

REDUCING POLLINATOR HABITAT FRAGMENTATION IN TORONTO



RENDERED PERSPECTIVE: TRANSIT SHELTER AT KING ST W/ BAY ST INTERSECTION

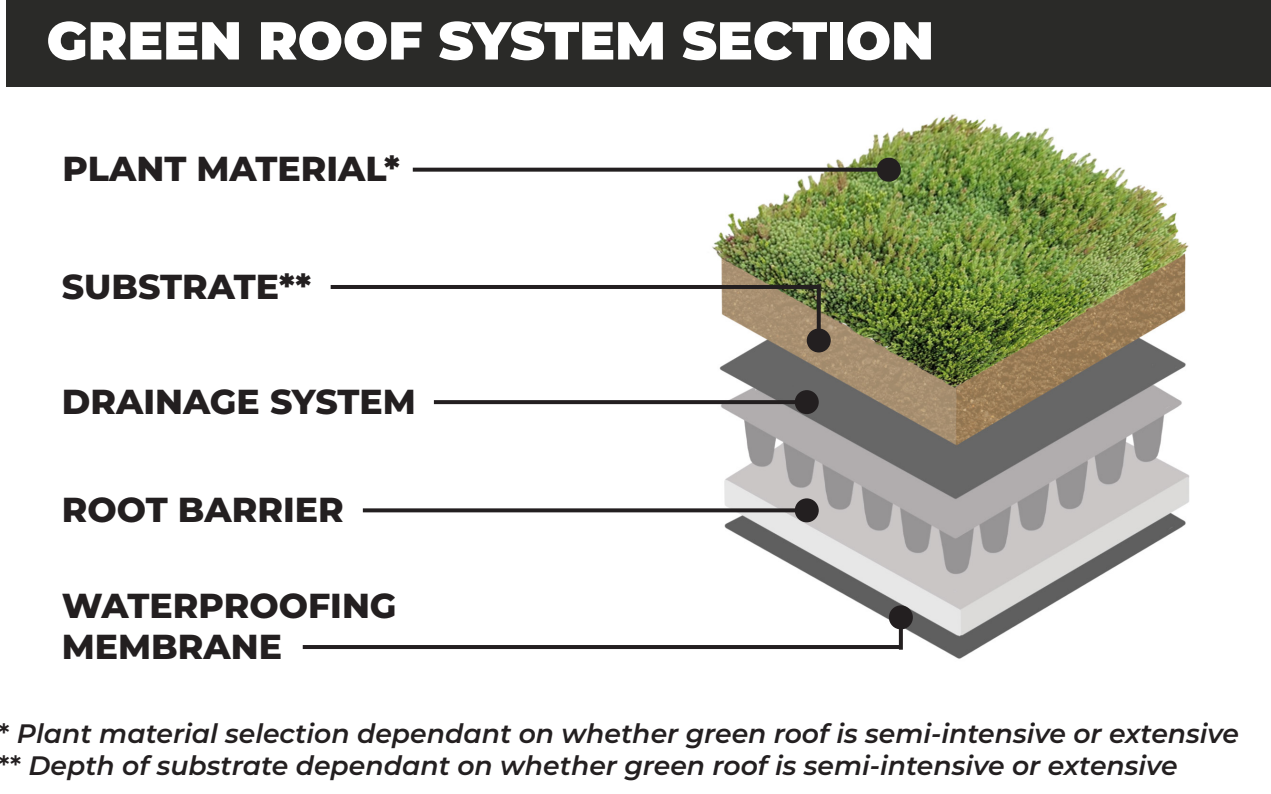
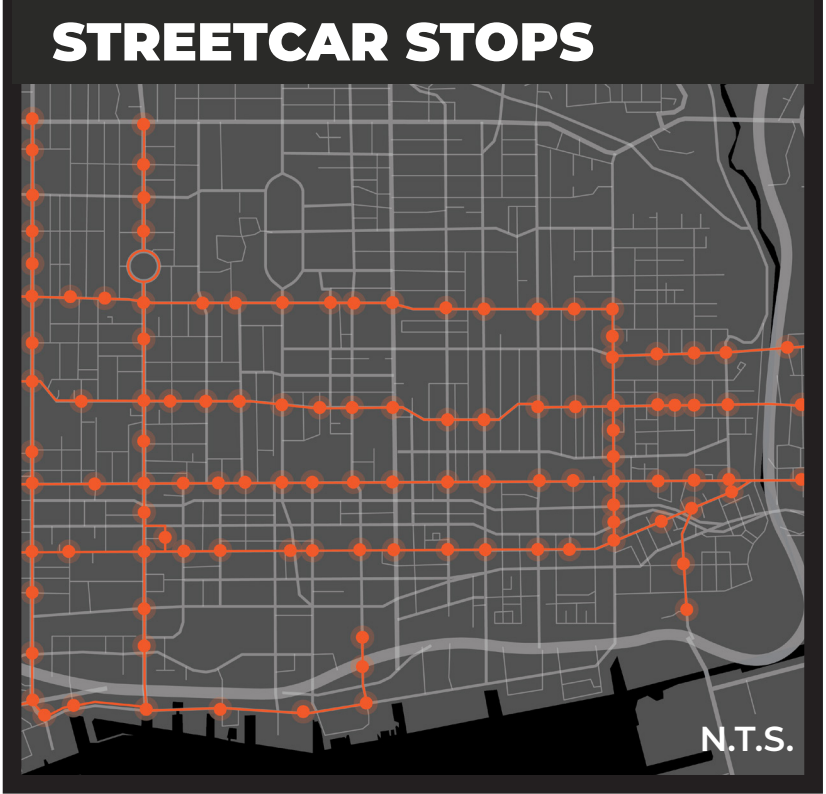


Pollinators play an essential role in the landscape, providing valuable ecosystem services that benefit plants, animals, and humans. The pollination process is crucial to plant reproduction, agriculture and landscape management, and it is not something that humans can easily replicate. Habitat loss and fragmentation are some of the biggest threats faced by urban pollinator species. In order to ensure the longevity of pollinators in Toronto it is important that the city advances their habitat creation and restoration efforts. Existing policies such as the Toronto Pollinator Protection Strategy acknowledge the need for additional pollinator habitat in the city, but offer little insight as to how these spaces can be created.

TARGETING HABITAT CREATION ON TRANSIT INFRASTRUCTURE

Creating additional green roof space is one approach to reducing pollinator habitat fragmentation in the City of Toronto. These systems could be introduced on existing forms of transit infrastructure such as bus shelters and train/subway stations. These design interventions will not only reduce pollinator habitat fragmentation in Toronto's downtown core, but will help to mitigate stormwater runoff levels, provide heating/cooling effects to transit shelters and stations, as well as bring a 'naturalized' feel to the city. Transit infrastructure provides an excellent opportunity to address habitat fragmentation reduction, given the frequency of stops and stations located throughout the city (as visualized in the mapping analyses below).

These targeted interventions would be grounded in four of the UN's Sustainable Development Goals - Sustainable Cities & Communities , Responsible Consumption & Production, Climate Action, and Life on Land. This approach would support Toronto policies relating to pollination (e.g. Toronto Pollinator Protection Strategy), as well as contribute to the ecological productiveness and resiliency of the city.



Semi-intensive green roofs typically consist of small to medium perennial and grass species. These systems require 6-10 inches of substrate material, and can tolerate some infrequent walking. *Extensive green roofs* contain less substrate (<6 inches), and are best suited for smaller species with compact root systems.

The plant species proposed in the palette below are suited for either semi-intensive or extensive green roof systems. These species are native to Ontario and are pollinator-friendly. Plant selection was also based upon tolerance towards Toronto's seasonal climate.

364
BEE
SPECIES IN
TORONTO

112
BUTTERFLY
SPECIES IN
TORONTO

POLLINATOR SPECIES
INCLUDE: BEES,
BUTTERFLIES, MOTHS,
WASPS & BEETLES

In the mid 2000's the train shed roof at Union Station was upgraded as part of ongoing revitalization efforts. A green roof was originally planned for the space, but was cancelled over concerns it would impact the future ability of Metrolinx to introduce electrification systems required by electric trains.

As part of Union Station's revitalization project, it is suggested that the train shed roof be targeted for green roof development. Specifically, the roof space that exists on either side of the central glass roof will be prioritized. This space would best be suited for a semi-intensive green roof system,

which allows for infrequent walking (i.e. rooftop maintenance access). In its current state the train shed roof does not provide local pollinators with access to habitat, and holds no stormwater retention properties. The proposed roof would provide both of these benefits as well as offer natural temperature controls to the shed area below. A green roof of this size would also assist with mitigating the heat island effect experienced in the City of Toronto. The proposed green roof would be nearly 23,000m², and would consist of plant species outlined in the proposed planting palette (right), as well as other native, pollinator-friendly species. The green roof would be the second largest green roof system in Canada after the Vancouver Convention Centre (24,200m²).

GREEN ROOF PLANTING PALETTE



SEMI-INTENSIVE

EXTENSIVE

UNION STATION: PROPOSED GREEN ROOF OVER TRAIN SHED

