

Drains and Stormwater Management

Municipal Drains

A municipal drain is simply a drainage system created under the *Drainage Act*. Municipal drains can include structures such as stormwater management ponds, culverts and bridges. Municipal drains are constructed to improve drainage and to remove excess water. They are a vital component of the local infrastructure.

Stormwater Management

In accordance with commitments made in the Detroit River International Crossing (DRIC) Study Environmental Assessment Report, stormwater management ponds will be constructed within the Windsor-Essex Parkway footprint. A stormwater management pond is a man-made basin or depression designed to collect rainfall runoff from a variety of sources including ditches and storm sewer systems. The ponds contain the runoff for a period of time (referred to as extended detention) to help control the rate at which stormwater enters a receiving watercourse. This is to help mitigate any increase in flooding potential. Stormwater management ponds are also designed to provide the opportunity for sediment to settle out, achieving improved water quality.

Where will the ponds be located?

- Pond 1 - southwest quadrant of the Howard Avenue Diversion roundabout and will discharge into the roadside ditch along the Howard Avenue Diversion.
- Pond 2 - north of Highway 3, just east of Cousineau Road and will discharge into the realigned Wolfe Drain.
- Pond 3 - south side of Highway 401, opposite to St. Clair College and will discharge into the Cahill Drain.
- Pond 4 - east of Todd Lane and will discharge into the Lennon Drain.
- Pond 5 - south of Bethlehem Avenue and will discharge into the Marentette Mangin Drain.
- Pond 6 - west gateway area and will discharge into the McKee Drain.
- Pond 7 - east of Malden Road and will discharge into the Basin Drain.

How will mosquito production be mitigated?

- Naturalized ponds have been designed with deep permanent pools which promote a habitat and ecosystem that supports predators of mosquito larvae. Stagnant water, which favours mosquito production, will be minimized as the pond design will promote water flow and circulation.
- Typically, dense aquatic plants form growth that helps hide mosquito larvae and stops mosquito predators from accessing the larvae. Vegetation selected to stabilize and naturalize the Parkway ponds will limit the establishment of dense aquatic plants while promoting aquatic plants that benefit fish cover.
- Some trees may be planted around the perimeter of the ponds, providing cover that benefits fish production. However, the number of trees around the perimeter will be limited as they may generate food sources and cover for mosquito larvae.

Drains

The following describes the proposed works associated with the drains in the Parkway corridor. In general, the purpose of the drains is to move water along or across the Parkway to prevent flooding of the below-grade freeway.

Grand Marais Drain (Turkey Creek)

Approximately 900 meters of concrete low flow channel lining downstream of the Parkway will be removed to improve fish habitat and overall ecosystem health. The existing concrete channel will be replaced with a naturalized low flow cross section and meander pattern. The low flow channel will meander back and forth within the base of the Grand Marais Drain to provide a riffle and pool habitat sequence, and water depth variations.

The naturalization and improvement of the Grand Marais Drain (Turkey Creek) will result in a predicted increase of 8 cm in the 100-year storm water level based on the regulatory flow. This increase is well contained within the channel and there will be no adverse impact on the City of Windsor storm sewer system relative to the existing condition.

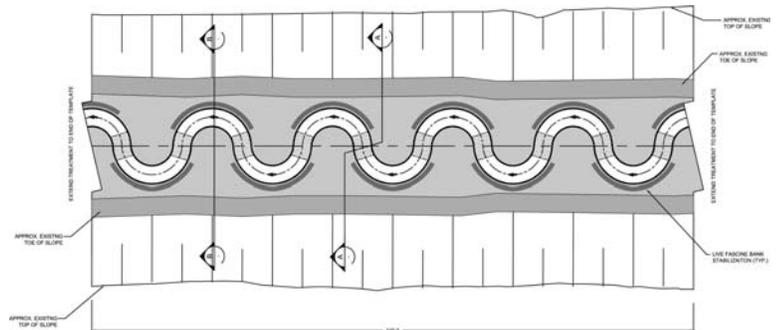
Lennon Drain

The Lennon Drain realignment has been designed to handle the 100-year storm event without adversely impacting the Parkway or the neighbouring communities. The Lennon Drain Fish Compensation Pond will be a large (1.9 ha) permanent fish habitat complex consisting of deep water pools and shallow shore areas. The pond will provide fish species with a safe environment for lifecycle processes including spawning, foraging and rearing.

Wolfe and Cahill Drains

The Wolfe and Cahill Drain realignment (approximately 3,400 m in length) has been designed using natural channel principals to handle the 100-year storm event without adversely impacting the Parkway or the neighbouring community. Where feasible, culverts along the realignment have been designed using fish-friendly methods. Similar to the Grand Marais Drain, the low flow channel will meander back and forth to provide a riffle and pool habitat sequence, and water depth variations.

Stormwater Management Pond 2 and a fish habitat compensation pond complex are located along the Wolfe Drain just east of Cousineau Road. Stormwater Management Pond 2 will receive and treat runoff from the Parkway corridor. Low flows from the pond will run into the fish habitat pond complex providing improved water quality and assisting in maintaining the design wetted area. A second fish habitat compensation pond complex will be located immediately east of Howard Avenue.



Example of meander flow pattern

Submerged Culverts

Two submerged culverts, one on the Cahill Drain and one on the Lennon Drain, are required to maintain the flow of these watercourses across the Parkway. They are submerged because they cross beneath the below-grade freeway. The Cahill Submerged Culvert will consist of three 3.0m diameter pipes and the Lennon Submerged Culvert will consist of three 2.4m diameter pipes. They have been designed to ensure that a blockage of any pipe will not result in flooding of the Parkway. Both submerged culverts will also have an inlet structure and an outlet structure. The inlet structure is designed to control the flow in each pipe so that there is no increase in peak flow in the watercourse downstream. The outlet structure is designed to control the discharge and direction of flow.

If you have any concerns regarding construction of the Parkway, please contact or visit the Public Liaison Office at 1-877-937-5929, 2187 Huron Church Road Suite 340, or wep-plo@wemg.ca.

Please visit www.weparkway.ca to learn more about the Windsor-Essex Parkway. Updates will be posted on Twitter (www.twitter.com/WEParkway) and photos and videos will be posted on Flickr (www.flickr.com/weparkway) and YouTube (www.youtube.com/weparkway).