

McKnight Boulevard Transportation Study

Welcome

Please join us, review the boards and share your thoughts.
Our team can help answer your questions.

Today's Objectives:

- 1) Provide an update on the status and findings of the project.
- 2) Gather public feedback on the preferred options for Phase 1 (Optimization) for consideration during the evaluation process.
- 3) Present the findings of Phase 2 (High Occupancy Vehicle Needs Assessment).



Study Purpose

McKnight Boulevard
Transportation Study

Identify opportunities to:

1. Improve traffic and people flow along and across McKnight Boulevard.
2. Reduce travel times for all modes and users (motorists, pedestrians, cyclists and transit).
3. Reduce the frequency and severity of collisions.

We will accomplish this through three study phases.

Optimization Phase 1 (current)

Identify low cost, innovative, short-term solutions to optimize existing infrastructure, as well as improve connectivity and active transportation modes from 12 Street N.E. to Barlow Trail.

High Occupancy Vehicle (HOV) Phase 2 (current)

Determine the feasibility of High Occupancy Vehicle (HOV) lanes on McKnight Boulevard between Deerfoot Trail and Stoney Trail.

Interchange Functional Plan Phase 3 (if required)

If the Phase 1 options for the McKnight Boulevard and 12 Street N.E. intersection do not adequately improve traffic operations, a longer-term interchange design will be prepared, including property requirements, estimated costs and construction staging.

Evaluation Criteria

McKnight Boulevard
Transportation Study

The options presented on the following boards are the ***Preferred Options***.

Evaluation Criteria developed using public input from previous phases of the study will be used to assess each option.

A ***Recommended Option*** for each intersection will be selected based on the evaluation results and with consideration of public feedback.

Evaluation Criteria	Sub-Criteria
Travel Times	<ul style="list-style-type: none"> • McKnight Boulevard • Cross Streets
Traffic Safety	<ul style="list-style-type: none"> • Collision Risk
Transportation System	<ul style="list-style-type: none"> • Goods Movement • Community Connectivity • Future Expandability
Environmental Impact	<ul style="list-style-type: none"> • Greenhouse Gas Emissions • Land Impacts
Surrounding Development	<ul style="list-style-type: none"> • Property Impacts • Business Access • Development / Redevelopment
Urban Character / Aesthetics	<ul style="list-style-type: none"> • Visual Appeal
Construction	<ul style="list-style-type: none"> • Roadwork Costs • Utilities • Maintenance Costs • Construction Staging
Sustainable Modes	<ul style="list-style-type: none"> • Pedestrian Accommodation • Cyclist Accommodation • Transit Supportive • High Occupancy Vehicles (2+ Occupants)
Emergency Response	<ul style="list-style-type: none"> • Emergency Access • Disaster Evacuation

Study Process

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Transportation Study

PHASE 1 Information Gathering & Assessment

November to December 2013 - The project team met with City departments, and business and property owners to identify issues, constraints and desired improvements for the study to consider.

January 2014 - Public open houses and online feedback. Formation of Advisory Group consisting of stakeholders and citizens.

PHASE 2 Develop & Refine Options

February to May 2014 - Technical analysis: Project team developed and refined design concepts while considering input gathered from stakeholders to date.

June 10, 2014 - Advisory Group workshop: Participants reviewed and discussed preliminary options. Input was used to select concepts for further development.

June to September 2014 - Option refinement: Refined options based on input from the Advisory Group workshop.

PHASE 3 Select Preferred Plan

September 30, 2014 - Advisory Group and stakeholder meeting: Participants met to confirm options and materials for today's open house.

October 18, 2014 (Today) - Public open house: Gather input on options so project team and Advisory Group can evaluate, select and refine the recommended option.

Next Steps

October to November 2014 - Evaluation of options: Project team will conduct a technical evaluation of the options, while considering the input from the Advisory Group, stakeholders and general public.

Date to be determined - Advisory Group meeting: Project team will present the results of the evaluation and gather feedback from the Advisory Group on the recommended option.

PHASE 4 Reporting back & Next Steps

Date to be determined - Public information session to present the recommended option, report on how public input was used and complete the study. Study recommendations will be presented to the Committee on Transportation and Transit before proceeding to Council for decision.

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Public Engagement Highlights

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Transportation Study

December 2013 - External stakeholder meeting

22 Stakeholders attended **32%** Identified reduced travel time as a priority **80%** Don't believe HOV lanes are a good fit

January 2014 - Public open houses and online feedback

2 Public open houses **124** Approximate attendees **13** Written feedback forms submitted **255** Online feedback forms submitted

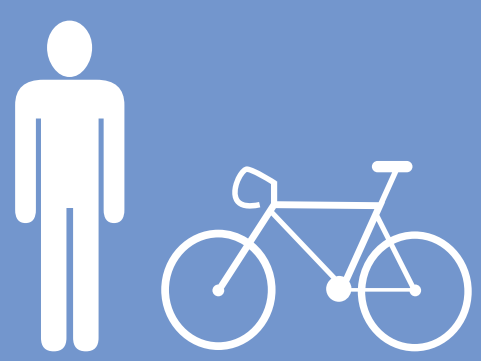
Citizens rated each evaluation criteria by importance

High importance

- ▲ Reduced/improved travel times
- ▲ Traffic safety
- ▲ Emergency access

Low importance

- ▼ Property impacts
- ▼ Carpooling
- ▼ Urban aesthetics



78%
Identified a need for pedestrian/cyclist accommodation



197
Comments on the poor road condition of McKnight Boulevard.

June 10, 2014 - Stakeholder and Advisory Group Workshop

Participants reviewed and discussed preliminary options. Input was used to select concepts for further development.

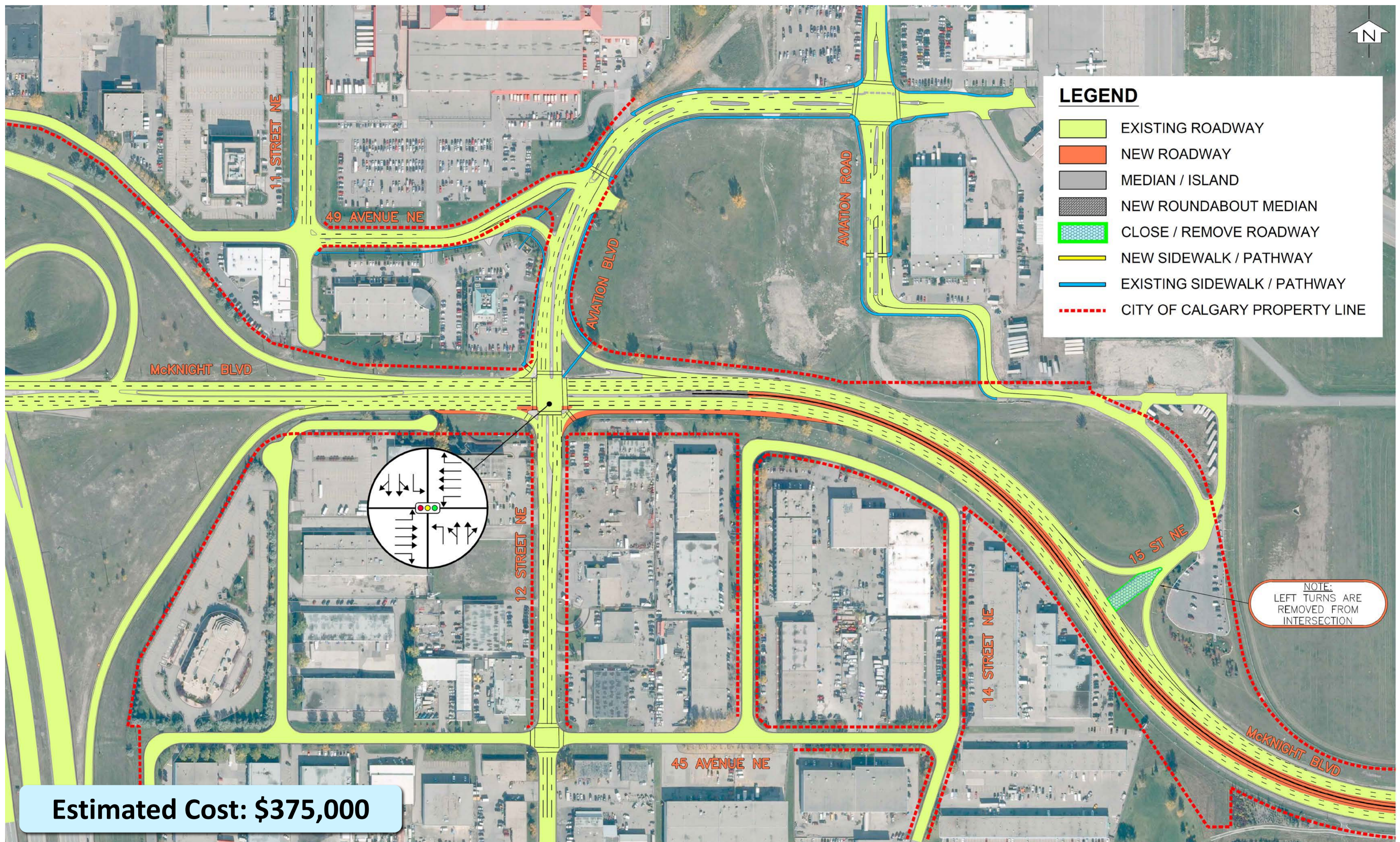
17 Advisory Group members attended **11** Potential options presented and discussed **2** Options developed by the Advisory Group

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12 Street N.E. Intersection

Option A (McKnight Widening Only)

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Transportation Study



Estimated Cost: \$375,000

Pros

- Low cost improvement – funding secured and planned for construction in 2015.
- Notable improvements to eastbound and westbound movements compared to existing conditions.
- No impacts to adjacent properties or driveways.
- Typical intersection layout makes wayfinding easy.
- Removal of left-turns at 15 Street improves safety and traffic operations.
- Minimal disruption to traffic during construction.
- Preserves the compatibility of the intersection with longer-term interchange plans.

Cons

- Widening does not improve cross-street operations.
- Split signal phasing for northbound/southbound left-turns is not removed.
- Weaving issues with traffic to/from Deerfoot Trail ramps increase with additional lanes.
- Traffic operations may deteriorate with future increases in traffic volumes.

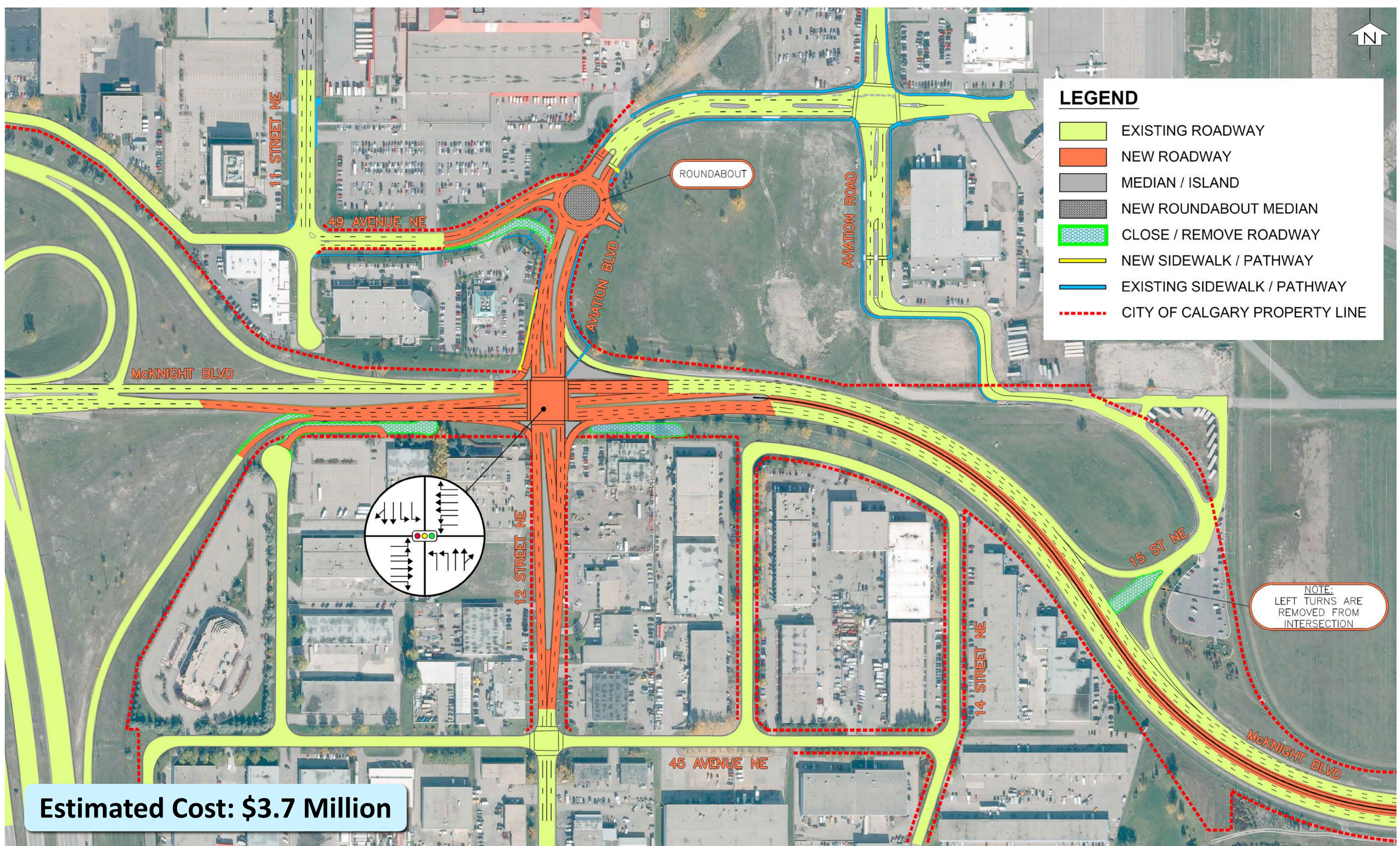
Forecasted Change in Travel Times Compared to Existing Conditions (seconds)

Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	+3	-81	0	-29	-24	-3	+10	+5	+5	+11	-11	-11
Afternoon Peak	+67	-59	-2	-82	-90	-22	+61	+34	+34	+147	+78	+78

12 Street N.E. Intersection

Option B (Dual Left-Turns)

McKnight Boulevard
Transportation Study



Pros

- Reduced delays for all movements, some substantially improved.
- Typical intersection layout makes wayfinding easy.
- No re-routing required.
- No changes to surrounding road network.
- Removal of left-turns at 15 Street improves safety and traffic operations.

Cons

- High construction cost.
- Does not improve weave between Deerfoot Trail and 12 Street.
- Large intersection not desirable for pedestrians and cyclists.
- Some minor property acquisition required.
- Some driveways require relocation, access limitations south of McKnight Blvd.
- Construction more disruptive to traffic compared to other options.

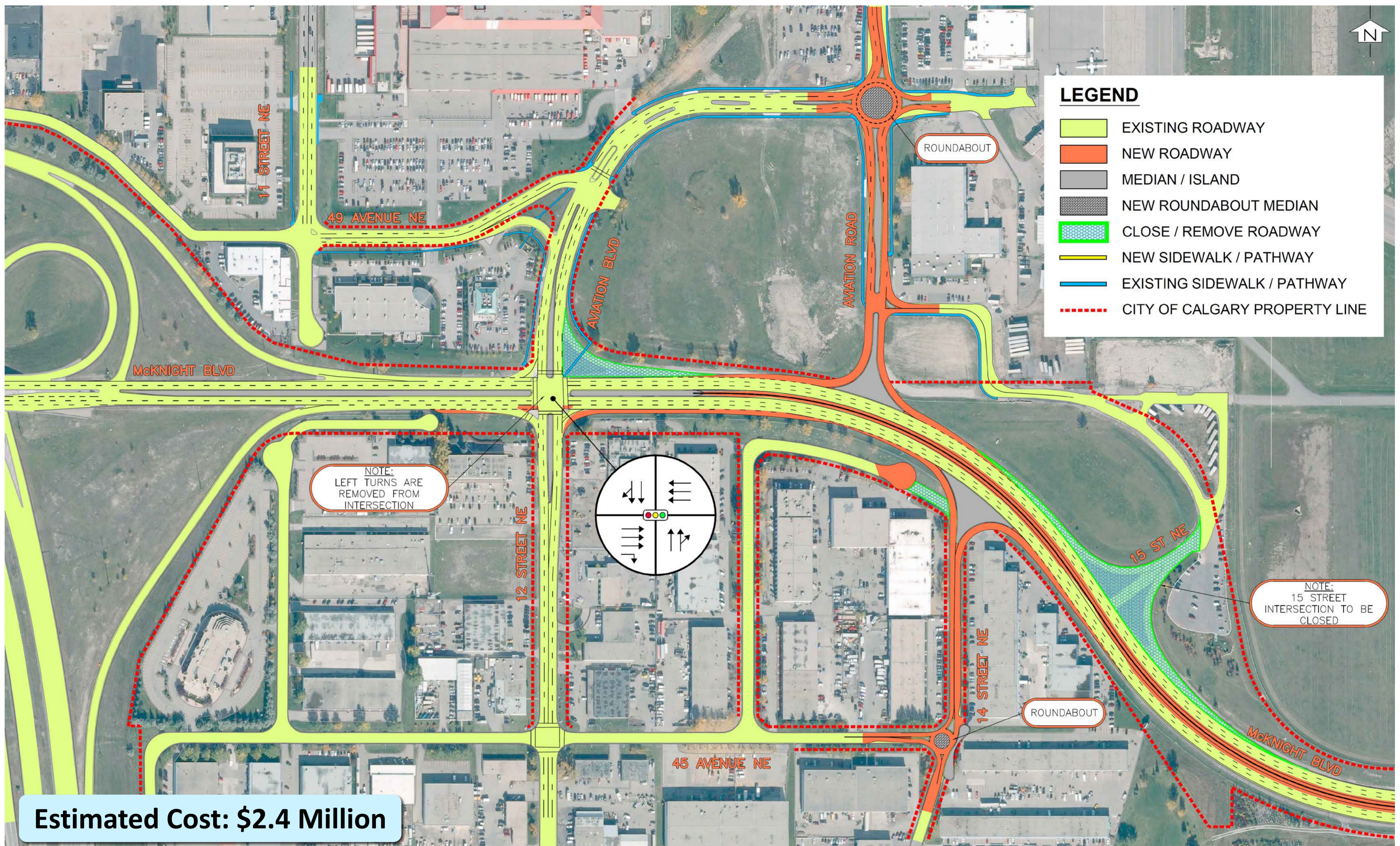
Forecasted Change in Travel Times Compared to Existing Conditions (seconds)

Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	-26	-90	-2	-73	-27	-2	-4	-5	-5	-42	-47	-47
Afternoon Peak	-96	-56	-3	-99	-79	-26	-57	-8	-8	-77	-46	-46

12 Street N.E. Intersection

Option C (Right-In/Right-Out)

McKnight Boulevard
Transportation Study



Pros

- Moderate construction costs.
- Significant operational improvements at McKnight Boulevard / 12 Street intersection.
- Removal of weaving between Deerfoot Trail and 12 Street.
- Pedestrian crossings are improved with removal of left-turns.
- Minor impacts to property access.
- Compatible with longer-term interchange plans.
- Removal of 15 Street intersection improves safety and traffic operations.

Cons

- Re-routing required for all left-turns (wayfinding may not be intuitive).
- Additional traffic added to surrounding road network, potential restrictions to on-street parking.
- Potential for (intentional or unintentional) left-turns at McKnight Blvd. / 12 Street intersection.
- Future pathway would cross right-turn ramps.
- Potential utility conflicts with extension of Aviation Road.
- Moderate property acquisition required.

Forecasted Change in Travel Times Compared to Existing Conditions (seconds)

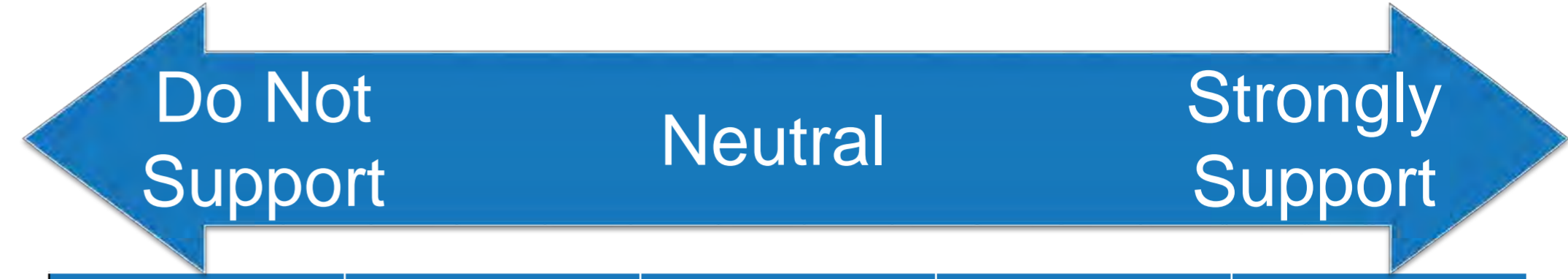
Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	+44	-101	+1	-50	-25	+20	+38	-39	-39	+11	-56	-73
Afternoon Peak	-4	-77	-2	-41	-114	-7	+33	-16	-16	-15	-48	-44

12 Street N.E. Intersection Option Dotmocracy

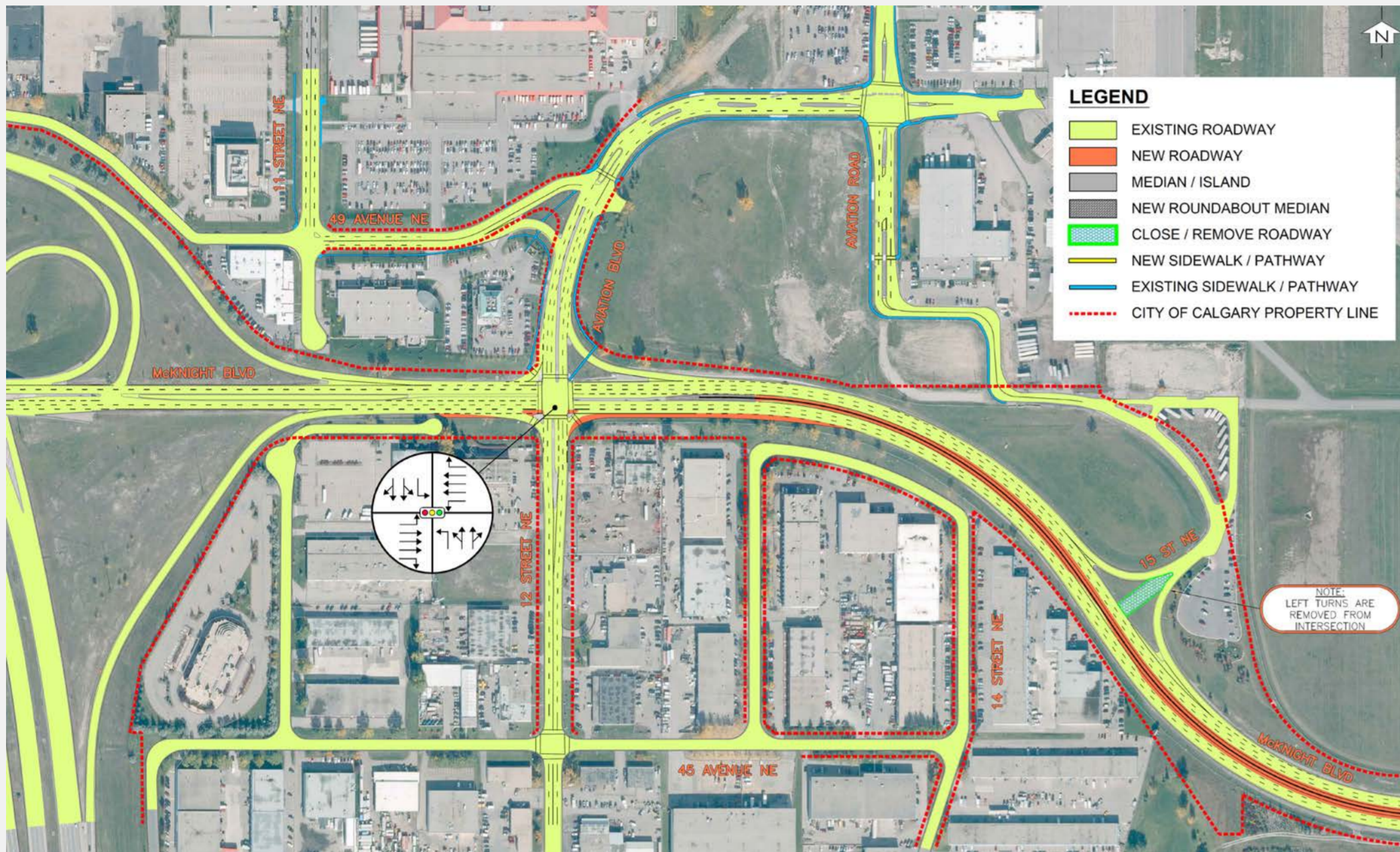
McKnight Boulevard
Transportation Study

On a scale of 1 to 5 how do you rate each option? Please use the dots provided.

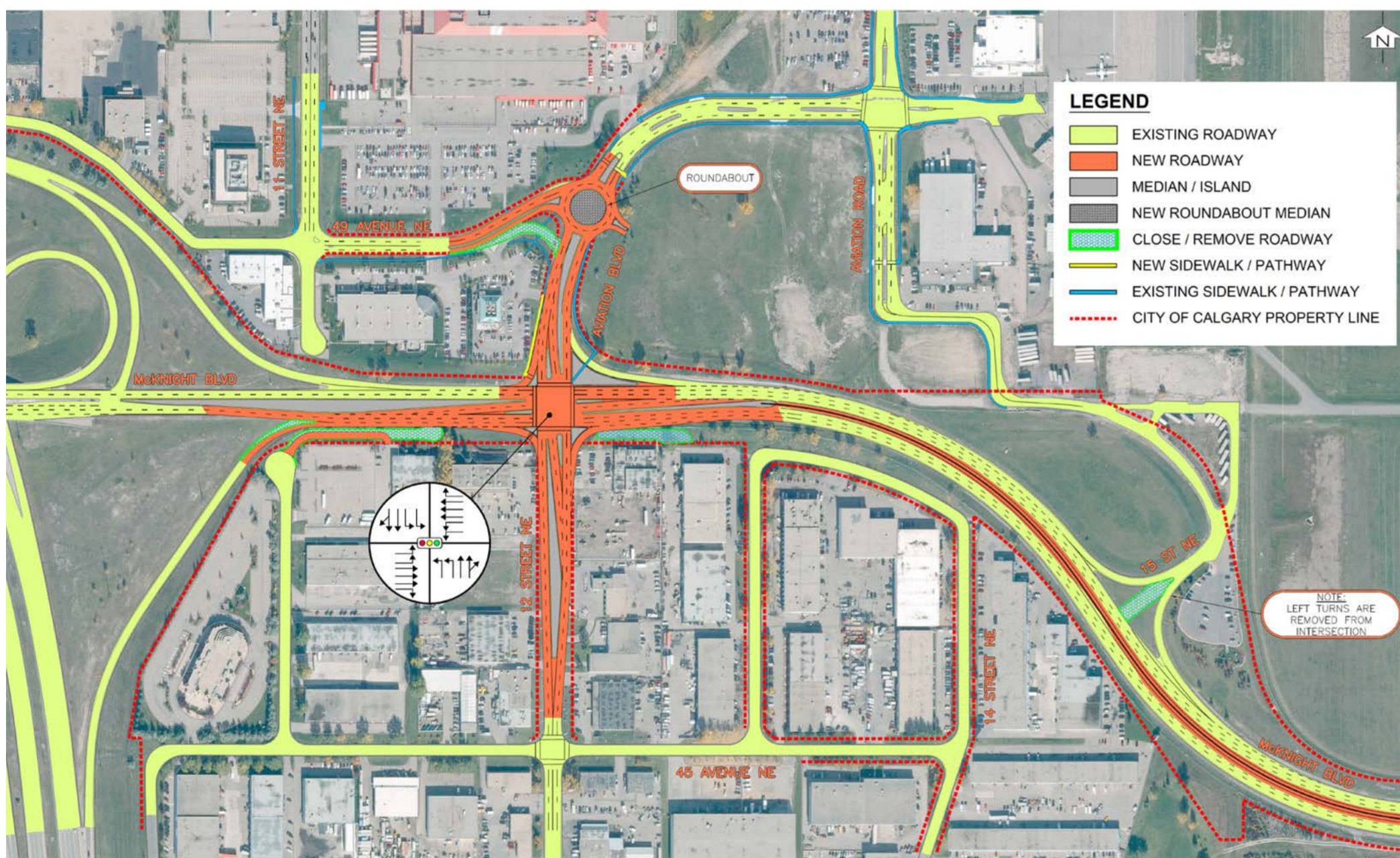
Important: Please tell us why on the feedback forms provided.



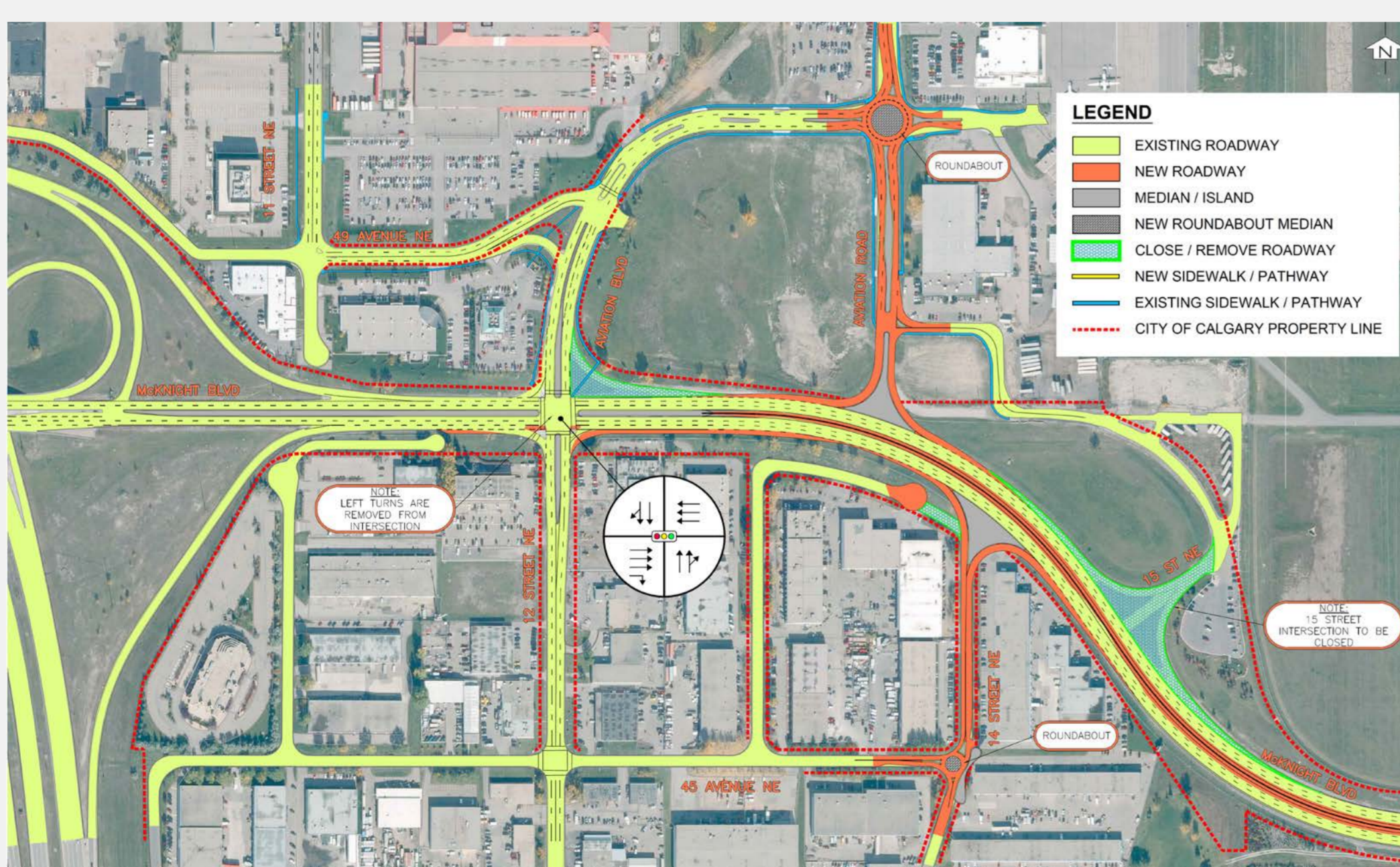
Option A - Widening Only



Option B - Dual Left Turns



Option C - Right-In/Right-Out

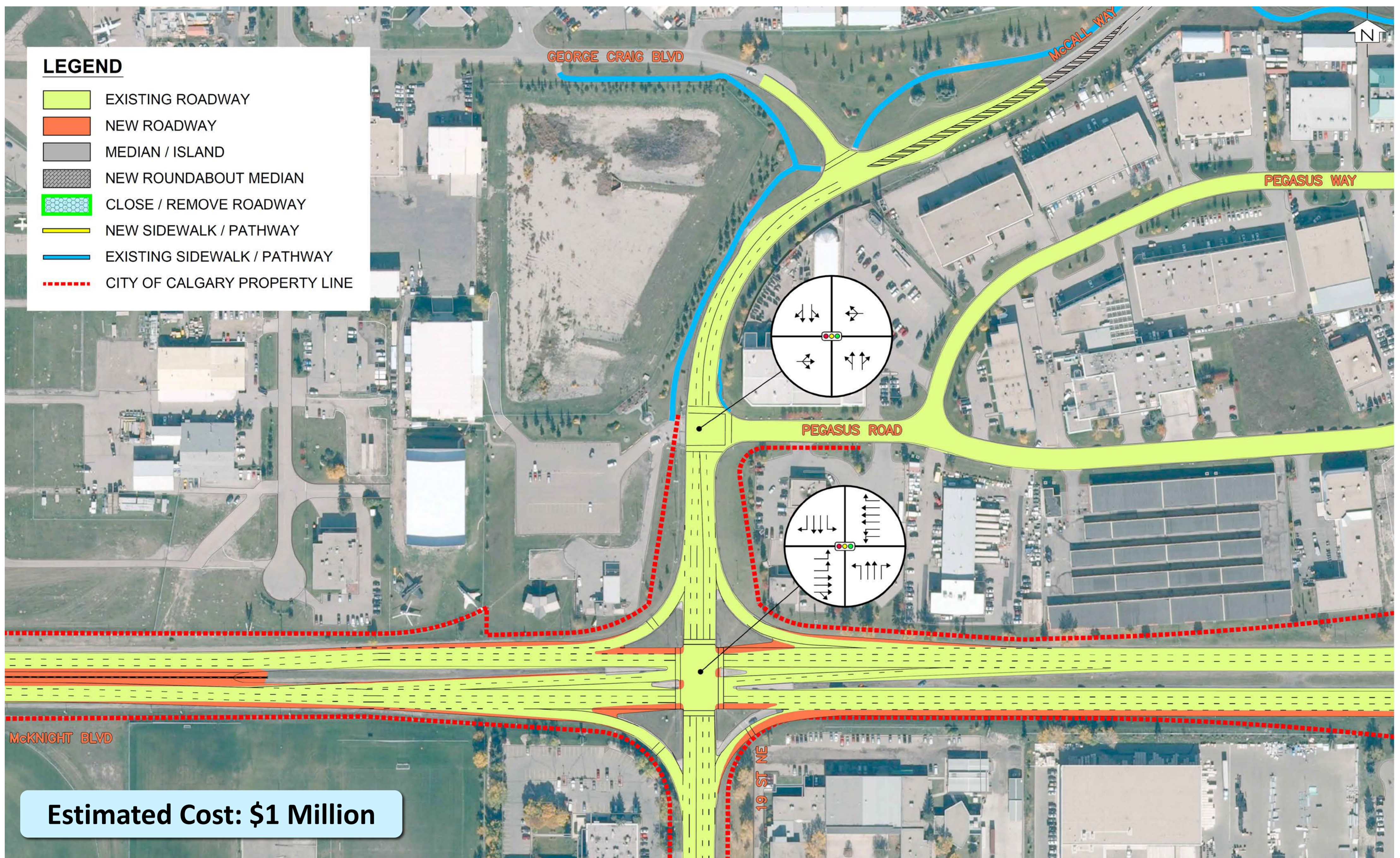


1	2	3	4	5

19 Street N.E. Intersection

Option A (McKnight Widening Only)

McKnight Boulevard
Transportation Study



Pros

- Low cost improvement – funding secured and planned for construction in 2015.
- Notable improvements to eastbound left-turn and through movements on McKnight Blvd.
- No impacts to adjacent properties or driveways.
- Typical intersection layout makes wayfinding easy.
- Existing right-turn lanes could also be extended to bypass traffic queues.

Cons

- Widening does not improve operations on 19 Street approaches with the exception of the southbound right-turn.
- Does not address operational issues at McCall Way / Pegasus Road intersection.

Forecasted Change in Travel Times Compared to Existing Conditions (seconds)

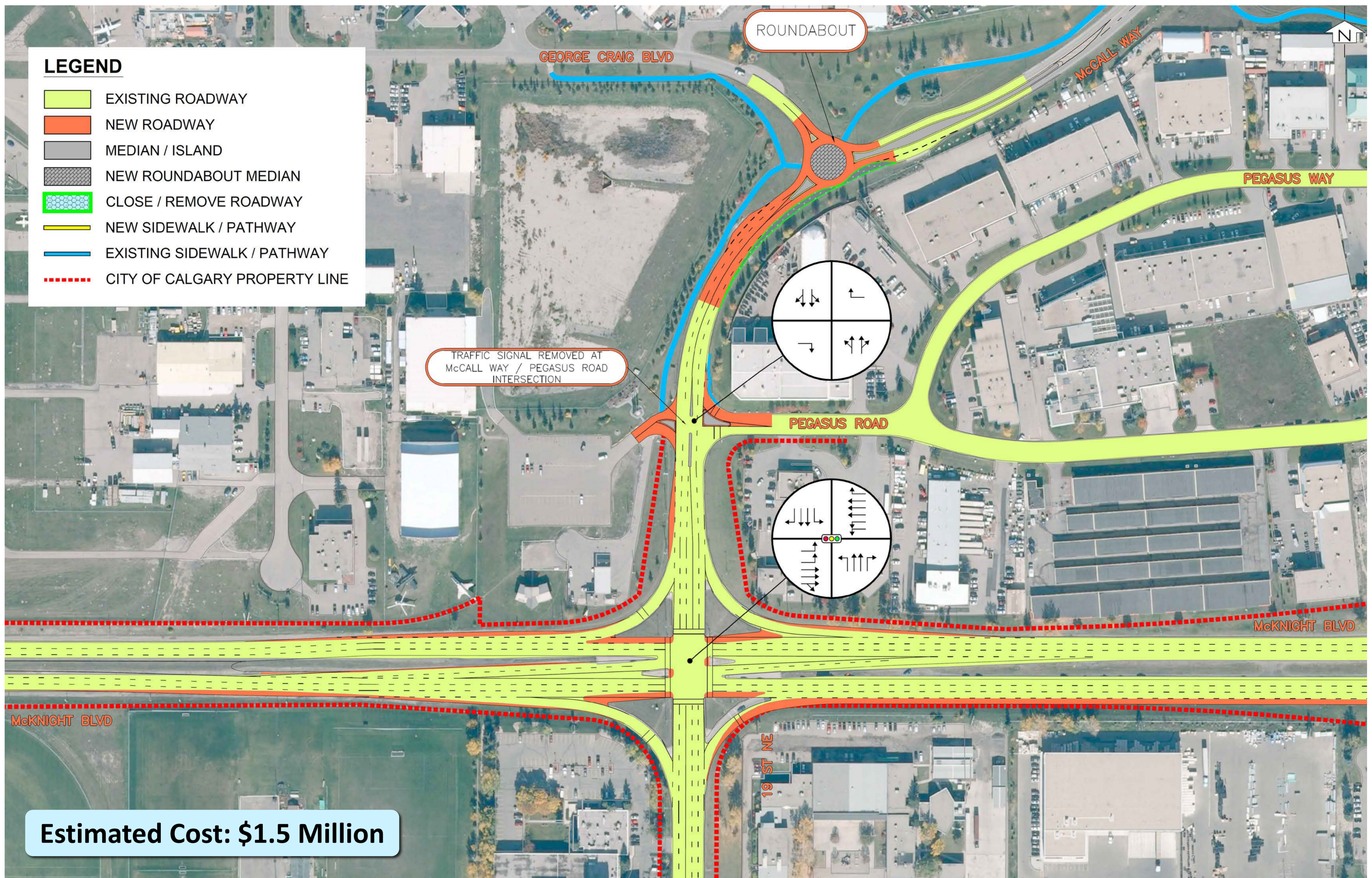
Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	-36	-9	+7	+3	-33	0	+7	+6	0	+6	+8	-20
Afternoon Peak	-140	-48	+12	-6	-65	+1	-2	+12	-8	+5	+20	-408

*19 Street and McKnight Boulevard Intersection

19 Street N.E. Intersection

Option B (Pegasus Road Improvements)

McKnight Boulevard Transportation Study



Pros

- Construction costs are low (cost of widening included in estimated cost).
- No additional property is required.
- Significant operational improvements to McCall Way / Pegasus Road intersection.
- Removal of closely spaced signalized intersections on McCall Way.
- Incorporates widening of McKnight Boulevard (Option A).

Cons

- Re-routing required for left-turns from Pegasus Road to McCall Way.
- Wayfinding may not be intuitive.
- Pedestrian crossings of McCall Way no longer signalized.

Forecasted Change in Travel Times Compared to Existing Conditions* (seconds)

Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	N/A	N/A	-4	+15	-12	-28	+5	-12	-12	-13	-13	-14
Afternoon Peak	N/A	N/A	+9	+17	-10	-20	+3	-7	-10	-18	-18	-18

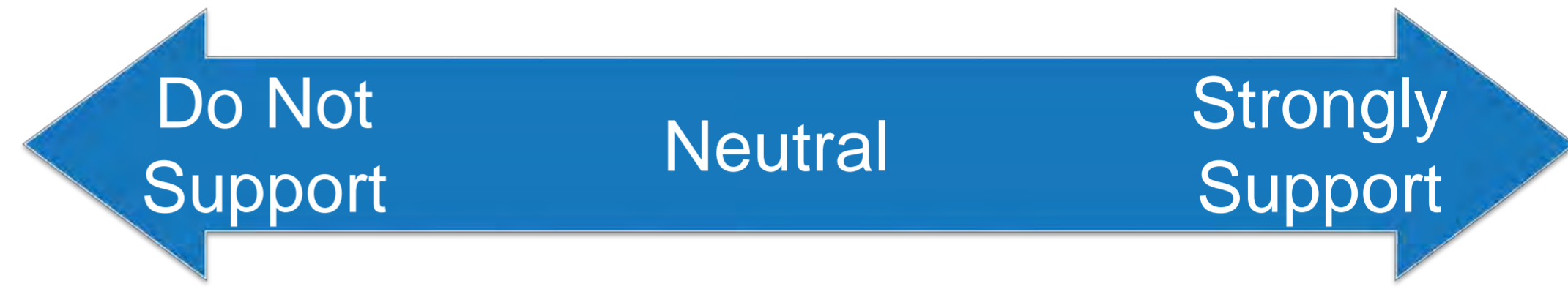
*Pegasus Road & McCall Way Intersection

19 Street N.E. Intersection Option Dotmocracy

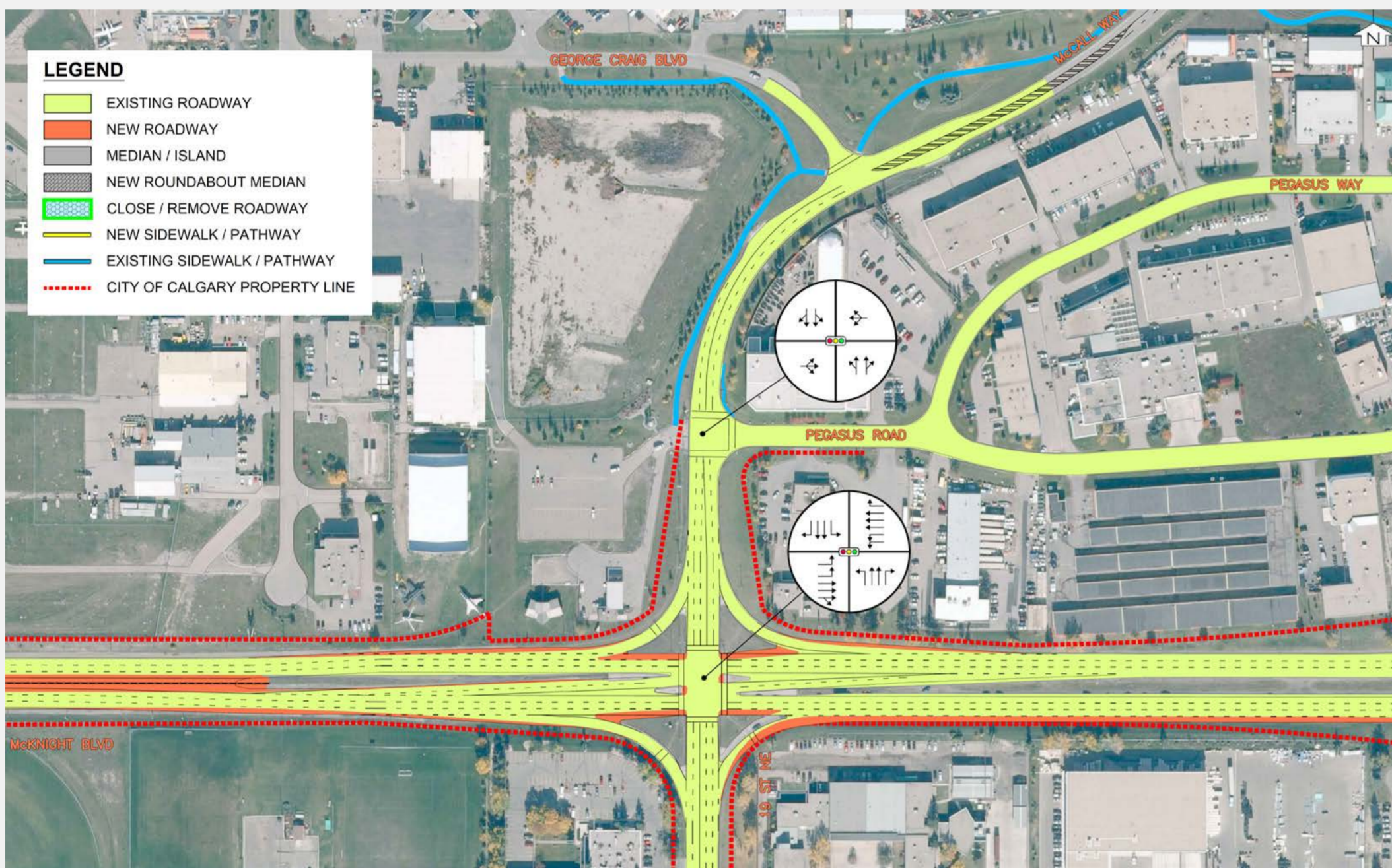
McKnight Boulevard
Transportation Study

On a scale of 1 to 5 how do you rate each option? Please use the dots provided.

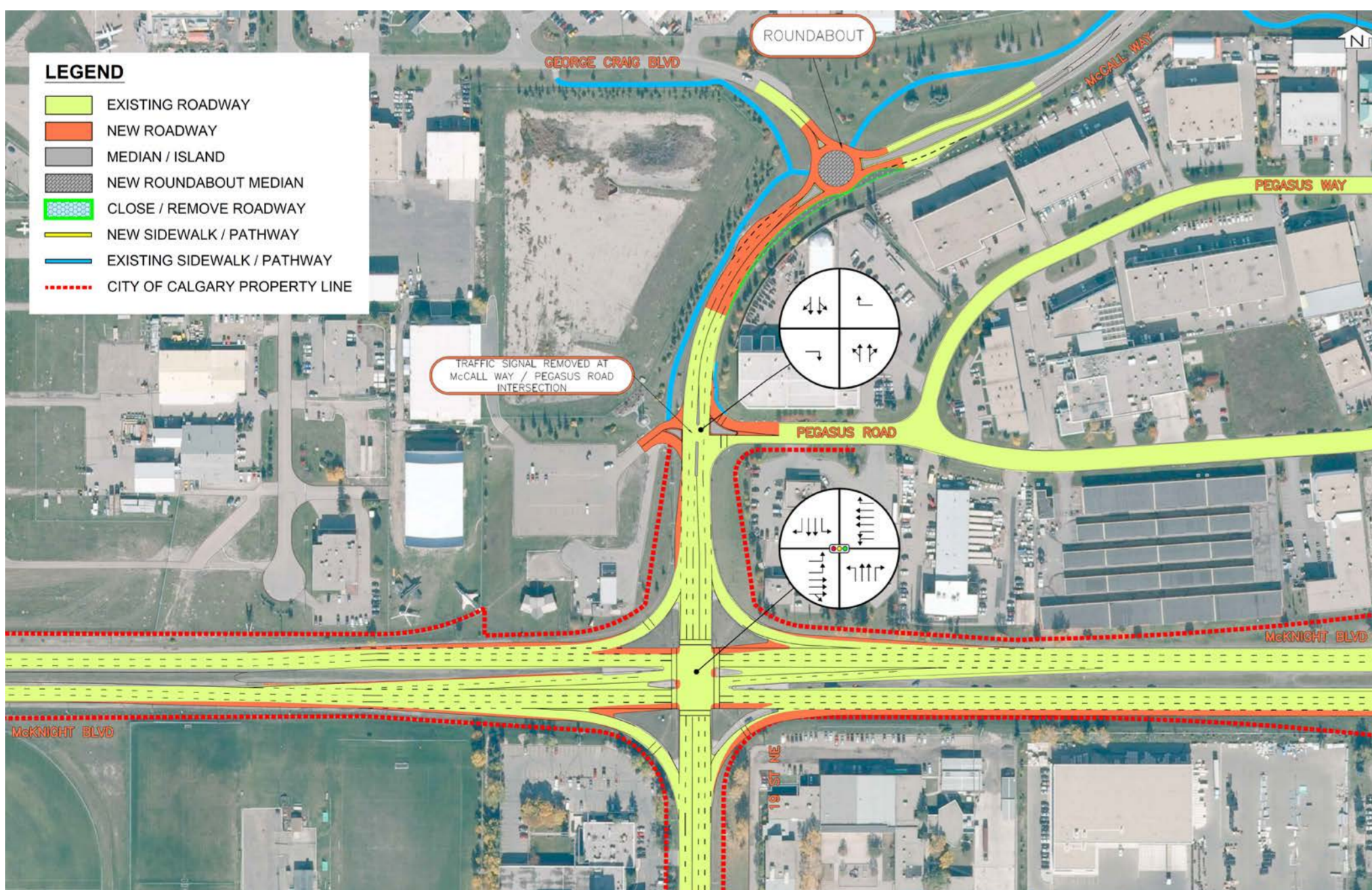
Important: Please tell us why on the feedback forms provided.



Option A – McKnight Widening Only



Option B – Pegasus Road Improvements

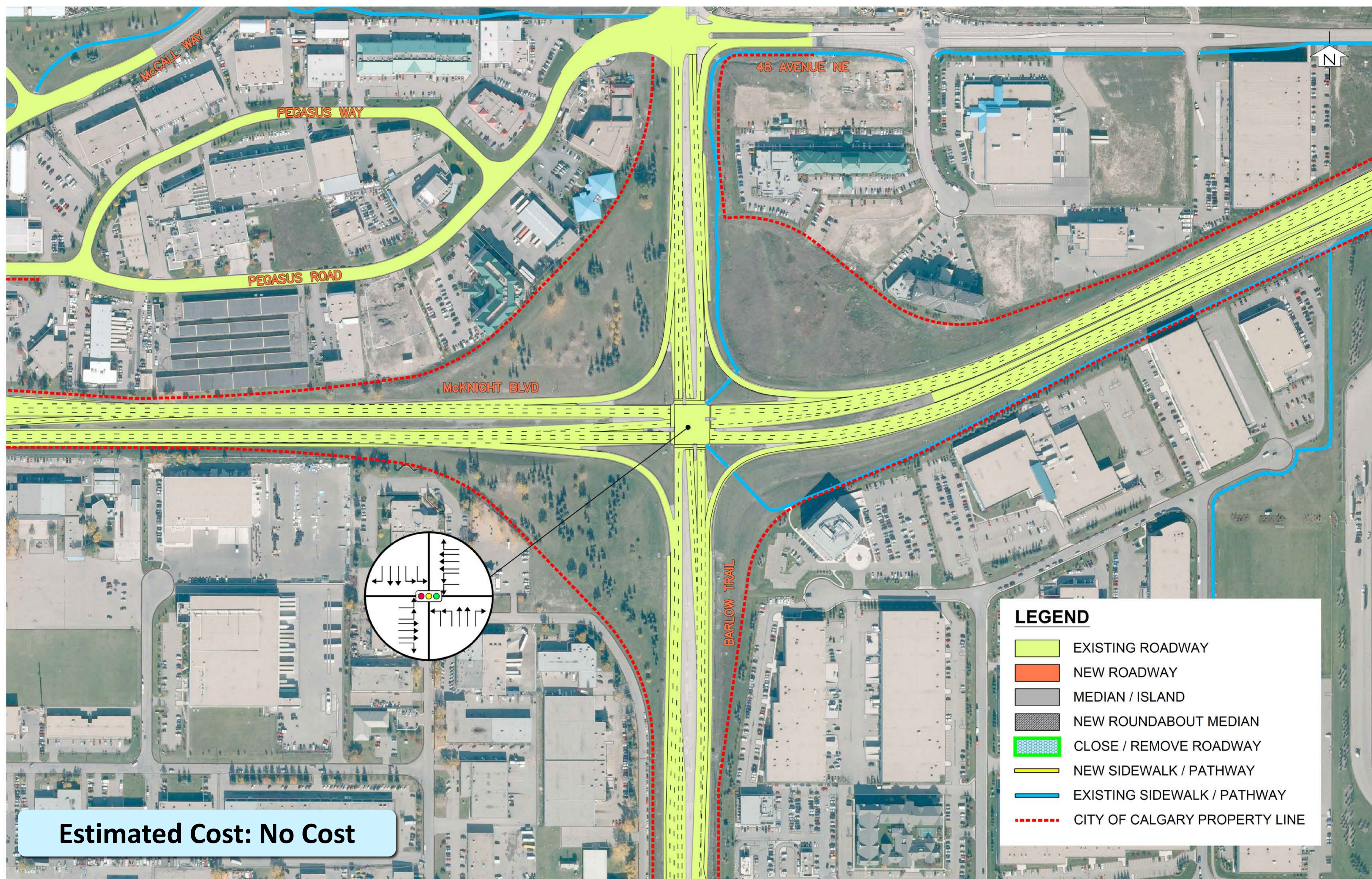


	1	2	3	4	5
Option A – McKnight Widening Only					
Option B – Pegasus Road Improvements					

Barlow Trail N.E. Intersection

Option A (Do Nothing)

McKnight Boulevard
Transportation Study



Pros

- No cost.
- No impacts to properties, accesses or utilities.
- No impacts to adjacent properties or driveways.
- Typical intersection layout makes wayfinding easy.
- No additional intersections required.

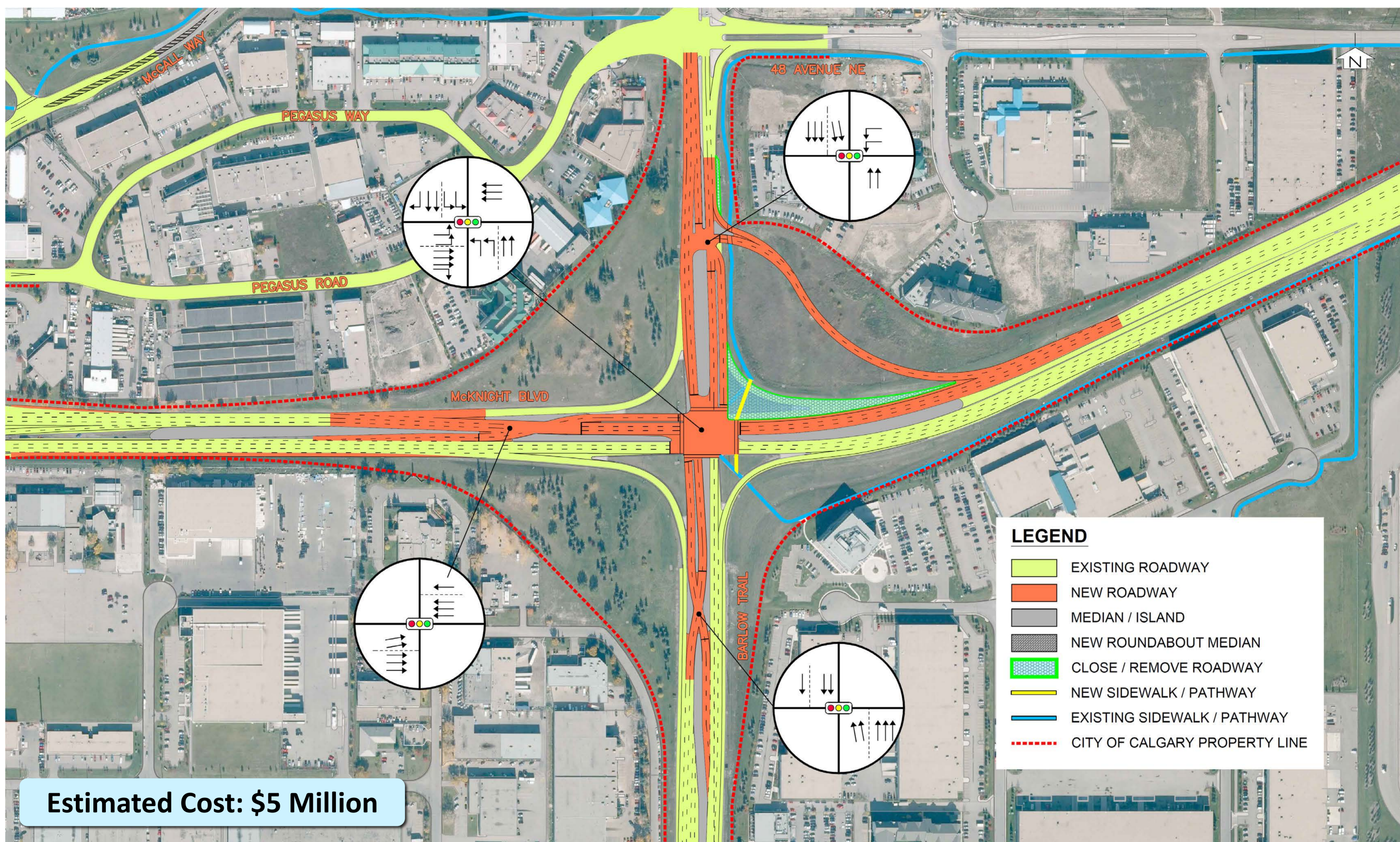
Cons

- Existing levels of delay and congestion remain.
- Traffic operations may deteriorate with future increases in traffic volumes.
- Implementation of an interchange would be dependent on Council prioritization and funding.

Barlow Trail N.E. Intersection

Option B (Continuous Flow Intersection)

McKnight Boulevard
Transportation Study



Pros

- No additional property required.
- Substantial improvements to westbound and northbound left-turn movements during the afternoon peak hour.
- Removes westbound weave between 36 Street and left-turn at Barlow Trail.
- Higher construction costs, but further delays the even higher cost of an interchange.

Cons

- High cost improvement.
- Potential for (intentional or unintentional) left-turns at main intersection.
- Potential driver confusion at cross-over intersections (wrong-way into left-turn lanes).
- Pedestrian challenges due to concurrent through and left-turn movements.
- Three new signalized intersections required.
- Major disruptions during construction.
- Weaving issues may occur between cross-over intersections and surrounding intersections (39 Avenue and 48 Avenue).

Forecasted Change in Travel Times Compared to Existing Conditions (seconds)

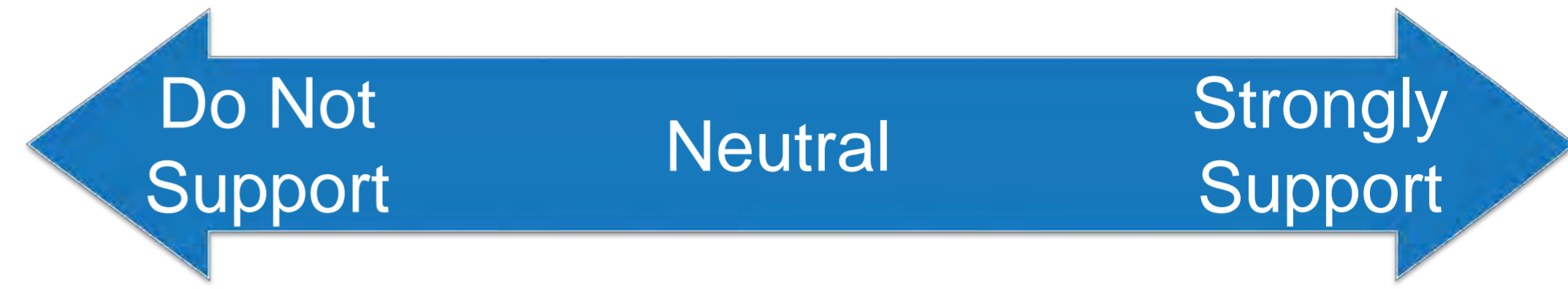
Peak Hour	Eastbound			Westbound			Northbound			Southbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Morning Peak	-17	-29	+28	+21	+42	0	-37	+8	0	-16	-22	+25
Afternoon Peak	+3	-51	+30	-110	-10	0	-134	-8	-2	-9	-32	+26

Barlow Trail N.E. Intersection Option Dotmocracy

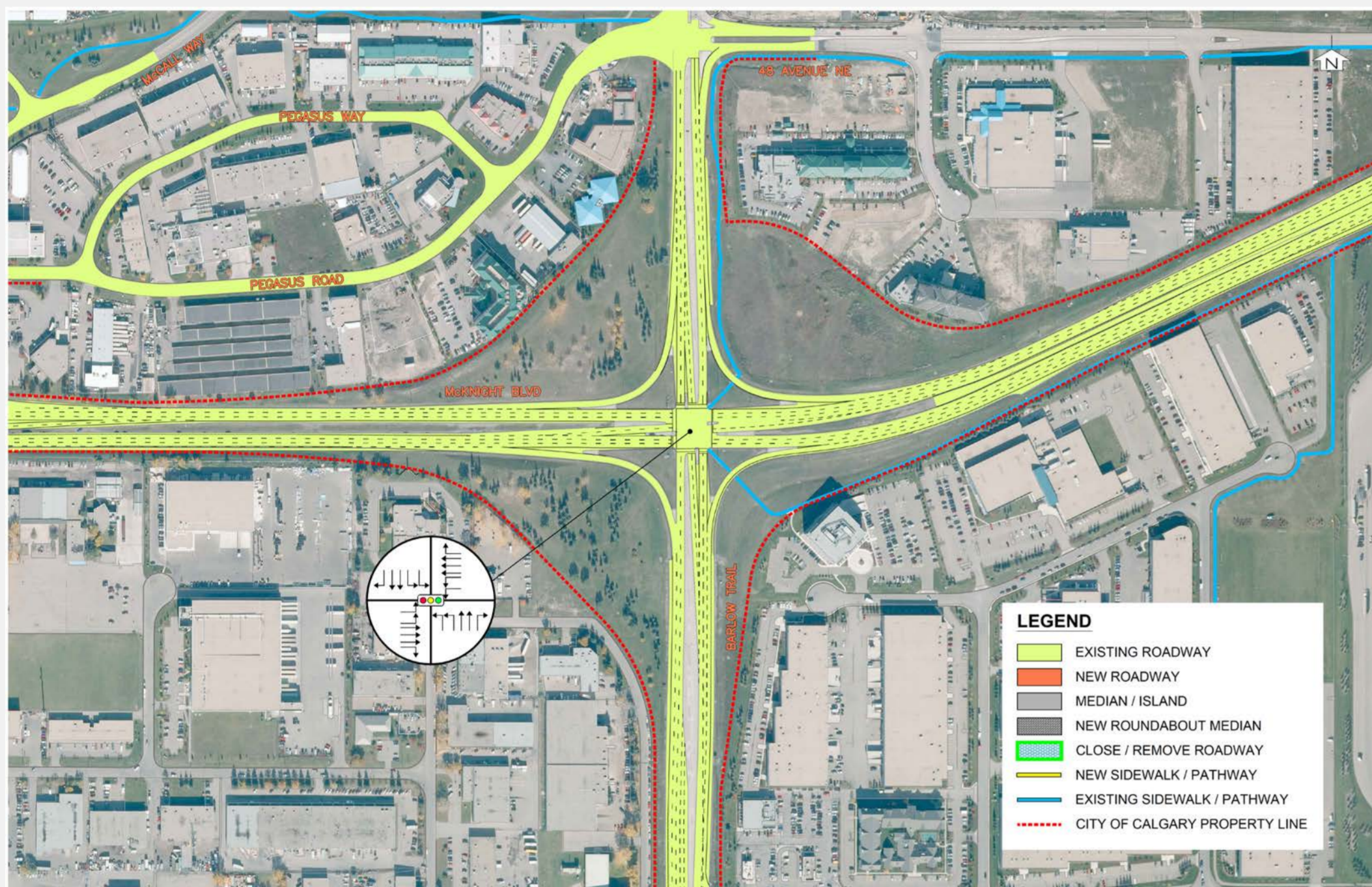
McKnight Boulevard
Transportation Study

On a scale of 1 to 5 how do you rate each option? Please use the dots provided.

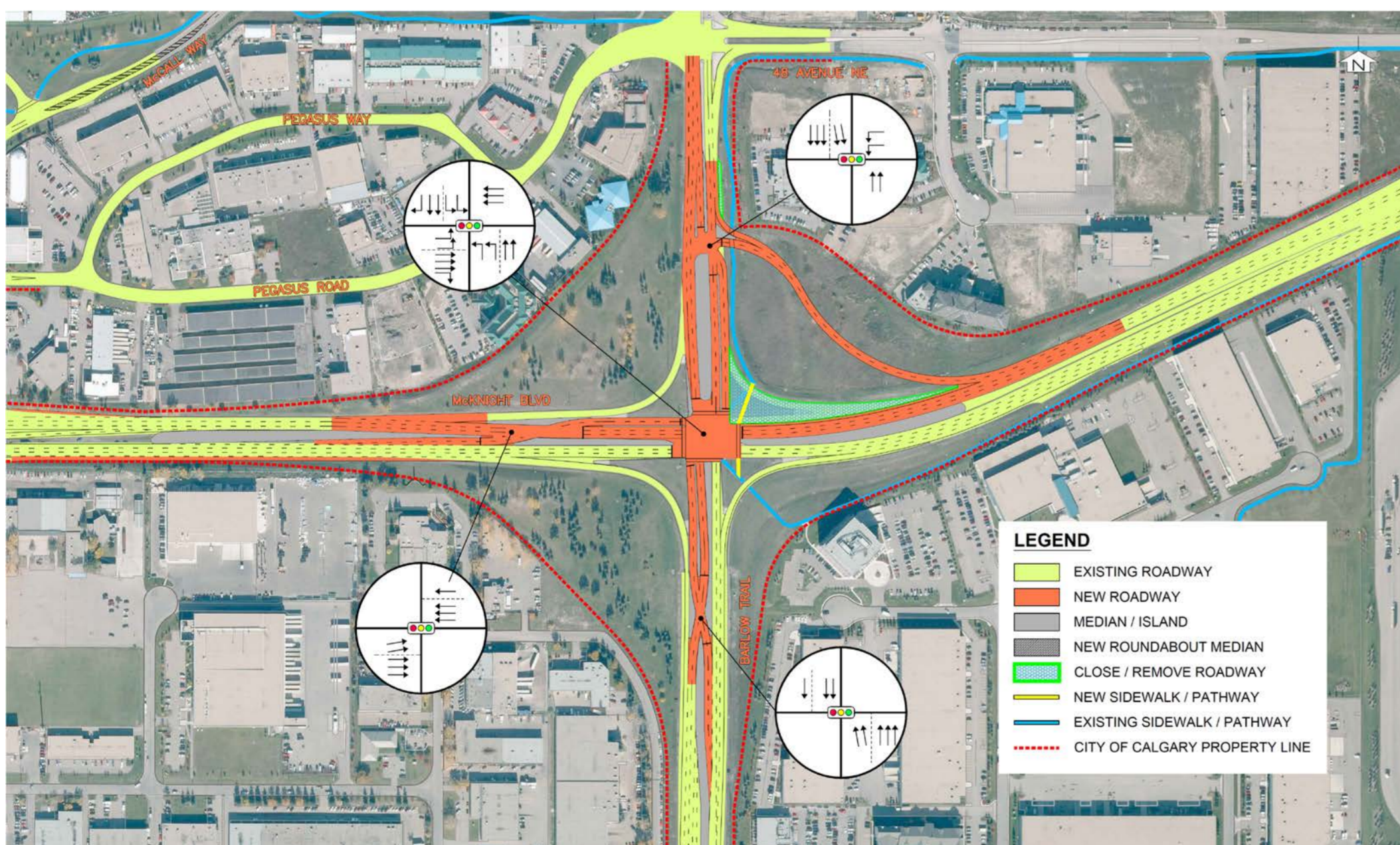
Important: Please tell us why on the feedback forms provided.



Option A – Do Nothing



Option B – Continuous Flow Intersection



	1	2	3	4	5
Option A – Do Nothing					
Option B – Continuous Flow Intersection					









High Occupancy Vehicle (HOV) Needs Assessment

McKnight Boulevard
Transportation Study

Conclusions of Assessment:

- HOV measures are not currently recommended on McKnight Boulevard.
- The need for HOV measures should be reviewed in the future as the design and function of the corridor and surrounding land uses evolve.

Criteria and results are summarized below:

Criteria	Assessment	Currently Supported?
City Policies and Objectives	<ul style="list-style-type: none"> • HOV facilities are consistent with City's sustainability philosophy. • McKnight Boulevard is a proposed link in the City's Primary HOV Network. 	
Supporting Road Network	<ul style="list-style-type: none"> • 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. 	
Surrounding Land Uses	<ul style="list-style-type: none"> • 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. 	
Level of Service (Travel Time)	<ul style="list-style-type: none"> • Existing HOV volumes on McKnight Boulevard are high. • Travel times along corridor are already low, resulting in only minor improvements for HOV traffic (3 minutes max.). • HOV facilities on McKnight Boulevard could reduce potential improvements to other movements. 	
Transit Support	<ul style="list-style-type: none"> • 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. 	
Geometric Characteristics	<ul style="list-style-type: none"> • At-grade intersections reduce the efficiency, usability, and safety of HOV facilities. 	
Public Support	<ul style="list-style-type: none"> • 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. 	
Safety	<ul style="list-style-type: none"> • HOV measures not expected to reduce the collision risk and may increase it due to driver confusion and additional conflict points. 	

Next Steps

McKnight Boulevard
Transportation Study

Phase 1 Optimization

- Evaluate preferred options considering today's feedback.
- Select recommended option for each intersection.
- Finalize study report and plans.
- Public Information Session to share recommended options.
- Present report to Council.

Phase 2 High Occupancy Vehicles

Based on the needs assessment, High Occupancy Vehicle (HOV) facilities are not recommended at this time.

Phase 3 Interchange Functional Plan

The need to conduct an Interchange Functional Plan at the 12 Street N.E. intersection will be determined once the recommended optimization option is selected and the traffic analysis is finalized.

Implementation Timeline:

1. McKnight Boulevard will be widened to three lanes per direction with construction commencing in 2015.
2. The implementation of intersection improvements will be dependent on Council approval and funding.

McKnight Boulevard Transportation Study

Thank You!

Thank you for taking the time to review the presentation boards.

Feedback forms are available – please take a few moments to complete one.

Ongoing updates and feedback forms are also available online at calgary.ca/mcknight

