

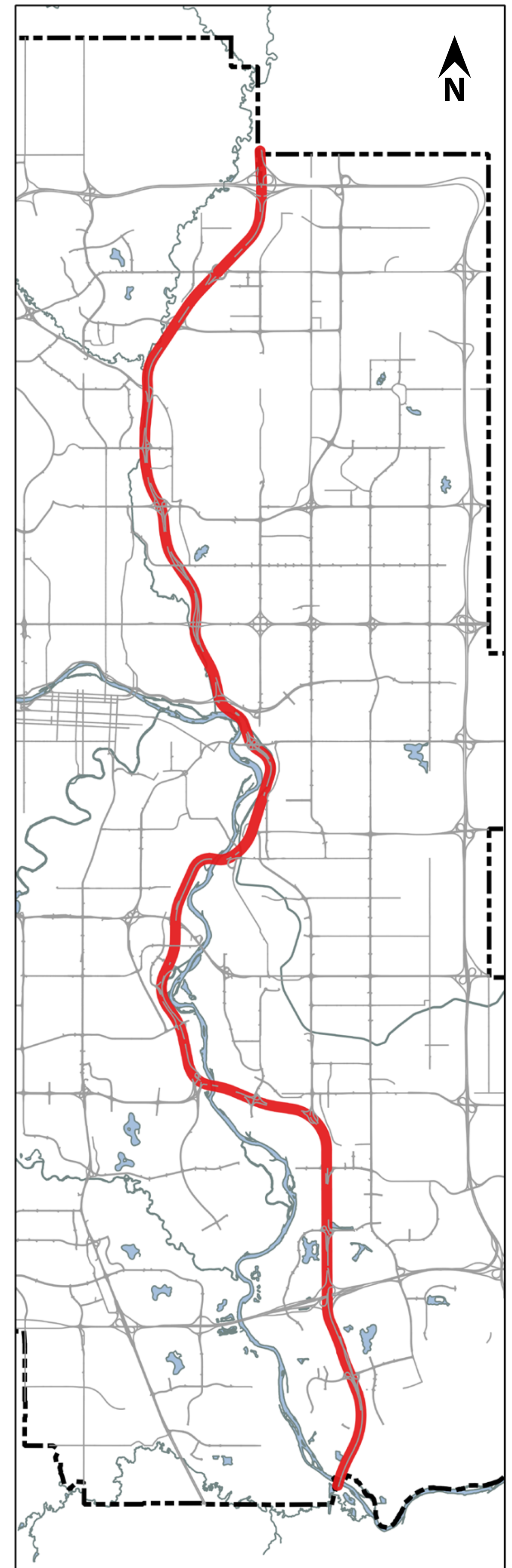
# Welcome to the Deerfoot Trail Study Open House

Thank you for coming!

Please come in and have a look at the information boards. The project team will be happy to answer your questions.

Feedback forms are available here and at [calgary.ca/deerfoot](http://calgary.ca/deerfoot) until June 30, 2016.

Public input from this first phase will be used to help confirm the problems we are trying to solve, and understand Calgarians' priorities about where and how they use the road.



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## About the Study

The City of Calgary (The City) and Alberta Transportation (AT) are working together to study Deerfoot Trail, between the Stoney Trail interchanges in the north and south.

The study will consider a variety of freeway management strategies — including some new to Calgary — to recommend safety and reliability improvements. The focus will be on making the most of the existing infrastructure, planning for future growth and aligning with the Calgary Transportation Plan.

The study will define and recommend a program of upgrades for Deerfoot Trail by:

- Identifying the existing and future travel needs on the corridor, and any associated impacts on the surrounding communities.
- Engaging the public, community groups and stakeholders to identify users and demands for the corridor, and build a range of potential solutions.
- Recommending safety and mobility improvements for people who drive and take transit.
- Improving air quality and reducing vehicular emissions as part of a goal to reduce greenhouse gas emissions and reduce the time needed to travel to and within the corridor.



Deerfoot Trail looking north at 17 Avenue S.E. / Blackfoot Trail



Deerfoot Trail looking south at Peigan Trail



Interchange at Deerfoot Trail and 16 Avenue North

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## Study Timeline

Recommendations for short-term improvements to address the existing problems are anticipated in 2017. A long-term improvement plan to manage traffic, growth and safety over the next 30 years will be available in 2018.



## Phase 1

**June – August 2016:** Open houses, online feedback and stakeholder meetings to:

- Share the analysis about where and how big the problems are
- Identify other operational issues and potential solutions
- Better understand how people use the road, and consider specific stakeholder needs, like goods movement and first responders

**September 2016:** Report back on what we heard in Phase 1

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# History of Deerfoot Trail



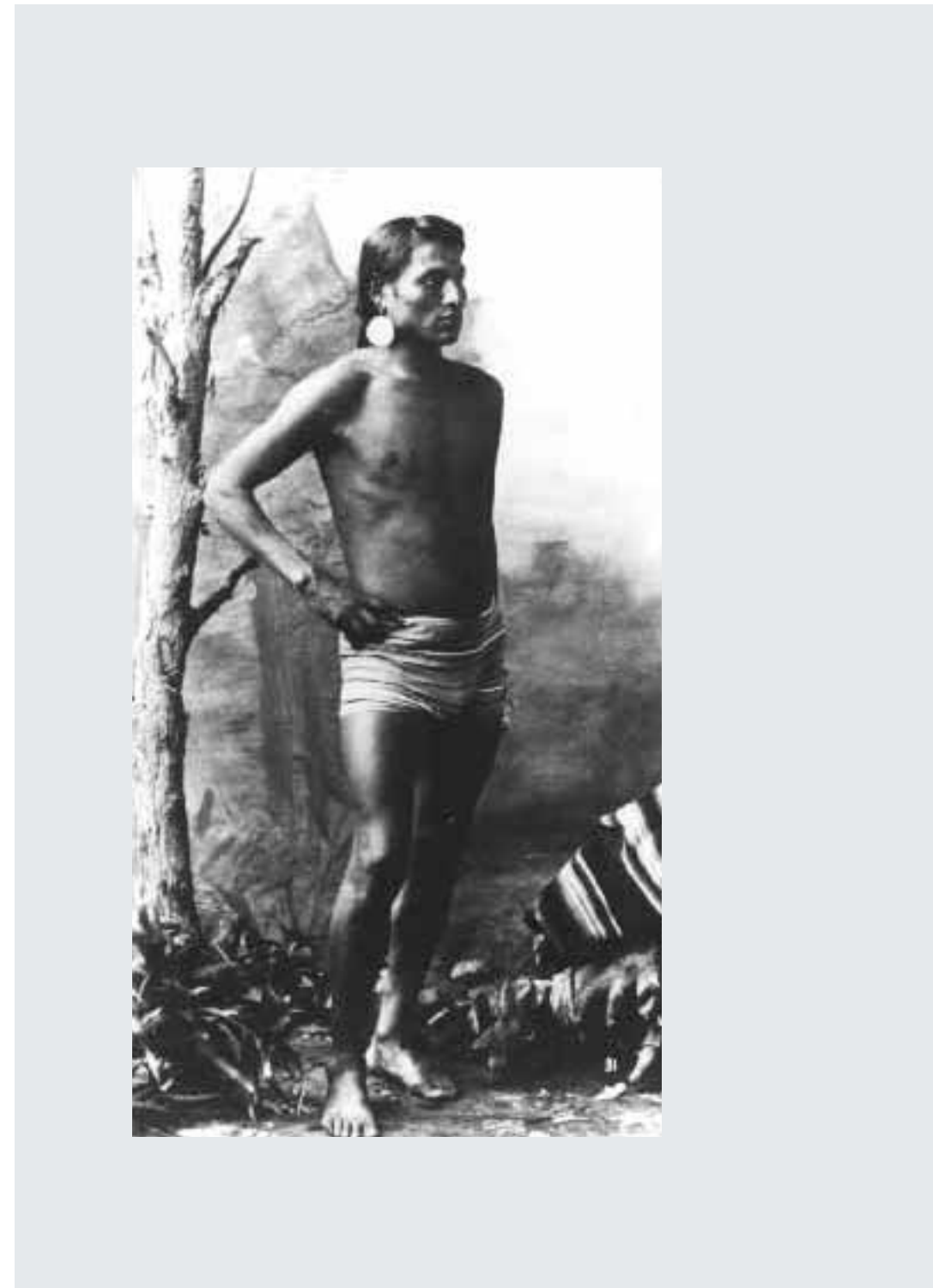
**1971:** Stoney Trail to 16 Avenue N opened at a population of about 400,000.

**1975:** 16 Avenue N to 17 Avenue S.E. opened at a population of about 450,000.

**1980:** 17 Avenue S.E. to Glenmore Trail opened at a population of about 560,000. The original alignment is shifted east to avoid Inglewood due to community opposition.

**1982:** Glenmore Trail to Stoney Trail opened at a population of about 600,000. The original alignment is shifted east again, this time to avoid the newly created Fish Creek Provincial Park.

**2003:** Stoney Trail to Bow River opened at a population of about 900,000. Calgary's population has since grown to 1.2 million in 2016.



Glenbow Archives NA-2864-26732

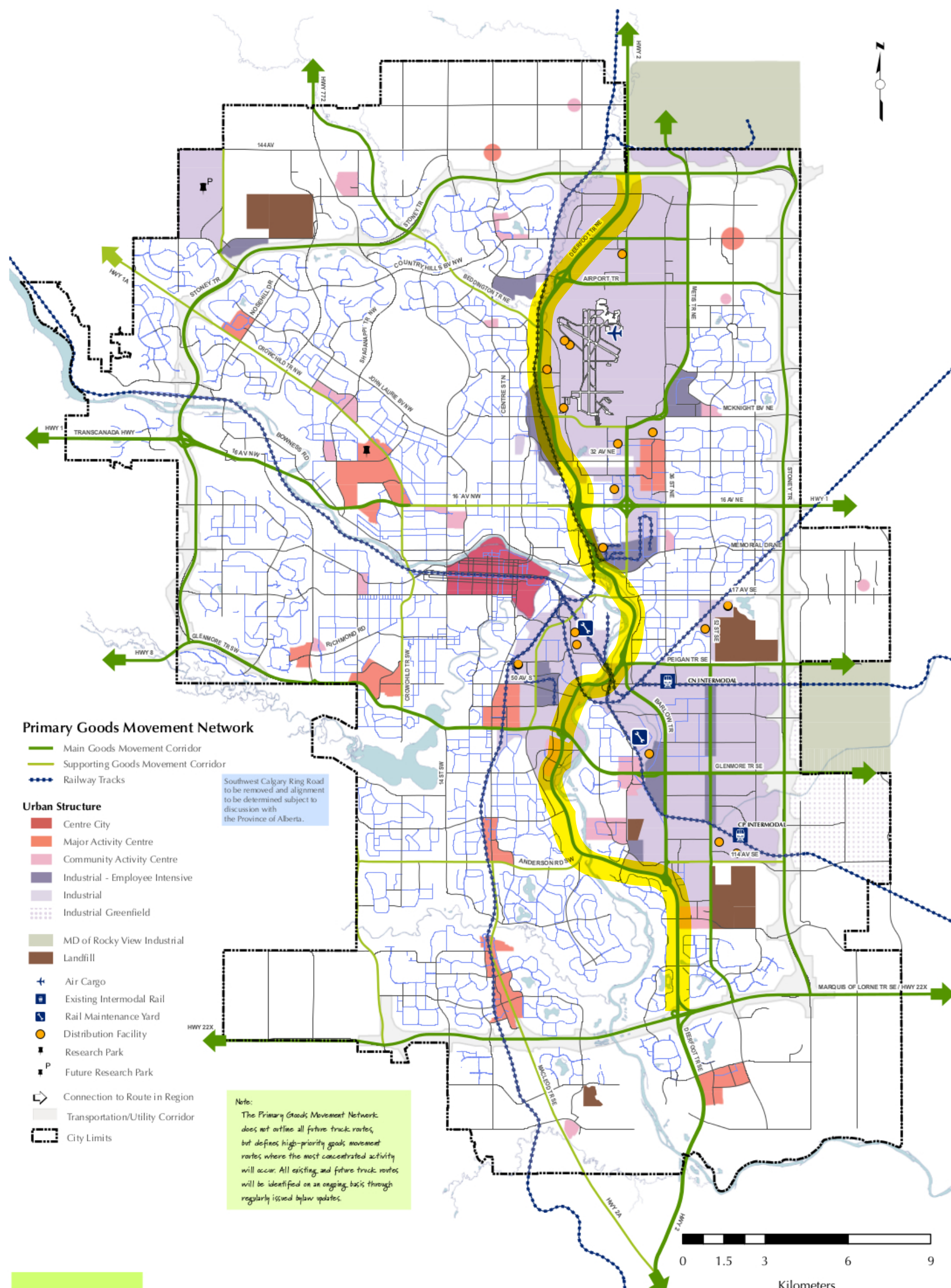
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# Deerfoot Trail Today

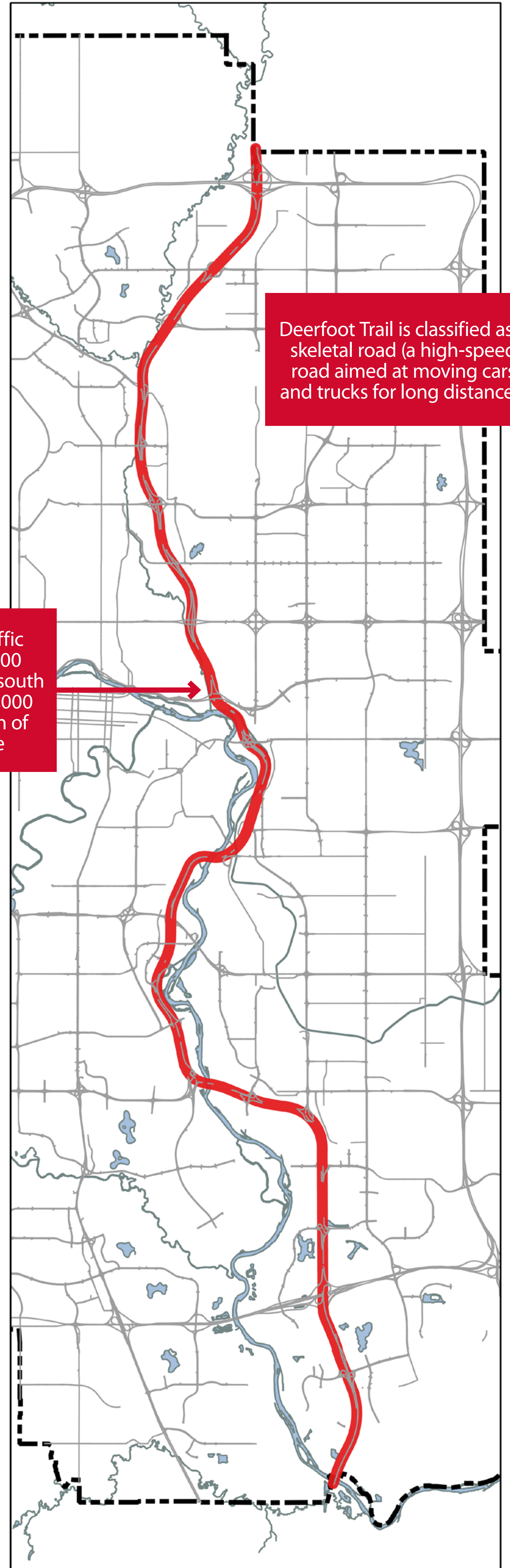
Deerfoot Trail is a core route in the National Highway System, managed by Alberta Transportation since 2001.



## 5 Primary Goods Movement Network

This map represents a conceptual land use structure and transportation networks for the city as a whole. No representation is made herein that a particular site use or City investment, as represented on this map, will be made. Site specific assessments, including environmental contamination, as well as the future financial capacities of the City of Calgary must be considered before any land use or City investment decisions are made.

Deerfoot Trail is one of few continuous north-south connectors, and the only skeletal road serving central and east Calgary

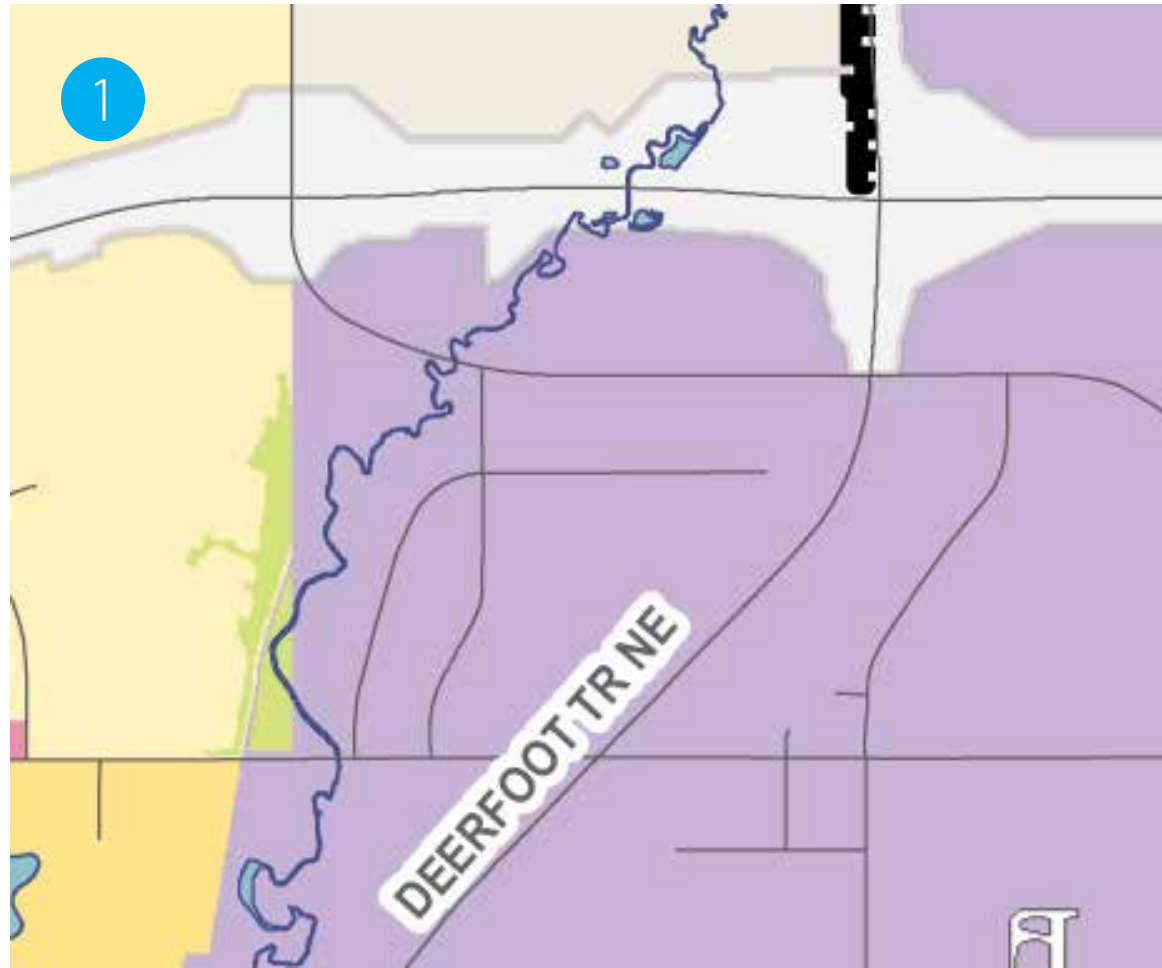


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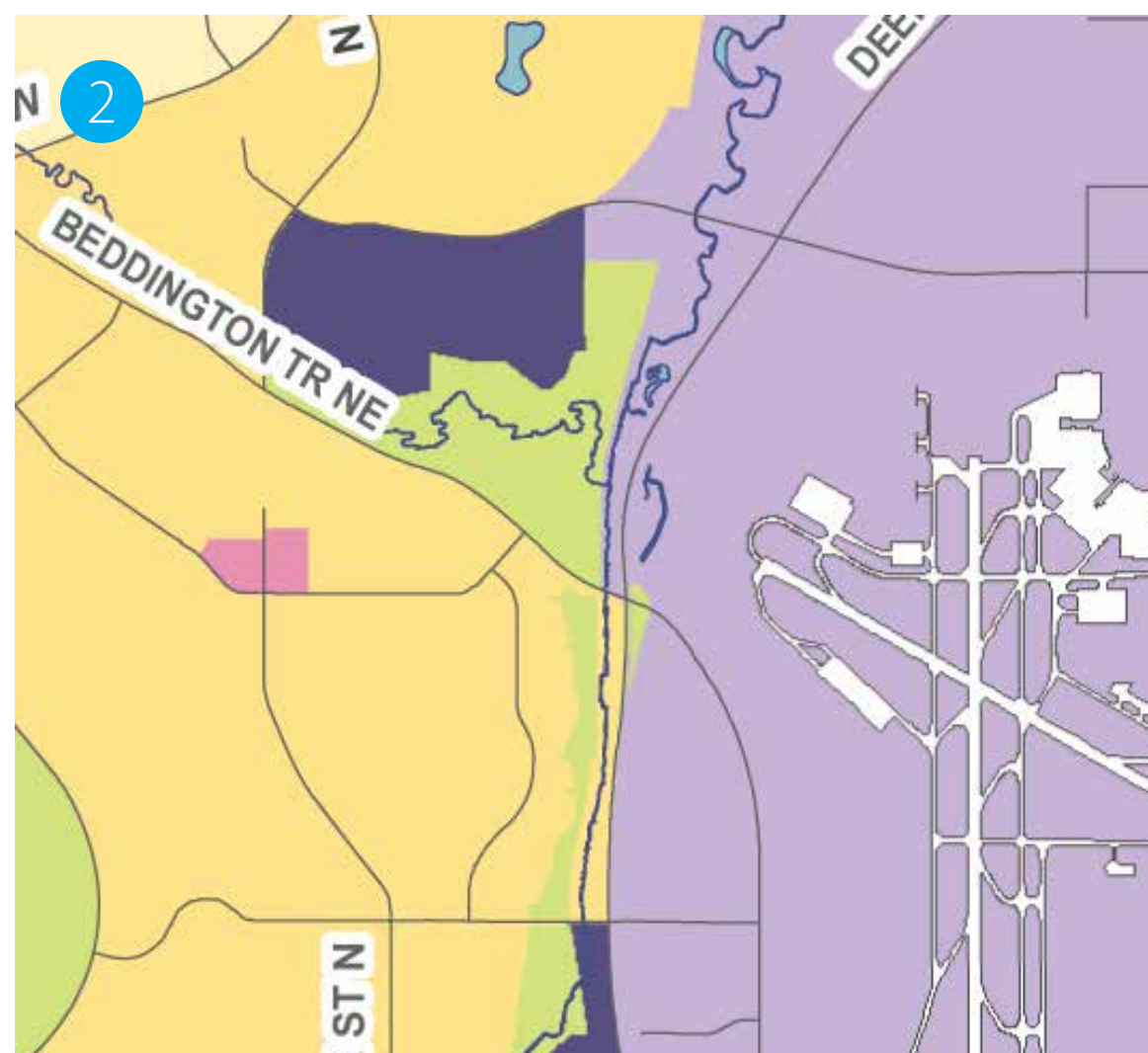


## Existing and Future Land Use



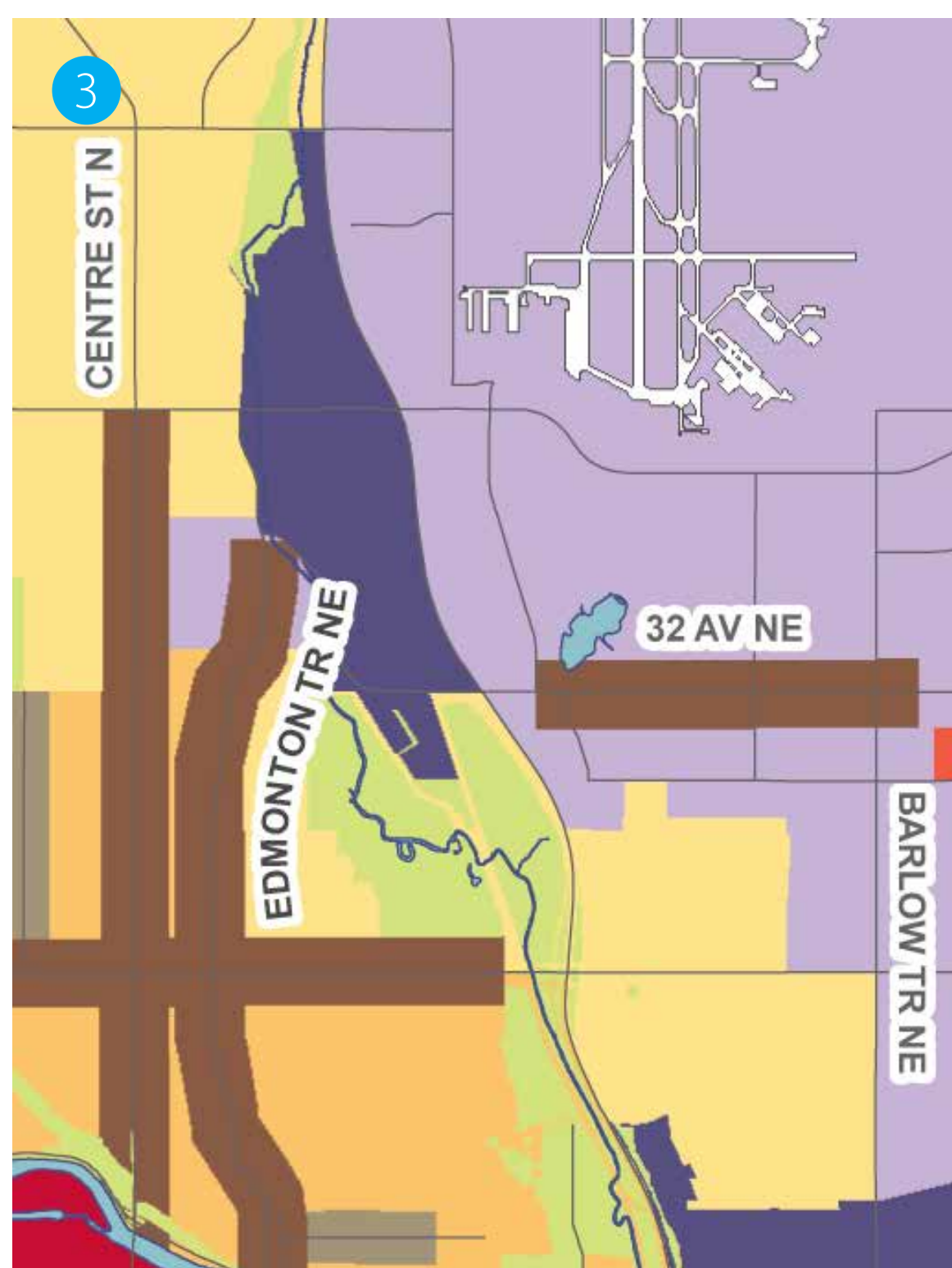
### Stoney Trail N.E. to north of Airport Trail N.E.

The land on either side of Deerfoot Trail is partially developed and designated as future industrial.



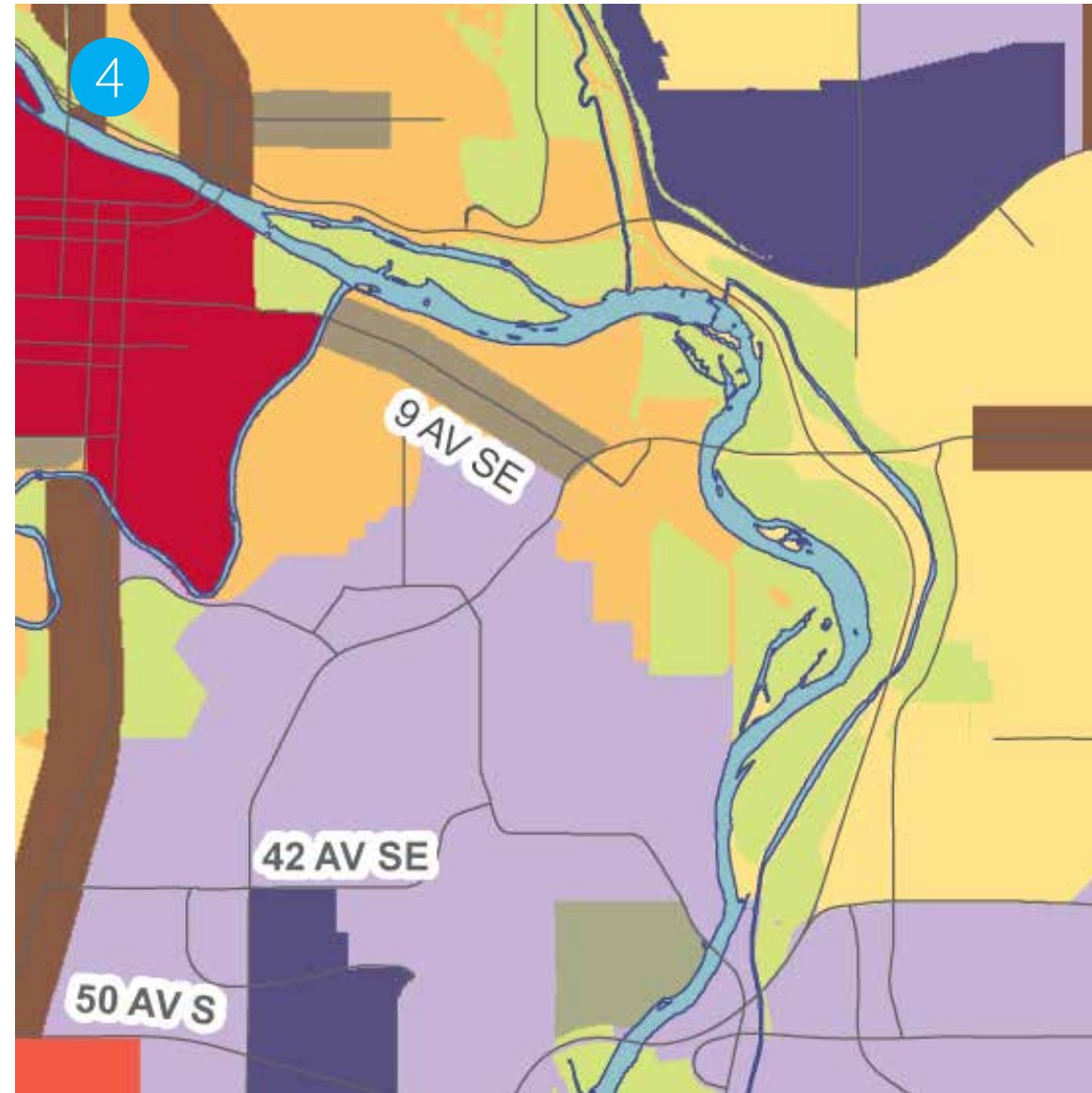
### North of Airport Trail N.E. to north of McKnight Boulevard N.E.

The land use on the west side of the corridor transitions from primarily retail at McKnight Boulevard to open space and residential at Beddington Trail, then Nose Creek Park to north of Beddington Trail. The area north of Nose Creek Park is currently open space, but is designated as industrial in the Municipal Development Plan. On the east side, industrial land is adjacent to the segment. Calgary International Airport is the dominant use and has a major influence on other land uses.



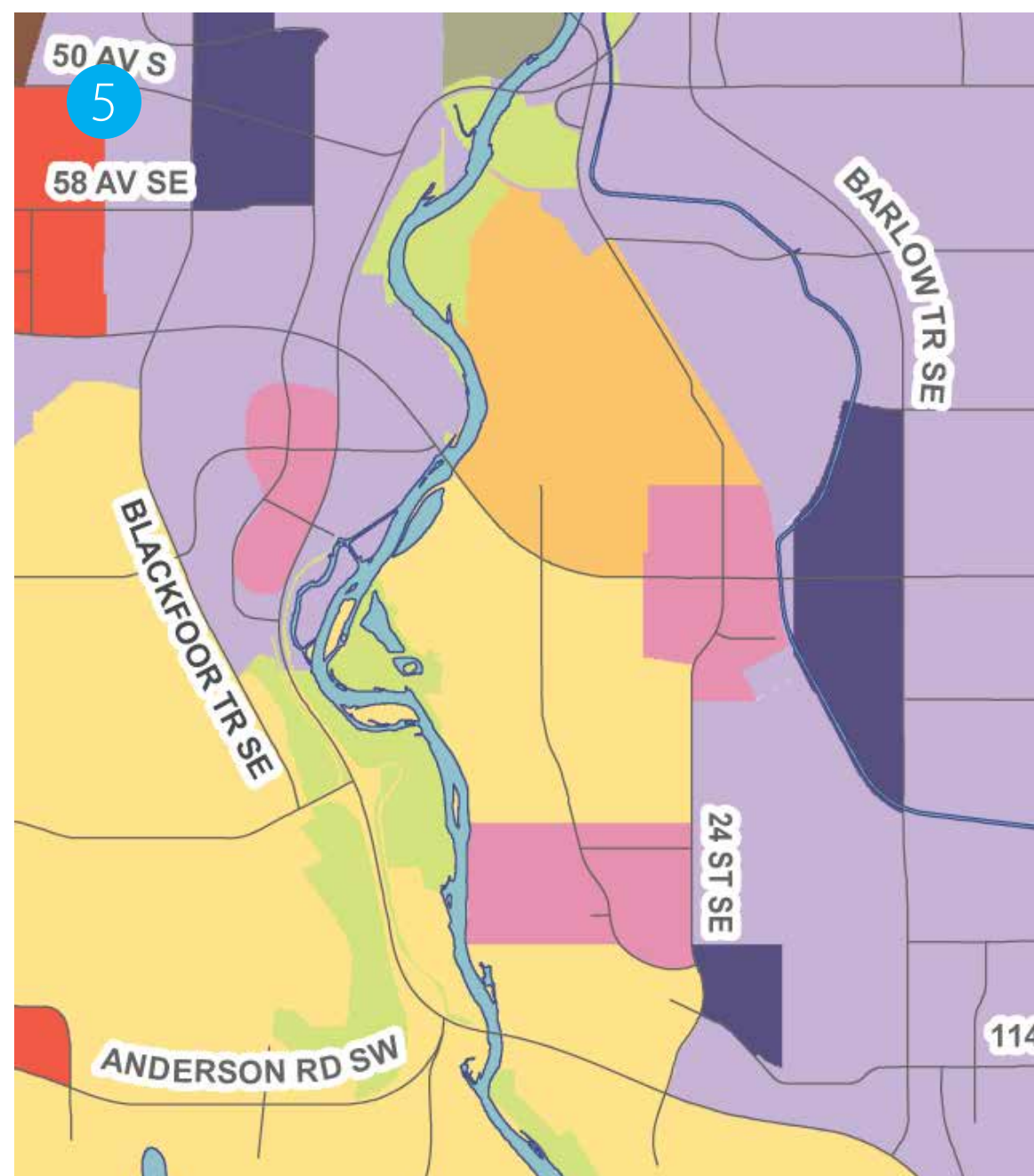
### North of McKnight Boulevard N.E. to 8 Avenue N.E.

The west side is public space and natural areas along Nose Creek. Much of the land on the east side is light industrial, some of which is associated with the airport. The Crossroads community is on the east side, immediately north of 8 Avenue N.E.



### 8 Avenue N.E. to Calf Robe Bridge

The west side is primarily public space and natural areas along the Bow River and Nose Creek, including the Inglewood Golf and Curling Club and Western Headworks Canal. There is some industrial use on the south and north ends, plus medium to low density residential neighbourhoods (Dover Glen, Dover, Southview, Radisson Heights, and Mayland Heights) close to the road.



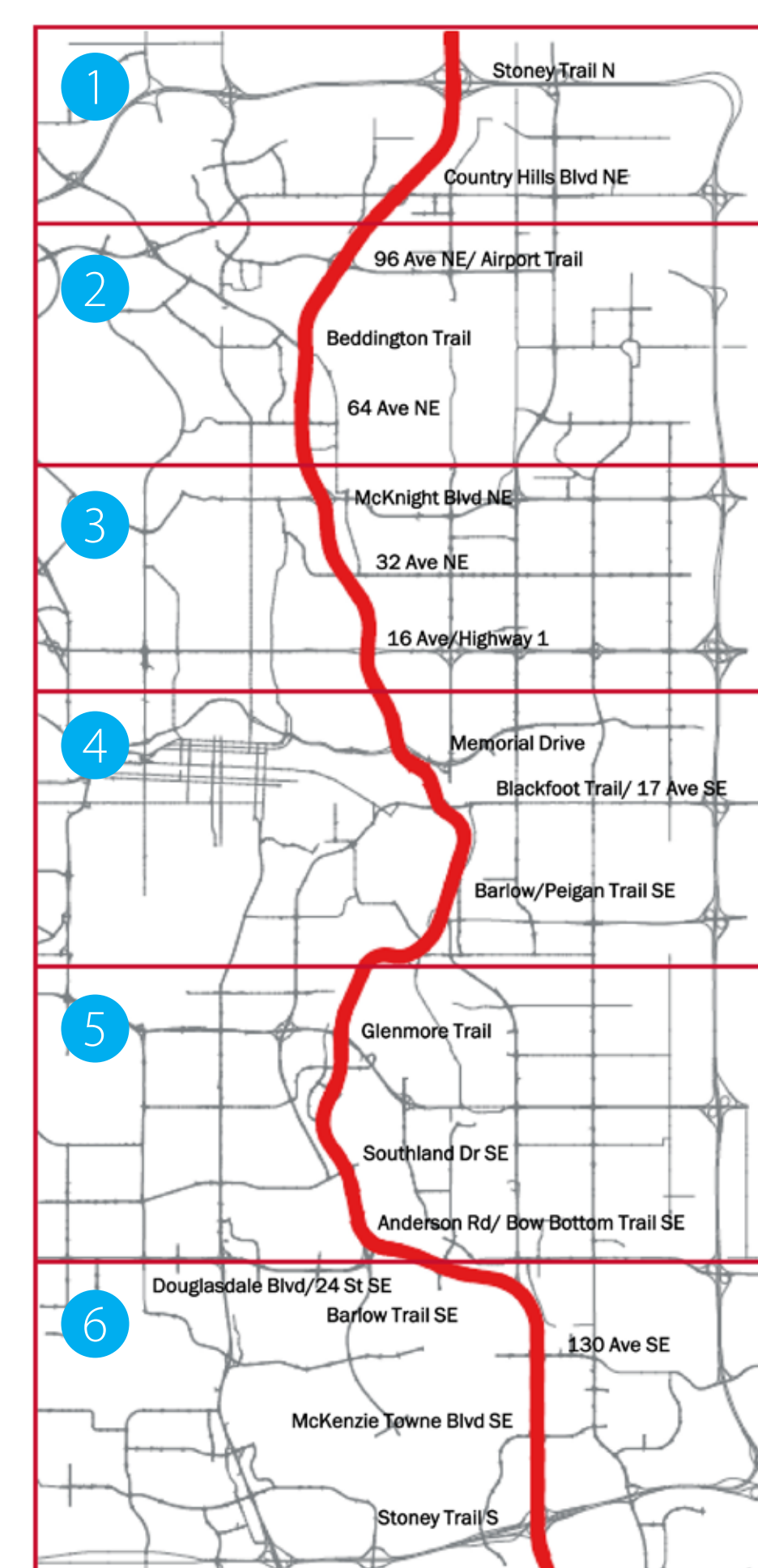
### Calf Robe Bridge to Ivor Strong Bridge

The dominant adjacent land uses are the Deerfoot Meadows retail development and surrounding industrial uses. The southern part of the segment passes through public lands, with the Maple Ridge Golf Course on the west side and Sue Higgins Park on the east. The former Lafarge site between the Bow River and Deerfoot Trail is expected to be redeveloped. Retail and mixed use spaces are planned for the east in Quarry Park between the 107 Avenue S.E. and 97 Avenue S.E. The west side shows residential spaces between the 114 Avenue S.E. and 86 Avenue S.E., and mixed-use space and industrial land between 86 Avenue S.E. to 50 Avenue S.E.



### Ivor Strong Bridge to Stoney Trail S.E.

Adjacent land use is mostly low-density, including the neighborhoods of McKenzie Towne, McKenzie Lake, Douglasdale and Prestwick. Retail, industrial and other mixed uses line the east side of the corridor, between 132 Avenue S.E. and Douglasdale Boulevard. There are plans for a significant commercial and industrial developments in Shepard Industrial area.



- Urban Structure (By Land Use Typology)**
- Activity Centres**
    - Centre City
    - Major Activity Centre
    - Community Activity Centre
  - Corridors**
    - Urban Corridor
    - Neighbourhood Corridor
  - Residential**
    - Developed**
      - Inner City
      - Established
    - Developing**
      - Planned Greenfield with Area Structure Plan (ASP)
      - Future Greenfield
  - Industrial**
    - Standard Industrial
    - Industrial - Employee Intensive
    - Industrial Greenfield
  - Other**
    - Major Public Open Space
    - Public Utility

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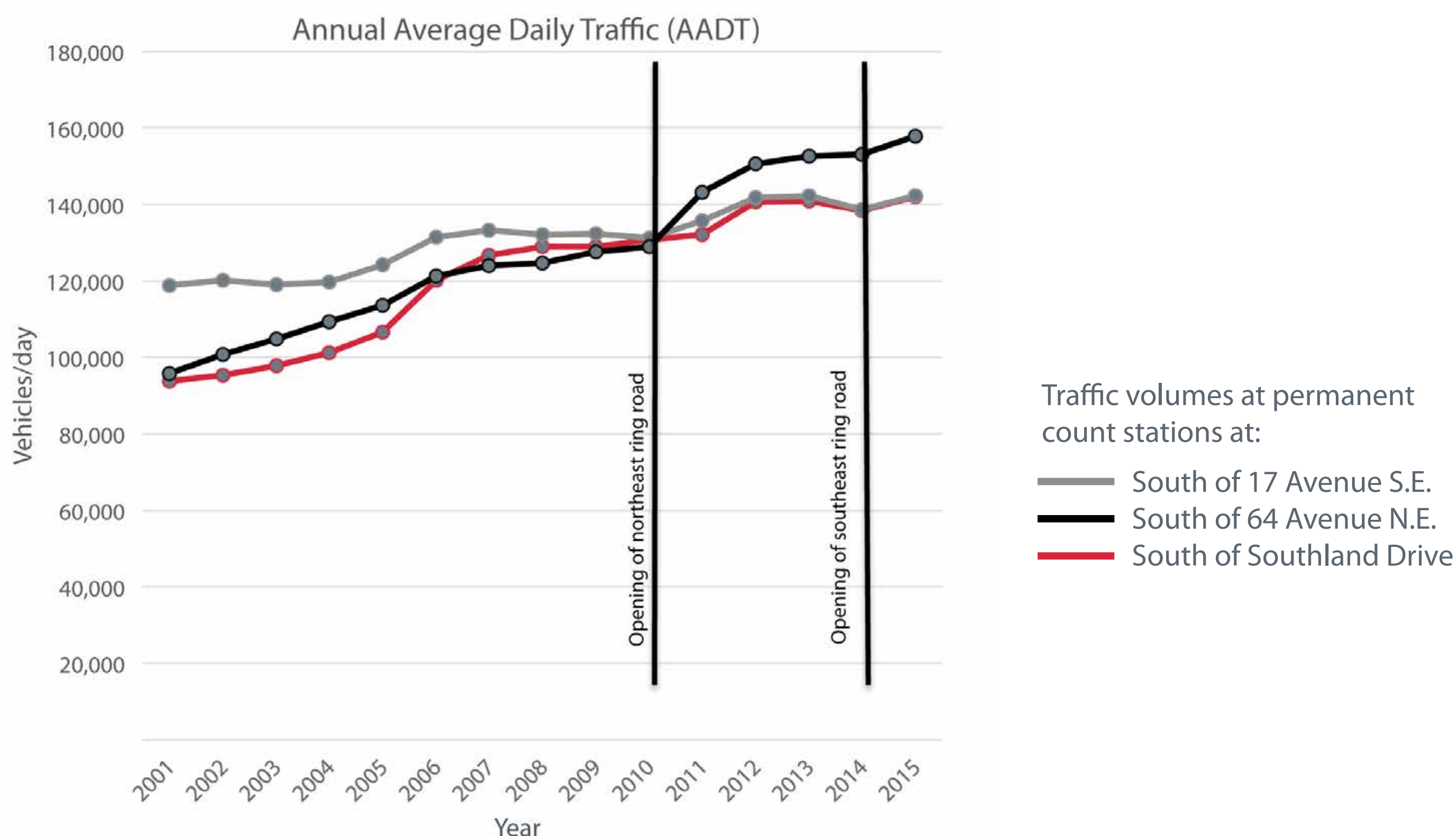


# Traffic Characteristics

## Historical traffic growth

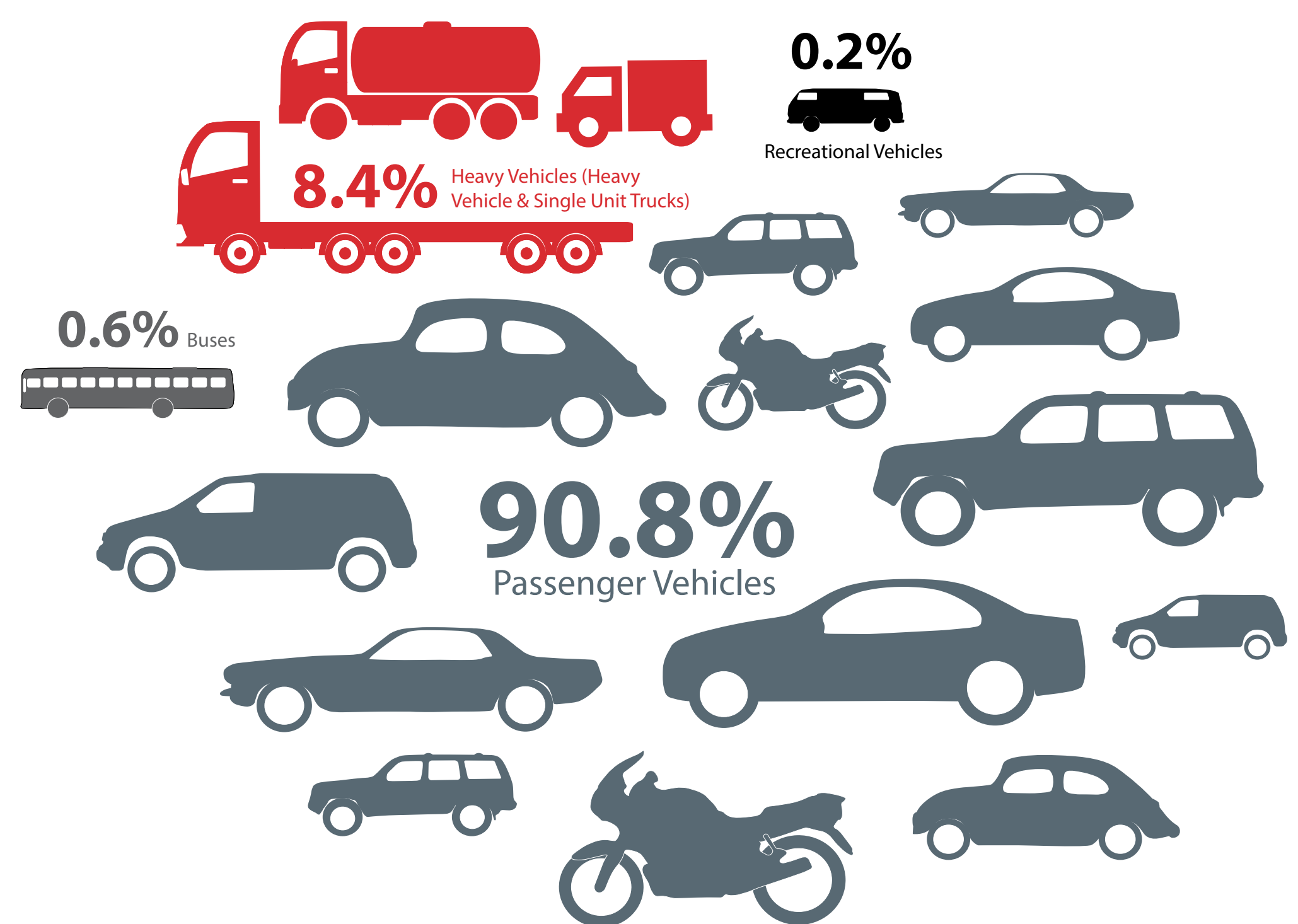
Traffic has steadily grown along Deerfoot Trail. There were small declines in 2010 and 2014, largely a result of the opening of Northeast Stoney Trail (November 2009) and Southeast Stoney Trail (November 2013).

The area between 17 Avenue S.E./Blackfoot Trail and 16 Avenue N.E. has historically been the busiest. In 2015, the average daily traffic was 165,530 vehicles per day on this segment.



## Types of traffic

The openings of Northeast and Southeast Stoney Trail has not resulted in a significant change in the types of vehicles using Deerfoot Trail.



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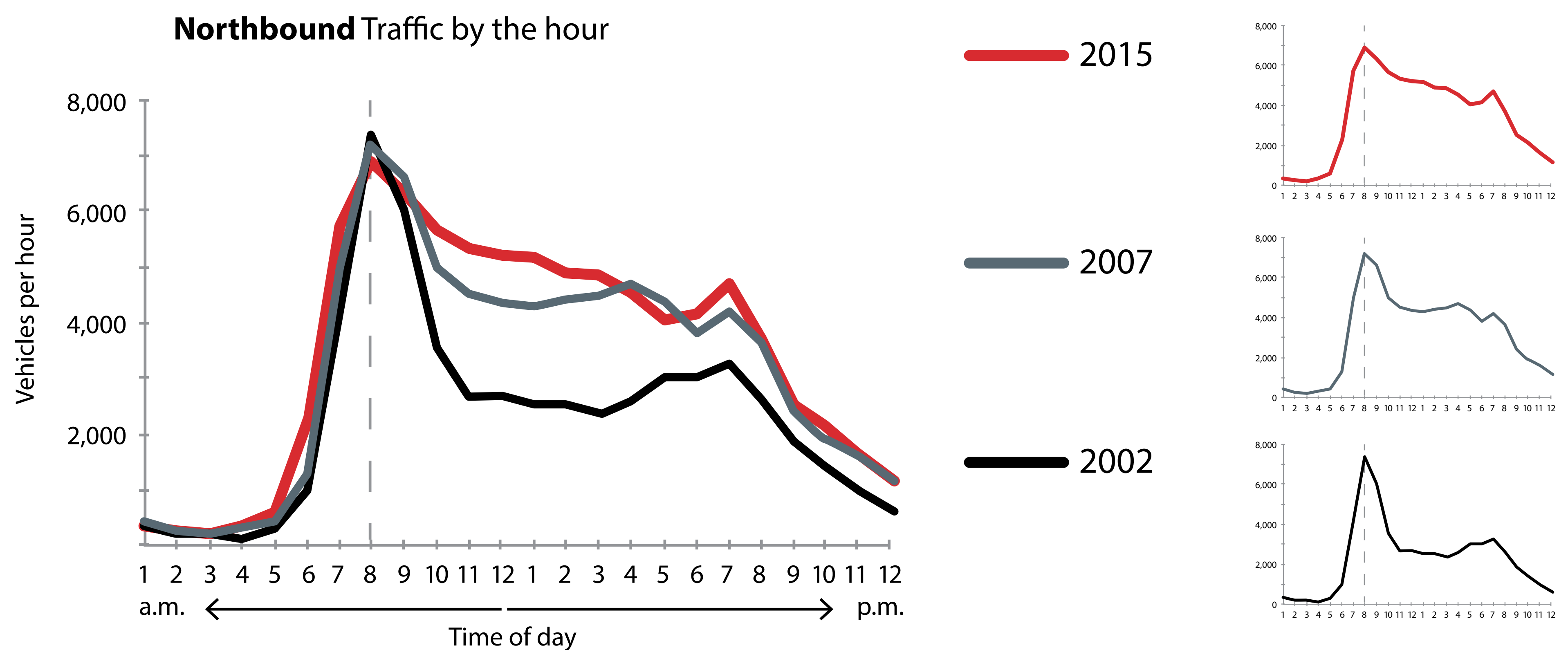


# Traffic Characteristics

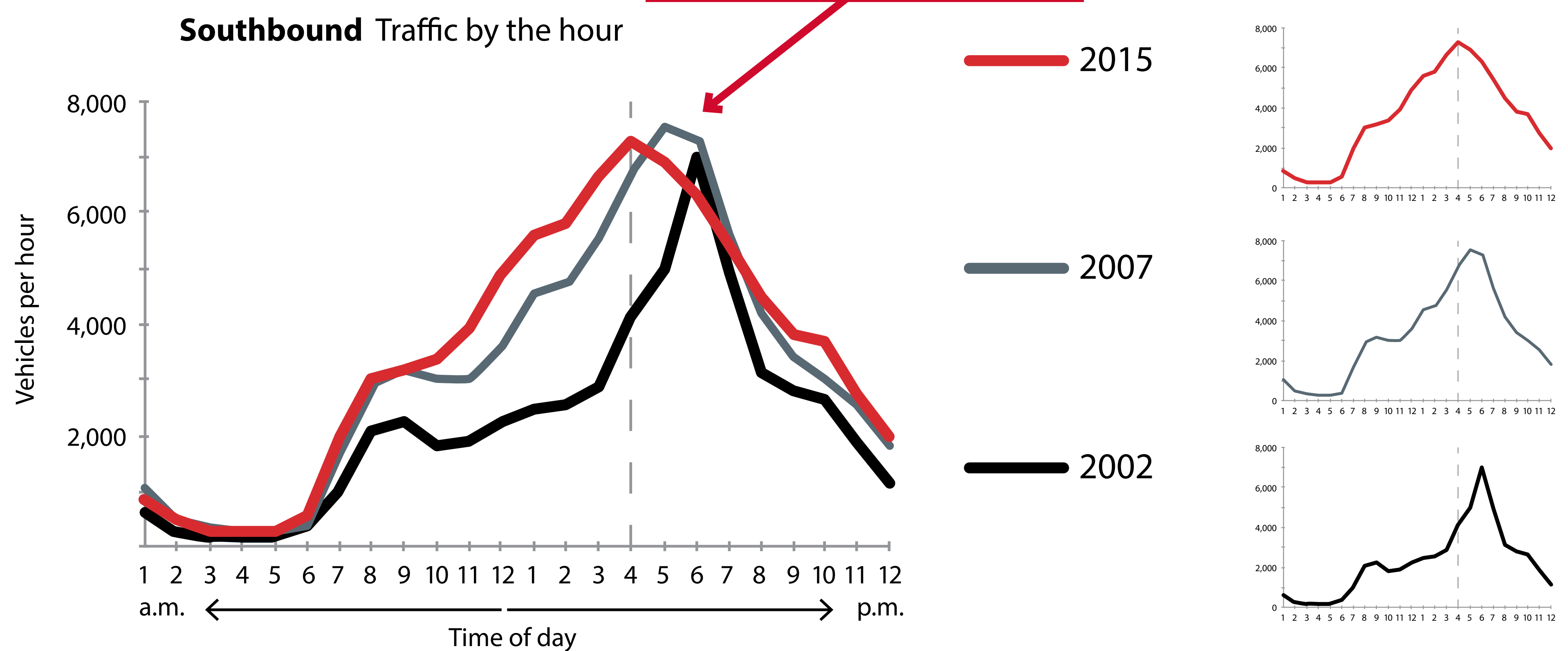
## Traffic by the hour

These charts show how traffic varies throughout the day. The example below is for the section between Southland Drive and Anderson Road, but the characteristics are similar at other locations.

In 2002, the peak hour was just that – an hour. Traffic volumes in the peak hour haven't changed much since 2002, but now Deerfoot Trail is busier for longer.



Afternoon peak traffic has moved progressively earlier since 2002, showing that Calgarians are changing their travel habits, possibly to avoid congestion.



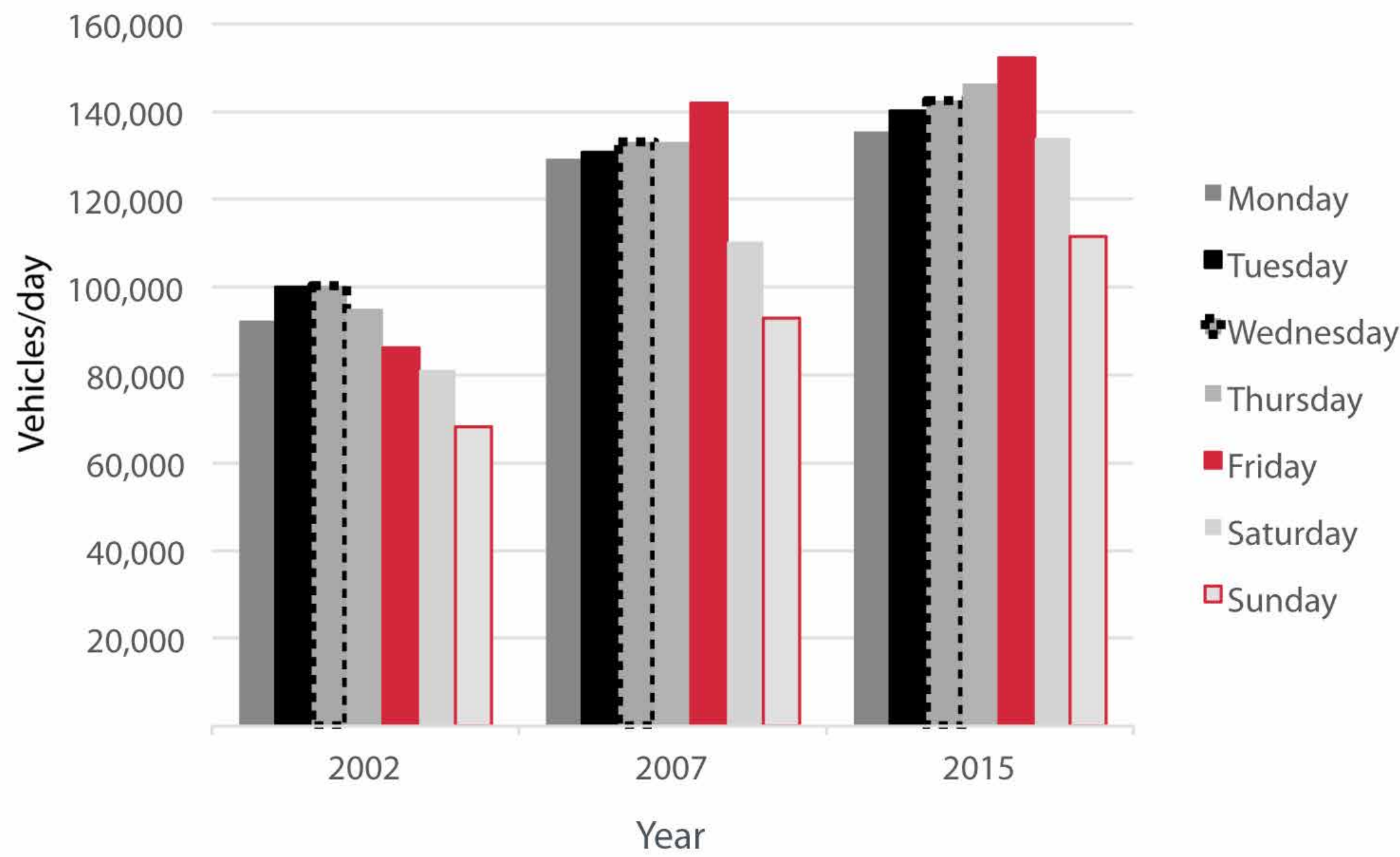
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# Traffic Characteristics

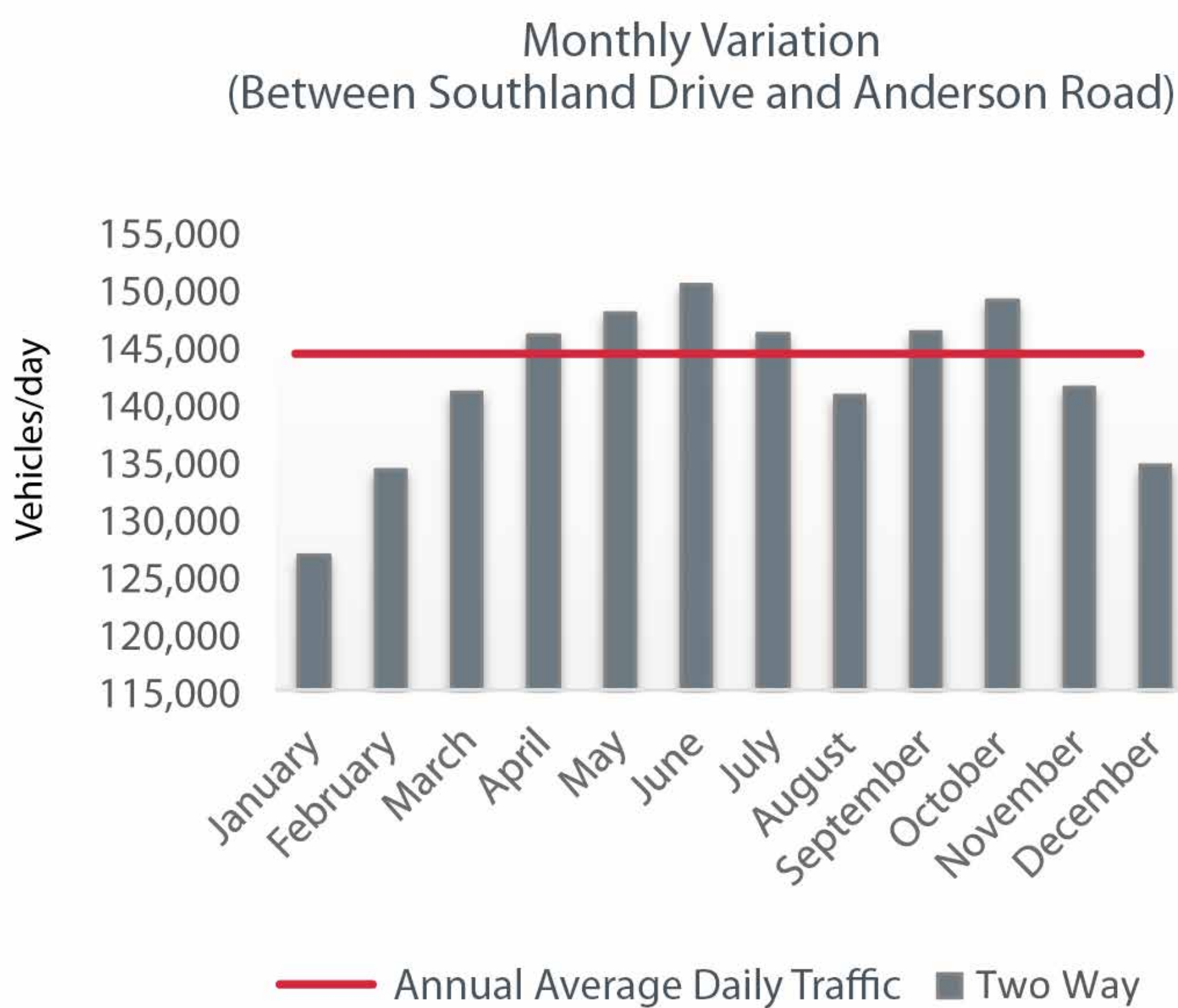
## Traffic by the day



In a typical week, traffic levels are highest on Fridays. Travel patterns have changed over time. In 2002, Tuesday and Wednesday were the busiest days.

## Traffic by the month

The highest traffic volumes occur in June, October and May. Travel on Deerfoot Trail tends to be lower in winter, when weather and road conditions are unreliable, and low in summer when vacations are common.



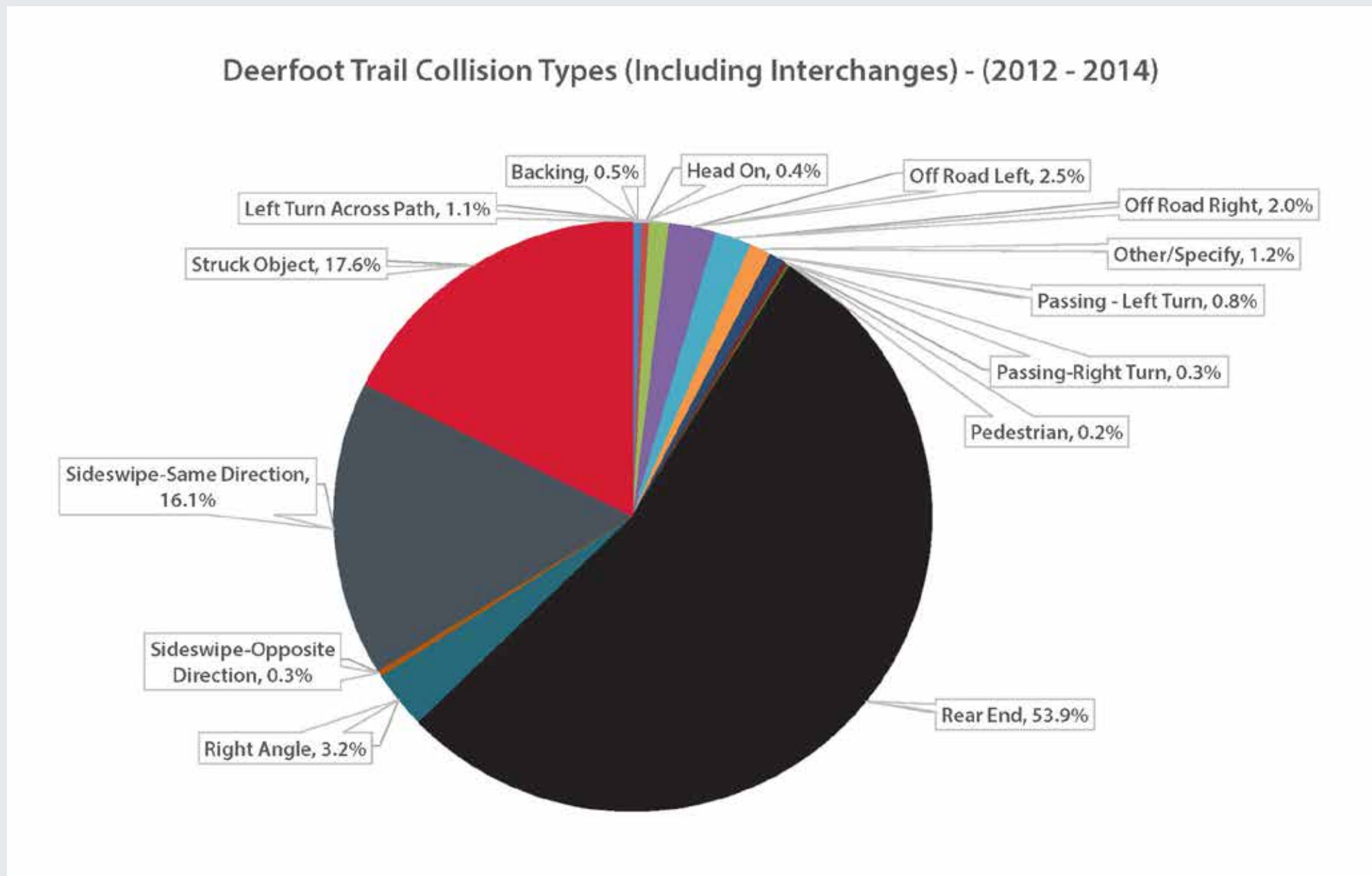
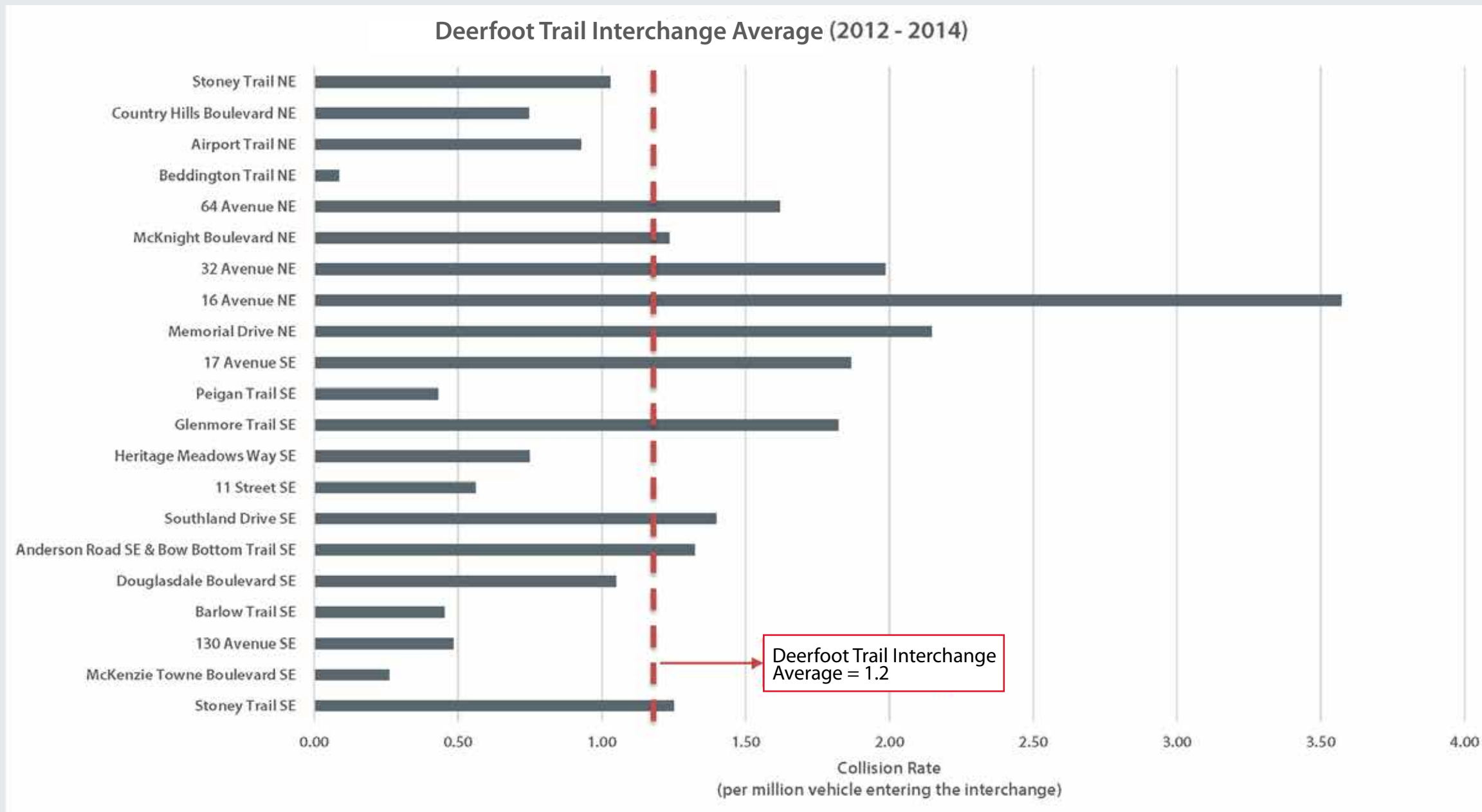
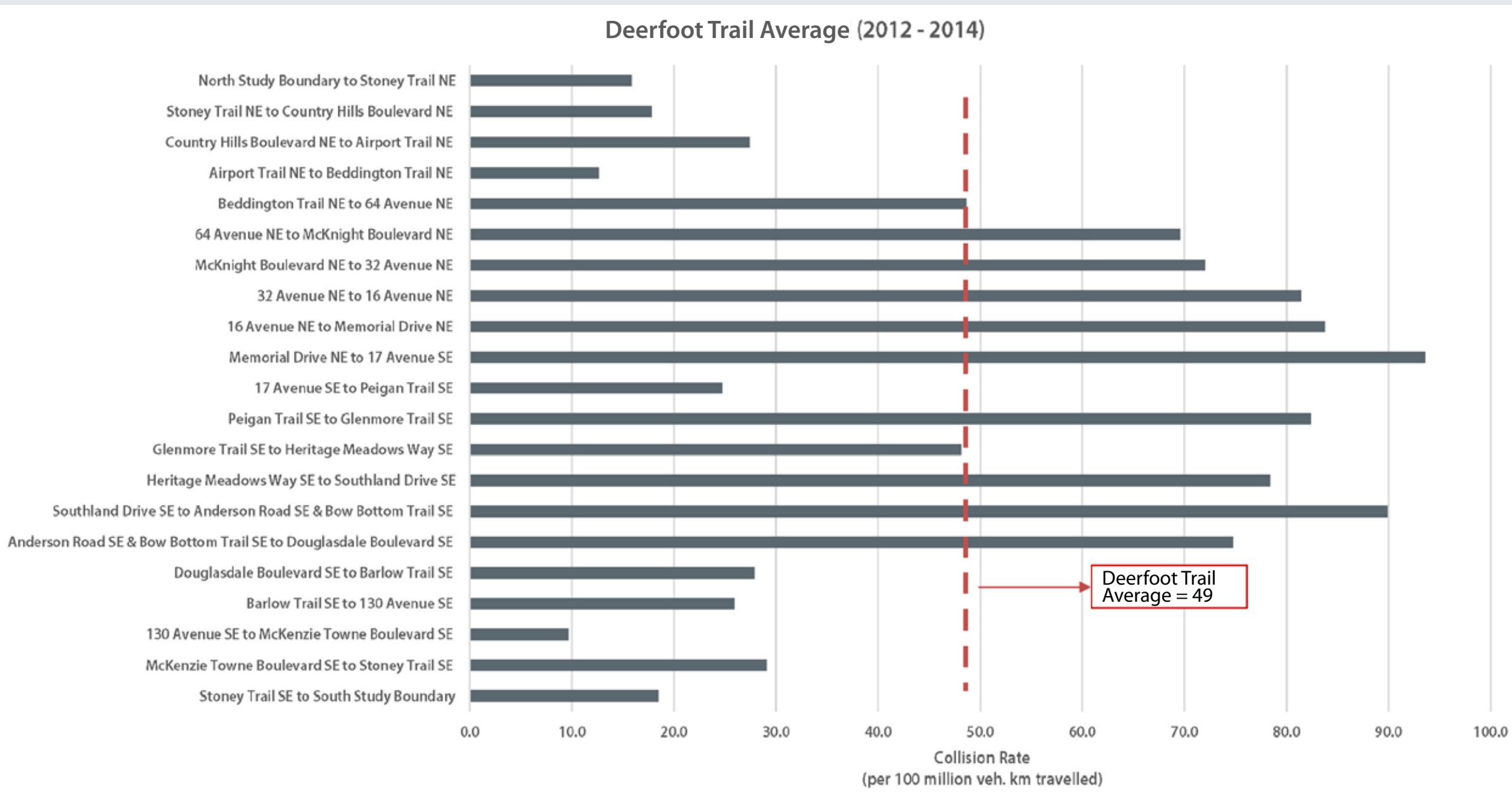
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# Collision History

The past three years of collision data (2012-2014) has been reviewed for Deerfoot Trail. A summary of the collision history is provided below:



- » The collision rate takes into account both the number of collisions and the amount of traffic on the roadway.
- » The average collision rate of 49 per 100 million vehicle km travelled for one segment is the same as 2.5 collisions per day along all of Deerfoot Trail.
- » The average collision rate of 1.2 per million vehicle entering the interchange is the same as 27 collisions per year at an interchange.

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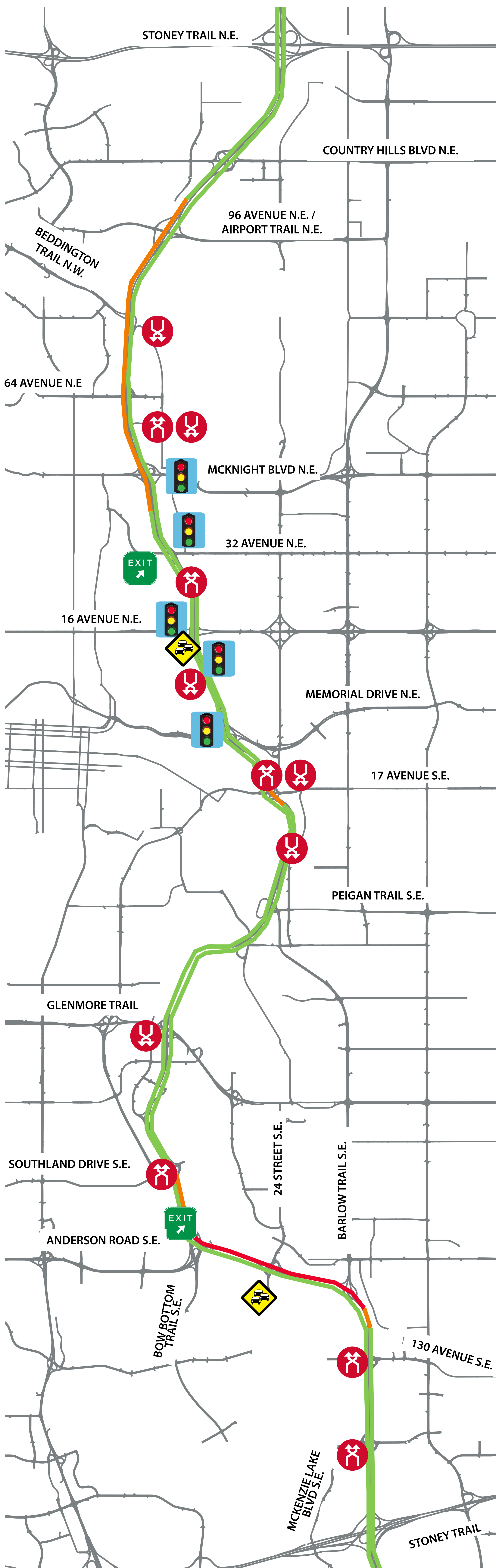






## Typical Congestion and Causes – A.M.

Congestion occurs when there are more vehicles than capacity on the road. Usually, there are several factors disrupting traffic flow at a given location.

This map shows the typical congestion for the peak hour (8:00 a.m.) on a mid-week morning. The symbols represent some of the key causes of congestion at these locations.




 **WEAVING** is the lane changing that occurs between interchanges. It is one of the most common causes of congestion and creates turbulence in the traffic flow when there are not enough gaps in traffic to allow drivers to switch lanes. The “disappearing lane” is reflected in weaving because drivers are forced to change lanes to get to where they want to go.

 **OFF-RAMPS / EXITS** cause congestion when there aren’t enough lanes for the number of vehicles that want to exit the road. This is different when traffic backing up from a traffic signal at the end of the ramp.

 **ON RAMPS / MERGES** cause congestion when there aren’t enough lanes for the number of vehicles that want to enter the road.

However, when the problem on the ramp is caused by slow-moving traffic on the freeway it is not reflected as a ramp problem. Often, back-ups on on-ramps are caused by congestion on the freeway ahead.

 **RAMP SPILLBACK** is when the queue from a cross-street backs up far enough on the exit ramp to disrupt traffic flow on the freeway.

 **FREEWAY CAPACITY** problems occur when there aren’t enough lanes for the volume of traffic that wants to use them.

### CONGESTION LEGEND\*

fast  slow \* travel speeds taken from Google Traffic

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## Typical Congestion and Causes – P.M.

Congestion occurs when there are more vehicles than capacity on the road. Usually, there are several factors disrupting traffic flow at a given location.

This map shows the typical congestion for the peak hour (4:00 p.m.) on a mid-week afternoon. Traffic volumes are generally higher in the afternoon peak hour, often resulting in congestion at more locations in the afternoon.

The symbols represent some of the key causes of congestion at these locations.

 **WEAVING** is the lane changing that occurs between interchanges. It is one of the most common causes of congestion and creates turbulence in the traffic flow when there are not enough gaps in traffic to allow drivers to switch lanes. The “disappearing lane” is reflected in weaving because drivers are forced to change lanes to get to where they want to go.

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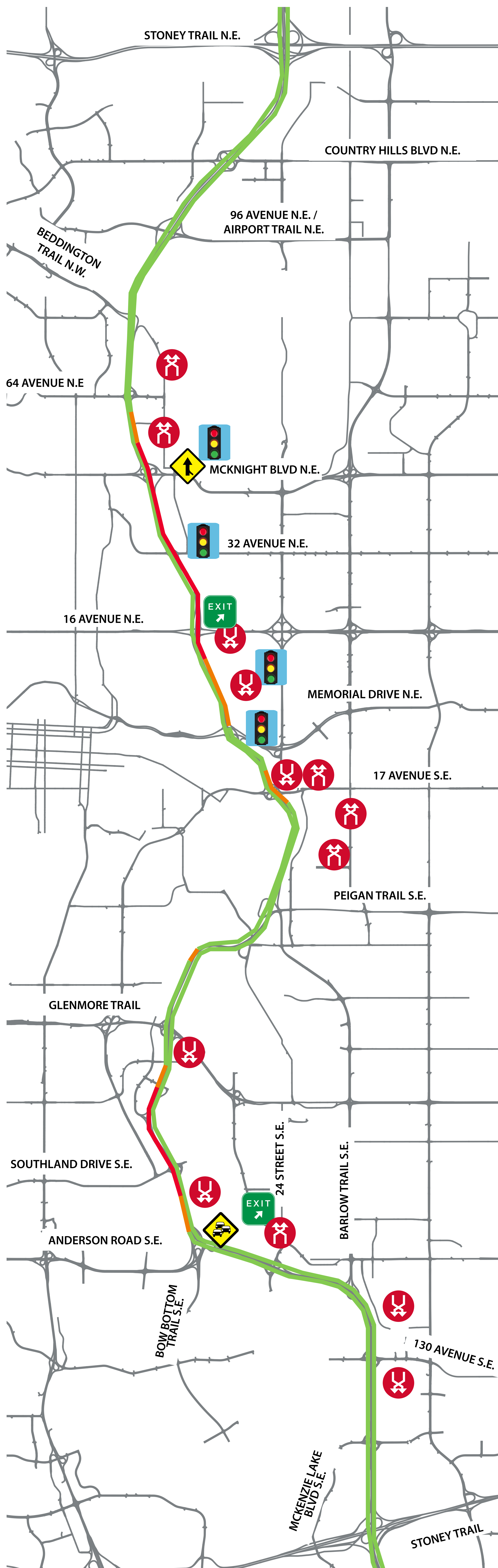
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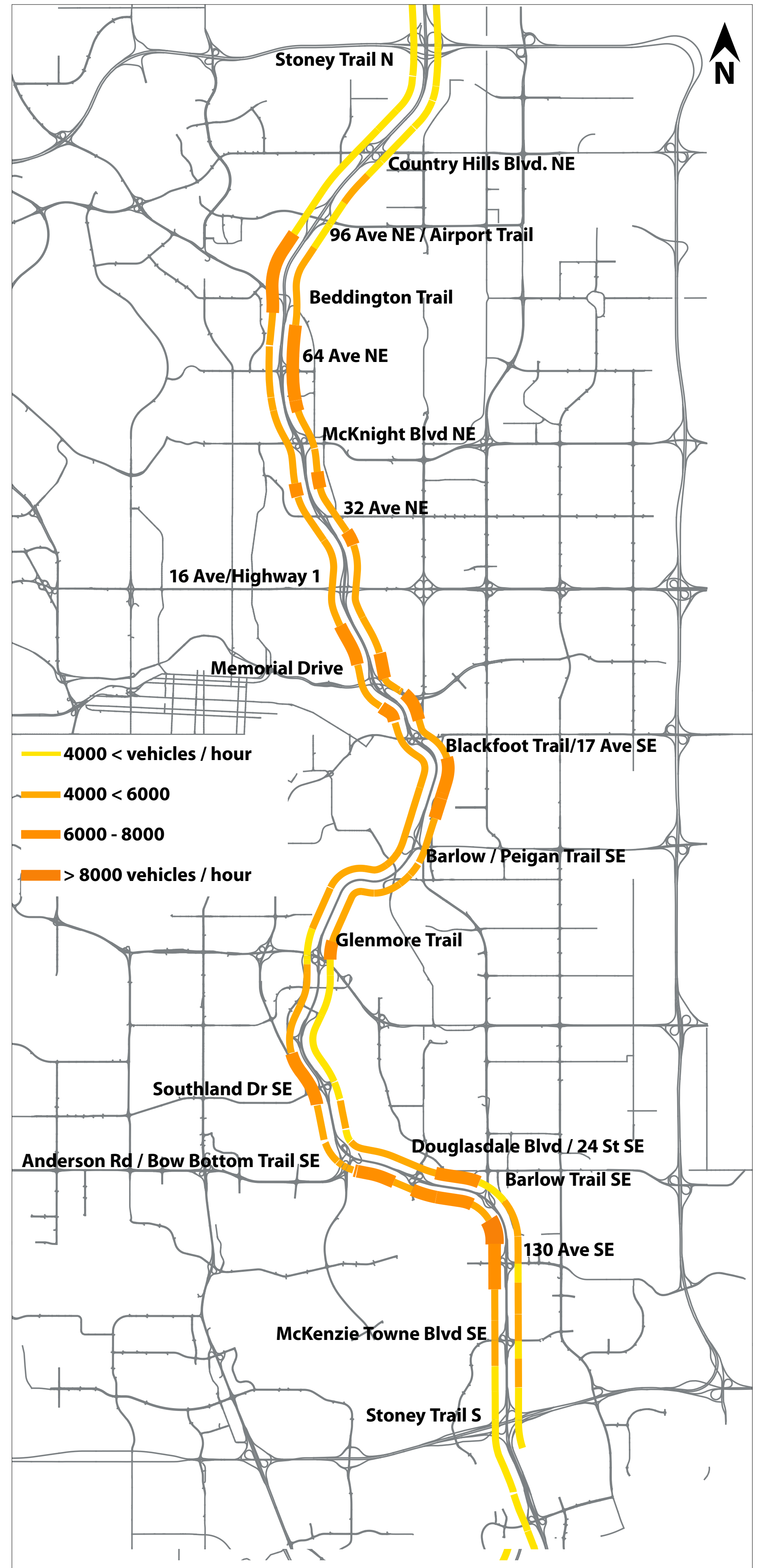
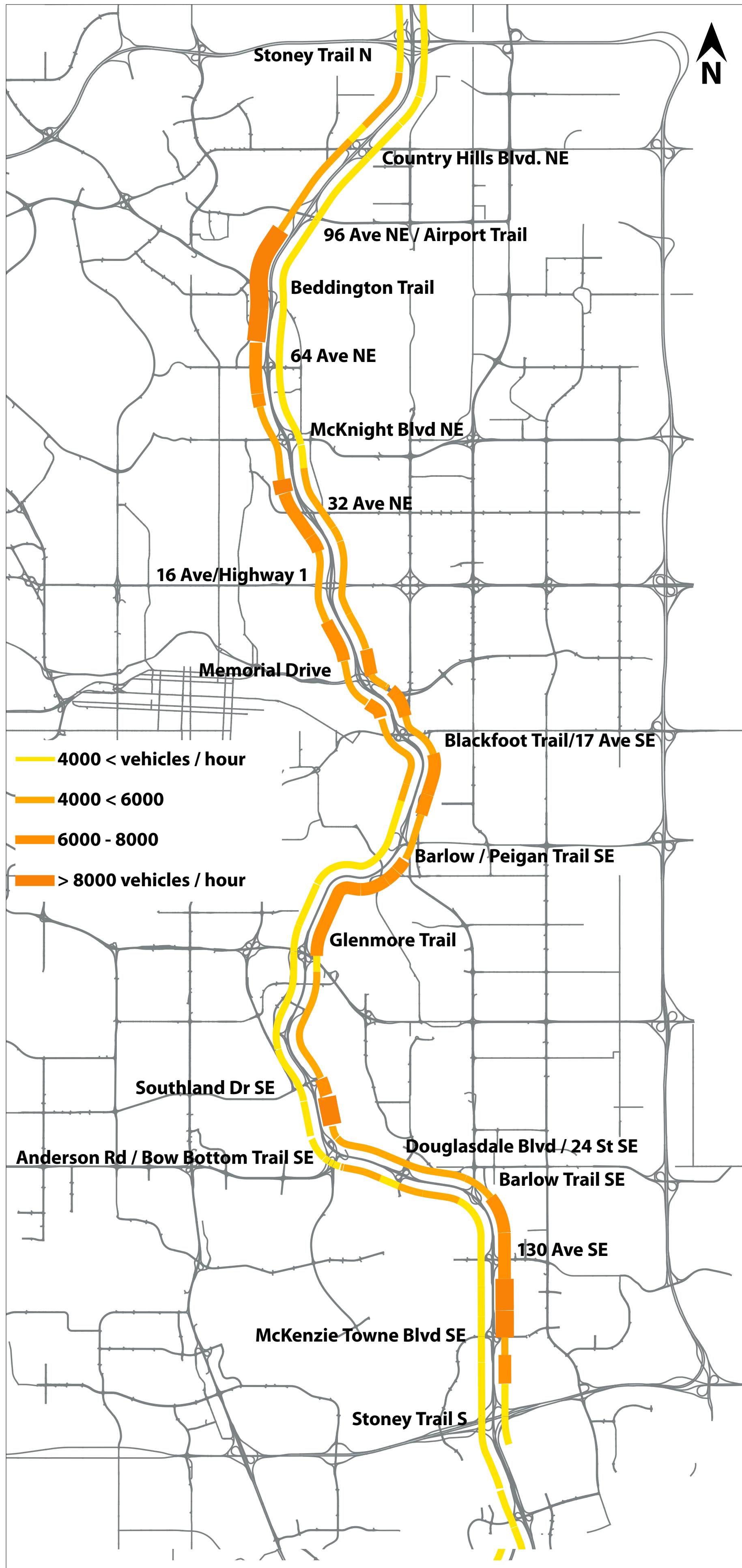
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# Peak Hour Traffic Volume

**Vehicles/Hour- AM Peak Hour**

**Vehicles/Hour - PM Peak Hour**



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## Freeway Management Tools

Several freeway management strategies will be considered as part of the analysis and will be discussed with stakeholders as part of the public engagement process. The study will use examples from around the world to develop a plan for Deerfoot Trail. The recommendations are expected to incorporate elements of the strategies listed.

### Strategy: Traffic Mobility and Demand Management

We need to make the best use of the infrastructure we build by moving as many people as possible. By considering how the roadway is used, we can maximize the capacity by giving priority to vehicles carrying more people or making it easy for people to change travel habits.

Examples:

- Managed lanes (high occupancy vehicle, high occupancy toll, Transit only)
- Strategies to change travel behaviour (reduce number of trips, shift travel times)
- Cross street and parallel network improvements (Deerfoot Trail is meant for longer trips, other changes to the road network for shorter trips may reduce vehicles on Deerfoot Trail)



### Strategy: Mode Shift

There is a finite amount of road space to accommodate continued growth. Convenient transit options that provide an alternative to driving are part of the solution. For those who prefer to walk and bike, crossing Deerfoot Trail should be safe and comfortable.

### Strategy: Improved Safety

There are modest improvements that can help make Deerfoot Trail safer. They won't prevent all collisions, but can help alert drivers when necessary or lessen the impact of a collision if it happens.

Examples:

- Median barrier improvements
- Lighting
- Signage

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# Freeway Management Tools

## Strategy: Intelligent Transportation Systems (ITS)

ITS uses technology to help traffic move more efficiently by providing information to drivers for better decision-making about their trip or regulating the flow of traffic. ITS measures provide support for many other management strategies.

Examples:

- Traveler information systems
- Incident management
- Ramp metering (regulating the flow of traffic onto freeways)



## Strategy: Capacity Improvements

Just adding capacity has been proven in other cities to only be effective for a short period of time. There are key locations where capacity is an important part of the strategy for Deerfoot Trail, but capacity improvements need to be complemented by other freeway management strategies to remain effective in the long term.

Examples:

- Additional lanes
- Reconfigure ramps



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# Thank you for coming

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We appreciate your comments. Please visit [calgary.ca/deerfoot](http://calgary.ca/deerfoot) to fill out an online feedback form and stay informed.

## Next steps

### **PHASE 2** Fall 2016 – Winter 2017

Develop and refine short-term improvements for existing problems



### **PHASE 3** Spring & Fall 2017

Work with stakeholders to develop, refine and evaluate long-term solutions



### **PHASE 4** Winter 2018

Develop an implementation strategy and share long-term recommendations with stakeholders and Council

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