



SUMMARY OF VALLEY LINE SOUTH EAST YEAR ONE (2024 - 2025) POST CONSTRUCTION WILDLIFE MONITORING KEY FINDINGS

Background

The North Saskatchewan River Valley and ravine system represents one of the City's most valuable natural assets and is recognized as a critical local and regional wildlife movement corridor. As Edmonton's population continues to grow there is increased pressure on ecosystem services provided by these natural assets, as urban development, including expansion of transportation networks, fragments or disrupts ecological connectivity.

The City has a commitment through various policies and strategic plans to maintain ecological connectivity throughout the City, including the North Saskatchewan River Valley and ravine system. These include:

- Natural Area Systems Policy C531, which recognizes the importance of balancing environmental considerations with economic and social considerations by conserving, protecting, and restoring Edmonton's natural areas as an integrated and connected system throughout the City.
- Edmonton's Natural Connections Strategic Plan, which establishes a coordinated approach for the City to conserve an ecologically functional network of natural areas throughout the City.
- The Ribbon of Green Strategic Plan, which provides policy direction to help guide decision making, further planning, monitoring and management of the North Saskatchewan River Valley and ravine system, including policies related to preserving and enhancing regional wildlife connectivity through the incorporation of wildlife passages or other measures.
- The City of Edmonton Wildlife Passage Engineering Design Guidelines, which provides guidance for mitigating the adverse impacts of transportation projects on wildlife movement through the incorporation of measures, such as constructed wildlife passages, that serve to reduce human-wildlife conflict and improve wildlife habitat connectivity.

Many of the City's policies and plans speak to the importance of maintaining a multi-functional, system-wide ecological network that sustains wildlife movement throughout the City's open spaces. System-wide monitoring efforts are an important aspect to understanding how wildlife moves within and throughout the City's open spaces and the ecological network as a whole. Remote wildlife cameras are a key tool that the City uses to

monitor and assess wildlife movement across the entirety of the ecological network, as well as to understand effectiveness of mitigation measures such as wildlife passage structures. Data from these studies are used to inform open space management to help minimize barriers to wildlife movement, reduce negative human-wildlife interactions, and reduce wildlife-vehicle collisions.

The use of remote wildlife cameras is a cost effective, non-intrusive method for long term, continuous, field-based monitoring of wildlife from a fixed location. The intention of these monitoring programs is to collect data on wildlife use of an area to understand the relative abundance, distribution, and diversity of wildlife species. Remote wildlife cameras can also be used to provide insight into species-specific behavior, including seasonal habitat use and daily activity patterns (i.e., day vs. night use). In an urban context, human presence may incidentally be captured by the cameras. In the context of understanding how human presence may influence wildlife use of an area, a count of human occurrences may be documented, however all human images are screened out.

Project Purpose

As the VLSE LRT crosses the North Saskatchewan River Valley and ravine system, which is recognized as an important local and regional wildlife movement corridor, construction of the Valley Line LRT was subject to the North Saskatchewan River Valley Area Redevelopment Plan (Bylaw 7188). As such, an Environmental Impact Screening Assessment (EISA) was prepared prior to LRT construction, which noted potential adverse impacts to wildlife movement in the vicinity of Connors Road due to the widening of the existing transportation corridor and addition of barriers (i.e., retaining walls, fencing). The wildlife passage structure was constructed under Connors Road and the Valley Line LRT corridor to accommodate wildlife movement across the roadway based on the recommendations from the Valley Line EISA and subsequent baseline (pre-construction) monitoring results. The City committed to undertaking post-construction monitoring once the VLSE LRT was operational and all associated landscaping activity was completed.

A five year post-construction wildlife monitoring program using remote wildlife cameras and snow tracking surveys was initiated in 2024 to assess wildlife movement and use of the area, including the wildlife passage structure. The focus of the post-construction monitoring study is to understand the following:

- Any changes in wildlife presence and/or movement patterns that may have resulted from the construction and operation of the Valley Line LRT; and
- Use of the wildlife passage structure under Connors Road by medium-sized wildlife species (e.g., coyote, hare).

In Year One of the VLSE post-construction monitoring program, a total of eight cameras were deployed from May 2024 to March 2025 in the vicinity of Connors Road, including two located near the north end of the wildlife passage and one in the vicinity of the south end of the passage. However, due to logistical challenges, the

installed cameras were not able to directly capture the wildlife passage structure entrances. Additionally, two cameras, including the one located near the south entrance of the wildlife structure, were lost early on in the monitoring period due to theft. As part of the data collection protocol, cameras were monitored and checked every two months to confirm they were operational and to change batteries and memory cards. A limited snow tracking survey was also completed in early winter (21 December 2024) and mid-winter (03 February 2025) to supplement the wildlife camera data and provide information on winter road crossings and movement across Connors Road in the vicinity of Cloverdale and Mill Creek Ravines. Snow track surveys use standardized techniques to assess animal winter tracks in fresh snow to determine location and direction of movement of select wildlife species.

Key Findings

A summary of key findings from the Year One post-construction monitoring program is provided below:

- Photographs of 292 wildlife events were captured from the remote wildlife camera program, of which, 209 (72%) were medium- and large-sized wildlife species, including coyote, deer, striped skunk and hare. The remaining 28% of the recorded wildlife events were of incidental species, including red squirrel, rodents and various bird species.
- Snow tracking surveys observed a total of 142 medium- and large-sized wildlife transect crossings (i.e., coyote, deer, striped skunk, hares).
- Only one coyote road crossing event was recorded across Connors Road from the Year One post-construction monitoring results, compared to the 47 coyote road crossing events that were recorded across Connors Road during the two year pre-construction baseline study.
- While results indicate that wildlife species are present in proximity to the wildlife passage, there was no confirmed documented use, or attempted use, of the wildlife passage structure by wildlife species.
- There is evidence of people using/occupying the wildlife passage structure, which was observed during the site visits and from more recent data collected from the camera installed at the south end of the wildlife passage at the end of April 2025.

The results from the Year One monitoring document the continued presence of medium- and large-sized wildlife (i.e., coyote, deer) in the vicinity of Connors Hill following LRT construction and commencement of operations. Preliminary snow tracking results suggest a decline in the number of medium- and large-sized wildlife crossing events across Connors Road compared to baseline (pre-construction) conditions, which is likely due to the additional barriers created by the VLSE LRT (i.e., increased roadway width, retaining walls, fencing). Due to the limitations in camera placement, and loss of cameras, the Year One study was unable to confirm wildlife use of the wildlife passage, and draw any conclusions as to the effectiveness of the structure for facilitating wildlife movements. Year Two monitoring will include the installation of additional cameras at the wildlife passage structure for better coverage.

The presence of people in and around the wildlife passage structure may be a factor in limiting wildlife use of the tunnel, particularly as human use/occupation tends to coincide with peak wildlife movement activity periods, which are typically higher during early morning and evening hours. However, coyote capture events were also observed to be much lower during the summer period (June through August) relative to other months of the year (i.e., winter, spring, and fall), which may suggest seasonal behavioural patterns. At present, there is insufficient data to conclusively determine if human activity is dissuading wildlife use of the passage structure entirely, or just during certain periods of time (i.e., if there is a seasonality component). It is anticipated that the installation of additional wildlife cameras near the north and south entrances of the wildlife passage will help determine if wildlife is using the passage structure.

Assumptions and Limitations

There are a number of caveats to bear in mind when interpreting these results as noted below:

- It is important to recognize that the Year One post-construction results are preliminary findings representing one year of monitoring data that is based on limited data points.
- There can be a lag time for wildlife to detect and use wildlife passages, especially in the first few years after all activity on site has ceased. This is why it is important to implement a multi-year monitoring program that documents and assesses wildlife use and movement through an area. Completion of all five years of monitoring in alignment with the monitoring plan set out in the EISA will help elucidate whether wildlife use of the tunnel increases over time as wildlife habituate to the wildlife tunnel, altered traffic patterns associated with operation of the Valley Line LRT, and altered habitat in the vicinity of the tunnel and Valley Line LRT corridor.
- Wildlife cameras are intended to capture information on how wildlife are using or moving through an area, and while human presence may incidentally be captured by the cameras, these cameras are not intended to monitor human use presence, or directly inform the City's responses to public safety concerns.