

Calgary



Coyote Conflict Response Guide

A process for addressing human-coyote
conflicts in Calgary parks

V. Q2 2019

Publication information

Title:	Coyote Conflict Response Guide: a process for addressing human-coyote conflicts in Calgary parks.
Intent:	This document guides City of Calgary Parks staff and/or its contractors in managing human-coyote conflict on land that is stewarded by Calgary Parks. This guide establishes a consistent and appropriate non-emergency response to human-coyote conflict reports received by The City and occurring in Calgary parks.
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Revision notice

Date of review	Description

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Purpose

This guide provides Calgary Park staff and/or its wildlife management contractors with an effective and informed response process for non-emergency human-coyote conflict reports received through The City of Calgary's 311 system or by other means. This document instructs City Parks staff how to classify the coyote activity described in a report, and outlines the level of response required to address the coyote activity.

In the event of an emergency report regarding coyotes where there is an immediate threat to public safety that requires an immediate response, the report is received and handled by 911 dispatch. An emergency response is outside the scope of this guide.

Currently this guide applies to City land managed by Calgary Parks. The intent is to evaluate the efficacy of this guide (Appendix D) and, if it is successful, expand its scope to all City-owned land. Thus this guide is a living document and its processes and appendices may be updated as appropriate.

Legislative authority

Natural resources, including wildlife, fall under the Provincial sphere of jurisdiction. The management of coyotes is regulated by Alberta's *Agricultural Pests Act*, RSA 2000 c A-8 and associated *Pest and Nuisance Control Regulation*. Within this legislation, coyotes are declared a nuisance. Under the *Act*, an owner or occupant of land may "prevent the establishment of, control or destroy a nuisance on land the owner owns, or occupier occupies" (Province of Alberta 2000). Thus The City of Calgary's role in coyote management is as a landowner on City-owned land; it does not have authority to manage coyotes on private land.

Though declared a nuisance under Alberta's *Agricultural Pests Act*, coyotes are considered wildlife under Alberta's *Wildlife Act*, RSA 2000 c W-10 (Province of Alberta 2000); they are an important part of Calgary's ecosystems and the biodiversity of Calgary park land. This designation affects how coyote dens may be managed, which has implications for potential responses to human-coyote conflicts and the processes provided within this guide.

Strategic plan and policy context

This guide is aligned with Calgary's *Our BiodiverCity* strategic plan (The City of Calgary Parks 2015) and associated Biodiversity Policy (CSPS037), approved by City Council in March 2015 (The City of Calgary 2015). The strategic plan's principles of integration and ecological literacy drive the approach taken in this guide.

Integration – The City of Calgary works with communities and businesses to build neighbourhoods that support local biodiversity conservation, healthy ecological processes and provide equitable access to nature.

Ecological literacy – The City of Calgary supports the conservation and appreciation of biodiversity by cultivating knowledge and understanding about ecological processes, personal stewardship actions and Calgary's natural heritage.

Further, the Biodiversity Policy includes the following commitment and procedure that provides the mandate to develop this guide:

Commitment – Plan and manage Calgary parks and open space as a connected network of habitats and wildlife movement corridors, with the aim of reducing roadway collision threats and related human-urban wildlife conflict.

Procedure – Integrate with wildlife, plants and natural heritage: Conserve lands and waters that are critical in retaining essential local ecosystem function, structure, quality and resilience, while ensuring appropriate access and use.

Introduction

Coyotes (*Canis latrans*) are a natural part of Calgary's ecosystem and their ability to adapt has helped them thrive in urban environments (Alexander and Quinn 2011; Poessel *et al.* 2013). They play an important role in the healthy function of urban ecosystems by helping to regulate populations of various species including white tailed deer (*Odocoileus virginianus*), Canada geese (*Branta canadensis*), rabbits and rodents.

In general, coyotes can live in close proximity to humans with little conflict (Gehrt *et al.* 2009, Poessel *et al.* 2013). However, in many municipalities across North America, human-coyote conflict has become an emerging issue. As a result, various municipalities have created a coyote management plan (Baker and Timm 1998, Timm and Baker 2007, Alexander and Quinn 2011, Poessel *et al.* 2013).

An effective coyote response plan must consider both public safety and the benefits of having a healthy predator population to aid ecosystem balance (Alberta Government 2016). A common element throughout the scientific literature and municipalities' management plans is that to reduce human-coyote conflict, education and proactive management is required (Baker 2007, Worcester and Boelens 2007, Alexander and Quinn 2011, Lukasik and Alexander 2011, Poessel *et al.* 2013).

This response guide is based on scientific literature and best management practices recommended by wildlife researchers and employed by other urban jurisdictions across North America (City of Calabasas (n.d), City & County of Denver 2009, City of Torrance (n.d.), The Humane Society of the United States (n.d.), and Town of Superior 2014). It includes a variety of management tools including communication, citizen and coyote behaviour modification and response(s) to human-coyote conflict.

Principles for Active Co-existence with Coyotes

As per the Biodiversity Policy (The City of Calgary 2015), The City's goal is for citizens and coyotes to co-exist whenever possible. The City's principles for co-existence are:

- Human safety and their pets is a priority;
- Wildlife and their habitat is important to the citizens of Calgary and to Calgary's biodiversity and urban ecosystems;
- Coyotes serve an important role in Calgary's ecosystem by helping to control populations of deer, rodents and other prey;
- Calgarians have a key role to play in minimizing human-coyote conflict;
- Minimizing human-coyote conflict must address problematic behaviours of both the coyote (e.g., aggression towards people and pets) and humans (e.g., intentionally or unintentionally feeding coyotes, not removing pet feces from parks or yards, improper garbage disposal, etc.) that contribute to conflict;
- Public education and communication are essential to co-existence with coyotes;
- Coyote conflict management practices are based on an understanding of their biology and urban ecology;
- Non-selective coyote removals are not effective for reducing coyote populations or preventing human-coyote conflicts;
- The City seeks an emphasis on non-lethal coyote management techniques; and
- Lethal removal of a coyote is an option if it is deemed necessary; it should be selective and aimed at specific individuals whose undesirable behaviour cannot be changed by other methods.

Coyote conflict response process

This document is intended to provide a step-by-step process to assist City staff and approved wildlife management contractors to respond to human-coyote conflict on land stewarded by Calgary Parks. The process starts with a human-coyote interaction that is reported by a citizen(s) to The City of Calgary (The City), and The City classifying the report based on an investigation. The investigation informs a response based on the report's classification. Finally the response is evaluated using adaptive management techniques to ensure success (Figure 1).

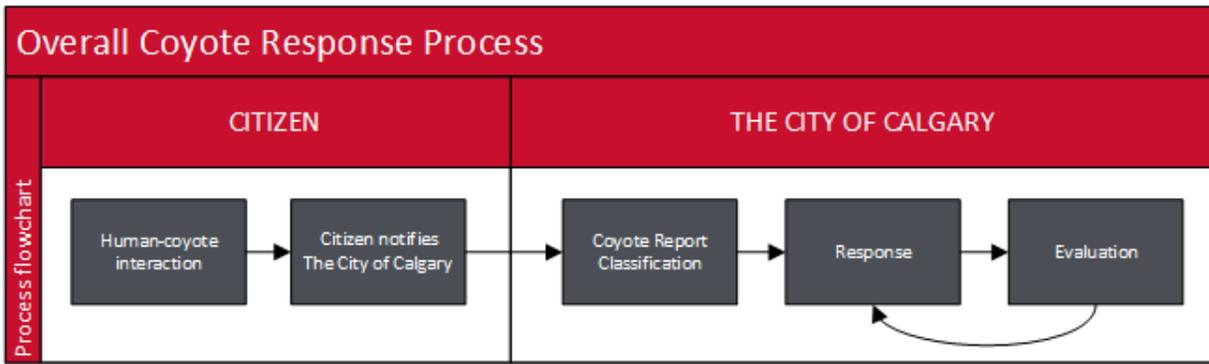


Figure 1. Overall coyote response process, including citizens’ and The City of Calgary’s roles. Human-coyote interactions may include any observations of coyote activity or human-coyote conflicts. Evaluation methods are forthcoming (see Appendix D).

This guide is not intended to provide prescriptive responses; it guides an outcomes-based process intended to provide direction and rationale for The City’s response. The guide provides direction on the following:

1. Coyote report classification process
2. Response decision process
3. Roles and responsibilities

These three actions are described below.

1. COYOTE REPORT CLASSIFICATION

This section describes the classification process for coyote reports received by The City. Coyote reports are classified as either Observation, Conflict, or Sick/injured (Table 1). An Observation is further classified as a Sign, Sighting, or Encounter; a Conflict is further classified as an Incident, Pet-Attack, or Human-Attack (Table 2). This classification system forms the framework for determining whether human-coyote interactions require further investigation or response.

Table 1. Broad classification of a coyote report

Broad Classification	Definition
Observation	A broad coyote report classification where there was no interaction, or where a coyote’s presence did not result in a conflict between a human and/or pet and a coyote, and includes the finer classifications of sign, sighting, and encounter.
Conflict	A broad coyote report classification that describes an interaction between a human and/or pet and a coyote that caused harm or where there was a potential/perception of harm, and includes the finer classifications of incident, pet-attack, and human-attack.
Sick/Injured	Coyote appears lethargic, indifferent or aggressive. Shows signs of scroptic mange (hair loss). Injured coyotes are often seen limping.

Table 2. Classification of a coyote report (adapted from Poessel et al. 2013)

Broad Classification	Fine Classification	Definition
Observation	Sign	The act of noticing or taking note of tracks, scat or vocalizations that indicate activity of coyote(s) in an area.
	Sighting	A visual observation of a coyote(s).
	Encounter	An interaction between a human and a coyote that is without incident.
Conflict	Incident	A conflict between a human and a coyote where a coyote exhibited behaviour creating an uncomfortable situation for the human; includes baring teeth, growling, snarling, stalking a human or crouching as if to attack a human.
	Pet-Attack	Domestic pet is attacked by a coyote (either injured or killed).
	Human-Attack	A conflict that involves physical contact between a coyote and a human; a human is injured or killed by a coyote.
Sick/Injured	N/A	

The classification process involves three major steps (Figure 2):

- A) Preliminary report classification;
- B) Investigation; and
- C) Final classification.

Preliminary report classification is based on the description of the event as reported by the citizen. The investigation process confirms or modifies the preliminary classification, which results in a final classification for the report. This final classification determines The City's response. For some response types, a finer classification (i.e., Incident vs. Pet-Attack vs. Human-Attack for Conflicts) is used to determine the response (see Section 2. Response).

The following sections align with the alphanumeric steps illustrated in Figure 2, with each step further described below. At certain steps, the report response coordinator (see Section 3 Roles and responsibilities) is required to choose between two different options. These steps are indicated with a ➤ symbol. After each choice the words *go to section* __ are written. The report response coordinator then skips ahead to that section, ignoring the sections in between. If there is no prompt to go to another section, the report response coordinator continues to the next section in the guide.

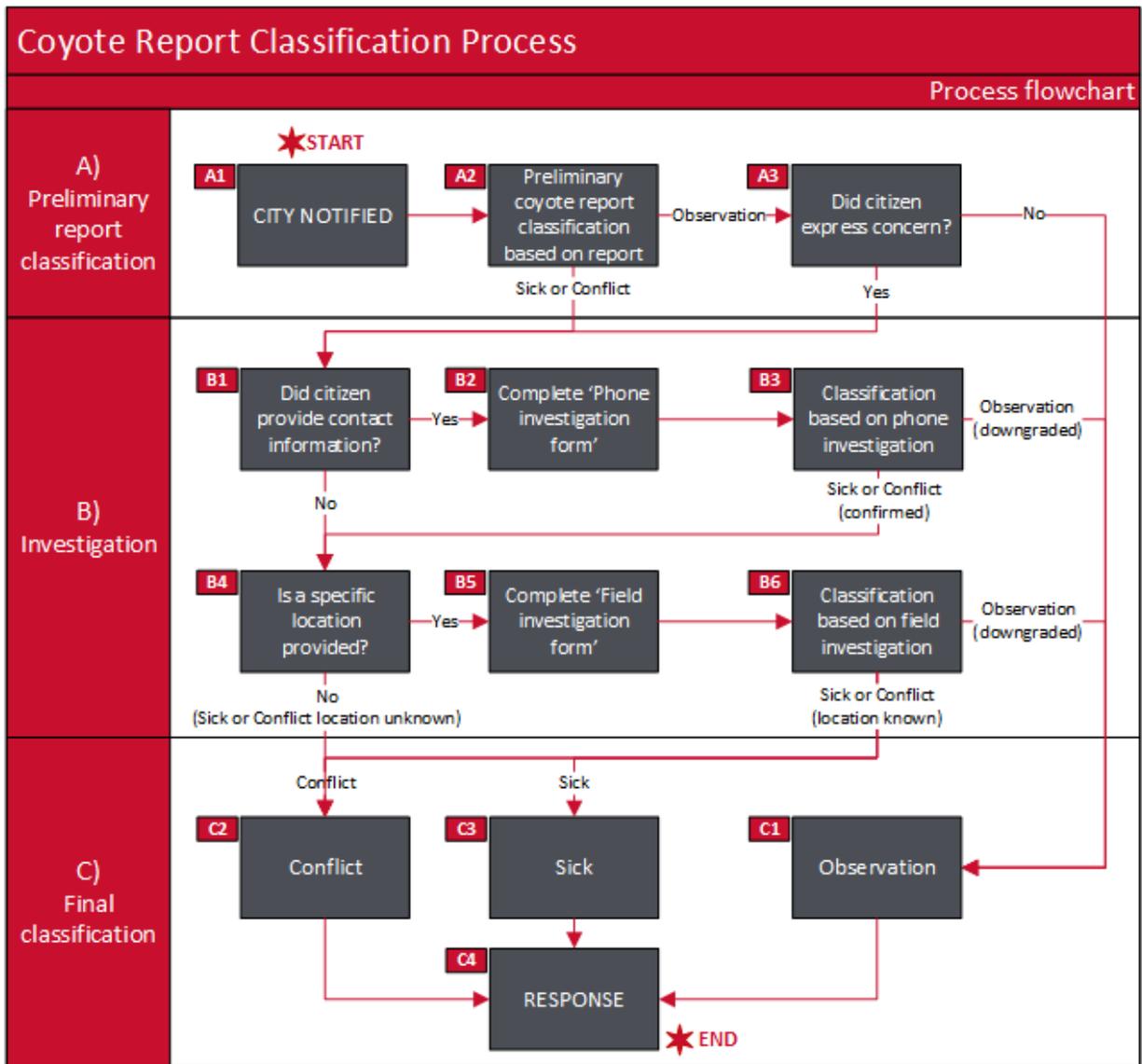


Figure 2: Flow chart for classifying Coyote Reports. *Sick is an abbreviation for sick/injured.

A) Preliminary report classification

The preliminary report classification process involves both the perspective of the citizen describing and submitting a coyote report to The City, and a classification of the report by Calgary Parks staff based on a standardized classification system (Table 1). This provides the basis for further investigation of the coyote report, as necessary.

A1) City notified

Citizens can report coyote activity to The City via: 311, 911, Calgary Police Service non-emergency line, personal accounts, media and social media. These reports also include a variety of useful information including, but not limited to, the date, time and location of the

incident. It also includes a description of the event as reported by the citizen submitting the report.

A2) Preliminary coyote report classification

Calgary Parks staff review a coyote report after it is received. Reports should be checked daily if possible, and must be checked within five business days. Training is required for City staff to check the reports in the 311 system to review coyote reports. Training can be received from the Calgary Parks Web/311 Coordinator.

During the report review, preliminary classification begins (see Figure 2, step A2). Reports may be classified as either Observations or Conflicts based on the report's description, following the classification definitions in Table 1 and Table 2. In this step of the process the report is only classified into the broad classification of Observation or Conflict (Table 1).

Reports from 311 have an initial categorization, while reports from other sources may not have any initial categorization and the information provided can vary. The following sections describe how to make a preliminary classification for both types of reports.

Reports from 311

Reports received by a Customer Service Representative (CSR) through 311 are initially assigned to one of seven classifications (normal, aggressive, sick/injured, den/nest, scavenging garbage, protecting young, and other) built into the existing 311 system. These seven types are only used in the existing 311 reporting system and are consistent across most wildlife reports; they simplify the process for 311 CSRs who are not experts on coyote behaviour and reduce the potential for misclassification of the report in the initial stages.

During classification, 311 report comments must also be made. If the behaviour reported in the comments do not match the initial categorization given by the CSR, the report may be classified based on the comments. If there is insufficient information to make a clear decision on the preliminary classification, the default preliminary classification is conflict; all conflicts are investigated and the report classification will be confirmed during that process.

- Coyotes that are categorized in 311 reports as normal, den/nest, scavenging garbage or other, are then assigned a preliminary classification as an Observation, *go to section A3*.
- Coyotes that are categorized in 311 as aggressive or protecting young are then assigned a preliminary classification as a Conflict, *go to section B1*.
- Coyotes that are categorized in 311 as Sick/injured, a phone investigation should be conducted to confirm if sick or injured, *go to section B1*.

Reports received outside of 311

Reports that are received from outside of the 311 system should be classified based on the behaviour described within the report. If there is insufficient information to make a clear decision on the preliminary classification, the default preliminary classification is a conflict.

- If the report is classified as an Observation, *go to section A3*.
- If the report is classified as a Conflict, *go to section B1*.
- If the report is classified as Sick/injured, a phone investigation should be conducted to confirm, *go to section B1*.

A3) Did the citizen express concern?

An observation report is not investigated unless a citizen expresses a concern in the report. Concerns could include, but not be limited to, coyotes seen in areas of concern like yards and school fields, coyotes being sighted in an area regularly, etc.).

- If the report is classified as an Observation and the citizen expresses concern, a phone investigation should occur to confirm the report, *go to section B1*. This will ensure that Conflicts (which are more serious) are not misclassified as Observations.

B) Investigation

The investigative process verifies reports, strengthens accurate classification and provides the specifics necessary to formulate the appropriate site-specific response; it includes a phone and/or field investigation (Figure 2). There are also opportunities to educate citizens while conducting the investigation by directing them to the Calgary.ca website, on which a search for coyotes turns up more information.

All reports are mapped by Calgary Parks staff to assess activity across the City. If an area is deemed as an area of high coyote activity due to the number of reports over a period of time, then a field investigation may be triggered, even if a Conflict has not occurred.

B1) Did the citizen provide contact information?

- If the report is classified as either a Conflict or Observation with citizen concern, and a citizen left their phone number, *go to section B2*.
- If a citizen did not leave their phone number, *go to section B4*.

B2) Complete the “Phone Investigation Form”

The City will contact the citizen via phone. During the phone call, a printed version of the investigation form (Appendix A) is completed.

- Once completed, *go to section B3*.

B3) Classification based on phone investigation

The response coordinator will look at the information provided in the phone investigation and confirm the classification based on the definitions in Table 1.

- If the coyote report is classified as a Conflict, *go to section B5*.
- If the coyote report is reclassified as an Observation, *go to section C1*.

B4) Is a specific location provided?

If a report is classified as: i) a Conflict or; ii) as an Observation with a concerned citizen, and the citizen did not leave a name or number, a phone investigation is not possible.

- If phone investigation is not possible, *go to section C2*.
- If a specific location is provided (an address or specific directions so a location can be found in a park) a field investigation occurs, *go to section B5*.

B5) Complete Field Investigation Form

Field investigations will follow the field investigation process (Appendix B). Investigations are conducted by Calgary Parks staff or The City's wildlife management contractor.

- Complete the field investigation and *go to section B6*.

B6) Classification based on field investigation

The City will look at the information provided in the field investigation and confirm the classification of Observation or Conflict based on Table 1.

- If the report is a Conflict, *go to section C2*.
- If the report is reclassified as an Observation, *go to section C1*.

C) Final classification

For the final classification, reports are further classified (Table 2) based on the information obtained through the classification process. These sub-classifications help to hone the response.

C1) Observation

Based on the information provided during the investigation process, observation reports are classified as Sign, Sighting, or Encounter (Table 1).

- For reports that are classified as Observations, *go to section C3*.

C2) Conflict

Based on the information provided during the investigation process, conflict reports are classified as Incident, Pet-attack or Human-attack (Table 1).

- Once this has been completed, *go to section C3*.

C3) Response

For responses see the response section (Section 2). This process will determine the response type based on the specific situation and location.

2. RESPONSE

The possible responses to a coyote report based on its classification are outlined in Table 3. How to apply the response according to the classification is described in Table 4. Once the classification type (e.g. Incident) has been determined through the investigation process, the report response coordinator will now have a list of potential responses (Table 3). The report response coordinator will then go to Table 4, and look up each potential response. Table 4 provides information for each response on: 1) when to use the response; 2) how to use the response, and 3) considerations for each response, based on the final classification.

Coyote reports that are classified as an **Observation** have only communication as a response. This guide only includes the communication that is provided during the investigation process. A communication strategy is forthcoming (Appendix D).

Coyote reports that are classified as a **Conflict** are more complex than those classified as observations and thus have a wider variety of potential responses. Solutions to coyote conflicts must consider undesirable behaviours of both the coyote and humans that contribute to the conflict.

For coyote reports that are classified as **Sick/injured**, confirm if the coyote is immobile. If coyote is immobile contact the Calgary Regional Office of Fish and Wildlife to help facilitate the response. If coyote is mobile and not a threat to public, no action is required.

It is not expected that each Conflict will require every response type. The chosen response(s) should target the underlying issues that were identified during the investigation process to alleviate the conflict; conflicts are situational and resolving a conflict may take multiple responses.

Table 3 Response matrix based on classification of coyote reports

Possible responses	Classification						
	Observation			Conflict			Sick/ injured
	Sign	Sighting	Encounter	Incident	Pet- Attack	Human- Attack	Sick/ injured and immoblie
Communication	✓	✓	✓	✓	✓	✓	TBD*
Removal of attractants				✓	✓	✓	
Increase enforcement				✓	✓	✓	
Hazing				✓	✓	✓	
Pathway/park closure				✓	✓	✓	
Lethal removal					✓	✓	TBD*
Contact Fish and Wildlife							✓

*TBD = Responses to be assisted by Fish and Wildlife.

The report response coordinator along with Calgary Parks will determine the appropriate response(s) to mitigate the issues that were described in the coyote report and during the investigation process.

Table 4. How to apply responses according to the final coyote report classification. The City in this table means staff or wildlife management contractors approved by The City as specified within each section.

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
Communication	Observation ✓ Sign ✓ Sighting ✓ Encounter	Whenever there is an opportunity to speak to a citizen.	Direct citizens to website (Calgary.ca – search coyotes). Answer questions and provide information using key messaging.	Use key messaging found on Calgary.ca (search coyotes)
	Conflict ✓ Incident ✓ Pet-attack ✓ Human-attack	During investigation process when speaking with citizens.	Direct citizens to website.	If during the investigative process a citizen raises question(s) that staff cannot answer in the immediate moment, they will take the citizen's information and respond back with an answer in a timely manner. Conversations with citizens should follow The City's key messaging (which can be found on the website; additional messaging may be within the communication plan which is forthcoming (Appendix D). Conversations with citizens will follow The City's Respectful Workplace Policy HR-LR-001 (c).
Removal of attractants	Observation ✓ Sign ✓ Sighting ✓ Encounter	Attractants should always be addressed, because they are often an underlying cause of conflict. Without addressing them it is unlikely that the issue will be resolved. Field investigation not likely to occur; attractants identified by citizens in report may be addressed.	The City can inform citizens about removing attractants. Citizen removes attractants if feasible. Close off access to dens that are used by coyotes close to areas frequented by citizens. This also includes access to culverts and under city infrastructure.	Removal of naturally occurring attractants (e.g., water in wetlands and rivers) is not likely feasible. Removal of pet feces is the responsibility of the pet owner. The City uses public education and enforcement to reduce the amount of pet feces in parks. For a dead animal that may attract coyotes: <ul style="list-style-type: none"> • If a dead animal is found and it is identified as a pet, Calgary Community Standards (CCS) should be informed to determine if CCS needs to conduct an investigation, and the remains are treated appropriately • If a dead animal is found and it is identified as wildlife, consideration should be taken to determine if removal is

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
				<p>the correct action. If the location of the carcass is not causing public safety concerns it should be left on site.</p> <ul style="list-style-type: none"> Any wildlife carcasses removed must be disposed of appropriately and Provincial regulations must be followed. <p>For a den: If the den is active, consult the Province to see if closure is allowed and follow all Provincial regulations.</p>
	<p>Conflict</p> <ul style="list-style-type: none"> ✓ Incident ✓ Pet-attack ✓ Human-attack 	<p>Attractants should always be addressed, because they are often an underlying cause of conflict. Without addressing them it is unlikely that issue will be resolved.</p> <p>During the investigative process.</p> <p>After final classification.</p>	<p>The City can inform citizens about removing attractants.</p> <p>Make notes of any attractants including their location for potential removal (field investigation).</p> <p>Remove attractants if feasible.</p> <p>Close off access to dens that are used by coyotes close to areas frequented by citizens.</p> <p>This also includes access to culverts and under city infrastructure.</p>	<p>Removal of naturally occurring attractants (e.g., water in wetlands and rivers) is not likely feasible.</p> <p>Removal of pet feces is the responsibility of the pet owner. The City uses public education and enforcement to reduce the amount of pet feces in parks.</p> <p>For a dead animal that may attract coyotes:</p> <ul style="list-style-type: none"> If a dead animal is found and it is identified as a pet, Calgary Community Standards (CCS) should be informed to determine if CCS needs to conduct an investigation, and the remains are treated appropriately If a dead animal is found and it is identified as wildlife, consideration should be taken to determine if removal is the correct action. If the location of the carcass is not causing public safety concerns it should be left on site. Any wildlife carcasses removed must be disposed of appropriately and Provincial regulations must be followed. <p>For a den:</p> <ul style="list-style-type: none"> If the den is active, consult the Province to see if closure is allowed and follow all Provincial regulations.
Increase enforcement	<p>Observation</p> <ul style="list-style-type: none"> ✓ Sign ✓ Sighting ✓ Encounter 	N/A	N/A	N/A

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
	Conflict ✓ Incident ✓ Pet-attack ✓ Human-attack	After final classification and if bylaw infractions that increase coyote activity (Appendix C) have been documented in the investigation process (either by phone or field investigations).	Contact Calgary Community Standards (CCS) and request patrols or increase of patrols. Provide investigative findings to CCS.	Do the investigative findings warrant a patrol? (determined by CCS) If park is patrolled: <ul style="list-style-type: none"> • And the number of infractions are low, increased patrols may not be warranted. • When are the patrols occurring? Do they coincide with the documented infractions? If they do not coincide, change patrol times. • Where are the patrols occurring? Is there overlap with the documented infractions? If not, move the patrols. If park is not patrolled: <ul style="list-style-type: none"> • Are there resources for patrols in the park? • If patrols in a park begin, and the number of infractions are low, reduce the frequency of patrols or stop patrols. • If over time the number of infractions decrease, reduce the frequency of patrols or stop patrols.
Hazing	Observation ✓ Sign ✓ Sighting ✓ Encounter	N/A	N/A	N/A
	Conflict ✓ Incident ✓ Pet-attack ✓ Human-attack	After the final classification and if during the investigative process it is determined that the coyotes are showing undesirable behaviours (see glossary).	Engage wildlife management contractor to conduct the hazing.	Human behaviour: was there a bylaw infraction (e.g., off-leash dog in on-leash area)? If the conflict was because of human behaviour and the coyote was behaving as a coyote would be expected to, hazing may not be warranted. Hazing should not occur when pups are present and reliant on the parents, as it could lead to abandonment. Public safety must be maintained during hazing process. Safety of the individuals and any trained service dogs conducting the hazing.

Response Type	Applied to Coyote Report Classification	Response Process		Considerations
		When	How	
				<p>Hazing should avoid injuring the animal.</p> <p>Hazing can only occur on City land.</p> <p>Coyotes may not respond to the first hazing attempt and may take more effort until the coyotes learn the appropriate response.</p> <p>Hazing must continue until the animal leaves the area, otherwise the coyotes will learn to wait until the person ceases hazing, which can result in an animal that is bolder and more resistant to hazing.</p> <p>The type of hazing used depends on the situation and the coyote's response. There are various types:</p> <ul style="list-style-type: none"> • Softer hazing: Involves shouting, waving arms, making noise and moving towards coyote. • Aggressive hazing: Involves throwing projectiles near coyotes and shooting coyotes with chalk balls or foam balls in the rump. <p>If the coyote does not respond to soft hazing, more aggressive hazing is necessary. While citizens can be encouraged to conduct soft hazing if they encounter a coyote in a park, only City wildlife management contractors should do aggressive hazing.</p>
Pathway/park closure	Observation ✓ Sign ✓ Sighting ✓ Encounter	N/A	N/A	N/A
	Conflict ✓ Incident ✓ Pet-attack ✓ Human-attack	After the final classification and if during the investigation conflicts are occurring: <ul style="list-style-type: none"> • In areas of high human activity where other options may not be 	Pathway Closure: <ul style="list-style-type: none"> • Closure of the pathway is coordinated with Pathways and Trail Lead to work on re-routes if necessary, maps and website updates. 	Human behaviour: was there a bylaw infraction (e.g., off-leash dog in on-leash area)? If the conflict was because of human behaviour and the coyote was behaving as a coyote would be expected to, pathway or park closures may not be warranted.

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
		<p>available (for example adverse conditioning cannot occur when pups are present).</p> <ul style="list-style-type: none"> In parks where frequent off trail usage, and usage of undesignated trails increases human-coyote conflict. In cases where other conflict mitigation methods have not been successful. 	<ul style="list-style-type: none"> Closure of pathway is coordinated with Calgary Parks Zone Superintendent signage and barriers. Request Calgary Community Standards (CCS) assistance for enforcement of the closure. <p>Park Closure:</p> <ul style="list-style-type: none"> Closure of pathway is coordinated and implemented by Calgary Parks Director's office. Request Calgary Community Standards (CCS) assistance for enforcement of the closure. 	<p>Level of closure, pathway vs park:</p> <ul style="list-style-type: none"> Closing a pathway requires less resources than closing a park. If closing a pathway will alleviate the conflict, just close the pathway. Park closure requires Calgary Parks Director approval. Does closure of a pathway remove public access to an area? If so, close the pathway. If pathway closure is not followed and public are still accessing the area, closing the park may be necessary. If frequent off-trail use is causing conflict and citizens are not obeying signage, closure of the park may be necessary. <p>Calgary Parks Director office leads a reopening plan that is created during the park/pathway close. This plan must be made so that specific timing for specific decision points (e.g. when The City will determine if the closure and other actions are successful, when the pathway or park will reopen, and whether the opening will be staged).</p>
Lethal Removal	Observation ✓ Sign ✓ Sighting ✓ Encounter	N/A	N/A	N/A
	Conflict ✓ Incident	N/A	N/A	N/A
	Conflict ✓ Pet-attack	<p>After the final classification and if the investigation:</p> <ul style="list-style-type: none"> Confirms an Incident classification Confirms it is not denning season Confirms the severity of the attack as determined by The 	<p>Use City approved wildlife management contractor to remove coyote.</p> <p>Inform Calgary Community Standards and Calgary Police Service about the attack.</p>	<p>Human behaviour: was there a bylaw infraction (i.e. off-leash dog in on-leash area) etc. If the conflict was because of human behaviour and the coyote was behaving as a coyote would be expected to, removal may not be warranted.</p> <p>Relocating a coyote will not be approved by the Government of Alberta.</p>

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
		<p>City after thorough investigation of the conflict</p> <ul style="list-style-type: none"> • Confirms that the coyote's behaviour is pervasive and another attack is highly likely • Confirms that the conflict was initiated by the coyote and not the pet or human involved. • Confirms that problem coyote(s) can be identified and be removed without removing other coyotes <p>The City determines there is no way to effectively haze the problem individual (based on location, etc.)</p> <p>The City determines that there is a high likelihood that the offending individual's behaviour cannot be modified (e.g. hazing has not been effective, additional reports of this behaviour have been received).</p>		<p>Removals must follow Provincial regulations.</p> <p>Removals should be carried out in a humane and environmentally sensitive manner.</p> <p>Removals must not put the public in jeopardy.</p> <p>Before removals occur consult with The City Communications Business Unit to create key messages and determine how they will be communicated.</p> <p>Prior to removals The City is to inform Alberta Fish and Wildlife.</p> <p>The wildlife management contractor approved by The City must work with The City to ensure that appropriate communications for citizens are conducted in the area.</p> <p>Non-selective coyote removals are ineffective for reducing coyote populations or preventing human-coyote conflicts. Large scale removals will often increase the coyote population. A disruption of a coyote's family group leads to an increase in the number of breeding females in the population. The increase of available resources also leads to larger litter sizes and higher survival rates (Knowlton 1972, Connolly 1995, & Gese 2005).</p>
	<p>Conflict ✓ Human-attack</p>	<p>After the final classification and if the investigation:</p> <ul style="list-style-type: none"> • Confirms an Incident classification • Confirms it is not denning season • Confirms the severity of the attack as determined by The 	<p>Use City approved wildlife management contractor to remove coyote.</p> <p>Inform Calgary Community Standards and Calgary Police Service about the attack.</p>	<p>Human behaviour: was there a bylaw infraction (i.e. off-leash dog in on-leash area) etc. If the conflict was because of human behaviour and the coyote was behaving as a coyote would be expected to, removal may not be warranted.</p> <p>Relocating a coyote will not be approved by the Government of Alberta.</p> <p>Removals must follow Provincial regulations.</p>

Response Type	Applied to Coyote Report Classification	Response Process		
		When	How	Considerations
		<p>City after thorough investigation of the conflict</p> <ul style="list-style-type: none"> • Confirms that the coyote's behaviour is pervasive and another attack is highly likely • Confirms that the conflict was initiated by the coyote and not the pet or human involved. • Confirms that problem coyote(s) can be identified and be removed without removing other coyotes 		<p>Removals should be carried out in a humane and environmentally sensitive manner.</p> <p>Removals must not put the public in jeopardy.</p> <p>Before removals occur consult with Communications to create key messages and determine how they will be communicated.</p> <p>Prior to removals The City is to inform Alberta Fish and Wildlife.</p> <p>The wildlife management contractor approved by The City must work with The City to ensure that appropriate communications for citizens are conducted in the area.</p> <p>Non-selective coyote removals are ineffective for reducing coyote populations or preventing human-coyote conflicts. Large scale removals will often increase the coyote population. A disruption of a coyote's family group leads to an increase in the number of breeding females in the population. The increase of available resources also leads to larger litter sizes and higher survival rates (Knowlton 1972, Connolly 1995, & Gese 2005).</p>
Contact Fish and Wildlife	Sick/Injured	The City has received and confirmed notification of a sick/injured coyote that is immobile.	Contact the Calgary Regional Office of Fish and Wildlife.	<p>Fish and Wildlife will help direct the response for this animal and determine if other response types are applicable.</p> <p>Citizen contact information must not be provided to Fish and Wildlife unless the citizen gives explicit permission to do so.</p>

A data management system to manage the data generated by the classification, investigation, response and evaluation is forthcoming (Appendix D).

3. ROLES AND RESPONSIBILITIES

It is the role of the report response coordinator is to coordinate the response(s) chosen. The following RACI table (Table 5) outlines the roles and responsibilities of City staff or wildlife management contractors involved in the response. For the purposes of this document, a person Responsible (R) has the role of completing the task or deliverable. A person Accountable (A) has the final authority or accountability for the task's completion. A person that is Consulted (C) is an advisor to a task. A person that is Informed (I) is kept up to date on task completion.

Table 5. Roles and responsibilities for Response. R = Responsible, A = Accountable, C = Consulted, I = Informed.

Response Role	Responsibility by Response Type							
	Communication: Phone Investigation	Communication: Field Investigation	Removal of Attractants	Increase Enforcement	Adverse Conditioning	Pathway Closure	Park Closure	Lethal Removal
Report Response coordinator	R / A	A / I	A / I	C / I	A / I	C / I	C / I	C / I
Parks Ecologist (wildlife management)	I	I	I	C / I	C	C / I	C / I	C / I
Urban Conservation Lead						C / I	C / I	A / I
Integrated Pest Management Lead			I	I	I	C / I	C / I	C / I
Parks Community Strategist				I		I	I	I
City operational staff or City operational contractors			R			R	R / I	
City wildlife management contractor		R			R			R
Zone Superintendent				I	I	C / I	C / I	C / I
Parks Ecologist (Zone)			C / I	I	I	I	I	I
Division Manager						C / I	C / I	C / I
Calgary Parks Director						C / I	A / I	C / I
Parks Pathway & Trails Technician						R / I		
Park Pathway & Trails Lead						A / I	C / I	
Calgary Community Standards				R / A		C	C	C
Citizens (informed via website)						I	I	
Alberta Fish and Wildlife								I

Glossary

Active Co-existence –Humans take an active role in keeping coyotes in their community wild by learning about coyote ecology and behaviour, removing attractants, taking responsibility for pet safety, and hazing coyotes in neighbourhood or community spaces if individuals are expressing undesirable behaviour. Communities contribute to decisions made by The City.

Adaptive management - (i) a dynamic process of task organization and execution that recognizes that the future cannot be predicted perfectly. Adaptive management applies scientific principles and methods to improve management activities incrementally as decision-makers learn from experience, collect new scientific findings and adapt to changing social expectations and demands (AESRD, 2008). (ii) a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. Its most effective form – “active” adaptive management – employs management programs designed to experimentally compare selected policies or practices by evaluating alternative hypotheses about the system being managed (BCMFR, 2014).

Area of high coyote activity – three or more discrete reports of coyote(s) reported at different times in the same geographic area, over a short period of time (24 hours – 5 days). Reports of the same coyote, in the same place reported by multiple people does not indicate high activity.

Attractants – things like food, pet feces, water, access to shelter and unattended pets that attract coyotes to an area.

Conflict – a broad coyote report classification that describes an interaction between a human and a coyote, and includes the finer classifications of incident, pet-attack, and human-attack.

Encounter – an interaction between a human and a coyote that is without incident.

Hazing – is a training method that employs deterrents to move an animal out of an area or discourage an undesirable behaviour or activity.

Human-attack – a conflict that involves physical contact between a coyote and a human; a human is injured or killed by a coyote.

Immobile – coyote is laying on the ground not moving.

Incident – a conflict between a human and a coyote where a coyote exhibited behaviour creating an uncomfortable situation for the human; includes baring teeth, growling, snarling, stalking a human or crouching as if to attack the human.

Nuisance – an animal, bird, insect, plant or disease declared to be a nuisance under section 2 of the *Agricultural Pests Act* (Province of Alberta 2000).

Non-selective coyote removal – removal of coyote(s) from an area when there is an issue, but without identifying the coyote(s) that are the cause of the issue.

Observation – a broad coyote report classification where there was no interaction between a human and a coyote, and includes the finer classifications of sign, sighting, and encounter.

Pet-attack – domestic pet is attacked by a coyote (either injured or killed).

Report Response coordinator – the Calgary Parks employee or wildlife management contractor responsible for directing responses to coyote reports received by the City, including classifying reports, determining the response, managing and documenting the response actions and evaluating the effectiveness of the response.

Sick/Injured Coyote -- coyote appears lethargic, indifferent or aggressive. Shows signs of scroptic mange (hair loss). Injured coyotes are often seen limping.

Sighting – a visual observation of a coyote(s).

Sign – the act of noticing or taking note of tracks, scat or vocalizations that indicate activity of coyote(s) in an area.

Undesirable behaviour of a coyote – behaviour or activity of a coyote(s) that is not desirable to humans; examples include:

- Approaching (moving towards) or following people with or without pets;
- Coyote showing teeth, back fur raised, lunging, nipping without contact;
- Coyote biting or injuring unattended pet/pet that is on- or off-leash;
- Coyote biting or injuring person;
- Coyote entering a yard with or without pets;
- Coyote entering yard with people and pets but no injury occurring; and/or
- Coyote entering a yard and injuring or killing pet.

Wildlife – big game, birds of prey, fur-bearing animals, migratory game birds, non-game animals, non-license animals and upland game birds, and includes any hybrid offspring resulting from the crossing of 2 wildlife animals or that belong to the Crown as a result of application of section 7(4) of the *Wildlife Act* (Province of Alberta 2000).

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Appendices

APPENDIX A – COYOTE PHONE INVESTIGATION FORM

The intent of this form is for report response co-coordinator to print it out and complete during the phone investigation. A page break has been added for printing purposes.

Coyote Phone Investigation Form

Where the report was initiated from (311, 911, etc.):	If report was 311 SR#:
Location data from report:	
Citizen's Name:	Citizen's phone number:
Staff Name:	Date Called:

Can you describe the situation?

Confirm the following report information:

Location (park/yard etc.)	
Date	
Time	
Number of Coyote (s)	
Size of coyote (s)	
Was it a family of coyotes/pups present	

How far was the coyote(s) from you?

What was the activity of coyote(s)? (Check all that apply.)			
<input type="checkbox"/> Sitting	<input type="checkbox"/> Howling	<input type="checkbox"/> Hunting	<input type="checkbox"/> Other:
<input type="checkbox"/> Moving towards	<input type="checkbox"/> Growling	<input type="checkbox"/> Eating	_____
<input type="checkbox"/> Moving away	<input type="checkbox"/> Showing teeth	<input type="checkbox"/> Playing	_____

Was your pet involved?	
<input type="checkbox"/> Yes (if yes answer the next series of questions)	<input type="checkbox"/> No
If Yes, ask the following:	
What type of pet? <input type="checkbox"/> Dog <input type="checkbox"/> Cat <input type="checkbox"/> Other	Is your pet spayed/neutered? <input type="checkbox"/> Yes <input type="checkbox"/> No
What size of pet? <input type="checkbox"/> Small <input type="checkbox"/> Medium <input type="checkbox"/> Large	Was your pet on a maximum 6 foot long leash? <input type="checkbox"/> Yes <input type="checkbox"/> No
Which gender is your pet? <input type="checkbox"/> Male <input type="checkbox"/> Female	

Was the coyote in your back yard?	
<input type="checkbox"/> Yes (if yes answer the next series of questions)	<input type="checkbox"/> No
If Yes, ask the following:	
Were you (and/or your family) in the back yard? <input type="checkbox"/> Yes <input type="checkbox"/> No	Do you have a BBQ that has been used within the last week? The BBQ odours could attract coyotes. <input type="checkbox"/> Yes <input type="checkbox"/> No
Was your pet in the back yard? <input type="checkbox"/> Yes <input type="checkbox"/> No	Do you, or anyone that you know of in your neighbourhood, feed animals (including birds)? Food left out and seed that falls from bird feeders can attract coyotes. <input type="checkbox"/> Yes <input type="checkbox"/> No
Do you feed or keep water for your pet outside? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was there any garbage/compost out? <input type="checkbox"/> Yes <input type="checkbox"/> No
Have you cleaned up your pet's waste lately? Pet waste left in yards can attract coyotes. <input type="checkbox"/> Yes <input type="checkbox"/> No	Do you have a space under your step/deck that coyotes could access? <input type="checkbox"/> Yes <input type="checkbox"/> No

APPENDIX B – FIELD INVESTIGATION

The following should be tabulated when conducting a field investigation

- Reports from citizens in the area (often citizens will engage field investigators and provide additional information);
- Coyotes in the area, including number, behaviour, etc.;
- Areas of activity, including tracks, scat, bedding sites, dens, etc.;
- Attractants in the public area (investigators cannot go into yards), including, open garbage, refuse in the area, off-leash dogs in on-leash area, etc.;
- Areas for coyotes to hide including dens, culverts, tall grass, shrubs, trees etc.; and
- Water sources.

APPENDIX C – BYLAW INFRACTIONS

This appendix includes excerpts from bylaws where if a citizen were to contravene, it could increase coyote conflict. A partial list of violations is below, followed by full clauses. Current as of Q1 2018.

Responsible Pet Ownership Bylaw

- Dogs or cats at large (not under control of a person responsible by a leash and is or actually on property other than the property in respect of which the Owner of the Animal or Animals has the right of occupation). Includes off-leash dogs in on-leash parks and cats outside their owner's property.
- Dogs not under owner's control in off-leash areas
- Owners are not picking up pet's waste in public areas
- Owners are allowing dogs in prohibited areas for example (but not limited to) Nosehill Park escarpment zones, Weaselhead, Inglewood Bird Sanctuary.
- Owners are not using the legal leash length (2 m) on pathways. Leashes that are over two m in length may give the perception that the dog is not with the human and make it more vulnerable.

Community Standards Bylaw

- Yards are not clean and tidy and have attractants for wildlife. Such as overflowing birdfeeders, pet food left out, food garbage not in a proper container, fruit that has dropped from trees and not picked up etc.

Parks and Pathway Bylaw

- Citizens are feeding wildlife in parks
- Citizens are leaving waste in parks

Waste and Recycling Bylaw

- Citizens are not properly disposing of their garbage, recyclables or compost in the bins provided or ensuring that additional bags are secure (i.e., not being ripped open by wildlife).

Responsible Pet Ownership 23M2006

Relevant definitions in bylaw

- "*Animal*" means any bird, reptile, amphibian or mammal excluding humans and wildlife;
- "*Leash*" means a chain or other material capable of restraining the Animal on which it is being used;
- "*Running at Large*" means:
 - (i) an Animal or Animals which are not under the control of a person responsible by means of a Leash and is or are actually upon property other than the property in respect of which the Owner of the Animal or Animals has the right of occupation, or upon any highway, thoroughfare, street, road, trail, avenue, parkway, lane, alley, square, bridge, causeway, trestleway, sidewalk (including the boulevard portion of the

sidewalk), Park or other public place which has not been designated as an off Leash area by the Director, Calgary Parks, or (7M2016, 2016 February 18)

(ii) an Animal or Animals which are under the control of a person responsible by means of a Leash and which cause damage to persons, property or other Animals;

Responsibilities of owners

Running at large

12. The Owner of an Animal shall ensure that such Animal is not Running at Large.

Dogs in off leash areas

13. (1) Notwithstanding Section 12, an Owner of a dog is not required to have the dog on a Leash in a Park or portion of a Park which has been designated as an “off Leash area” by the Director, Calgary Parks. (7M2016, 2016 February 18)

(2) The Owner of a dog in an “off Leash area” shall ensure that such dog is under control at all times.

Dogs in prohibited areas

15. (1) The Owner of a dog shall ensure that such dog does not enter or remain in or on:

(a) a School Ground, Playground, Sports Field, Golf Course, Cemetery, Wading or Swimming Area, or a Pathway; or

(b) any other area where dogs are prohibited by posted signs.(B/L 48M2008, NOVEMBER 3, 2008)

(2) The Owner of a dog shall ensure that such dog does not enter or remain in a Park, or any part thereof, where the dog is within five (5) meters of a Play Structure, a Wading Pool or Swimming Area, a Sports Field, a Golf Course or a Cemetery.

(3) The Owner of a dog shall ensure that such dog does not enter or remain in a Park or any part of a Park or on a Pathway which has been designated by the Director, Parks as an area where dogs are prohibited.

Dogs Permitted on Pathways

(4) Notwithstanding subsection 15(1) or 15(2), the Owner of a dog may allow such dog to pass along or across a Pathway, including a Pathway that runs through an area designated as an off-Leash area, only if such dog:

(a) is secured by a Leash of no greater length than two (2) metres;

17. (1) The Owner of an Animal shall ensure that such Animal shall not be left unattended while tethered or tied on premises where the public has access, whether the access is express or implied.

(2) The Owner of an Animal shall ensure that such Animal shall not be left unsupervised while tethered or tied on private property.

22. (1) If an Animal defecates on any public or private property other than the property of its Owner, the Owner shall remove such feces immediately.

(2) If an Animal is on any public or private property other than the property of its Owner, the Owner shall have in his possession a suitable means of facilitating the removal of the Animal's feces.

Community Standards Bylaw 5M2004

Relevant definitions in bylaw

- "*Composting*" means the managed practice of recycling organic material, including food and yard waste, through biological degradation in a container or pile, to create a useable soil conditioner; (51M2016, 2016 December 14)
- "*Open Composting Pile*" means a Composting site which is not fully contained in a Structure;
- "*Structure*" means a building, garage, shed, Fence or other thing erected or placed in, on, over or under land, whether or not it is affixed to the land; (52M2010, 2010 July 19) (51M2016, 2016 December 14)

Accumulation of Materials

8. (1) No owner or occupier of a Premises shall allow on the Premises, the accumulation of:

- (a) any material that creates unpleasant odors;
- (b) any material likely to attract pests; or
- (c) animal remains, parts of animal remains, or animal feces.

8. (3) No owner or occupier of a Premises shall allow the following to accumulate on the Premises such that the accumulation is visible to a Person viewing from outside the property:

- (a) loose garbage;
- (f) yard waste, including grass, tree and hedge cuttings but excluding the contents of a Composting Pile as defined in this Bylaw. (14M2009, 2009 April 06) (51M2016, 2016 December 14)

Regulation of composting

25. (1) No owner or occupier of a Premises shall place or allow to be placed cat feces, dog feces, animal parts or animal meat on a Composting pile or in a Composting container¹ on the Premises.

(2) No owner or occupier of a Premises shall allow an Open Composting Pile on the Premises within ten (10) metres of an adjacent dwelling house, measured from the nearest part of the Open Composting Pile to the nearest part of the adjacent dwelling house.

(3) Every owner or occupier who allows a Composting container or Composting pile to remain on a Premises must ensure that it is maintained in such a manner that it does not become a nuisance by:

- (a) creating offensive odours; or
- (b) attracting pests.

Grass

¹ This refers to backyard composters, not City of Calgary Green Bins

46. (1) No owner or occupier of a Premises shall allow grass or other Herbaceous Plants on the Premises to exceed a height of 15 centimetres.

Parks and Pathway Bylaw 20M2003

Relevant definitions in bylaw

- "*Natural Area*" means City controlled land or water or both which contains native plant or animal ecological or geographical systems including wetlands, escarpments, riparian corridors, grasslands, wood lands and other wildlife habitat;
- "*Park*" means a public space controlled by The City and set aside as a Park to be used for rest, recreation, exercise, pleasure, amusement, and enjoyment and includes:
 - (i) Playgrounds;
 - (ii) Cemeteries;
 - (iii) Natural Areas;
 - (iv) Sports Fields;
 - (v) Pathways;
 - (vi) Trails; and
 - (vii) Park Roadways;
 - but does not include golf courses;
- "*Waste*" means anything that is discarded;

17. No Person shall:

(e) pester, feed or otherwise interfere with any animal in a Park.

27. (1) In a Park, no person shall leave or dispose of Waste except in receptacles specifically provided for Waste disposal.

(2) In a Park, no person shall leave or dispose of Waste from a vehicle except in receptacles specifically provided for Waste disposal.

(3) In a Park, no person shall leave or dispose of Waste that is burning. (39M2008, 2008 September 08)

Waste and Recycling Bylaw 20M2001

Relevant definitions in bylaw

23. An owner must ensure that residential waste containers used at the owner's premises are filled so that: (40M2016, 2017 November 01)

(a) the cover of the container fits properly;

24. An owner must ensure that plastic garbage bags used at the owner's premises: (40M2016, 2017 November 01)

(a) are water-tight and securely tied;

(b) are capable of holding their contents without breaking;

APPENDIX D – FORTHCOMING APPENDICES

The following is a list of forthcoming appendices to this document required to develop a robust coyote response program.

Data management system for report classification, investigation, response and evaluation.

This appendix will include how we are going to manage the data generated by the classification, investigation, response and evaluation process.

Area of high coyote activity determination

This appendix will include how area(s) of high coyote activity are determined. This will include spatial analysis with Esri ArcGIS and 311 reports (that have geographic coordinates).

Communication plan and key messages

This appendix will include a communication plan and key messages. It will also include a form for citizens to conduct a yard assessment to determine the level of attractants for coyotes.

Evaluation

This appendix will describe the process to evaluate the efficacy of this guide. Evaluation will include: 1) The evaluation of the success of responses to solve human-coyote conflict and when to change the response(s) if found to be ineffective (using adaptive management), 2) The evaluation of the overall success of this guide.