onto 139 Avenue eastbound will be provided. "No Stopping" signs will be installed on 139 Avenue. Refer to **Figures 3 & 6**.
7. The existing service road access to 100 Street at approximately 136 Avenue should remain open. However, westbound to southbound left-turn movements will be prohibited. Southbound from 100 Street turning east onto 136 Avenue is allowed. Refer to **Figures 3 & 6** for alignment configuration and truck turning template.
8. Install appropriate "way-finding" signs on 132 Avenue and 100 Street to provide business direction guidance to the public.
9. A connection for 136 Avenue from 99 Street to 100 Street is recommended. Right-of-way will have to be acquired. Refer to **Figure 3**.
10. Maintain all-directional access to 132 Avenue for the existing businesses between 99 Street and the railway crossing. However, the extra wide accesses on the north side should be reduced in width for better access management. It is recommended that an access be located at the east end of the property, with another right-in/right-out only access located between this most easterly access and 99 Street. Refer to **Figure 2**.
11. A right-in/right-out access will be provided to the property on the south side of 132 Avenue, west of the railway crossing. A joint access is recommended. Access to the property on the north side of 132 Avenue, east of 97 Street will be via 97 Street. Refer to **Figure 2**.
12. A right-in/right-out access will be provided to the property on the south side of 132 Avenue, east of 97 Street. The property owner has requested that the access be located as far east as practical. Refer to **Figure 2**.

13. Proper safety protection will be required at the 132 Avenue railway crossing. This will include flashing lights and gate arms, and subject to the requirements and approval by Transport Canada.
14. Signalize 128 Avenue / 100 Street intersection. Approval from Alberta Transportation may be required.
15. West of 100 Street and on the south side of 132 Avenue, access to 101 Street and the alley east of 101 Street will be right-in only. A cul-de-sac is proposed for 101 Street in order to provide two way accesses to businesses along 101 Street. Refer to **Figure 2**.
16. Connect the alley east of 101 Street from south of 132 Avenue to 128 Avenue, and/or provide an east-west connection to either the 100 Street service road, or 101 Street. Refer to **Figures 2 & 4**.
17. Pave existing gravelled road to encourage use and eliminate gravel from being dragged onto adjacent paved roads.
18. Property/business owners to review internal on-site parking, traffic circulation management and storage for efficiency and improvements.
19. Any access to future developments adjacent to 100 Street and 132 Avenue must be reviewed and approved by the City of Grande Prairie. Accesses to 100 Street will also require the approval of Alberta Transportation.



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# FOCUS

SHORT TERM IMPROVEMENTS

132 AVE at 100 ST

REV. No.

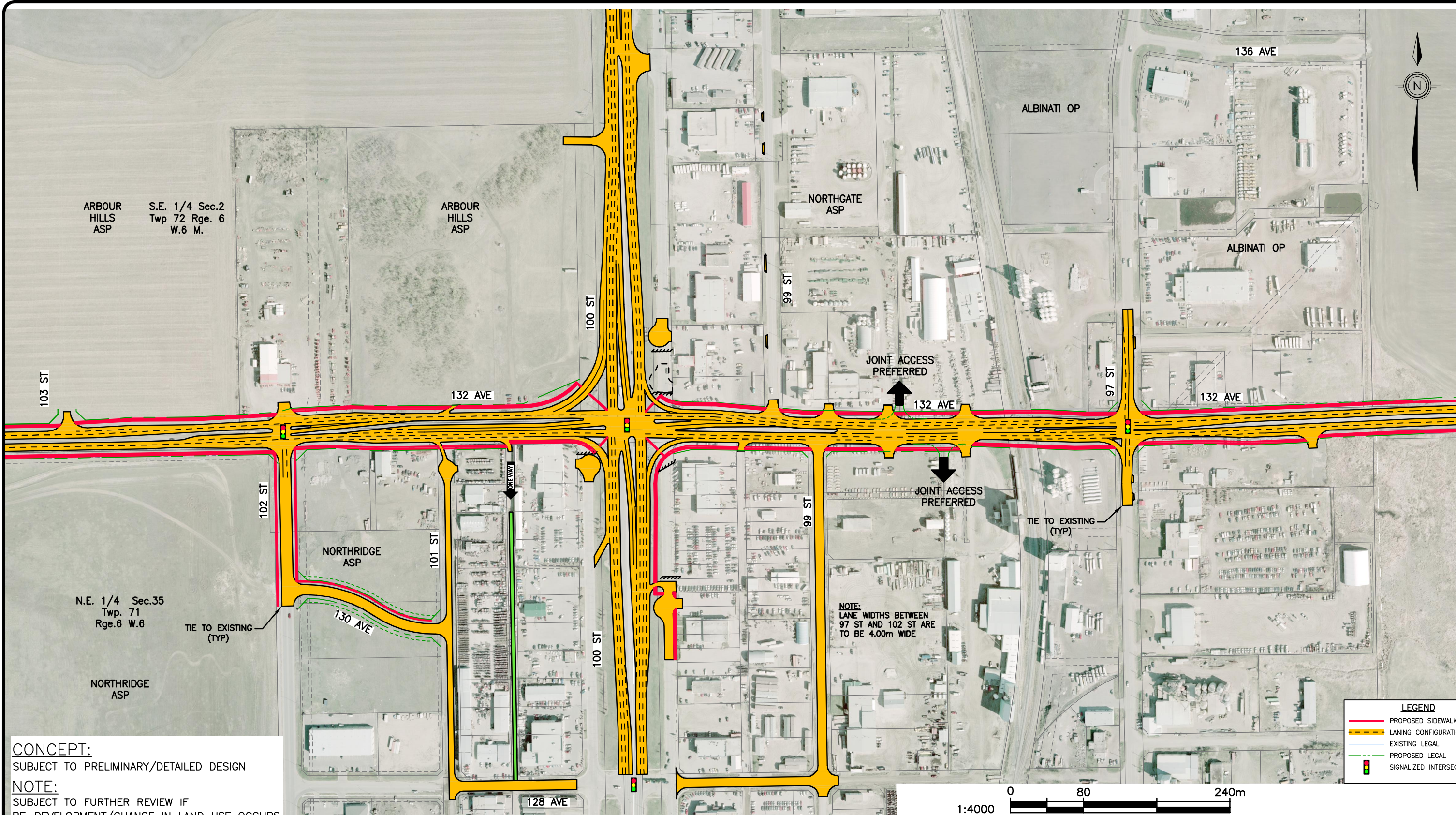
2014-04-01

OFFICE No.

020200335

DRAWING No.

FIGURE 1



CONCEPT:  
SUBJECT TO PRELIMINARY/DETAILED DESIGN

NOTE:  
SUBJECT TO FURTHER REVIEW IF  
RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS

DATE	REV	DESCRIPTION	BY	APPR.



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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

132ND AVE ULTIMATE LANING AND ACCESS CONFIGURATION  
POPULATION 90,000  
103 ST to 97 ST

REV. No.
2014-04-01
OFFICE No. 020200335
DRAWING No. FIGURE 2




CONCEPT:  
SUBJECT TO PRELIMINARY/DETAILED DESIGN

NOTE:  
SUBJECT TO FURTHER REVIEW IF  
RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS

DATE	REV	DESCRIPTION	BY	APPR.



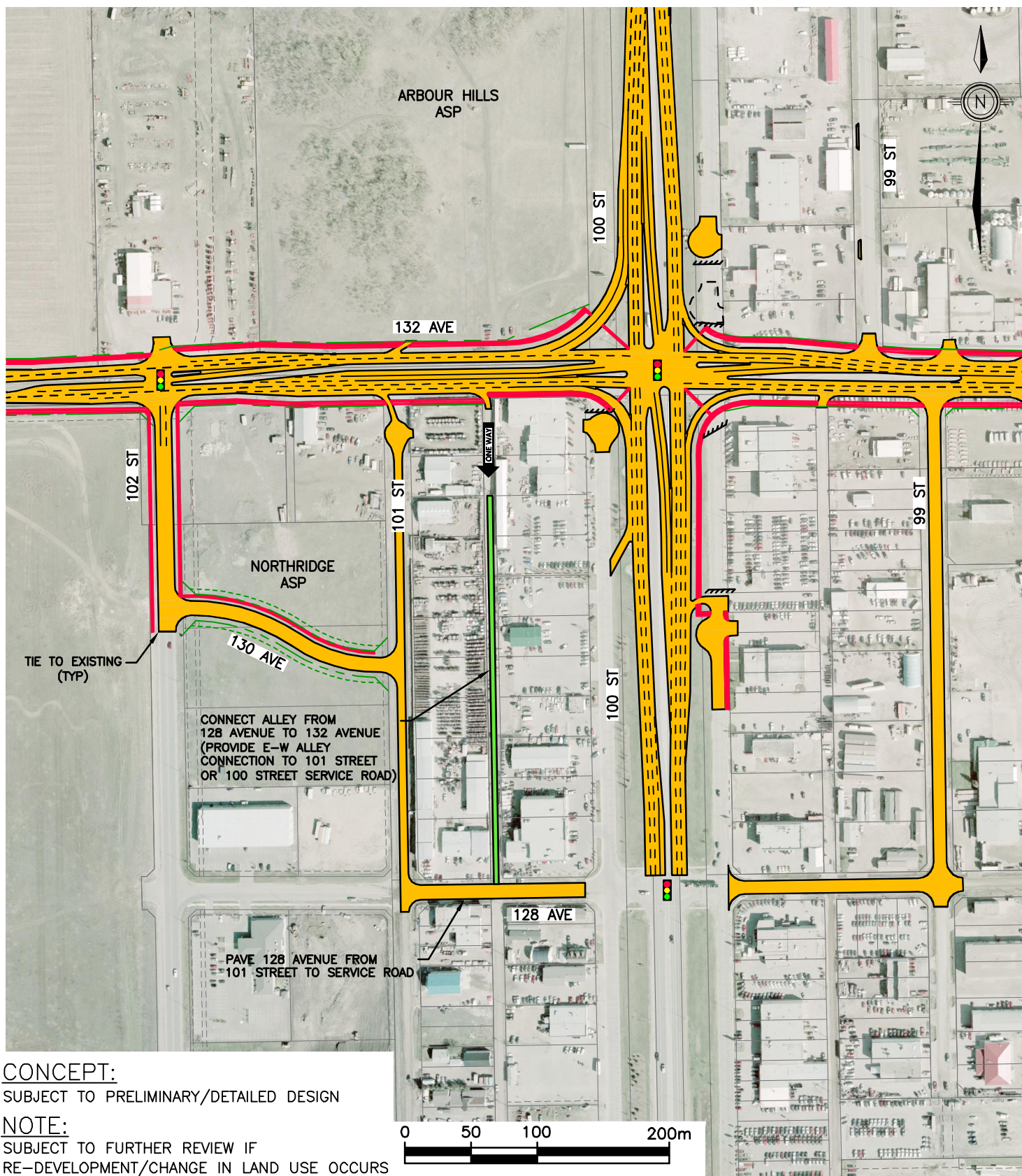
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10127-120 AVENUE  
GRANDE PRAIRIE, BC T8V 8H8  
PHONE 770.539.3222

139 AVENUE/100 STREET INTERSECTION  
ACCESS TO ARBOUR HILLS ASP

REV. No.
2014-04-01
OFFICE No. 020200335
DRAWING No. FIGURE 3



**CONCEPT:**

SUBJECT TO PRELIMINARY/DETAILED DESIGN

**NOTE:**

SUBJECT TO FURTHER REVIEW IF  
RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS



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**FOCUS**

ALLEY EAST OF 101 STREET  
CONNECT 128 AVE TO 132 AVE

REV. No.

2014-04-01

OFFICE No.

020200335

DRAWING No.

FIGURE 4



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# FOCUS

100 STREET  
SERVICE ROAD CLOSURE

REV. No.

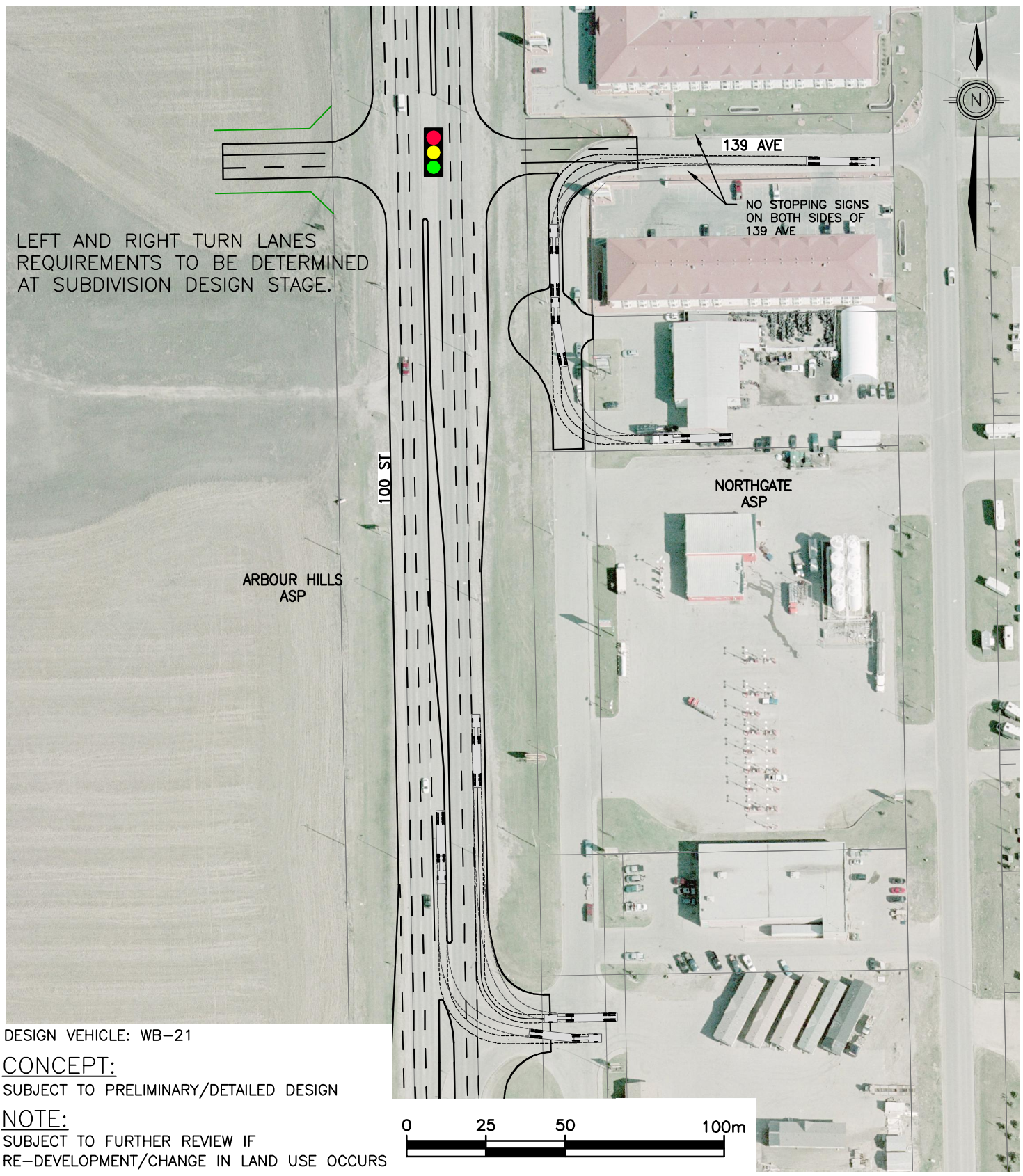
2014-04-01

OFFICE No.

020200335

DRAWING No.

FIGURE 5



DESIGN VEHICLE: WB-21

CONCEPT:  
SUBJECT TO PRELIMINARY/DETAILED DESIGN

NOTE:  
SUBJECT TO FURTHER REVIEW IF  
RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS

## **APPENDIX A**

Summary Notes from 132 Avenue Charrette held on October 9, 2013



**KAIROS**  
creative solutions inc.

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## Summary Notes from 132 Avenue Charrette Held on October 9, 2013

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**Submitted to:**

Peter Leung  
Focus Corporation

and

Norman Kyle  
City of Grande Prairie

**Prepared on October 21, 2013 by:**

Brenda Walton, President  
Kairos Creative Solutions Inc.

## 1. Background

As part of a comprehensive Stakeholder Engagement process, a Charrette was identified as the appropriate public engagement technique for the next phase of the 132 Avenue Functional Study. The Charrette, held on October 9, 2013, was facilitated by Kairos Creative Solutions.

A Charrette typically includes:

- A definition of issue(s) to be resolved;
- An analysis of the problem and alternative approaches to solutions;
- Supporting data on hand (experts must have data prepared for the meeting);
- Mutually acceptable development of alternative solutions;
- Final resolution of the approach to be taken

The following provides a summary of the feedback received from the 27 stakeholders who participated in the Charrette.

## 2. Summary Notes

### Introduction Comments:

- A few stakeholders noted that they felt that the Success Factors do not adequately reflect the importance of access to businesses and requested that it be added to the slides, which was done
- One stakeholder wondered what role the province would have in the overall decision and what the province's process was related to the study
  - *Response: Province was invited to the Charrette, as some of suggested changes will need to be review by the Province.*
- All stakeholders demonstrated agreement to adhere to the ground rules by way of standing up
- One stakeholder wondered about population growth and how far out the 90K horizon might be
  - *Response: The City/Focus indicated that it would be difficult to predict because there are many factors that could influence population growth, which is use this as a planning tool only. They indicated that it would not be a specific year that would determine specific changes in the area, but rather how the traffic is flowing at a given population.*
- One stakeholder wondered if the By-pass would be going in.
  - *Response: The City/Focus indicated that the By-pass is under provincial responsibilities and that the City has no control over the By-pass. Based on the Transportation Master Plan, it would be reasonable to assume that by the time the ultimate population is reached the By-pass would be built. The City has functional long range plans for all major intersections, with the exception of the intersection at 132 Avenue and 100 Street. There is a need to plan ahead for this intersection within the City's scope of influence.*
- One stakeholder wondered why the City was insisting on putting all the traffic through on this one road and why there isn't a plan to move the traffic out of the area by way of a new road.

- *Response: The facilitator shared that it was the type of feedback being sought through the Charrette and encouraged the participant to raise that in the small table discussions that would be coming in the Charrette.*

### **Topic 1 - Service Roads:**

The following feedback was discussed related to Service Roads:

- Maintain the service roads.
- Create right-in/right-out access to service roads off 100th Street.
- Overall increase in traffic from all directions due to several new/growing residential areas and associated residential traffic.
- Some thought that the service road by Windsor Ford could be left open
- Vehicles going through the area need a right in-right out off of a main corridor.
- Idea of a traffic circle from two tables
- Collector roads based on development and/or open a road to divert traffic instead of funneling everything through the one road.
- On street parking on 99th Street is a concern.
- Total Enerflex will be putting additional traffic through 99th, which would include semi-trailers and heavy traffic.
- If closing the service road accesses, then either right slip lanes into the service roads off on 100th Street, or right-in right-outs would be acceptable as long as they are as close to the intersection as possible.
- For PetroCanada, it's very important to keep convenience access, and if service road access is lost they need to understand what the closest right-in right-out would be. Based on keeping Petro Canada business viable.
- Right-in right-outs are a good short term solution.
- Service roads need to be there in the long run though.
- Right-slips but might be another option to maintain the roads.
- Get the traffic out of the area.
- Lights at 128th so traffic can go down a service road and get back out on 100th again.
- The traffic going through the area could be limited, by making the area more of a destination area.
- Providing U-turn opportunities so they can get back to where they need to go – might need more land to provide this radius, but this could help
- Can be scary coming on and off these service roads
- Instead of closing them, access converted to right-in by the Honda
- Maintain some level of access – can be tested first
- Keep right-in off service road to the PetroCanada
- A right in to the Ford, based on safety, there would need to be some closing there.
- Not a preference to have accesses closed, but it might be the only way to solve this issue.
- Agreed with the right-in right-out accesses (as shown marked up on the wall map)
- South flowing traffic needs a way to get out (i.e. at Humpty's which became a serious issue and forced them through the service road).

- At 99th maybe there needs to be an alternate road (acquire land for this)
- Widen the roads by doing land swaps with landowners.
- Have the City/Focus looked at a traffic circle before?
  - *Response: No we have not. Traffic circles are limiting when the population gets too high. If there was enough space, however it would definitely mean closing the service roads. More of a setback for access would be required than would be with an intersection.*

## Topic 2: Dual Left Lanes and Left Slip Lanes

- What is the left slip lane referring to specifically?
  - *Response: The dual left turn lane provides access to residents, in that it is a dedicated channelized lane (i.e. by McDonalds at 100<sup>th</sup> Street, also No Frills on 87<sup>th</sup> Ave)*
- From 99th street east, instead of a median, provide multiple left slip lanes; it takes up more room but makes sense for large trucks to turn.
- Also a visual disruption aimed at slowing people down. Will snow make this unsafe (i.e. cover up lines)?
- Geometry of slip lanes can be an issue based on vehicle size.
- Because the traffic is so heavy, maybe a middle lane could be used (i.e. a 'reverse' lane with lights) in peak periods to help direct the traffic flow.
  - *Response: Makes sense only if there is really obvious flow concentration times. Ultimately, there will be 'five' lanes on that road.*
- Maybe the dual left lanes are a good transition solution and then plan to build up to ultimate population as opposed to putting in the medians.
- Slip lane versus a dual left
- Improper use of the dual left
- With snow, drivers can't always see the ground and understand the use of the lanes
- Sounds like dual left are a good opportunity
- Left slip lanes – need to address issues such as who gets one, who doesn't
- If we can work out the safety issues, the dual left turn works.
- It would be a good way to start with the left slip, and then pour concrete and make it a dual left down the road – it's a staging feature.
- GP Masonry located on 132nd Ave, which is their primary access (i.e. no side road or service road) and all their big trucks come in off 132 Avenue. A median would be very bad for them.
- Concerns with slip lane would be that big trucks would need a lot of geometric space to get through two concrete medians, plus they would take up the whole slip lane, so any other vehicles would be in a through lane.
- Dual lane is a bit safer for the large trucks, and could be longer – more vehicles waiting.
- Left slip lane would be better initial option, later dual left. Staged approach.
- In order to justify the work that's going to be done to widen the road, must go from 84<sup>th</sup> to Bear Creek 116<sup>th</sup>. Need to run it the whole distance.

### **Topic 3: Right-in, Right-out (RIRO)**

- Need to bear in mind the location of the RIRO, to make sure there isn't considerable lane jumping. Very important consideration to prevent weaving patterns.
- Keep in mind that the queue to get out would be on the business property side.
- Also they would all have a triangle shape median to prevent people from going left.
- Do not need to lose room on the property side.
- If we're looking at the service road, since it's provincial, the province would want to see an acceleration or deceleration lane
- Destination type businesses, RIRO either hampers their way in, or hindering their way out. Not like a gas station where that makes sense.
- You would be cutting the options in half. Then there would be people that make illegal turns.
- Would need better roadway networks by Keddies and GP Masonry – the road is there but no access in the area.
- 101st has a back alley that extends down by Triton, so maybe look at developing that lane, which would help them with the RIRO in that the alley could become an alternate exit.
- RIRO are appropriate when used appropriately.
- Spacing needs to be considered. One of the challenges is how we are constrained by property lines.
- Can look at land swaps and change the property lines, so we can expand our thinking.
- It can make sense to move intersections and thoughts around redesigning the land.
- Potentially 100 additional employees at Total Enerflex that will be impacting traffic in the area.
- RIRO at PetroCanada/Ford with accelerate/decelerate lanes, on either side of the median
- Not supportive of RIRO anywhere else along the businesses, other than those marked on the wall map, with the thought that we'd have the dual left lanes.
- Northgate Honda could have RIRO.
- One business needs RIRO for trucks, need to maintain a second access on 132nd Ave.
- Land swapping – take the service road and swap for a road going north and then along 132nd on the south side going east on 99th. Redirecting the flow with a new roadway.
- Develop lanes for access and delivery.

### **Topic 4: Median Placement**

- Why don't we work at decreasing the traffic flow rather than choking everyone off?
- Median from 100th – 99th street is the only one we're interested in.
- Let's build something with paint before we commit to concrete.
- If there are medians, PetroCanada needs other access.
- Don't want any medians until there is effort to decrease the traffic pressure. Medians are more of a last resort.
- Medians block loading access to properties and increase travel distance, especially when test driving vehicles, etc.
- Cost of the medians are more expensive than just a dual left with paint on the road.

**Topic 5/6 combined: Other entrances/exits and what else can be done to improve overall safety in the area?**

- The rail line is used by some businesses, have you talked to CN Rail to find out if they have any future plans, etc.?
  - *Response: There are new spurs in place that make it a bit more complicated, but businesses to the north want to keep their spurs at the moment.*
- 88<sup>th</sup> was closed due to dust complaints and all the traffic was diverted to the residential areas. Now heavy truck traffic goes right through four school zones, which poses a huge safety issue for children/schools.
- The city keeps cutting off good roads and diverting traffic through unsafe zones. It doesn't make sense to cut off these roads and pose other huge safety issues. There needs to be other roads – that do not go through residential areas.
- Why not have the city extend 128<sup>th</sup> Ave across the railroad tracks- then there would be a loop so you could have intersections off of it to improve accesses to businesses and residents, with or without medians.
- Look at a road coming across from 100st to 97st (i.e. 137<sup>th</sup> Ave)
- Maybe just somehow discourage traffic from this area
- Median (the one supported by the majority of stakeholders) would improve safety.
- Upgrading the back alleys so they are usable from both ends (i.e. some currently not fully accessible)
- Pave the roads, but who pays for that?
- An intersection at Western Budget might help also
- South of 132 (102 and tracks) there are drainage issues, limited to culvert widths with glaciation and freezing, and not being able to thaw them fully in the spring. Water flows from 140<sup>th</sup> Avenue down through the area and there need to improvements to drainage when upgrades are done in the area.
- Aligning 99<sup>th</sup> Street, off 132 Avenue, so the north and south ends both meet up better
- Intersection at Manufactured Homes, straight through
- 136<sup>th</sup> going East all the way out to the other highway
- 84<sup>th</sup> Street completion
  - *Response: the City has a functional study for 84<sup>th</sup> Street and engineering thinks it would be a good upgrade overall. Recommendation was to construct that within the next couple of years, which would replace 88<sup>th</sup>.*
- Timeline is really important and we need to know how soon we can get these upgrades done. If it's not done by February, then it's another construction window lost.
- More signals would help slow people down to make them realize they are in the City, and off the highway.
- Bottlenecks when going from 2 lanes to one lane
- 99<sup>th</sup> is a dead road – head's into a parking lot to the south – would need to upgrade 128<sup>th</sup> Avenue to make this viable
- Diverting traffic (i.e. re-routing truck traffic)
- Must be able to accommodate Transit

- Pedestrian refuge area(a safe place to stop when crossing), because the roads are really wide
- Pedway for crossing
- Accommodate the traffic, don't divert it, we need it, we rely on it –don't want it to go elsewhere (Humpty's)
- County linkages north
- Lowering the speed as per the other proposal – down to 50 and back up to 70
- Could consider trees, etc., which tends to make people drive slower (i.e. a vertical element)
- Stakeholders encouraged to please share information, even if it's confidential, with the City so it can be considered in future development
- Are there opportunities to expedite the development of 84<sup>th</sup> (and other roadways) in light of this project?
  - *Response: Maybe – we will expand the view from the corridor to the whole area based on feedback today.*

### 3. Next Steps:

1. Focus and City will take the input and ideas generated through the Charrette in order to determine what can be done. If it cannot be done, then they will explain clearly to stakeholders why not.
2. Focus may hire a third-party safety specialist to also review the plan.
3. Propose a Stakeholder Follow-up Meeting to discuss how each idea generated at the Charrette would either work or would not work. A Public Open House would follow the stakeholder follow-up meeting, where the general public could also provide input. Following the Public Open House, necessary adjustments would be made, before presenting the revised plan to Committee, and then to Council for approval. Goal is to have this all completed in three months or less (i.e. early January).

## **APPENDIX B**

Summary of Feedback from Open House on February 24, 2014

# City of Grande Prairie

## Media Release

February 14, 2014

### **132 Ave Functional Study Open House**

Stakeholders are invited to attend the third session of the 132 Ave. Functional Study public consultation on Feb. 24 at the Muskoseepi Park Pavilion.

Members of the public can drop in from 4:00 p.m. to 6:00 p.m. to provide input about how transportation needs along this existing roadway need to be accommodated in the future.

#### **What is the Purpose of This Study?**

"Focus Engineering is assisting the City to undertake this additional research to determine future road and right-of-way requirements," says Norman Kyle, Manager, Traffic Engineering. "This document will take into account Grande Prairie's recent rapid growth, anticipate future development and the resulting roadway, sidewalk and bicycle needs along this roadway."

In addition, a supplemental section of this study will focus on 97 St. to 102 St., specifically looking at access and traffic circulation.

#### **What to Expect**

Attendees will have the opportunity to review the plan alternatives, staging of upgrades, provide input on issues of concern and ask questions of the project team.

-30-

Media enquiries may be directed to:  
Norman Kyle R.E.T, P.L. (Eng.)  
Manager, Traffic Engineering  
780.830.7448  
[nkyle@cityofgp.com](mailto:nkyle@cityofgp.com)

## Peter Leung

---

**From:** nkyle@cityofgp.com  
**Sent:** Friday, February 14, 2014 2:57 PM  
**To:** 'Jeff Keddie'; 'Glenn Keddie'; 'Brenda Walton'; 'Jeremy Walker'; 'Judy Keddie'; Janet Longmate; 'Charles Longmate'; 'Kelly Montgomery'; 'Miles Davis'; 'Kelly Tarnow'; 'Garth Grubisich'; 'Doug Balcome'; 'Bill Kluyt'; 'Ken Tarnow'; 'Ashley Adams'; 'Michelle Gillis'; 'Dan Percy'; kdonnelly@cityofgp.com; Horacio Galanti; 'tufftrk@telusplanet.net'; 'gregquapp@gmail.com'; 'paulpynn@telus.net'; 'Bryan Roche (bryanroche@inaan.com)'; 'tony@parksandrecplus.com'; 'Scott Roessler'; Linda Moss  
**Cc:** Council; Corporate Leadership Team; Peter Leung; Aqkhan@cityofgp.com; mhinton@cityofgp.com; kdonnelly@cityofgp.com  
**Subject:** 132 Ave Functional Study One on One Meetings

Good afternoon all;

Our consultant Focus will be in town early on the 24<sup>th</sup> of February before the open house. They will be available to meet individually or in small groups with affected landowners during this time to discuss your specific concerns and issues relating to the Functional Study. The meetings will be at the City Service Centre (9505 – 112 St) Rm 202. If you would like to arrange a meeting with Peter and Anthony please contact Aquisha Khan at [aqkhan@cityofgp.com](mailto:aqkhan@cityofgp.com) or 780-357-4989 and she will arrange a time for you. These meetings will be directly with the consultant involved in the study and the ones making the recommendations. City staff will NOT be at these meetings, but may be available if so requested.

Thanx and have a great family day weekend....

-----  
**This message, and any attached documents, may include proprietary or protected information. If you are not the intended recipient, please notify me, delete this message, and do not further communicate the information contained herein without my express written consent.**

Thank you for your participation today. We understand that your time is important and truly appreciate your involvement in this stakeholder engagement process. Please take a moment to provide us with feedback on your experience today.

*12 people attended the open house. Two others had a one-one-one meeting with Peter Leung and Anthony Davison (Focus) in the morning.*

*City representatives at the open house were Norm Kyle, Kristine Donnelly, Matt Hinton, and Aquisha Khan.*

*Received total of 5 feedback forms on February 24, 2014.*

1. Did you participate in the Charrette held on February 6, 2014? Please circle Yes / No *4 circled 'Yes'*

Did you participate in the Charrette held on October 9, 2013? Please circle Yes / No *4 circled 'Yes'*

*Three attended both, with two attending one but not the other.*

2. Were representatives from the Consultant and/or the City helpful in answering your questions?

Please rate from 1 to 5, with 1 being poor and 5 being excellent. 1 2 3 4 5 (please circle)

*Received two ratings of '5', two ratings of '4', and one rating of '3'.*

3. Were the updated exhibit drawings showing revised accesses clear to you?

Please rate from 1 to 5, with 1 being poor and 5 being excellent. 1 2 3 4 5 (please circle)

*Received two ratings of '5', and three ratings of '4'.*

4. Do the updated access recommendations address concerns raised at the previous charrette?

Please rate from 1 to 5, with 1 being poor and 5 being excellent. 1 2 3 4 5 (please circle)

*Received three ratings of '4', one rating of '2', and one N/A.*

5. Do you have other comments or require more technical information?

*- Lights needed badly at 97 Street / 132 Avenue, and 116 Street / 132 Avenue.*

*- I would like an entrance both LH + RH off of 132 Avenue for truck traffic.*

*- Support current configurations as presented February 24/14.*

*- Left notes.*

6. How were you informed of this charrette?

- By e-mail notification from the City (2)

- Notified by other stakeholders (1), and (1) by Chamber of Commerce

- By other means. Please specify. (1), and (1) by newspaper

If any of your comments require follow up or you require additional information, please leave your name and contact information below.

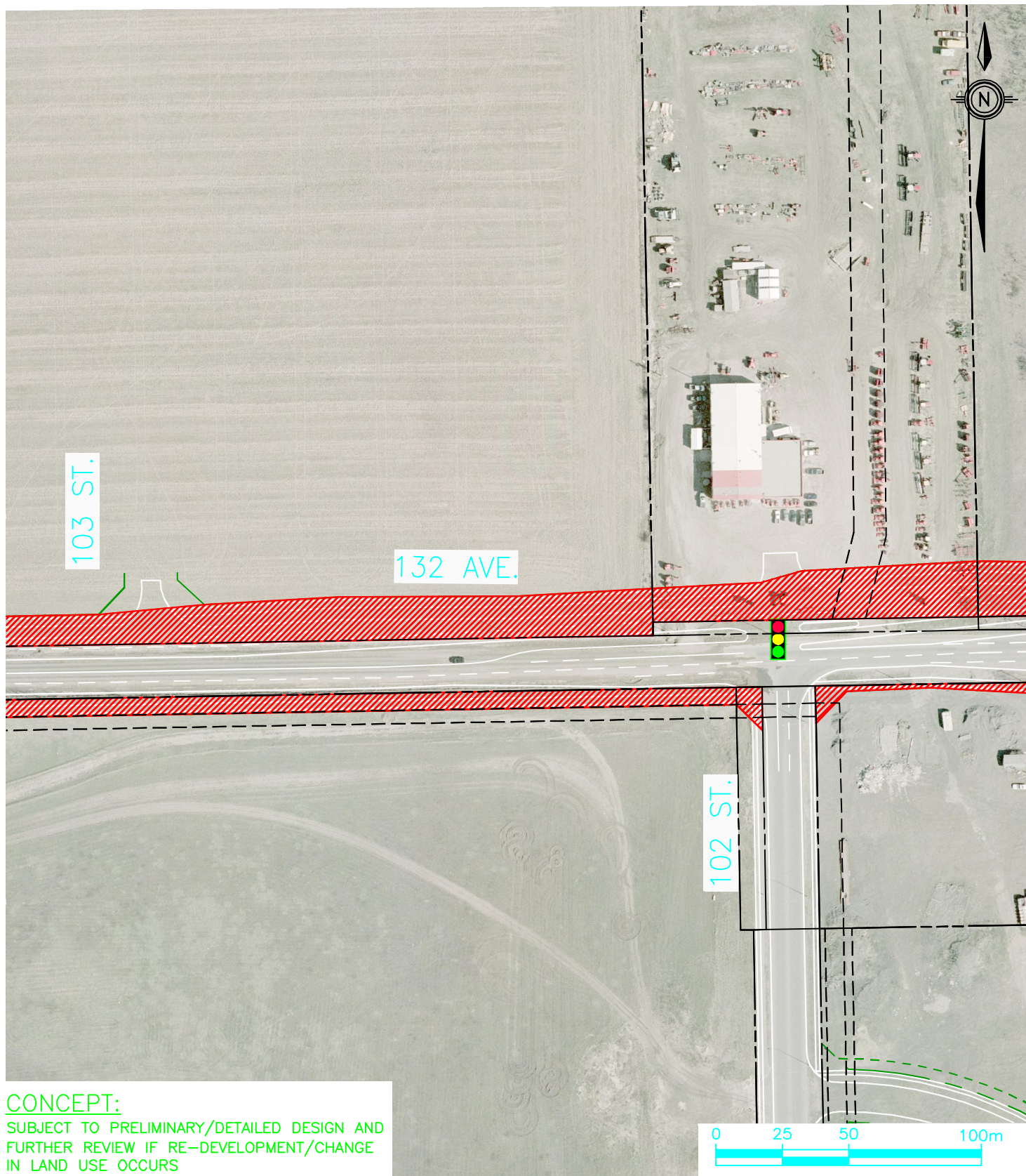
*All five responses left names and contact information.*

Name: \_\_\_\_\_

Phone: \_\_\_\_\_ E-mail address: \_\_\_\_\_

## APPENDIX C

### Right-of-Way Requirements & Potential Surplus Road Right-of-Way



resourceful spirit, growing opportunity

# FOCUS

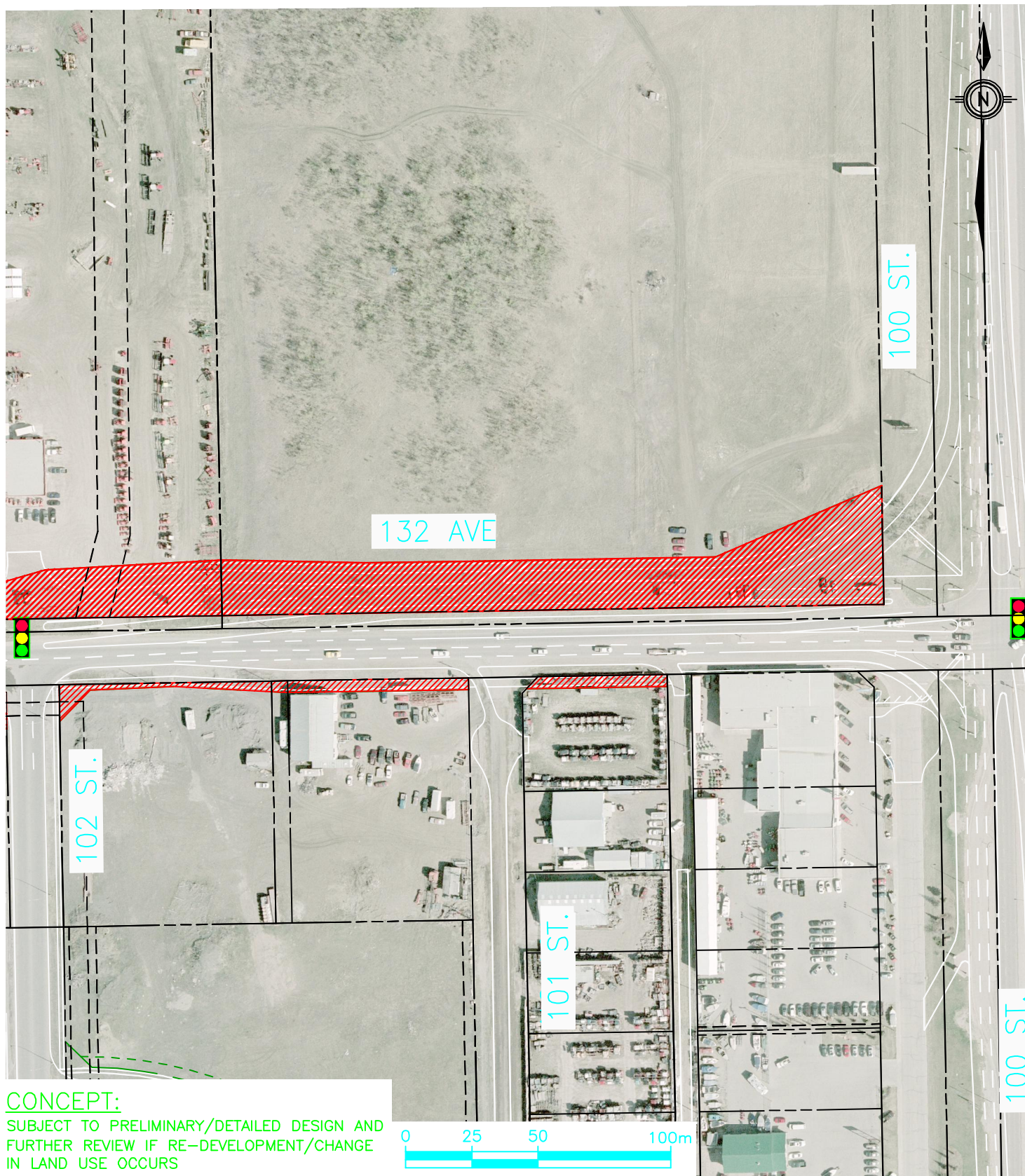
RIGHT-OF-WAY REQUIREMENTS  
132 AVE. (103 ST to 102 ST)

REV. No.

2014-05-14

OFFICE No.  
020200335

DRAWING No.  
ROW 1



**CONCEPT:**

SUBJECT TO PRELIMINARY/DETAILED DESIGN AND FURTHER REVIEW IF RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS



resourceful spirit, growing opportunity

# FOCUS

RIGHT-OF-WAY REQUIREMENTS  
132 AVE. (102 ST to 100 ST)

REV. No.

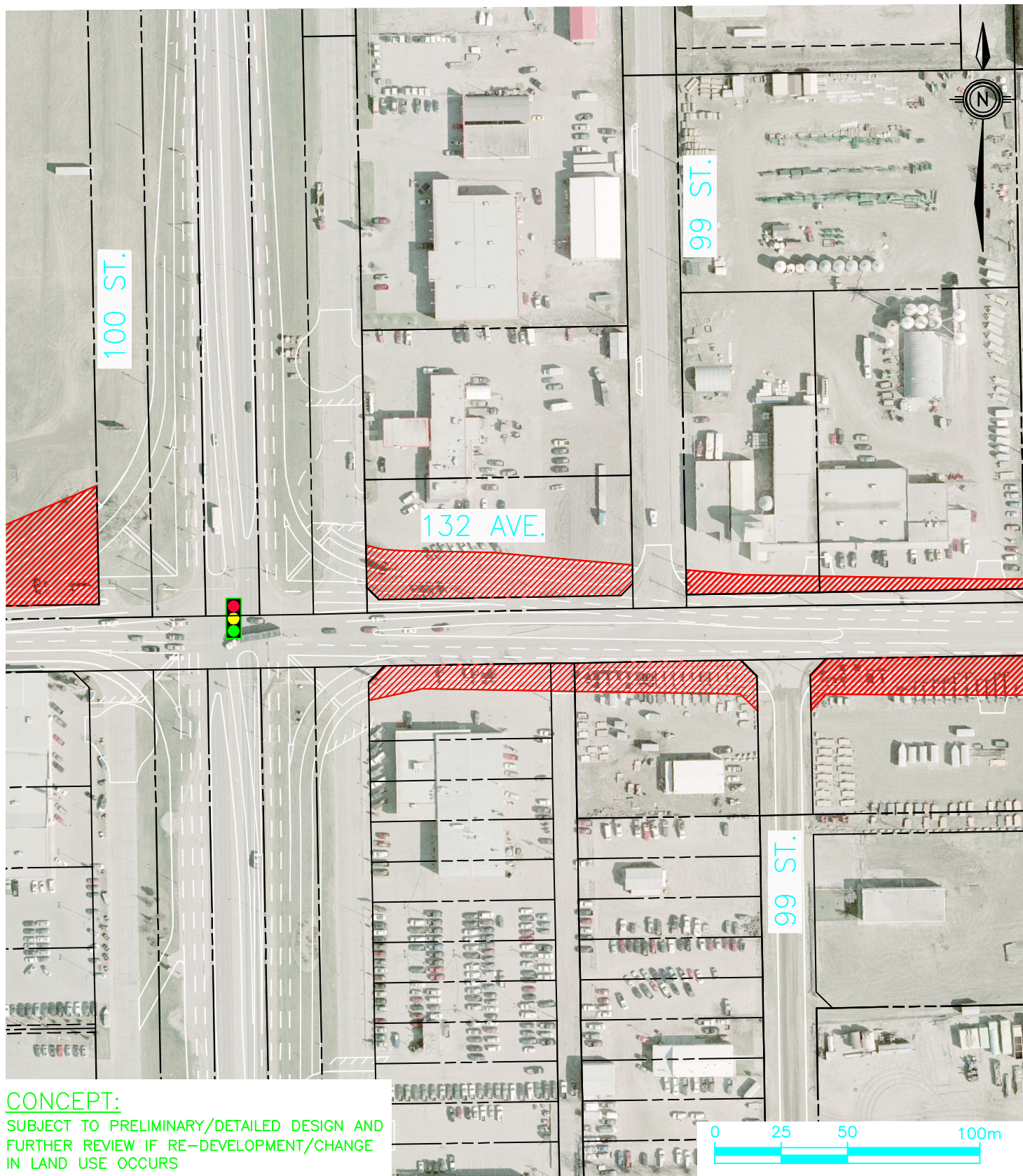
2014-05-14

OFFICE No.

020200335

DRAWING No.

ROW 2



resourceful spirit, growing opportunity

# FOCUS

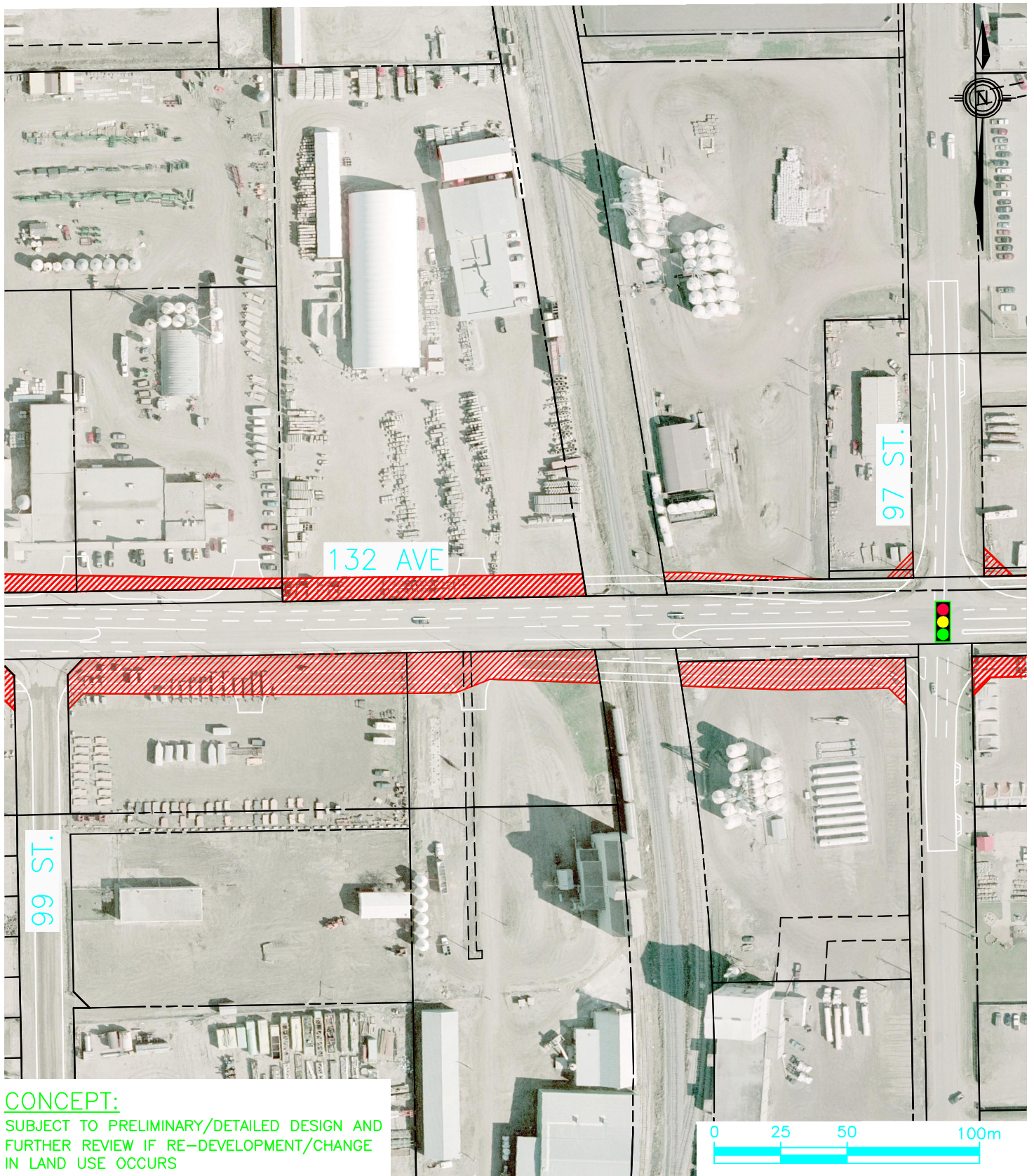
RIGHT-OF-WAY REQUIREMENTS  
132 AVE. (100 ST to 99 ST)

REV. No.

2014-05-14

OFFICE No.  
020200335

DRAWING No.  
ROW 3



resourceful spirit, growing opportunity

# FOCUS

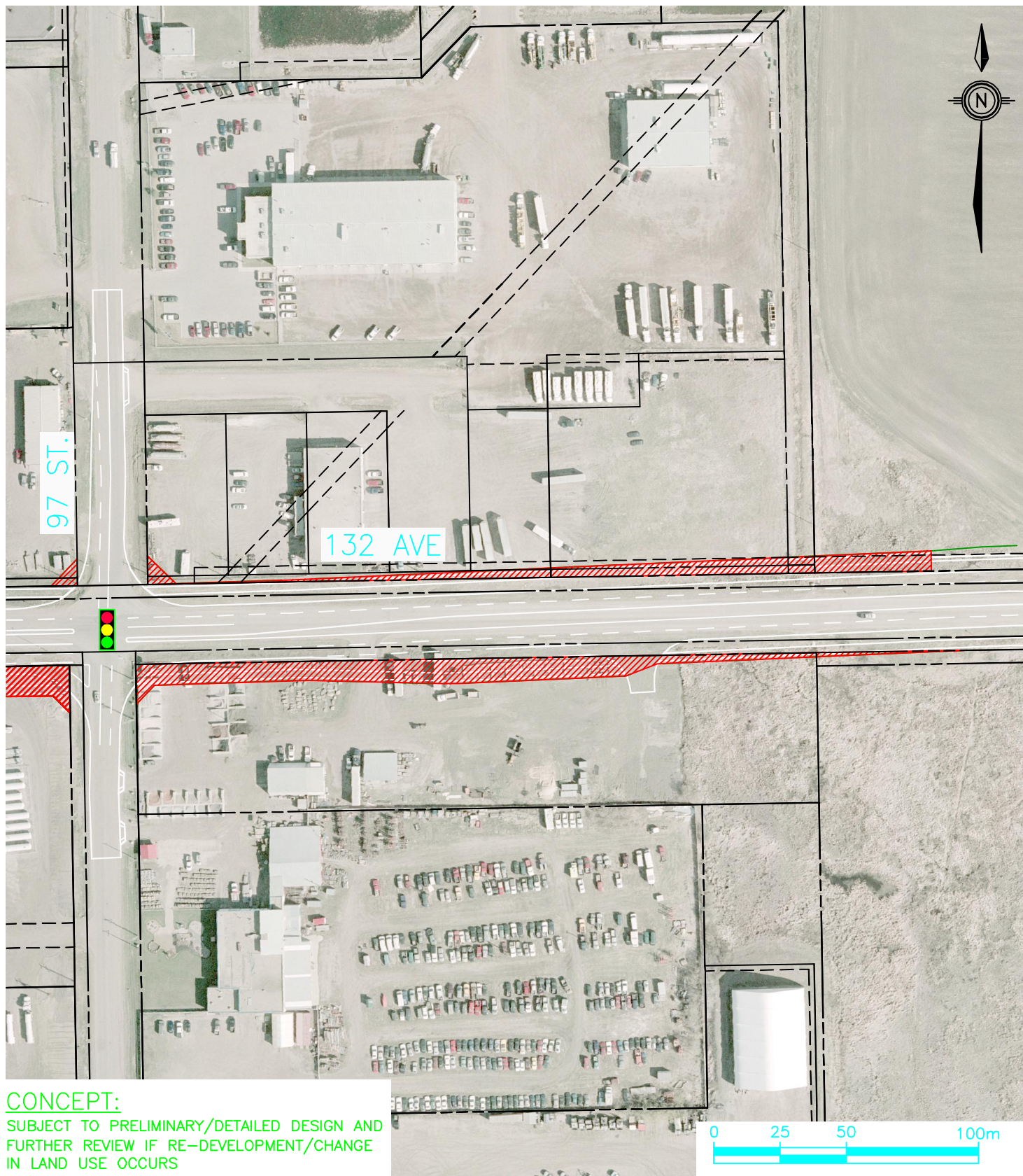
RIGHT-OF-WAY REQUIREMENTS  
132 AVE. (99 ST to 97 ST)

REV. No.

2014-05-14

OFFICE No.  
020200335

DRAWING No.  
ROW 4



**CONCEPT:**  
SUBJECT TO PRELIMINARY/DETAILED DESIGN AND  
FURTHER REVIEW IF RE-DEVELOPMENT/CHANGE  
IN LAND USE OCCURS



resourceful spirit, growing opportunity

# FOCUS

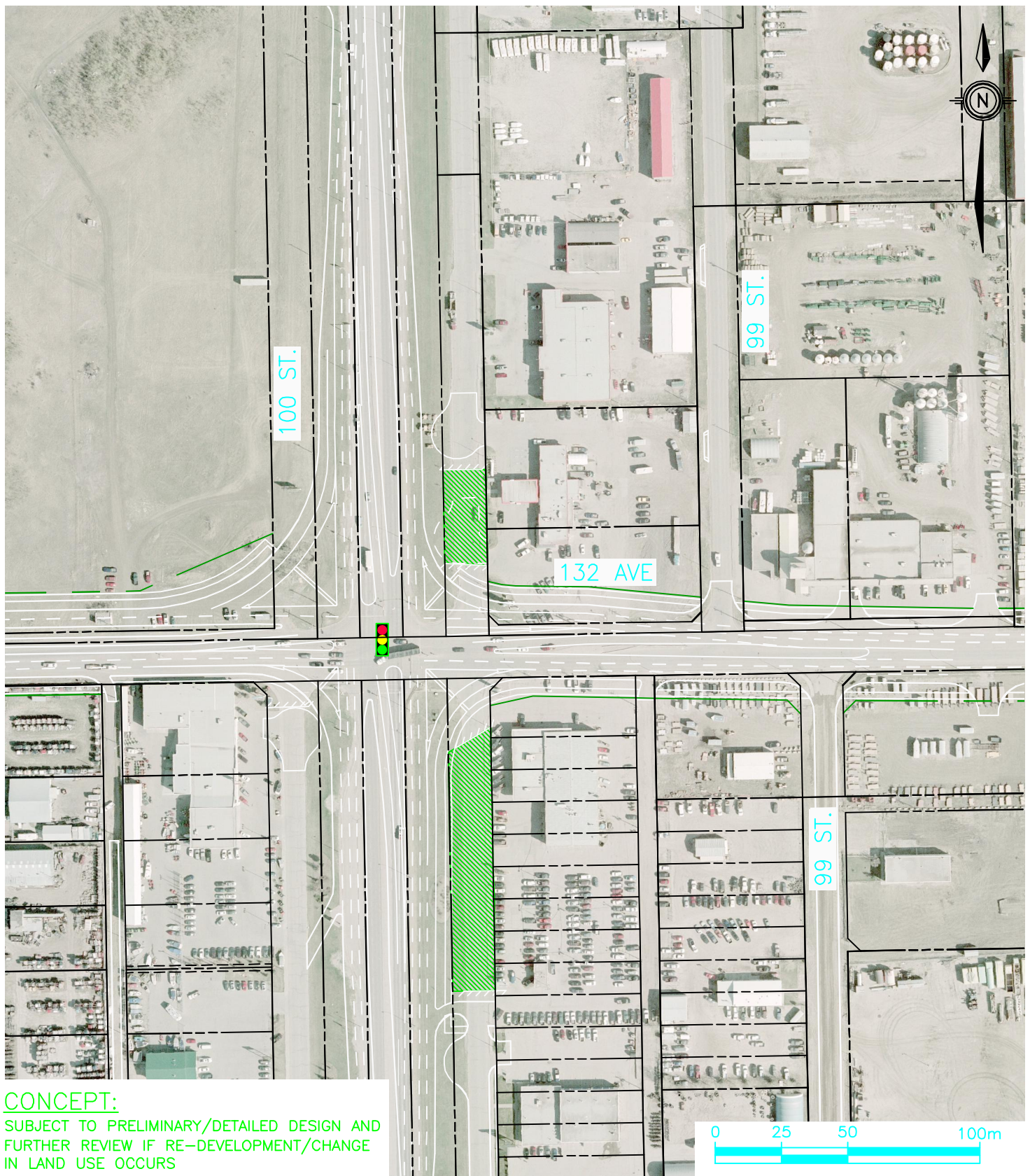
RIGHT-OF-WAY REQUIREMENTS  
132 AVE. (EAST of 97 ST)

REV. No.

2014-05-14

OFFICE No.  
020200335

DRAWING No.  
ROW 5



### CONCEPT:

SUBJECT TO PRELIMINARY/DETAILED DESIGN AND FURTHER REVIEW IF RE-DEVELOPMENT/CHANGE IN LAND USE OCCURS



resourceful spirit, growing opportunity

# FOCUS

POTENTIAL SURPLUS RIGHT-OF-WAY  
100 ST S.R. AT 132 AVE

REV. No.

2014-05-14

OFFICE No.

020200335

DRAWING No.

ROW 6

## APPENDIX D

E-mail Correspondence from Stakeholders

---

**From:** Scott Roessler [<mailto:scott.roessler@helixeng.ca>]  
**Sent:** February-06-14 3:04 PM  
**To:** Norman Kyle  
**Cc:** Kristine Donnelly; Sam Osman ([samosman@thecars.ca](mailto:samosman@thecars.ca)); Jeff McCammon ([jeff.mccammon@cwedm.com](mailto:jeff.mccammon@cwedm.com))  
**Subject:** 132 Ave Design Input

Hi Norm,

On behalf of my client, Trader Properties and Sam Osman, please accept the following design considerations for your next iteration of the functional study. This is in response to your request for input following today's session:

- As per the concept plan attached, it would be beneficial to include Right-in-Right-outs as per the attached concept. This may be easier than re-assessing with the TIA completed with the OP.
- Discussions today seemed to lean towards relocation of the 139<sup>th</sup> Ave intersection to the original location of 136<sup>th</sup> Ave. This is in compliance with the current ASP, but as you recall, we have relocated the proposed access in Trader Ridge to 139<sup>th</sup> Ave based on the recommendation of the City. Unfortunately, my client has proceeded with marketing the site with the 139<sup>th</sup> Ave location. Our preference would be that the 139<sup>th</sup> all-directional remain and a second access (potentially with a southbound left slip lane) at 136<sup>th</sup> be analyzed. We see the benefit in access at 136<sup>th</sup>, however the signal location at 139<sup>th</sup> also is a requirement at this point for Trader Ridge.
- Can you please provide a CAD version of the proposed widening and linework? We need to assess how much land is being lost to widening.

If you have any questions, please let me know.

Thanks.

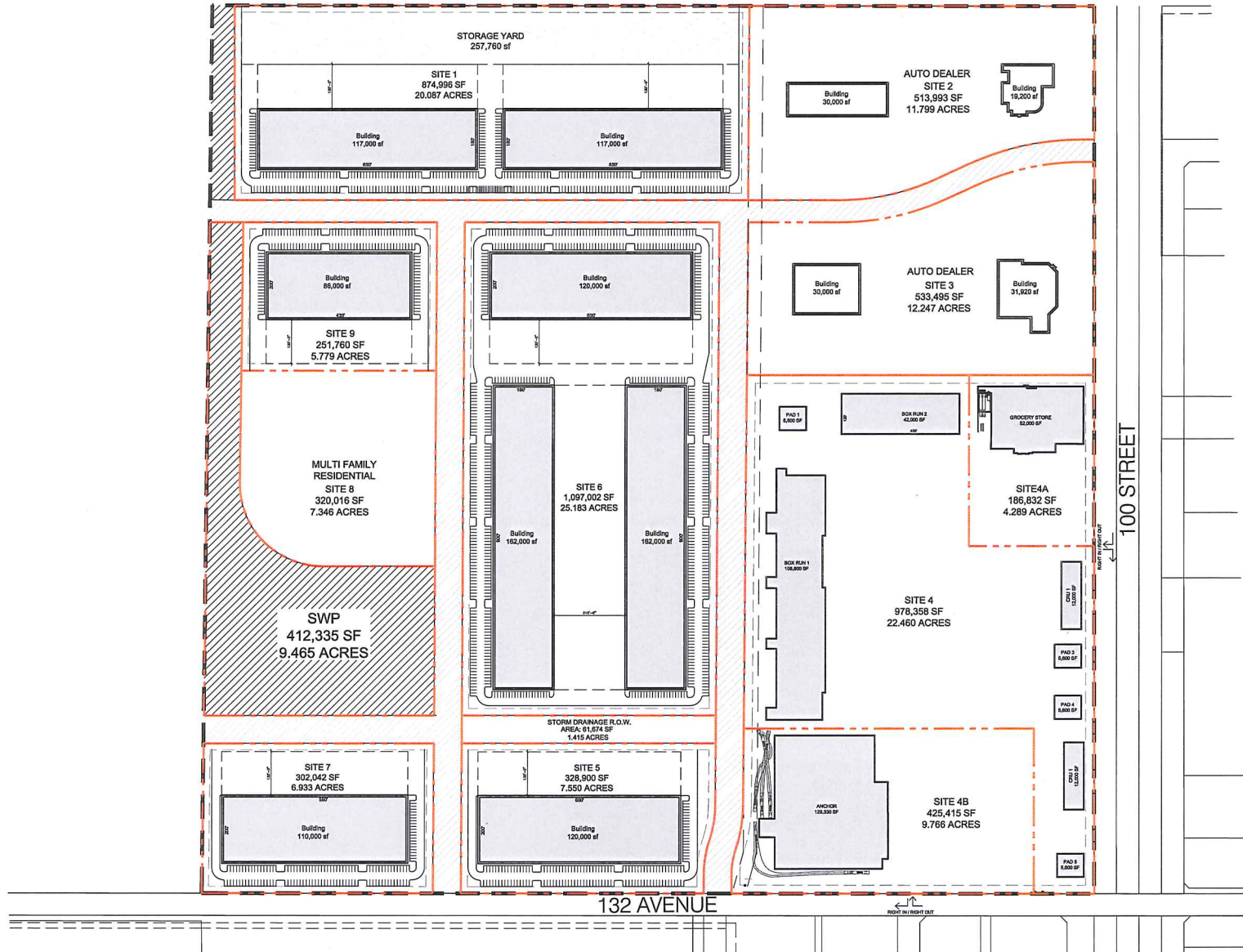
**Scott Roessler, P.Eng**  
*Project Manager, Director*

**HELIX**

**HELIX Engineering Ltd.**

#201, 10127-121st Avenue., Grande Prairie, AB T8V 7V3

**Main** 780.532-5731 | **Cell** 587.297.4974 | **Fax** 780.532.5824



## Peter Leung

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**From:** Jim Smith <jim@tiresmith.ca>  
**Sent:** Saturday, February 08, 2014 1:29 PM  
**To:** Peter Leung  
**Subject:** FW: 132nd ave report

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**From:** Jim Smith [<mailto:jim@tiresmith.ca>]  
**Sent:** February 8, 2014 11:15 AM  
**To:** 'jbcsmith@persona.ca'  
**Subject:** 132nd ave report

GOOD MORNING PETER

THE BOTTOM LINE IS WE MUST HAVE THE SERVICE ROAD IN FRONT OF MY SHOP ( TIRECRAFT 13755-100ST ) I HAVE SEMI TRUCK & TRAILERS COMING THRU MY LOT FRONT TO REAR & REAR TO FRONT FOR REPAIRS & REPLACEMENT. THEY DRIVE IN UNDER THE CANOPY ON TO THE TRUCK PAD & NEED TO DRIVE OUT ( THEY CAN NOT BACK OUT THEY ARE OVER 80 FT LONG WITH PIN HITCHES IMPOSSIBLE LET ALONE THE HASSEL ) IT WOULD CAUSE US GREAT FINANCIAL LOSS TO OUR BUSINESS . WE ALSO OWN TIRESMITH MECHANICAL ( 13601-100 ST. ) WHICH WE PURCHASED LAST YEAR AND IF WE HAD BEEN MADE AWARE OF THIS PROPOSAL ( TO LOSE OUR FRONT SERVICE ROAD ) WE WOULD NOT HAVE PROCEEDED WITH THE PURCHASE AND WILL CAUSE HUGH LOSS OF REVENUE IF THE ROAD WAS CLOSED . IF IT IS NOT EASY FOR THE PUBLIC TO ENTER MY BUSINESS THEY WILL NOT DRIVE IN ! THAT SIMPLE // THANKS FOR LISTENING & WE ARE SURE WE CAN WORK OUT SOMETHING FOR ALL PARTYIES INVOLVED . THANK YOU HERB & JIM SMITH

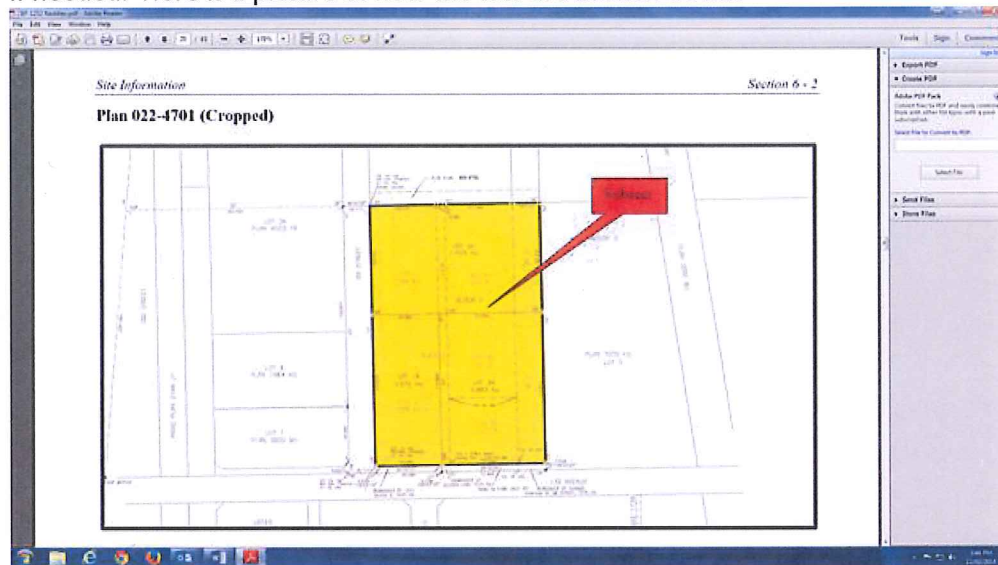
## Peter Leung

**From:** Jeff Keddie <jeff@keddies.com>  
**Sent:** Wednesday, February 12, 2014 4:06 PM  
**To:** 'Norman Kyle'; Peter Leung  
**Subject:** 132 Ave

Hello

At our meeting last week, you asked if we could email you any concerns we have over the current 132 ave proposal. I have two concerns at this point and time.

Our yard is currently three separate lots. We designed out building so that we can sell off each of these lots individually if needed. Here is a picture of how the lots are broken down.



The first is that our lot 1a does not have any access to 132 ave. This affects us in two ways. The first is that this is where our feed mill is located. We currently have an access in place that allows us to have truck of grain to be able to enter our mill and deliver feed. We take all sizes of delivery, from small 12 tonne trucks to full B Trains. With the land you will need to take from us, without an access to 132 ave roughly where our current one resides, it will not allow us to receive grain in our mill.

My second concern is that with your current design, my only access to lot 1a is on its west side. If you make 99st a right in right out, people will use my only entrance on Lot 1a to drive through the front of my operation and turn left on our only existing exit onto 132 ave. We have forklifts and loading docks located in this area and it will cause an unsafe situation by turning our lots into a turning lane. You need to keep the intersection at 99st and 132 ave open as an all directional. I know that this intersection is close to 100 St, but as it has been stated by members of our City Council, we have to work with what we have got. It may not be ideal to have an intersection at 99st and 132 ave, but does make sense to have it. It will allow Petro Canada to still survive. If you put a set of lights in at this spot, it will also help in slowing people down as they approach the 100st intersection. This will also increase safety.

Thanks for looking this over. I am looking forward to your responses.

Cheers

Jeff Keddie P.Ag  
Keddie's Tack & Western Wear  
Grande Prairie Feed Service  
9808 132 ave Grande Prairie, AB, T8V 4J6  
780-532-4888 800-390-6924  
[www.keddies.com](http://www.keddies.com)



## Peter Leung

---

**From:** nkyle@cityofgp.com  
**Sent:** Monday, February 24, 2014 11:33 AM  
**To:** Peter Leung; Anthony Davison  
**Cc:** kdonnelly@cityofgp.com  
**Subject:** FW: Grande Prairie 132 Ave info - public meeting

FYI

---

**From:** Davis, Miles [<mailto:mdavis@suncor.com>]  
**Sent:** February-24-14 9:44 AM  
**To:** Dan Percy  
**Cc:** Norman Kyle; Sowinski, Scott  
**Subject:** Grande Prairie 132 Ave info - public meeting

Dan – I won't be in attendance at the public open house today as we are just having our first baby but I have provided both Focus and the city feedback at the meeting for our desire for the following:

- Left hand turn/NB access off 132 Ave at 99 st at final stage (can take more land from us if required)
- Leave the service road open so businesses still front 100 st
- Leave the access all directions open at 136 Ave (at current location)

I'll be away for the next three weeks but any urgent questions can be forwarded through my counterpart Scott Sowinski who I have copied on this email.

Please continue to include me on all correspondence. Thanks.

### Miles Davis

Real Estate & Development – Western Canada  
Suncor Energy Products Partnership  
Suite #200, 4838 Richard Road S.W.  
Calgary, AB. T3E 6L1

Tel: [403 767-2625](tel:4037672625)  
Cell: [403 461-6580](tel:4034616580)  
[mdavis@suncor.com](mailto:mdavis@suncor.com)

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## Peter Leung

---

**From:** Jim Smith <jim@tiresmith.ca>  
**Sent:** Tuesday, February 25, 2014 5:06 PM  
**To:** Peter Leung; nkyle@cityofgp.com  
**Subject:** [SPAM] HIGHWAY 43 TRAFFIC CHANGES

HI PETER & NORMAN

IT'S JIM SMITH ( TIRECRAFT ) JUST MAKING SURE WE UNDERSTAND EACH OTHER ABOUT THE TURNAROUND ON THE NORTH END OF MY FRONT SERVICE ROAD . IT CAN NOT HAPPEN . I NEED A RIGHT HAND TURN ON TO 139 AVE TO ALLOW THE TRUCK & TRAILER ( COMBO ) TO GET OUT OF MY PROPERTY . THIS WILL WORK AS LONG AS 136 AVE OPENING STAYS OPEN ASWELL . I HOPE WE CAN WORK THIS OUT . THANK YOU . WE ARE WAITING TO HEAR FROM YOU .

## Peter Leung

---

**From:** nkyle@cityofgp.com  
**Sent:** Friday, February 28, 2014 9:44 AM  
**To:** Peter Leung; Anthony Davison  
**Cc:** Aqkhan@cityofgp.com; kdonnelly@cityofgp.com  
**Subject:** 132 Ave accesses  
**Attachments:** DOC022814-02282014102755.pdf

Peter:

I met with Bryan Roche yesterday regarding access to his property at 9724 - 132 Ave. He is concerned that the drawings show his easterly access moving west. He is hoping to keep it at the current location as he has a fenced yard that allows hiss trucks to pull on site at stop at the gate. After hours they will not be stopped on 132 Ave. This access is used for all his deliveries and customers. His delivery trucks then come onto his yard and drop off then exit out of the west access. (Concerned about having to redo his lot) So he is also wondering about the west access be maintained or a Right Out. Additionally it appears the current proposed access is very close to the overhead power pole. I have attached a mark-up of the current access/fence. I told him I was pass this info on to you fine gentlemen for consideration and comment inclusion in the final report.

Thanx

-----Original Message-----

From: Administrator  
Sent: February-28-14 10:28 AM  
To: Norman Kyle  
Subject: Send data from MFP07593921 02/28/2014 10:28

Scanned from MFP07593921

Date: 02/28/2014 10:28

Pages: 1

Resolution: 600x600 DPI

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This message, and any attached documents, may include proprietary or protected information. If you are not the intended recipient, please notify me, delete this message, and do not further communicate the information contained herein without my express written consent.



EXISTING FENCE  
WITH GATE

## **APPENDIX E**

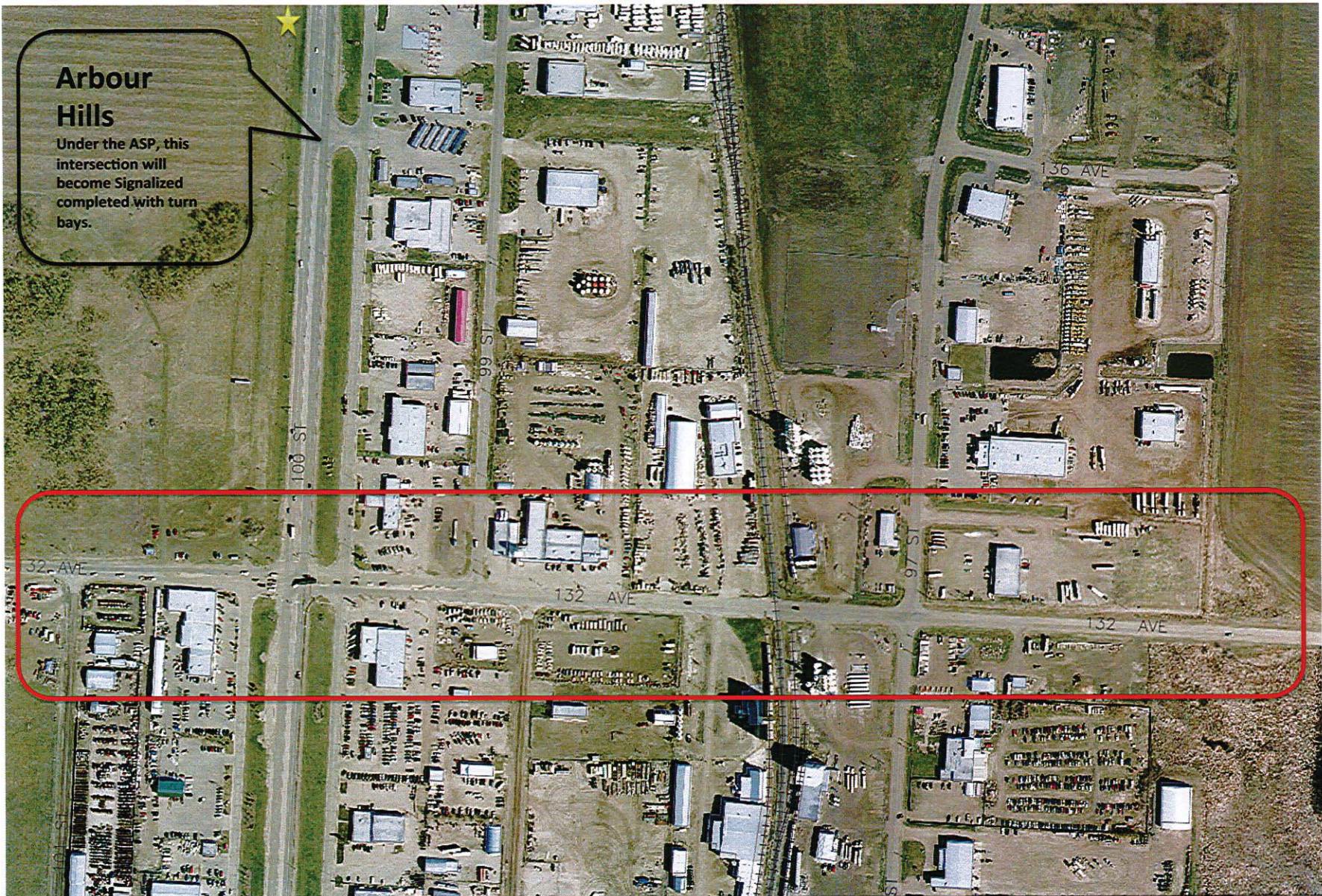
Chamber of Commerce "132 Avenue Report to Grande Prairie City Council" dated  
February 23<sup>rd</sup>, 2014

# 132 Avenue report to Grande Prairie City Council

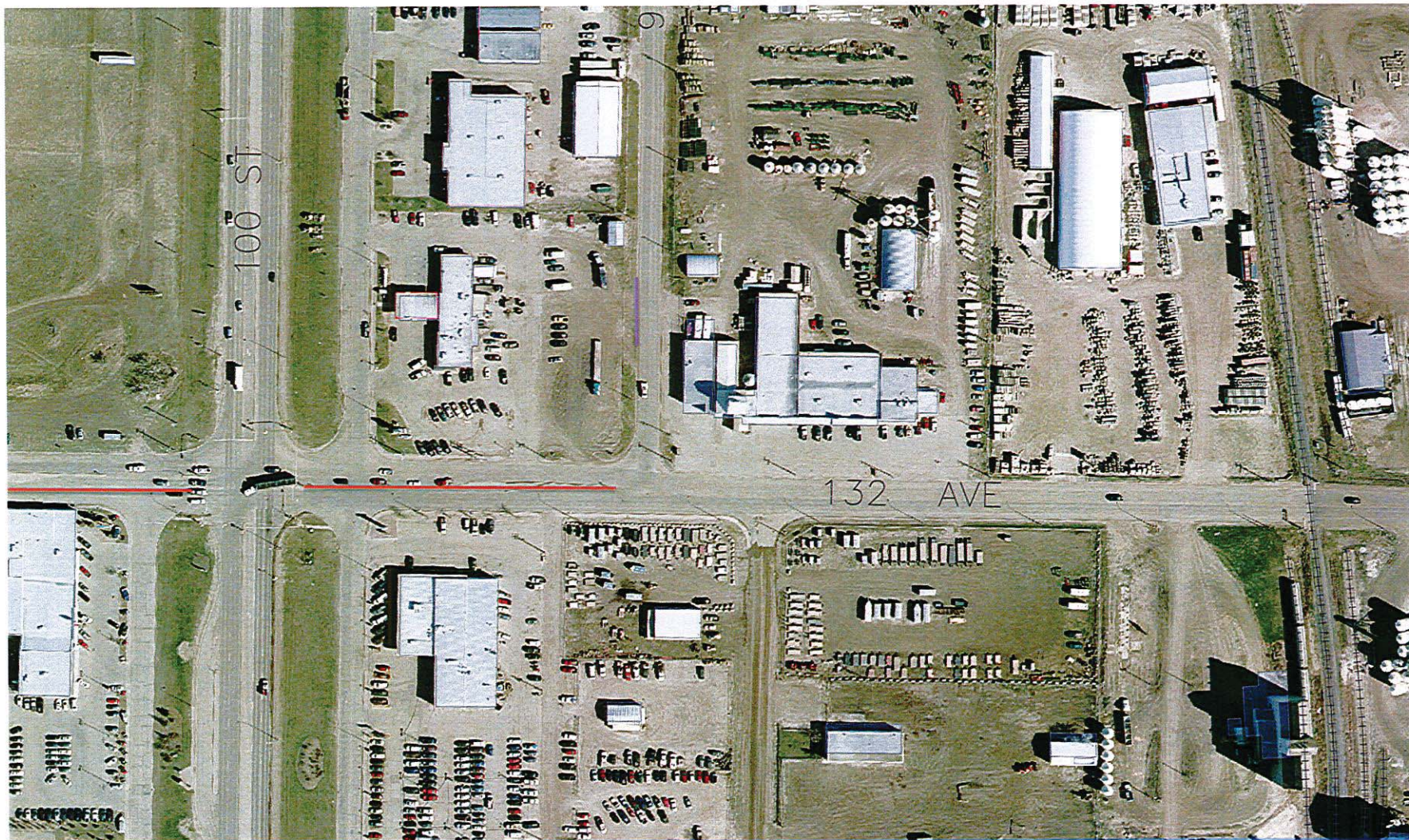
This Report is based on input from Chamber Members located in the affected area and the Charette conducted by the City of Grande Prairie in October of 2013



February 23<sup>rd</sup>, 2014



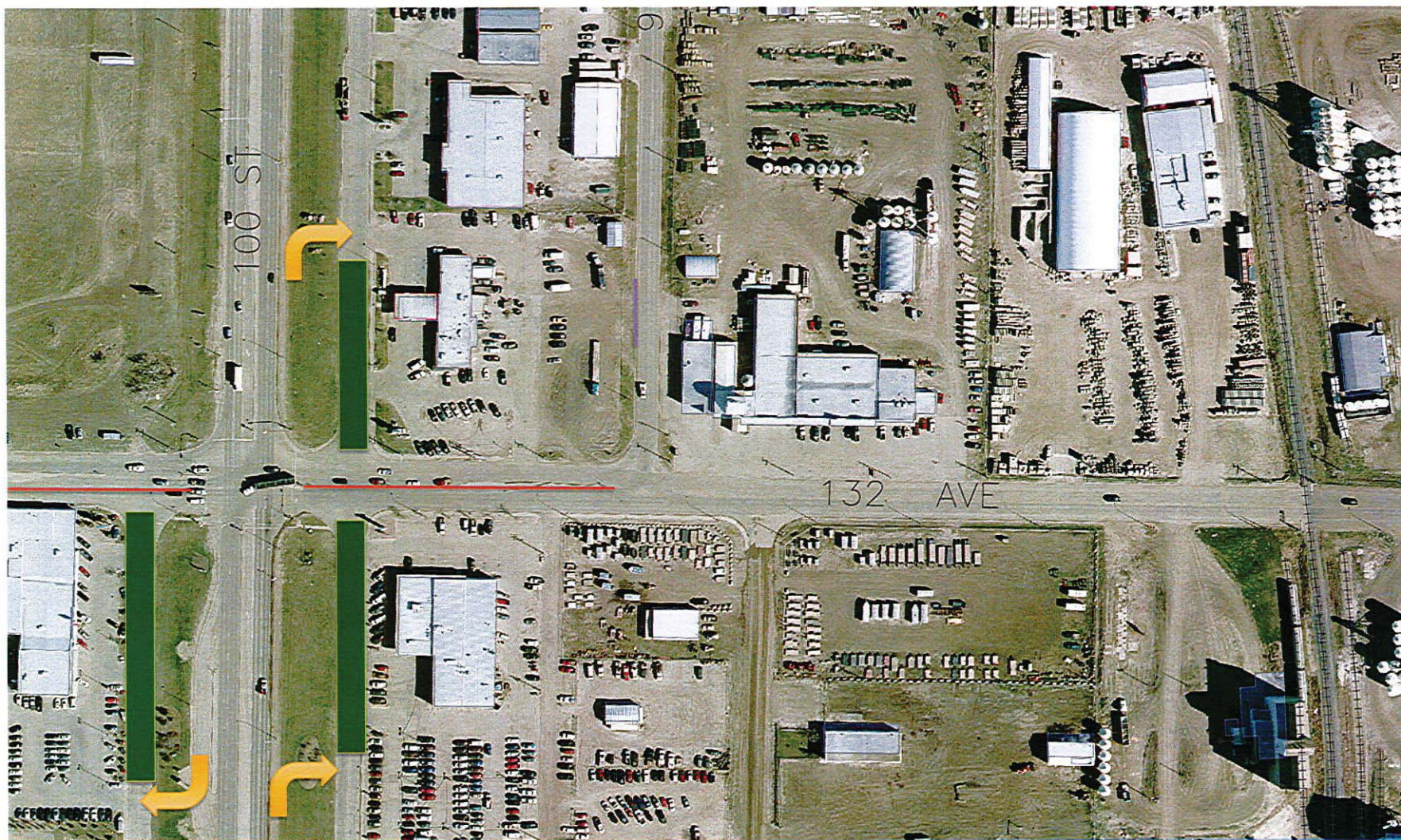
132 Avenue Area under review



## Proposed Phase 1 - 132 Avenue overlay and the addition of service road barriers.

- ❖ Overlay & Barrier addition – Late Summer of 2014
- ❖ Addition of 99 Street access to Petro-Canada location – Summer of 2014 Development Permit required ( — )
- ❖ Upgrade Signalization to provide advance left turn signals in all 4 directions

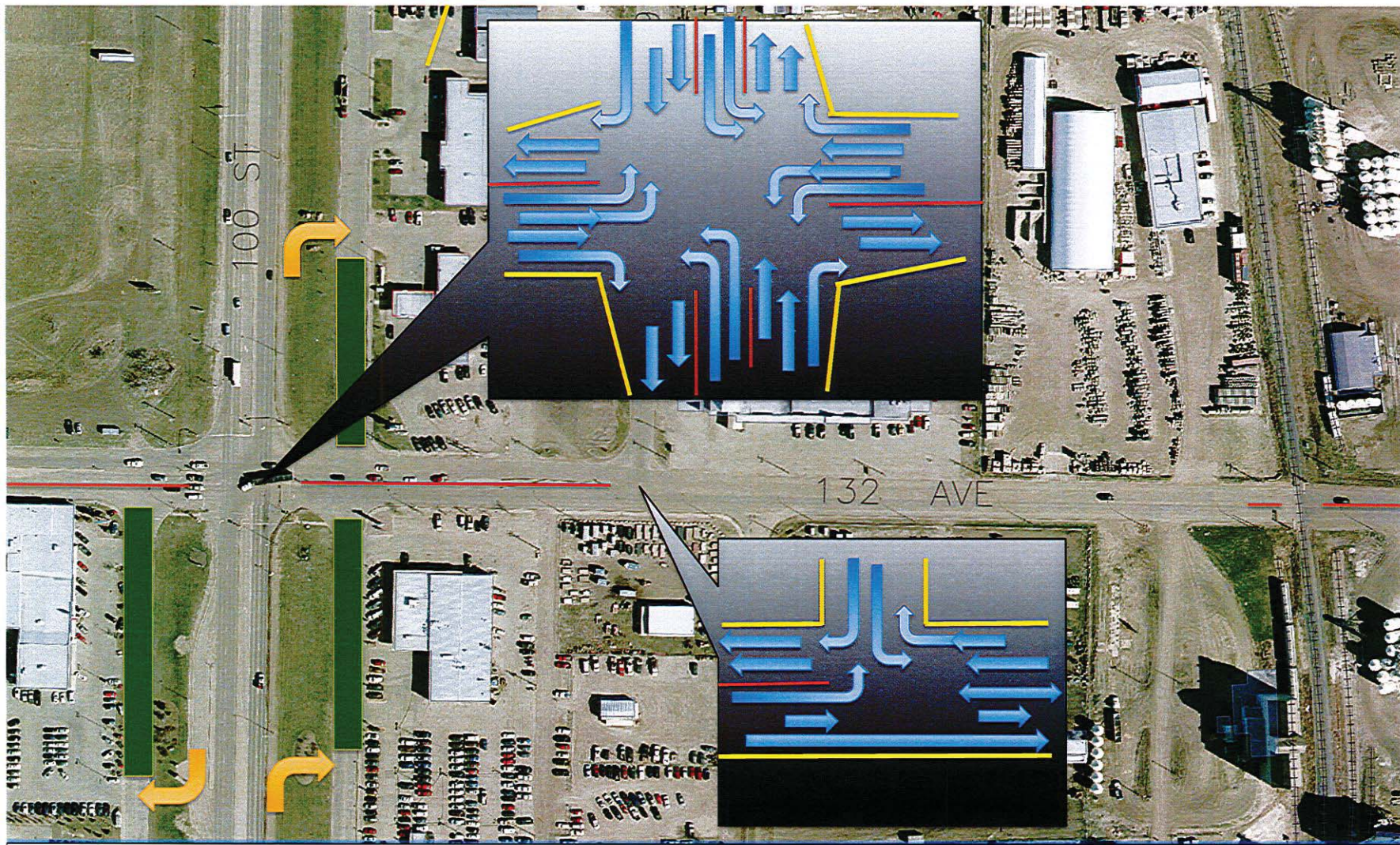
— Concrete Meridian  
 — New Access



## Proposed Phase 2 - addition of service road slip lanes and closure of service roads at 132 Ave.

- ❖ Add slip lanes
- ❖ Close & reclaim portions of 100 Street service roads – marked in green ( — )
- ❖ Relocation of Welcome to Grande Prairie Signage to 136 Ave area ★
- ❖ Date ?

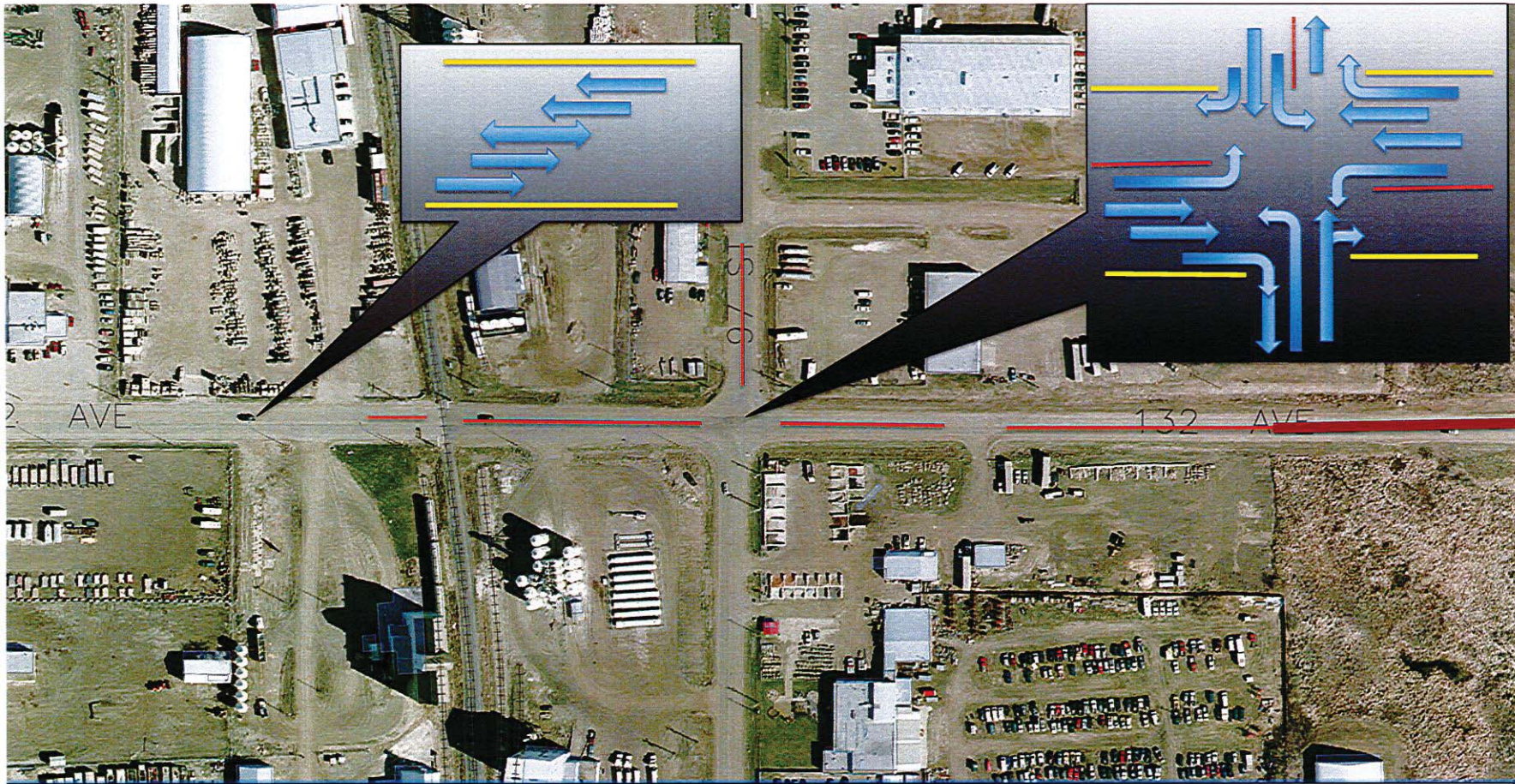
- Slip Lanes
- Reclaimed Roadway
- Concrete Meridian
- New Access



## Proposed Phase 3a – Intersection and road upgrades

- ❖ Expand 132 Ave to 5 lanes wide:
  - ◆ concrete meridian with turning lanes – 100 St to 99 St
  - ◆ shared center left turn lane – 99 St to rail crossing
- ❖ Upgrade 100 St & 132 Ave intersection as shown
- ❖ Upgrade 99 St & 132 Ave intersection as shown
- ❖ Date ?
- ❖ Signal Modes at 100<sup>th</sup> St. & 132<sup>nd</sup> Ave.  
(Modes the same as 100<sup>th</sup> St. & 108<sup>th</sup> Ave.)
  - ◆ Fully Actuated
  - ◆ East - West Mode – Protected Mode
  - ◆ North - South Mode – Permissive/  
Protected Left Turn Phasing Mode

-  Traffic lane
-  Shared center left turn lane
-  Slip Lanes
-  Reclaimed Roadway
-  Concrete Meridian
-  New Access
-  Sidewalks



## Proposed Phase 3b – Intersection and road upgrades

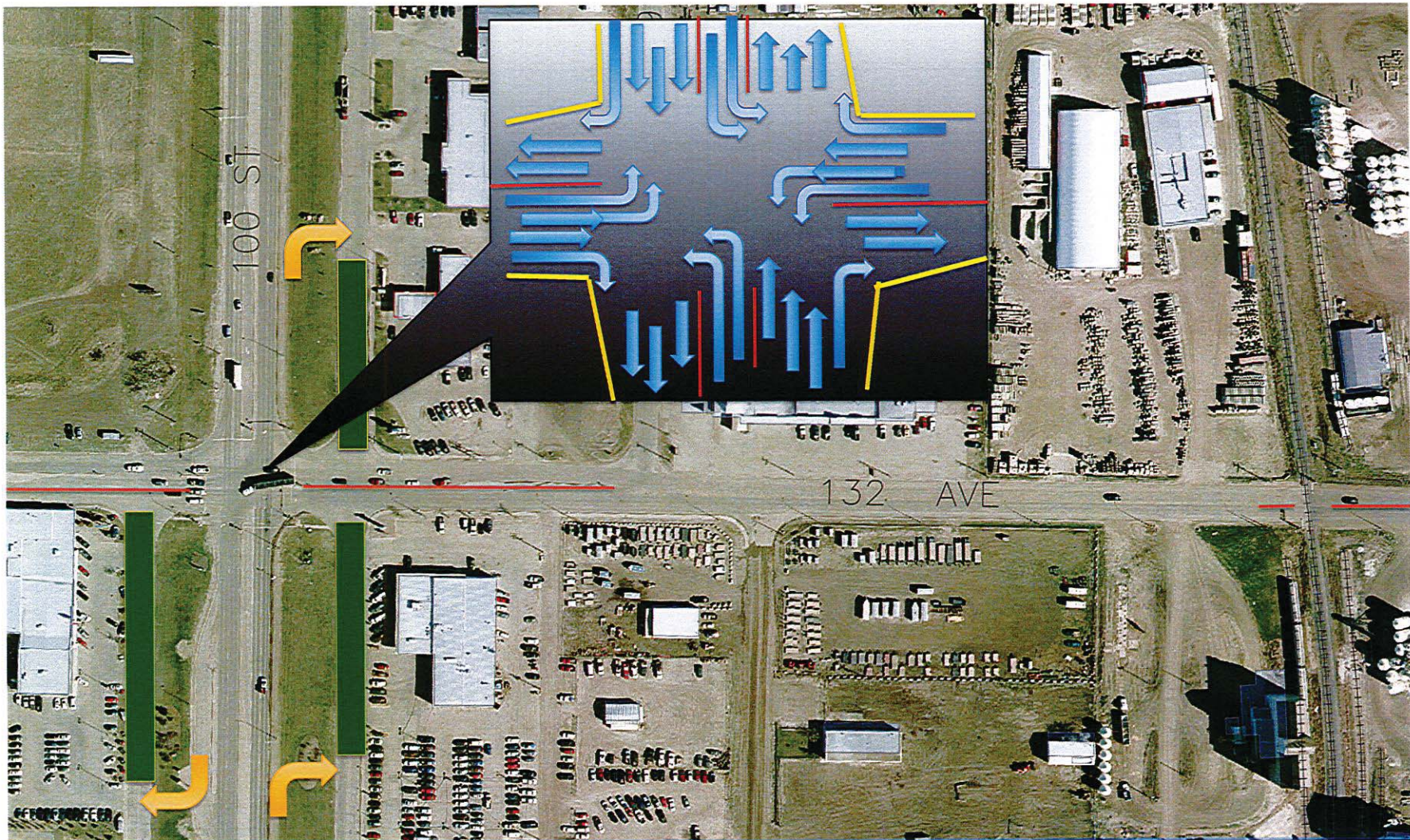
### ❖ Expand 132 Ave to 5 lanes wide:

- ◆ shared center left turn lane – 99 St to rail crossing
- ◆ concrete meridian with turning lanes – rail crossing to 97 St.
- ◆ concrete meridian with turning lanes 97 St. to about 96 St.
- ◆ Road expansion to 4 lane divided standards 96 St. eastward
- ◆ Left turn opening in the meridian for truck access to Kakwa Stone

### ❖ Upgrade 97 St & 132 Ave intersection as shown

### ❖ Date ?

-  Traffic lane
-  Shared center left turn lane
-  Slip Lanes
-  Reclaimed Roadway
-  Concrete Meridian
-  Divided Roadway
-  Sidewalks



### Proposed Phase 4 – optional 6 lane intersection layout

- ❖ Expand 100<sup>th</sup> Street to 6 lanes
- ❖ Date ?

-  Traffic lane
-  Slip Lanes
-  Reclaimed Roadway
-  Concrete Meridian
-  New Access
-  Sidewalks

## Definitions

### Fully Actuated

- All phases are actuated (i.e., use vehicle or pedestrian detectors).
- Phases are skipped (not served) if no vehicles or pedestrians are detected.
- If vehicles are detected but not pedestrians, only the vehicle portion of the phase may be served.
- The Green interval of phases can vary in duration, between minimum and maximum values, depending on detected traffic demand. When a vehicle leaves a detector, the green is extended by a few seconds known as passage time or green extension. The phase terminates if all detectors for the phase remain unoccupied for duration longer than the 'gap' time.
- The Walk interval is usually of fixed duration, but if the signal is coordinated, the Walk interval may be allowed to extend to make use of predictable additional green time, especially for main street phases.
- Other intervals (e.g., yellow, red clearance, flashing Don't Walk) are of fixed duration.

### Permissive Mode

- A mode of traffic signal operation where left turns are made through gaps in oncoming traffic.

### Protected Mode

- A mode of traffic signal operation in which left or right turns are protected from oncoming vehicular traffic. Under this operation, a "GREEN ARROW" is displayed and opposing traffic must stop.

### Permissive/Protected Left Turn Phasing Mode

- A mode of traffic signal operation in which left or right turns are protected from oncoming vehicular traffic. Under this operation, a "GREEN ARROW" is displayed and opposing traffic must stop.

A left turn signal with five lights (red, yellow, green, yellow arrow, green arrow) that allows left turns to be made through gaps in traffic during the circular green portion of the cycle. A circular red is always used here, because it stops straight ahead as well as left turn traffic.

Traffic turning left is protected from conflict whenever the green arrow is on. When just the circular green is on, the left turns must yield to oncoming traffic. When the yellow arrow is lit along with the circular green, it means that left turns will no longer be protected from conflict, and will have to yield to oncoming vehicles during the period the circular green is shown alone.

Yellow-trap can occur with these whenever oncoming traffic is given a left turn arrow immediately after both streets have had circular green.

## APPENDIX F

### Project Photos



132 Avenue / Service Road / 100 Street Intersection



132 Avenue and Service Road Intersections east of 100 Street – Construct median to restrict turning movements to right-in/right-out only at the service roads



132 Avenue west of 100 Street – Construct median to restrict turning movements at service road intersection to right-in/right-out only



132 Avenue west of 100 Street – closing the median will enhance safety and intersection capacity



128 Avenue east of 100 Street – Pave to encourage use and eliminate gravel from being dragged by traffic onto the adjacent paved roads



Pave gravel road to encourage use and eliminate gravel from being dragged onto the adjacent paved roads



Extra wide access on north side of 132 Avenue east of 99 Street – Conduct internal on-site parking and traffic circulation review and reduce width for better access management



Railway tracks west of 97 Street separating lands within study area and contributing to road network issues



132 Avenue east of railway tracks currently has rural cross-section



Rail line provides spur line service to adjacent industrial / commercial developments



The alley between 100 Street and 101 Street on the south side of 132 Avenue should be extended south to 128 Avenue



New road has urban cross-section



# Functional Study Amendment

**Future Circle K Convenience Store,  
13007 - 100 St., Grand Prairie, Alberta**

Mac's Convenience Stores

December 21, 2022

→ **The Power of Commitment**



<b>Project name</b>		Future Circle K Convenience Store, 13007 - 100 St., Grand Prairie, Alberta					
<b>Document title</b>		Functional Study Amendment					
<b>Project number</b>		11229969					
<b>File name</b>		11229969 - Circle K, 100th St. Grande Prairie - Functional Study Amendment Report					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	1.0	A. Letendre	R. Coulombe		R. Coulombe		12-21-222
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[Status code]							

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Figure 2	Long-Term Planned Road Configuration (from 2020 Intersection Study)
Figure 3	Long-Term Revised Road Configuration

## Appendices

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# 1. Introduction

In 2012, the City of Grand Prairie (the City) completed the 132 Avenue Functional Planning Study (2012 FPS Study) which identified improvements for the 132 Avenue corridor between 84 Avenue and 116 Street. In 2020, the City completed an additional study, 100 Street and 132 Avenue Operational Analysis, Optimization, and Preliminary Design (2020 Intersection Study), which provided traffic analysis planning and preliminary design for intersection improvements in the short-term and long-term. The recommended long-term road configuration will significantly change access to the surrounding land uses.

Mac's Convenience Stores Inc. (Mac's), operating as Circle K Convenience Stores (Circle K) has proposed a development at the south-east corner of 132 Avenue and 100 Street Service Road which includes a convenience store, gas station, and truck stop. There is currently a Ford dealership at this location. The current road configurations allow easy access to the site and are not a concern for Circle K, but in the future long-term road configuration, access to the Circle K site is limited. To improve future long-term access to the site, Circle K is proposing an amendment to the future long-term intersection and road configuration.

## 1.1 Purpose of this report

The purpose of this memorandum is to explain the amendment to the future long-term road configuration, assess the operational and safety implications of these changes, and to provide recommendations.

## 1.2 Supplementary Report Approach

The intent of this memorandum is to act as a supplementary report to the 2012 FPS Study and the 2020 Intersection Study. It is not a replacement of either document. This report will not re-visit other background information contained in the original reports, such as detailed traffic analysis, geotechnical, environmental, drainage, and utilities.

# 2. Site Access Modifications

## 2.1 Proposed Development

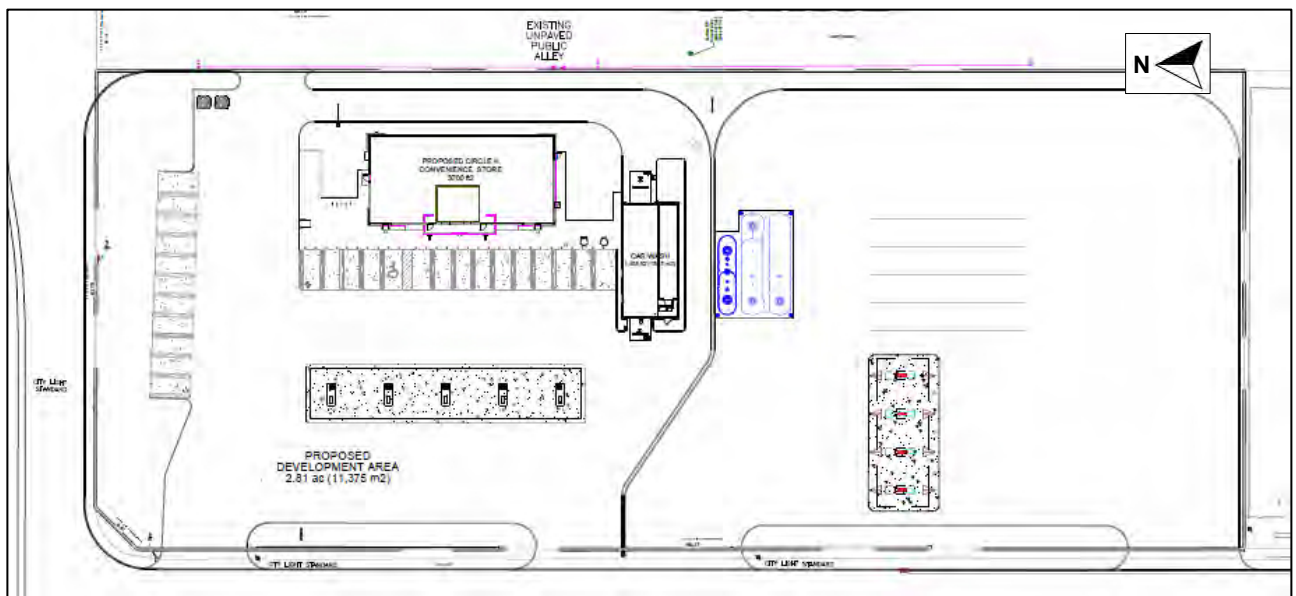


Figure 1 Proposed Circle K Site Plan

The proposed site plan is shown in **Figure 1**. The site is located on the southeast corner of 132 Avenue and 100 Street Service Road, which in the long-term plan will be the corner of 132 Avenue and 100 Street. The site includes a Circle K convenience store, a gas station with ten vehicle fuelling positions, and a truck stop with three fuelling positions. Trucks will access the site only from 100 Street Service Road. There are over 22 parking spots available on site.

## 2.2 Site Access Issue & Proposed Modifications

Mac's is concerned that the limited access options will cause a decrease in traffic to the site. To mitigate this issue, Circle K is proposing the following additional access movements (see **Figure 2**):

- 100 Street mid-block (south of 132 Avenue) right-out access
- 132 Avenue mid-block (west of 99 Street) right-in access

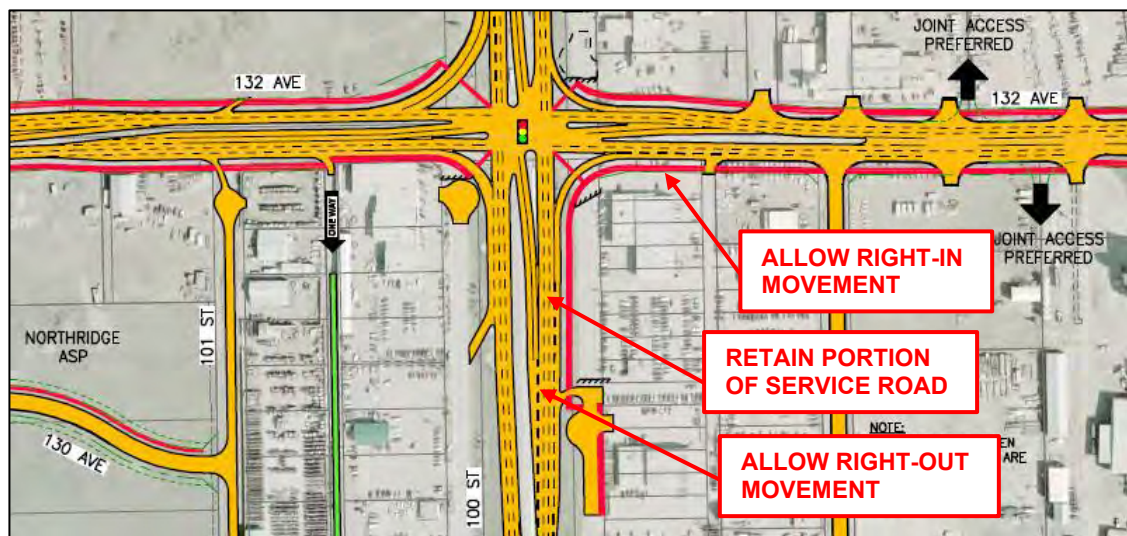


Figure 2 Long-Term Planned Road Configuration (from 2020 Intersection Study)

## 3. Analysis

### 3.1 Available Data

This additional study will utilize data from the 2012 FPS Study, the 2020 Intersection Study. As well, the Synchro Model from the 2020 Intersection Study has been provided by the City.

### 3.2 Traffic Considerations

A full Traffic Impact Assessment is not required for this development, since the impacts of elevated traffic volumes, and the mitigation measures for these impacts, has already been confirmed through the past studies. For the two new proposed access movements, a high-level queuing analysis will be used to assess impact on the City's long term planned road configuration. New Synchro modelling will not be used for this analysis since the queues on 100 Street have already been modelled in the 2020 Intersection Study, and the 132 Avenue right-in is a free movement which will not generate queues. The analysis resulted in the following findings:

- 100 Street mid-block (south of 132 Avenue) right-out access:
  - Right-out access is approximately 150 metres south of the northbound stop bar at the 132 Avenue and 100 Street intersection and leads onto a right turn storage lane for the 132 Avenue at 100 Street intersection

- According to the Synchro model from the 2020 Intersection Study:
  - The right turn storage lane has a 95<sup>th</sup> percentile queue of 0.0 metres for both the 90,000 and 120,000 population horizons
  - The adjacent through lanes on 100 Street have a 95<sup>th</sup> percentile queue of 140 metres for the 90,000 population horizon and 200 metres for the 120,000 population horizon
- The sidewalk will not cross the right-in/out access. Even if this is changed in future design revisions, pedestrian levels in the area are very low, and not expected to cause any significant queueing
- Queueing at this right-out access is therefore not expected, as there will be minimal vehicles in the right turn storage lane and no pedestrian crossings
- Vehicles using the right-out access who are destined northbound may experience a delay until the northbound through lane queue dissipates
- 132 Avenue mid-block (west of 99 Street) right-in access:
  - Free movement (no Synchro analysis required)
  - Pedestrian volumes in area are low, minimal crossings expected
  - Carwash drive-thru on site queues into the site, and not onto the laneway, and therefore will not cause any queues that could back up to 132 Avenue.
  - Queueing at this right-in access is therefore not expected, as it is a free movement and there are minimal pedestrian crossings

## 3.3 Safety Considerations

### 3.3.1 Sight Distance

Sight Distances have been assessed using the methodology outlined in TAC Chapter 9. A design speed of 70 km/hr (posted speed of 60 km/hr) was used for 100 Street and 60 km/hr (posted speed of 50km/hr) was used for 132 Avenue. A WB-21 design vehicle was used for the 100 Street midblock access and an MSU truck for the 132 Avenue lane access. The analysis resulted in the following findings:

- Stopping sight distance
  - Northbound 100 Street, approaching the mid-block access: 105 metres
  - Eastbound 132 Avenue, approaching the lane (east of site): 85 metres
- Intersection sight distances
  - Westbound-right movement from midblock access onto 100 Street: 235 metres
  - Northbound-right movement from lane onto 132 Avenue: 160 metres

### 3.3.2 Lane Weaving/Jumping

The 2012 FPS Study had noted lane weaving and lane jumping is a significant issue within this area. The addition of the right out movement at the 100 Street mid-block (south of 132 Avenue) access may encourage this behaviour as drivers could attempt to jump lanes to make a northbound left turn movement. To mitigate this issue, the northbound left turn median can be extended past the mid-block access point. At the 132 Avenue access lane weaving is less of a concern, as there is ample space for lane changes before the next left turn opportunity.

### 3.3.3 Corner Clearances

To check how close accesses can be to the intersection, corner clearances were checked using the relevant TAC guidelines (TAC Chapter 8 Figure 8.8.2 and Figure 8.9.2) as follows:

- 100 Street and 132 Avenue major intersection:
  - The recommended distance from a major intersection to an access on a divided northbound approach is:
    - Minimum: left turn storage length
    - Desirable: left turn storage length plus bay taper.
  - In the current long term planned design, the access is past the left turn storage length, but not past the bay taper
- 100 Street Service Road and mid-block access (south of 132 Avenue) minor intersection:
  - No driveways are present on the west side of the service road in this area
  - The driveways on the opposite side of the road should not impact traffic operations and are not a necessary design consideration for low volume local and collector roads (as per TAC 8.9.9)
- 132 Avenue and Lane (east of site) minor intersection:-
  - The recommended distance of the tangent section between a minor intersection curb radius and the driveway curb radius is a minimum of 5.0 metres
  - The current site plan design has a tangent section of 12 metres in the existing condition and 9 metres in the long-term configuration.

## 3.4 Other Considerations

Other considerations for this amendment include:

- Circle K is not intending to move forward with a land swap. 100 Street Service Road will remain a public road owned by the City. As advised by the City, the proposed bulb-out at the end of the 100 Street Service Road (approaching 132 Avenue) will be shifted north, to align with the middle driveway access to site. The service road will continue past the bulb-out and connect to the northmost driveway access to site. This configuration is similar to the configuration proposed in the 2012 FPS Study. The sidewalk along this portion can also be shifted to the east side of 100 Street Service Road to allow pedestrian access past the west side of the site.
- For the proposed 100 Street mid-block (south of 132 Avenue) right-out access movement, an RA-1 Stop Sign will be required.
- To ensure heavy vehicles do not enter the site from the northeast driveway entrance, an RB-62 Trucks Prohibited Sign is required at the right-in entrance

## 3.5 Site Circulation

To ensure queues are not forming within the site and spilling back onto public roads, a site circulation assessment was completed. Traffic entering and exiting site was estimated based on peak hour traffic volumes from the ITE Trip Generation Manual.

For the truck stop, queueing onto 100 Street Service Road, or onto 100 Street from the mid-block right-in access, was checked. It is estimated that during the busiest peak hour 24 trucks will be coming into the truck stop and 22 trucks will be leaving. This is approximately one truck every 2.5 minutes. Average fuelling times for these vehicles is five minutes. With one truck coming into site every 2.5 minutes, and a 5-minute fuelling time, on average only two vehicles will be on site at a time. With three diesel fuelling positions and additional space on site for truck parking/queueing, no queueing is expected.

For the gas station and convenience store, queueing onto 100 Street Service Road, or onto 132 Avenue from the lane east of site, was checked. It is estimated that during the busiest peak hour 105 vehicle trips in and 105 vehicle trips out will occur, with negligible truck trips. This equates to one vehicle coming into site every 35 seconds. This is a conservative estimate as Circle K has advised that their stores typically see 35 to 50 customers per hour maximum. Circle K has also advised that customers only stay for 3 to 5 minutes on average. With one vehicle entering site every 35 seconds and a 5-minute average stopped time, we can expect approximately 3 vehicles on site at a time during the peak hour. With over 22 available parking stalls, no queueing is expected.

## 3.6 Vehicle Accommodation

Vehicle clearances were checked using AutoTURN for the new right-in and right-out movement at each access. A WB-21 design vehicle was used for the 100 Street midblock right-out access and an MSU truck for the 132 Avenue lane right-in access. No issues were identified by the AutoTURN analysis. The results are shown in Appendix A.

## 3.7 Recommendations

Based on the analysis provided above, the proposed amendment to the future long-term road configuration (as shown in Figure 3) includes the following five recommendations:

- Amend the 2012 FPS to include and permit the following movements:
  - 100 Street mid-block (south of 132 Avenue) right-out (with stop sign control for right-out)
  - 132 Avenue mid-block (east of 100 Street) right-in.
- Provide adequate intersection sight distance for the 100 Street mid-block (south of 132 Avenue) right-out movement by ensuring vegetation or other visual blockades are not erected within the sight triangle.
- Extend the 100 Street northbound left turn median past the mid-block access point to prevent lane weaving from the 100 Street mid-block (south of 132 Avenue) right-out movement thereby restricting vehicles leaving Circle K to complete a northbound left-turn from 100 Street.
- Move bulb-out north and connect to the northernmost site driveway (similar to the configuration in the 2012 FPS). Shift the sidewalk along this portion to the east side of the service road.
- At 132 Avenue right-in, provide at least five metres of tangent section between the end of the curb radius and the northeast driveway access to site.
- Provide a WB-62 Trucks Prohibited Sign at the 132 Avenue mid-block right-in access and a RA-1 Stop Sign at the 100 Street mid-block right-out access.

LEGEND

PROPOSED SIDEWALK

LANING CONFIGURATION

EXISTING LEGAL

PROPOSED LEGAL

SIGNALIZED INTERSECTION

1/4 Sec.2  
72 Rge. 6  
W.6 M.

ARBOUR  
HILLS  
ASP

NORTHGATE  
ASP

NORTHEDGE  
ASP

- NOTES
1.

PROVIDE RIGHT IN ACCESS FOR 132 AVENUE MID-BLOCK (WEST OF 99TH ST) ACCESS
2.

PROVIDE RIGHT OUT ACCESS FOR 100 STREET MID-BLOCK (SOUTH OF 132ND ST) ACCESS
3.

EXTEND 100 STREET NORTHBOUND LEFT-TURN MEDIAN PAST THE ACCESS POINT
4.

MOVE 100 STREET SERVICE ROAD BULB-OUT TO THE NORTH, AND CONNECT TO THE NORTHERNMOST SITE DRIVEWAY. SHIFT THE SIDEWALK ALONG THIS PORTION TO THE EAST SIDE OF THE SERVICE ROAD.
5.

AT 132 AVENUE RIGHT-IN, PROVIDE AT LEAST A FIVE METRE TANGENT SECTION BETWEEN THE END OF THE CURB RADIUS AND THE NORTHEAST DRIVEWAY ACCESS TO SITE.
6.

PROVIDE A WB-62 TRUCKS PROHIBITED SIGN AT THE 132 AVENUE MID-BLOCK RIGHT-IN ACCESS AND A RA-1 STOP SIGN AT THE 100 STREET MID-BLOCK RIGHT-OUT ACCESS.



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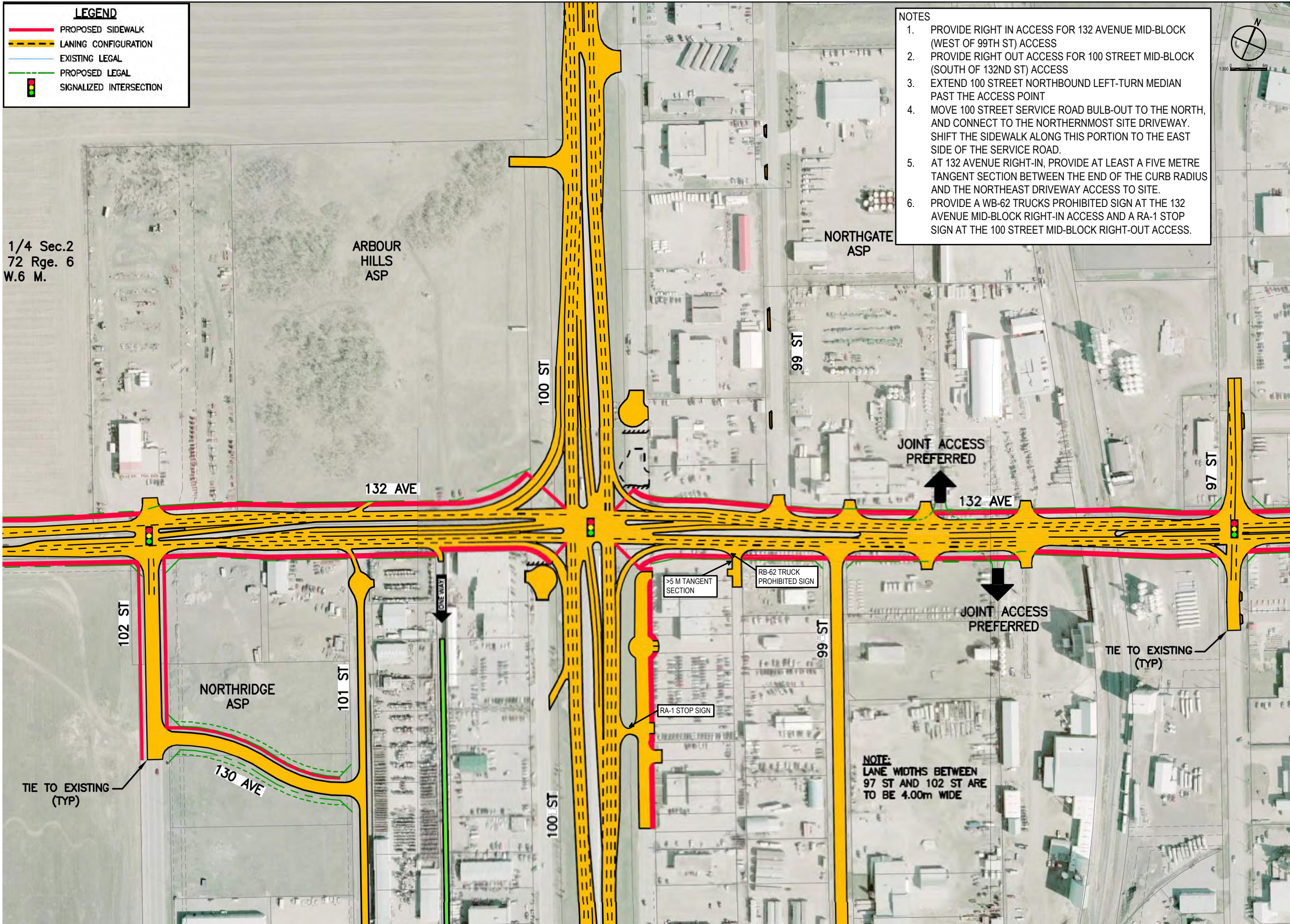
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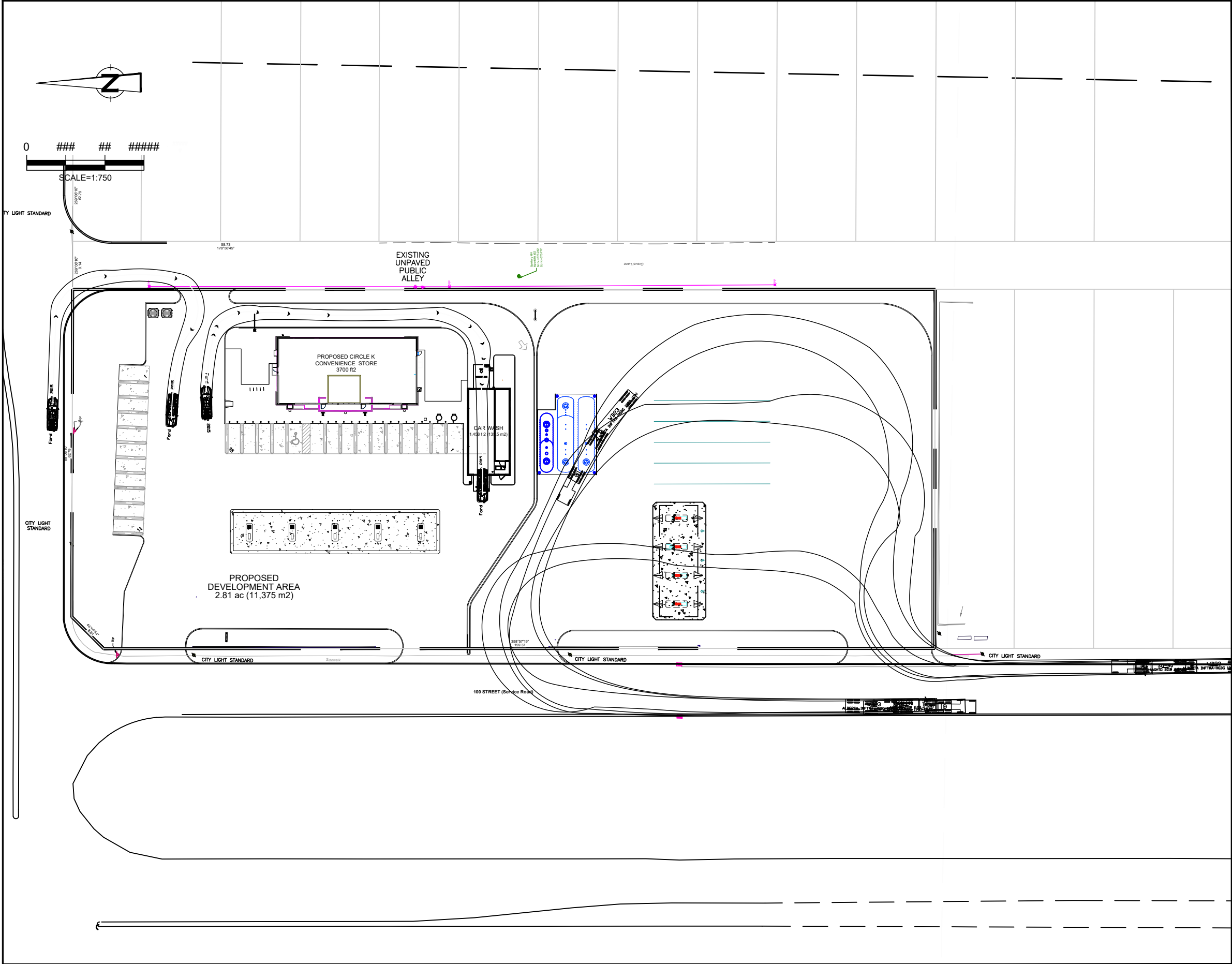


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No.	Issue	Checked	Approved	Date
Author	A.LETENDRE	Designer	A.LETENDRE	
Drafting Check	S.BALL	Design Check	S.BALL	
Project Manager	S.BALL	Project Director	N/A	
Client	CIRCLE K CONVENIENCE STORE			
Project	CIRCLE K, 100ST GRAND PRAIRIE			
Date	12/21/2022	Scale	N.T.S.	
Project No.	11229969			
Title	FIGURE 3 LONG-TERM REVISED ROAD CONFIGURATION			
Size	11X17			
Sheet No.	1	Sheet	1 of 1	

CONCEPT ONLY

# **Appendix A**

## **Site Plan & Vehicle Tracking Drawings**



Mac's Convenience Store's Inc.  
Suite 400, 229 - 33 Street NE  
Calgary, Alberta T2A 4Y6  
TEL: (403) 974-5400

Nº	Revision	Date	Initial

SCALE VERIFICATION	
THIS BAR MEASURES 25mm ON ORIGINAL. ADJUST SCALE ACCORDINGLY.	

Approved	
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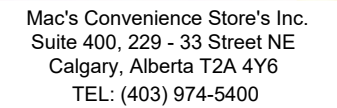
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Status	Date	Initial

Circle K Convenience Store 13007 100 Street Grande Prairie, Alberta Mac's Convenience Stores Inc.
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SITE LAYOUT & TRUCK PATH



Source Reference:			
Project Manager:	Reviewed By:	Date:	
SDB	SB	DEC 2022	
Scale:	Project N°:	Report N°:	Drawing N°:
1:750	11229969	PROP001	figure 1B

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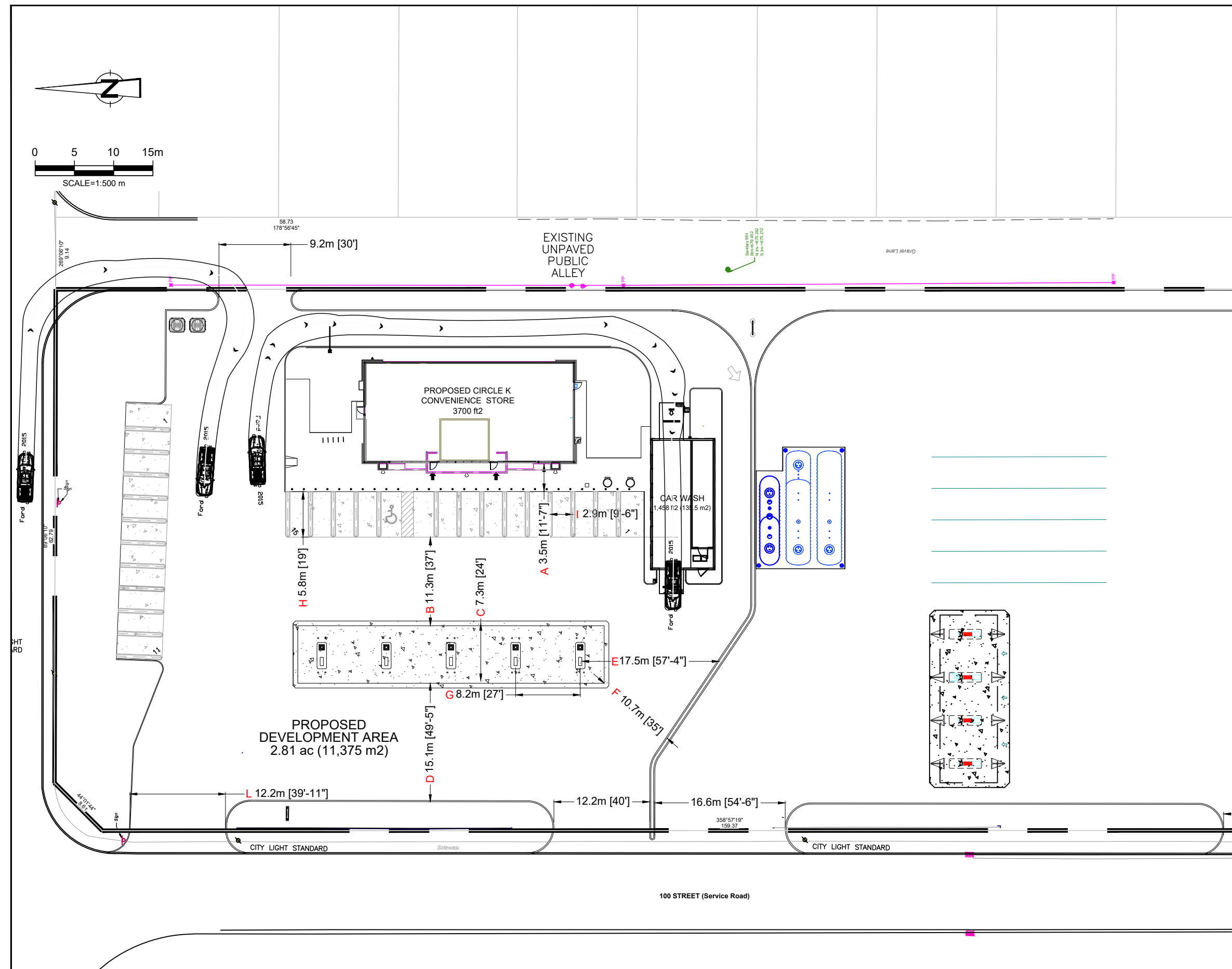
Circle K Convenience Store  
13007 100 Street  
Grande Prairie, Alberta  
Mac's Convenience Stores Inc.

## SITE LAYOUT & TRUCK PATH



Source Reference:

Project Manager: <b>SDB</b>	Reviewed By: <b>SB</b>	Date: <b>DEC 2022</b>	
Scale: <b>1:500</b>	Project N <sup>o</sup> : <b>11229969</b>	Report N <sup>o</sup> : <b>PROP001</b>	Drawing N <sup>o</sup> : <b>figure 2A</b>





Mac's Convenience Store's Inc.  
Suite 400, 229 - 33 Street NE  
Calgary, Alberta T2A 4Y6  
TEL: (403) 974-5400

Nº	Revision	Date	Initial

SCALE VERIFICATION	
THIS BAR MEASURES 25mm ON ORIGINAL. ADJUST SCALE ACCORDINGLY.	

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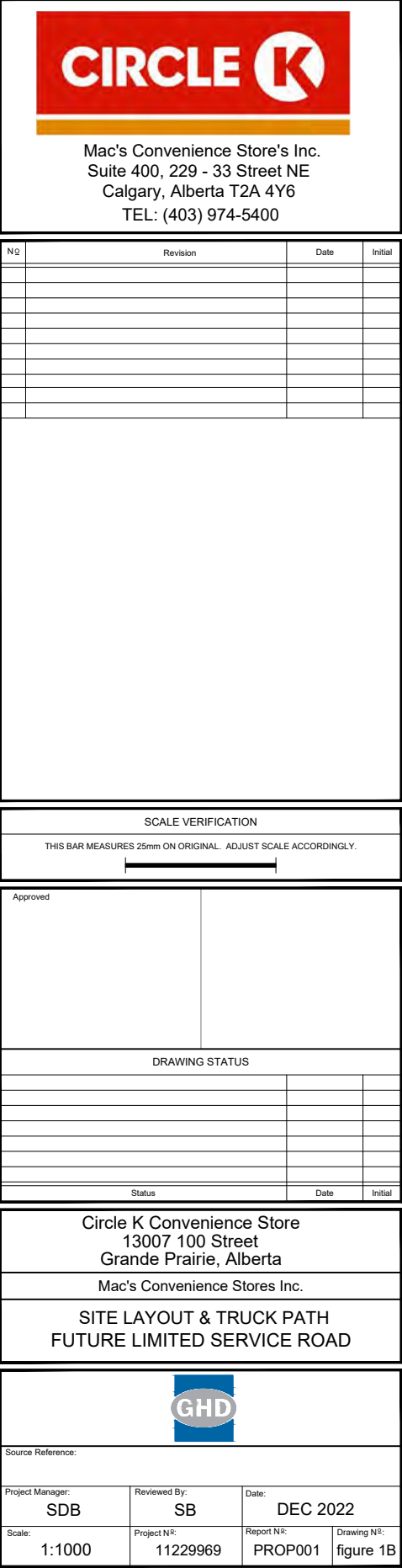
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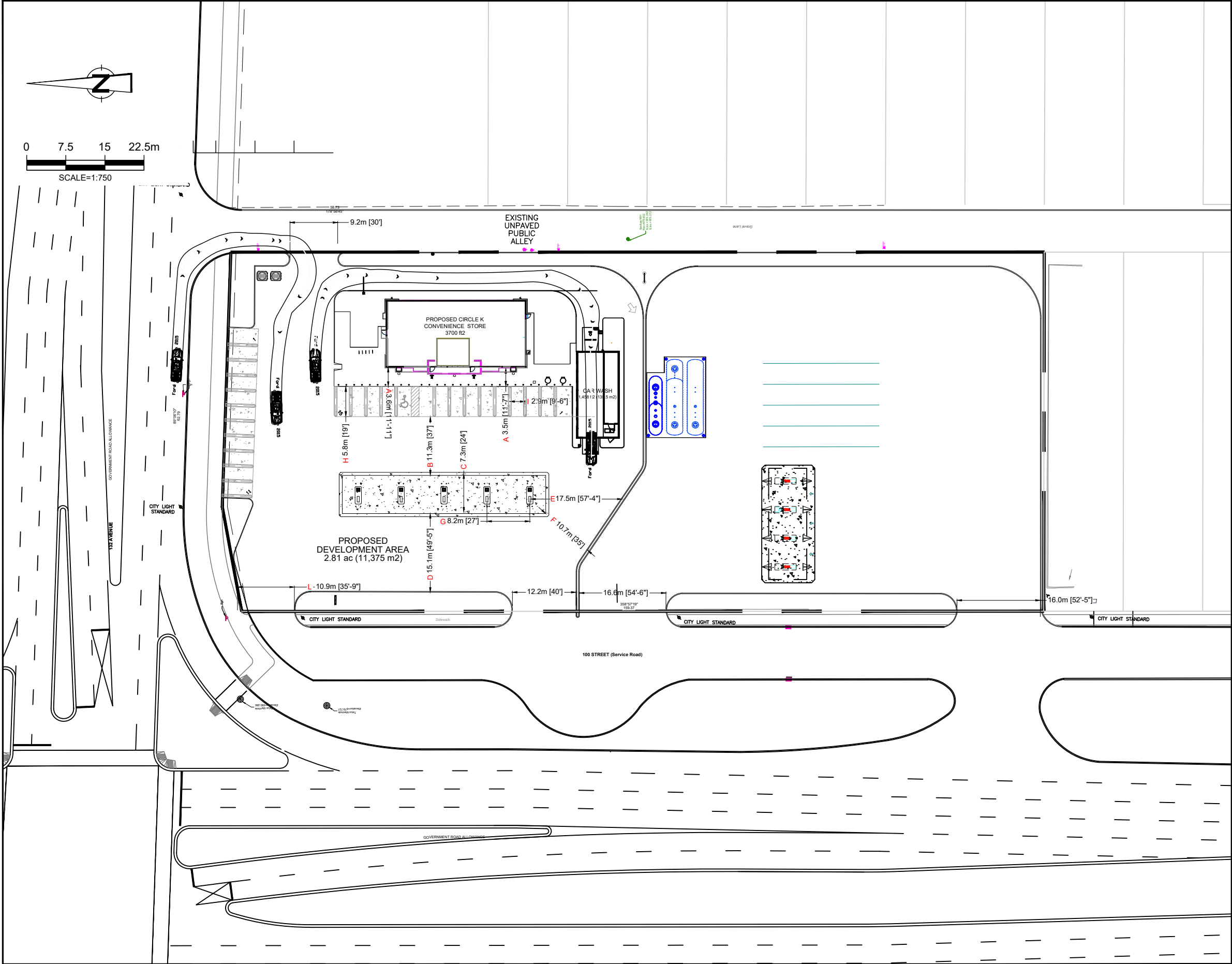
Circle K Convenience Store 13007 100 Street Grande Prairie, Alberta Mac's Convenience Stores Inc.
------------------------------------------------------------------------------------------------------------


SITE LOCATION
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Source Reference:			
Project Manager:	Reviewed By:	Date:	
SDB	SB	DEC 2022	
Scale:	Project N°:	Report N°:	Drawing N°:
1:750	11229969	PROP001	figure 1B








Mac's Convenience Store's Inc.  
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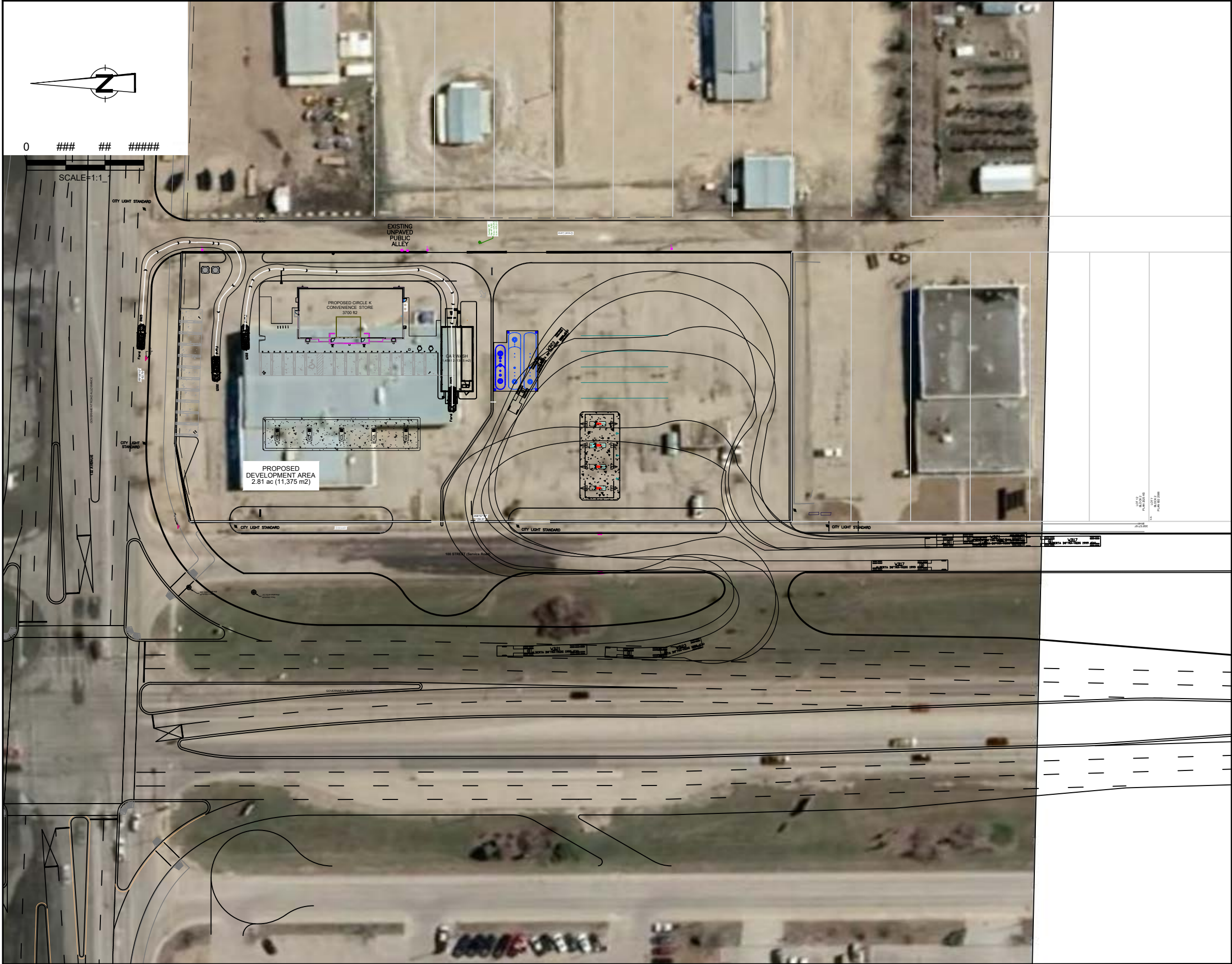
Circle K Convenience Store  
13007 100 Street  
Grande Prairie, Alberta  
Mac's Convenience Stores Inc.

**SITE LAYOUT & NTI DIMENSIONS  
FUTURE LIMITED SERVICE ROAD**



Source Reference:

Project Manager:	Reviewed By:	Date:	
SDB	SB	DEC 2022	
Scale:	Project N°:	Report N°:	Drawing N°:
1:750	11229969	PROP001	figure 2A



Mac's Convenience Store's Inc.  
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SCALE VERIFICATION

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DRAWING STATUS

Status	Date	Initial

Circle K Convenience Store  
13007 100 Street  
Grande Prairie, Alberta  
Mac's Convenience Stores Inc.

SITE LAYOUT WITH AIR PHOTO  
FUTURE LIMITED SERVICE ROAD



Source Reference:			
Project Manager:	Reviewed By:	Date:	
SDB	SB	DEC 2022	
Scale:	Project N°:	Report N°:	Drawing N°:
1:750	11229969	PROP001	figure 1B



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