Appendix 1: Inventory of City of Toronto activities to support healthy pollinator populations

Current or Past City Initiative	Key Division	Status Update and Future Plans
Recognition as the first Bee City in Canada as of April 2016.	EED	Status as a Bee City affiliate renewed in April 2017.
National Pollinator Week Celebration in June 2016: Mural installation at Bloor and Howland that showcases one of Toronto's native pollinators - the Green Sweat Bee. This was a Live Green Toronto initiative, in partnership with Burt's Bees and the Street Art Toronto team.	EED, Street Art Toronto	Live Green Toronto is working with its partner Burt's Bees on an eco-art installation to raise awareness of pollinator health issues. The piece will be installed on the south side of Nathan Phillips Square from May 25 – June 25, 2017. Each use of the hashtag #KissesforBees on social media will grow the installation. This will be one of the ways we will be celebrating National Pollinator Week in June 2017.
Establishment of pollinator friendly habitat across the city, which engage local communities and provide educational opportunities through interpretive signage, community planting events, and tours. Examples include: Humber Bay Butterfly Habitat, Don Valley Brickworks, The Franklin Children's garden, and High Park's Black Oak Savannah restoration areas.	PFR	An inventory of existing pollinator habitat is being developed in consultation with other City divisions. Existing pollinator beds are currently in 3 wards, and will be expanded to all wards in the future. PFR is now encouraging each District Supervisor to add pollinator beds in every district. Horticulture staff have set goals for new pollinator habitat for the coming year. 10 gardens at the following locations: Beaches Park, Cherry Beach, Jonathon Ashbridges Park, Kew Gardens, Leslie Street Allotment Gardens, Woodbine Beach Park, Woodbine Park. Future Locations: Ashbridges Bay, Edithvale, Jennifer Katerina Kolval's'kyi Park, Cherry Beach Sports fields, City Hall – Nathan Phillips Square Model Garden.

Producing literature, such as "Bees of Toronto", "Butterflies of Toronto" and "Birds of Toronto" in the City's Biodiversity Series.	City Planning	To date, the City has printed and distributed over 120,000 individual copies of the Biodiversity Series. The City is currently in the process of revising “Birds of Toronto”, with the anticipated release in May 2017.
Habitat restoration through our Community Stewardship program which engages community volunteers in planting native species and the ongoing maintenance and management of the watersheds across the Greater Toronto Area.	PFR	Rowntree Mills Butterfly Planting - Saturday, June 4, 2016 - Rowntree Mills Park public planting event where volunteers planted a total of 500 wildflowers and shrubs that attract pollinators. Humber Bay Butterfly Habitat Community Stewardship Program - The site features two wetland meadows, an upland meadow, a short-grass prairie and a home garden. It has been designed to provide food and shelter for butterflies, birds and other insects. Volunteer stewards planted over 450 pollinator friendly wildflowers and plants in 2016. Humber Bay Bumble Bee Watch - Bumble Bee Watch is a citizen science initiative to record bumble bee sightings around the world. We've asked volunteers to participate by photographing any bees they see and uploading their photos to the citizen science website: http://www.bumblebeewatch.org/contents/ Milkweed Plantings - Community Stewardship Program teams plant milkweed at various stewardship sites with volunteers. Volunteer Naturalization Plantings - Volunteers plant approximately 15,000 trees and shrubs each year working to achieve Toronto's Urban Forestry's Canopy Cover goal. This also increases habitat,

		overwintering habitat, and forage for pollinators.
The Children's Eco Programs provide fun, hands-on opportunities for children and youth. We offer curriculum-based garden and nature spring/fall programs and feature eco camps, garden drop-ins, cooking programs, pollinator education and a host of other innovative and unique environmental programs year-round in High Park, the Children's Garden and Teaching Kitchen and along 7 of Toronto's Discovery Walk trails.	PFR	Children's Eco Program Expansion: The Eco Program Expansion Initiative was launched to meet the growing interest in children's gardens and environmental programs and achieve the broader goal of increasing the use, enjoyment and public stewardship of the City's parks and ravines system. In 2016 the Program achieved the following: • Supported 25 Community Recreation locations to provide garden and/or nature programming through camps and registered and drop-in programs. • Provided plant material and site support to 20 Children or Youth Gardens connected to Community Recreation Facilities with a primary focus on vegetable production. • Provided nature and garden training to over 115 Part-time Recreation staff. • Engaged 160 volunteers • The Franklin Children's Garden welcomed close to 40,000 visitors between June and September. • Thanks to Franklin the Turtle Mascot, in partnership with the Toronto Public Library's Storytime Program, over 600 participants received Discovery Backpacks with interactive pollinator-friendly resources to be used around the Certified Pollination Station at Franklin Children's Garden on Toronto Island Park.

The Horticulture Program of Excellence provides ongoing staff training in pollinator friendly planting and ways to increase native plantings in City parks.	PFR	Session 1: "Pollinators in our Parks" 160 staff in attendance Session 2: "Xeriscaping" 150 staff attended Session 3: "Design Concepts" – March 23 2017 Session 4: " Proper Gardening & Pruning Techniques refresher " - June 2017 Session 5: "Soils & Integrated Plant Health Care (IPHC)" – Fall 2017
Native Plant Chart for Toronto	PFR	Developed by a PFR gardener, this chart of native plants will be one of several sources on locally native plants for compiling our City of Toronto recommended pollinator friendly plant list and seed mix for use internally and for public promotion.
Removal of milkweed from the noxious weed list		The noxious weed list, Regulation 1096 of the Weed Control Act, has been updated. Dog strangling vine and black dog-strangling vine, have been added to the noxious weed list, while all milkweed species have been removed. These changes are effective immediately. http://discoverglengarry.com/en/residents/resources/2014-05-15CHANGESTONOXIOUSWEEDS.pdf
Public education on the importance of pollinators and promotion of native plantings to residents through the outreach efforts of Live Green Toronto.	EED	In partnership with the Toronto Public Library, Live Green Toronto is presenting a series of workshops on pollinators, gardening, local food and more. Live Green Programs for Fragile Planet 2017: 1. April 1, 2017: 2-3 pm at Scarborough Civic Centre 2. May 11, 2017: 7-8 pm at Queen/Saulter 3. May 16, 2017: 7-8 pm at York Woods

		4. May 20, 2017: 2-3 pm at Downsview 5. June 15, 2017: 7-8 pm at Northern District Parks, Forestry and Recreation are currently presenting at garden clubs and horticulture societies at their monthly meetings. May 10, 2017 – Riverdale Horticulture Society.
Natural garden inspections conducted by PFR.	PFR	Pollinator habitat plant lists have been added to handouts for homeowners.
Recognizing the contribution of citizens who demonstrate environmentally responsible gardening practices through our City of Toronto Garden Awards program.	PFR	This program continues to recognize environmentally responsible gardens including the use of native plant material and the creation of pollinator habitat. We will add a new category to the contest: "Pollinator Garden" category in 2017.
The naturalization of The Scarborough Centre Butterfly Trail is managed by the TRCA through a funding contribution from The W. Garfield Weston Foundation. The Scarborough Centre Butterfly Trail has brought together a diverse set of partners and local community members to plant a 40 hectare native wildflower pollinator habitat in the heart of Scarborough.	TRCA, PFR	Parks, Forestry and Recreation is currently working with TRCA on expanding the butterfly meadow to a new 10 hectare section between Conlins Road and Meadowvale Ave.
Toronto was a leader in banning the use of pesticides in 2003 which contributed to protecting the health of pollinators.	PH	In 2008, the Province enacted the Cosmetic Pesticides Ban Act. The ban took effect on April 22, 2009. More recently in July 2015, Ontario became the first jurisdiction in North America to legislate restrictions that apply to neonicotinoid treated corn and soybean seeds under the Pesticides Act, with a target of

		achieving an 80% reduction in the number of acres planted with neonicotinoid treated corn and soybean seeds by 2017.
A proclamation for Pollinator Week is issued annually by the City.	EED	Celebrating National Pollinator Week in June 2017. A proclamation will be issued.
Green Streets pilot projects - designed to create high functioning landscapes that meet the Toronto Green Standard in the right-of-way. Design objectives include stormwater management and urban heat island mitigation, as well as the creation of ecological destinations for environmental education. This work includes pollinator-friendly planting guidance in the Green Streets Technical Guidelines.	City Planning, Toronto Water	Complete Green Streets pilots include the Keele St. Bioswale, South Station St. at Lawrence Ave. West tree planting beds, and Fairford Ave/Coxwell Ave Bioretention Parkette. Another project now in the detailed design phase for construction in 2018, is 'Raindrop Plaza' at the north-west corner of Dundas St. E. and Coxwell Ave. This project includes art work by students from Roden PS and First Nations School, to celebrate and draw attention to the importance of urban ecology.
Guidelines for Biodiverse Green Roofs developed by City Planning.	City Planning	Guidelines for Biodiverse Green Roofs was released in 2013. It was developed as a “work in progress” and much has been learned since then in terms of biodiversity and pollinators in particular. There is an opportunity to revisit the document and bring it in line with current knowledge and thinking.
The Green Roof Bylaw – mandates green roofs on new construction. There are Green Roof Construction Standards which set out the minimum requirements for building a green roof in Toronto.	City Planning	Ongoing application of the Green Roofs Bylaw, which came into effect in 2010 and requires green roofs on new residential, commercial, and institutional buildings greater than 2,000m^2. From 2010 to 2016, 400 new green roofs mandated by the Green Roofs Bylaw have been built or are in progress, covering an area of 346,000 m^2.

The Eco-Roof Incentive Program provides grants for the installation of green roofs on buildings in Toronto.	EED	Since the program started in 2009, over 50 green roofs have been supported with over 20,000 m2 of green roof space created in the city. Program ongoing. Green roof incentive has increased to $100/m2.
The Toronto Green Standard (TGS) is a two-tier set of performance measures for sustainable site and building design. Tier 1 is required for new construction in Toronto and Tier 2 is a higher, voluntary level of performance with a financial incentive. Projects that achieve Tier 2 may be eligible for a partial refund on Development Charges paid to the City.	City Planning	The TGS v.3 is currently in development. Through this process there may be opportunities to incorporate the needs of biodiversity and pollinators into City requirements for Tier 1 and tier 2 projects.
The residential tree planting project ("Free Tree" program) now includes a pollinator component with information about pollinator-friendly tree choices.	PFR	Forestry has updated the Street Tree Planting website. New information includes talk about how individual trees may benefit pollinators, along with a blurb about how pollinators benefit trees in general. This was inspired by the Pollinator Working Group.
Community Engagement and Entrepreneurial Development (CEED) Gardens Program – CEED gardens aim to support and provide residents with opportunities to develop urban agriculture and entrepreneurial skills by growing and selling produce. Two to four CEED gardens will be located in hydro corridors and be managed by community partners. These gardens are scheduled to break ground in 2017.	SDFA	The CEED Gardens approval process is underway.

Community Gardens Program - provides access to land for people who may not have land of their own. Community gardens benefit everyone by creating safe and healthy recreational activity within our parks system, and on other City-owned lands. A community garden involves a group effort in its decision-making processes and in getting the garden established and maintained.	PFR	There are 73 community gardens in 32 wards which is an increase of 13 community gardens since 2014.
Allotment Gardens Program - The City of Toronto offers 11 Outdoor Allotment Gardens across Toronto to permit seasonally. In an allotment, you pay a seasonal fee for an assigned garden plot, and do not need to be a part of a community group when applying for a space.	PFR	There are 13 allotment gardens in 12 wards with 1,684 plots. There is ~1,007,054 sq. ft. (~23 acres) of land devoted to allotment gardening of which 336,800 sq. ft. (~8 acres) is used for food production. The City has recently produced a "Grow More Manual' for community gardens / allotment gardens.
Working with the TDSB /TCDSB and other organizations to provide educational workshops to children on the importance of pollinators and habitat / ecosystems / biodiversity.	PFR	PFR is currently working with the TDSB and the TCDSB to provide sessions in class and school gardens. This is a free program, geared towards grade 3 & 4 in which plants and habitat are covered in their curriculum.
Pollinator tours – Forestry's Natural Environment and Community Programs group holds 2 or more pollinator tours every year.	PFR	Native bee expert Sheila Colla gives tours to the volunteers in the Community Stewardship Program. A free public Pollinator tour/s are also as part of the Don Valley Brick Works Ambassador Program.
Tower Renewal support for a community garden refresh. The refresh included newly constructed raised garden beds, plants/vegetables, Fiskar	SDFA Tower Renewal	Tower Renewal, Toronto Office of Partnerships and Fiskars have selected the Thorncliffe community for a garden refresh event. The Leaside community garden is surrounded by apartment towers

gardening tools and in-kind staff support.		and is a food growing garden, learning space that engages, accommodates and feeds residents. The harvest is shared with participants who comes to the space to learn, grow and gather. The main objective is to connect people to food security in a meaningful and impactful way. A section of the garden will be pollinator friendly. The tentative date for the garden refresh event is June 1, 2017.
Pilot pollinator patch in Liberty Village and community pollinator garden on Keele Street	Public Realm	The proposal is for the creation of a linear garden, measuring approximately 1,000sqm, at the back of 65-85 Liberty St. East, fronting the railway corridor. A community pollinator garden will be installed at 1652 Keele Street in 2017, of approximately +/- 100m sq. Additional sites for the installation of pollinator gardens are being considered. We will be pursuing a number of other small scale community plantings with pollinator species in 2017.
Pollinator habitat on medians	Public Realm	A 6000m square centre median area of Allen Road has been identified for removal of grass cutting service in 2017. A pollinator native flower seed mix will be planted. Additional areas of the Gardiner Expressway West will be reviewed for removal of grass cutting service and installation of a pollinator seed mix in 2018. The target of +/- 3000m sq. has been set for 2018.

Training session delivered by Pollinator Partnership on roadside management to Transportation Services staff.	Transportation Services	The first training session was delivered in November 2016. For 2017, additional sessions are being proposed for the Pollinator Partnership to present to operational staff. The training describes the mutual benefits and cost savings of introducing new pollinator areas to our existing grass cutting contract areas.
'Adopt-a-Street-Tree' Program – Pilot Project	PFR and City Planning	Pilot project with LEAF, and with funding from a TD Green Streets grant, to develop a program and guidance handbook for businesses and communities that wish to adopt street trees in their neighbourhood. The handbook includes recommendations for pollinator plants to plant at the base of trees.
Civic Improvements Capital Program	City Planning	This is City Planning's capital program, led by Civic Design in Urban Design. Projects are designed to include gardens with pollinator species wherever possible. Funding is approved by Council on a two-year basis, and projects are delivered by ECS, and sometimes PFR. For example, a large butterfly garden and pollinator plants were included in the Scarlett Road Bridge over the Humber River project, in 2012.

Appendix 2: Draft best practices

Tips on creating a bee and butterfly friendly garden

Plant native: Native plants (wildflowers, shrubs and trees) are preferred by native pollinator species and are well adapted to local growing conditions. Choose native perennial flowers rich in pollen and nectar, rather than non-native ornamental annuals.

Plan ahead for continuous bloom: Pollinators need a continuous source of pollen and nectar - from when they emerge in the spring, right through to the fall. Select a diversity of plants with a range of bloom times to provide food throughout the growing season.

Mass plantings: Plant multiples of each plant in large groupings, rather than single flowers spread throughout your garden. Large groups of plants allow pollinators to spot resources more easily and collect pollen more efficiently, as bees tend to collect pollen from one type of plant at a time.

Choose single blooms: It's easier for pollinators to forage on single bloom varieties because pollen and nectar are exposed. While stunning to look at, double or triple bloom flowering varieties have extra petals that can block access to pollen and nectar.

Use colourful and fragrant plants: Pollinators use color and scent to locate food. Purple, yellow, white and blue are easy for bees to spot in your garden. Fragrant flowers or herbs also help attract pollinators.

Prune and deadhead: Remove dead flower heads (deadheading) to encourage new growth and a longer flowering season. That means more flowers for you to enjoy and more food for pollinators.

Plant host plants: Butterflies require specific plants on which to lay their eggs. For example, Monarch butterflies lay their eggs on milkweed, as this is the sole food source for their developing larva.

Leave bare patches of ground: Many native bees are ground nesters and build their nests by tunneling into the soil. Avoid using mulch or wood chips and leave bare patches of soil for ground nesting bees to access.

Provide a nesting box: Cavity nesting bees nest in hollow stems or holes in wood. Nests are simple to make - drill holes of various sizes into a block of wood, or bundle hollow tubes of bamboo, reeds or paper straws. Nests can be placed on a building, fence about 3 – 6 feet off the ground, where they are sheltered from the weather, with the entrance holes facing east or southeast for exposure to the morning sun.

Provide a water source: Satisfy the thirst of bees and butterflies by offering water in a bird bath or shallow dish. Place half submerged rocks inside as landing spots.

Provide sunny spots: Create basking spots for butterflies by placing a few flat rocks in sunny, sheltered locations in your garden.

Don't forget about the moths: Moths are also pollinating insects. Add some night blooming flowers to attract night flying pollinators such as moths.

Be a messy gardener: Leave garden cleanup until the spring to avoid destroying pollinator nesting and overwintering sites. If you must tidy up - leave some areas of bare soil, dead braches and rough areas of grass – all important nesting sites for bees.

Leave your dead stems: Avoid the urge to "clean up" your garden by cutting plants down. Some bees hibernate and lay eggs in hollow stems. Raspberry canes are a particularly appealing nesting spot for bees. If you must cut, leave at least the bottom 8 inches in place or bundle the cut stems and place them in a protected area of your garden. Bundles of sticks and stems that are put out for yard waste collection too early in spring will often contain overwintering bees.

Keep your dead wood: Large branches and decaying logs can be kept in a sunny spot to provide much needed overwintering habitat for bees and other wildlife.

Minimize manicuring: A perfectly manicured lawn is a food desert for pollinators. Natural gardens and lawns offer the most benefits for pollinators in terms of food and nesting spots.

Reduce mowing and mow high: Reduce mowing frequency and when you do mow, cut with the mower deck at the highest level to avoid disturbing ground nesting bees. Try to leave at least 3 ½ inches of grass on your lawn (remember it's not a golf course!). Since grass stops growing in the fall, you can usually skip the last mow of the season.

Leave the leaves: You can leave the leaves where they fall or rake them into your garden. As they decompose, they will provide nutrients for your soil, but also serve as overwintering habitat for beneficial insects like butterflies.

Avoid tilling: Keep large patches of land unmown and untilled to provide secure and undisturbed nesting sites for ground nesting bees.

Keep it natural: Keep your outdoor space natural. Conversion of a garden or lawn to concrete, gravel or artificial turf will change it from being suitable for many bees to being impossible for any of them to nest in.

Prevent the spread of invasive plants: Invasive plants, like dog-strangling vine, may have a negative impact on Monarchs. Female butterflies mistakenly lay their eggs on it since it's in the milkweed family, instead of native milkweeds, causing the monarch larvae to starve. You can help by monitoring your property for invasive plants and removing them when detected.

Avoid pesticides: Bees and other beneficial insects are sensitive to insecticides. Avoid buying plants and seeds treated with systemic insecticides, such as neonicotinoids. Locally grown organic and native plants provide native bees with the ideal forage habitat they require. Don't spray your garden or lawn with pesticides. Remember that Toronto introduced a Pesticide Bylaw in 2003 and since 2009 the use of cosmetic pesticides is banned Ontario-wide.

Appendix 3: Draft Pollinator Protection Strategy for public consultation

Protecting Toronto's pollinators: Vision, priorities and proposed actions

The vision is for Toronto to be home to healthy pollinator populations that support resilient ecosystems and contribute to a rich urban biodiversity. To achieve this vision, six priorities have been identified for pollinator protection in Toronto:

1) Create and enhance habitat
2) Design and connect green spaces
3) Partner and build relationships
4) Invest, incentivize and inspire
5) Educate and train
6) Celebrate and recognize achievements

For each priority, a series of proposed actions have been developed that will help the City of Toronto achieve its vision. These proposed actions will not only support native bees and butterflies, but will also be beneficial to all pollinators, including non-native honey bees. Habitat creation in particular will have a positive impact on all pollinators, and is the foundation of the City's 44 proposed actions.

1) Create and enhance habitat

Pollinators require high quality habitat to thrive in an urban environment. High quality pollinator habitat is any area that provides foraging resources (pollen and nectar from flowers), nesting and overwintering sites, and larval host plants (such as milkweed for Monarchs) that support populations of pollinators.

There are many ways the City can help to create, restore and enhance habitat for pollinators. Many of the places to create pollinator habitat already exist - on the ground and on our rooftops. Our urban environment with patches of parkland, ravine, urban gardens and green roofs, can provide an abundance of floral resources and nesting sites for a wide range of pollinators. The simple act of planting wildflowers rich in pollen and nectar will have positive benefits for all pollinators that call Toronto home.

Proposed actions:

1. Conduct an assessment of how much existing and potential pollinator habitat there is in Toronto and set targets for pollinator habitat creation and enhancement.

2. Include in the City's existing guidelines regarding plantings in City parks, facilities and restoration projects, a commitment to plan more native trees, shrubs, and wildflowers that support pollinators.

3. Work with members of City Council to identify at least one city-managed site in each of the 44 wards that can be enhanced for pollinators and serve as a model garden.

4. Develop guidelines for creating habitat specifically for pollinator species at risk, including the Rusty-patched Bumble Bee, Gypsy Cuckoo Bumble Bee, Yellow-banded Bumble Bee and Monarch butterfly.

5. Develop and share lists of recommended native plants and flowering trees and shrubs that attract pollinators for various uses (private lands, roadsides, green streets, etc.) and environmental conditions (e.g. pollution, salt conditions, heat stress), and investigate the potential to create wildflower seed mixtures suited to the Toronto area.

6. Review the City's mowing practices with a view to preserving pollinator habitat, and work with Transportation Services and other relevant City divisions and agencies to identify areas that could benefit from less frequent mowing and/or strategically timed mowing, with the goal of developing guidelines and training for City staff and contractors.

7. Work with Solid Waste Management Services to identify City-owned closed landfill sites that may have the potential to become high quality pollinator habitat.

8. Review the City's practices for managing coarse woody debris (e.g. fallen branches after storm events) and the type, distribution and application of mulch in landscaping.

Success story:
The Humber Bay Butterfly Habitat (HBBH) - This City of Toronto led ecological restoration project provides critical habitat for a variety of native butterflies and other pollinators. Located along the shores of Lake Ontario in Toronto's west end, HBBH incorporates a diversity of native wildflowers, shrubs, trees, grasses, sedges and a variety of physical features known to support butterflies throughout their life cycles. The goal of HBBH is to establish a self-sustaining native plant community which will support a variety of butterfly species, while engaging and educating park users about the value of urban wildlife habitat. The first project of its kind, the HBBH incorporates large scale plantings through the coordination of volunteers and community stewards with the City of Toronto's Community Stewardship Program. HBBH is approximately four acres and features a demonstration home garden, wildflower meadow, short grass prairie, trails, and interpretive signage.

2) Design and connect green spaces

As cities grow, habitat can be lost or fragmented into small patches not large enough to support complex ecological communities. Habitat fragmentation can inhibit the ability of some species to move between areas to utilize all of the resources they need to survive. By re-connecting green spaces, it's possible to create a continuous corridor of potential habitat that allows species such as pollinators are able to move freely from area to area taking advantage of the different resources each patch has to offer. Research suggests the ideal distance between patches of pollinator habitat is about 50 metres, based on the forage radius of the smallest pollinators in an area.

On a city-wide scale, parks, ravines, green roofs, along with infrastructure corridors such rail, road and hydro present the greatest opportunity for the conservation of pollinators. On a smaller scale, linking a series of individual pollinator plantings such as backyard gardens, parkettes, laneways, school gardens, sidewalk planter boxes, community and allotment gardens, into a neighbourhood scale pollinator corridor, can help to connect public, private and community level activities under a single umbrella.

There is considerable public engagement potential in connecting habitat and creating neighbourhood scale green corridors. Opportunities exist to encourage residents, businesses and institutions to participate by planting and adopting pollinator friendly practices on their properties.

Proposed actions:
1. Identify potential linkages to connect areas of existing pollinator habitat on publicly managed lands through geospatial mapping, and identify “micro” corridor connections where small scale plantings could connect two large green areas in close proximity.

2. Support the efforts of the Toronto and Region Conservation Authority (TRCA) to create and connect pollinator habitat in utility corridors, and identify specific ways the City can work with TRCA to meet their goals.

3. Share information/resources with groups (such as TRCA, David Suzuki Foundation, school boards, horticultural societies, BIAs, and others) to foster corridor creation on public and private land.

4. Work with developers and property owners to include more pollinator friendly plantings and design in green roof projects on low- and mid-rise buildings, by including information in the Green Roof Construction Standards Supplementary Guidelines, such as: seasonally and biologically diverse and abundant flowering species; greater substrate depths (minimum 15 cm); appropriate substrate composition with high nutrient availability and water retention capacity; large stones and/or logs that provide nesting habitat; and adjusting maintenance practices to leave plant biomass over the winter to protect nesting species.

5. Enhance areas of the City Hall podium green roof with pollinator-friendly habitat, accompanied by educational signage, to demonstrate the role green roofs play in pollinator habitat and corridor creation.

6. Work with relevant City divisions to ensure that the needs of pollinators are considered in all green infrastructure and stormwater management initiatives undertaken by the City of Toronto (such as green streets, green parking lots, street tree plantings, utility corridors, green roofs, hedge rows, rain gardens, bioswales, etc.).

Success story:
The Scarborough Centre Butterfly Trail, TRCA with funding contribution from The W. Garfield Weston Foundation - This purpose of this initiative was to revitalize approximately 40 hectares of space under the hydro corridor between McCowan Road and Scarborough Golf Club Road. By converting the area from barren mown grass into a meadow that provides high functioning pollinator habitat to compliment the multi-use trail for pedestrians; the initiative transformed an underutilized space into an important part of the natural system in Toronto. Through education and stewardship programs, community members are able to connect with nature and take active ownership of the space to maintain it for future generations to enjoy. This corridor represents an important pathway of connected greenspace, which allows pollinators to forage in a greater amount of area.

3) Partner and build relationships

Many groups in Toronto are already working on pollinator protection initiatives and the City of Toronto can support and encourage their actions. Several of these organizations are being engaged by the City of Toronto as part of the Expert Pollinator Advisory Group. The University of Toronto and York University are leading the way in research on bees and other pollinators in our urban environment and play a key role in data collection and providing the evidence-based research we need to guide our actions.

It is vital to pollinator protection that the City continues to build relationships, consult, and engage with all stakeholders. Many of the actions proposed in this document cannot be achieved without support and guidance from partners. While City staff play an essential role in taking action on public lands, it is important to continue to engage key audiences (residents, businesses, institutions, and community groups) in order to see widespread implementation of pollinator actions on private land.

Proposed actions:
1. Support University and College-led research projects that support pollinator conservation management and that guide the development of best practices for pollinators in Toronto.

2. Work with the Toronto Association of Business Improvement Areas (TABIA) to create pollinator habitat on private lands, with the goal of creating at least one pollinator garden in each BIA and investigate support for ongoing garden maintenance.

3. Partner and build relationships with community based organizations working on pollinator protection initiatives, and identify ways the City can help to advance their efforts.

4. Engage with the Toronto School Boards to encourage schools to create pollinator habitat, with the goal of creating a pollinator garden at every school, and investigate support for ongoing garden maintenance.

5. Connect with local growers/nurseries to encourage them to cultivate native, pesticide-free pollinator-friendly plant seedlings, and develop pollinator-friendly wildflower seed mixes, with emphasis on the City's list of recommended native plants and flowering trees and shrub species that attract pollinators.

6. Improve collaboration and coordination among City divisions, agencies, boards and commissions, and external partners through the Inter-Divisional Pollinator Working Group and continue to engage the Expert Pollinator Advisory Group by soliciting feedback and expert advice as needed, to facilitate progress on pollinator protection efforts.

7. Provide guidance and opportunities to volunteer groups looking to engage in pollinator protection initiatives, utilizing the expertise of the Live Green Toronto Volunteer program.

8. Continue to engage with the Province of Ontario on the Pollinator Health Action Plan and related Acts.

9. Engage with developers, property and rental associations that have the capacity to encourage pollinator habitat on their land, such as the Toronto Parking Authority, the Greater Toronto Apartment Association (GTAA), Building Owners and Managers Association (BOMA), condominium boards, and Toronto Community Housing, to promote the creation of pollinator habitat.

Success story:
Parkland Naturalization Program - This City program works with community and environmental groups, funding partners and capital projects to restore degraded natural landscapes and establish new natural areas to create forest, wetland, and meadow habitats. More than 60,000 native trees and shrubs have been planted, as well as more than 50,000 wildflowers, herbaceous and aquatic plants.

4) Invest, incentivize and inspire

Investing in pollinator protection initiatives and incentivizing actions that create pollinator habitat will inspire and motivate others to act. Incentives play a key role in changing behaviour, encouraging new approaches, and supporting the current community interest in action.

City purchasing practices can be designed to support healthy pollinator populations. For example, the City purchases a great deal of plant material annually for use in our parks. This purchasing power can be utilized to shift the market toward growing and distributing native and pesticide-free plants that are beneficial to pollinators.

The Province of Ontario, in its recently released Pollinator Health Action Plan, has made providing grants and incentives a key component of their plan, including commitments to fund programs across ministries to support pollinator habitat creation projects.

The City will seek sponsorship, grant and external funding opportunities to support the actions presented in this report.

Proposed actions:
1. Develop the criteria and seek funding sources for an incentive program that provides modest financial support or resources (e.g. soil, seeds, and plants) to encourage neighbourhood-scale, pollinator habitat creation or enhancement, and pollinator education initiatives.

2. Encourage biodiverse, pollinator-friendly green roofs through the City's Eco-Roof Incentive Program, by identifying an appropriate criteria to encourage the use of materials and design elements that increase the capacity of the roof to serve as pollinator habitat.

3. Leverage City planned investments in green infrastructure, such as right-of-ways, to incorporate pollinator plantings and habitat creation, and coordinate these activities through the Inter-Divisional Pollinator Working Group.

4. Explore the creation of a City procurement policy to purchase more native pollinator friendly plants, and to select plants and seeds that have not been treated with systemic pesticides (e.g. neonicotinoids) for use in City-managed spaces, and incorporate these guidelines into tender documents for all City divisions.

5. Revise the City's existing pesticide use policy, as well as guidelines regarding plants grown in City greenhouses, to include a commitment to grow plants and seeds that have not been treated with systemic pesticides (e.g. neonicotinoids).

6. Investigate the feasibility of creating a full-time staff position dedicated to the implementation of pollinator related initiatives.

7. Work with relevant City divisions to determine the costs and savings associated with transforming and maintaining existing City-managed spaces to pollinator habitat.

8. Seek sponsorship, grant and external funding opportunities to support the actions presented in this report.

Success story:
Live Green Toronto Grants - An initiative of the City's Environment and Energy Division, this successful grant program ran from 2008-2015 and funded 168 community-led greening projects. The grant recipients included 40 garden projects that provide important habitat for Toronto's pollinators. One recipient, the Dallington Pollinators Community Garden, also won the 2015 RBC Blue Water Award and City of Toronto Garden Award. Another grant recipient, the Toronto Island Franklin's Children's Garden - Pollination Station, welcomed close to 40,000 visitors in the summer of 2016.

5) Educate and train

Strengthening education initiatives will leverage the interest in protecting pollinators that already exists in the community. The City has the opportunity to guide resident, business and institutional action, with the potential for significant positive change.

For example, well-meaning individuals who want to help pollinators may pursue hobby beekeeping, when planting pollinator friendly plants is an easier and more effective way to create much needed habitat. It is essential to promote practices which are beneficial to pollinators. Therefore, the development of a series of practical how-to guides is being proposed as a way to reach these audiences and inspire them to take action.

It's also important to recognize the ongoing interest and actions of City staff, and continue to support this through training. Parks, Forestry and Recreation has been a leader in their creation of the "Horticulture Program of Excellence", a staff training program aimed at providing inspiration and education to City staff on issues relating to horticulture within the urban environment.

Proposed actions:

1. Develop and promote a series of practical how-to guides for specific audiences (businesses, schools, local communities, gardeners, etc.) that offer advice on actions to take to help pollinators, including creating pollinator habitat, and identifying practices which threaten pollinators.

2. Enhance existing educational programming offered by the City of Toronto, such as Day Camps, Children's Gardening programs and Live Green Toronto, to include information, activities and educational signage in City spaces on the importance of pollinators.

3. Work with Toronto School Boards and the Ontario Institute for Studies in Education to provide pollinator information packages for teachers, investigate the opportunity to offer native pollinator education sessions in Toronto schools, and make links with indigenous culture and stewardship information.

4. Update the City's Free Tree Planting brochure to identify which trees are pollinator-friendly, and provide information about why pollinators are important.

5. Create an online resource on the City's Live Green Toronto website that includes: information about pollinators and species at risk, and shares best practices, including plant lists, and information about harmful practices, such as pesticide use.

6. Work with Live Green Toronto programming to deliver workshops for gardeners on how to create a pollinator garden, and investigate delivering the workshops at libraries and community centres.

7. Continue and expand training for City staff through the Horticulture Program of Excellence on topics such as creating pollinator habitat in City parks; best practices for pesticide application, roadside management and mowing, and look for opportunities to expand the training to more staff and other divisions.

8. Investigate the development of a point-of-sale campaign to help residents identify pollinator-friendly plants and seeds at local nurseries, and create lists of retailers that offer pesticide free plants.

Success story:
"Tickle Bees" and City Staff - An example of how City staff training has had a direct impact on their actions is the case of the "Tickle Bees". In the spring of 2015, thousands of gentle, ground-nesting bees emerged with the warm weather in a City park. Being in close proximity to a playground, members of the public voiced their concern to the Park supervisor. City staff, having recently completed training on pollinators as part of the Horticulture Program of Excellence, identified the bees as *Andrena* sp., or Mining bees, nicknamed the "Tickle Bee" by school children as they don't sting and are very gentle. Staff installed educational signage about the "Tickle Bees" and the vital role they play in pollination. The community was thrilled to host these important pollinators and often stopped to observe their activity. City staff's education and awareness about this important pollinator, led to this learning opportunity with the members of this community.

6) Celebrate and recognize achievements

There are many ways to celebrate and recognize achievements in pollinator protection. National Pollinator Week is a well-established annual celebration intended to raise awareness through recognition of action taken on behalf of pollinators and provide encouragement for further action.

The proposed actions below, in partnership with existing programs, will allow the City to recognize the efforts of residents, businesses, community organizations, and institutions, celebrate milestones and honour the contributions of members of our community. Public signage, awards and certification programs will also raise the profile of the importance of pollinators, assist in education and encouraging further action.

Proposed actions:
1. Celebrate and promote National Pollinator Week (third week in June) and Toronto's status as the first Bee City affiliate in Canada by undertaking at least one public education and/or habitat creation or restoration activity each year.

2. Work with the Canadian Wildlife Federation and their existing Backyard Habitat Certification Program to tailor a program specific to Toronto that will guide and recognize property owners in creating pollinator habitat.

3. Provide recognition through signage (e.g. Pollinators are Welcome Here!) to acknowledge the efforts of property owners who have created or enhanced pollinator habitat and/or contributed to corridor building in their neighbourhoods.

4. Add a pollinator-friendly garden category to the City's existing Garden Awards program, and inspire others by offering in person and virtual tours of award-winning gardens.

5. Create a recognition award (e.g., Native Pollinator Supporter of the Year) for residents and organizations (e.g. schools, businesses, institutions) that have contributed to the protection of pollinators.

Success story:
Celebrating National Pollinator Week - As part of Toronto's commitment to raising awareness of the importance of pollinators and celebrating our status as the first Bee City in Canada, an event was organized as part of National Pollinator Week (the third week of June). On June 23, 2016 a mural of a green metallic sweat bee was unveiled at Bloor Street and Howland Avenue and a proclamation declaring "Pollinator Week" in Toronto was announced. The mural was the result of a partnership between Burt's Bees and the City's Street Art Toronto and Live Green Toronto programs. Painted by Toronto artist Nick Sweetman, the mural is roughly 65' long by 35' high and serves as a stunning reminder of the importance of pollinators in our urban environment.

Appendix 4: City of Edmonton's Urban Beekeeping Guidelines

Keeping bees in Edmonton is controlled and enforced under the Animal Licensing and Control Bylaw, No. 13145. The following guidelines will help ensure that urban beekeeping is a positive addition to the community by providing best practices and responsible regulations to minimize impact on surrounding neighbors.

SETBACK REQUIREMENTS

- Hives may only be located in the rear yard of a property
- Sites must be located at least 25 metres away from any public place, including but not limited to playgrounds, sports fields, churches or schools
- Hive entrances must be directed away from adjacent residential properties
- Hives should be located at least three metres from all property lines where there is an adjacent neighbour, unless the property is separated from the adjacent neighbour by a solid fence or vegetative hedge at least 1.5 metres high

NUMBER AND SIZE OF HIVES

Each approved property shall house one active hive consisting of a bottom board and hive cover with a recommended number of four supers. Each Site may keep a nucleus (Nuc) hive to provide options for good animal husbandry and hive management.

STANDARD OF CARE

Every beekeeper shall adhere to good management and husbandry practices and maintain bees in such a condition so as to prevent swarming, aggressive behavior and disease. Animal Control must be notified of any swarms and/or disease and the steps taken to rectify the issue.

INSPECTIONS

Approved beekeeping site owners shall make themselves and the hive(s) available for inspection on reasonable request of Animal Control Peace Officers.

NEIGHBOUR NOTIFICATION

Every beekeeping applicant shall inform all adjacent neighbours in writing of the site's approval, and provide that information to Animal Control. This requirement is a notification to neighbours, not a request for neighbour permission.

TRAINING

Each approved beekeeper must complete a beekeeping course from an accepted organization/association. All beekeepers in their first year must also demonstrate that they have the support and assistance of a mentor acceptable to Animal Control.

REVOCABLE PERMISSION

Should Animal Control find a site, hive or beekeeper to be unsuitable at any time, the permission may be revoked and the site owner shall work with Animal Control to relocate the hive and bees to a location outside the City of Edmonton. All costs and associated expenditures related to the removal are the sole responsibility of the site or property owner.

REGISTRATION
Pursuant to the Alberta Bee Act, all beekeepers shall register with the provincial apiculturist and shall comply with the Bee Act wherever required.

APPLICATION REQUIREMENTS AND PROCESS
All interested beekeepers must submit an email or letter outlining the following requirements:

- Name, address, and contact information for site owner
- Confirmation of location of hive in relation to the property (site drawing or photo evidence of compliance with setback requirements)
- Proof of success in an accepted beekeeping course
- For first time beekeepers, proof of support and assistance of an accepted mentor
- Proof that adjacent neighbours have been informed of the site plan
- Swarm and disease control plan
- Certificate of registration with the provincial apiculturist

Source:
https://www.edmonton.ca/documents/Urban_Beekeeping_Guidelines_FINAL_May_11_2015.pdf