
CANADIAN TRANSIT COMPANY
Ambassador Bridge Enhancement Project

CEAA ENVIRONMENTAL
ENVIRONMENTAL IMPACT ASSESSMENT

AMBASSADOR BRIDGE ENHANCEMENT PROJECT
Replacement Span and Plaza Expansion

APPENDIX P

PEREGRINE FALCON **MANAGEMENT PLAN**

Peregrine Falcon Management Plan



Ambassador Bridge Enhancement Project
Windsor, Ontario

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1.0 Introduction

Peregrine Falcons (*Falco peregrinus anatum*) have nested and bred on the Ambassador Bridge since 2008. The Falcons have consistently used the bridge as their territory and have bred on-site. The Canadian Transit Company (CTC), owner of the bridge, is proposing to construct a second bridge to the west of the existing bridge as well as conducting plaza improvements to the Windsor Plaza. The existing Ambassador Bridge would be closed to vehicular traffic and used as a redundant resource during emergencies.

This document will serve as internal guidance for CTC to maintain species productivity and to minimize the effects on nesting peregrines from maintenance, construction, and other permitted activities associated with the Ambassador Bridge, Windsor Plaza and the proposed Project. Currently the peregrine falcon nest is approximately 5 meters (17 feet) from the proposed bridge span and approximately 152 meters (498 feet) from the proposed tower pier location.

In consideration of the status of the Peregrine Falcon as a provincially threatened species and of special concern nationally and as part of the Environmental Impact Statement for the Ambassador Bridge Enhancement Project, this management plan was developed to provide best management practices for CTC personnel to implement while conducting the above activities as well as future maintenance and operation activities, especially during the nesting period of the falcons. It also serves as a protocol to facilitate communication between CTC and the *Species-at-Risk Act (SARA)* authority Environment Canada-Canadian Wildlife Service (EC-CWS) and the Ontario Ministry of Natural Resources (MNR).

This is a live document and is subject to change. Changes in conditions or situations may arise at the bridge that will necessitate the need to modify best management practices and/or mitigation measures. These changes will occur after consultation with EC-CWS, MNR, and other experts of the species.

2.0 Legislative Protection

The Peregrine Falcon is listed as threatened under Schedule 1 of Canada's *Species at Risk Act (SARA)*, which came into force in 2003. SARA provides individual and habitat protection for listed wildlife species. Subsection 32 (1) makes it an offence to "kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species. Subsection 32 (2) states that "no person shall possess, collect, buy, sell or trade an individual or wildlife species that is listed". Section 33 makes it an offence to "damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species".

It is designated as "threatened" by the MNR under the *Endangered Species Act*, which protects the species from killing, collecting, harassment and destruction of habitat. Its designation is the same as that given by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), in which Ontario is an active participant. However, in a meeting in November 2011, the Committee on the Status of Species at Risk in Ontario (COSSARO) determined that a status of Special Concern appears appropriate. This was based on the species currently recovery in the last 30 years, the relatively small

Ontario population, and the large proportion of its historical range that remains uncolonized. The down-listing of the peregrine falcon to a species of Special Concern could occur as early as April, 2013.

3.0 Bridge History and Proposed Project

The Ambassador Bridge was completed and opened to traffic in 1929, following the enactment of reciprocal statutes in the United States and Canada authorizing the construction of a bridge at its current location. Since its construction, the bridge has served as a critically important link in the flow of international trade between the United States and Canada, connecting the U.S. interstate highway system with Canada's road network. The Ambassador Bridge corridor served approximately 7.2 million vehicles in 2010 with 2.7 million of those being trucks and buses, making it the most heavily used bridge between Canada and the United States.

When the Ambassador Bridge was constructed it was state-of-the-art for the twentieth century. Eighty-one years later, the Ambassador Bridge continues to stand as a majestic structure on the Windsor-Detroit sky line. The Ambassador Bridge was built with private sector funds in 1929 and continues to be a safe border crossing and functions as one of the busiest international crossings. It is critical to plan for the future with the proposed replacement span taking into account the importance of this international crossing, the level of use, and the age of the Ambassador Bridge. Twenty-five percent of Canada's imports and exports flow over the existing Ambassador Bridge. There is no question that this crossing is a vital link in the local and national economy. Tens of thousands of jobs are supported directly or indirectly by the Ambassador Bridge.

The CTC is proposing to construct a new international bridge across the Detroit River parallel to the existing Ambassador Bridge (interim improvements) and expansion of the Windsor Plaza (ultimate improvements) at some time in the future, if and when necessary ("Project"). The new six-lane cable-stayed bridge will be located approximately 30.5 metres (100 feet) west of the centre line of the existing Ambassador Bridge to the centre line of the proposed bridge which is referred to as the replacement span. The proposed cable-stayed construction is state-of-the-art construction for the twenty-first century and will create another magnificent landmark for the Windsor-Detroit sky line. The construction of the replacement span is considered the interim improvement and will occur in Phase I of the Project.

The proposed bridge will connect to the existing plazas in Canada and the United States. Improvements will be made to the plaza in Canada at some time in the future if and when necessary. Plaza improvements are considered the ultimate improvement of the Project and will occur in Phase 2. No further modifications are required to the plaza in Detroit.

The existing Ambassador Bridge is approximately eighty-one years old, and it is no longer economical to operate without undertaking significant upgrades to continue to move traffic efficiently. Also, the Ambassador Bridge lacks dedicated FAST/NEXUS lanes, an amenity that has been requested by the Customs authorities of both the United States and Canada. It is not feasible to widen the structure of the existing Ambassador Bridge to accommodate the addition of these lanes. The original safety shoulders constructed eighty-one years ago, no longer meet current standards. The construction of the replacement span will improve traffic flow, mitigate noise impacts and air pollution, and be safer for drivers, while ensuring the continued viability of this vital international corridor.

The proposed Project, similar to the Ambassador Bridge, will be funded entirely through private funds, meaning that no municipal, state, provincial, or federal tax funds are required. The construction of the proposed Project will maintain southwestern Ontario's world class international corridor and keep vehicular traffic flowing efficiently and effectively across the Windsor-Detroit border.

The Project is a bridge approximately 2,130 metres (7,000 feet) in length with about 670 metres (2,200 feet) traversing the Detroit River from tower to tower. The bridge will be a minimum of 46 metres (152 feet) in height above the Detroit River, with the same minimal clearance of the existing Ambassador Bridge and have no impacts on navigational clearance requirements of either Canada or the United States. The location of the Canadian tower will be approximately 30.5 metres (100 feet) south of the Detroit River and the United States tower will be situated approximately 30.5 metres (100 feet) north of the Detroit River. The height of each tower will be approximately 177.6 metres (544 feet) above existing ground level. The total width of the bridge will be approximately 31 metres (102 feet). Each of the six lanes will be 3.6 metres (12 feet) wide. The proposed Project is planned to be wide enough to accommodate two shoulders in each direction. The outside shoulders will be 1.8 metres (6 feet) wide and the inside shoulders 2.4 metres (8 feet) wide. There is no pedestrian sidewalk proposed for the replacement span (see preliminary plans in Appendix A).

The replacement span is proposed to be a cable-stayed bridge that will be supported on cast-in-place concrete substructure elements with foundations on bedrock. The proposed Project will have six-lanes and new safety shoulders and will be able to accommodate modern vehicles. The central median barrier will offer more safety, and the proposed six-lane design will facilitate better traffic flow back and forth across the border. Two of the six lanes will be dedicated to the low-risk FAST/NEXUS traffic, allowing for faster clearance of that traffic and leaving four lanes for general and non-FAST commercial traffic.

The Ambassador Bridge will remain standing and continue to act as a landmark for the City of Windsor area. Once the proposed replacement span is operational, the existing Ambassador Bridge will be taken out of service. It will then be rehabilitated, maintained and used for redundancy and emergency traffic and approved public events.

The plaza in Windsor was recently modified to include nine additional Primary Inspection Lanes (PIL) both within the original plaza footprint and on the west side of Huron Church Road. These improvements were completed in 2007. Ultimate improvements to the plaza could include, at some point in the future, moving secondary inspection services on site, commercial inspection area and office, traveler office and inspection parking spaces, additional Primary Inspection Lanes (PIL), and a Vehicle and Cargo Inspection System (VACIS) (see plaza expansion concept alternatives in Appendix B).

In addition, a green area will be developed between the plaza and the nearby community of Sandwich on the east side of Indian Road. This green buffer area will create a security buffer around the Windsor Plaza.

The proposed replacement span is anticipated to cost approximately \$600 million dollars of private funds. This estimated cost includes the property acquisition along with the construction of the entire replacement span including the linkages into the existing Canadian and United States' plazas and the ultimate plaza expansion.

4.0 Peregrine Falcon Biology and History

The Peregrine Falcon is a fast-flying, crow-sized raptor. It has long pointed wings, a long narrow tail and flies with quick powerful wing-beats. The species has a distinctive facial pattern with a dark "helmet" or "sideburns". Adults are dark slate- gray on the back, with a light-coloured barred breast. Younger birds are brown, with a streaked breast.

Mating and breeding behavior commences as early as late February. The fledgling period commonly extends into mid-August due to re-nesting following the loss of the first clutch of eggs. Peregrine falcon nests, referred to as eyries, are usually located on a small scrape on a ledge of a cliff face, or a man-made structure overlooking large bodies of water. Some individuals have established territories in urban centres and nest on tall office buildings which mimic cliff faces, a natural nesting habitat. Territories around urban sites appear to be smaller.

Peregrines Falcons eat birds almost exclusively, although fledglings are often observed chasing after and catching large flying insects such as dragonflies. Dozens of species of birds have been recorded as prey, ranging in size from chickadees and goldfinches to pigeons, ducks, and gulls. While on migration, falcons primarily hunt shorebirds. Studies on a few individuals from Canada and Greenland have suggested that the birds spend roughly one month flying south, and another month coming back north in the spring. On average, they leave their breeding grounds in September and return in February or March. Many of the urban falcons in eastern North America have now chosen to not migrate at all anymore - they remain in their breeding territory all year long due to year-round food source such as rock doves (pigeons). Birds utilizing bridges in the winter may be resident peregrines that remain in the territory throughout the year.

Peregrine Falcons usually mate for life, but will accept a new partner if their mate dies. A pair may separate for the winter during migration. Pairs that remain at a site throughout the year generally maintain their bond. Most falcons engage in courtship rituals every spring. Once a pair has commenced courtship, a nest site is selected. The male shows several potential nest sites to the female who then decides which one of these she prefers. A pair will often re-use the same nest site.

Peregrine Falcons are native to a wide variety of open habitats, including wetlands, alpine meadows, and tundra. In all cases, falcons choose a nesting site which is isolated and in a protected location and is in proximity to desirable hunting grounds. Typically a cliff or rocky outcrop is selected for a nest site. Their preference is a ledge 15 to 60 metres above ground, with a southerly exposure and a protective overhang above. Nests consist of a shallow depression scraped out by the adults and no nest materials are added.

Incubation usually lasts 33 to 35 days from the date the last egg is laid (or the second last, if that is when incubation began). Peregrine chicks grow rapidly. By the time they are six weeks old they are already adult size, and are starting to fly. As the chicks develop, the parents allow them to become increasingly independent, and each week the appearance and behaviour of the chicks changes noticeably. There is a great deal of variation in the time at which Peregrine chicks leave the nest for their first flight (fledge). On rare occasions they take off as early as 33 days after hatching, while others linger for over 50 days. The majority, however, leave 45 days after hatching. Females generally stay in the nest longer, because they are heavier and need a longer period to develop and strengthen the flight muscles needed to carry them safely.

Females continue to lay eggs annually until they die. The only time that a female would lay more than one clutch of eggs in a year is if the first clutch are lost or damaged before hatching or if the chicks die within their first few days. Re-nesting following loss of the first clutch is common.

Peregrine Falcons have recently begun to live in cities on an increasingly regular basis, using skyscrapers and high bridges as nesting sites. The majority of falcons that have settled in eastern North America in recent years have chosen urban centres. Among the cities which have had nesting falcons are Windsor, Toronto, Mississauga, Hamilton, London, Ottawa, Winnipeg, Detroit, Cleveland, Columbus, Buffalo, Rochester, New York, Boston, and Pittsburgh.

4.1 Conservation

Since the Second World War, Peregrine Falcon populations worldwide suffered drastic reduction in numbers due to illegal trade (most popular with falconers) and primarily exposure to Dichloro-Diphenyl-Trichloroethane (DDT), a synthetic pesticide that affected the eggs of nesting falcons. DDT caused the thinning of the egg shells resulting in egg failures. The connection between the use of DDT and the declining numbers was not apparent until the 1960s. Since then efforts have been made to increase the numbers by reducing the use of DDT and other agricultural pesticides, and clamping down on illegal trade. Most recently, falcons have been allowed to nest on ledges of artificial structures such as office buildings and bridges.

Populations have recovered to the point that it has been removed from the list of species in regulation under Ontario's Endangered Species Act (ESA). Its status has been down-listed from endangered to threatened. The species will continue to be protected as a *Specially Protected Raptor* under the *Fish and Wildlife Conservation Act*. This act protects it from hunting and trapping and also protects nests and eggs. Habitat management guidelines are available to protect peregrine falcon nest sites in the vicinity of forest management operations.

4.2 Peregrine Falcon History at the Ambassador Bridge

Peregrine Falcons have nested on the concrete ledge of the pier on the southwest side of the Ambassador Bridge in Windsor since 2008 (Figure 1). This sheltered ledge is similar to a towering cliff and the substrate in the ledge consists of loose gravel; typical characteristics of their natural breeding habitat. During non-breeding seasons, the falcons continue to occupy the bridge regarding it as their territory and hunt.

The male falcon, Freddie, was banded in 2001 in Toledo. He and the female, Voltaire, first appeared on the Ambassador Bridge in the spring of 2008. That year, the pair mated but no chicks survived. In 2009, the pair returned and had two chicks. The female chick died of a fungus in June, 2009. The male chick disappeared before being banded and his fate is currently unknown. In 2010, the pair had three chicks that were named Bridgette, Windsor and Lancer. All three chicks were banded and survived to adulthood. In 2011, three eggs were laid of which only two hatched. The two chicks were named Lady Gaga and Spitfire. Both were banded; however, Lady Gaga was euthanized after she sustained fractures to her wings and legs after a failed flight attempt. The male survived to adulthood. In 2011, a tray was introduced for the hatchlings to prevent falls and provide a more enclosed nest site. In 2012, the pair had four chicks, two females named Viper and Twitter and two males named General Brock and Eddy. All four chicks were banded and survived to adulthood. A large brood is expected again in 2013. The typical breeding timeline for the falcons at the Ambassador Bridge can be found in Table 1.



Figure 1: Nest site on the southwest side of Canadian pier.

Table 1: Peregrine Falcon Breeding Timelines at the Ambassador Bridge

Breeding Activity	Timeline
Nesting season (includes mating and nest site selection)	Late February/Early March – end of July *
Scrape on north tower (nest formation), or utilization of nest box and laying of eggs	End of March to early April
Hatching of eggs (approx 33 – 35 days)	Mid May
Fledging/Eyases in nest (approx 6 weeks)	End of May to Mid June (banding early June)
Fledgling Period (approx 40-45 days)	Mid June to Mid August
Dependent on Adults, start hunting independently (9-12 weeks)	Mid July to Mid August
Young birds disperse from nest area	Mid August to early September
No breeding occurs. Adults remain at the bridge, staking it as a territory	September to February (fall and early winter months).

* During mild winters, mating/breeding behaviour commences late February.

5.0 Proposed Bridge Construction

There are several stages in any bridge construction project. The components of the proposed Project are interrelated and work in each stage may overlap with work in other stages. Within each stage of the project there are also various activities that will be undertaken. While some of the work is specialized in its nature, equipment and personnel will move between stages of the project.

The stages of construction for this project include: preparation of the site, excavation for the footings, construction of the drilled shafts and installation of the piles, construction of the piers, construction of the superstructure, pouring of the deck overlay, pouring of the barrier railings, installation of the lighting, painting and final cleanup and ultimately the maintenance and operation of the facility. The construction of the pier and tower will likely have the greatest impact on the peregrine falcon pair.

6.0 Bridge Maintenance and Repair of Existing Ambassador Bridge and Proposed Project

Bridge maintenance and repair projects are required on an ongoing basis throughout the year to ensure its safe operation.

Depending upon the activities, these may disturb the falcons when conducted during their nesting period (late February to mid-August). Potential disturbances include noise to close human proximity to the falcons' nest such as certain repair or maintenance activities.

In addition, routine activities (i.e. inspection and maintenance) are required to continue over the lifetime of the bridge on an annual and/or monthly basis. As well, unexpected emergencies such as mechanical and/or electrical breakdown may require repairs to be performed during the nesting period. Such activities may result in close human-to-falcon proximity or contact. Essential maintenance, inspection and repairs must be undertaken to ensure the safe and smooth operation of the bridge as it will serve as a redundant resource for this border crossing.

Human to falcon proximity during the nesting season has resulted in aggressive behaviour in many falcons exhibited by the falcons which swoop/dive very close to maintenance personnel. Talons are often extended during this tactic. This behaviour is likely a defensive reaction by the falcons to ward off potential predators from its nest. Falcons may inflict personal injury such as gashes, or scrapes inflicted by the talons and/or beaks.

7.0 Proposed Nest Relocation/Manipulation and Falcon Best Management Practices

7.1 Nest Mitigation

Prior to the 2013 nesting season, a nesting box will be installed on the southeast side of the same bridge pier that has been used in the past for nesting. This will minimize interaction with construction crews during construction of the proposed bridge. The goal is to have the falcons select the nesting box as their new and permanent nesting site. Per the Peregrine Falcon Habitat Management Guidelines from the Ontario Ministry of Natural Resources, the peregrine falcon nest box will be 60 cm x 90 cm, similar to that shown in Figure 2. The opening should be 30 cm. The box will be filled with sand to a depth of 10 cm. Drainage holes will be 1.5 cm in diameter and covered with a screen to prevent sand from escaping. A hood and sides will be placed on the box for shelter. A 5 cm wooden pole will be added to the front as a perch.

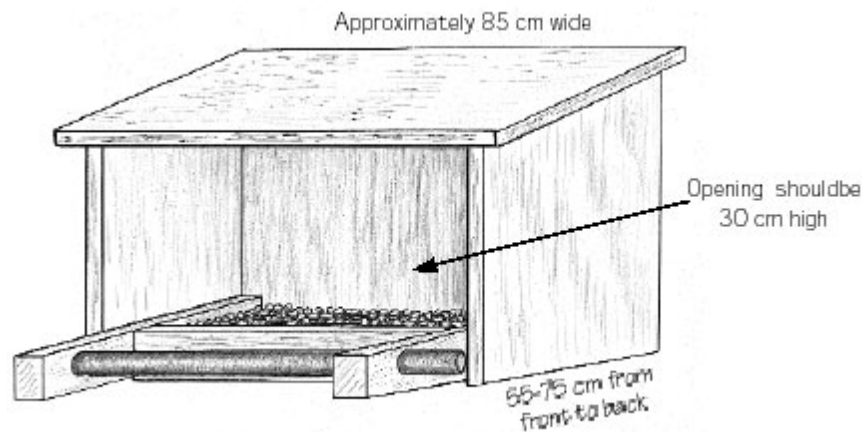


Figure 2: Dimensions of peregrine falcon nest box

It is recommended that bridge personnel who regularly work on the bridge appear on the structure as frequently as possible to enable the falcons to recognize them. Sensing a lack of threat may curtail defensive attacks on the personnel during breeding season.

7.1 Nest/Hatchling Relocation

Nest relocation may be required and conducted if the falcons do not successfully nest in the new location but nest in another operationally inappropriate site, and/or a situation arises where bridge operations may endanger the safety of the birds. *However this is a measure that will be considered only as a last possible resort.*

Once the eggs have been laid or the chicks have hatched, no relocation can be conducted. Under no circumstances can live eggs be relocated as this may result in abandonment by the adults. Chicks cannot be moved until at least twelve (12) days after hatching. Any possible relocation may occur after the 12 day period has passed and can only occur under the discretion of an MNR biologist that has the training and experience in relocating falcons. If relocation is deemed necessary, it will be done only after careful consideration of the life cycle stage and circumstances of the nest site. Otherwise, from the time eggs

are laid to the time fledglings leave the nest (approximately 80 days in total), there cannot be any relocation. If relocation were to occur, the chicks will be moved to the nest box. An ESA permit will be obtained from MNR if relocation of chicks is deemed necessary and agreed upon by MNR.

Since the historical nest and nest box site are not in locations accessible to the public and are at a significant height on the operating bridge, the biologist must have all appropriate Health and Safety training as required by CTC.

CTC will coordinate with EC and/or MNR to obtain a SARA permit that allows CTC staff to work in close proximity to the birds in the event that routine and/or emergency maintenance is required. On an ongoing basis, CTC will consult EC and/or MNR for advice on working in close proximity to the birds and how to avoid or deal with defensive measures employed by the adults.

In summary, nest relocation will only be implemented if the following conditions are met:

- Capture (physically containing the bird) and relocation of live chicks is anticipated by EC and/or MNR.
- Bridge activities that could result in compromising the safety of the birds cannot be avoided.
- Monitoring confirms the exact nest location and nesting chronology within one-day accuracy.
- CTC has coordinated with EC and/or MNR and obtained a SARA permit.
- Any biologist who handles a peregrine falcon has current appropriate EC and/or MNR approvals/accreditation and has prior experience at this or other peregrine falcon nest sites.
- Personnel must have appropriate Health and Safety Training as determined by CTC.

8.0 Peregrine Falcon Best Management Practices

All activities will be minimized to the extent practical during the nesting season (March 15 to July 31). If activities must occur within the nesting season, an experienced monitoring team will evaluate if the activity is likely to adversely affect the nesting peregrines and may be required to monitor the nest during the activity. Individuals that are likely to be members of the monitoring team include, but are not limited to, Mark Nash, David Jolly, Yves Scholten, and/or Dan Werner.

8.1 BMPs and Mitigation Measures for Maintenance and Operation

The following ongoing falcon best management practices/mitigation measures will be implemented on an ongoing basis as required.

1. When feasible, bridge work (maintenance and/or repair) will be planned to occur outside of the nesting season, as applicable.
2. When feasible, avoid activities within the vicinity of the nest area that may adversely disturb the falcons.
3. If an activity has the potential to adversely impact nesting falcons and cannot be avoided during the nesting season, CTC will contact EC and/or MNR prior to conducting work (or as soon as possible for emergency work). CTC will coordinate with EC, MNR and experts, as necessary, to evaluate potential impacts and provide additional management recommendations for

implementation. Permits may be required and will be determined in coordination with EC and/or MNR

4. CTC will inform appropriate operations, maintenance and construction personnel of the location of the nest and buffer zones prior to commencement of any work during the nesting season.
5. If avoidance during the nesting season is not possible, CTC will coordinate with EC to minimize disturbance, capture, etc., determine if a SARA permit or ESA permit is warranted, and possibly implement with the assistance of EC and/or MNR one or more nest management alternatives described above.
6. If avoidance is not possible, minimize the duration of time spent on work activities that must be conducted in the vicinity of the nest site during the nesting season.
7. If avoidance is not possible, maximize the number of separate activities within one short time period (i.e., within the same week) in the vicinity of the peregrine falcon nest during the nesting season. This will enable the falcons to recognize “regular” bridge personnel and hopefully curtail defensive attacks.
8. If CTC receives information that the historic nest site is not occupied by breeding peregrines, and no new nest site is occupied on the structure, then maintenance and construction activities will be considered to have no effect and may proceed with no restrictions that year.
9. If CTC receives information that an active nest site fails and is abandoned, then maintenance and construction activities from that point forward will be considered to have no effect and may proceed with no restrictions for the remainder of the year (until a new nest is established).
10. No disturbance in the vicinity of the known nest site will occur regardless of the time of year, without prior coordination with EC and/or MNR, except during an emergency.
11. CTC will not permit third-party activities during the nesting season on the bridge without assessment for potential impacts and addition of specific avoidance measures in the permit if applicable.

8.2 Peregrine Falcon Best Management Practices/Mitigation Measures for Construction of Project

Specific management zones were designed for the construction of the Project. Management zones are defined as spatial boundaries around a particular nest site where the majority of hunting, perching, and feeding activities occur during nesting. For this plan, two zones have been established, reflecting relative levels of peregrine activity, and include the Restricted Zone, and Sensitive Zone. The zone boundaries were based on current habitat present, past monitoring efforts, the design of the bridge, and the line of sight from the nest site to activity. Detailed observations of the falcons nesting on the Ambassador Bridge can be found through the Canadian Peregrine Foundation as well as other birding sites. These observations, as well as those of internal staff at CTC, were used to help determine the management zones for the peregrine falcons. The final design plans for the Project will demarcate a non-staging zone near the nest as well as the Restricted and Sensitive Zones. All of the management zones are 3-dimensional, radiating in all directions from the nest ledge. The restricted zone extends 200

m from the nest while the sensitive zone extends 400 m away from the nest, though these boundaries are subject to change once construction begins based on the behavior of the birds.

The Restricted Zone includes the nest site and extends 200 m from the nest. The objective of the restricted zone is to minimize activities and limit excessive noise disturbances (10 dBA greater than ambient). This zone is generally considered a high use area for the peregrines for foraging and roosting. No construction staging activities will occur within the Restricted Zone. Construction within the Restricted Zone will be avoided within the nesting season to the extent possible. If avoidance is not possible, the duration of time spent on work activities that must be conducted during the nesting season will be minimized by evaluating cost effective work shift alternatives. Activities that cause excessive noise disturbances (10 dBA greater than ambient), such as pile driving, will be limited in the Restricted Zone during the nesting season (approximately March 1 to July 31, though nesting behavior could begin as early as late February). Should the fledglings leave the nest prior to July 31, limitations will be lifted.

The Sensitive Zone is the area adjacent to the Restricted Zone and extends approximately 400 m away from the nest. The Sensitive Zone is generally considered a moderate use area for the peregrines. Human activities in this zone have less potential to cause noise disturbance because of the distance to the nest site. Activities will be minimized within the Sensitive Zone during the nesting season. For example, staging areas will be located outside of the Sensitive Zone wherever possible. Work associated with the plaza and roadway improvements are outside of the Sensitive Zone. The number of separate activities within a short time period (i.e one week) within the Sensitive or Restricted Zone will be minimized during the nesting season.

CTC will provide an experienced monitoring team for the peregrine falcon nest and other nesting birds to determine if construction of other elements of the project are affecting the nest and to determine when the young birds have fledged the nest . Behavioural studies will be conducted to monitor activity and behaviour in or directly adjacent to the construction site during the breeding season. If vegetation removals are required between May 1 and July 31, a nest survey will be conducted by a qualified avian biologist within two days prior to commencement of construction to identify and locate active nests of migratory birds and to develop a mitigation plan, if necessary.

In addition to the restrictions mentioned above, the following falcon best management practices/mitigation measures will be implemented during construction, as required.

1. When feasible, avoid activities within the Restricted and Sensitive Zones of the nest area that may adversely disturb the falcons.
2. If an activity has the potential to adversely impact nesting falcons and cannot be avoided during the nesting season, CTC will contact EC and/or MNR prior to conducting work (or as soon as possible for emergency work). CTC will coordinate with EC, MNR and experts, as necessary, to evaluate potential impacts and provide additional management recommendations for implementation. Permits may be required and will be determined in coordination with EC and/or MNR.
3. CTC will inform appropriate operations, maintenance and construction personnel of the location of the nest and buffer zones prior to commencement of any work during the nesting season.
4. If avoidance during the nesting season is not possible, CTC will coordinate with EC to minimize disturbance, capture, etc., determine if a SARA permit or ESA permit is warranted, and possibly

implement with the assistance of EC and/or MNR one or more nest management alternatives described above.

5. If avoidance is not possible, minimize the duration of time spent on work activities that must be conducted in the vicinity of the nest site during the nesting season.
7. If CTC receives information that the historic nest site is not occupied by breeding peregrines, and no new nest site is occupied on the structure, then maintenance and construction activities will be considered to have no effect and may proceed with no restrictions that year.
8. If CTC receives information that an active nest site fails and is abandoned then maintenance and construction activities from that point forward will be considered to have no effect and may proceed with no restrictions for the remainder of the year (until a new nest is established).
9. No disturbance in the vicinity of the known nest site will occur regardless of the time of year, without prior coordination with EC and/or MNR, except during an emergency.
10. CTC will not permit third-party activities during the nesting season on the bridge without assessment for potential impacts and addition of specific avoidance measures in the permit if applicable.

The following types of maintenance or construction activities¹ are expected to have *no effect* on nesting peregrine falcons and may be conducted on the structure at any time of the year without any restrictions. Effects of other activities need to be evaluated on a case-by-case basis.

- Inspections at or near ground level (except with helicopter).
- Minor culvert maintenance.
- Minor structural or road surface repairs (on the roadway or shoulder or bridge deck, without snooper cranes).
- Lawn management (no tree cutting).
- Sign replacement, repairs, and cleaning.
- Snow and ice removal and sanding.
- Special events, pedestrian (e.g., bridge pedal, foot races, walkathons, etc.).
- Sweeping of pavement
- Work outside of the nesting season that does not alter a known nest ledge (other than enhancements²).

¹Only pertains to maintenance activities that occur on the level of the roadway or bridge traffic deck (not over the sides, underneath, or above the level of the rails of the deck). It also includes only minor repairs to the roadway, road shoulder, sidewalk, bridge traffic deck, or rails that do not involve equipment that is louder than ambient noise levels by 10 dBA (i.e., impact pile drivers, jackhammers, pneumatic wrenches, etc.) or do not involve large construction vehicles (i.e., tractors, backhoes, graders, scrapers, pavers, concrete mixers, etc.). Any work that includes use of a helicopter, lift crane, or snooper crane is not included.

²Enhancements would include the addition or improvement of a nesting box or tray. Potential other improvements include enlarging the area underneath the bridge that is utilized by the falcons, or drainage improvements if found necessary.

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