

Transportation Report to  
SPC on Transportation and Transit  
2017 July 19

ISC: UNRESTRICTED  
TT2017-0594

## ANGLE PARKING IN CUL-DE-SACS

### EXECUTIVE SUMMARY

The availability of on-street parking in residential areas is important to citizens. The City helps to manage some of the specific parking issues that residents are faced with, including the creation of Accessible Parking Zones and Residential Parking Zones. Providing for angle parking where possible is another way The City can support the desires of residents, and increase the spaces available for on-street parking while taking advantage of existing infrastructure.

The rules that govern how vehicles must be parked on-street are contained in The City of Calgary's Parking Bylaw (41M2002) and come directly from the Alberta Traffic Safety Act. Angle parking in cul-de-sacs is only permitted where appropriate traffic signs or roadway markings have been installed. However, residents often choose to park 'nose-in' to the curb as a matter of convenience.

The designed purpose of the cul-de-sac is to ensure that vehicles can turn around to leave the dead-end road. The size of the cul-de-sac is dictated by the driving requirements of the larger vehicles that provide emergency response, municipal services and personal delivery, so they may have access to the homes and buildings surrounding the cul-de-sac. When vehicles are parked on an angle in a cul-de-sac they may reduce the available space to turn compared to when they are parked parallel to the curb.

Administration investigated the size of cul-de-sac needed to accommodate large vehicle access and angle parking. It was determined that it should have a minimum radius of 15 metres. This size requirement is supported by The Calgary Fire Department and Calgary Waste & Recycling Services. In Calgary, less than 1% of all residential cul-de-sacs meet this recommended size to support the creation of angle parking.

Administration has a process to evaluate angle parking requests from residents in cul-de-sacs. Currently, there are 13 angle parking locations in Calgary. This process will be updated to provide better information to applicants, and will ensure an application is appropriately circulated for comments and approval.

The Calgary Parking Authority (CPA) will begin a pilot project in 2017 September in response to complaints about angle parking in cul-de-sacs. Officers will issue warnings first, which will be documented in the CPA's computer system. An information brochure will be included with each warning. Administration will also work with the Calgary Parking Authority to better inform citizens about the parking rules in cul-de-sacs, which may include new on-line and printed materials.

### ADMINISTRATION RECOMMENDATION(S)

That the SPC on Transportation and Transit recommends that Council:

1. Receive this report for information; and
2. Direct Administration to update public information materials and the City process for residents to request angle parking in a cul-de-sac.

## ANGLE PARKING IN CUL-DE-SACS

### PREVIOUS COUNCIL DIRECTION / POLICY

On 2017 February 6, Council supported a Notice of Motion (NM2017-03) on Angle Parking in Cul-De-Sacs (Attachment 1) that directed Administration to develop a process that would allow for residents to angle park in cul-de-sacs where that activity is permitted from an operational standpoint. The process would also include cost recovery mechanisms and application guidelines, and Administration would make more information available for citizens about parking in cul-de-sacs. Administration was also directed to investigate if relaxations could be applied to the minimum width of a cul-de-sac to allow for more locations to be compliant for angle parking.

### BACKGROUND

A cul-de-sac is designed to be a dead-end street with a rounded end to allow for vehicles to turn around in. The design ensures that larger vehicles that provide emergency response, municipal services and personal delivery have ease of access to the homes and buildings surrounding the cul-de-sac. Cul-de-sacs are common in Calgary, with approximately 2500 across the city. A popular design that was introduced in Calgary communities in the 1950's, residents in cul-de-sacs often comment on the benefits of the design: less traffic and noise, provides more contact with neighbours, and that it is a safer place for children to play.

The design of the cul-de-sac does limit the available space for on-street parking, particularly where the surrounding homes have front garage driveways. Residents sometimes find that parallel parking their personal vehicles within the rounded design is challenging. To manage these challenges, some residents choose to park 'nose-in' to the curb instead, at an almost perpendicular angle. This practice is common enough that it does influence how other residents or visitors choose to park their vehicles in the cul-de-sac. There is also an assumption that angle parking allows for more vehicles to be parked in the available space.

The City's Parking Bylaw (41M2002) states that unless an official traffic sign has been installed that permits angle parking, motorists must parallel park when on the street. The Calgary Parking Authority (CPA) is responsible for enforcing parking rules. While they do not regularly patrol cul-de-sacs in residential areas for parking offenses, they must respond to citizen complaints about illegal parking, and have issued parking tickets for vehicles parked at an angle in cul-de-sacs.

### INVESTIGATION: ALTERNATIVES AND ANALYSIS

#### Regulations

Most parking rules in Calgary are contained in the Parking Bylaw, and come directly from the Use of Highway and Rules of the Road Regulations (304/2002) of the Alberta Traffic Safety Act. Any bylaw that a municipality passes may not contradict or relax these provincial laws. The relevant parking sections in the Rules of the Road state that the driver must park a vehicle parallel to the curb or edge of the roadway, and the right wheels of the vehicle cannot be more than 500 millimetres from the right curb. Angle parking may only be permitted when a sign is posted to allow this type of parking. Where the angle of the parked vehicle is going to be greater than 60 degrees from the curb, parking guide lines are required to be marked on the roadway.

Administration contacted nine cities in North America about their angle parking rules in cul-de-sacs. Six of the cities do not allow angle parking in these locations. While Medicine Hat and

## ANGLE PARKING IN CUL-DE-SACS

Waterloo do allow angle parking in principal, only Edmonton had a process of evaluation and permission to establish angle parking in cul-de-sacs:

CITY	ANGLE PARKING IN A CUL-DE-SAC
City of Edmonton	Permitted with a valid petition. Cul-de-sac must have a radius greater than 15 metres.
City of Medicine Hat	Permitted except on waste collection days and as long as the vehicle is not interfering with free flow of traffic. No application or evaluation.
City of Waterloo	Permitted as long as the vehicle does not obstruct traffic. No application or evaluation. Parking is generally prohibited between 2:30-6:00 AM.
City of Denver	Not permitted.
City of Hamilton	Not permitted.
City of Ottawa	Not permitted. All parking is prohibited within the turning basin of a cul-de-sac.
City of Phoenix	Not permitted.
City of Toronto	Not permitted, and have a 15m parking prohibition zone from the end of the street.
City of Winnipeg	Not permitted.

### Minimum space requirements

The City of Edmonton has established guidelines that allow angle parking for residents who live on cul-de-sacs that have a minimum radius of 15 meters or greater. This was based on standards set by the Transportation Association of Canada to accommodate the 10.5 metre turning movement of a typical delivery or waste management truck. The minimum design standard for cul-de-sacs on a residential street in Calgary has a radius of only 10.5 metres.

Calgary Waste & Recycling Services (WRS) confirm that maintaining adequate turning space is important, as vehicles that obstruct their movement in the cul-de-sacs is an ongoing operational issue for their side-collection vehicles. Angle parked vehicles also cause challenges for pickup as the reach of the collection arm is limited. The frequency of these incidents will likely increase when WRS adds another collection day each week to collect the new organic waste carts, beginning in late July 2017.

WRS has found it necessary to create site-specific solutions to solve some of these access issues. This includes having residents bring their carts to the middle or end of the cul-de-sac on collection days, or using a two-person, rear-loading truck to back into locations where angle

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parking has taken away turn around access. However, rear-loading trucks are not as efficient, and there are more safety concerns with rear collection than with side-loading trucks. The practice of bringing carts into the middle may also create additional hazards for motorists.

The Calgary Fire Department (CFD) does have Access Standards for roadway design – based on Fire, Building and Safety Codes – to ensure there is adequate, unobstructed access for emergency responses. CFD does require a minimum of 6 metres of clearance for their apparatus to set up at an emergency scene and provide a work area for emergency personnel:

- 3 metres for the vehicle width
- 2 metres for hose operation, so as to not restrict water flow
- 1 metre for operation of doors, equipment and personnel

In smaller cul-de-sacs where vehicles are parked on angles around the curve, the available space in the centre would likely accommodate only one emergency response vehicle. Other fire trucks or ambulances would need to be stationed further out, which could make moving patients more challenging and take longer. For larger fires or defensive attacks to prevent the spread of fire, CFD often requires an Engine to pump water into a Ladder truck to provide water streams from above, so both vehicles need space to operate close to one another. The Access Standards do require an appropriate turnaround for fire equipment on any dead-end road that is more than 90 metres long, which would prohibit the installation of angle parking in those cul-de-sacs.

In the conversation with The City of Phoenix, they said that if they were to ever consider angle parking in cul-de-sacs in the future, a required fire department turnaround of 50 feet (15.2 metre radius) would have to be maintained.

#### Driving in cul-de-sacs

Attachment 2 contains drawings of cul-de-sacs and truck turning movements, and how parallel parking and angle parking affects the turn. The figures illustrate the challenge that emergency and service vehicles face when entering cul-de-sacs that are built to the minimum standard in Calgary. The figures show how the typical service vehicle would need to maneuver in multiple-point turns or, more likely, have to back out of the cul-de-sac when personal vehicles are parked in the space. Emergency vehicles that are even larger – like the CFD Bronto Skylift (ladder truck) which is 14 metres long, and has a turning radius of 10.2 metres – could only go straight in and out when parked vehicles are present. The drawings clearly show how these larger vehicles, as well as passenger vehicles, can more easily move around angle parked vehicles when the radius of the cul-de-sac is a minimum of 15 metres.

#### Gain in parking spaces

The availability of on-street parking in residential areas is important to citizens. The City helps to manage some of the specific parking issues that residents are faced with. This includes the installation of Accessible Parking Zones to provide extra space and ease of movement for people with disabilities, and creating Residential Parking Zones to keep street parking available for residents when they live close to locations that generate a high demand for parking, such as shopping malls, hospitals, educational institutions and LRT stations. Providing for angle parking



### ANGLE PARKING IN CUL-DE-SACS

where possible is another way The City can support the desires of residents, and increase the number of spaces for on-street parking.

Administration did review and compare the number of parking spaces made available when angle parking is allowed (Attachment 2):

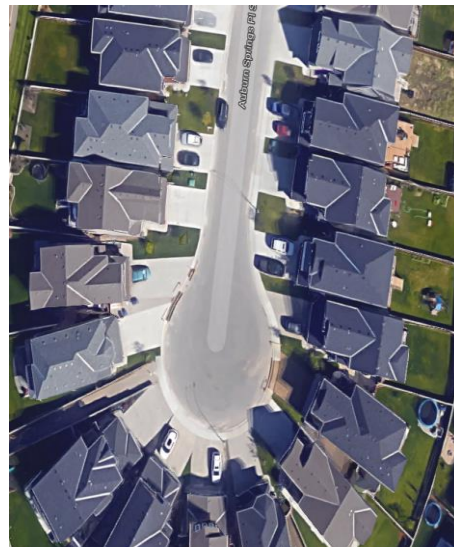
- In cul-de-sacs that meet the minimum design standard, and without any front driveway crossings, approximately 7 vehicles could be parallel parked around the curve. The placement of angle parking stalls would increase the available parking spaces to a maximum of 8 vehicles, though it would affect access into the cul-de-sac for larger vehicles (Figure 5).
- In cul-de-sacs with a 15 metre radius, the net gain in parking is larger: from 11 parallel parked to a maximum of 14 vehicles with a combination of angle and parallel parking, while maintaining required access (Figure 6).
- In cul-de-sacs that have homes with front drive garages, angle parking would offer limited or no gains in parking. The driveway access points eliminate most on-street parking spaces along the curve, as vehicles must legally be parked a minimum of 1.5 metres from any driveway crossing (Figure 4).

#### Limited Opportunity for Angle Parking

Cul-de-sacs have reduced in size over the years as developers and home buyers have favoured the design of homes with front-drive garages. In these cul-de-sacs, personal vehicles are intended to be parked in the garage or on the private driveway, which reduces the need to accommodate space for on-street parking. While dimensions do vary in the cul-de-sacs seen in Calgary, it is estimated that only 1% of residential cul-de-sacs have a radius of 15 metres or greater (Attachment 4). Of the 33 residential cul-de-sacs identified, only 11 of these had been built with a continuous curb that supports angle parking.



Riverbend – 15m Cul-de-sac  
Continuous curb



Auburn Bay – 12m Cul-de-sac  
Front driveways

## ANGLE PARKING IN CUL-DE-SACS

### Current Process

Administration does have a process to evaluate angle parking requests from residents in cul-de-sacs. Currently, there are 13 angle parking locations installed in cul-de-sacs (Attachment 3). Residents initiate the request for angle parking signage by contacting 3-1-1. The location is reviewed, and a petition form is prepared for the applicant to get signed by all affected residents. A successful petition requires 100% agreement of the residents. Since 2006, only nine angle parking requests had met this threshold and been approved. In 2016, there were 140 requests made.

However, this review process for angle parking requests has not been updated in 15-20 years, and Administration has found some areas that need improvement. There is no current criteria regarding minimum radius and access. It does appear that decisions have been made based solely on resident interest and agreement. The applications were also not circulated to other business units who could be affected by the parking change, like CFD and WRS.

Administration will make the following updates to the application and review process for angle parking in cul-de-sacs:

- Establish the minimum radius to be 15 metres for any cul-de-sac to be considered for angle parking;
- Publish the list of cul-de-sacs that meet this size standard on The City's website, so interested residents can check first before applying for angle parking;
- Establish a requirement to circulate applications for comments by The Calgary Fire Department and Calgary Waste & Recycling Services
- Establish an appropriate fee to recover the costs of installing the necessary traffic signs and road markings.

### Enforcement Pilot Project

The Calgary Parking Authority (CPA) is proposing a six-month pilot project beginning September 1, 2017 in regards to angle parking in cul-de-sacs. CPA bylaw officers will respond to complaint calls only. During the initial visit to a location, the CPA will take the following steps:

1. A CPA supervisor will assess the situation and determine the appropriate course of action.
2. Warnings will be issued to all vehicles parked in contravention of the Alberta Traffic Safety Act and Calgary's Parking Bylaw (41M2002).
3. An information brochure will be placed on each vehicle directing the owner/operator to an online site to obtain in-depth information regarding parking in cul-de-sacs.
4. The visit will be documented in CPA's computer-assisted dispatch system.

Upon receiving a follow-up complaint for a location that has been issued a warning, tickets may be issued to vehicles in violation.

## ANGLE PARKING IN CUL-DE-SACS

### Stakeholder Engagement, Research and Communication

Residents who live on four cul-de-sacs in the communities of Dover, Taradale and Queensland – where angle parking has been allowed – were contacted and asked to share their experiences with the parking plan. Most residents found the parking signs to be effective, including those residents who utilize an Accessible Parking Zone, and that neighbours work with each other to mutually agree on parking locations. Some concerns were raised about the increased number of vehicles some single or multi-family homes have, increased vehicle traffic due to home-based businesses in the cul-de-sac, and that visitors sometimes do not angle park.

As angle parking is a common occurrence in cul-de-sacs, there does seem to be a general misunderstanding of how the regular parking rules for the street apply to this unique circular environment. Administration will work with the Calgary Parking Authority to review current parking information, and develop both on-line and printed materials to better communicate the parking rules in cul-de-sacs to citizens.

### Strategic Alignment

This report does align with many of the principles found in the Calgary Transportation Plan, as we ensure the attractiveness, convenience and safety of all modes of transportation. Residential streets will focus on the needs of private automobiles and on-street parking. The introduction of secondary suites has modestly increased parking demand in some locations. However, access to emergency services and incorporation of emergency evacuation routes must be considered in the design and operation of all road and street types.

### Social, Environmental, Economic (External)

The review of angle parking in cul-de-sacs does support The City's goal to make Calgary a safe city by ensuring that emergency response and municipal access requirements are included in the review process for angle parking applications.

### Financial Capacity

#### Current and Future Operating Budget:

The information contained in this report contains no decisions that would impact operating budgets. It has been discussed that any future process that would formalize applications for angle parking in cul-de-sacs would include an application fee to recover costs for the installation of required signage and road markings.

#### Current and Future Capital Budget:

The information contained in this report contains no decisions that would impact capital budgets.

### Risk Assessment

Emergency response and municipal services can be impacted by angle parking where there is not enough space to maneuver larger vehicles. This risk will be mitigated by limiting angle parking to only cul-de-sacs that meet the 15 metre radius standard.

## ANGLE PARKING IN CUL-DE-SACS

### **REASON(S) FOR RECOMMENDATION(S):**

Based on design standards and input from The Calgary Fire Department and Calgary Waste & Recycling Services, only cul-de-sacs that have a minimum radius of 15 metres will be considered for angle parking in the future. As there will be relatively few locations that meet this standard, a new process to review requests by residents to permit angle parking in cul-de-sacs will not be necessary. Administration will make improvements to the existing process however, to provide better information to applicants, and to ensure the application is appropriately circulated for comments and approval.

### **ATTACHMENT(S)**

1. Notice of Motion on Angle Parking in Cul-de-sacs (NM2017-03)
2. Cul-de-sac Drawings and Turning Movements
3. Calgary Cul-de-sac Angle Parking Locations (2017)
4. List of Cul-de-sacs in Calgary that Meet Requirements for Angle Parking



THE CITY OF  
**CALGARY**  
CITY CLERK'S OFFICE

RECEIVED NM 2017-03

2017 FEB -2 AM 8: 25

**NOTICE OF MOTION**  
CC 661 (R2009-05)

THE CITY OF CALGARY  
CITY CLERK'S *Km*

**RE: Angle Parking in Cul-De-Sacs**

**Councillor Keating, Councillor Demong and Councillor Pootmans**

WHEREAS Calgary Parking Bylaw 41M2002 currently states that "When parking on a roadway, a driver of a vehicle shall park that vehicle with the sides of it parallel to the curb or edge of the roadway";

AND WHEREAS Calgary Parking Authority has recently been enforcing this bylaw on a complaint basis which has generated significant public attention;

AND WHEREAS the availability of residential parking is important to citizens;

AND WHEREAS angle parking in a cul-de-sac could be permitted in certain circumstances;

AND WHEREAS residents that live in a cul-de-sac should have the opportunity to decide if angle parking could be permitted where appropriate;

THEREFORE BE IT RESOLVED that Administration develop a process that would allow for residents to angle park in cul-de-sacs where that activity is permitted from an operational standpoint;

AND FURTHER BE IT RESOLVED that this process include, but not be limited to the following:

- A cost recovery mechanism for the design, manufacturing, installation and maintenance of signage and road marking.
- Guidelines on the process for petitions to apply for angle parking and the identification of expectations for home owners.
- More accessible information on parking in cul-de-sacs and what the conditions are will be communicated publicly and made available on a Calgary.ca.

AND FURTHER BE IT RESOLVED that Administration investigate if relaxations could be applied to the minimum width of a cul-de-sacs to allow for more locations to be compliant for angle parking.

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Signature of Member(s) of Council  
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ISC: Protected

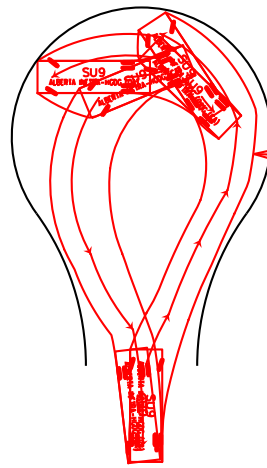




# Cul-de-sac Drawings and Turning Movements

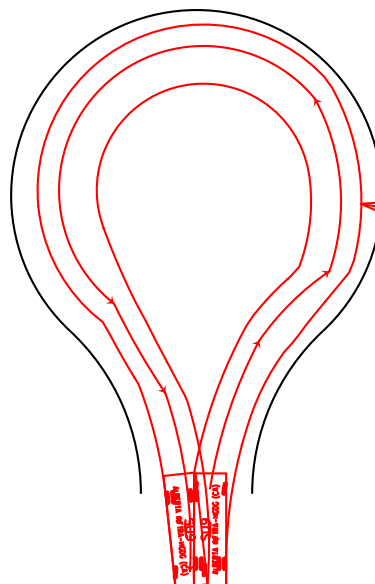
TT2017-0594 Angle Parking in Cul-de-sacs

#1



GARBAGE TRUCK 10KPH  
FORWARD AND REVERSE  
MOVEMENT IN  
AVERAGE RESIDENTIAL  
CUL-DE-SAC UNIMPEDED

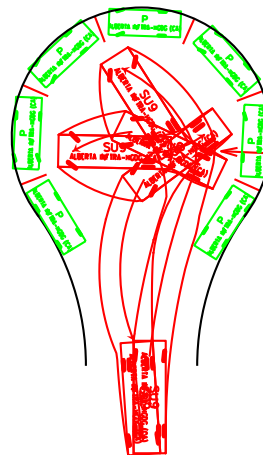
TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN (MINIMUM REQUIREMENTS)  
USING 10.50m BULB RADIUS



GARBAGE TRUCK 10KPH  
MOVEMENT IN  
CUL-DE-SAC UNIMPEDED

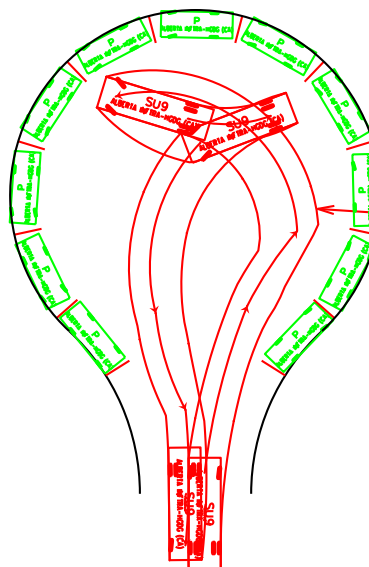
CITY OF CALGARY CUL-DE-SAC DESIGN  
USING 15.00m BULB RADIUS

#2



GARBAGE TRUCK 10KPH  
FORWARD AND REVERSE  
MOVEMENT IN  
AVERAGE RESIDENTIAL  
CUL-DE-SAC  
(PARALLEL PARKING)

TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN (MINIMUM REQUIREMENTS)  
USING 10.50m BULB RADIUS

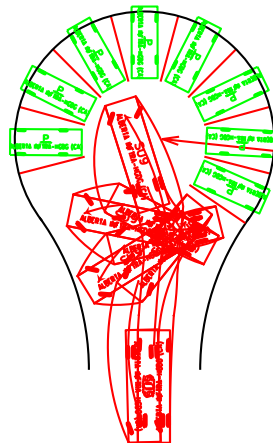


GARBAGE TRUCK 10KPH  
FORWARD AND REVERSE  
MOVEMENT IN  
CUL-DE-SAC  
(PARALLEL PARKING)

CITY OF CALGARY CUL-DE-SAC DESIGN  
USING 15.00m BULB RADIUS

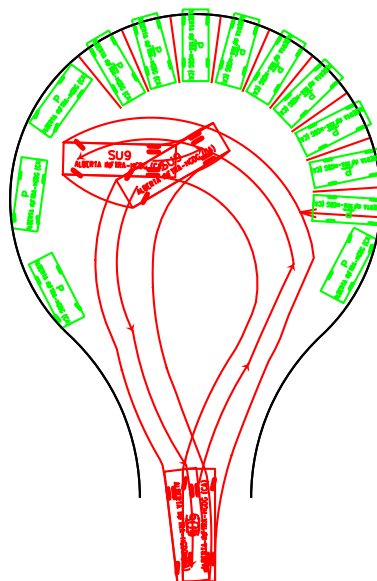


#3



GARBAGE TRUCK 10KPH  
FORWARD AND REVERSE  
MOVEMENT IN  
AVERAGE RESIDENTIAL  
CUL-DE-SAC  
(ANGLED PARKING)

TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN (MINIMUM REQUIREMENTS)  
USING 10.50m BULB RADIUS



GARBAGE TRUCK 10KPH  
FORWARD AND REVERSE  
MOVEMENT IN  
CUL-DE-SAC  
(PARALLEL AND ANGLED  
PARKING)

CITY OF CALGARY CUL-DE-SAC DESIGN  
USING 15.00m BULB RADIUS

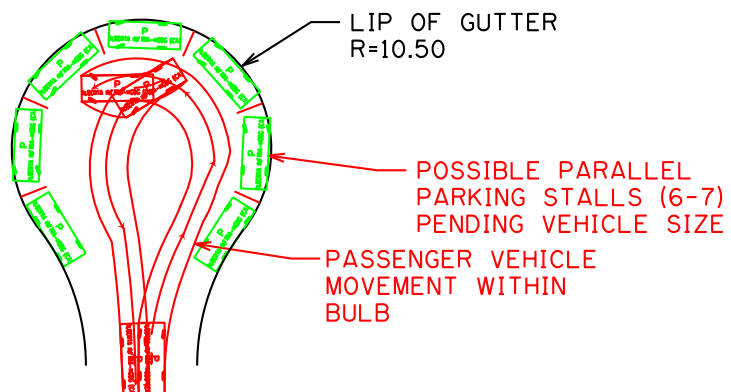
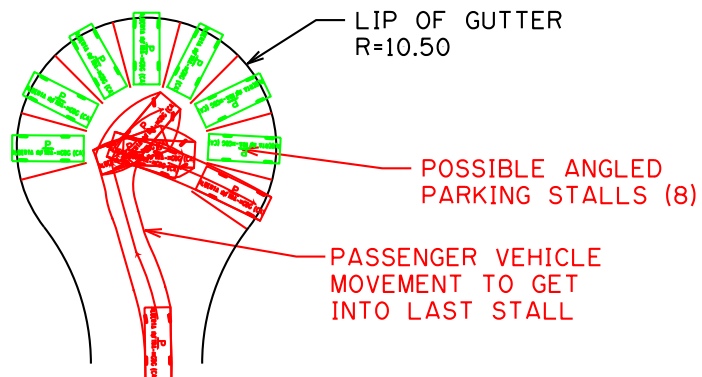
#4



TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN (BULB RADII VARY)

#5

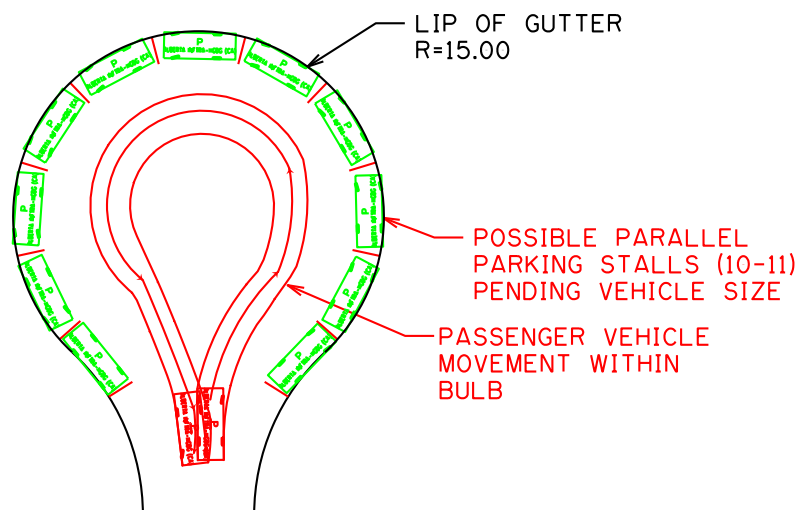
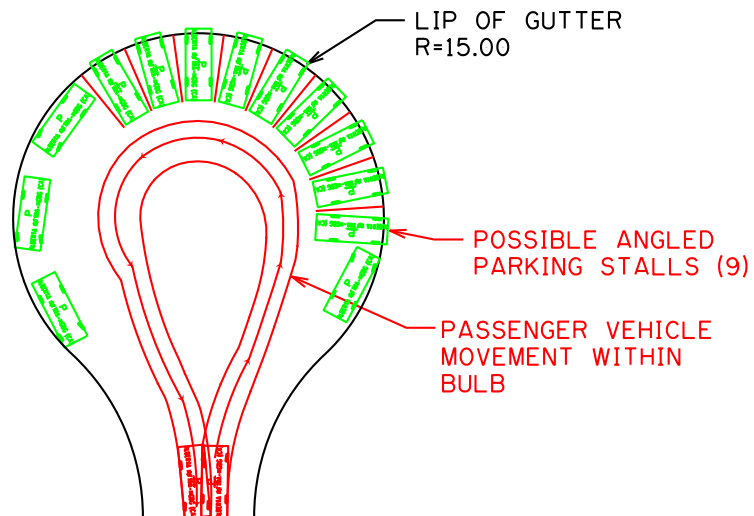
Passenger Vehicle Movements  
Curb Radius of 10.5 metres



TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN

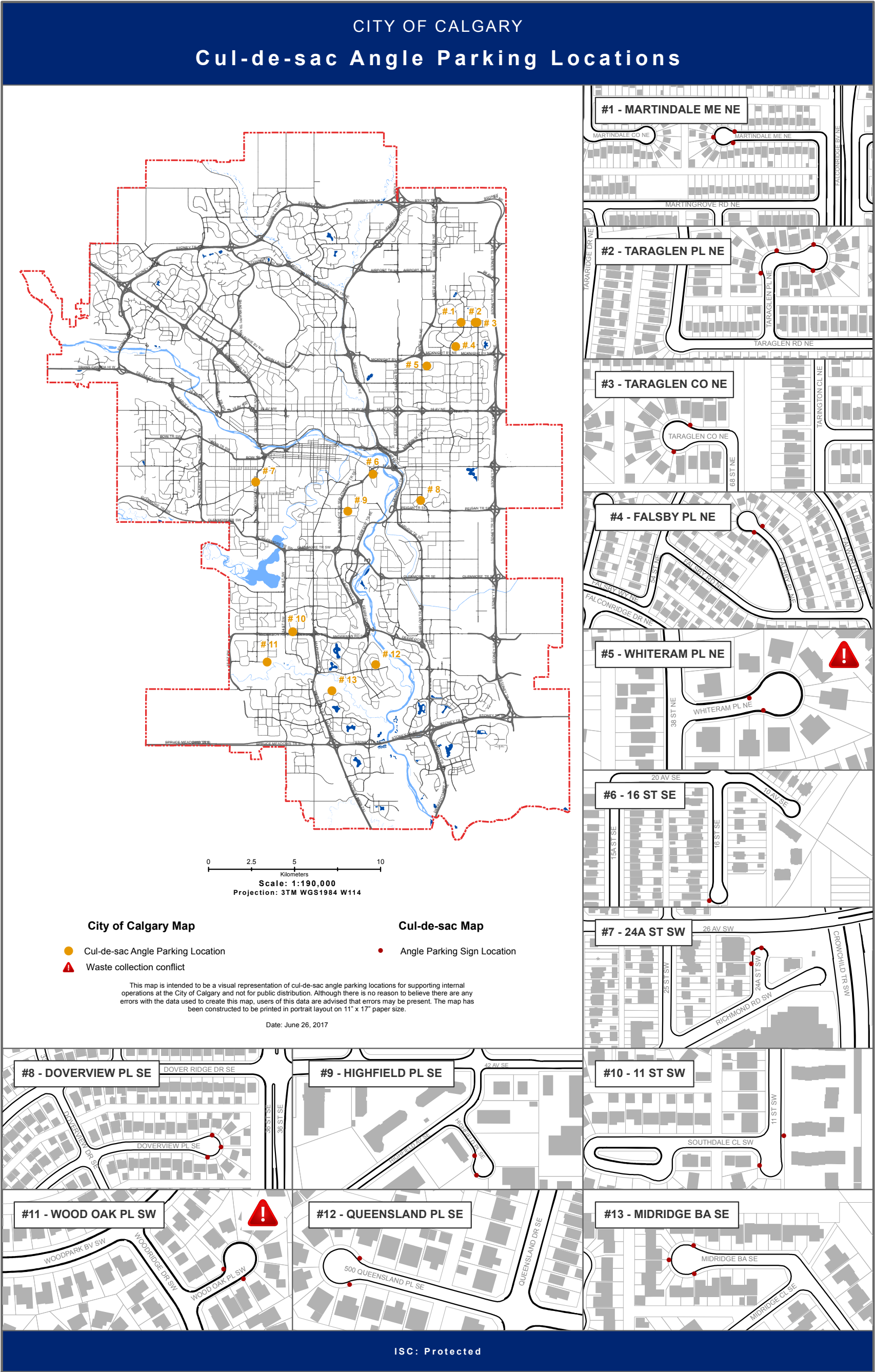
# 6

## Passenger Vehicle Movements Curb Radius of 15 metres



TYPICAL CITY OF CALGARY  
RESIDENTIAL STREET  
CUL-DE-SAC DESIGN  
(USING 15.00 BULB RADIUS)





## Residential Cul-De-Sacs with a Minimum Radius of 15 Metres

### Attachment 4 - Residential Cul-de-sacs with a Minimum Radius of 15 Metres

CDS_ID	On Street	Road Class	Configuration
	17 Cul-de-sacs in Residential Areas have No Homes built on them		
1901	PALISFIELD PL SW	Residential Street	Primarily Continuous Curb
222	100 SHERWOOD PL NW	Residential Street	Primarily Continuous Curb
1240	LAWSON PL SW	Residential Street	Primarily Continuous Curb
1188	LADBROOKE DR SW	Residential Street	Primarily Continuous Curb
1906	RIVERVALLEY PL SE	Residential Street	Primarily Continuous Curb
1219	MIDVALLEY RI SE	Residential Street	Primarily Continuous Curb
305	1100 FONDA CO SE	Residential Street	Primarily Continuous Curb
689	MARCOMBE PL NE	Residential Street	Primarily Continuous Curb
776	SHAWMEADOWS PL SW	Residential Street	Primarily Continuous Curb
667	RIVERBROOK PL SE	Residential Street	Primarily Continuous Curb
3868	300 OAKRIDGE PL SW	Residential Street	Primarily Continuous Curb
177	AUBURN CREST MR SE	Residential Street	Primarily Front Driveways
319	KINCORA ME NW	Residential Street	Primarily Front Driveways
2266	200 DISCOVERY RIDGE TC SW	Residential Street	Primarily Front Driveways
2954	200 CRANWELL BA SE	Residential Street	Primarily Front Driveways
2674	AUBURN BAY PL SE	Residential Street	Primarily Front Driveways
3655	SHERWOOD MR NW	Residential Street	Primarily Front Driveways
3836	100 SIERRA VISTA TC SW	Residential Street	Primarily Front Driveways
3961	100 SHANNON ME SW	Residential Street	Primarily Front Driveways
3309	ANAHEIM GD NE	Residential Street	Primarily Front Driveways
4043	PATTERSON PL SW	Residential Street	Primarily Front Driveways
2402	100 CITADEL MEADOW BA NW	Residential Street	Primarily Front Driveways
2123	100 ROCKY RIDGE CV NW	Residential Street	Primarily Front Driveways
2565	CITADEL ESTATES PL NW	Residential Street	Primarily Front Driveways
1422	CANDLE CO SW	Residential Street	Primarily Front Driveways
4074	TUSCANY HILLS BA NW	Residential Street	Primarily Front Driveways
2113	300 CITADEL HILLS PL NW	Residential Street	Primarily Front Driveways
2823	AUBURN MEADOWS CO SE	Residential Street	Primarily Front Driveways
1521	100 SIERRA MADRE CO SW	Residential Street	Primarily Front Driveways
3942	SKYVIEW SHORES PL NE	Residential Street	Primarily Front Driveways
570	WOODBRIAR PL SW	Residential Street	Primarily Front Driveways
2237	EAGLE CREST PL SW	Residential Street	Primarily Front Driveways
2685	SUNMOUNT GR SE	Residential Street	Primarily Front Driveways