Prepared for:

Calgary

McKnight Boulevard Transportation Study

Executive Summary

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Executive Summary

ES 1.0 Study Purpose and Objectives

McKnight Boulevard is a critical east-west corridor in northeast Calgary as there are some areas adjacent to McKnight Boulevard that rely heavily on the corridor for access, with few alternative route choices available. The purpose of this study is to identify opportunities to improve the flow of traffic by better optimizing the existing infrastructure without the need for higher cost improvements. Although McKnight Boulevard may be fully grade separated in the longer-term, improvements are required in the short- to medium-term to improve the flow of traffic prior to the construction of interchanges. A review of the long-term traffic conditions and the impacts of the recommended improvement options will identify potential strategies to improve traffic operations at the long-term horizon.

Due to the high traffic volumes and lack of grade separated intersections, McKnight Boulevard suffers from congestion and high levels of vehicle delay during the morning and afternoon peak periods. Congestion is also common during off-peak times such as mid-afternoon and weekends.

Increasing the vehicle and people moving capacity of McKnight Boulevard is one of the key objectives of this study, in addition to reducing travel times, and reducing the frequency and severity of collisions. The study also investigated the potential for high occupancy vehicles (HOV) infrastructure.

The focus of this study is on the section of McKnight Boulevard between Deerfoot Trail and Stoney Trail N.E. The scope of this study consists of three phases:

Phase 1: Optimization Study of McKnight Boulevard between Deerfoot Trail and Barlow Trail;

Phase 2: High Occupancy Vehicle Study of McKnight Boulevard between Deerfoot Trail and Stoney Trail N.E.; and,

Phase 3: Interchange Functional Plan for the intersection of McKnight Boulevard and 12 Street N.E. (if required):

ES 2.0 Study Methodology and Existing Corridor Conditions

The physical, traffic and collision characteristics within the corridor were collated based on data and drawings provided by The City of Calgary (The City), as well as on-site observations and measurements conducted by the project team. Numerous site visits were conducted to observe traffic operations within the study area on different days and at different times. Observations included traffic volumes, vehicle delays and queuing, geometric roadway characteristics, safety issues, driver behaviors and pavement and lighting conditions. Photographs and video were taken to document the conditions and measurements where required to supplement the information available in drawings and site surveys.

Highlights of existing conditions include:

- There are no distinct directional traffic patterns indicating a higher volume of traffic travelling either east to west or west to east.
- The results of the surveys showed that HOV (2+ passengers) represent 11% to 25% of all vehicles on McKnight Boulevard.
- A total of 2,303 collisions were reported within the study area over the analysis period. Of these collisions, 0.1% involved a fatality (2 collisions), 9.4% involved an injury (217 collisions) and 90.5% involved property damage only (PDO). As expected for an urban roadway, with high commuter volumes and signalized intersections, the majority of collisions were low severity rear-end collisions occurring during the morning and afternoon peak hours.
- There are currently no bus routes travelling along McKnight Boulevard.
- The intersections west of Barlow Trail were not designed with future grade separation in mind, and as a result, intersection spacing is limited in some locations and adequate right-of-way has not been maintained for future interchanges.
- Due to the skeletal road classification of McKnight Boulevard, pedestrian and bicycle facilities along the corridor are limited. The only facility directly adjacent to McKnight Boulevard is a regional pathway that runs along the south side between Barlow Trail and 36 Street N.E.
- Travel time estimates along McKnight Boulevard between the northbound ramp for Deerfoot Trail and the southbound ramp for Stoney Trail are summarized in Table ES 1 below:

Table ES 1: Intersection Operations Summary

Deerfoot Trail NB - Stoney Trail SB	AM Peak Travel Time (min)	PM Peak Travel Time (min)	Off Peak Travel Time (min)
Eastbound	0:11:00	0:10:49	0:09:47
Westbound	0:12:48	0:10:38	0:09:55

ES 3.0 Existing Intersections Conditions

Existing conditions for each intersection along the McKnight Boulevard corridor were reviewed and documented. The analysis includes a comprehensive review of physical characteristics, surrounding area development, existing active modes facilities, transit service, traffic volumes and operations, trends in historic collision data, as well as any safety issues identified.

A summary of the daily volumes and traffic operations at each intersection is provided in Table ES 2 below.

Table ES 2: Intersection Operations Summary

Intersection	Average Annual Daily Traffic Volume (vpd)	AM Level of Service	PM Level of Service	Failing Movements (LOS F)
McKnight Blvd. / 12 Street N.E.	63,000	E	E	SBT, SBLT, EBLT, WBLT - AM Peak NBT, NBLT, NBRT, EBLT, WBLT, SBLT - PM Peak
McKnight Blvd. / 15 Street N.E.	55,000	C or better	C or better	SBLT - PM Peak
McKnight Blvd. / 19 Street N.E.	46,000	C or better	D	WBLT - AM Peak EBLT - PM Peak
McKnight Blvd. / Barlow Trail N.E.	38,000	E	E	WBLT - AM Peak EBLT, NBT, NBRT - PM Peak
McKnight Blvd. / 47 Street N.E.	29,000	C or better	C or better	-
McKnight Blvd. / 52 Street N.E.	21,000	E	E	SBT, SBLT, SBRT - AM Peak SBT, SBLT, SBRT, WBLT - PM Peak
McKnight Blvd. / 68 Street N.E.	20,000	C or better	C or better	-

ES 4.0 Other Considerations

During the consultation with internal and external stakeholders and the public, other potential issues, constraints, and considerations were identified that required consideration during the option development stages. These included:

- Rehabilitation of McKnight Boulevard is required between 12 Street N.E. and 19 Street N.E. to address the poor and failing pavement structure identified by numerous stakeholders and The City, as well as the need to concurrently widen McKnight Boulevard to a six-lane cross-section within this segment.
- Road ownership / authority of the Deerfoot Trail corridor and interchange with McKnight Boulevard is currently with Alberta Transportation. Therefore, any improvements within this right-of-way would be at the discretion of Alberta Transportation.
- There are some sections of Aviation Boulevard (12 Street N.E.) and Aviation Road that are on lands owned by the Calgary International Airport. This could potentially impede improvement options that would divert traffic onto these links. In addition, access to private properties that is currently provided off these roads would need to be maintained if alternative access options are not available.

- Emergency Response personnel identified concerns with the provision of over-long cul-de-sacs along the road network (in particular at 11 Street N.E. and at 13 Street N.E.), which extend travel distances and incur additional delays to emergency response times. The potential provision of emergency-only access points for these locations should be explored to ensure minimal delays to emergency services.
- During the preliminary consultation with stakeholders and the public, several perceived operational concerns were identified, including eastbound weaving between Deerfoot Trail and 12 Street N.E., overall congestion and delays during peak periods (particularly between Deerfoot Trail and Barlow Trail), long left-turn delays at intersections, unsuitable traffic signal timing plans, short-cutting concerns, and a lack of active modes facilities.

ES 5.0 Phase 1: Optimization

ES 5.1 Option Development Methodology

The objective of Phase 1 of this study was to develop optimization improvements and strategies for the McKnight Boulevard corridor between 12 Street N.E. and Barlow Trail.

Optimization involves the enhancement of existing infrastructure through the use of lower cost, innovative, short-term solutions to better utilize existing infrastructure. Optimization improvements include simple and cost-effective measures that can be easily applied with expediency to ensure interim improvements to existing conditions, while minimizing longer-term throwaway costs.

The recommended optimization improvements were selected via a six stage process as summarized in Figure ES 1 below, which also highlights the extensive public and stakeholder engagement process undertaken for the study.

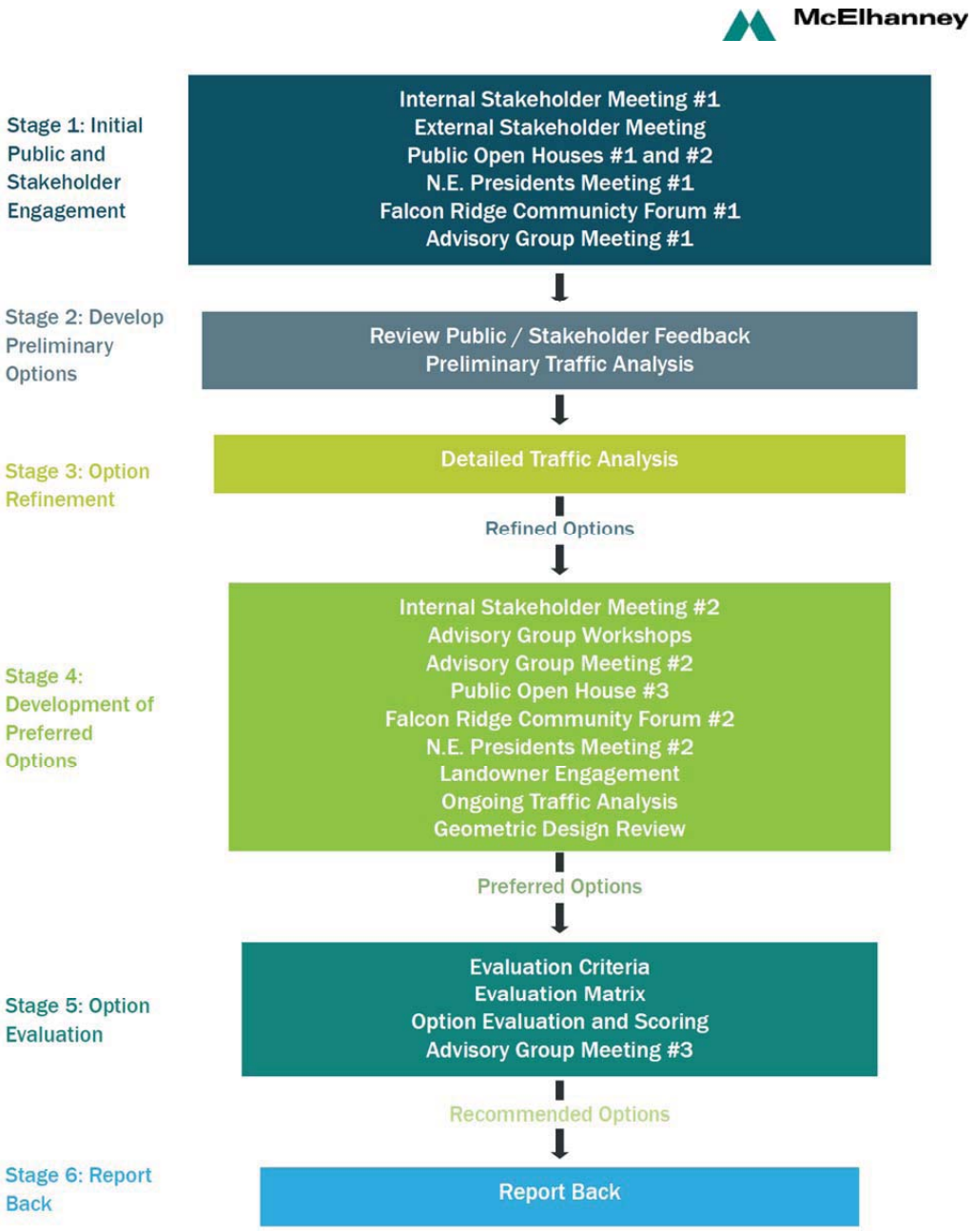


Figure ES 1: Option Development Methodology

The development of improvement options started with the identification of high level concepts. The strategy to achieve optimization along the corridor was to identify the optimal improvements for each of the study intersections, and then develop a strategy for coordinating the intersections as a system.

Due to the large number of improvement options considered, the intersection improvements were divided into five different categories:

1. Intersection Layout Improvements
2. Relocate Turning Movements to Right-Ins and/or Right-Outs
3. Relocate Turning Movements to New Intersection(s)
4. Innovative Intersection Treatments
5. Minor Grade Separation

Because of the large number of preliminary options developed, a screening process was required to identify the most promising option(s) within each category during the option refinement stage. An options performance matrix was developed to compare level of service / delays for each option. Additional criteria were also considered, such as safety, public acceptance, and compatibility with future long range plans to narrow the options down to one or two preferred concepts per category.

The preferred options were then presented to stakeholders and to the public through various engagement events, and subsequently further evaluated using an evaluation matrix that considered a number of different evaluation criteria. Each criterion was prioritised based on its relative importance in achieving the project objectives. Evaluation criteria included quantitative and qualitative considerations such as impacts to travel times, traffic safety, surrounding development, urban character and aesthetics, sustainable modes and emergency response. The purpose of an evaluation matrix was to provide a fair, unbiased, and objective means of comparing alternate options. This process was used in the identification and selection of the final recommended options.

ES 5.2 McKnight Boulevard / 12 Street N.E. Intersection

The McKnight Boulevard and 12 Street N.E. intersection currently operates at an unacceptable level of service due the high volume of through and conflicting turning movements at the intersection. The primary operational challenges to overcome included the northbound and southbound split signal phasing, high volumes of southbound left-turn traffic, the close proximity of the Deerfoot Trail interchange, and right-of-way constraints.

Over 20 potential improvement options were developed, and through the development and refinement process, improvements were combined to form options that would address the issues and constraints identified. From the potential options, a total of five refined options were carried forward to the option refinement and evaluation process, as follows:

1. Provide dual left-turns on all approaches
2. Only through and right-turn movements at 12 Street N.E., left turns accommodated via Right-in / Right-out to the east.
3. Relocate the southbound left and through movements, as well as the eastbound left turn from the Deerfoot northbound off-ramp, to 11 Street N.E.
4. Counter clockwise one-way system with new intersection at 11 Street N.E.
5. Offset T / Continuous Green T - Intersection

Options 1 & 2 above, along with the option to only widen the roadway to a six-lane cross-section in this area, were carried forward as preferred options. These options were presented to the public, stakeholders and advisory groups at several engagement events, and further assessed using the evaluation matrix. Based on the evaluation, the option implementing a right-in / right-out intersection east of 12 Street was the highest scored option for the 12 Street N.E. intersection.

This option is more of a medium-term solution than a short-term due to the costs and time associated with the land required for such acquisitions. As such, it was suggested that the option to widen McKnight Boulevard to a six-lane cross-section would improve traffic operations in the short-term while building towards the medium-term option, thus minimizing throw-away costs in the future. The property requiring acquisition is a 568.86m^2 parcel of land, as shown in the proposed medium-term option plan provided in Figure ES 2. The estimated cost for the improvement, excluding property acquisition, is $3.7 million.

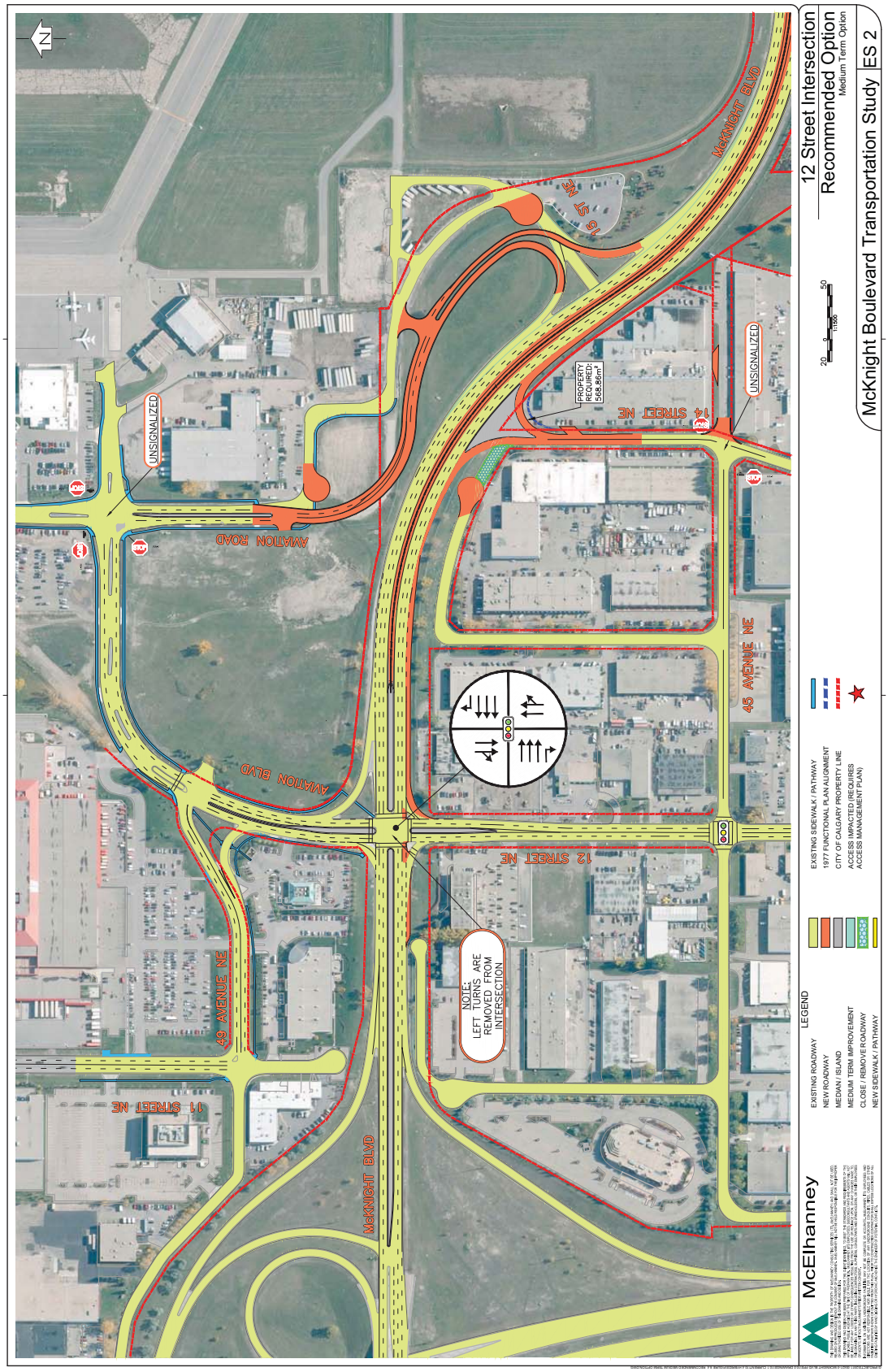
The recommended short and long-term improvement options were reviewed to identify refinements that could further improve traffic operations. These refinements included:

Short-Term

- A westbound auxiliary lane between 15 Street and 12 Street N.E. to allow the high volume of westbound right-turn traffic to bypass the westbound through traffic queues.
- The westbound left-turn pocket could be extended from 67m closer to 100m to allow westbound left-turn traffic to bypass longer queues in the adjacent through lane.
- The northbound left-turn lane should also be extended from 40m closer to 75m to allow northbound left-turn traffic to bypass longer queues in the adjacent through lane.
- Traffic signal timings should be optimized including corridor coordination between Deerfoot Trail and Barlow Trail.

Medium-Term

- A roundabout with two southbound left-turn lanes and a westbound right-turn slip lane at the intersection of 49 Avenue and 11 Street NW could improve operations.


McKNIGHT BLVD
AVIATION ROAD
AVIATION BLVD
45 AVENUE NE
49 AVENUE NE
12 STREET NE
14 STREET NE
11 STREET NE
15 ST NE
UNSIGNALIZED
UNSIGNALIZED
PROPERTY REQUIRED: 568.86m²
NOTE: LEFT TURNS ARE REMOVED FROM INTERSECTION
N
12 Street Intersection
Recommended Option
Medium Term Option
McKnight Boulevard Transportation Study
ES 2
McElhanney
LEGEND
EXISTING ROADWAY
NEW ROADWAY
MEDIAN / ISLAND
MEDIUM TERM IMPROVEMENT
CLOSE / REMOVE ROADWAY
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1977 FUNCTIONAL PLAN ALIGNMENT
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ACCESS IMPACTED (REQUIRES ACCESS MANAGEMENT PLAN)

The anticipated performance of the recommended options was evaluated. Upon widening the corridor to a six-lane cross-section and implementing the short-term improvements, the eastbound through and westbound through and left-turn movements are expected to have the most significant travel time savings, with reductions in delays ranging from 25 to 90 seconds. However, because the split phase signal timings are still in place, there are no notable improvements to northbound and southbound travel times. Through signal timing optimization, the highest volume movements are allocated the largest proportion of green time, which results in some movements experiencing increased travel times, such as the eastbound and southbound left-turns in the PM peak hour.

The medium-term improvement recommendations are expected to reduce travel times for all movements in the PM peak hour with the exception of the northbound left-turn, and also for most movements during the AM peak hour. Only minor increases in travel times are noted for some movements, the most significant being the eastbound and northbound left-turns. Substantial reductions to eastbound and westbound through movements are noted, with additional notable improvements to the westbound left-turn, as well as the northbound and southbound through and right-turn movements.

ES 5.3 McKnight Boulevard / 15 Street N.E. Intersection

Because some of the improvement options considered for 12 Street N.E. incorporate the 15 Street N.E. intersection into a system, or require it to be removed due to its close proximity, the improvements considered for the 15 Street N.E. intersection were incorporated into the design of the 12 Street N.E. intersection improvements.

The potential to use the existing 15 Street N.E. intersection as a right-in / right-out access was considered in several of the options developed for the 12 Street N.E. intersection. Based on the option development and evaluation process, it is suggested that left-turns be removed from this intersection to create a right-in/right-out only intersection due to safety and operational concerns at this location, and to accommodate the widening of McKnight Boulevard.

ES 5.4 McKnight Boulevard / 19 Street N.E. Intersection

The McKnight Boulevard and 19 Street N.E. intersection currently operates adequately with an overall LOS C during the AM peak and LOS D during the PM peak. However, there are several individual movements that operate at LOS E and F during both peak periods.

A total of 23 potential improvement options were developed for McKnight Boulevard and 19 Street N.E. After extensive evaluation and public consultation, it was determined that although the options would provide some operational benefits, the overall improvements would be nominal and would not justify the implementation costs or negative impacts to access and active modes.

Therefore, as with the 12 Street intersection, the widening of McKnight Boulevard from four to six lanes at 19 Street was considered the minimum improvement required to achieve better intersection operations. This option was recommended to be implemented and monitored in the future to evaluate the need for further improvements, if required.

Additional short-term option refinements that could further improve traffic operations were also identified, including:

- A dedicated southbound right-turn lane should be provided that extends as close to Pegasus Road as practical to allow southbound right-turn traffic to bypass longer queues in the adjacent through lane. Overhead utilities will require relocation.
- Traffic signal timings should be optimized including corridor coordination between Deerfoot Trail and Barlow Trail.

ES 5.5 McKnight Boulevard / Barlow Trail Intersection

The McKnight Boulevard and Barlow Trail intersection currently suffers from poor performance, operating at LOS E during the AM and PM peaks. Of particular concern is the high westbound and northbound left-turn volumes during both peak periods. A total of seven potential improvement options were identified for the Barlow Trail intersection.

The options considered were evaluated and shown to provide only minimal operational improvements relative to the significant associated costs. Based on further review and consultation with stakeholders and the public, the option to "Do Nothing" was identified as the recommended option. This option would not see any major revisions to the intersection configuration, but would not preclude minor improvements, such as turn lane extensions or signal timing improvements. It would also provide an alternative to the high costs associated with the other options that may not be justified given the limited operational benefits achieved.

With "Do Nothing" selected as the recommended option, further investigation was done to see how the option could be further refined to optimize performance, including:

- Extending the westbound left-turn lanes using the existing grass median to provide the additional storage space required.
- Extending the northbound left-turn pocket closer to 200m. This would reduce the likelihood of a left-turn queue protruding into the adjacent through lane.
- Optimizing traffic signal timings, including corridor coordination between Deerfoot Trail and Barlow Trail N.E.

ES 6.0 Phase 2: High Occupancy Vehicles

McKnight Boulevard is designated as part of The City's Primary High Occupancy Vehicle (HOV) Network in The City's *Calgary Transportation Plan* (2009). Therefore, one of the objectives of this study was to review whether the implementation of HOV facilities on McKnight Boulevard from Deerfoot Trail to Stoney Trail would be beneficial at this time.

A review of the McKnight Boulevard corridor was conducted to assess whether the characteristics of the corridor support the implementation of HOV facilities, prior to the development or analysis of potential HOV options. A summary of the review is provided in Table ES 3.

Table ES 3: HOV Needs Assessment Summary

Criteria	Assessment	Currently Supported?
City Policies and Objectives	• HOV facilities are consistent with City's sustainability philosophy. • McKnight Boulevard is a proposed link in the City's Primary HOV Network.	Yes
Supporting Road Network	• Several connecting roadways are part of the Primary HOV Network. However, no HOV measures are currently implemented. • Deerfoot Trail and Stoney Trail are under the jurisdiction of Alberta Transportation.	No
Surrounding Land Uses	• Adjacent development and trip types not conducive to HOV. • Travel on McKnight Boulevard is typically over shorter distances and/or a small portion of the overall trip length.	No
Level of Service (Travel Time)	• Existing HOV volumes on McKnight Boulevard are high. • Travel times along corridor are already low, resulting in only minor improvements for HOV traffic (maximum 3 minutes). • HOV facilities on McKnight Boulevard could reduce potential improvements to other movements.	No
Transit Support	• There are no existing or planned bus routes on McKnight Boulevard. Improvements to transit service is one of the key justifications for the implementation of HOV measures.	No
Geometric Characteristics	• At-grade intersections reduce the efficiency, usability, and safety of HOV facilities.	No
Public Support	• Public feedback indicated poor support for HOV measures on McKnight Boulevard. • Motorists indicated that due to the purpose/destination of their trips, carpooling was not a viable option.	No
Safety	• HOV measures not expected to reduce the collision risk and may increase it due to driver confusion and additional conflict points.	No

Based on the evaluation, the corridor characteristics are not currently conducive to the implementation of HOV facilities. Therefore, it is not recommended that the implementation of HOV facilities be considered at this time for the following key reasons:

1) There is no supporting HOV network. Therefore, McKnight Boulevard represents a small fraction of most trip lengths and overall travel time savings may not be sufficient enough to encourage a mode shift.

2) The presence of at-grade intersections would result in a discontinuous HOV corridor, increase the number of conflict points and reduce the practicality of the HOV facility.

3) There are no existing or planned bus routes along the corridor. Improving transit service is a key benefit of HOV measures and high occupancy busses would provide significant net travel time savings.

Although HOV measures are not currently recommended for consideration on McKnight Boulevard, the corridor will play a critical role in the longer term HOV network. It is suggested that McKnight Boulevard remain a link in the primary HOV network and that the need for HOV measures be reinvestigated if and when any of the above items are mitigated.

ES 7.0 Phase 3: Interchange Functional Plan

Based on the results of Phase 1 and 2, it was determined that a review of the long-term McKnight Boulevard and 12 Street N.E. Interchange Plan was required for two reasons:

1. The recommended medium-term improvement at the 12 Street N.E. intersection is essentially a first-stage of the longer-term interchange plan for the intersection. Therefore, confirmation of the interchange plan prior to implementing this improvement will avoid substantial throw away costs and unnecessary impacts to surrounding developments and property owners.
2. The optimization improvements are not expected to provide the operational benefits required to negate the need for a future interchange. Therefore, the future interchange plan should be confirmed, such that it can be considered in future infrastructure investment plans.

ES 7.1.1 Pre-Existing and Proposed Interchange Functional Plan

There is a pre-existing interchange functional plan for the McKnight Boulevard and 12 Street N.E. intersection. The plan, which was developed in the 1970s, is for 12 Street N.E. to fly over McKnight Boulevard. Turning movements would be accommodated via right-in/right-out ramps similar to what is proposed in the recommended medium-term improvement option.

Although the general concept of the functional plan is similar to that of the recommended medium-term improvement, there are some deviations:

- The functional plan assumes westbound on and off-ramps will be located at the end of Aviation Road. However, the medium-term option recommends relocating the ramps further east (to 15 Street N.E.) to better accommodate development access and a trap low (storm pond).
- 12 Street N.E. follows a curvilinear horizontal alignment in the functional plan connecting 12 Street N.E. south of McKnight Boulevard with 11 Street N.E. north of McKnight Boulevard. It is assumed that this alignment will be revised to follow the existing alignment of 12 Street N.E., tying in with the existing intersection at 49 Avenue and Aviation

Boulevard. This would avoid significant property impacts on 49 Avenue N.E. and the need for a curvilinear bridge.

The previously developed Interchange Functional Plan for the McKnight Boulevard and 12 Street N.E. intersection was reviewed to determine if it is still appropriate given the changes to the road network, surrounding land uses and traffic volumes in the area. Modifications to the pre-existing interchange functional plan were required to better align with current road and business development and the recommended medium-term improvement.

The conceptual plan and profile of proposed interchange plan are provided in Figure ES 3 and Figure ES 4. The conceptual plan is high level and will require further refinement during the preliminary and detailed design stages. This will include the development of an Access Management Plan as access to several properties will be impacted by the increase in the 12 Street N.E. elevation.

The estimated cost for the long-term interchange plan is $15.1 million. Note that the cost does not include any property acquisition costs required for access management, nor the cost associated with construction of the proposed medium-term option.

ES 7.1.2 Long-Term (2039) Traffic Volumes and Operations

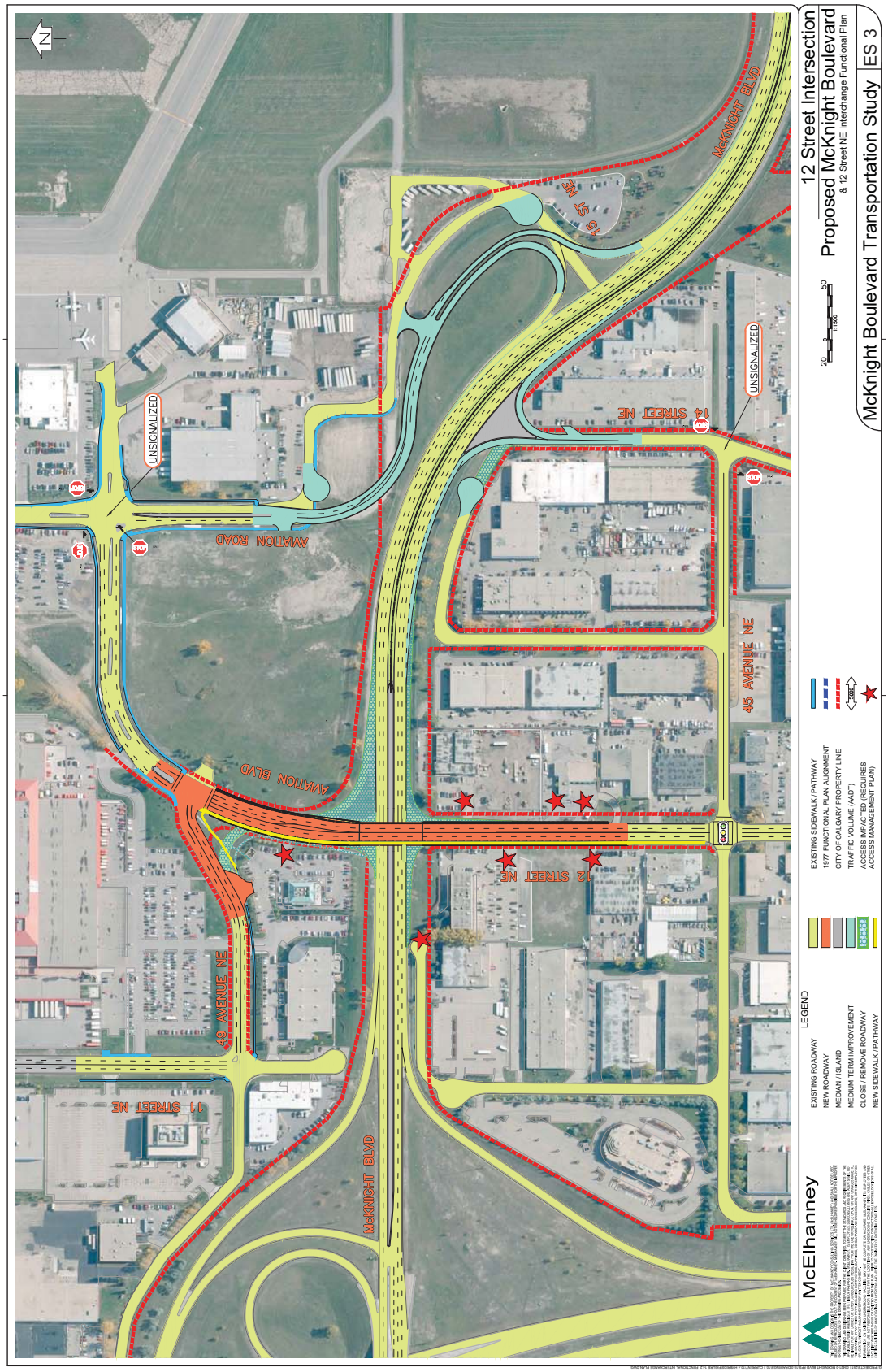
The City of Calgary provided future traffic forecast volumes for the long-term 2039 analysis horizon, which were used as the base volumes from which 2039 future network volumes were developed. The 2039 long-term future horizon traffic volumes were evaluated on the proposed future road network. The results of the analysis indicated that all turning movements at all study intersections are expected to operate well (LOS D or better) at the 2039 horizon in both the AM and PM peak hours, with the exception of the eastbound movement at the intersection of 14 Street and 45 Avenue NE in the PM peak hour, which is expected to operate at LOS F with approximately 59 seconds of delay.

Weave, merge, and diverge analysis was also carried out for the section of McKnight Boulevard between the 12 Street N.E. interchange ramps and the future 19 Street N.E. interchange ramps. Based on the HCS analysis, all of the AM and PM peak hour merge, weave or diverge scenarios are expected to operate adequately.

ES 7.1.3 Necessary Improvements

Based on the intersection analysis carried out for the proposed 2039 future network, no major improvement measures are expected to be required, with the exception of the eastbound approach of the 45 Avenue and 14 Street N.E. intersection.

Improvements to this intersection could include signalization or conversion to a roundabout. Traffic signalization was tested at this intersection and the results show that the intersection could be improved to an overall LOS B, with the eastbound approach also improving to LOS B during both peak hours.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12 Street Intersection
Proposed McKnight Boulevard
& 12 Street NE Interchange Functional Plan
McKnight Boulevard Transportation Study
ES 3
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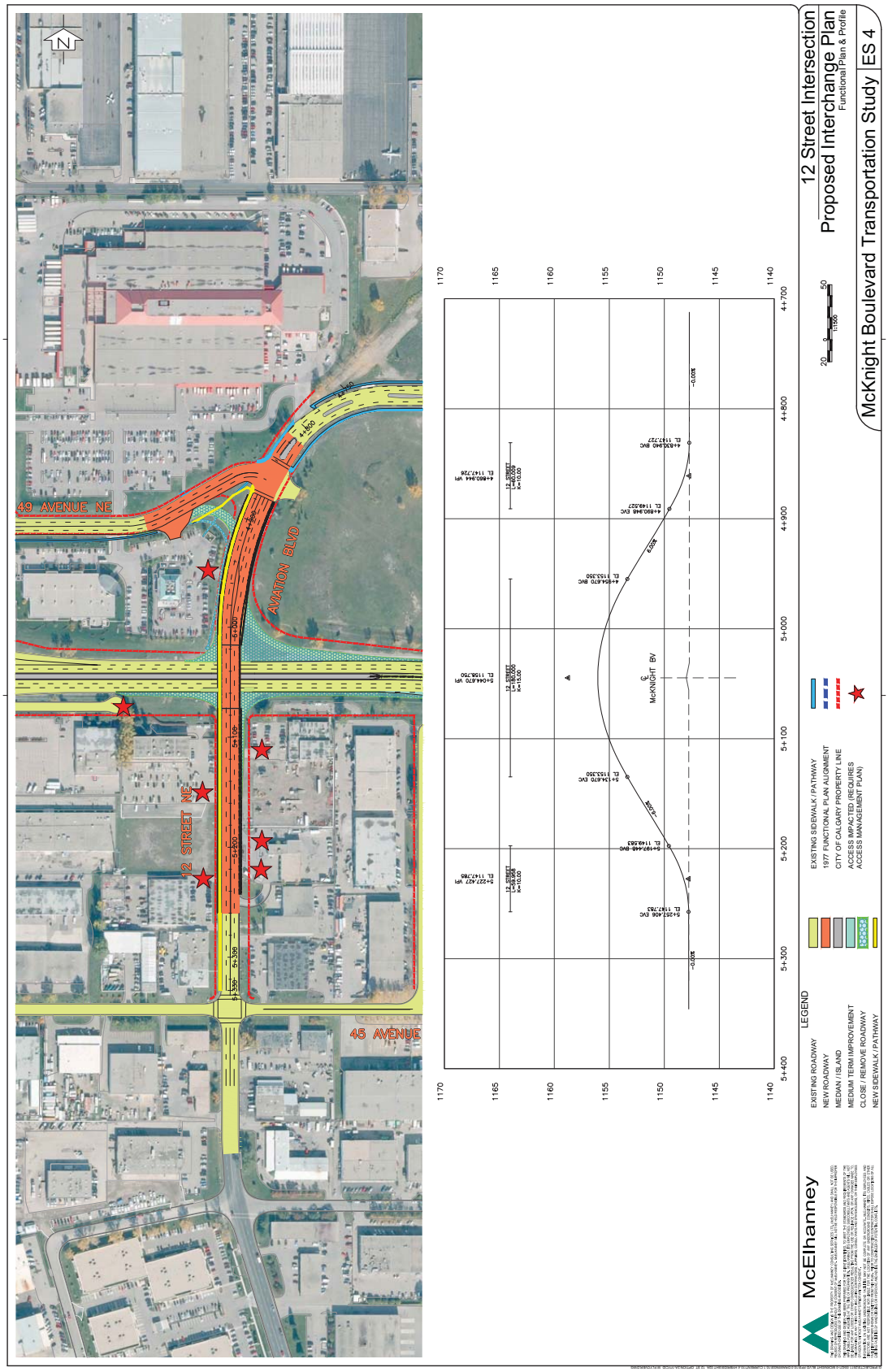
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49 AVENUE NE
AVIATION BLVD
12 STREET NE
45 AVENUE
McKNIGHT BV

ES 8.0 Engagement Process Summary

The McKnight Blvd Transportation Study was one of the first projects implemented using The City's new *Transportation Corridor Study Guidelines and Policy*. The objectives of these documents are to involve stakeholders early in the project process, incorporate their input at key points throughout, and report back to stakeholders on how their input was integrated, or explain why not.

At the onset of the project, approximately 170 primary and secondary stakeholders were identified including surrounding businesses and institutions, community associations and interest groups. Throughout the project, a distribution list was established to provide project updates to those who signed up throughout the engagement process. After the final public open house, the distribution list totaled 142 people. During the development, evaluation and refinement process, 294 people participated in a meeting, workshop or public open house, and a total of 374 feedback forms were collected (in person and online).

In December 2013 and January 2014 during the *Information Gathering & Assessment* phase, the project team undertook the following engagement events: *Internal Stakeholder Meeting #1, External Stakeholder Meeting, Public Open Houses #1 and #2, N.E. Presidents Meeting #1, Falcon Ridge Community Forum #1, and the Advisory Group Meeting #1.* The objectives of the initial engagement sessions were to inform stakeholders and the public of the project, present a summary of the existing conditions, identify concerns and desired improvements, and identify the evaluation criteria that was most important to the stakeholders/public. Individuals that would be interested in joining a Citizen Advisory Group to work collaboratively with the project team throughout the course of the project were also established.

During the Information Gathering & Assessment phase of the public engagement process, stakeholders and the community identified the issues and concerns with the corridor. Five conceptual options for the 12 Street NE intersection, two for 19 Street and three for Barlow Trail were then developed in collaboration with public and stakeholders through further engagement activities, including: *Internal Stakeholder Meeting #2, Advisory Group Workshop, Advisory Group Meeting #2, Public Open House #3, Falcon Ridge Community Forum #2, N.E. Presidents Meeting #2, and through Landowner Engagement.*

In order to evaluate and compare the various options developed, an evaluation matrix was used. The purpose of an evaluation matrix is to provide a fair, unbiased, and objective means of comparing alternate options. In addition to The City of Calgary feedback, the public and stakeholders also provided input on what criteria was most important to them for comparison in the evaluation matrix. Combining the feedback received from both groups, a total of nine major criteria categories were identified. As a part of the Advisory Group collaboration process (*Advisory Group Meeting #3*), the evaluation criterion and weightings were discussed and confirmed with the group prior to the development of options in an effort to avoid any bias that could occur to favour a particular option(s) over others.

With the selection of the recommended options, the last step in the process was to report back to stakeholders and the public. An *Online Information Session* and two live chat events which were held to share the study recommendations and to provide an opportunity for a two-way dialogue. Participants were asked to review a slide show that described the engagement process and shared the recommended plans. They could provide comments about the recommendations and evaluate the engagement process via an online form over a two-week period. During that time, 40 online comment forms were collected and www.calgary.ca/mcknight was viewed 839 times. When asked if the recommendations would help alleviate traffic concerns, 78 per cent of respondents agreed. When asked about the public engagement process, 64 per cent of respondents said they had enough opportunity to provide input and 78 per cent indicated the information provided met their needs.

Another event in the report back phase was a *Presentation to Calgary Airport Business Association (CABA).* With the recommended medium-term option selected, further *Consultation with Impacted Landowners* was required to further refine the option. This included the Calgary International Airport on the north side of McKnight Boulevard, and Dream Industrial to the South.

An *Advisory Group Survey* was conducted for members of the Advisory Group to evaluate the group's effectiveness as a public engagement tactic, the value they found in the process and how it might be changed for future Advisory Groups.

The last engagement activity was to provide a *Final Website Update* of the study recommendations on the project website. The purpose of this update was to inform stakeholders and the public of the work that had been completed since the Online Information Session. This included minor changes to the recommended medium-term option, as well as an update on the Interchange Functional Plan at the McKnight Boulevard and 12 Street N.E. intersection.

In all, the project team held numerous stakeholder meetings, three Advisory Group meetings, three public open houses and an online information session. The engagement approach to this project was enhanced by undertaking the following:

- Seeking input on the transportation issues/needs and evaluation criteria *before* options were developed
- Forming a Citizen Advisory Group
- Choosing engagement locations to make it easy for likely road users to participate
- Using technology by establishing an online forum and using keypad polling for real-time engagement results
- Holding an online information session to communicate the recommendations and evaluate the engagement process

ES 9.0 Conclusion

Detailed recommendations for short, medium and longer term improvements have been documented in this report. A summary of the key recommendations is provided as follows:

- McKnight Boulevard should be widened to a continuous 6-lane cross section from Deerfoot Trail to Barlow Trail in the short term.
- The recommended medium-term improvement at the intersection of McKnight Boulevard and 12 Street N.E. is to relocate left-turn movements to right-in/right-out ramps located east of 12 Street N.E.
- The long-term interchange plan for the McKnight Boulevard and 12 Street N.E. intersection is for 12 Street N.E. to fly over McKnight Boulevard with turning movements being accommodated via the right-in/right-out ramps discussed in the point above.
- Improvements at the 19 Street N.E. and Barlow Trail intersections are not recommended at this time other than minor geometric and signal timing improvements. Operations should be monitored once the 6-lane cross section is fully operational along McKnight Boulevard.
- The existing characteristics of the McKnight Boulevard are not conducive to the provision of HOV facilities. Therefore, they are not recommended at this time, but could be re-evaluated in the future.
- The posted sped limit on McKnight Boulevard currently alternates between 80 km/h and 70 km/h in both directions between Deerfoot Trail and Stoney Trail. The inconsistent speed limit could result in motorist confusion and poor speed limit compliance. Efforts should be made to improve speed limit consistency along the corridor.
- Sidewalks are not currently provided on 12 Street or 19 Street N.E. although pedestrian demand is evident. Sidewalks should be considered as a part of any future road improvements along these corridors.
- There is a clear demand for bicycle facilities along McKnight Boulevard. This is due to the constraints imposed by the airport and McCall Lake golf course which limit alternative east-west routes in the area. Although accommodating active modes is not a priority function of skeletal roadways, McKnight Boulevard may need to be an exception. A multi-use pathway along the south side of the roadway is planned in conjunction with the road widening.