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WATER AND WASTEWATER DESIGN STANDARDS MAINTENANCE PROGRAM

The Transportation and Works Committee recommends the adoption of the recommendation contained in the following report, January 23, 2008, from the Commissioner of Environmental Services:

1. RECOMMENDATION

It is recommended that this report be received for information.

2. PURPOSE

This report provides Council with information on the Water and Wastewater Design Standards and Guidelines (the Standards) and its maintenance program. It includes a description of the Approved Equipment and Instrument List (AE&IL) change management process.

The purpose of the report is for Council to be aware of and accept the Standards including the AE&IL and the application of the fair and transparent process to manage them.

3. BACKGROUND

The Region's water and wastewater infrastructure is currently undergoing expansion and upgrades to accommodate the growth demands in the Region. To continuously deliver quality projects, the Water and Wastewater Branch (the Branch) completed a full update and development of the Design Standards in 2006 to reflect the recent construction and technology changes in the industry to provide a common basis to guide the development of water and wastewater infrastructure.

The new Design Standards have been officially released and posted onto the Region's Design Standards website portal (www.york.ca/standards) for convenient access and download through Internet Browser by all internal and external users.

Upon the completion of the Design Standards, the Branch also developed a maintenance program to maintain and continuously improve the Design Standards to ensure its consistency, validity, accuracy and completeness.

4. ANALYSIS AND OPTIONS

The Standards guide and direct the development of the Region's Water & Wastewater Infrastructure

The Design Standards are a structured document system consisting of five major components to provide detailed instructions to engineers and contractors to successfully execute a project through various stages. The components are General Guidelines, Design Standards and Guidelines, Technical Specifications, Standard Drawings and Approved Equipment and Instrument List.

The Standards accomplish the following objectives:

- Document Branch practices and develop formal standards and/or guidelines.
- Provide an opportunity and means of obtaining consensus on the application of design elements (e.g. materials and equipment preferences).
- Provide a tool to external service delivery providers to improve consistency and quality in the planning and design of water and wastewater infrastructure.

Keeping the Standards 'Living' requires dedicated staff and processes to modify and update them continuously

The Branch has established a maintenance program along with a dedicated management team to monitor and regularly update the Design Standards as "living" documents, which consists of Standards Advisory Committee, Technical Advisory Committee, Standards Maintenance Administration Team and external consultants. The Infrastructure Assets Business Unit of the Water and Wastewater Branch is overseeing the development, approval, issuance and revision of the Design Standards.

Formal processes have also been developed to allow the team to efficiently manage changes with consistency and transparency. Four major standard processes for the design standard maintenance program are as follows:

- Design Standards Technical Enhancement Process
- Approved Equipment and Instrument List (AE & IL) Change Management Process
- Design Standards Deviation Management Process
- Design Standards Web Portal Enhancement Process

While the standards management team uses the aforementioned processes to manage day-to-day change requirements, the Branch is also planning to systemically review and update the Design Standards on a five-year basis.

The Approved Equipment & Instrument List (AE&IL) and change management process is crucial to the efficiency and effectiveness of infrastructure implementation.

Among the four processes used in the maintenance program, the AE & IL Change Management Process is of greatest importance to ensure timely and effective decision making in the AE & IL change process and avoid impacts on the Branch operations, the Region's reputation and as well as public perception.

There are 173 categories of equipment and instruments within the approved list with 358 different manufacturers approved for use on Branch infrastructure. This represents a significant investment to train staff to properly operate and maintain, keep spare parts in inventory, troubleshoot, track performance and secure vendor support where necessary. While there are many manufacturers approved for use, there are many more not currently listed for use on the Branch's infrastructure. At present there are approximately 75 applications for inclusion on the list that have been submitted for consideration.

The Approved Equipment & Instrument List (AE & IL) change management process is fair and transparent

The purpose of the AE&IL process is to ensure a systematic, fair and transparent means of evaluating new equipment while respecting the need to ensure the integrity of the Branch's Water & Wastewater operations.

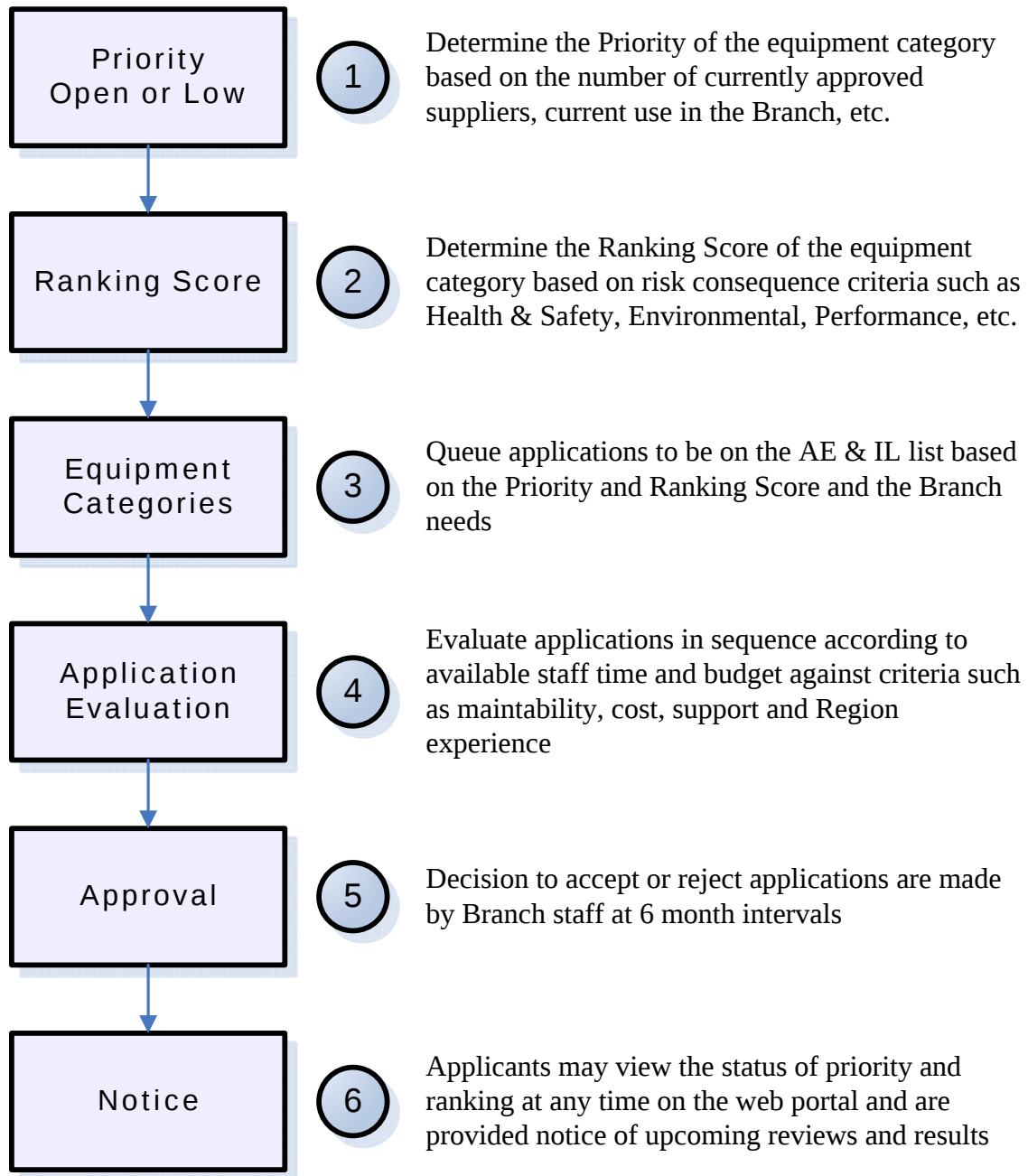
The AE&IL change management process can be characterized as 6 steps to establish a sequence to review applications, a process for evaluation, and steps for notice to affected applicants. The process and criteria are posted on the Standards web portal that is accessible by anyone with an internet browser.

Priority of equipment categories are termed **Open**, corresponding to applications queued for consideration based on need as well as the availability of budget and resources, and **Low**, corresponding to those not committed for review during the current six month review period.

All candidates for the AE&IL are evaluated against pre-established criteria in a process with a score assigned to each criterion, which is then weighted to produce a score out of 100%. A total score of 70% is required to pass the evaluation process.

The following illustration depicts the major steps in the process:

AE & IL Change Management



4.1 Relationship to Regulations, Sustainability and Asset Management

Asset management is a business model intended to bridge three interrelated concepts of service quality, cost and risk in a manner that will ensure financially based decisions to preserve longevity of service; in a few words sustainably delivering service at a cost and

level of risk and quality acceptable to the customer. Asset Management principles and sustainability are embedded in current legislation for the Safe Drinking Water Act and Public Sector Accounting Board.

In the life cycle of water and wastewater infrastructure, most of the total life cycle costs (typically upwards of 80%) are generated during the construction and operation and maintenance periods. However, most of the decisions that affect these costs are made during the planning and design stage of the project life cycle.

Guiding the planning and design stage through the application of the Design Standards is intended to facilitate the design process and help ensure that subsequent construction, operation and maintenance activities meet the three interrelated concepts of asset management and the relevant legislation.

4.2 Relationship to Vision 2026

The development and application of the Standards will help ensure safe and efficient services for the residents of York Region. This aligns with the intent of Vision 2026 in at least the following ways:

[Responding to the Needs of Our Residents](#)

- Providing safe and dependable water supply to systems and facilities in area municipalities
- Ensuring stable, cost-effective waste-water treatment

[Enhanced Environment, Heritage and Culture](#)

- Complying with and maintaining high standards for drinking-water quality

5. FINANCIAL IMPLICATIONS

The estimated annual design standards maintenance costs are \$60,000 with a major review planned every five years at a cost of \$300,000. There are sufficient funds identified in the annual and 10 year minor capital plan for these expenditures.

The funding requirements will be identified and included in each subsequent year's Water and Wastewater minor capital budgeting process.

6. LOCAL MUNICIPAL IMPACT

The implementation of the Region's new water and wastewater design standards will improve the overall consistency and efficiency of communication between the Region and the local municipalities. It also demonstrates the Region's commitment and leadership to deliver quality projects to serve the local municipalities.

The nine local municipalities that are the direct customers of the services of the Water and Wastewater Branch delivered through the use of the Design Standards will subsequently benefit from the increased value to the community and customers.

7. CONCLUSION

With the implementation of the Design Standards, the Branch has established a sophisticated maintenance program and dedicated management team to monitor and continuously improve the quality of the standards. The Branch has also developed a systematic transparent process to manage the sensitive issues such as Approved Equipment List and Approved Instrument List (AE & IL) change requirements to minimize risks to the Branch operation and Region's image.

For more information of this report contact Dean Rurak at extension 5159, Manager, Infrastructure Assets, of the Water and Wastewater Branch, in the Environmental Services Department.

The Senior Management Group has reviewed this report.