

Irrigation Committee Recommendations to the Board December 2016

We are pleased to provide the Board of Maple Leaf the unanimous findings of the Irrigation Committee

Overall

1. The irrigation system has serious operational issues in part due to age but also due to the absence of a comprehensive maintenance system. Some components will require replacement others can be maintained. The system is complex and requires careful analysis and management as outlined below.
2. The pumping system is more than adequate and in fact the main station could supply all irrigation needs resulting in cost savings.
3. Provision should be made for integration of the residential system with the golf course system at the time of pipe replacement on the golf course.
4. The Park now has a digital map with accurate location of the irrigation system and golf course infrastructure. This base should be used to capture future repairs and upgrades as well as reference for contracting replacement work. All infrastructure/engineering matters should be documented on this base.
5. The system of piping is operational but has failures due to stressed joints and pipe imperfections probably caused by hydraulic transients or external disturbance. The sizes in some cases may be inadequate.
6. The golf course and the residential irrigation system are valuable assets. The committee has found deficiencies in maintenance procedures and has made some recommendations to staff particularly in the electrical area. There is a need for a comprehensive system of asset management which would include items such as repair documentation, maintenance schedules and replacement budgets. The committee recommends our meeting with park management to outline maintenance and asset management programs.

Golf Course

We have developed two primary options for the golf course rejuvenation

1. The first and minimum option if the grass surfaces are not replaced is to add electric control to the fairway heads and retain the heads and controls for the greens. Some new piping may be required depending on the option chosen to supply water to the residential supply points. And some additional coverage is required to water the fairways. Future pipe failure will result in disturbance of the grass surfaces.
2. The second and preferred option (assuming grass resurfacing) is a new pipe, sprinkler head and electric wiring system to be installed at the time of the golf course renewal, again retaining the greens sprinkler system. Provision would be

- made to extend pipes to the residential supply points. The cost of this option is to be provided by the irrigation designer.
3. Park staff will operate and maintain the irrigation system and should be involved in all steps of contracting, construction and acceptance of new infrastructure. Irrigation committee members have experience in the process of contracting for capital works and could assist.

Residential System

The committee came to the conclusion that the system not be replaced at this time because a) it is not in immediate danger of failing and b) the lack of an unobstructed corridor will make work difficult to specify and costly. In fact, if remediation and restoration was part of the contracted work the added cost would be several million dollars. This does not mean that the system can be ignored, eventually it must be upgraded.

The residential system has been accurately digitally mapped this summer. Its location has serious interference from other utilities, landscaping and other structures (patios, lanais) making repair and replacement difficult and expensive.

A recommended course of action:

1. Consideration of alternatives to the present pumping system including separation from the golf course or operating solely from the golf course pump station at lower pressure. This has potential power cost savings and reduces stress on pipes. This choice needs to be made before contracting any pipe replacement on the golf course.
2. Implement maintenance practices for the system including its electrical components, document repairs and record on the digital map base.
3. Prepare large scale maps, consult with utilities along the corridor, identify obstructions and remediation costs
4. Identify critical sections warranting replacement (frequent failure or inadequate capacity), prepare contact documents.
5. Contract for a 'test' section replacement/upgrade of piping and electric (if necessary). Given the very tight alignment and crowded utilities this will be a complex and difficult undertaking and will require careful planning and supervision. A budget of 80-100K\$ would be sufficient to complete steps 3 through 5. Again committee members could contribute expertise.

Other Considerations

The above steps require the efforts of staff, the irrigation committee and technical/engineering expertise. In view of the fact that several million dollars are likely to be expended on infrastructure over the next few years it may be cost effective to have some in-house technical and project management capability in acquiring the information necessary to decide on capital projects, assisting in preparation of contract documents and ensuring successful completion. This should be a consideration in future staff hiring or training of existing staff.

This will involve collaborative work with our committee, park staff and contracted professionals as required. A budget will be required to bring in technical expertise to confirm design options and provide cost estimates.

While this document concludes this phase of the work of the irrigation committee, a great deal of work remains and again, the staff does not have all the required expertise. While outside professionals can be contracted there is value in some degree of management of your own affairs.

The Park has a wealth of engineering and project management expertise which should be utilized in the capital renewal process.

Conclusion

The undertaking of this study has been a valuable experience for the committee and a revelation in terms of interest and expertise available here in the park. And interaction with staff has been beneficial to all involved.

The board is to be congratulated on taking this consultative approach to the capital renewal process. Much hard work lies ahead but a good base has been prepared.

Angus Ross co-chair