

**PUBLIC WORKS POLICY MANUAL**

PW4.W06

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DEVELOPED BY: PUBLIC WORKS DEPARTMENT

APPROVED BY: REGIONAL COUNCIL

DATE: SEPTEMBER 23, 2010

EFFECTIVE DATE: July 1, 2010

LATEST REVISION: May 19, 2010

**POLICY STATEMENT:**

Gravity sewers are the most reliable method of transferring sewage from the sanitary collection system to wastewater treatment facilities as the risk of sewer collapse or blockage is lower than the risk of pumping station mechanical failure or loss of electrical power. In addition, the life cycle cost of a sewer is generally lower than that of a pumping station.

Given that there are limitations to the practical depth of gravity sewers, new Pumping Stations will be considered in situations where it can be shown that pumping is a more cost effective option than gravity.

The need for a new pumping station, as well as an assessment of capacity of the downstream infrastructure, must be documented in engineering and/or planning studies such as the Wastewater Servicing Plans carried out by the Region and/or Area Servicing Plans prepared by the Local Area Municipality.

The cost for a new pumping station required to accommodate growth is to be included in the Development Charges bylaw of the Region or Local Area Municipality in accordance with the roles and responsibilities regarding funding defined in this Policy.

The Region will ultimately own, operate and maintain new pumping stations that are planned, funded, and constructed in accordance with the policy. Unless directed otherwise by a resolution of Regional Council, the Region shall not:

- Fund any new pumping station or assume ownership of any existing pumping station from an area municipality that does not meet the requirements of this policy.
- Operate or maintain any pumping station located on private property (with the exception of stations covered by existing agreements).
- Operate or maintain any privately owned pumping station.
- Fund or assume ownership of any interim (i.e. temporary) pumping station.

This amended policy supersedes the previous Sewage Pumping Stations and Force mains policy that was approved by Regional Council May 31, 2005 (PWA 100-2005) and came into effect September 1, 2005.

**PURPOSE**

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The purpose of this policy is to:

- Minimize the overall lifecycle costs associated with conveying sewage to wastewater treatment plants.
- Minimize the risk of basement flooding and the risk of spills to the environment associated with conveying sewage to wastewater treatment plants.
- Define a decision making process for when an area is to be serviced by gravity sewers versus a pumping station.
- Delineate roles and responsibilities between the Region and local area municipalities for funding of new pumping stations.
- Define procedures and conditions under which the Region will assume ownership of an existing pumping station currently owned by a local area municipality.
- Define procedures under which the Region will operate and maintain sewage pumping stations on behalf of local area municipalities.
- Minimize the number of sewage pumping facilities by ensuring that new stations are designed for the maximum drainage area that can be serviced by incoming gravity sewers.

## DEFINITIONS

In this policy, the following definitions shall apply:

- a. **“Region”** shall mean the Regional Municipality of Niagara
- b. **“MOE Design Guidelines”** shall mean the most current edition of the Ontario Ministry of the Environment Design Guidelines for Sewage Works.
- c. **“Regional Design Standards”** shall mean the most current version of the Region’s Public Works Department Project Design and Technical Specifications Manual and includes the Region’s most current SCADA standards, Process Control Narratives and Security Standards.
- d. **“Life-cycle costs”** shall mean all costs associated with the planning, development, approvals, design, construction, operation and maintenance of the new asset throughout its expected life.

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- e. **“Pumping Station”** shall mean sanitary sewage pumping station.
- f. **“Forcemain”** shall mean the pressure pipe conveying sewage from the Pumping Station to the downstream collection system or wastewater treatment plant.
- g. **“Maximum Drainage Area”** shall mean the maximum area within an Urban Area Boundary that can be cost effectively serviced by a single pumping station in conjunction with incoming gravity sewers. The Maximum Drainage Area shall include areas beyond the Urban Area Boundary where there is a reasonable expectation that the boundary will be expanded in the future, but in no way shall be deemed as supporting an urban boundary expansion.
- h. **“Wastewater Master Servicing Plan”** shall mean a report which documents current wastewater flows and Regional infrastructure capacities and forecasts future flows and Regional infrastructure requirements based on population and employment growth projections.
- i. **“Area Servicing Plans”** shall mean plans such as Secondary Plans, or drainage area specific servicing plans which are prepared to address the development or redevelopment of large areas of land or neighbourhoods and include servicing studies identifying both local and Regional infrastructure requirements and constraints.
- j. **“Urban Area Boundary”** shall mean as defined by the Region’s Policy Plan and by Local Area Municipality Official Plans.
- k. **“Dry Weather Flow”** flows shall mean sewage flows experienced during a period of dry weather
- l. **“Wet Weather Flows”** shall mean sewage flows experienced during and following periods of wet weather and/or snowmelt during which the flows are significantly influenced by inflow/infiltration.
- m. **“Interim Sewage Pumping Station”** shall mean a facility that is intended for the short term only with the understanding that it will be replaced in the longer term with a gravity sewer and/or a pumping station that services a larger drainage area.
- n. **“Combined Sewers”** shall mean sewers that include both road drainage (catch basins) and private property connections (which may include foundation drain and/or roof leaders).
- o. **“Partially Separated Sewers”** shall mean sewers which do not have road drainage (catch basin) connections but have foundation drain and/or roof leader

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connections.

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**DESCRIPTION****ESTABLISHMENT OF NEW SEWAGE PUMPING STATIONS**

The need for a new pumping station must be documented in engineering and/or planning studies such as the Wastewater Servicing Plans carried out by the Region and/or Area Servicing Plans prepared by the Local Area Municipality. The study is to assess the impact of the proposed flows on the downstream wastewater infrastructure, including sewers, pumping stations and treatment plants.

Where a new sewage pumping station is proposed by a local area municipality, a detailed life-cycle cost comparison between a sewage pumping station and a gravity sewer must be submitted to the Region by the municipality. Life cycle cost comparisons shall be undertaken as outlined in Schedule A to this Policy. No pumping station shall be constructed where, in the opinion of the Region, the construction of a gravity sewer is a viable and cost effective alternative.

For all new pumping stations and forcemains, consideration shall be given to a catchment area that would meet the ultimate build-out needs of the Maximum Drainage Area that could be serviced by incoming sewers.

Each proposed forcemain will be evaluated with regard to the potential for transient pressures and for odour and corrosion problems. The project design shall include pressure relief and odour and corrosion prevention measures as required. Where it is not possible to address these issues to the Region's satisfaction then further consideration will be given to a gravity solution and the degradation of downstream infrastructure will be included in the life cycle cost analysis.

All new pumping stations and forcemains shall be designed and constructed in accordance with current MOE Design Guidelines and current Regional Design Standards. New forcemains will not be allowed to discharge to existing forcemains.

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Niagara Region approvals for new pumping stations proposed by a local area municipality shall be obtained in accordance with the procedures outline in this policy. The Region will deal directly with the local area municipality in following these procedures and will not deal directly with any third party that may have an interest in the new station. Any cost sharing agreement involving a third party shall be with the local area municipality.

The Region will assume ownership of a new pumping station from a local area municipality when the requirements of this policy have been met, including the following specific criteria:

- i. a resolution is passed by the local municipal council to begin the transfer of ownership of the station to the Region;
- ii. the station meets the MOE Design Guidelines and the Regional Design Standards;
- iii. the design capacity of the station includes an allowance for inflow/infiltration (i.e. wet weather flows) to the satisfaction of the Region. In the case of new development, the allowance for Infiltration shall be as per the MOE Design Guidelines and Regional Design Standards. In the case of existing developed areas, the allowance for wet weather flows shall be decided on a case by case basis taking into consideration whether the area is serviced by combined, partially separated or fully separated sewers. In general, the Region will not allow the diversion of flows from an existing developed area to a new station where the existing peak wet weather flows from that developed area are more than two times existing peak dry weather flows (based on actual measurements from flow monitoring devices). The Region reserves the right not to allow flows to a new station from an existing area until inflow/infiltration is reduced to an acceptable level through sewer separation projects and/or other inflow/infiltration reduction measures.
- iv. any and all construction contract deficiencies have been addressed to the satisfaction of the Region;
- v. the appropriate Equipment and Operating Manuals have been received by the Region;
- vi. a set of as-built drawings has been provided to the Region;
- vii. the warranty period of any attached equipment has expired;
- viii. the property, including the station and associated forcemain is transferred to the Region;
- ix. the Ministry of the Environment Certificate of approval has been amended to reflect the change in ownership.
- x. the region will only accept the property transfer, from private properties in Fee Simple, and must include access to a road and enough property for future expansion;
- xi. for those situations wherein a pumping station is on public lands, the

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- Region will consider accepting ownership of the pumping station subject to an easement agreement with the property owner;
- xii. a resolution has been passed by Regional Council to assume ownership of the station.

### REGIONAL ASSUMPTION OF OWNERSHIP OF EXISTING PUMPING STATIONS

The Region will consider assuming ownership of an existing pumping station that is currently owned by a local area municipality on a case by case basis. The Region will assume ownership of a pumping station that existed prior to the date that this revised policy comes into force when the requirements of this policy have been met, including the following specific criteria:

- a. a resolution is passed by the local municipal council to begin the transfer of ownership of the station to the Region;
- b. the station is upgraded as required at the expense of the local area municipality to meet the MOE Design Guidelines and the Regional Design Standards;
- c. existing wet weather flows (i.e. inflow/infiltration) to the station are at levels considered to be acceptable to the Region as decided on a case by case basis taking into account whether the drainage area is serviced by combined, partially separated or fully separated sewers. In general, the Region will not assume ownership of an existing pumping station where the existing peak wet weather flows to the station are more than two times existing peak dry weather flows (based on actual measurements from flow monitoring devices). The Region reserves the right not to assume ownership of an existing pumping station until inflow/infiltration is reduced to an acceptable level through sewer separation projects and/or other inflow/infiltration reduction measures.
- d. any and all construction contract deficiencies have been addressed to the satisfaction of the Region;
- e. the appropriate Equipment and Operating Manuals have been received by the Region;
- f. a set of as-built drawings has been provided to the Region;
- g. the warranty period of any attached equipment has expired;
- h. the property, including the station and associated forcemain is transferred to the Region;
- i. the Ministry of the Environment Certificate of approval has been amended to reflect the change in ownership.
- j. the region will only accept the property transfer, from private properties in Fee Simple, and must include access to a road and enough property for future expansion;
- k. for those situations wherein a pumping station is on public lands, the

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- Region will consider accepting ownership subject to an easement agreement with the owner;
- I. a resolution has been passed by Regional Council to assume ownership of the station.

### INTERIM PUMPING STATIONS

A local area municipality may establish a new interim (i.e. temporary) pumping station as a short term solution to facilitate servicing of a smaller development area where a larger pumping station and/or gravity sewer is required over the longer term to service additional lands (i.e. the maximum drainage area). The Region will not fund or assume ownership of any interim pumping station nor assume ownership of multiple pumping stations servicing the maximum drainage area.

### OPERATION AND MAINTENANCE OF NON-REGIONALLY OWNED PUMPING STATIONS

The Region, at its discretion and without prejudice, may operate and maintain any pumping station owned by a local area municipality at the request of the local area municipality. Operation and maintenance of any non-regionally owned pumping station shall be in accordance with a written agreement executed by both the Region and the local area municipality. The Region will charge fees as detailed in such an agreement to cover its costs for the operation and maintenance of the station. The Region may cease operating and maintaining a pumping station should the requirements of the agreement not be met or in accordance with the termination clause of any such agreement. Any improvements or upgrades of the non-regionally owned stations shall be at the expense of the local area municipality whether undertaken by the Region or its agents as outlined in the agreement.

The Region will not operate or maintain any privately owned pumping station.

### FINANCIAL RESPONSIBILITIES

The local area municipality will be responsible for the cost of any new pumping station with a design capacity of less than 170 litres per second peak dry weather flow.

The Region will be responsible for the cost of any new pumping station with a design capacity of equal to or greater than 170 litres per second peak dry weather flow.



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In cases where it will be necessary for an existing Regional gravity sewer to be upgraded or a new Regional gravity sewer to be constructed to receive the sewage from the pumping station forcemain, and such works are not planned within the required timelines, the proponent may choose to “front end” the cost of the upgrade. The proponent shall receive credit for such upgrades as specified in an executed agreement between the proponent and the Region.