CASE STUDY

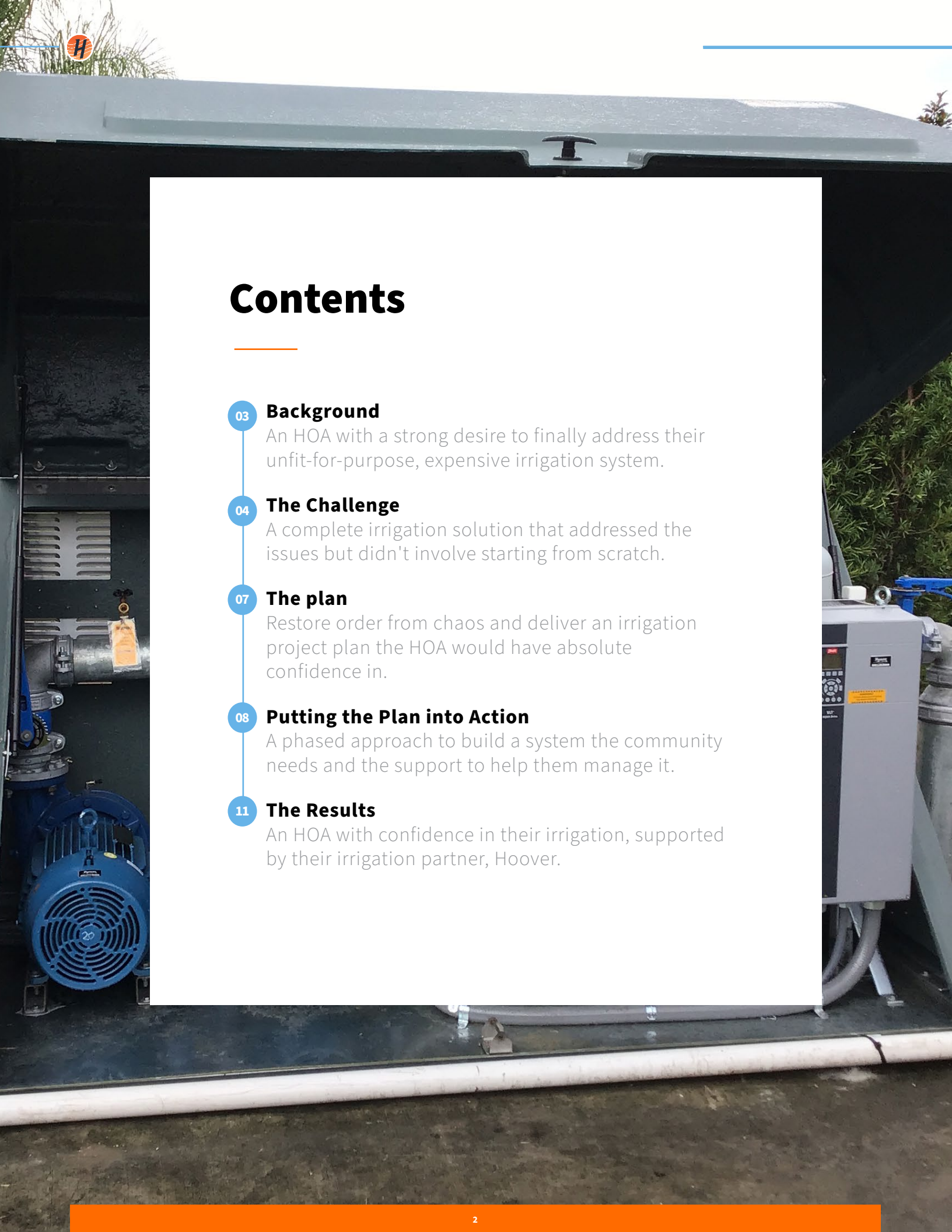
From Irrigation Chaos to Confidence

How we helped this community navigate major irrigation issues during the turnover process and provided an irrigation solution they could depend on.

Location: The Village of Wellington, Florida

Client: Castellina Homeowners Association, Inc.

Market: Residential Community



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The Background

Castellina is a gated community in Wellington, Florida, made up of 260 single-family homes. It features three large lakes and a number of lakefront properties. The Board approached Hoover due to concerns over a number of issues with the existing irrigation system, which was installed in 2011.

Not Custom-Designed

The original installation was based on designs for other projects and not custom-built for the Community. This gave it a built-in inadequacy from the start. Hoover had carried out some upgrades to the irrigation system earlier to help mitigate a range of problems, however, it was always clear that a long-lasting solution was required.

The challenges grew increasingly complex over the years as ill thought-out fixes were unsuccessfully applied in an attempt to counteract these problems.

A Slowly Deteriorating Investment

The difficulties of a constantly under-performing system were compounded over the years by service providers' lack of technical expertise, poor advice and poor understanding of the underlying problems. Hefty bills for the repair and replacement of components were commonplace and for years, the community watched their investment and their landscaping slowly deteriorate in front of their eyes with lawns dying through lack of water or, alternatively, sprinklers running for days on end.

The Challenge

The challenge presented by the Castellina Community project was to restore order from chaos and deliver a long-lasting irrigation solution the community could depend on.

Via a series of missteps, the community had found themselves coping with an irrigation system that threw up challenges beyond the capacity of most of their service providers to manage, resulting in years of on-going and expensive field-related repair work.

The non-use of the control system meant they had zero data on what was going wrong. The approach had been to throw as many replacement parts as possible at the problem as well as regularly replacing damaged turf.

> *"The community was seeing their **investment and their landscaping slowly deteriorate** in front of their eyes."*

Inspection revealed issues from poor management to improper system use.

The in-depth inspection of the entire irrigation operation discovered a range of issues, some of which were a result of years of bad management, some of which were down to improper use of the system.
These included multiple wiring issues - such as missing connectors and open splices; grounding was in place but with the wrong wire connectors; the two-wire technology could only be repaired and maintained by the manufacturer's own technicians but attempts were often made to self-diagnose problems with disastrous results; many heads were facing the wrong way, directing water at screens and pavements; there was an inconsistent and unsuitable application of head type across the system, for example, 15' nozzles were being used for a 10' strip of land. All of this was highlighted in the Inspection Report commissioned by the Developer for the HOA Board.

Overall, we were dealing with such things as:

- Flowguard, although present in both of the existing pump stations, wasn't being used - so no monitoring or intelligent irrigation management was taking place.
- No pressure regulation was in place which limited anybody's ability to manage the field effectively.
- The service providers had been working with limited technical and/or historical knowledge of the system and often resorting to sub-par industry practices not only because of their own limitations but also the limitations and idiosyncrasies of the system.
- The water was expected to feed too many zones simultaneously. Combined with the complexity of the distribution and zone clusters it was impossible to run different zones effectively.
- Pumps were running a 12-14 hour watering window and still not delivering the recommended ½ inch of water per application.
- Decoders were a very costly part of the problem; decoders were constantly being lost through lightning strikes or poor workmanship. Indeed, the team didn't even own a multimeter for field troubleshooting. They were subsequently provided with one but it remained unused.

Specific Issues Raised by The Site Inspection

Although existing controllers may have been capable of running the irrigation system when fully operational, the site inspection report highlighted many examples of poor maintenance, inadequate technical understanding or just simple neglect:

- Every zone was set to a standard 10 minutes regardless of need - in other words, blanketing the entire community with a standard runtime.
- Both controllers were missing IQ communication cartridges.
- The programming had been removed from the Controllers.
- Not only was Flow Control turned off but no sensor was even present.
- There were multiple wiring issues such as missing connectors and open splices.
- Grounding was present but with the wrong wire connectors.
- The two-wire technology used was of a type that should only be worked on by Rain Bird factory-trained technicians with demonstrable field experience. The failure to ensure this happened led to misdiagnosis and considerable expense.
- Many heads were facing the wrong way - some directing the spray at screens and some into the road – and water was being wasted.
- The head types used were inconsistent across the system, risers were in place instead of pop ups and there were instances where head spray pattern didn't match distance - for example, 15' nozzles were used on a 10' strip of land.
- Poor spacing between nozzles left huge inconsistencies around coverage.
- Leaking bubblers had been left uncapped.
- There was drip irrigation added to the project that was not included on the plans.

The Plan

A Lasting Solution For a Significantly Lower Cost

A Lasting Solution Costing Significantly Less

After the initial audit and report, Hoover carried out its own comprehensive investigations and analysis of the situation at Castellina, including more thorough mapping, a review of the available plans and assessing the general condition of equipment on-site. We then reviewed our findings and developed the solutions as a team. Our key finding was that there was no evidence to support the initial recommendation put to the HOA, to pull everything out and start again.

A Firm Foundation for the Future

The HOA was now equipped with the results of Hoover's analysis and recommendations. Now they were empowered to take a more realistic view of their situation. The Hoover Plan would solve all the issues they were facing, while putting in place firm foundations for a more efficient and easy to run irrigation set up going forward.

> *"We were committed to working with the community for the long haul; **delivering a total Irrigation solution**, rather than leaving them to deal with problems on an ad-hoc basis."*

A Phased Approach

In summary, we recommended a phased revamp and upgrade of the existing system at a significantly lower cost than starting over. Our proposal was duly accepted by the Board. The first step in the plan was to replace the dual pumping stations with a single, Flowguard pumping station. This initial step, so critical to the success of the project, was followed by several actions to address other issues, including mainline problems - adding inter-connections to the distribution and replacing incorrectly sized pipes with those of the correct size.

Putting the Plan Into Action

The Hoover solution was as much about managing the irrigation and supporting the Community as it was about the design and installation of the system itself.

Initially the Board had been convinced the best approach would be to replace the pump station but our proposition was to analyze the entire system, from the pump station through to the zones being watered, looking at the hydraulic limitations of the site itself and the number of zones that needed to be maintained. It was as simple as going right back to the original plans.

Hoover's plan provided a total irrigation solution - from installing pipes of the correct size and assessing the correct number of zones required - to putting the Flowguard system and HIRIMS (Hoover's Intelligent Remote Irrigation Management System) in place to continually balance the irrigation in real-time.It also meant educating the Board so they knew exactly what their system should be delivering and providing them with ongoing irrigation management support.

> *"Hoover came **in** and the way they worked right from the beginning **gave us confidence**."*

By installing the new Flowguard pump station first, we could begin collecting and analyzing data to inform the decision-making. It also meant the Community would start seeing immediate improvements while we continued to address the issues highlighted in our inspection.

The marked success of this initial activity, and our ongoing help with other issues with their irrigation convinced the Board to engage Hoover further which resulted in our plan for a phased approach of upgrades and continuing support that would have a lasting impact.

> *"This solution was as much about **managing the irrigation and supporting the Community** as it was about the design and installation of the system itself."*

Some of the significant technical changes we made to the existing design included:

- There were two pumping stations, each a dual 7.5 hp (total 15 hp). Prior to this, the original contractor had sought to improve the situation by increasing the hp and changing the impellers - in an attempt to deliver more water to the field. Technically, this upgrade had lifted the gallons per minute from 220 per station to 280.
- We replaced both stations with one dual 20 hp Flowguard pump station delivering 600 gallons per minute. Flowguard provided vital data on how controllers and zones were functioning. This then informed decision-making going forward.
- The original system controls (two Rain Bird ESP-LMXDE clocks and IQ management) were replaced with four Hoover FG3 (Flowguard) Clocks and HIRIMS, Hoover's total irrigation solution.
- Just as importantly, we carried out major modifications to optimize the mainline and improve water distribution efficiency.

> *"Hoover has helped make our irrigation management smarter.* ***It makes everyone's life better."***

The Results

- **Hoover's reliable products** have removed the need to constantly replace equipment - for example, decoders.
- **More efficient irrigation** of the residents' landscaping. An end to issues such as over and under-watering.
- **Hoover provides continuous support and irrigation management** feedback and advice to ensure the effectiveness of the Castellina c ommunity's irrigation operation.
- **Landscaping that delivers** genuine 'curb appeal' and increased resale value, engendering feelings of pride and well-being amongst residents.
- **The data** gathered by Flowguard and HIRIMS enables the teams managing the irrigation to monitor and plan much more efficiently, saving time and money.
- **The constant flow of information** about the system allows problems to be spotted and dealt with quickly, embedding an ethos of continuous improvement.
- **Irrigation that's easy to manage** without the exhaustive efforts previously required. The nature of the data provided delivers total confidence, making it easy to spot the all-important difference between the root cause of a problemand a symptom.
- **The system is now a smooth running** part of the overall landscape management process and a tool to be utilized rather than a challenge to be fought against and struggled with.
- **Better relations** now exist between residents, their irrigation and landscape service providers and the HOA Board.

And Finally

Hoover continues to be an integral part of the Castellina team, managing the irrigation and supporting the ongoing process of improving the irrigation operation and the community landscaping.

We are proud to be irrigation partners providing dependability and continuity of service for the life of this community.

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