# Birds, Buildings, People:

# Are Birdsafe Guidelines Enough?

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**Abstract**

This Major Paper considers songbird conservation in the City of Toronto as it is implemented through the fulfillment of bird-safe guidelines in the Toronto Green Standard. It explores how concerns about the issue of bird-glass collisions affect development decisions that shape the built environment, which affects songbird mortality, using the theoretical framework of political ecology. Research was conducted by surveying a random sampling of buildings and interviewing city planners, and was oriented towards understanding the interplay between birds, buildings, and people in order to find ways of making the city safer for songbirds.

**Foreword**

This paper began as a sleuth exercise to determine if the City of Toronto was ensuring that the bird-friendly requirements of the Toronto Green Standard were being implemented on new development. As I progressed through my academic program, my focus gradually widened from a narrow investigation to determine who might be the callous-towards-birds culprits that I suspected were responsible for the proliferation of bird *un*friendly buildings, to a desire to understand the nuanced factors at play in the hearts, minds, and politics of the people who shape the built form of Toronto. Such factors formulate the thoughts and attitudes of such *people*, and these in turn are expressed as the manifestation of the City's built environment. What might such factors be? What *makes* people make decisions that reflect a concern— or lack of concern— for the plight of birds? Is it strictly a matter of adhering to policy and guidelines? Does a pro-development ethos trump concerns for birds? Are people simply so busy with the countless other things in their jobs that they must attend to, that concerns for birds sometimes gets lost in the shuffle? Are most people even *aware* of the severity of the crisis facing songbirds? More importantly, how can things be improved?

The reader will note that this paper is written in what I hope is a compelling narrative style. While I have strived to ground my arguments in scientific facts backed by peer-reviewed articles, and structured around theoretical frameworks developed by rigorous thinkers and academics, I have avoided excessive jargon and otherwise inaccessible language. My reasons for this are twofold. First, I consider a *failure* on the part of academia to be the tendency to publish ideas and findings in an overly technical

style that is unintelligible to the general public, or even to highly educated people who are not versed in the specifics of a particular field[1]. I see the disturbing rise in places like the United States of populist trends that reject intellectualism and are suspicious of academic institutions as being partially the result of the inscrutable language of many academic papers. My sentiments echo that of political ecologist Peter Walker (2007) as he describes a "wide concern among political ecologists that the field as a whole remains largely focused inward, confined to academic publications that are unavailable or unintelligible to those who might benefit from the research, and restricted to conferences and seminars attended almost exclusively by like-minded, privileged academic elites…" I am not interested in writing a paper solely as an academic exercise; rather I wish to build connections by sharing knowledge and perspective.

Secondly, I have come to believe strongly that what is often missing in our quest to solve environmental problems is, put quite simply, *heart*. Clearly, our society as a whole has a *cognitive* grasp on the problems that we face. As an obvious example, most of us understand the problems associated with our society's dependence on fossil fuels. But the issue is so abstract that we struggle to connect with it *emotionally.* It is not enough for us to simply *know* that we are harming the biosphere (and ourselves); in order to be motivated to act on such knowledge we must also *feel* it. In the context of this paper, I have attempted to foster an emotional connection with readers by addressing them directly, enticing them at times to dig into their own personal experiences, encouraging them to indulge in imaginative flights. Birds are such

[1] For readers interested in learning more about the movement against opaque writing, I recommend the article "The Needless Complexity of Academic Writing," by Victoria Clayton, originally published October 26, 2015 in *The Atlantic*.

colourful and interesting beings; why restrict an exploration of our relationship with them and the consequences of that relationship to a dry, detached, *boring* analysis? After all, it will take bold imaginations and hearts to find and implement solutions for the many problems that we face.

**Statement of Purpose**

My concern for reducing if not eliminating the threat of bird-glass collisions forced me to consider if it is "enough" to have in place a set of mandatory requirements embedded in the planning approval process, or if more is needed in order to mitigate the threat that glass-sided buildings pose to bird populations. To answer this question, I needed to explore several topics. To start with, were the mandatory bird-safe requirements of Toronto Green Standard being applied consistently, or in practice did they get left out? The results of my investigation into this led to the next research question: how are Tier 1 bird safe measures incorporated by planners into the development approval process? To gain an understanding of this, I interviewed several people in the City of Toronto Planning Department. But I wanted more than just a procedural understanding of the process. I was interested in the general level of awareness and concern about the problem of bird-glass collisions among planners and developers. Further, if awareness and concern are lacking, how could planning culture be expanded so that the impacts of our development decisions on species other than humans (and in the case of this paper, migratory birds specifically) be taken into consideration with the seriousness that such species need and deserve? Lastly, there remained the question of the Tier 1 standards themselves: are the requirements

mitigating bird-glass collisions sufficiently stringent to combat the problem, or is there a need for higher standards? This paper describes my attempts to find answers to these questions, and the thoughts and conclusions I have come to through this journey.

**Acknowledgements**

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## Introduction

How far back in time can you imagine? An individual human can recall back to when we first develop the ability to form memories— age three or four for most people. If we live into our mid-eighties this means we can recall events that occurred roughly eighty years ago. Pause for a moment, and reflect on how much has changed in the past eighty years. Now, as a species we have recorded ideas and events that stretch back much deeper into the mists of time. Encoded into our cultural memory in the form of writing, oral history, storytelling, myths, and various forms of iconography, these memories and echoes of memories become hazier and less certain the farther back in time we travel generationally. The earliest examples of writing that we have been able to decipher come from ancient Egypt and Sumer, over five thousand years ago. Of course, the human story is much older than that; it is generally believed that modern humans (*Homo sapiens*) first appeared between 200,000 and 300,000 years ago. If we broaden "our kind" to include older, now extinct species of humans— loosely lumped together under the genus *Homo*, including *Homo erectus* and the Neanderthals— we can say that "people" have been around for approximately two million years. Try for a moment to imagine all of the changes we bipedal, forward-gazing, opposable-thumb using, language-making creatures have witnessed since we first beheld the world.

And yet, in comparison, there are other groups of creatures that have been around for far longer spans of time, having witnessed, survived, and kept pace with the grinding gears of planetary changes that have stamped out so many others (including our closest, now extinct relatives) along the way. This paper is about our relationship with one such group of creatures— birds— and how that relationship is reflected in the

decisions we make in the planning and design of the habitats we have crafted for the majority of us to live in: cities. The title of this paper describes its structure: *Birds* (re)introduces us to the origins, evolution, and current struggles of our feathered companions; *Buildings* shows us how radically we have affected birds with our developments; the last section, *People,* examines our relationship to birds, and our role in shaping the world that we all share.

**Section 1: Birds**

I invite the reader now to reflect on the span of time that encompasses *bird*-kind. Evidence based on the fossil record and molecular dating indicates that the lineage of modern birds dates back to the period in Earth's history known as the late Cretaceous (Claramunt & Cracraft, 2015). Far older than the paltry two million years that the creatures we would generally recognize as "human" have existed, the first creatures to bear the traits by which we characterize modern birds appeared *ninety-five million* years ago. This places birds squarely in the time of dinosaurs; in fact, the scientific consensus is that birds *are* dinosaurs, the sole survivors of that great group of beings who dominated our world long before the appearance of even our earliest ancestors. In this sense, birds are our elders; they have been carrying on with the business of life on this planet for a span of time that boggles the mind.

We must use our imaginations to try to understand how remarkable is the story of birds, as well as the lived experiences of individuals' "birdness." To begin with, we must acknowledge that birds survived a *truly bad day*— one of the *worst*— in the entire history of the Earth. The scientific consensus is that approximately sixty-five million

years ago, an asteroid or comet the size of a mountain smashed into the Yucatan peninsula. The impact released an amount of energy greater than the detonation of a *billion* of the atomic bombs that were dropped on Hiroshima, generating a megatsunami and triggering earthquakes and volcanic eruptions globally. The immediate shock wave followed by the raining down of fiery debris that was ejected from the impact would have resulted in instant death for animals as far away as present-day New Jersey. The dust that was kicked up into the atmosphere caused a nuclear winter, blackening the sky and cooling the planet for up to a decade, killing off plant life that was the basis of the food chain and resulting in global mass extinctions (Kring, 2019). The ancestors of today's birds experienced this cataclysmic event, and more importantly they survived it. One can't help but wonder if the human race could survive such a catastrophe.

In the sixty-five million years since that fateful day birds have evolved and spread out to occupy ecological niches ranging from the barren ice sheets of Antarctica, the savannahs of Africa, the great tropical and boreal forests of the world, to the backyards and concrete jungles of our suburbias and cities. I invite the reader to consider a few of the remarkable characteristics that birds have evolved over the millennia, and to ponder what it is like to experience the world as a bird (the *umwelt* of birds), in order to build a stronger appreciation for our feathered friends:

- Birds live longer than their mammalian counterparts. Generally speaking (especially among mammals), the smaller the animal, the higher its metabolism and the shorter its lifespan (for example, mice live much shorter lives than elephants). However, many bird species defy this pattern and have comparatively long lifespans, especially parrots and seabirds (Jimenez et al.,

2019). Thus macaws and cockatoos (living in captivity) can live as long as human beings: eighty to one-hundred years.

- Not only do many species of birds live much longer than they "should" given their body size, but they maintain apparently "youthful conditions" well into advanced age (Ricklefs, 2010). One albatross that scientists named "Wisdom" was documented as hatching a healthy chick at the age of *sixty-two* in 2013 in addition to the five chicks she had raised since 2006; over the course of her life, it was possible that Wisdom had raised as many as thirty-five chicks (Fears, 2013).
- Despite having "bird brains," birds display remarkable intelligence. Crows recognize and distinguish individual humans, and approach people differently depending on prior interactions— that is, they remember if a human posed a threat or if they gave out treats, and they alert other crows accordingly. African grey parrots have demonstrated the ability to comprehend and vocalize approximately one-hundred words, using them in context; they also can grasp the concepts of "same," "different," and "zero" (Stymacks, 2018).
- Related to bird intelligence is their ability to navigate across vast distances during migration, often returning to the very same locations from year to year. We do not fully understand exactly how birds find their way, but we know that they use several different methods: recognizing topographic features, including sensing wind currents that are influenced by major land forms; using the stars, position of the sun, or polarized light to orient their direction; by smell; and by sensing the Earth's magnetic field. In fact, some birds may actually be able to *see* the

magnetic field, as there is a connection between the eyes and the part of the brain associated with magnetic compass orientation (Heyers, Manns, Luksch, Gunturkun, & Mouritsen, 2007). Imagine for a moment, what it would be like to gaze upon the world and see the geomagnetic field!

*The Perils of Being a Bird in the Anthropocene*

The behaviour of migration between northern and southern climates has allowed birds to thrive by taking advantage of seasonally abundant sources of food. In the age of the Anthropocene however, the migratory behaviour of birds has become a new source of threat to their survival. Exactly how this is so is detailed in this paper under the section "Buildings." For untold ages birds have traversed the skies using their built-in compasses, skymaps, memory, and other senses, but humans have disrupted their abilities in a variety of ways, including artificial night lighting, tall and glass-sided buildings, and pesticide related poisoning. We have also eliminated or degraded bird habitats and food sources, in addition to more direct threats from humans including hunting (for sport, meat, feathers, or to eliminate bird "pests").

Bridget Stutchbury talks about the effects of deforestation and forest fragmentation in the wintering grounds of neotropical migrants[2] in South and Central America in her book *Silence of the Songbirds* (2007). Many migrants, such as the veery, spend winter only in a particular region. If that particular region is lost to human development or agriculture, the birds cannot simply pick a new region to spend the winter, and the result (as in the case of the veery) is a steep decline in population

[2] Neotropical migrants are birds that breed in Canada and the United States during the summer, and spend the winter in Mexico, South and Central America, or the Caribbean.

(p.61). Birds can adapt somewhat to habitat degradation but the effects are still deleterious. For example, when faced with the conversion of their preferred forest habitat to cattle pastures, migrants will eke out a living in patches of trees left by ranchers or along the edges of scrubby fields and in secondary forests[3]. However, these "second-rate" accommodations do not provide as much food or protection against predators. Even if birds manage to scrape by despite less food, less protection provided by the forest, and more competition caused by more animals forced to crowd into a smaller habitat, they are less healthy and have higher stress hormones than their fortunate counterparts that spend the winter in preferred habitat (p.69). Birds that are less healthy are less likely to survive the rigours of migration.

Another threat Stutchbury talks about is the scourge of pesticide use. Migrants are exposed to pesticides in both their breeding grounds in the U.S. and Canada, and wintering grounds in the South. They can be exposed to pesticides directly, as when they inhabit a field that is sprayed, or, as in the gruesome case of farmers deliberately crop-dusting the roosts of dickcissels in Venezuela, when they are deliberatly poisoned (p.114). They can also be exposed indirectly, by consuming insects that have been targeted by pesticides, as in the case of white-throated sparrows in New Brunswick consuming insects in forests that were sprayed by the province in an attempt to control outbreaks of the spruce budworm. Pesticides are harmful to birds in a number of ways. Aside from killing them outright, exposure can weaken and confuse birds, leaving them more vulnerable to predators and accidental collisions with buildings or cars; it can

[3] Secondary forests are forests that have regrown after the original, or primeval forest was cleared; the ecology and species composition of secondary forests often differ significantly from the primeval forest.

significantly reduce breeding success, and can even rob them of their ability to tell north from south, affecting their ability to navigate (p.120).

The effects of habitat loss and degradation, human-caused migration hazards such as light pollution and glass-sided buildings, as well as intentional persecution and exposure to pesticides have taken a toll on neotropical migrants. Stutchbury describes two methods of estimating migrant populations and tracking the numbers from year to year to determine overall trends: the Breeding Bird Survey (BBS) initiated by the U.S. Fish and Wildlife Service, and netting and banding birds at migration monitoring stations. As Stutchbury points out, neither method guarantees an accurate count, but such monitoring efforts *can* be used to fairly gauge if populations are increasing, decreasing, or staying relatively consistent over the years.

The results are in and the trends are alarming: the BBS shows that the populations of over two dozen species of neotropical migrants have decreased since 1966 (p.44). The bird counts at migration monitoring stations show similar results: of all the migrating birds that have been banded at these stations since banding began in the 1960's and '70's, half of the species represented declined in number in the two decades preceding the publication of Stutchbury's book in 2007; more than half of the migrants that breed in northern Canada showed *significant* declines.

Stutchbury's book is over ten years old now, but for migratory birds the situation has not improved and has instead mostly gotten worse. The *State of Canada's Birds 2019 Report* (North American Bird Conservation Initiative - Canada, 2019) shows that the populations of birds that breed in Canada's forests in summer and migrate to South America for the winter have decreased by an average of 31% since 1970.

Encouragingly, the report shows that populations of waterfowl and birds of prey have been steadily improving since 1970 due to the banning of the pesticide DDT, better management of hunting, and habitat restoration. But shorebirds, grassland birds, and aerial insectivores (such as barn swallows) have lost *40-60*% of their populations since 1970. These drastic declines over such a short period should be setting off flashing red alarms to anybody who has any appreciation for our fellow creatures, for future generations of humans, for life on this planet, for beauty, for the fragility and for the utter interconnectedness of us all.

All bird species whose populations are dwindling deserve urgent attention and action; however, the rest of this paper is focused specifically on migratory birds that pass through Toronto and face the threat of colliding with the glass-sided buildings that are prevalent in Toronto (as in many other cities worldwide). The majority of birds that collide with buildings in Toronto are colloquially called *songbirds* (Ogden, 1996). The term “songbird” is a somewhat confusing name for the generally small, diurnal birds that many of us are most familiar with, because they are the birds we see flitting about the trees, bushes, and yards of our neighbourhoods: sparrows, chickadees, jays, finches, swallows, and warblers, to name a few. *Songbirds* generally encompasses the group of birds that are classified scientifically as *passerines* (a.k.a. “perching birds”): birds that are characterized by three toes pointing forward and one toe backward (which facilitates perching). However, some of the birds that are sometimes mistakenly considered passerines are not classified as such; these include doves, woodpeckers, and hummingbirds. For the rest of this paper *songbirds* should be taken as an umbrella

term to refer to the small, mostly migratory birds that are the most common victims of building collisions in Toronto (including many passerine species and other small birds such as the aforementioned doves, woodpeckers, and hummingbirds).[4]

**Section 2: Buildings**

Most of us have heard the *thud* of a bird flying into a window at some point in our lives. Alerted by the sound, we may have turned to see a dazed bird clumsily flying away or perhaps hopping towards some nearby shrubbery to disappear from sight. Maybe it was a particularly bad *thud*, and the bird who hit left a tiny drop of blood on the glass as it fell to the ground, dead. Some of us may have gone to investigate, to see where it had fallen, possibly to try and help the avian victim; somehow it seems worse if we find and collect the bird, who at first seems to be only slightly injured or stunned, only to pass away before our eyes from some internal and invisible hemorrhaging. We may consider the incident unfortunate, jarring, or just plain sad, but then we move on with our day, perhaps comforted by the thought that, although regrettable, it is nonetheless a rare occurrence. After all, most of us don't witness a barrage of birds crashing against the panes of glass in our homes and other buildings we frequent. Most of us never see, much less touch, bodies of multiple bird victims lying at the base of a gleaming, glass-sided edifice. *Most* of us.

[4]It bears mentioning that a significant number of non-songbirds also collide with buildings in Toronto, including ducks and raptors.

*How Are Glass-Sided Buildings a Danger to Birds?*

Daniel Klem Jr. is an ornithologist who has been investigating the hazards that glass-sided buildings pose to birds for over thirty years, making him a pioneering expert on the topic. His research has led him to conclude that, except for destruction of bird habitat, collisions with clear and reflective sheet glass kill more birds than any other human-related mortality factor (Klem Jr., 2006). The problem is that birds do not see clear and reflective glass as barriers to be avoided; they behave as if glass is invisible to them and are killed or injured when they attempt to fly through what they perceive to be open space (Klem Jr., 2009). Birds can gain enough momentum in flight to result in a fatal collision with a window in as short a distance as one metre (Klem Jr. et al., 2004). Even if a bird survives a collision, they often sustain injuries that leave them vulnerable to predators or otherwise reduce their chances of survival.

Birds are susceptible to glass collisions during daylight hours and at night, and the likelihood of a bird strike is affected by both the way in which glass is used on manmade structures as well as other factors including nearby vegetation and the placement of bird feeders. In daylight, birds typically collide with glass where clear glass creates the illusion of fly-through conditions or when they attempt to reach habitat that is mirrored on reflective glass. The presence of vegetation or bird feeders in proximity to both types of glass increases the likelihood of bird strikes because these features tend to attract more birds. At night, birds can be attracted to artificial lights and confused and disoriented by them, causing them to fly into windows from which light is emanating (Machtans, Wedeles, & Bayne, 2013). Bright lights pose a hazard to birds

even when they are not emitted by a building; a bright enough beam can lure birds towards urban areas, where they will fly around the light source as if mesmerized, circling for hours, exhausting precious reserves of energy that they need to complete their migration. This phenomenon has been observed every year at the 9/11 memorial "Tribute in Light" in New York City, which features two high-powered beams that can be seen up to 100km away (Chung, 2018).

*But How Much of a Problem Is This, Really?*

Bird strikes on any one building may seem like a rare occurrence, but the effect is cumulative. In their research paper "A First Estimate for Canada of the Number of Birds Killed by Colliding with Building Windows" Machtans et al. (2013) estimated that 25 million birds (within a range of 16- to 42 million) die as a result of building collisions in Canada every year. They found that individual houses cause about 90% of these deaths, low-mid rise buildings accounted for approximately 10%, and tall buildings accounted for ~1%. As Machtans et al. point out, the number of birds killed per house (ranging from .3 to 15.7 birds/year, depending on if the houses were rural or urban and if they had feeders or not) is lower than the number of birds killed per low-mid rise building (from .4 to 55 birds/year) and per tall building (estimated ~44.96 birds killed/year), but the number of houses in Canada (10.1 million) is so much greater than the number of low-mid rise buildings (441,000) and tall buildings (6,200), that houses comprised 95% of the buildings in their analysis. Because houses constitute such a high percentage of the buildings in their analysis, it was not surprising that houses caused 90% of bird-building deaths, despite the relatively low numbers of bird deaths

per individual house in comparison to low-mid rise and tall buildings. In other words, just a handful of birds colliding fatally with a house over the course of a year may not seem like a lot, but there are *so many* houses that the fatalities add up significantly.

The fact that houses accounted for 90% of bird-building deaths across Canada should not be interpreted to mean that the deaths caused by low-mid rise and tall buildings are unworthy of attention. The researchers estimated that low-mid rise buildings caused 441,000 bird deaths each year (~10% of annual bird-building deaths overall); perhaps more significantly they determined that less than 40% of low-mid buildings are responsible for 80% of those deaths. This implies that bird deaths caused by low-mid rise buildings could be reduced by 80% by retrofitting less than 40% of such buildings (the "most likely" low-mid risers to cause collisions) with bird-safe measures.

Likewise, bird deaths attributed to tall buildings are not evenly distributed across Canada; rather, it is highly likely that they occur disproportionately in Toronto. This is due to the fact that one third of all tall buildings in Canada are in Toronto, and because of Toronto's location next to Lake Ontario, which migrating birds are either preparing to cross or are weary from having just flown over. This puts Toronto in the unique position to be able to largely eliminate the threat that tall buildings pose to birds in all of Canada by retrofitting existing tall buildings and ensuring bird-safe measures are included on every new tall building.

Toronto requires that all new developments include bird-safe measures. Retrofitting existing buildings to make them bird-safe is the dream of many bird lovers, but it would be an enormous undertaking. Confronted with such a task, many would circle back to the question of just how much of a problem bird-building collisions really

are to songbird populations. Machtans et al. calculate that their estimate of 25 million annual bird-building deaths represents a mere .5% of the 5 *billion* birds that are estimated to breed in Canada. On the surface, it would seem that bird-glass collisions are a non-issue— much ado about nothing!

But there is more to it than that; we must consider the issue more carefully because we know that many bird species *are* in trouble. Recalling the population statistics in Bridget Stutchbury's book and the *State of Canada's Birds 2019 Report*, for some species there are up to 60% fewer individual birds making their migrations between North and South than there were just a few decades ago. Stutchbury's neotropical migrants and the birds categorized as "migratory birds that breed in Canada's forests" in the *State of Canada's Birds 2019 Report* both broadly encompass the songbirds that follow the Atlantic and Mississippi migration corridors. Toronto's geographic location straddles the edge where these two routes touch on the north-western edge of Lake Ontario.

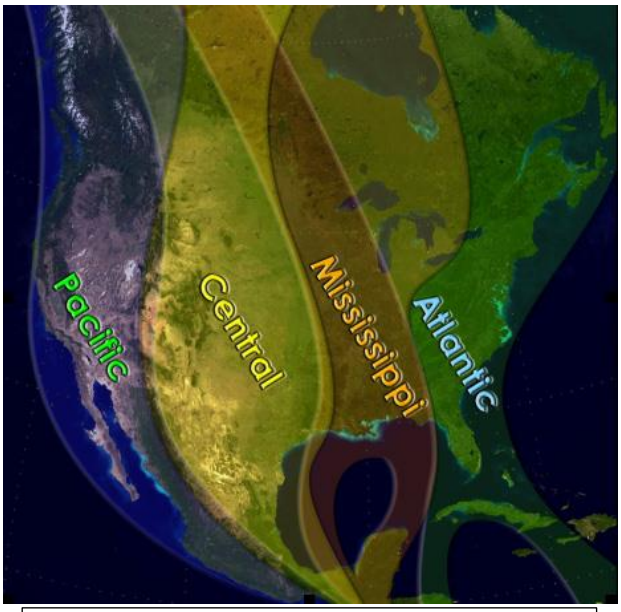


Image credit: FLAP.org

Not all songbirds that migrate along these corridors will pass by Toronto, but many do. Every spring and fall, the volunteers of the Toronto-based registered charity Fatal Light Awareness Program (FLAP) prepare to hit the streets to find and rescue the surge of avian victims that get ensnared by the hazards of navigating past the dense urban landscape: city lights

that lure in and confuse migrants, and a maze of manmade structures replete with glass surfaces that deceptively promise clear passage through concrete and cement buildings, or create the illusion of habitat that is actually a reflection of nearby vegetation.

Just how many birds die or are injured as a result of colliding into the glass-sided buildings of Toronto? By compiling the numbers of bird-strike victims that their volunteers collect every year during the spring and fall migration, FLAP has documented over 75,000 birds from 170 different species since 1993. FLAP's website shows a graph depicting 1,062 victims found in spring and 2,411 in the fall (3,473 birds in total) as "An average year for FLAP Canada" (FLAP.org, 2019, "FLAP Canada Bird Collision Data"). This is consistent with the 3,034 bird collisions and 4,934 bird collisions that FLAP's volunteers recorded in 2009 and 2010 respectively (Cusa, Jackson, & Mesure, 2015). It is important to note that these figures do not represent the *actual* number of birds that die or become injured as a result of glass collisions. Despite volunteers' best efforts, some (if not most) bird victims will never be found and thus are not recorded. It is inevitable that predators and scavengers remove some of the bodies, and that some victims will land in places inaccessible to searchers, or in sites that aren't surveyed, while still more bird victims will simply get overlooked. Machtans et al. (2013) looked at different studies that gave varying estimates for the number of birds found versus the actual number of window-strike victims; they found that a 1:5 ratio may be a conservative estimate. This means that the numbers tallied by FLAP every year could represent only 20% or less than the true number of bird-strike victims in Toronto.

Although it is impossible to know the exact number of birds that collide with buildings in Toronto every year, we *can* get a fairly accurate accounting of which kinds of birds are most susceptible to glass collisions. FLAP documents the species of each bird that is collected, and their records show that migratory songbirds are by far the most frequent glass collision victims (FLAP.org, 2019, "FLAP Canada Bird Collision Data," Cusa et al., 2015). Here lies the significance of bird-glass collision mortality: it disproportionately affects the very species that Stutchbury and the *State of Canada's Birds 2019 Report* document as having been in decline since the 1970's.

These migratory songbirds are struggling with many challenges to their survival, as discussed in Section 1. Aside from vanishing habitats, pesticides, climatic changes that affect food supplies, competition with invasive species, and other threats, they must also navigate a gauntlet of bright city lights and glass-sided buildings that have sprung up in their paths of migration, twice every year. Evolution has not prepared them to adequately contend with the new human-created habitats of modern cities. It could possibly be argued that, given time, species *could* evolve to deal with (for example), the disappearance of a preferred forest habitat in order to survive in a new, human-altered habitat of cattle pastures, if evolutionary pressure selected individuals who could tough it out and reproduce in the new habitat. But part of the tragedy of glass-collision mortality is that it kills both the weak and the strong indiscriminately, removing some of the healthiest, fittest individuals from the gene pool (Klem Jr., 2010).

*And Now the Good News*

We cannot identify any single anthropogenic-created threat as the cause of songbird declines. Rather than a smoking gun, it is more like death from a thousand cuts. Some of these "cuts" are global in scale, the prime example of this being climate change; other "cuts" are specific to the places where migratory songbirds spend the winter, such as deforestation in South America. These threats are daunting because of their massiveness, complexity, or because they originate in far-off places. From a local, municipal perspective, there is very little to nothing that can be done about the cutting down of the Boreal forest, or farmers in South America dousing their crops with pesticides. But municipalities such as Toronto *do* have the power to eliminate at least one of these threats: glass-sided buildings.

Various technical solutions to this problem already exist; all that is needed is to provide visual cues that signify to birds that the glass surfaces on a building are an obstacle to be avoided. Clear glass can be manufactured or treated to create visual cues in a variety of ways: patterns can be printed onto glass using ceramic frit or acid-etching, and glass can be frosted by sandblasting on site (this is particularly useful for retrofitting glass on an existing building); permanent markers (such as Feather Friendly®) can also be applied to glass both during manufacture and also as a retrofit. Another technique is the use of glass that is treated to reflect ultraviolet (UV) light, making it visible to birds (who are able to perceive the ultraviolet spectrum) but invisible to humans; UV glass is a new and evolving technology, but there are a few companies offering UV glass products. Non-reflective opaque glass, stained glass, and glass block are also very effective at reducing collisions. Cheaper and less permanent solutions

include bird-friendly films that are applied to the exterior surface of glass. Lastly, decals applied to glass are the least desirable solution because they must be spaced no more than 5-10 cm apart in order to properly deter collisions; one or two decals of a hawk silhouette on a window is *not* an effective measure, contrary to popular belief. In addition to glass types and treatments, building design can also greatly reduce the risk of bird collisions. This can be achieved by using architectural elements like screens, grilles, or shutters on the outside of buildings where there is glass, to serve as visual cues to birds (City of Toronto, City Planning, 2016). These technical and design solutions come from the pages of Toronto's own "Bird-Friendly Development Guidelines", and they are incorporated into the Toronto Green Standard (TGS).

*The Toronto Green Standard*

In 2006, the first version of the Toronto Green Standard (TGS) was introduced by the City Planning Department. It was a set of voluntary guidelines for new development that was intended to help the city achieve the environmental and sustainability goals in the Official Plan. The "Bird-Friendly Development Guidelines" were added to TGS in 2007 under the category "Ecology." In October 2009, City Council passed a motion which led to the restructuring of TGS (Version 2) into two Tiers of performance measures: Tier 1 measures became mandatory for all new development approvals, while Tier 2 measures formed a higher, voluntary standard that offered financial incentives to developers. Version 2 of TGS was broken down into standards that applied to residential developments less than four storeys with a minimum of five units (Low-Rise Residential), and residential apartment buildings four storeys and higher and

all industrial, commercial, and institutional developments (Mid- to High-Rise Residential and all Non-Residential). The new Tier 1 requirements for both Low-Rise and Mid- to High Rise and Non-Residential developments incorporated many of the Bird-Friendly Development Guidelines.

In 2018, Version 3 of TGS came into effect, and it includes a new standard that applies to all new non-residential development planned and built by the City's agencies, corporations, and divisions (City Agency, Corporation, and Division-Owned Facilities). It also expanded the voluntary performance measures linked to financial incentives vis-a-vis the City's Development Charge Refund Program by adding a Tier 3 and Tier 4; Tiers 2-4 demonstrate higher levels of sustainable design beyond Tier 1 requirements.

The bird-friendly measures of Tier 1 in Version 3 reflect the evolution of our understanding of techniques that reduce bird strikes. In Version 2, for example, Tier 1 for Mid to High-Rise Residential and All Non-Residential developments required exterior glazing to be treated with visual markers spaced between 100 and 280mm apart, whereas in Version 3, Tier 1 requires visual markers spaced no more than 100mm apart. Put simply, visual markers on glass (such as dots) are more effective at preventing bird strikes when they are spaced more closely together; the farther apart the dots are on the glass, the greater the chance that a bird will not perceive the dots as an obstacle, and the greater the chance that they may attempt to fly between the dots (thus hitting solid glass).

Although each new version of TGS has required progressively more effective bird-friendly standards, even the latest Version 3 Tier 1 requirements do not represent the most effective techniques for reducing bird-glass collisions. For example, FLAP

Canada's standard recommends that visual markers be spaced apart no more than 50mm (as opposed to the Tier 1 spacing of 100mm). Tier 1 also allows for visual markers to be placed on the interior or exterior of glass surfaces, whereas the standard for FLAP Canada is for visual markers to be placed only on the exterior surface. The reason for this is that visual markers on the interior of glass surfaces become much less visible to birds (and to people) depending on the angle that light reaches the glass; we have all observed the effect of sunlight reflecting off clear glass and creating a glare which does not allow us to see anything on the other side of the glass. Another example is that Tier 1 of TGS allows for the use of spandrel, which is an opaque glass that is often used as part of a building's facade to hide the mechanical components of a building between floors. FLAP Canada's standard discourages the use of spandrel in favour of less reflective materials (FLAP.org, 2019, "Commercial/Institutional Strategies to Reduce Bird-Building Collisions").

*FLAP*

Back in the early 1990's, a small but determined group of volunteers could be found patrolling the streets of Toronto in the wee hours of the morning, before the streets became full with the daily hustle. They were people who had begun to notice that songbirds were crashing into the buildings that made up the landscape of downtown Toronto, as evidenced by the bodies of birds they collected from sidewalks and the grounds around the base of Toronto's tall buildings. They hurried to find these little victims before they were snatched up by resident scavengers and predators such as seagulls or rats, or swept away by maintenance crews, or simply crushed under the

traffic of people and machinery. Some of the victims were still alive, injured or maybe just stunned; these they collected delicately with nets and sent off for recovery at rehabilitation centres, to be released once they were healed. The dead birds were also collected, along with whatever information the volunteers could determine regarding their species and location where they were found. In 1993 this group of volunteers coalesced to form the registered charity Fatal Light Awareness Program (FLAP).

Aside from their work of rescuing injured birds from the sidewalk and recording the numbers and locations of dead birds, FLAP's efforts initially focused on advocacy through education to bring broader awareness to the problem of bird-building collisions. In the early years they produced a training manual on the safe handling of rescued birds, and a brochure on the dangers of lighted buildings and windows. They partnered with World Wildlife Fund Canada to publish the report *Collision Course: The Hazards of Lighted Structures and Windows to Birds* and to create the bird and energy saving initiative *Lights Out!* They also spoke with building owners and began their annual display of the dead birds collected by their volunteers, which was featured in the March 2002 issue of *National Geographic*. FLAP also worked on initiatives that included: contributing to the creation of the Torrence Barrens Dark Sky Reserve, the installation of bird-monitoring radar on the roof of the Royal Bank Plaza in Toronto, and Bird Collision Monitors in Chicago. Their collaboration with other bird enthusiasts led to similar advocacy groups and programs in other cities, and they have been featured in media outlets including *Maclean's*, CNN, BBC, *The New York Times*, and many others (FLAP.org, 2019, "About Us- Milestones").

By the early 2000's, recognizing that the problem required more than just volunteerism and education, FLAP began to push for legislation to require bird-safe building standards. They approached Glenn DeBaeremaeker, a city councillor for Scarborough, and shared with him that one of the buildings where they were finding the most dead birds was in his ward. Taken by this information, he put forward a motion that was adopted by City Council in 2005: the "Prevention of Needless Deaths of Thousands of Migratory Birds in the City of Toronto." This led to the creation of the aforementioned "Bird-Friendly Development Guidelines," released in 2007 (City of Toronto, City Planning, 2016).

The importance of FLAP in raising awareness of the problem of bird-building collisions and pushing for government policy to address it cannot be overstated. Because of their efforts, Toronto became the first city in the world to include bird-friendly standards on development (Klem Jr., 2006). Their advocacy work has continued. In 2014 they changed their name to FLAP Canada, and also launched BirdSafe®, a building standard created to assess the risk of bird-building collisions based on the design and surrounding topography of a building. Developed in collaboration with experts in the fields of biology, ornithology, architecture, engineering, and bird conservation, BirdSafe® offers consultancy services to architects, business and property owners, and governments (BirdSafe®, 2017, "BirdSafe® Consulting Service"). FLAP Canada continues to work with the City of Toronto Planning Department on developing and updating bird-friendly standards.

*Research for FLAP*

In the summer of 2018 I was given the opportunity to do an internship at FLAP Canada. They were concerned that, despite bird-friendly design being included as part of the mandatory measures in Tier 1 (under the 2010 Version 2 two-tier update of TGS), some completed buildings that should have been subject to these Tier 1 requirements were nonetheless lacking bird-safe measures. They wanted their student intern to investigate the matter, and so I was given the task of visiting a sampling of such buildings in order to inspect for the presence or absence of bird-friendly measures, such as visual markers. FLAP was provided with an exhaustive spreadsheet that listed the addresses for all site plan applications submitted to the City of Toronto between January 1, 2010 and June 11, 2018 by city planner Kelly Snow. The applications were grouped into three categories of Development Stage Codes: Work Started (Under Construction), Ready for Occupancy (Partial Occupancy), and Work Completed, and also contained other information including the ward each building was in.[5] Using the spreadsheet as a starting point, I began my inspections. My findings raised more questions that called for further research into the implementation and strength of Tier 1 as a planning tool to address the problem of bird-glass collisions, which would eventually form the basis of this paper.

<u>Research Question 1:</u>

Are there any buildings in Toronto that should include the mandatory Tier 1 bird-safe measures in Version 2 of TGS, that do *not* have such measures?

[5] The wards were listed under the previous 44 ward system.

Research Methodology 1:

1. Select a random sample of buildings in Toronto that should have Tier 1 bird-safe measures.
    a. I used the spreadsheet to select a sample of buildings on which to conduct site visits using the following criteria:
        i. Buildings listed under the category of Work Completed. This group was chosen because buildings categorized as Ready for Occupancy or Work Started may be unfinished and therefore any lack of bird-safe measures could still be corrected, and might not indicate neglect to include such measures.
        ii. Buildings that are subject to Tier 1 requirements. Applications which were submitted earlier than Jan. 1, 2014 (the date when Version 2 of TGS came into effect), as well as single family homes, are not subject to Tier 1.
    b. I elected to visit all the buildings in Ward 25 listed on the spreadsheet that met the above criteria. Ward 25 was relatively close to my residence at York University and therefore easier for me to reach by public transit, my only means of transportation. This otherwise arbitrary decision to visit sites in Ward 25 would ensure that the sample of buildings was random.
2. Create a list with the addresses of buildings that were selected from the spreadsheet. This generated a list of eight building addresses that met the selection criteria.

3. Visit each address on the list and visually inspect for the presence of bird-safe measures and document the findings by taking photographs of the buildings.

Findings:

Site 1

The first site I visited was the Granite Social Club at 2350 Bayview Avenue, and it was also where I encountered my first difficulty in accessing the building due to the fact that it was a private club that did not permit entry by non-members. I spoke with a security guard on the premises and explained that I was a York University student who was conducting research. Upon hearing this, the security guard allowed me to photograph only the front, east-facing side of the building and the side of the building that faced north; the security guard did not allow me walk around to photograph the back or other side of the building. The site plan application was for a three storey addition with three levels of underground parking; it was difficult for me to discern which part of the building was the addition, and therefore I was not able to reliably ascertain if this site fulfilled the Tier 1 requirements.

Site 2

The second site I visited was the Northern Dancer Pavilion at 2489 Bayview Avenue, on the grounds of the Canadian Film Centre. This was a small, one-storey

building with clear glass walls that allowed for an observer to peer straight through the building and see the landscaping on the other side: it also featured glass corners that constituted a "fly-through condition," which Tier 1 requires to be treated with visual markers spaced no more than 100mm apart. The building had fulfilled the Tier 1 requirement of treating a minimum of 85% of the exterior

glazing (the glass walls) using

sunshades to mute reflections. However, I noted that despite employing this strategy the glass was still highly reflective of the surrounding trees, and indeed, I observed that someone had added a few decals of bird silhouettes on the glass as an additional deterrent (perhaps in response to witnessing bird strikes). Despite their apparent

inadequacy in reducing reflections, the sunshades nonetheless fulfilled the Tier 1 requirement; however, the glass corners did *not* meet the Tier 1 requirement as they contained no visual markers.

The third site I visited was in fact a single family dwelling that had been incorrectly labeled on the spreadsheet. Because it was a private family home I did not inspect this building.

Site 4

The fourth site was the St.Bonaventure Catholic Elementary School at 1340 Leslie Street. The site plan application was for a three storey addition attached to the south side of the existing three storey elementary school. I was able to photograph the sides of the building addition which faced south, east, and west (the north side was attached to the original building). There was a row of three windows on each of the three storeys on the east-facing side of the addition that had no visible bird-friendly glazing. The west-facing side of the addition was mostly solid brick except for one small window on the third storey that also did not appear to have any glazing. On the right of the south facing side of the building

was a recessed entrance with glass doors that was sheltered by an overhanging roof; to the left was a brick section which extended a few metres out from the entrance area and had three windows which did not appear to have any bird-friendly glazing. The height of the entrance and brick section was one storey; sitting on the roof of the first storey was a smaller addition comprised of all-glass walls. I did not observe any bird-friendly glazing on any of the glass panes.


The fifth site was 58 Scarsdale Road, which I discovered was a non-existent address.

Site 6

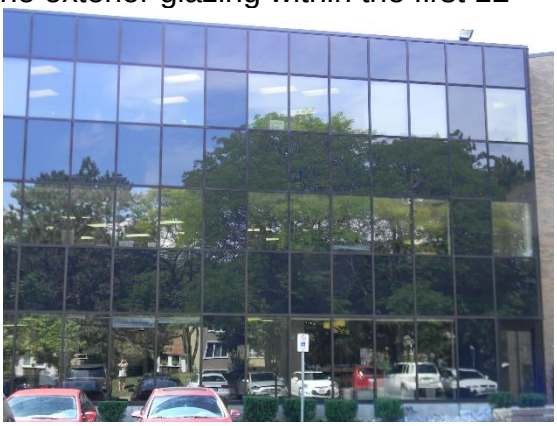
The sixth site was a strip-mall style shopping centre at 1859 Leslie Street. It included a variety of restaurants, shops, and other



businesses, and a Longo's supermarket at the far end. The storefronts all had large windows and glass doors that faced the large parking lot around which the strip-mall was wrapped. Each storefront had different signs and decorations on the glass, although there did not appear to be any deliberate attempts at bird-friendly glazing. I was not able to access the back side of the strip mall so I could not determine if there was any glazing.

Site 7

The seventh site was 95 Barber Greene Road, and the site plan application was for a proposed 439 square metre addition to the existing 1,987 square metre office building. This was an entirely glass-sided addition built on to an existing commercial building that was constructed mostly of brick. The Tier 1 requirement is that a minimum of 85% of the exterior glazing within the first 12 metres of the building addition above grade be treated with either low reflectance/opaque materials, visual markers (such as glass etchings or applied films with a diameter of not less than 5 mm, placed no more than 100mm apart), or building-integrated structures that mute reflections (such as awnings,



sunshades, or exterior screens). There was an obvious lack of visual markers or structures to mute reflectance on the glass-sided addition. Some of the glass siding appeared to be spandrel glass, which may be used to fulfill the Tier 1 requirement of treating exterior glazing if it is used in combination with other reflectance-reducing strategies, however this was not done on this particular building.

Summary

Of the eight addresses on my list, I was able to conduct visits on only seven due to time constraints. Of the seven that I visited, I encountered unanticipated difficulties at two sites which hampered my ability to inspect and photograph every side of the buildings at those addresses (the Granite Club and Longo's strip-mall). Another two addresses could not be used (one was non-existent, the other was a single family home). Despite the fact that I visited only a small sampling of buildings, it is notable that *none* of them completely fulfilled the Tier 1 bird-safe requirements, if my observations were correct.

My findings of such poor compliance signaled a need to explore the topic more deeply. The next section describes how I sought answers from the planning community to understand the process and the players, as well as how I gradually arrived at a

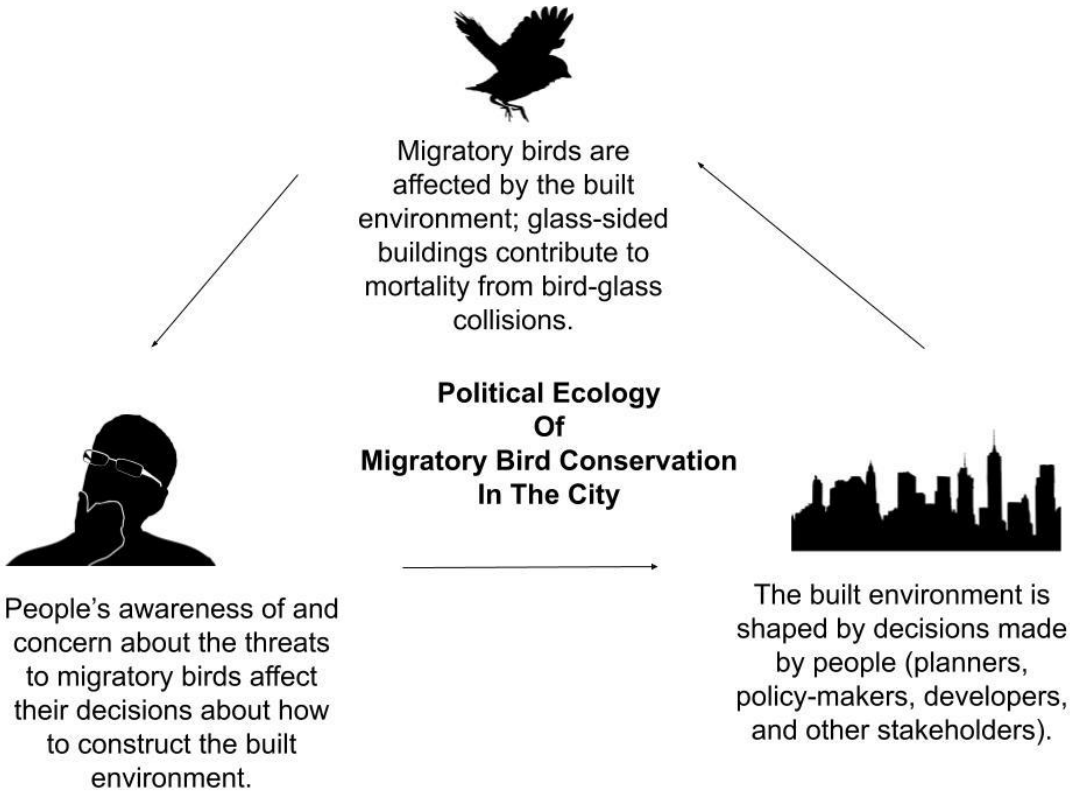
theoretical framework on which to fit the different pieces together to arrive at my conclusions.

**Section 3: People**

The finding that none of the buildings in my sample met the Tier 1 requirements left me with many questions. It was unclear how and if Tier 1 bird-safe requirements were implemented, how consistently they were implemented, and how and if they were enforced following completion of a development. If "Tier 1 of the Toronto Green Standard is a *mandatory requirement* [italics added] of the planning approval process," ("Toronto Green Standard," 2017), then how did it come to be that none of the buildings I sampled were compliant? What did it mean that Tier 1 is a "mandatory requirement?" Was there a legal obligation for developers to meet Tier 1 requirements, and did that mean that Tier 1 constituted a kind of legal statute? How did the City ensure that Tier 1 requirements were met? Where in the planning approval process was compliance with Tier 1 requirements considered? After a building had been completed was there a follow-up mechanism whereby the City verified that Tier 1 requirements had been met? The core issue around which these questions were centered was the strength of Toronto Green Standard itself: was TGS a powerful enough tool to ensure that new development in Toronto incorporated bird-safe measures (among many other sustainability-oriented goals), or was it a laudable yet ultimately empty policy document that lacked the "teeth" to steer new development towards bird-safe practices? And what were the implications of this for planning for migratory birds in Toronto?

*The Search for a Theory to Explain It All*

In seeking to answer these questions and develop a complete understanding of how Tier 1 requirements are implemented through the planning approval process, it was logical to turn to urban planning as a theoretical framework around which to explore the issue. Beyond that however, I felt there was another component that needed to be considered in my investigation into how bird conservation gets translated into planning practice. I wanted more than a procedural understanding; I wanted an in-depth explanation of what motivates various stakeholders (planners, developers, policy-makers) to incorporate measures aimed at reducing bird-glass collisions. I became interested in how people's attitudes towards birds and awareness of bird conservation issues in an urban context affect planning and development decisions, which shape the built environment, which in turn affects bird populations through increased or decreased mortality associated with risk of bird-glass collisions. Searching for a theoretical framework on which to build my understanding of this tri-node nexus of birds, buildings, and people, I arrived at the discipline of political ecology. At face value, this seemed to be the perfect interdisciplinary lens through which to study the interplay between bird populations, human attitudes towards birds, and how these attitudes affect decisions that create the built forms of the urban environment. After all, I was essentially studying how urban human *politics* affects the *ecology* of birds in the city.




However, I soon became lost among the myriad and sometimes competing definitions, interpretations, and philosophical underpinnings of what exactly political ecology *is*, as debated by numerous scholars in the fields of geography, sociology, anthropology, and others. This confusion around a definitive understanding of political ecology has been pointed out by many: Darcy Tetreault enumerates ten different definitions in "Three Forms of Political Ecology" (2017). Tetreault divides such diverse approaches "...to [the study of] the nexus between human societies and the natural environment" into two forms of political ecology: one rooted in materialism, and another form rooted in poststructuralism. He then goes on to propose a "third form" of political ecology, partially stemming from political ecology as it's applied in Latin American contexts, and which represents a middle ground between the first two approaches. This

third form reads as a sort of compromise based on an acceptance of “ontological realism”— that is, a belief in an objective, material reality which exists independently of human (or other) interpretation— that is tempered by the poststructuralist insight that our conceptions of reality will always be incomplete because they are constrained by language.

I conceptualize this as a political ecology that recognizes the primacy of the material world and the findings of empirical science (with its ability to predict and create models of ecological flux, energy, and nutrient cycles, etc.) as the field upon which all sorts of human discourses and conflicts (regarding power relations, ideologies, conceptions and definitions of “nature” and “natural,” and control over and distribution of resources) among different actors get played out. To take the analogy of the playing field one step further, we could say that our hypothetical “third form” political ecologist analyzes how the playing field (the cold, hard objective reality of the state of the environment) is affected by (and affects) the competing teams of human actors in their struggle to control the field according to each of their ideologies. To give an example: Team A, playing for pro-capitalist “ecological modernization” and the incorporation of economic externalities in order to create sustainable development as a means to ensure perpetual economic growth vs. Team B, playing for a spiritually-rooted, ecocentric rejection of attempts to reduce valuation of nature to nothing more than a monetary value.

This “third form” of political ecology seemed to me the most reasonable and attractive approach, which was all well and good, but where did it leave me in terms of

understanding the interplay between birds, buildings, and people? How did it help my analysis of the shaping of urban bird conservation outcomes? And further, beyond an approach that simply explained how the different components of my area of research interacted to create the current state of bird-friendly practices as it exists in Toronto, I was seeking a framework that could be used to develop an interventionist tool with which to foster a greater regard and concern for birds that would ultimately result in a built environment that was much safer for birds. Using Sutton and Anderson's (2010) definition of political ecology: "the study of the day-to-day conflicts, alliances, and negotiations that ultimately result in some sort of definitive behaviour; how politics affects or structures resource use," I reasoned that if I could understand how politics shapes the built environment of cities, I might find an inroad to shaping more bird-friendly cities. In short, I hoped to find a political ecology that would reveal the key to motivating people to protect birds from the dangers posed by glass-sided buildings.

My search for a practical, progressive, more activist-oriented political ecology continued. Along the way I discovered a branch of political ecologists who actively embrace the philosophy that their research can and should be used to help solve the complex and intertwined social and environmental problems facing the world; this is precisely why I found their kind of political ecology appealing. I adopted the ethos of this group of political ecologists, who are part of an EU-funded network of researchers called ENTITLE, which "follows political ecology's vision that there are more just and ecologically sustainable ways of organizing our society...[and] therefore, our role as scholars is one of supporting and collaborating with civil society in the discussion,

critical analysis and imagination of transformative changes," as stated in the introduction of ENTITLE's manual *Political Ecology for Civil Society* (2016, p.11).

Seeking more local, Toronto-specific applications of political ecology, I turned to Keil and Desfor's comparative study of environmental policy making in Toronto and Los Angeles (2003). Their analysis of the creation of urban environmental policies regarding pollution and land use during the 1990s using case studies of soil contamination in Toronto and air pollution in L.A. and in "saving" the Don and Los Angeles Rivers was based on the hegemonic discourse of ecological modernisation. "Ecological modernisation" is a theory put forth by the dominant capitalist forces of our society which seek to "fix" environmental problems essentially by creating market-oriented solutions. Cavanagh and Benjaminsen (2017) neatly bring together various writers' summarizations of this: "Harvey (2014, p. 248) reminds us that— rather than serving as some sort of critical limit for accumulation— *capital* has instead now turned 'environmental issues into big business,'' and "In addition to serving as strategies of accumulation in their own right…[they] also constitute attempts to identify material 'ecological fixes' for the environmental crises engendered by the process of expanded reproduction (Bakker, 2004; Castree, 2008)."

In their study, Keil and Desfor concluded that in both cities ecological modernisation-type solutions aimed at cleaning up contaminated soil and improving air quality, as well as reimagining the purpose of both urban rivers as more than just flood control channels, were guided by more market driven modes of regulation (as opposed to state/government top-down directed mandates) and by an "opening of policy

formation processes to civil society," with such solutions showing varying degrees of success.

These cases in a sense demonstrate a solidification of using neo-liberal, capitalist approaches to solving environmental crises— strategies geared towards the continuation of the very systems ("capitalist survival") that were the drivers of such crises in the first place. However, Keil and Desfor note that ecological modernisation approaches were not the inevitable outcomes, as they occurred amidst alternative conceptions of nature-society-economy relationships such as those imagined by environmental justice or human health movements. Indeed, it was some of these alternative movements that brought attention to and pushed the dominant hegemonic capitalist system to deal with these crises. Essentially, Keil and Desfor argue for a critical re-examination of the ontological assumptions underpinning the theory of ecological modernisation. Translation: we need to re-think why it is that the environmental movement has largely "sold itself out" by embracing market-driven solutions to environmental problems (and also throwing aside alternative solutions that are based on worldviews which resist monetizing every aspect of our lives and of nature); and while we're at it we need to question the underlying assumptions about the way the world works, and which led us to think the market was the best (or only) way to solve our problems in the first place. Keil and Desfor also point out that we must remember that there are alternative conceptions of nature-society relationships (Keil and Desfor rely on Castree's "Marxism and the Production of Nature," (2000) for their analysis), in order to "construct a viable theoretical alternative to hegemonic ecological modernisation positions." They assert the need to (re)consider how we conceptualize

the relationships between nature, economy, and society so that we can better understand the dynamics of social change. It was this last idea that got my attention.

If the nascent theory that was starting to form in my head was correct, part of the reason why mandatory bird-safe measures get left out of development approvals has a lot to do with our (society's) relationship with nature. If the relationship we have with birds is weak, this would likely indicate that people as a whole don't really know much about birds, and would not be familiar with the threats to survival that they are facing. This would of course affect, however inadvertently, the amount of attention given to bird-safe guidelines. But before I could go on, I needed to understand the nuts and bolts of the development approval process. I needed to hear what planners thought of the whole process and where they felt it could be improved. I needed to get a feel for what the planning culture in Toronto was like and the general disposition towards bird-safe measures. I needed to talk to some people.

Research Question 2:

How are Tier 1 bird-safe measures implemented by planners through the development approval process?

Research Question 3:

What are the reasons why Tier 1 bird-safe measures may not be included on new development?

Research Question 4:

Is there a general awareness among planners of the threat that glass-sided buildings pose to songbirds?

Research Methodology 2:

1. I completed the Major Research Paper Protocol document for research involving human participants and created an Informed Consent Form for my interviewees to review and sign.
2. I recruited seven people that work in the City of Toronto's Planning Department, using my contacts through FLAP and York University professors as well as my supervisor Laura Taylor's professional network.
3. I drafted a list of interview questions and reviewed it with my supervisor.
4. I arranged to meet each interviewee separately and conducted individual interviews in person, using my mobile phone to record each interview. All participants indicated on their Informed Consent forms that they consented to

being recorded, and all gave their consent to be identified in my paper. The interviews were all conducted in July 2019.

Findings:

*The Approval Process*

The summary of interview responses described the step-by-step process of Tier 1 implementation through site plan approval. In terms of the entire development approval process, the first stage (if required) is for a re-zoning amendment or Official Plan amendment. At this stage, the application may indicate that Tier 1 bird-safe measures are present, but this is not always the case. It is during the next stage, which is called site plan control, where the details of how a building will comply with Tier 1 bird-safe measures are specified and secured. Specifically, the bird-safe measures should be noted on the site plan drawings. Site plan control applications include site plan drawings, which are mainly reviewed by urban designers who check for (among other TGS requirements) Tier 1 compliant bird-safe measures. However, the community planners work with urban designers and also review the site plan application and drawings, and they check for Tier 1 compliance on these documents as well. Often, the planners or urban designers will identify one or more Tier 1 requirements that were not included in the application. When this happens, the developer is told that they must re-submit the application and drawings with the corresponding Tier 1 requirements that were left out in the initial application. The developer will re-submit the application and it is once more reviewed by community planners and urban designers; sometimes applications are re-submitted several times before they are found to meet all the

requirements for approval. Throughout this process, planners keep a dialog with the applicant, helping guide them to become Tier 1 compliant. Once a site plan application has been deemed to meet all the requirements by planners, it is given a Notice of Approval.

*Gaps and Room for Error*

Tier 1 bird-safe measures may be left out of the site plan application by developers. This may be due to the developer or their consulting planner being unfamiliar with the Tier 1 requirement. It is also possible that bird-safe measures are left out intentionally, either because the developer or architect does not want to include them because they do not conform with desired aesthetics, or because of the expense of including them on the proposed building. If bird-safe measures are not included on the application or site plan drawing, then the onus falls on the planners and urban designers who review the application to take notice that the bird-safe requirement is not being met, and inform the applicant of this before the application is approved. Such a deficiency is *usually* caught by planners or urban designers, but not always. It may be overlooked because Tier 1 bird-safe measures are one of hundreds of design details that planners and urban designers review for compliance, in which case it is a matter of being overlooked due to simple human error. As one of the planners interviewed (Oren Tamir) demonstrated to me, the documents that are submitted with an application include various templates and checklists along with the technical site plan drawing, yet compliance with Tier 1 bird-safe measures is not necessarily easy to discern on these documents.

It is also possible that planners or urban designers are unfamiliar with Tier 1 bird-safe requirements and thus fail to account for them, as several interviewees indicated may be the case with new hires. Additionally, even if bird-safe measures are indicated on an application the planner or urban designer may not realize that the bird-safe measures submitted by the developer fall short of meeting the Tier 1 requirement. This can happen if the planner or urban designer is unaware that the requirement has been updated in a newer Version of TGS, or if the they do not review the bird-safe measures on the application closely enough to see that they fall short. It is important to note that bird-safe measures must be included on the site plan drawings in order to be legally secured. It does not matter if bird-safe measures are indicated elsewhere in the application; the site plan drawings are the only part of the application that is considered applicable law, and therefore enforceable.

Another gap in ensuring that Tier 1 bird-safe measures are met lies in the lack of verification post-construction. Buildings are inspected by a Site Plan Technician from the Planning Department during or after construction for compliance with the site plan agreement, but more specifically they are concerned with the landscaping element. A developer must submit a letter of credit for a new development, which is essentially a security deposit, which the City retains until the Site Plan Technician has verified that the landscaping was done according to the site plan agreement. Most of the interviewees were unsure if (although they were hopeful) the Site Plan Technician checked to verify bird-friendly measures. But Jane Welsh and Rong Yu specifically stated that the Site Plan Technician's role is to check on the landscaping. The City also sends a Building Permit Inspector as the last step before issuing a building permit; but

the Building Permit Inspector only checks that the building meets Ontario Building Code requirements, generally pertaining to fire safety and structural integrity. While most interviewees expressed a general confidence that developers fulfilled all the terms of the site plan agreement, there was room for doubt simply because of the lack of post-construction verification.

Lastly, a major weakness of the Toronto Green Standard is that the Planning Act does not make site plan enforceable as a by-law. The only power that planners have with respect to ensuring TGS requirements are met is to secure TGS in a site plan agreement. If a building is found not to comply with their site plan agreement, the City cannot issue a penalty or an order to comply, as in the case of by-law infringement or zoning violation. Therefore the only recourse is to sue the developer for breach of contract (the site plan agreement).

*Awareness of the Plight of Songbirds*

All of the interviewees were very familiar with Tier 1 bird-friendly requirements and understood at least in a general sense how glass-sided buildings are a hazard to birds. But their responses to the question: “Given the decline in songbird populations, do you feel that the Toronto Green Standard is a strong enough tool to ensure that the issue of bird-glass collisions is addressed?” indicated that interviewees were unsure of the effectiveness of TGS. Most responded with statements that conceded their lack of knowledge and expertise on declining songbird populations. Everyone expressed at least some degree of optimism about the effect that Tier 1 bird-safe requirements have had on development in Toronto, especially because of the oft-repeated sentiment that

“things have gotten better over the years,” referring to the gradual acceptance of TGS bird-friendly measures, and the growing awareness among both City staff and the development community of the problem of bird-glass collisions. None of the interviewees made statements indicating that they were aware of the severity of songbird population declines.

*Room for Improvement*

All of the interviewees had suggestions on how to better meet the objective of the bird-friendly measures in TGS. Most stated that further education and training to raise awareness of bird-glass collisions and bird-friendly measures would be beneficial to City staff and the development community. Some stated that TGS compliance should be included as part of building inspections. Kelly Snow pointed out that TGS only applies to new development, but the vast majority of buildings in Toronto were constructed before TGS. Some people described how the complexity of planning applications left room for mistakes and oversights, while others commented on the tremendous numbers of applications that must be reviewed by limited staff. These statements indicate that a streamlining of application documents as well as increasing staff to review applications would decrease the number of errors.

## Conclusion

I made the decision to go back to school in my late thirties to pursue a Master’s degree in Environmental Planning because I wanted to cast the efforts of my small,

individual self into the growing tide of people who recognize what is truly at stake in the dangerous, foolish game that humanity— operating under the misguided and destructive illusion of our separateness and exemption from the rules of Nature— is playing against itself and the world. I felt called to stand up and join the ranks of people defending life on Earth against the people who are controlled by various pathological philosophies that blind them to the devastation their faulty worldviews perpetuate; I experienced this compulsion the very next day after Donald Trump was elected President of my home country, the United States.

Driven by this new calling, one cold evening in February I gazed at the *Audubon* calendar on the wall of my mid-town Toronto apartment, trying to think of what to write in my essay that I would send to York University as part of my application for their MES program. The photo for that month was of a Prothonotary Warbler[6], a brilliant yellow songbird with glistening black eyes poised as he belted out an unheard call. Something about the photograph was striking; and then it came to me: I would write about birds in my essay. I'd always had a love for birds, and it suddenly made sense that I was living in the first city in the world to try and do something about birds striking its glass-sided towers (I had read about FLAP). And so I began on this path, and now I am here at the end, trying to bring together everything I've learned in the past two years and especially in the writing of this paper.

What can I conclude from the research I did this summer and the last? The political ecology perspective has helped me to pull all the lessons together, to form a solid platform constructed of my many observations and ideas, from which I can reach

[6] Coincidentally, I have never seen a Prothonotary Warbler in real life.

out and start grasping at some of the problems in the world and try to unravel them. Going back to Keil and Desfor's article: what resonates with me is their call to question the approach Toronto has taken in solving the problem of bird-glass collisions. I am not saying that Toronto's approach is a form of ecological modernisation; in fact, it is more an example of government attempting to curtail the harmful effects of the development industry on migratory birds. But, as I discuss in the following paragraph, it's not enough. It can't be enough because it is constrained by fear of pushing industry too hard and getting "push-back" that will "undermine everything you've been trying to achieve," as Jane Welsh put it in her interview (see *In their own words: summary of interview questions and responses*). It's worth noting that, just as Keil and Desfor point out in their study that it was alternative movements that spurred the "dominant hegemonic capitalist system to deal with these crises," in the context of my paper, I consider FLAP to be an example of a similar "alternative movement."

*Why Guidelines Aren't Enough*

It is admirable, to be sure, that Toronto has responded to FLAP's tireless lobbying and taken the lead on this problem, and I do not wish to detract from that. But, to answer my question "Are birdsafe guidelines enough?" —well, no, I don't believe they are. I say this simply because the decades-long population declines haven't shown signs of stopping. And because TGS applies only to new development. And because even then, TGS has not always been applied correctly, and occasionally still isn't, despite the best efforts of all the good people that work for City Planning. And because frankly, most of us in Toronto (as with people everywhere) are just too caught up in the

illusion of separation from the web of life on this planet that we simply do not take much notice of the different signs warning of impending ecological disaster. We have lost our sense of connectedness to the whole world, and in so doing we have forgotten that we also depend on the tapestry of life to survive. How many threads can be pulled or torn before the whole thing comes apart? Each species we push closer to the brink and then over pulls us closer to the edge as well. And yet, despite our ability to comprehend a phrase like “Sixth Mass Extinction,” we stand stupefied and numb in the face of it.

*The Illusion of Separateness*

It’s not our fault; we were brought up in a paradigm that has dominated Western thought since materialist, reductionist philosophy took over science right around the time of the Enlightenment- when Descartes arrived at the conclusion that all of nature is comparable to a machine, but humanity is special because we can think. And so we came to study nature around us by breaking things into separate pieces, thinking that everything was just the sum of its cogs, failing to see that everything is embedded in everything else, inseparable, a synergistic ballet that forms everything that we value yet which materialist science cannot quantify and therefore discounts or ignores: beauty, our relationships with one another; indeed— the very passions that drive many to pursue science in the first place. The late Canadian mathematician and biologist Brian Goodwin explains this very well:

> “In our culture, since Descartes and Galileo there’s been a separation of the subjective and the objective, and that is for me a very destructive separation. The narrowing that occurred in the Renaissance with respect to the way of

> acquiring reliable knowledge of nature— that is, focusing on quantities, and the mathematizable relationships between them so that we can predict and control— has had a concomitant effect on our view of ourselves. It's not just nature that is reduced to a mechanism; we are reduced to a mechanism. And the consequence of that is that we now have a situation in our culture where we've essentially split into two. There's the part which is objective and 'real' and mechanical— the neurons and the cells and the metabolism and the stuff that science says is 'real.' Then there's the subjective part— which is regarded as epiphenomenal, 'unreal,' a subjective illusion. And yet we live our lives primarily in terms of that domain. The things that we value most in our lives— our relationships with others, our feelings, and our intuitions. To have those denied is to enter into a serious pathology. And I think that now has become one of the deep dangers of this cultural split, and it needs to be healed."

We struggle now to connect with the living things we are destroying as a result of the damage wrought by the economic system we have trapped ourselves in, which pursues profit above all else. We are beginning to struggle to connect even with fellow humans, as we now live in a world that has directed its amazing scientific discoveries towards the invention of ever-more-mesmerizing pieces of technology, which are laden with tricks and lures to draw us into our screens ever more, to bring us advertising, distracting us from the living world. Is it any wonder that, as we have heard the alarm sounded by scientists that we have only *twelve years left* before we set the world off on

runaway climate change (Watts, 2018), collectively our reaction is basically to shrug our shoulders and then carry on?

Compared to climate change, bird-glass collisions are *such an easy fix*. We just haven't fixed it because not enough of us— and not enough of those of us most responsible for perpetuating the problem— know or care that it's a problem. Correction: we may *know* it's a problem, but we can't *feel* the problem, because we are cut off from our connection to birds. But feelings are what motivate us humans to act; thus we are immobilized by our numbness.

*Reconnecting*

We must turn to Keil and Desfor's "alternative movements" to find our way out of this, or perhaps more accurately, back *into* the world. The solutions to this are feasible: we must re-gain our connection with the rest of the world. When we are connected and feel the suffering of others we will be compelled to act to alleviate suffering— and not just birds,' but our own pain that we feel as a result of our disconnected pathology. There are emerging studies examining the role of empathy in creating and adopting sustainable modes of living (Brown et al., 2019); we would do well to expand on these.

In the context of this paper, we should think about how to re-build the connections between us builders of great glass-sided structures, and the birds that animate the skies of our city. We already have some ideas on how to start building connection: the interviewees themselves emphasized the importance of spreading awareness. What if we directed some of our enormous resources and creativity towards realizing innovative ways of re-building connections with the creatures around

us? We could design technology that could give us the perspective of a songbird navigating the city, as Oren Tamir mentioned in his interview; imagine for example a virtual reality game that allowed us to see in the ultraviolet and fly through the city as a bird.

In addition to building empathy and connection, we must give the most vulnerable among us an advocate in our politics. When I worked for Child and Family Services in Buffalo, NY, I witnessed many hearings in family court. Always present were the lawyers: a lawyer to argue for the mother who swore she was cleaning up her act, for the foster parents who wanted custody, for the great-aunt who also wanted custody but also more monetary support from the state, for the County to help the social worker defend her stance that the child should live with X, and there was always a lawyer for the child. The lawyer for the child was the most important one in the room, because they represented the one who was affected the most and yet had the smallest voice: the child. Right now, songbirds have the smallest voice in the noisy discussion about how we continue to develop our city. I'm not the first to think of the idea of representation; Jennifer Wolch opens up the conversation about broadening urban social and environmental justice to include animals in a radical urban democracy (Wolch, 2002). Perhaps we should assign a permanent lawyer to represent the birds in City Council.

It was not so long ago that Canada refused to give a democratic voice to First Nations; only in 1960 was the law changed so that Indigenous people could vote without having to give up their status. I draw a comparison here not because I equate

Indigenous people with birds, nor am I suggesting that birds should vote (whatever that would look like). But in the way that our hegemonic culture has colonized First Nations, I think of the skyscrapers we've erected squarely in the migratory paths of birds as another form of colonization; we have colonized the very sky. And like the voices and interests of colonized peoples everywhere, the concerns and needs of birds are not well represented among our decision-makers, and they continue to slowly vanish from the world as a result.

Also relevant to this discussion of extending our understanding of social injustices is the concept of biological poverty. Studies have indicated that poor and marginalized communities have the least access to green spaces and the relatively high levels of biodiversity that accompany them (Melles, 2005), and that the accompanying biological poverty can lead to what is called "extinction of experience", wherein biological impoverishment "leads to lowered expectations of environmental quality and to apathy in human residents, followed by greater [environmental] degradation and losses" (Belaire, Westphal, Whelan, & Minor, 2015). But I don't believe that this just affects the poor and marginalized. I believe that we are *all* living in biological poverty, and we collectively suffer from the extinction of experience (with nature); we have lost our connections to other beings and ourselves as we collectively turn our attention towards the mundane and the artificial, not even realizing what we are missing. Not all of us are as disconnected or unaware; Stutchbury talks about older bird enthusiasts remembering "the good old days of spring migration, when they could see dozens of migrants in tree after tree, rather than just a handful at a time" (p. 38). And this is not even considering the species of birds that humans wiped out going back just a bit

further— we should not forget that once the skies were full with uncountable passenger pigeons, or that not so long ago North America had its own native species of parrot, the Carolina parakeet, both now gone forever.

It is not all bad news. Just as birds can be a symbol and victim of our loss of connection to the natural world, so too can they be a bridge between humans and the rest of the animal kingdom. Belaire et al. point out that birds have a role as a "relatable component of the broader environment to which people can develop attachments." Birds can be our link to the greater world, helping us see how everything is connected.

Toronto has the power to stand and become the guardian of songbird migration in Eastern North America; without the courage to extend the guidelines to stronger measures and find ways to reconnect with the natural world, it will witness dwindling numbers of migrants each year, until it doesn't. Our birdsafe guidelines are a good start, but they are *just* the start of what we must do. Ultimately, songbird conservation rests in our hands, and our hearts; we must be emboldened to stand up to destructive practices while at the same time build awareness and compassion among the people who shape our urban environment.

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## *In Their Own Words: Summary of Interview Questions and Responses*

**Part One: The Interviewees- Their Names, Positions, and Job Descriptions**

1) Jane Welsh: Project Manager for the Environmental Planning Unit, of City Planning-Policy Group, Strategic Initiatives: Policy and Analysis

Basically, what we do is understand what the environmental concerns or issues are for the City, and what we can impact through land use planning. It involves thinking ahead and being pro-active versus re-active. Our team (there are five of us in total) is responsible for the Toronto Green Standard, the Bird-Friendly Guidelines, the Green-Roof By-law, the Ravine and Natural Features Protection By-law, anything to do with natural heritage and Official Plan environmental policies, etc.

2) Diane Silver: Senior Planner in the North York Planning District

I'm a community/land use planner who does development review of applications.

3) Kelly Snow: Currently on secondment for North York District Community Planning

Prior to this I spent about 16 years working in the Environment section of City Planning, and I was the lead on the initial development of the Bird-Friendly Development Guidelines and I worked closely with a couple of other colleagues in incorporating those into the Toronto Green Standard, and the subsequent visions of TGS; I'm basically the "bird-collision expert" at City Planning.

4) Rong Yu: Senior Urban Designer for the City of Toronto in North York- Urban Design Section

I review the applications in North York; my role is when there are development applications— re-zoning, Official Plan amendments, and site plan applications— I review on behalf of Urban Design, focusing on the urban design parts and providing comments to the planner, who consolidates all the comments (from Urban Design, Transportation, Heritage, etc.) and then puts them into the report sent to City Council for a professional opinion: whether we support this application or suggest it be refused. But the final decision is made at City Council to adopt the planner's report to either support carrying out or support refusing a proposal. For example, if an application did not go the way City Planning would suggest, and we send a refusal report— and City Council adopts that refusal report— this means that the applicant has a chance to repeal the decision of refusal made by City Council. Then we have to present as professional witnesses at LPAT [Local Planning Appeal Tribunal] on behalf of the City— to have a professional debate on whether it's a proper development in the area or not.

We actually prefer to be problem-solvers, so we are always trying to find solutions, come up with alternative designs, to further refine a given project. But if developers say that "that doesn't work economically" or they don't want to do the change, we have to do very extensive public consultation— every time. When there's a re-zoning application or Official Plan amendment, we have to ask the public and ask the residents' opinions. We always try to find the middle ground from both sides; if it doesn't work we can refuse the application. But we find more and more, the other side

is also working towards solutions— a win-win for the applicant, the City, and the community.

5) David Drieger: Manager for Community Planning in the South section of Toronto and East York district

I deal with development review, and I deal with some studies. But for the most part, for example, if you own a parking lot downtown and you want to re-develop it, you come and talk to us. And you bring your architect, your engineer, your landscape architect, and we have a dialog. And I take you through that process, and now I have a staff of twelve people that have a different part of my geography that they deal with, and then we take you through the process from pre-application discussion dialog, through to submission of an application, interaction with the public, circulation to agencies, interaction with Council, and then ultimately to final recommendation to Council on whether we should do what you're proposing or not. The process can take— the fastest of approvals would be Committee of Adjustment stuff (which is smaller scale, example: house additions) would be 3 months— but additions to big buildings would be a 6 month process. But a big redevelopment involving multiple towers, new parkland, new community services (daycare, streets, and blocks) is probably a 2 year process.

6) David Driedger: Senior Planner with City of Toronto Community Planning.

My main role is development review, so applications come in and I review them, part of that being Toronto Green Standards. We are also the "point person" for the applicant and for all the commenting departments. We send the application out to

[among other departments] Environmental Planning, Engineering, and we get comments back from the various departments and divisions that negotiate, and force the developer to revise their applications so that they finally meet an acceptable standard that we can conform with approval. In general, there are always certain [requirements] that aren't met (there's always engineering things); either intentionally or unintentionally, applications just don't always meet our standards. There are always various architects, engineers, landscape architects, and various people working on a project at their end, and all the joints aren't always coordinated: messages get lost in between, or potentially ignored, at which point it comes back in and we have to just say "you need to meet this standard."

7) Oren Tamir: Manager of Community Planning in the Midtown Section of the City of Toronto

I oversee the work that approximately 9-10 planners do on a daily basis, reviewing re-zoning applications, Official Plan amendments, and site plan applications, and a bunch of other kinds of planning applications; I oversee and manage that work.

## Part Two: Questions, Answers, and Opinions on the Planning Process, Birdsafe Measures, and Opportunities for Improvement

**1)** ***Are you familiar with the idea of bird-safe measures? Please give a general description of what they are.***

**Jane:**

Basically they are about the right way to make glazing visible to birds, so they don't collide, producing injury and death. That's taken a lot of research, trial-and-error, so we have to figure out how you put that in the requirements to make it work. And we have changed between Version 1 and Version 2, and we continue to evolve. We're very much in touch with centres in the States, etc., so we've done a lot of work on it. We're ahead of all the other cities, so we're collaborating directly with the researchers. Other cities copy us.

**Diane:**

In terms of development review, it's how we treat windows. For instance, there's a certain type of [glass] fritting, type of diameter, spacing of it, certain height on the building. I work with Urban Design staff and they also ensure that that application is on the appropriate projects as well, so it's not just the planner that looks for that in a new development application processes; it's Urban Design staff as well.

**Kelly:**

*Note: I did not ask this question of Kelly because I assumed that the City's "bird-collision expert" was quite familiar with bird-safe measures. Instead, I asked Kelly to comment on different kinds of bird-safe measures and how the City's standards have evolved.*

Well some [bird-safe measures] work, and some don't. We've identified strategies that we feel are effective, and we've incorporated those into the TGS. It's changed over time: some we thought would work [but don't], that we've taken out, and we've incorporated some newer stuff as well along the way.

**Rong:**

Yes, as part of our urban design review, we have to review the bird-friendly measures as one of the TGS measurements when we review the site plan. So, we have to look into all the site plan to look for if they implemented the bird-friendly guideline into the site plan.

**Willie:**

The bird-friendly guidelines are part of the Toronto Green Standard. In '06 it was a pilot project, and then in 2010 it was made permanent or Council-approved, and then in 2014 there was an update, and in 2018 there was another update. So we're now on Version 3. Within that Toronto Green Standard there's a bunch of provisions that exist; one of those provisions is about ecology, and bird-friendly guidelines are part of that.

**David:**

*Note: Through the conversation that arose out of David's elaboration on his role of reviewing development applications, it was clear that he was familiar with bird-safe measures, and so I did not ask him this question. David commented on how compliance with bird-safe requirements has changed through the years.*

It has gotten a lot better. When Toronto Green Standards first came out, it was a real pain trying to get every single application— more or less re-teaching the developer why this is important and that they had to comply with it, they didn't have a choice: they just needed to [comply with it]. And then teaching their architect they [bird-safe measures] always have to be there in the plans, they need to be labeled correctly- because that's the only way to actually secure it, is if it's labeled on the plans that we're approving correctly. It's taken time, but most of the architects now seem to get it. There's definitely been progress and an acceptance of it. There are always bad examples of older buildings that are around- big shiny glass buildings that every morning they have to go around and pick up dead birds- and the optics of that are not good anymore. So I think there's been a lot more recognition of it. It's not as big of a hassle; it does get missed by some architects still.

I'm now working on some projects where the developers are even taking the time (because they don't necessarily like the fritting patterns that are available), and getting the studies done, to show that their glass meets the standards even though it doesn't look like the normal design.

**Oren:**

The predominant measure is— when using glass— at the base of a building (the first 3-5 storeys), where there is vision glass, we look to add features to the glass so it is more visible to birds so they won't be crashing into it.

**2) *I'd like to talk about the implementation of bird-safe measures. What happens after a development application is submitted? Where in the process do the Tier 1 bird-safe measures get considered?***

**Jane:**

What happens is that the Toronto Green Standard checklist is considered part of a complete application. We amended the Official Plan to have it considered, so if you don't submit it, your application is not complete. And then you have to identify— there's a whole series of performance measures— and all the Tier 1 performance measures are required to be identified on the site plan. And the Urban Design group is charged with reviewing that to make sure that it's there.

**Diane:**

In the past, our applications went to Environmental staff to see if TGS performance standard measures were achieved. But in terms of development application processes, typically this is something we review at the site plan application stage. There are a variety of applications that may or may not be applicable for developments: there's re-zoning stage— and that's more concerned about the built

form: massing, height— where we're not into the bird-friendly component of it [yet]; a site plan application would come later, because you need your zoning to be in place in order to go to site plan. Or, a building may have zoning in place, and they can just come in and apply for site plan application. In terms of reviewing TGS bird-friendly standards— TGS we also review at re-zoning— but it's more detailed at the site plan stage. That's more where we deal with more the technical and design of every square inch of the property and the building. The re-zoning is more like "Do we want a building that's 20 metres here? 21? 22? This size, set-backs, step-backs…" the building height, the massing, and other high-level review; site plan review is all the technical applications of it in full detail.

In terms of my process, if [a developer] comes in with a re-zoning application, the site plan application is much later. Sometimes they can be concurrent, but if they come in as re-zoning only, when I review it I try to front-load my review and give them extra information so they can think about it. For instance, with the George Brown waterfront campus, I remember at the beginning saying, "We need the bird-friendly guidelines implemented," because they weren't, and that's not unusual. And that's my job- have they sent in a complete application? But even if they're not in site plan early on, I'll say "Your building is on the waterfront, you're a prime candidate for being in bird migration paths, etc.— I want to see it on the next submission." Typically they would go back and revise the proposal to reflect the required criteria. If it doesn't get addressed, that is my role to say, "You need it before you can ultimately get approval." That's not unusual either— to say, "This is forgotten." It happens. People are focused on the big things, [for example] "how about the height?" There's a lot of money spent on the land, and the

clock is ticking, so at a certain point they're really rushed trying to get it through. Seldom do people have so much money that they can let projects move slowly.

I work closely with my Urban Design colleagues; at site plan stage quite often we'll ask for 1:50 scaled drawings, usually of building facades; through those drawings are one place where you can see the bird fritting application applied, if it's done correctly. Or sometimes they'll try making different applications of it, different designs, as technology changes, so you look for it on those drawings. It can be on other drawings as well. We have to see that it's done correctly, on the right places, to the right height— because it goes through different hands, things are rushed, and sometimes it can be forgotten. Because it's one of hundreds of details. The plans are the implementing component of it, and it's covered off the TGS checklist as well. So we have to also ensure that what they've written on the TGS is what's expressed as well.

**Kelly:**

When an applicant submits their proposal to Community Planning for a particular site that they want to re-develop, there are different stages that one has to go through. Not every application has to go through these, but there's OPA, zoning by-law amendments, and then finally when you get things worked out like in terms of is there an OPA or is there a zoning by-law amendment and you get those resolved, then you go through a process called site plan control. It's not always subsequent— sometimes they're concurrent— but the step in the process called site plan control is where you work out the nitty-gritty details of what is going to happen with a particular development.

And at that point that's where we ensure that elements or performance measures that we've identified in TGS are incorporated into the plans for the development.

And the reason for that is that, site plan drawings— it's important to note— only the drawings are listed as what we call *applicable law*. Applicable law is a list of pieces of legislation or by-laws that are listed under the Ontario Building Code. If something is listed under the OBC, then it's considered applicable law and thereby enforceable. To differentiate between something that's not enforceable: once you've figured out everything, you write this document called the *site plan agreement.* Well that site plan agreement is not applicable law, so if you put bird-friendly on the site plan agreement, but not on the drawings, then when the time comes for us to check and make sure that they've done what they said, and there is no notation on the drawings of bird-friendly elements that need to be incorporated into the development, then we can't enforce it.

So it has to be written on the drawings; that's how we implement the TGS. Because site plan drawings are applicable law. So, what we do is we ensure— hopefully— it doesn't happen every time, in a perfect world everything would get done perfectly, but what we do in a successful implementation of bird-friendly measures, we would make sure that on the architectural or landscape drawings there would be notations saying "Up to this height, there would be a bird-friendly pattern, a frit, or acid-etch, on the glass, on the glazing, and this would be the pattern," and there would be an example of the pattern. So that's the level of detail that site plan gets down in to. That's how we would implement it. It's actually not the planner, it's the staffing in Urban Design. Urban designers check to make sure that there's notations on the plans that indicate it's going to be bird friendly. If there's deficiency in the drawings, they would

say to the developer that they have to re-submit and they have to have these [bird-friendly] notations on them. There are sometimes one, two, three re-submissions as we work through the process of getting through the minute details of a particular development.

**Rong:**

There are two stages: at the re-zoning stage, they're supposed to already show the TGS compliance with kind of general information. At this stage, they might say "The first 12 metres above [grade] is going to have bird-friendly protection," and we look for that information to be shown on re-zoning drawings. Typically they show on the building elevations and we generally check that they say they're willing to do that [include bird-friendly measures]. And when it comes to the site plan stage they give us more details. *Note: At this point Rong showed me an example of some plans to demonstrate how bird-safe measures are labeled. She described what she looks for:*

The architect has to provide us with this 1:50 scale drawing; there's a chart here at the bottom that tells the area for low-reflectance, opaque material, and the size of that area. Basically, 85% of the area has to meet the bird-friendly requirement; on 15% they don't need to meet the bird-friendly guidelines. So on certain areas they highlight where they prefer clear glass; those areas are typically retail spaces, and office spaces where they also prefer it to be more transparent— wherever they want more interaction between the interior space and the public streets.

But wherever there's residential windows or other areas they will put the visual markers to show that it meets the bird-friendly guidelines, and they also show areas of

low-reflectance from shading— because they may provide lots of canopy as well; and if it's covered by shade they could be exempt from [using markers] as well. So that is kind of the level of detail at the site plan stage. We look at this [the drawings], and we look at how they calculate [percentage covered], and we look each facade. Also, if there's a roof amenity space they have to meet the bird-friendly guidelines up to the first 4 metres of height on that as well. Because if there's an outdoor amenity space on the roof, then birds will fly into that space as well, and they have to show what they will do [in terms of bird-friendly measures] for that space as well. They have to tell us how they're going to design each facade— whether it's clear markers, visual markers, or it's a solid wall, or if they're going to use low-reflectance glass.

Generally speaking, I find that the applicant is willing to meet all the TGS guidelines, as far as they are able (because sometimes there is technical difficulty), but not for the bird-friendly guidelines. For the bird-friendly guidelines [compliance] seems generally ok; among those in the architectural industry, I haven't heard anyone say they cannot meet the bird-friendly guidelines. I don't really find that it's a problem; it seems very accepted from the applicant side.

**Willie:**

The interaction with us and those bird-friendly guidelines are usually at the site plan stage. We have different types of applications that we deal with: smaller ones, Committee of Adjustment; the bigger ones are what we call Official Plan Amendments (OPA) or Re-zonings- those are kind of the general-use permissions like, how big a building can be, and what various set-backs and step-backs could be. Then we deal

with site plan applications, which are the kind of nitty-gritty of what kind of landscape and building materials going to be, what types of pavers, what types of windows are going to be on there. Site plan has to do with the building envelope but also the landscaping around the site. Generally, bird-friendly guidelines in TGS— we ask for someone to submit the [TGS] checklist when they do a re-zoning or OPA application, but the real nuts-and-bolts of what we secure is through the site plan application stage: you can call it "site plan approval" or "site plan control." So in the site plan approval process we will generally secure fenestrations— windows, doors, openings— and what type of materials need to go on windows, depending on what sort of landscape is around the building. Even on green roof areas and amenity space on terraces, they have to put certain window patterns on to ensure birds aren't seeing reflections of trees and wanting to fly through it.

So that's something we secure in drawings; when we've refined all the things we need to secure, we have a legal agreement called a *site plan agreement*, where we secure different drawings, architectural plans. And on those drawings it's noted the types of things they're doing: what type of tree and plant species, all the landscaping, and also what's on the windows and doors, to ensure that they're bird-friendly. We do that in collaboration with all of our commenting partners: Transportation Planning, Urban Design, and Graphics. But we at Community Planning are the ones who run that process, and we write all those documents up, but we certainly take the advice of our colleagues in Urban Design.

The implementation is important because there are different levels of expertise and diligence, probably, in terms of how we secure those types of things. Some of our

urban designers and planners are experts on this; not everyone is. And there are different types of approaches to mitigation— whether it's frit patterns, or decals on the windows, or stuff added on, or stuff that's manufactured as part of the windows; and then also, where do they have to be— first 12 metres above, and also for rooftop amenities. So, hopefully it's implemented through the site plan review.

Generally a re-zoning or OPA application, we're not really looking at bird-friendly stuff. So site plan control application is definitely where we're looking at it. And we sometimes have a couple of rounds of circulations. So someone will submit an application and we'll request a bunch of changes, and then they'll submit again, so I'm hoping that staff are reviewing those measures at each stage. But certainly by the end we want to make sure that it's in there, at the last circulation.

**David:**

That's part of the site plan application process; their building envelope has already been approved through the re-zoning— or it might be going at the same time— but through the site plan process we're looking at the finer details. Typically our Urban Design staff do the main look at it, to make sure that the bird-friendly guidelines are being met. They look at the drawings— we also look at them as well— but there are certain things within the Toronto Green Standards that get slotted down to different [departments]: Engineering has to look at some things, Urban Design has to look at other things. Community Planning staff has to look at [for example] the bicycle parking, making sure the size is correct, in the right locations. But we also work with the Urban Design staff to make sure that the bird-friendly guidelines are being met. And if they're

not being met we start to look at solutions why they're not being met and what the issues are. But we all try to make sure that there's over-lap and that everyone's looking at the plans correctly; Environmental Planning looks at it as well.

We look at it but then sometimes there's a debate over the interpretation of TGS or the bird-friendly, and just looking at where the balconies are, etc. So we look at it, Urban Design looks at it, and Environmental Planning will look at it if there are questions and they will help out as well.

**Oren:**

In general, the Green Standards are considered early on in the development review process. So even through even OPA or re-zoning applications. But the biggest effect or implementation period is during the site plan process. Because that's when we secure the actual plans for a building, and we will secure where location of windows are, and details of the windows are only secured through the site plan process. But there are other Green Standard measures, like bicycle parking, which may be secured earlier on in the process through the re-zoning application But the majority of it is later on, simply because those features aren't captured early enough. We many talk about them, but they're not secured or captured until later on.

***3) To your knowledge, are Tier 1 bird-safe measures always included? Are there any circumstances you can think of that would lead to such measures being waived or left out, and if so, can you describe what those circumstances would be?***

**Jane:**

No, I can't think of any circumstances where they'd be waived. But our team does not process these applications. The only time we look at an application is if an applicant is trying to achieve Tier 2 to get a refund, and then we would review. So that's a smaller percentage of the applications. I'm sure it's not caught all the time, but the goal is 100%.

**Diane:**

I don't recall that ever happening; I don't ever recall a reason why they should be waived. I'm always looking for them to be applied, and also if I ever have any questions, I work closely with [Environmental Planner] Shayna Stott, I'll call her and I'll say, "Here's a unique situation." With the George Brown waterfront building, I worked with her on that, and the reason why she sent the link [a link to a story a video segment of the *Toronto Star'*s reporter Christopher Hume touring George Brown College's waterfront campus], is because I had called her and said "Bird guidelines aren't being met, I'm concerned…" We had a conversation about it early on in the process because I was very alarmed. But that's just an example of a major project where there's so many details, and for whatever reason— it could be architects not familiar with working

in this area, people from different regions are working in projects in Toronto— whatever the reason is, it's my job to get all the components included in the application. But I remember I'd reached out to her early, and that's why she followed up later [with the link on the *Star's* tour of George Brown], otherwise I wouldn't have known of that article later necessarily. But it's just making sure it's there, working with Urban Design staff so you've got two sets of eyes on it, because sometimes people are doing different fritting styles, different patterns, which is good, more interesting than a very generic dot [pattern]. It can even be a feature with the design of a building. It depends on how your approach is— if it's just "here, I have to do it because it's a requirement," or if you have a bit of money to spend on it, "let's turn it into a design and tie it into the building." I always look at things in the vein of "Can you create this as an opportunity," as opposed to "Oh, it's a requirement, not very exciting." There are different ways of looking at it.

And that's our job, is to bring the awareness of it. It's not a judgement if it's not done, or somebody wasn't aware of it; that's my job to say "Here are the guidelines. We've got the resources in terms of knowledgeable staff." If they really want to delve deep into it, we've got the book of the actual guidelines. We're there also to help them; it's not just "Do it," it's "We're here to help you and show examples of other developments where it's successfully done." That's my role: to help make this happen and make it a win-win.

**Kelly:**

No, I wouldn't imagine that there would be a case where we would waive them; I wouldn't support that in any case, but that's not always up to me in my position now. But there wouldn't be a case for us to waive them.

**Rong:**

*Note: I was pressed for time, and so did not ask the Urban Designer Rong Yu about bird-friendly guidelines being waived.*

**Willie:**

We're a high-volume shop here, we have a lot of applications. Right now in my purview, I have over 200 applications, so there's a lot of volume. I think for the most part we do a good job with these things. Do we get it right 100% of the time? Probably not. I wouldn't want to give you an estimate of how successful we are— I'd like to think it's 80 or 90% maybe— but certainly with that volume inevitably things get missed. And there are a lot of different challenges we have in terms of our workload: prioritization, and we're dealing with affordable housing now, and sometimes that level of detail can be over-looked. But that said, I hope that our urban designers and our planners, and more importantly the development community— this isn't just about us making sure they're in there— but the development community, in particular the architects and landscape architects, making sure that they're doing their due diligence. And most of these people know about this. It's been around since 2006. Like any industry, most of

the newcomers to the industry are fully versed on it. I have some well-known Canadian and international architects who have no idea what the Toronto Green Standard is. So it's not top-of-mind for them. When they're designing fancy buildings bird-friendly guidelines are not at the core of their thinking. I like to think that by the time we get down to the nuts-and-bolts, someone underneath those people is making sure that those things are in there.

I have had instances where someone said, "I'm not going to do any frit patterns on the windows because there are going to be blinds and those are going to be amenity spaces." And I say, "Well that's great, but when the blinds are open, they're not functioning as bird-protective measures." So we say "No, that doesn't count," but maybe some people have been looser with that interpretation. Then it's also a question of our Environmental Planning folks are the ones who came up with TGS, through tons of consultation. In an ideal world they would have lots of people who could help us review all these things, but inevitably it's left to us and Urban Design, so maybe some of the things we see on some of the drawings, but it's not on all of them. Or maybe they've got a frit pattern or decal, but it doesn't actually meet the intent of the guidelines. Because we're not necessarily pulling out the manual every time; if they just say "Bird-friendly window pattern" on the drawing, we would generally say "That's fine." So it's kind of two things: one is, are they making sure it's there; the second this is, are they making sure that what's there is appropriate.

And then also, it's one thing to have a drawing that we secure, it's another thing to build what your drawings say. So we have building inspectors who go out and make sure that you're building what we approved and what we secured to a legal agreement

that's registered on title— the site plan agreement— I have no idea whether those building inspectors are looking at the windows.

**David:**

To my knowledge, they should always be met. Like I said, I can give the example of where they're not meeting them [the bird-friendly guidelines] in the normal way, but they're getting creative with how they're meeting them and making sure that they're meeting the intent of them, making sure that it meets all the standards of fritting patterns, but just may not be the normal ones that we look at. So there are ways we can work through that process with the applicant; they just need to tell us well ahead of time and be willing to work slowly at it with us, because we're not just going to be able to say "Yes, that's perfect" right away. We are sometimes a slow bureaucracy where other departments have to review it, we have to take time to get back at them and then work through it with them.

They're generally being met. I don't know of many circumstances where they wouldn't be met. Every couple of years TGS gets updated, and off the top of my head I don't know if the bird-friendly guidelines have slowly been upgraded as well. And sometimes there are projects that were in before a certain date, then they're not going to meet the current standards, but they meet the standards that were there at the time they were submitted. Generally there are very few applications that would be so old that they would be before TGS were in place at all, and even those we would be pushing for it then. So I don't really know of any that wouldn't be [meeting the requirements], unless they somehow slipped through the cracks, occasionally. Which

I'm not going to say doesn't happen, but when it slips through the cracks you just don't know, and it could get missed on some projects.

**Oren:**

There could always be a circumstance where one: the development did not require site plan, and therefore no one is checking the glass. Two, it could have for whatever reason have been overlooked, there's always room for error. But otherwise no. We don't see ourselves asking for it because we've changed the culture: it's there on the submissions. It doesn't require a dialog anymore. Every major architect firm in Toronto knows and when a new application comes in it will have the bird-friendly details right there on the glass.

*Note: Here Oren asked me if I had ever seen a drawing submitted by a developer, to which I responded that yes, an urban designer showed me an example of what she looks at, and noted the little detail where bird-friendly pattern was noted. Oren responded to that thusly:*

That's how it can get missed. So unless you are looking for it, and for whatever reason it's not there, like if you have to look for it and it's not there, it could be an oversight. It could happen. So it's not a building permit process. You go for a building permit; I don't believe it's required to be on that building permit.

*Note: I asked Oren to elaborate on his comment about the culture changing, and when did he see the change, to which he responded:*

I don't know actually, but I felt like the shift happened fast, and that was just one of the things that people picked up. When you talk to people about TGS they'll talk to you

about bicycle parking and the bird-friendly- it's like *the* thing. And I do believe the bird-friendly guidelines preceded, so we had the bird-friendly before we had the whole package; it got wrapped into TGS. So it pre-dates it and therefore everyone already knew. And so when it was launched, it was launched as a stand-alone, and there's dozens and dozens of things in TGS— all those got brought in as a nice little basket. So because it pre-dated it, by the time TGS came around, everyone was doing it. Even before I was a manager, on planning applications, seldomly did we ever have to say "Hey, put those bird-friendly design features on."

I'll tell you what: it's a big city, and I work in Mid-town, where you have very sophisticated developers, who have very well-established teams of consultants. Very different than if you're planning in another area of the city, where, somebody's first time, not-so-established architect, but in my established world of Mid-town people come to the table ready.

***4) Once a development application has been approved and the building completed, is there any follow-up on the part of the City to ensure that Tier 1 requirements have been met? To your knowledge has it ever been found that a building did not adhere to the site plan approval? What happens if this were the case?***

**Jane:**

No, there's no ability to follow-up. The way the planning process is structured, is it has to be built substantially in accordance with. The only time there's a follow-up

perhaps is if they're getting a refund check, if they're a Tier 2 building. Then they might not get their refund, because the third-party verifier would see that it's not there. If you know the planning process, basically our involvement stops at notice of approval of site plan. And the only thing that we are allowed to under legislation— don't forget, all our authority is from legislation, and we can only work within that authority.

Under the Planning Act, we are able to retain a letter of credit for landscape materials. So that's the only time, up to two years later we hold a big chunk of money, and if all the plant material has not survived then we can order them to replace it, and they'll get their check back. It's beyond the ability, under the legislative authority, to follow-up. In theory, they should not get site plan approval [if they did not meet Tier 1 requirements].

**Diane:**

Well, staff don't go out and check for that. Building inspectors would go out through the building stages, but that's for structural and other purposes. We don't, but I do have to say that out of interest, all of us usually end up looking at the developments after they're done. After buildings are built, we go and look at them— what worked and what didn't work. It's all accessible, so in the North York area— if I'm working here, or downtown, or in Etobicoke— we like looking at our projects. Because it's one thing if you're working on a paper for so many months, and it's another thing if you see this tangible result. And you tweak how you work, it's like lessons learned. But those bird-friendly guidelines are very straight forward, so I wouldn't see a reason why they wouldn't be applied, compared to something else which may be more onerous. So I

don’t know of an instance where they haven’t been applied, I haven’t heard that from my colleagues, and we’re constantly looking at our developments. And after they’re done, if it’s a success story in all regards, we’ll use that as a reference in our meetings and work with other people. So we like to build on what’s been done and lessons learned as well.

It has become more accepted. It becomes more common-place, and more in our planning vernacular. When things are newer, that’s why maybe it’s easier to miss upgrading them, but that’s our role: to say “This is what you need to do, we can help you get there, here are resources, terms of reference, online, etc.,” we point them in the direction.”

**Kelly:**

There’s a position in city planning called “Site Plan Technician,” and the Site Plan Technician will visit any development to ensure that everything that’s noted on the drawings has been incorporated into the building. As part of their job, they review the drawings and go to verify if those things noted on the plans have been done. So it’s not just TGS; it’s everything that’s on site plan. Everything including landscaping, setbacks, the buffering between adjacent neighbourhoods, things like that— everything. There are letters of credit that developers submit to the City that we hold on to, that is a substantial amount of money that they want back, obviously, so when it’s been verified that they’ve done everything that they were supposed to do based on a review of the site plan drawings, then will give them their money back.

**Rong:**

In city planning we have site plan inspectors. They do all the inspection on the site to make sure that it meets the site plan requirements. But having said that, it's mostly inspecting the landscaping part. The reason for that is city planning holds a letter of credit, and at the end of the application if everything is all good to go with the site plan approval, typically city planning will ask the applicant to give us a letter of credit to hold the amount for the landscape part. So whenever the developer finishes the construction part, they have to finish the landscape design: the planters, trees, shrubs, paving, lighting. So the site plan inspector goes to see that all the landscaping has been done with the requirement, and then they release that money to the developer. It's just a security deposit, and if you meet the requirement you get the money back, and that's different than the inspection for higher Tier requirements. That's related to the landscaping, and that's actually related to TGS because that's related with the tree planting, but on the building facade part, they could [look for bird-friendly measures]. Generally speaking we definitely should look for that, but we don't have a security deposit for that— usually you have to have some kind of financial way to make an applicant do the work. But they do go for the building permit, and we do have the building inspector to inspect the building structure for the permit. That's building code, and I'm not sure— that's not in my section— so I'm not sure what they typically check. They might check on bird-friendly, but I don't know.

You asked about how things get implemented, and we actually now try to speed up the implementation of site plan approval by making sure it's all marked on the site plan. But once it gets to the final building permit stage, they're the ones to say, "This

building is done properly, according to the site plan approval." Usually a good development will do what is on the site approval because there's law enforcement, and if it's not meeting the bird-friendly guidelines, we can always ask the law enforcement department [the department of the city that might deal with litigation] to look into this issue. But it should be part of the process.

**Willie:**

Before the building is completed, as buildings are built, you pour concrete, you go up a couple storeys, say on a 50 storey building, once they get to floor 20, they're starting to clad— put windows on the lower floors. So I don't know whether, if it's a manufactured window that has bird-friendly stuff in it, then one would be able to see that it's there. Or else they may finish the whole building and then once all the windows are up they may put decals or something on them. So I don't know if building inspectors are looking at that. I certainly have an interest in this type of thing, so I'll go by a site just because I want to see if they're doing what they're supposed to do, but we can't expect everyone to be doing that. I don't specifically go out to make sure the windows are done, but I'm always going and checking the buildings that we've secured and making sure that in general we see value engineering. So when someone says they're going to build with pre-cast steel, or pre-cast concrete, or Cordant steel, and then you go by and see that it's stucco or some other cheap material, so you hope that they don't do that same with windows. Maybe they were going to do some super-fancy bird-friendly, and then they find out that that cost is way more, so then they put something cheaper in. So I don't know that we're going and checking.

[Regarding the question of if it has ever been found that a building did not adhere to the conditions of site plan approval, and what would happen if that were the case]
We have, on very few occasions, where someone has built the building, the building inspector said they're fine, but we say, "But the window pattern is different." Like say they were supposed to have three windows on the side of their building, and they have five. And this is something often brought up by a neighbour saying, "There's more windows on that building than what they said." And in those cases we have asked builders to go back and fix it, or they have to go through a process to amend the site plan agreement. I have had that on a couple occasions. And other cases we have were, as I alluded to, where someone says they're going to do some nice finishing and then they do something cheap; then we go back and say "you either have to fix it or you've got to come in with an amendment." As far as bird-friendly goes, I can't think of an example where someone said they were going to do bird-friendly and then they don't.

**David:**

Typically it's the Buildings Department that has to make sure that all the building permit drawings are substantially in accordance with our site plan approval drawings. The drawings themselves are what we can legally stand on that the developer has to comply with. And to my knowledge generally they should be putting them in, again that's where things can kind of fall through the cracks where you might have someone that may not know the difference between— maybe you have newer staff or for

whatever reason they may have missed something through between looking at the building permit drawings and the site plan drawings. I don't know if any buildings have had any issues with the developer or builder not actually installing it correctly. I'm sure that in the early Version 1 or even probably in the start of Version 2, I'm sure there are many buildings where it was incorrectly installed. Whether or not it was caught that it was incorrectly installed— because, while we look for the pattern being there, once you get down to looking at a building, look around an entire building, that each of all the first three storey [windows] have the proper fritting pattern or whatever it is that they were going to use to meet the standard— I don't know how that has been rolled out. I know that the Environmental Planning section has gone out and looked at buildings to see how's worked out, but they definitely don't have the time to look at every single building. So I'm not too sure, but I'm sure there are buildings where it's been incorrectly done though. Just like anything, there's always something that gets incorrectly done unfortunately.

And then the recourse there would be, if it's caught that they're not meeting what's under the site plan agreement, then they would have to rectify it. And there are various things that Building staff can do to make that happen. Fortunately we don't often get to the point of litigation, where we would say "You've done the whole building, and it's wrong, and now you're refusing to fix it, and we're going to court over it." I don't know of any circumstances where that's happened; most builders generally, if they've agreed to something, they know they're going to pay for it, so I don't know of any circumstances.

**Oren:**

Building inspectors typically, to my knowledge, are inspecting for building code or building permit issues. But I don't believe you have to show those drawings on your building permit drawings. Site plan drawings can be different than building permit drawings. The inspectors aren't necessarily carrying around site plan drawings. We do have our Site Plan Technician who will go out and check landscaping features, after it's all built. Typically at this point those inspectors are focused on the landscaping. Their job might evolve to that, but it has not.

[Regarding the question of if it has ever been found that a building did not adhere to the conditions of site plan approval, and what would happen if that were the case] The answer is yes. And what happens if that's the case is a very difficult situation to be in because then we're into litigating- it's a civil litigation matter: "I have an agreement with you, and you have breached that agreement; I have to take you to court." That's what has to happen. That doesn't happen often. Either we're not catching it, or, was it severe enough— there was a case where, it's now an ice cream place, but they were not supposed to put up a fence, and they put a fence up around this now-ice cream place, and I believe we had to go all the way where we had to threaten lawsuits, threaten that we were going to take them to court. Then the fence came down. You have to threaten them, because it's not a by-law power where we can go and issue penalties. There are certain things that the power of government has, even zoning— we can shut down a building or order it to comply with in all these things through the Planning Act. It gives certain tools and penalties for some things and it doesn't for

others. Site plan doesn't have that power. The only power we have is the ability to ask for it, and the ability to secure it in an agreement. Once someone breaches that legal agreement, we have to take them to court to enforce it. The Planning Act doesn't give us another power [to enforce it].

*Note: I asked if Oren thought that the Planning Act should give planning another power of enforcement.*

Absolutely. Why leave it to a court to have to deal with this? Why can't it be enforced like any other municipal by-law? So another way to do it is to allow you to secure it in a by-law, but we don't have that power, it's just not how the Planning Act set up.

***5) In your opinion, is the issue of bird-glass collisions well understood by planners and developers?***

**Jane:**

I think there's always room for improvement— always, right? But certainly some people are keener than others, but we're getting there. And certainly, our planning consultants who want to get the business, they make a point of making sure they're well-versed in the Green Standard because they sell that to the developer. Because they're consulting, they want to put that shingle up and say, "We know the Green Standard."

**Diane:**

I think the awareness is there. The Community Planners are the ones that would be more familiar with it, other than the Environmental Planners, and we have different planners here— Parks and Forestry— and they would be aware of it, but we are the ones working with it more. I think it's generally understood. I think because it's been around for awhile, and the TGS, it marries up to that. So we've gone through different re-sets and upgrades of TGS, so I think we're at that place where it's generally understood. I haven't had anyone, I mean, if somebody's forgotten them and we remind them, it's not like "What is it?" it's maybe more forgotten. Because there are so many details— it's crazy, all the details. But I think it's commonplace.

**Kelly:**

It's well understood by some. I think that there's a lot of room for improvement in terms of ensuring, not just bird-friendly, but everything that's set out in the Tier 1 requirements. There's a lot for Urban Designers and Planners to review, so sometimes things get missed because there are outstanding other issues that maybe are more immediate, and in those cases it's maybe not noted if there's bird friendly. But it's getting better and better. This is a process, a continuum, and we're moving steadily along, raising awareness, showing the importance of this, and you can see throughout the city that more and more developments actually do have treatments on the glass. I've noticed a change, yes.

**Rong:**

I think it's been well-trained, because TGS has been around for a long time. When we first had a Green Standard come out, we had a large training session for planning staff that reviews the application, and also training on industry parts, which was typically organized by what was called Build Toronto, now it's called Create TO, and they would roll out those guidelines to the development industry. They [developers] usually have something to say, they may say "Oh it's too much, we cannot meet those, we have certain concerns…" But I think that it's generally well-received, it's already on Version 3, and more and more people just think of this as something they automatically incorporate into their design. The only thing I have to say is about residential, because we receive a lot of residential development, and I find that it's not really— they could be more creative— but if it's a residential development typically they just use those dot patterns, not trying to come with something more creative.

**Willie:**

I think environmental issues in general go in peaks and valleys. One day climate change resiliency is top of mind, but then economics strikes, and those things are forgotten. We're in a bit of turmoil now with our province and legislation, and so with city planning we're dealing with a lot of major changes to our process. So inevitably some things may get lost. I remember someone saying whenever there's an economic downturn, what gets tossed? The environment. So that's unfortunate. I like to think, and maybe I'm a naive optimist, that the development community and more importantly the architectural community, is well-versed on this stuff, and it's just a matter of good

architectural practice these days to do this, but I couldn't tell you it's being fully adhered to. Another issue with us is, we're a big operation, and with turn-over and opportunities, we have a lot of new staff. So we do a yearly environmental training, but whether someone might have been hired after that training happened, or it's not focused on bird-friendly, that's something else.

*Note: I asked Willie what that environmental training looks like.*

Usually it's like a workshop, lately they've been more interactive, so it's not just, sit down and someone does a PowerPoint all about the new TGS. It's more, "Sit in groups, here's a set of plans, tell us about all the TGS measures" to see whether they're being adhered to. When they're interactive, they're interesting. We can only take in so much, in terms of a full-day workshop, but when they're interactive in a kind of group workshop format, you can generally retain more. Because you're learning but also going through a process that hopefully will become innate, when you're reviewing drawings yourself.

**David:**

I think that now, yes. Earlier on the process, definitely not. But I think there's more awareness of it and even if there's not a fine-tuned understanding of the issue by some of the planning staff, it's still a standard that they know needs to be met. And they rely on our colleagues in Urban Design who have greater expertise on it to make sure that it's being implemented with the drawings correctly.

*Note: I asked David to comment on the yearly environmental training that Willie had mentioned, if he found them to be boring, interactive, beneficial, or otherwise.*

They are beneficial, I think many training sessions are always boring in some way. Some training days are fun where you get to go on site visits or tours, or a it's a topic that's really interesting. Not that bird-friendly isn't, but with bird-friendly, you're talking about fritting patterns and the spacing of dots, and how big are the holes in the grates on the ground floor. So they're not necessarily the most exciting details to talk about, but people attend them, and it's a good reminder of the things we need to be looking at.

**Oren:**

Absolutely. [The issue is absolutely well understood by planners and developers].

***6) Given the decline of songbird populations in North America, do you feel that the Toronto Green Standard is a strong enough tool to ensure that the issue of bird-glass collisions is addressed? And, are there any changes that you'd like to see regarding the implementation and enforcement of Tier 1 requirements?***

**Jane:**

Regarding the first part of your question, it's really the only ability we have [to use the TGS to ensure that the issue of bird-glass collisions]. I think also that you have to be cognizant of when you're leading change, doing things differently, and introducing new performance measures, you have to walk this line. Because if you go way too far, you're going to get such a push-back, that it won't happen. If you can look at what's happened with Bill 108, you can see where that's in play: the developers balked, they

had the ear of leadership of the party in power, and they changed everything. So you have to be responsible in your decisions. You have to keep pushing the envelope, but in a responsible way— in a way that makes sense, in which your client base, your developers can live with; at the same time you keep pushing towards a better way. Because you've got to always have the long goal in mind. You want to decrease or remove bird-collisions, so how do you get there? [If you try to do too much at once] you shoot yourself in the foot. It undermines everything you've been trying to achieve, so you really have to do it with a dose of caution, but keep pushing it. Because you want to make a difference and you have that long goal in mind. We have the ability through new development; however it's the existing development that's a problem.

I've seen progress, but we have to do better— there's not much we can do, but I think we can do better about Lights Out! I think we have to do better about creating awareness, but FLAP does an amazing job [referring to a ping pong commercial put out by FLAP]. So things like that make a huge difference, I mean creating awareness. We've had a terrible time with that funny-shaped building with the icicle lights on it— you see it everywhere in the city. So they kind of did that without telling us, after the fact, and we called them on it and said, "You have to have them turned off during migratory season, and they promised that." So anyway, creating awareness among the built buildings they need to turn their lights out [is important].

*Note: I described one of the challenges of FLAP's work as being trying to get people to who aren't principally concerned with this issue, to pay attention. Jane responded with an ironic statement:*

“What do you mean— I don’t see any dead birds out there! What are you talking about?” But I have heard from developers too that, their clients very much like the idea that their building is bird-friendly; that’s a selling point, that’s a PR feature. So you go at it the positive way. People love songbirds, and if you sell it as “These poor little songbirds…” [that’s one way to reach people].

**Diane:**

In terms of, is it strong enough, I don’t have the technical expertise or the data to support a response to that, to say “It’s improved by such-and-such percent.” All I know is, educationally this is good, so I promote it and I enforce it and I move in that vein, but I don’t have any statistics.

I think periodic updates— we have what we call roadshows, where once a year, every couple of years, staff in specific areas will tour our districts and they give a quick presentation, whether it’s bird-friendly, or affordable housing, or all of our ba-zillion issues— there’s just so much that it’s overwhelming— but I think refreshers are good for staff. Because there’s always something new every couple of years, it may not be every year, but maybe every two or three years, if someone like policy staff came around— I know that in Etobicoke they came in a group and they spoke to housing matters, a few different issues. So I think that outreach with staff, keeping it fresh, and letting us know if there’s any new information, or just status quo because things are working well, but to ask, “Do you have any questions?” [would be beneficial]. Because we’re doing the reviews, and maybe there’s a question like “Is this applicable?” And we get new staff, so I think it’s important because there’s new people and people turning

over. And I think there's the lighting component too. I work with Urban Design on exterior and interior lighting, but sometimes I feel the exterior lighting is a bit ignored through the process, and that's something that I really push for a variety of reasons: for bird-safety, for pedestrian safety, light spill, light trespass— light not going where it should— for all those reasons. Education internally and externally is the best. Because we've got so many competing things coming at us and changes that every once in awhile, that's valuable.

**Kelly:**

What you have to remember is that TGS only covers new developments; it does not capture or address existing buildings. There's a very high percentage, I'd say probably over 90% of buildings that were built before TGS was established. It's the existing buildings that are untreated that are the cause of most collisions, that I'd say that's what really needs to be dealt with. We don't really have the authority to deal with existing buildings. We can't go back and say that "This is no longer approved."

If an existing building is going to do a renovation that requires site plan, then we can [put in bird-friendly requirements] through site plan process. In some cases when an existing building wants to make an addition to it or something that would require [site plan] we could do something. But it wouldn't necessarily require existing glazing. A potential place that the City may be able to step in is when they replace their glass, when it comes to the end of its lifespan, at that point perhaps, if they require certain permits. But I'm not exactly sure, if you wanted to replace the glazing on an existing building, what kind of permits you would need and whether we can require something

through the permitting process. I think again that would need to be listed under applicable law under the OBC, so I'm not sure if we can say "Well, we're now going to include bird-friendly" under that. That's a legal question. But there was recently a court case where existing buildings were found to be guilty of contravening the Endangered Species Act, and so there's now kind of a void where you can break the law with an existing building, but there's no procedure in place for them to mitigate that legally. I think the previous Liberal government began that; they retained the Canadian Standards Association to begin development of a national standard for bird-friendly. I was the chair on that and it was recently released, and there's now a voluntary standard that could be met by existing buildings. But it's whether or not jurisdictions have the ability to require that of existing buildings.

I think the City is taking a lead globally in this respect, but again it's about raising awareness of the importance of it, helping people understand the urgency of the issue. We're getting better and better; the City's living up to its goals in terms of its ideals, but in terms of its implementation there's always room for improvement.

**Rong:**

I'm not an environmental planner, so I don't have those data. We all have architectural or landscape architectural backgrounds, so we implement what has been developed based on the research. I don't know, without the information, it's very hard for me to answer that. That's not in my expertise.

**Willie:**

I couldn't comment on whether it's strong enough. Whether it's good enough in principle, I don't know. I think we could do a better job of making sure everyone who is reviewing plans are totally up to speed on things, like site plan training. And likewise I'd love to know if our Buildings folks, if it's on their radar. Are they looking at the windows, are they looking at details of the windows? Because we see site plan drawings, then an applicant submits building permit drawings, and those drawings are obviously meant to match building permit drawings in way more detail: structural things. But I don't know that those bird-friendly details are on the building permit drawings. So whether the building inspector— we have different stages in the permit process— folks who look at the drawings and make sure that they match the site plan drawings, and then folks who look at the drawings and take them out to the construction site, and make sure they're building what they said they were going to. That's separate from building code: there's code examiners and then there's plans examiners. They're two different inputs: Codes is looking at structural, and fire and all that, and then plans examiner is making sure that it's sticking to the stuff that we approved.

I think we're doing a pretty good job. If I'm not mistaken, TGS was the first of its kind in North America. TGS was pretty cutting edge, we're constantly updating it, we're in our fourth revision, because the first Version was voluntary. I think that's important, not only were we the first to do it and constantly updating it, we're actually pushing codes. As in, code is often following the things we're doing. The one thing that's interesting is now we're getting a lot more green roofs, and more rooftop amenity. So I want to make sure that people are doing the same type of window stuff that they're

doing on the first twelve metres above grade, because I think you get the same sort of bird fatality stuff happening there too.

I think that some developers probably thought that this was a bit hokey, like "Really? Birds? Is that a problem?" And so maybe that attitude of "I don't care about that," whereas you'd like to think that that kind of thinking has evolved, and hopefully it's not a huge cost-prohibitive measure. The one other thing that I think we could improve is probably re-engaging with the architectural community. And also with the landscape architectural community, because it's one thing to have that last step of designing the windows, but an earlier thing is designing the landscapes right, so that you don't have the nice trees that are attractive to birds right up against the windows. So that dual piece of education— I don't know if we're good at that, or if the development community is good at that— but that's probably another [strategy for improvement], in addition to the enforcement.

**David:**

I'm not the expert to say if our standards are tough enough or not. I think that overall, it would be nice if we could force developers to meet the higher Tiers of TGS. Over time it keeps pushing the envelope over time: Tier 2 standards become Tier 1. It would be nice if could do it a bit faster but, as much as condos seem to be going up everywhere, the industry itself is very slow to change, and they generally seem to have accepted over the last couple of years the TGS, which is great. I think more could be done elsewhere, not just in terms of bird-friendly, but we get scrawny trees, but we could get trees that are better at not just stopping them from hitting the glass, but giving

them habitat within the City. We do have all the ravines and parks, and they fly past Toronto but they still end up in the City. There are better ecological improvements in the City we could make to assist them. There are a whole lot of inter-related issues that get into our light pollution, which has gotten better, but there are potentially a whole lot of inter-related parts that we could pick up on and help the issue overall.

**Oren:**

[Regarding the first question about if TGS is a strong enough tool to ensure that the issue of bird-glass collisions is addressed] I don't know.

[Regarding any changes that you'd like to see about the implementation and enforcement of Tier 1 requirements]

In terms of implementation I'd like to see it simplified. Enforcement, it's what I was just talking about [regarding giving planning the ability to enforce through by-laws]

*Note: I asked Oren to elaborate on seeing the implementation simplified.*

So you have the TGS, which I would equate to the Official Plan: top load a lot of stuff: all things that I cannot measure and have nothing to do with what I do. So you've got this big document, and then you've got this master checklist that comes in. Also, a bunch of stuff in there— toilet flows [for example]— things that I can't secure, we've got these people thinking about, and that's a good thing, but, isolating this conversation to my world. So again there are dozens of things, but really I only look at ten. Then we have this TGS checklist that comes in, along with other things like energy efficiency reports, and there's this template that goes on to a plan.

*Note: At this point Oren showed me an architectural drawing and the TGS template.*

So, here's the TGS statistics template that comes with their drawing. So this is the "easy to reference" [tool] to understand whether they're meeting certain criteria. But these are statistics: percentage of glazing; but where does it say, "We did bird-friendly"? So you've got the statistics template, and you've got this green roofs statistics, and these are all requirements that just come in with the application. So I've got the Standard- big OP kind of document that talks about a lot of important things, then I've got the checklist that says a lot of things, then I've got the statistics template. All I want is a template like this that says "We've put the price of apartment as per listing; we've put bird-friendly, etc." I want this template to be the only template I have to look at. Right here on the drawings, and part of the signature by the architect to show that they complied with Tier 1 standard, so I can just look at it. And it's on the plan, and I'm securing this plan with all the drawings: "You've demonstrated that you're going to [comply], and here it is on a quick checklist." So on these drawings, immediately you can see the dotted glass; not here, but here yes. And you will see also references at some point, maybe it's 4A— oops, we'll go to "materials"— there it is: "vision glass bird friendly." But why did I have to look for that? Why isn't it on the template? So it's not as easily, I mean, it just goes to show you how it is that it's there. Sometimes you'll actually visually see they've done something to that glass, and you can see they've applied the 4A versus the 4; the 4A has the bird-friendly. Even 11A is some sort of railing…

But I think that overall, we are the leaders in terms of that. We have a lot of tall buildings, and we are right in the [migratory] path, so I think we feel the pressure more than others. But I do think we're doing a good job. Whether we're doing a good enough

job, I don't know. I don't come to work early enough to see the dead birds. And how do you measure as a human, whether we're doing a good job when you have no perspective as a bird. I could go around saying "I like the open space of this building, it's a real human scale," but do I walk around like a bird and go "C'mon guy! I could have hit that window right there!" We don't have that perspective, so you have to have experts tell us. As a planner we rely on experts to help create a process of a system where this just gets clicked in; I don't have to worry about the birds because they're taken care, and they're clicked into our system through the site plan, and I can go over other things, such as affordable housing. If something's not working well enough with the bird-friendly, someone's got to tell our experts that something's got to be corrected. But that's not something that I can do.