

SUN CITY CENTER WEST MASTER ASSOCIATION

KINGS POINT IRRIGATION MODERNIZATION PROJECT - PRELIMINARY

PROJECT SUMMARY

The initial Kings Point irrigation system was installed in the early 1970s and the aging system has been plagued with breakdowns and maintenance problems for several years. Last year the Master hired the services of ITS (Irrigation Technical Services) to perform audits of the irrigation systems in Kings Point. Initial findings led the Master Board to develop the following modernization project.

GOALS

- Improve delivery of water to the associations and reduce the potential for damage to landscape due to irrigation problems. Upgrade the current aging irrigation infrastructure in Kings Point to reduce the downtime when water is not delivered to the associations due to maintenance problems.
- Manage long-term maintenance and repair costs more effectively through the use of current technology to identify problems and address them through more efficient use of labor for repairs and maintenance.
- Prepare Kings Point to address potential future water management requirements by the State and County as growth in the South County area continues to put pressure on the limited water resources in our area and across the state. Prepare for a future in which we may be charged for our water use.

PHASE I: AUDIT OF IRRIGATION IN KINGS POINT WITH GPS IDENTIFICATION OF ALL ZONE VALVES IN KINGS POINT

Engage a professional irrigation company, ITS (Irrigation Technical Specialists) to perform audits of the Master-controlled irrigation systems in Kings Point. During the audits:

- GPS coordinates will be identified for each of the each of the valves so they can be easily located by repair crews.
- Zone coverage will be identified and mapped for each valve throughout the community.
- Reports of current conditions and problems will be provided to the Master and Federation so timely repairs can be made to the existing system.

The audits of the Upper and Lower loops have been completed. The remaining audits will be performed over a five quarter timeline and will be covered by the existing budget. That means no change to the current association budgets. This schedule is based on the turnover date for each association in order to audit the oldest irrigation systems first. Following is the schedule for completing the audits:

- **April 1 – June 30, 2016:** Manchester 2, 3, 4; Radison 1; All Nantuckets 1 - 5; Princeton; Oxford 1, 2;
- **July 1 – Sept.30, 2016:** Southampton 1, 2; Radison 2; Villeroy; Tremont 1, 2; Worthington, Yorkshire
- **October 1 – Dec. 31, 2016:** Acadia 1, 2; Brookfield, Corinth; Devonshire; Fairbourne; Edinburg; Huntington; Grantham; Inverness
- **January 1 – March 31, 2017:** Jameson; Kensington; Maplewood; Portsmouth; Oakley Green
- **April 1 – June 30, 2017:** Richmond; Nottingham; Somerset

PHASE II: INTRODUCTION OF CYCLE & SOAK IRRIGATION IN KINGS POINT USING EXISTING CONTROLLERS

The Master Association received a request from Mainscape to consider allowing Mainscape to reprogram the controllers in Kings Point for Cycle & Soak. Upon investigation with SWFWMD this is permissible as long as multiple cycles for a zone are completed on the same day.

The concept of Cycle & Soak is one that ITS (Irrigation Technical Specialists) is a strong proponent of and has been considered to be best practice in the industry for several years. The new systems under consideration in the irrigation upgrade will incorporate this capability. The current controllers (timers) have this capability. The request by Mainscape to reprogram for Cycle & Soak was reviewed by the Master and the Federation and was approved to begin in May, 2016. ValleyCrest will also implement Cycle & Soak on all Master properties.

Mainscape will provide the Master with the new schedules for the Cycle & Soak program for monitoring and for use when the irrigation upgrades are installed.

PHASE III: INSTALLATION OF SMART CONTROLLERS WHICH HAVE THE CAPABILITY OF INSTANTANEOUSLY REPORTING ALL FAULTS IN THE SYSTEM

There are 79 controllers and 1,624 electric valves located throughout the community. In addition there are several controllers and valves that irrigate the Land Trust recreational facilities. Phase III will replace the old manual controllers with smart controllers that will enable the Master to identify problems on the system and dispatch repair crews immediately, thereby reducing the delays experienced today. The GPS identifier on each valve will enable the repair crews to locate the problem immediately. Flow monitoring will identify leaks, and moisture sensors located throughout the community will identify areas that need irrigation and those that do not.

The installation of the new equipment must be grouped by the configuration of the irrigation system. Therefore it will not go strictly by turnover date. Following is the configuration of the new system and the estimated installation timeline:

- **September, 2016:** Hub 12 consists of the Upper Loop – including the Andovers, Bedfords, Cambridges, Dorchesters, Fairfields, Gloucesters, Knolls, Riverside/Kings Blvd Medians and the Kings Blvd. extension. Estimated cost to complete Hub 12 is \$257,598.
- **July, 2017:** Hub 15 covers the Lower Loop and includes Highgate A-F, Idlewood, Quail Pass, Manchester I, Highgate II, III & IV, and the Lancasters. Estimated cost to complete Hub 15 is \$229,444.
- **December, 2017:** Hub 30 & 31 covers Nantuckets, Richmond, Lyndhurst, Maplewood, Jameson, Kensington, Radison I & II, and phase I Oxford. Estimated cost to complete Hubs 30/31 is \$244,864.
- **July, 2018:** Hub 41 includes Manchester II, III & IV, Oxford I (phase II), Oxford II, Villeroy, Yorkshire, Worthington, Somerset, Tremont I & II, Southampton I & II, and Princeton. Estimated cost to complete Hub 41 is \$210,152.
- **December, 2018:** Hub 55 covers Acadias, Brookfield, Corinth, Nottingham, Portsmouth, Oakley Green, Grantham, Inverness, Edinburgh, Fairbourne, Huntington and Devonshire. Estimated cost to complete Hub 55 is \$204,054.

Bottom line total equipment and installation cost for all five Hubs is an estimated \$1,146,111. This includes the installation of state of the art controllers that will enable remote monitoring and wireless control of all controllers and valves for all associations, bringing Kings Point the latest in irrigation systems and water management capability.

PHASE IV: WATER MANAGEMENT NOW AND IN THE FUTURE

- As each Hub is completed, the Master will begin remote monitoring of each Hub's systems 24/7. When problems with water delivery (line breaks, pump failures, zone malfunctions, etc.) are identified, repair crews can be dispatched within 24 hours to make repairs, thus reducing down-time of the system.
- Efficient use of water will become more critical as the South County area continues to add hundreds of new homes, all sharing water from the same aquifers. While ClubLink with Kings Point has a Water Use Permit allowing the community to water from the lakes and wells, and a Water Use Variance for cross-address irrigation, there may come a time when we will have more restrictions and/or be required to pay for the irrigation water we use. Using the latest water saving technology will position Kings Point favorably with SWFWMD as the area grows.
- Cycle & Soak irrigation will be used in all zones. Timers will be set to provide water based on the moisture sensors for each area of the community. The Master will work with the Federation and landscape contractors to monitor and adjust the timing and amount of water based on best practices for landscape irrigation.
- The Master recommends that the Federation work with the Associations to review their irrigation systems and develop a plan to upgrade their irrigation, particularly related to those areas that have rotors and sprays on the same zone. This will improve the proper delivery of water to their landscape.

DUE DILIGENCE

April 6, 2016: Field Trip to Orlando International Airport to View a Working System

- Met with the airport's water manager regarding their use of wells and reclaimed water
- Met with the airport staff member who manages the system, monitoring and dispatching the contractors
- Viewed the operating system including the server, monitor and controller
- *The System Appears to Function as Presented to the Master*

PROJECT FUNDING

The Irrigation Modernization Project will be funded over a two-year period as the installations are completed. This will result in an estimated increase of \$8.54 PUPM in the Master budget for a two year period covering the 2017/2018 Master Budget and 2018/2019 Master Budget. Any costs for pump retrofits will be covered separately in the reserve replacement funds for pumps.

It is expected that improvements in efficiency in repairs and in electric usage with the new systems will help to offset the ongoing monitoring costs for the system.

EXHIBIT A

Summary Implementation Timeline

June 2015 – March 31, 2016	PHASE I AUDITS: Upper and Lower Loops
April 1 – June 30, 2016:	PHASE I AUDITS: Manchester 2, 3, 4; Radison 1; All Nantuckets 1 - 5; Princeton; Oxford 1, 2;
May, 2016	PHASE II: Cycle & Soak using existing system in all areas of Kings Point
July 1 – Sept.30, 2016:	PHASE I AUDITS: Southampton 1, 2; Radison 2; Villeroy; Tremont 1, 2; Worthington, Yorkshire
September, 2016	PHASE III: Install Hub 12 consists of the Upper Loop – including the Andovers, Bedfords, Cambridges, Dorchesters, Fairfields, Gloucesters, Knolls, Riverside/Kings Blvd Medians and the Kings Blvd. extension. Estimated cost to complete Hub 12 is \$257,598.
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Ongoing	PHASE IV: Water Management - monitor system; make timely repairs;

EXHIBIT B

CYCLE & SOAK – BEST PRACTICE

WHY CYCLE & SOAK

We have all seen water running into the streets as the irrigation system delivers more water than the ground can absorb at one time during a 20-minute watering cycle. As a result some of our landscape gets over-watered while other areas are under-watered, and water is wasted in run-off.

Cycle & Soak breaks the total run time for a zone into shorter water “cycles” with “soak” periods in between to allow time for water to soak into the soil before applying more water. Once the initial water has had time to soak in and soften the soil, the next water application can be more readily absorbed. This helps to reduce runoff as well as evaporation of standing water. (*Baseline Support: Understanding the Benefits of Soak Cycling*)

The Master Association has received a request from Mainscape to consider allowing Mainscape to reprogram the controllers in Kings Point for Cycle & Soak. Upon investigation with SWFWMD this is permissible as long as multiple cycles for a zone are completed on the same day.

According to Mainscape, our soils absorb about ½” water or less at one time and the rest is lost to run off in the streets and ponds. The Cycle & Soak process they are proposing splits the cycle into two events each with half the normal run-time with at least an hour delay between runs. This allows the water to soak in, reaching deeper into the already moist soil.

While our current system has the programming capabilities, it is not as robust as the new system we are considering. The new system uses intelligent soak cycles and is equipped with moisture sensors rather than the current inefficient rain sensors which should greatly increase efficiency of our water use. However in the meantime, Mainscape’s approach makes sense.

This concept of Cycle & Soak is one that ITS (Irrigation Technical Specialists) is a strong proponent of. The new systems under consideration in the irrigation upgrade will incorporate this capability. In fact our current controllers (timers) have this capability. The request by Mainscape to reprogram for Cycle & Soak was reviewed with the Federation and approved to begin in May. Mainscape will provide the new irrigation schedules to the Master for use in planning for the new smart controllers.