



## **OPEN MEETING**

### **REGULAR MEETING OF THE UNITED LAGUNA WOODS MUTUAL MAINTENANCE AND CONSTRUCTION COMMITTEE**

**Wednesday, August 28, 2019 - 9:00 a.m.  
Laguna Woods Village Community Center Board Room  
24351 El Toro Road**

#### **NOTICE and AGENDA**

*This Meeting May Be Recorded*

1. Call to Order
2. Acknowledgement of Media
3. Approval of Agenda
4. Approval of Meeting Report for June 26, 2019
5. Chair's Remarks
6. Member Comments - *(Items Not on the Agenda)*
7. Department Head Update

#### **Consent:**

*All matters listed under the Consent Calendar are considered routine and will be enacted by the Committee by one motion. In the event that an item is removed from the Consent Calendar by members of the Committee, such item(s) shall be the subject of further discussion and action by the Committee.*

8. Project Log
9. Maintenance Programs Reports (June)
10. Expenditures Report & Variance Explanations (June)
11. Copper Pipe Supply Line Leak Report

#### **Reports:**

12. Solar Production Report
13. Solar Power Plant Task Force Report from 6/26/19 (oral discussion)

#### **Items for Future Agendas:**

- 2020 Building & CDS Address Sign Installation Program
- Copper Pipe Supply Line Leak Report (December 2019, April & August 2020)
- Drainage Improvements to Prevent Foundation Issues

#### **Concluding Business:**

Committee Member Comments

Date of Next Meeting – October 23, 2019

Adjournment

Carl Randazzo, Chair  
Ernesto Munoz, Staff Officer  
Telephone: 949-268-2281



## **OPEN MEETING**

### **REPORT OF REGULAR MEETING OF THE UNITED LAGUNA WOODS MUTUAL MAINTENANCE AND CONSTRUCTION COMMITTEE**

**Wednesday, June 26, 2019 - 9:00 a.m.  
Laguna Woods Village Community Center Board Room  
24351 El Toro Road**

**MEMBERS PRESENT:** Carl Randazzo – Chair, Sue Margolis, Reza Bastani, Gary Morrison, Cash Achrekar

**MEMBERS ABSENT:** None

**ADVISORS PRESENT:** Walter Ridley, Janey Dorrell

**STAFF PRESENT:** Ernesto Munoz – Staff Officer, Laurie Chavarria, Christine Spahr, Ellyce Rothrock, Chris Naylor

#### **1. Call to Order**

Chair Randazzo called the meeting to order at 9:00 a.m.

#### **2. Acknowledgement of Media**

Chair Randazzo noted no members of the media were present.

#### **3. Approval of the Agenda**

The agenda was approved as written.

#### **4. Approval of Meeting Report for April 24, 2019**

The Meeting Report for April 24, 2019 was approved as written.

#### **5. Chairman's Remarks**

Chair Randazzo asked for a moment of silence to acknowledge the passing of Third Mutual Director Jack Connelly. Chair Randazzo then commented on the pilot program for Handyman Services; the water heater installation program and provided the following thought for the day from one of America's founding fathers, John Adams: "Facts are stubborn things; and whatever may be our wishes, our

inclinations, or the dictates of our passion, they cannot alter the state of facts and evidence.”

## **6. Member Comments - (*Items Not on Agenda*)**

- Catherine Brians (392-B) commented on multiple EV's charging in the carport at the same time.

Staff Officer Ernesto Munoz, Director Margolis, Chair Randazzo and Advisor Dorrell responded briefly to the comment.

By consensus, staff was directed to provide the list of owners with electric vehicles and golf carts, who share the same electric circuit, to Ms. Brians so those residents can coordinate their charging schedule.

## **7. Department Head Update**

Staff Officer Ernesto Munoz provided an update on:

- The storm drains located at Gates 1 and 5 at El Toro Road: Staff will coordinate with the City on ways to upgrade the inlet/storm drain at this location and will provide options to the Committee for further review.
- Water Heater Installation Program: The program was placed on hold except for emergency replacements due to a shortage of funding. The backlog of replacements will be completed in 2020 and options to continue the program were discussed with the Committee.

Manuel Armendariz (917-D) commented on the timely replacement of water heaters, and budget expenditures for water heater replacement.

Juanita Skillman (2154-N) suggested that additional funding be approved as part of the 2020 budget and then partial funding be authorized for early release to cover the overage spent in 2019.

Discussion ensued regarding the water heater replacement cycle, relocating water heaters to the exterior, replacing the element to extend the life of the water heater and prioritizing interior water heater replacements.

By consensus, staff was directed to continue with the water heater program and bring a report to the Finance Committee and Board authorizing a supplemental appropriation for \$940,000.

## **Consent:**

*All matters listed under the Consent Calendar are considered routine and will be enacted by the Committee by one motion. In the event that an item is removed*

*from the Consent Calendar by members of the Committee, such item(s) shall be the subject of further discussion and action by the Committee.*

A motion was made and unanimously carried to approve the Consent Calendar.

- 8. Project Log**
- 9. Maintenance Programs Reports**
- 10. Expenditures Report & Variance Explanations**
- 11. Solar Production Report**

**Reports:**

**12. Alternative Water Detection Devices**

Staff Officer Ernesto Munoz summarized the report and answered questions from the Committee.

Discussion ensued regarding water detection devices for water heaters and washing machines; and advertising product availability.

No further action was taken on this item.

**13. Review of Handyman Services Pilot Program**

Chair Randazzo informed the meeting attendees that the Handyman Services Pilot Program has been cancelled. A Task Force will be created for members of the Board to discuss other options that will still provide handyman type services but will be cost effective for the Corporation. Possible Task Force members include Anthony Liberatore, Cash Achrekar, Carl Randazzo, Elsie Addington, Juanita Skillman and Advisor Janey Dorrell.

Discussion ensued regarding current users of the program, a resident volunteer program, and chargeable services.

**14. Solar Power Plant Task Force Update (oral discussion by Sue Margolis)**

Director Margolis summarized the items audited by the Task Force for the Committee. A formal report was presented and is attached.

Manual Armendariz (917-D) commented on the ROI from the solar installation project and suggested that the generation continue to be monitored.

Discussion ensued regarding tree trimming, solar panel cleaning and monthly generation reports.

Chair Randazzo thanked Director Margolis and the Task Force for their review of the solar project.

Items for Future Agendas:

- Building & CDS Address Sign Installation Program (START AT GATE 5)
- Copper Pipe Supply Line Leak Report (August & December 2019)
- Drainage Improvements to Prevent Foundation Issues

Concluding Business:

**Committee Member Comments**

- Advisor Dorrell commented on the color & format of the CDS signs.
- Advisor Ridley volunteered to provide a cursory review of the carport panel single line drawings.
- Director Bastani commented on water heater elements.
- Director Achrekar commented on the handyman services task force.

Date of Next Meeting – August 28, 2019

**Adjournment**

The meeting was recessed at 11:00 a.m.

  
\_\_\_\_\_  
Carl Randazzo, Chair

## **Solar Panel Task Force Report**

### **BACKGROUND:**

In March 2019, United Laguna Woods Mutual's Board of directors selected a team of five United directors and two VMS directors to form an adjunct task force as part of the United M&C Committee. Its goal was to determine the status of United's currently operating Solar Power Plant and to recommend how to go forward in solving any problems identified in order to get the best productivity from the system in the future.

We had entered into a contract 6 July 2016 with Johnson Controls Incorporated (JCI) to install the solar panels and water heaters for \$3,794,951, and for an additional annual cost of \$16,201 JCI was to provide us a guaranteed production amount of kWh's, if certain contractual obligations were met by United Mutual, JCI, and Phoenix Renewable Service (Phoenix's first year's contract was \$19,616).

The system was activated 9 February 2017. For the first year up through February 2018 we were not getting the kWh's guaranteed nor the related dollar cost savings. JCI has taken the position that they performed all they were required to do under their contract and the decreased production of kWh's was the fault of either United and/or Phoenix for their failure to perform. The task force was convened to study the problem and see if mistakes were made to learn from them and so hopefully avoid making them in the future.

### **HERE IS A SUMMARY OF WHAT WE DISCOVERED**

1. There is a discrepancy in the location of one of the installation sites from the location specified in the contract.
2. The angle of the position of the panels as installed differs from the angle specified in the contract. Being shallower it is less optimal and more susceptible to pooling and requires cleaning more frequently.
3. The trimming of trees shading the new location was not done.
4. Items 1.) 2.) and 3.) resulted in the power plant producing 17.6% less energy than expected under the terms of the contract.
5. JCI was in charge of the installations. The JCI contract required issuance of "change orders" if there were any changes in the installation from that specified in the contract. but no change orders were ever issued.
6. The VMS staff was not given visibility into the project.
7. The assembled United board was not given visibility into the contract. Our lawyers were not given visibility into the contract.
8. The contract was signed off by one individual. No due diligence was applied.

#### OPERATIONAL DATA:

The United Solar Power Plant is made up of 2400 photo-voltaic cells arrayed in four locations ( eight laundry rooms and thirty carport roof locations in four cul-de-sacs) . JCI, the originating contractor, had promised a Yearly Production of 1,236,030 kWh. It has been documented that the production for the past 23 months of operation (from March 2017 through January 2019) is 1,916,936 kWh. This production has saved our local area from a production of 120,000 tons of CO2 in the air. Based on the data, and adjusted by estimated monthly production, the solar power plant is producing 17.6% less than what was guaranteed by JCI. For the 23 months of operation that should have produced solar electricity credits of \$342.053 before deducting SCE solar charges.

#### EXPENSES:

For operating expenses we were charged \$16,201 (first year ) and \$14,642 (second year) by JCI for Measurement & Verification Services, which was required by contract to provide the electric production guarantee, And we paid \$19,616 (first year) to Phoenix to monitor, clean the panels twice a year, and perform corrective maintenance on the plant. Corrective maintenance is performed at an additional cost.

As for the yearly fee we were paying to JCI to provide for a warranty on production and a yearly report, it turned out that the warranty did not warrant anything, because JCI set the terms such that we could not collect on the warranty. So we have recently cancelled this expense, since it was a cost that did not provide us with a benefit. An additional cost to maintain the Power Plant is paid to the Phoenix Renewable Services Company. For \$19.6K per year they monitor the performance of the power plant.

In addition, there was an unanticipated expense that we were hit with since the plant went into operation. This one-time expense was for a six months period where SCE put a software update fee on all solar power generators and a connect fee, which decreased our savings by over \$76K.

#### CONTRACTUAL FINDINGS:

Our expectations were not adequately guaranteed by the wording of the signed United installation contract with JCI. It seems that this contract was not fully vetted as outlined in United's governing documents. In accordance with our current governing documents, no contract should be entered into without VMS staff involvement. In addition, all contracts of this value should have a thorough reading and consultation with an attorney. The task force has been told that VMS informed the United board of directors that VMS was already involved with the solar project for Third Mutual and did not have sufficient staff to take on the solar project for United. Unfortunately, United chose not to follow proper protocol , such as putting VMS staff in charge of the project, getting advice from legal counsel and using prudent business practices.

Unfortunately, this methodology seems to have not been followed at the time of the execution of the contract in question, consequently, this leaves us with a contract that does not give us any power to go after JCI for a system that does not provide us with the power levels that were anticipated. <sup>1</sup> The Certificate of Final Completion, which accepted the solar panel project as complete and released to JCI, was signed by a United director without consultation and approval of the Board. And this leaves United no recourse with JCI.

In addition to the foregoing, it also has been determined that changes were made to the original design that were not documented in change orders, and if there was any documentation regarding these changes, it cannot be found at this time.

<sup>1</sup>This occurred during the transition from PCM to VMS, and as such, this may have been part of the reasoning for why that did not happen.

#### INSTALLATION SPECIFIC FINDINGS:

- During the installation process, the location of the solar panels was moved and the rationale and reasoning for this move are not documented.
- During the installation process, JCI directed United as to where we needed to prune and remove trees in order to maximize the sunlight to the panels. We made the changes that were asked to be made, however, when we informed JCI that the panels were not producing what was expected, JCI noted that it was because of trees that were obscuring them.
- As a part of our discussions with JCI during the installation process, they indicated that the panels needed to be cleaned once a year in order to ensure that the dirt on the panels would not obscure the sunlight to the panel. We followed that protocol, however, when we informed JCI that the panels were not producing what was expected, JCI noted that it was because the panels were dirty even though we were following their cleaning protocol.
- It has been noted that there are some trees that are partially shading the panels at certain times of the day, and at one site this has resulted in a 6% loss of power production. The landscape crew has taken care of those trees, and are aware that yearly we will need to inspect the areas for shading and continue to keep the trees from shading the panels. (See Tree Work Table below)
- The design specified a 5 degrees slope on the panels. There are no change orders indicating why the panels were constructed at 2 degree which affects the cleaning and diminishes the productivity. This is another example of a change being made without documentation.

#### FOLLOW THROUGH:

We met with Phoenix Renewable Services Company, our maintenance and monitoring contractor, and requested that they provide us with the following:



1. A monthly report of kWh that is being produced by panel site. This information will be presented at the United M&C meeting.
2. Assist us in setting up the Locus software with threshold data so we can have a quicker response time to problems and can determine if cleaning is required more frequently than the current twice a year interval.
3. Calculate the effects on power production of deep cleaning the panels twice a year so we can determine cost effectiveness of cleaning the panels more frequently.
4. Provide us with a recommended spare parts list that we should have on hand so we can quickly respond to part failures and minimize the down time of the plant and the loss of power production.
5. Provide a troubleshooting procedure that we can have VMS personnel perform before requiring a Phoenix technician to come to the site
6. Give us a list of their preferred Solar System Providers so when we are ready to install additional panels in the future, we have a starting point

#### ONGOING ISSUES THAT NEED ASSESSMENT:

There are still some issues that we will need to address in the future, e.g., the shading of the panels by trees and additional cleaning that may be required. We have put forth a plan whereby there is a person on VMS staff who is appointed as the plant manager and is co-monitoring the system with Phoenix. As noted above, we have canceled our contract with JCI because we felt it was not providing any value to us by just providing a yearly report. We will need to renegotiate the contract in August with Phoenix Renewable Services Company to clean and assist in the monitoring and will in the future, if necessary, draft a purchase order for them, if there are needed repairs that our staff cannot handle.

Other aspects the task force looked into was whether we qualify for a tax rebate, however it was determined that based on our tax status, we do not.

We also considered whether our current method for monitoring the system could be more effective. There are some glitches with the monitoring system due to intermittent communication problems. The LOCUS software provided with the system is excellent, and we need to address the implementation of a more effective alarm system,

In the future we will want to look into the need for a battery backup so we can smooth out the usage of the system. The battery backup can help us to achieve a not to exceed Tier 1 rate from SCE. We may even look into the benefits of installing a micro-grid. These will be issues that will be addressed by the Energy Task Force.

At present, this project does not appear to be a good investment based on the results of the first year of operation.

Here is a tabulation of the first year of operation.

Investment in Solar Panels	\$3,794,951
Estimated Life of Solar Panels	30 Years
Operating Expenses	
JCI	\$ 16,201
Phoenix	<u>\$ 19,616</u>
	<u>\$ 35,817</u>
SCE Credits Earned	
SCE Credit	\$151,210
SCE Fixed Charges	<u>\$ (76,477)</u>
SCE Net Credits	<u>\$ 74,733</u>
SCE Credits Earned Less Operating Expenses	<u>\$ 38,916</u>
Percentage Return	1.0255%

With anticipated future higher SCE electric rates, no extra charges from SCE and the cancelation of the JCI contract; the Solar power plant may provide us a better return on investment. Currently the results are not what was expected, but and when the rates we hope the return will improve. It also has a positive effect on our carbon footprint.

#### **LESSONS LEARNED**

1. No contract should be entered into without VMS being responsible for all aspects of it.
2. No contract should be entered into without a reading by the treasurer and one other director (who approve expenditures from reserves as required under Davis-Stirling).
3. Before signing the contract all directors who choose to do so , are given the opportunity to review it prior to the signing,
4. Before signing the contract, all questions or ambiguities brought up by any director must be satisfactorily answered or explained by VMS staff and/or legal counsel.
5. A Return on Investment or appropriate analysis must be provided on all expenditures (greater than \$100,000 ) for projects approved by the board prior to signing a contract.

6. No changes to the contract are to be allowed without the execution of a change order authorizing the change in the work and subject to approval by the board of directors prior to the issuance of the change. There is no documentation or authorization for any changes in the JCI contract. Per the procedures that would have been used with VMS today, all changes are documented and a package of documents surrounding the execution of a contract is maintained by VMS. This did not appear to happen with the execution of this contract, but would have happened today if the contract were executed today. Lessons learned from the foregoing is that every new contract needs to be executed in accordance with current procedures and governing documents in order to preclude these mistakes from happening again. Based on a review of the protocols that are followed today, that appears to be happening.

### United Solar Panel Tree Work 2019

Date	CDS	Type of Work	Tree Name	Quantity	Cost
4/4/2019	10	Removal	Sik Oak Tree	1	\$562.50
4/4/2019	10	Crown Reduction	Crape Myrtle Tree	1	\$112.50
4/4/2019	10	Crown Reduction	Flaxleaf Paperbark Tree	1	\$225.00
4/3/2019	28	Removal	Canary Island Pine Tree	2	\$900.00
4/4/2019	28	Crown Reduction	Jacaranda Tree	4	\$562.50
4/4/2019	28	Crown Reduction	Fern Pine Tree	3	\$281.25
4/4/2019	28	Crown Reduction	Crape Myrtle Tree	3	\$225.00
4/5/2019	38	Remove	Cajuput Tree	1	\$506.25
4/5/2019	38	Remove	Silk Oak Tree	1	\$393.75
6/5/2019	38	Remove	Crape Myrtle Tree	1	\$281.25
6/5/2019	38	Crown Reduction	Crape Myrtle Tree	2	\$168.75
Total				20	\$4,218.75

Submitted by

Sue Margolis  
Sue Margolis – Task Force Leader

Dick Rader  
Dick Rader

Manuel Armendariz  
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Reza Bastani  
Reza Bastani

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United Mutual Project Log (August 2019)				Estimated Completion/On-going Program	Budget
#	Type	Name	Description	Status	
1	920 Projects	<b>Building Structures</b>	This program is dedicated to replacing and repairing building structural components that are not performing as designed.	As building structure issues are reported and inspection requests are received, staff schedules a structural engineer to field inspect the structure and if required provide a recommendation report for repairs. In addition, as part of this budget, staff will proactively inspect buildings for drainage issues and provide repairs as needed.	Budget: \$134,880 Exp: \$54,044 Balance: \$80,836
2	920 Projects	<b>Pushmatic Electrical Panel Replacement</b>	This project is funded to replace 2,750 Pushmatic electric panels over a 10 year period. The Pushmatic panels are unreliable and no longer supported. The Board entered into a five year contract with Coastal Current Electric Corp. to install 1,375 Pushmatic electric panels. This contract expires in May 2021; at which time a new five year contract will be required to complete the remaining 1,375 electric panels.  Estimated Project Completion: Year 2026	The estimated number of manors scheduled for 2019: 275 Number of manors completed in 2019 as of this update: 162  Number of manors completed to date: 793 Number of manors left to complete: 1957	Budget: \$425,000 Exp: \$229,586 Balance: \$195,414  Cumulative Expenditures 2016 through 2018: \$1,115,740
3	904 Maint Svc	<b>Walkway Lighting Program</b>	This program is dedicated to improving walkway lighting through additional fixture installation, or the upgrade of existing lighting. Alternatives to the existing pagoda style fixtures are evaluated as needed. Requests for additional lighting are received from residents on an ongoing basis. Those requests are vetted and additional lighting is installed if it meets the program requirements.	Currently there are 4 requests submitted for additional walkway lighting. 3 of these requests have been reviewed and assigned to an outside contractor for installation, one is under review.  A total of 13 walkway lights have been installed this year.	Budget: \$60,691 Exp: \$21,306 Balance: \$39,384
4	920 Projects	<b>Foundations Program</b>	This program is funded to replace foundations showing signs of distress or impending failure. These repairs or replacements are performed on an as-needed basis.	As foundation issues are reported and inspection requests are received, staff schedules a structural engineer to field inspect the foundation and if required, provide a recommendation report for repairs. In addition, as part of this budget, staff will proactively inspect buildings for drainage issues and provide repairs as needed. 822-B: Has been inspected and requires slab repair. No drainage issues were identified. 465-D: Requires patio slab replacement and is in engineering. Drainage issues were identified and have been completed. B2137 & B2139: Column and beam repairs. A contract is being prepared by staff.	Budget: \$43,836 Exp: \$17,495 Balance: \$26,341

5	910 Bldg. Maint	<b>Gutters - Replacement and Repair</b>	Gutter replacement is performed on original construction building rain gutters and downspout systems that are exhibiting deterioration. This program also addresses gutter repairs performed by VMS staff.	Funds have been budgeted for repairs by in-house staff on an as-needed basis throughout the year. There are currently 19 open tickets for Gutter Repair/Replacement. Repairs will continue in order to prepare buildings for the upcoming rainy season.	December 2019 Annual	Budget: \$47,383 Exp: \$50,824 Balance: <del>-\$3,441</del>
6	910 Bldg. Maint	<b>Exterior Paint Program</b>	Starting in 2019, the Mutual has implemented a 10-year full cycle exterior paint program. All exterior components of each building are to be painted every 10 years. The painted components include the body (stucco/siding) as well as the following list in regards to the trim: fascia boards; beams; overhangs; doors; closed soffits; structural and ornamental metal surfaces. Decks are top coated and damaged building address signs are replaced. Lead abatement activities are also performed in conjunction with this program.	All buildings within the following cul-de-sacs are scheduled for painting and resurfacing this year: 91, 90, 80, 94, 95, 82, 9, 10 & 60.  Staff is currently working in CDS 82, which includes 12 buildings, 10 carports and 1 laundry room. Staff anticipates completing CDS 82 by the first week of September and then will move into CDS 9.  CDS 80, 90, 91, 94, and 95 have already been completed.	December 2019 Annual	Budget: \$1,823,867 Exp: \$899,097 Balance: \$924,770
7	910 Bldg. Maint	<b>Prior to Paint Program</b>	The prior to paint program prepares building surfaces for painting and includes repair and mitigation of Dry Rot, Decking and Welding repairs performed every 10 years in conjunction with the Exterior Paint Program.	All buildings within the following cul-de-sacs are scheduled for inspection and repair this year: 91, 90, 80, 94, 95, 82, 9, 10 & 60.  Additionally, PTP staff will inspect cul-de-sacs 61 & 62 from the 2020 Paint Program in the last quarter of the year.  Staff is currently working in CDS 60 and is expected to be completed by the end of September. CDS 9, 82, 91, 90, 80, 94, 95 and 82 have already been completed.	December 2019 Annual	Budget: \$987,116 Exp: \$517,239 Balance: \$469,877
8	920 Projects	<b>Parkway Concrete Program</b>	This program is funded to repair or replace damaged concrete parkways in conjunction with the asphalt paving program. Parkways are inspected for damage and other deficiencies are repaired or replaced accordingly.	This program will run concurrently with the Asphalt Paving Program and is scheduled to begin in September.	November 2019	Budget: \$150,000 Exp: \$0 Balance: \$150,000
9	920 Projects	<b>Asphalt Paving Program</b>	This program is dedicated to preserving the integrity of the street paving. As part of this program, the asphalt paving is inspected and rated for wear annually. The life for asphalt paving is estimated at 20 years. The 2019 program will consist of 90,312 square feet of paving replacement.	This years program will include cul-de-sacs 9, 10 and 44. This program is scheduled to begin in September and be completed in November.	November 2019	Budget: \$216,750 Exp: \$0 Balance: \$216,750
	920 Projects	<b>Seal Coat Program</b>	This program is dedicated to extending the life of the asphalt paving by sealing asphalt cracks to prevent water intrusion and adding an asphaltic slurry coating to restore the oils in the pavement.	This years program will include 14 cul-de-sacs: 2, 3, 12, 13, 17, 30, 32, 37, 39, 43, 46, 49, 51 & 59.  The work is in progress and is scheduled to be completed in September.	September 2019	Budget: \$55,000 Exp: \$0 Balance: \$55,000

11	920 Projects	<b>Roofing Emergency Repair &amp; Preventative Maintenance Programs</b>	This program is dedicated to emergency and preventive maintenance roof repairs and is budgeted as a contingency item.	As emergency roof leak requests are received, staff schedules the roofing contractor to investigate roof related issues, and if required, the roofing contractor will perform the necessary repairs. Over 200 roof leaks have been reported this year.	December 2019	Budget: \$133,250 Exp: \$148,875 Balance: -\$15,625
12	920 Projects	<b>Roofing Program</b>	This program is dedicated to replacing and maintaining United Mutual roofs. Built up roofs are inspected 15 years after installation. Roofs determined to have reached the end of their serviceable life are scheduled to be replaced with a new PVC cool roof system.	23 building roofs are scheduled for replacement this year. This program began late-March and is scheduled to be completed in October. 21 of the 23 buildings have been completed.	October 2019	Budget: \$619,959 Exp: \$425,303 Balance: \$194,656
13	920 Projects	<b>Shepherd's Crook Installation</b>	As a part of the Conditional Use Permit 1135, Laguna Woods Village will remove and replace barbed wire on all perimeter walls with Shepherd's Crook.  Estimated Project Completion: Year 2031	The fabrication and installation of 1,479 LF of Shepherd's Crook began July 31, and is scheduled to be completed in December.  There is approximately 21,000 linear feet of perimeter wall to be fitted with Shepherd's Crook.  To date approximately 1,500 linear feet of shepherd's crook has been installed.	December 2019	Budget: \$150,000 Exp: \$0 Balance: \$150,000  Cumulative Expenditures 2012 through 2018: \$144,103
14	920 Projects	<b>Common Wall Replacement</b>	This is a contingency program dedicated to replacing damaged common walls as-needed.	As common wall issues are reported and inspection requests are received, staff schedules a structural engineer to field inspect the wall, and if required, provide a recommendation report for repairs.  Building 615: Construction is scheduled to begin the end of September and drainage issues are being addressed with this repair.	December 2019	Budget: \$22,365 Exp: \$13,254 Balance: \$9,111
15	904 Maint Svc	<b>Epoxy Wasteline Remediation</b>	The Wasteline Remediation Program involves the installation of a seamless epoxy-based liner within the existing pipes to mitigate future interior leaks and root intrusion as well as to resolve and prevent future back up problems related to compromised pipes. The program addresses interior as well as exterior waste lines. The program to line exterior pipes commenced in 2011 but did not include interior pipes. Starting in 2017, both, interior and exterior lines are receiving an epoxy liner. Estimated Project Completion: Year 2025.	Total number of buildings in United Mutual: 1124 Buildings completed from inception to 2018: 188 Number of buildings completed in 2019: 53 Number of buildings left to complete: 883 Estimated number of buildings scheduled for 2019: 145	December 2019 Annual	Budget: \$2,100,000 Exp: \$811,100 Balance: \$1,288,900  Cumulative Expenditures 2008 through 2018: \$5,910,685
910 Bldg. Maint		<b>Gutter Cleaning</b>	Gutter cleaning is performed as needed throughout the year by General Services. In addition, an outside contractor performs annual cleaning of all Mutual and alteration gutters once a year.	General Services performs gutter cleaning as requested using in-house staff.  The annual gutter cleaning program performed by an outside contractor will begin in late September and is scheduled to be completed at the end of December.	December 2019 Annual	Budget: \$174,032 Exp: \$45,165 Balance: \$128,867

17	910 Bldg. Maint	<b>Pest Control for Termites</b>	<p>This program is dedicated to eradicating dry wood termites from inaccessible areas by tenting buildings for fumigation. The budget also includes funding for local termite treatments and hotel accommodations during tenting.</p>	<p>Local termite treatments and the removal of bees/wasps are performed as-needed throughout the year.</p> <p>There are more buildings that require whole structure fumigation than anticipated. The Board approved a request for supplemental funding in order to fumigate all buildings found to have active dry wood termite infestations.</p> <p>The 2019 full structure tenting will include the fumigation of 34 buildings and 3 carports.</p> <p>Fumigation of 4 buildings have already been completed. The remaining 30 buildings and 3 carports is scheduled to be fumigated starting mid-September and will run through November.</p>	November 2019 Annual	Budget: \$148,987 Supplemental: \$104,762 Exp: \$48,105 Balance: \$205,644
18	920 Projects	<b>Energy Consultant Services</b>	<p>An energy consultant will be used as-needed in order to advance United's and the Community's future energy initiatives.</p>	<p>On June 19th a meeting was conducted between SCE, TEC, TRC and VMS to discuss the transformer data request and SCE's assistance. Overall the experience was positive as SCE indicated there were no plans to bill LWV for any transformer upgrades which was a major concern since the analysis began. Shortly after TRC performed a follow up visit to review the following items: Laundry rooms – understand the load and confirm if the SCE transformer has remained the same since our original data request; sample transformers based on dates the phases were constructed; and identify where electrical panels are and their distance to carport. TEC has continued working on the infrastructure assessment draft and integrated initial feedback from VMS. Most importantly they have been compiling site photographs and notes to further benefit Task 1 (Perform assessment of community's current electrical infrastructure). VMS has also recently provided a detailed analysis of the permitted electric golf carts currently charging in the community's carports which should compliment the research and pre-planning of the community-wide EV charger implementation roadmap for Task 2.</p>	On-going	Supplemental: \$50,000 Exp: \$21,864 Balance: \$28,136
	910 Bldg. Maint	<b>Balcony &amp; Breezeway Resurfacing</b>	<p>This mid-cycle program provides for the waterproof topcoat sealing of balcony and breezeway deck surfaces every 5 years. This waterproofing process protects the deck substructure against future dry rot and improves the aesthetics of the deck surface. Prior to applying topcoat, crews conduct an inspection of the deck structure to locate any dry rot or potential safety hazards. The CDS scheduled for resurfacing in 2019 were: 16, 21, 22, 23, 34, 36, 37, 38, 39, 52, 54, and 55 have been completed</p>	<b>COMPLETED</b>	August 2019	Budget: \$137,645 Exp \$62,230 Balance: \$75,415



920 Projects	Water Lines - Copper Pipe Remediation	<p>This program started in 2008 as a pilot program, and staff was directed to epoxy line buildings on an as-needed basis.</p> <p>Epoxy lining is intended to extend the life of copper pipe water lines in all buildings which experience a high frequency of copper pipe leaks.</p> <p>In 2019 the following 10 buildings were epoxy lined: 32, 200, 302, 419, 584, 645, 646, 668, 2023 &amp; 2058.</p>	COMPLETED	July 2019	Budget: \$250,000 Exp: \$245,290 Balance: \$4,710

# UNITED LAGUNA HILLS MUTUAL

## 2019 PTP & PAINT PROGRAM REPORT

Through June 30,2019

Shown below is the cost breakdown for structures completed through the reporting period:

COMPLETIONS - PTP PROGRAM				
Item	Budget	Projected to Date	Actual Expenditures	Variance % Fav / (Unfav)
A98100 Dry Rot Repairs PTP	\$ 559,243	\$ 278,958	\$ 367,177	-32%
A98101 Decking Repairs PTP	\$ 122,684	\$ 61,186	\$ 42,930	30%
A98103 Welding Repairs PTP	\$ 9,039	\$ 4,503	\$ -	100%
A98102 Lead Abatement PTP	\$ 2,500	\$ 1,248	\$ -	100%
Total Repairs Prior To Paint:	\$ 693,466	\$ 345,895	\$ 410,107	-19%

PAINT PROGRAM SCOPE				
Item	Budget	Projected to Date	Total Actual	% Complete
Buildings	117	59	65	111%
Carports	67	34	30	90%
Laundries	19	10	12	126%
Square Ft	1,695,603	847,802	996,410	118%

COMPLETIONS - PAINT PROGRAM				
Item	Budget	Projected Expenditures	Actual Expenditures	Variance % Fav / (Unfav)
Materials	\$ 149,338	\$ 74,664	\$ 116,602	-56.2%
Labor	\$ 1,450,742	\$ 723,776	\$ 722,959	0.1%
Lead Paint Abatement	\$ 31,000	\$ 15,498	\$ -	100.0%
Lexan Signs	\$ 1,076	\$ 534	\$ 37	93.1%
Total Cost	\$ 1,632,156	\$ 814,472	\$ 839,598	-3.1%

## ROOF REPLACEMENTS

The 2019 budget for Roof Replacements totals \$619,959 for work on 23 structures.

	Bldgs Planned		Bldgs Complete		Retention Due		Annual Budget		Actual To Date	
Comp Shingle	0		0		\$	-	\$	-	\$	-
Capistrano Tile	0		0		\$	-	\$	-	\$	-
BUR-PVC Cool Roof	23		0		\$	-	\$	619,959	\$	329,737
Totals	23		12		\$	-	\$	619,959	\$	329,737
	Sq. Ft Planned		Sq. Ft. Complete		Replacement Cost		Plywood & Other Costs		Total Costs	
Comp Shingle	-		-		\$	-	\$	-	\$	-
Capistrano Tile	-		-		\$	-	\$	-	\$	-
BUR-PVC Cool Roof	90,368		47,734		\$	326,501	\$	3,236	\$	329,737
Totals	90,368		47,734		\$	326,501	\$	3,236	\$	329,737

**(1) APPLIANCE & FIXTURE REPLACEMENTS**

ITEM	Annual Budgeted Units	YTD Actuals Complete	Pending Requests
<b>APPLIANCES:</b>			
Refrigerators	280	92	11
Ranges (Cooktops)	138	96	8
Hoods	113	31	5
Dishwashers	133	96	10
Washers - Laundries	18	1	13
Dryers - Laundries	20	-	1
Ovens	176	62	5
<b>FIXTURES:</b>			
Water Heaters - Manors	1,527	1,017	4
Water Heaters - Laundries	-	1	1
Garbage Disposals	526	237	3
Sinks	115	76	4
Basins	221	127	-
Toilets	250	89	1
Faucets	788	260	19

**(2) COUNTERTOP & FLOOR REPLACEMENTS**

ITEM	Annual Budgeted Units	YTD Actuals Complete	Pending Requests
<b>COUNTERTOPS:</b>			
Kitchen-Replaced by Mutual	165	73	4
Kitchen-Reimbursed by Mutual*	66	18	-
Bath-Replaced by Mutual	346	78	8
Bath-Reimbursed by Mutual*	100	10	-
<b>FLOORS:</b>			
Kitchen-Replaced by Mutual	127	10	6
Kitchen-Reimbursed by Mutual*	36	7	-
Bath-Replaced by Mutual	167	15	5
Bath-Reimbursed by Mutual*	39	8	

\* Pending Requests for Reimbursements are made up of items qualified for replacement and on hold pending action by the member.

**UNITED LAGUNA WOODS MUTUAL  
FUND EXPENDITURES REPORT  
AS OF JUNE 30, 2019**

DESCRIPTION	CURRENT MONTH		YEAR-TO-DATE		2019		% EXPENDED		VARIANCE	
	ACTUAL	BUDGET	ACTUAL	BUDGET	BUDGET				\$	%
<b>RESERVE EXPENDITURES</b>										
<b>REPLACEMENTS</b>										
BUILDING STRUCTURES	\$29,492	\$74,431	\$154,438	\$448,648	\$898,320	17%	\$294,210	66%		
ELECTRICAL SYSTEMS	30,016	38,216	215,721	229,296	458,610	47%	13,575	6%		
EXTERIOR WALKWAY LIGHTING	2,650	5,034	26,976	30,316	60,691	44%	3,340	11%		
FOUNDATIONS	0	3,653	4,615	21,918	43,836	11%	17,303	79%		
GUTTER REPLACEMENT	2,337	3,912	50,880	23,649	47,383	107%	(27,231)	(115%)		
LANDSCAPE RENOVATION	0	29,166	37,667	174,996	350,000	11%	137,329	78%		
PAINT - EXTERIOR	152,101	150,066	933,907	910,125	1,823,867	51%	(23,782)	(3%)		
PRIOR TO PAINT	87,225	81,254	517,239	492,386	987,116	52%	(24,853)	(5%)		
PAVING	8,986	42,644	21,630	256,121	512,560	4%	234,491	92%		
ROOF REPLACEMENTS	86,602	62,766	466,125	376,596	753,209	62%	(89,529)	(24%)		
TREE MAINTENANCE	92,679	101,166	632,541	615,600	1,232,529	51%	(16,940)	(3%)		
WALL REPLACEMENT	0	15,029	9,838	90,174	180,365	5%	80,336	89%		
WASTE LINE REMEDIATION	20,802	174,999	367,556	1,049,996	2,100,000	18%	682,440	65%		
WATER LINE - COPPER PIPE REMEDIATION	94,992	20,833	174,131	124,998	250,000	70%	(49,133)	(39%)		
WINDOW/SLIDING SCREEN DOOR	8,497	7,189	36,493	43,295	86,676	42%	6,801	16%		
SUPPL. APPROPRIATIONS	0	0	50,000	50,000	50,000	100%	0	0%		
<b>SUB-TOTAL</b>	<b>\$616,379</b>	<b>\$810,359</b>	<b>\$3,699,758</b>	<b>\$4,938,114</b>	<b>\$9,835,161</b>	<b>38%</b>	<b>\$1,238,357</b>	<b>25%</b>		
<b>APPLIANCE AND FIXTURE REPLACEMENTS</b>										
COOKTOPS	\$4,851	\$5,901	\$61,299	\$35,476	\$70,999	86%	(\$25,823)	(73%)		
DISHWASHERS	7,574	7,073	51,899	42,595	85,280	61%	(9,304)	(22%)		
BASINS/SINKS/TOILETS	12,375	26,374	122,214	158,531	317,250	39%	36,316	23%		
GARBAGE DISPOSALS	5,407	9,574	56,784	57,588	115,257	49%	804	1%		
HOODS	1,236	2,950	11,782	17,768	35,574	33%	5,986	34%		
COUNTER TOPS/FLOORS/SHOWER ENCLOSURES	73,614	101,803	491,017	613,701	1,228,721	40%	122,685	20%		
OVENS	10,632	9,235	66,618	55,480	110,999	60%	(11,138)	(20%)		
RANGES	1,098	2,076	4,678	12,491	25,000	19%	7,813	63%		
REFRIGERATORS	17,437	18,893	99,970	113,615	227,359	44%	13,645	12%		
WATER HEATERS & PERMITS	22,547	93,937	1,432,266	566,327	1,133,990	126%	(865,939)	(153%)		
DRYERS	0	1,119	3,551	6,731	13,474	26%	3,179	47%		
WASHING MACHINES	0	2,428	974	14,593	29,200	3%	13,619	93%		
<b>SUB-TOTAL</b>	<b>\$156,771</b>	<b>\$281,362</b>	<b>\$2,403,051</b>	<b>\$1,694,895</b>	<b>\$3,393,103</b>	<b>71%</b>	<b>(\$708,157)</b>	<b>(42%)</b>		
<b>TOTAL RESERVE FUND</b>	<b>\$773,150</b>	<b>\$1,091,721</b>	<b>\$6,102,809</b>	<b>\$6,633,009</b>	<b>\$13,228,267</b>	<b>46%</b>	<b>\$530,200</b>	<b>8%</b>		

\*Waste Line Remediation: Board authorized an early release of \$200,000 from the adopted 2019 Business Plan for additional work in 2018.

**UNITED LAGUNA WOODS MUTUAL  
FUND EXPENDITURES REPORT  
AS OF JUNE 30, 2019**

DESCRIPTION	CURRENT MONTH		YEAR-TO-DATE		2019		%		VARIANCE	
	ACTUAL	BUDGET	ACTUAL	BUDGET	BUDGET	EXPENDED			\$	%
<b>OPERATING EXPENDITURES</b>										
1 PLUMBING SERVICE	\$132,466	\$102,055	\$830,470	\$618,165	\$1,239,218	67%			(\$212,306)	(34%)
2 CARPENTRY SERVICE	42,734	39,841	274,312	241,388	483,906	57%			(32,924)	(14%)
3 CONCRETE REPAIR/REPLACEMENT	45,446	30,497	200,052	184,003	369,203	54%			(16,049)	(9%)
4 ELECTRICAL SERVICE	25,994	33,874	147,993	205,290	411,587	36%			57,297	28%
5 APPLIANCE REPAIRS	20,168	25,239	143,203	152,861	306,455	47%			9,658	6%
6 INTERIOR PREVENTIVE MAINTENANCE	32,025	28,581	159,507	173,365	347,649	46%			13,858	8%
7 JANITORIAL SERVICE	22,656	30,382	160,154	184,208	369,615	43%			24,054	13%
8 PEST CONTROL	6,823	12,414	22,822	74,484	148,987	15%			51,662	69%
9 GUTTER CLEANING	561	14,478	45,726	86,960	174,032	26%			41,234	47%
10 COUNTERTOP/FLOOR/TILE REPAIRS	13,266	12,090	72,040	73,266	146,872	49%			1,226	2%
11 WELDING	11,247	6,903	37,989	41,661	83,626	45%			3,672	9%
12 ENERGY PROGRAM	0	4,166	8,646	24,996	50,000	17%			16,350	65%
13 MISC. REPAIRS BY OUTSIDE SERVICE	6,633	2,083	10,538	12,498	25,000	42%			1,960	16%
14 TRAFFIC CONTROL	1,283	1,398	6,252	8,434	16,935	37%			2,183	26%
15 FIRE PROTECTION	2,987	1,058	5,046	6,348	12,700	40%			1,302	21%
<b>TOTAL MAINTENANCE PROGRAMS</b>	<b>\$364,288</b>	<b>\$345,058</b>	<b>\$2,124,749</b>	<b>\$2,087,926</b>	<b>\$4,185,785</b>	<b>51%</b>			<b>(\$36,823)</b>	<b>(2%)</b>

**CONTINGENCY FUND EXPENDITURES**

MOISTURE INTRUSION - RAIN LEAKS	\$36,666	\$18,794	\$224,841	\$112,764	\$225,537	100%			(\$112,077)	(99%)
MOISTURE INTRUSION - PLUMBING LEAKS	88,891	53,729	407,812	322,374	644,752	63%			(85,438)	(27%)
MOISTURE INTRUSION - PLUMBING STOPPAGES	21,464	23,243	73,342	139,458	278,926	26%			66,116	47%
MOISTURE INTRUSION - MISCELLANEOUS	7,966	6,565	51,565	39,390	78,786	65%			(12,175)	(31%)
DAMAGE RESTORATION SERVICES	213	11,958	5,371	72,052	144,256	4%			66,681	93%
SUPPL. APPROPRIATIONS	0	0	6,026	6,026	6,026	100%			0	0%
<b>TOTAL CONTINGENCY FUND</b>	<b>\$155,200</b>	<b>\$114,289</b>	<b>\$768,957</b>	<b>\$692,064</b>	<b>\$1,378,283</b>	<b>56%</b>			<b>(\$76,894)</b>	<b>(11%)</b>

**UNITED LAGUNA HILLS MUTUAL  
MAINTENANCE PROGRAMS  
OPERATING FUND VARIANCE EXPLANATIONS  
As of June 30, 2019**

1. **PLUMBING SERVICE**  
Unfavorable variance:
  - (\$212,306) YTD (\$30,411) June  
Staff responded to over 1,100 calls for service during the month of June and outside service calls for jobs that staff cannot complete due to OSHA regulations resulting in a variance for this line item. This trend will continue due to the age of the infrastructure in the community and the continued deterioration as it ages.
2. **CARPENTRY SERVICE**  
Unfavorable variance:
  - (\$32,924) YTD (\$2,893) June  
The unfavorable variance is attributed to the completion of 1,999 service orders to date. Actual expenditures will vary, contingent on the quantity of work orders generated by member request in addition to follow up work requested by in-house divisions.
3. **CONCRETE REPAIR/REPLACEMENT**
  - under 10% variance YTD (\$14,949) June  
Staff focused on concrete/paving improvements in United for the first few months due to liability exposure. Work has slowed down a little.
4. **ELECTRICAL SERVICE**  
Favorable variance:
  - \$57,297 YTD \$7,880 June  
Open employment positions continue to result in a favorable variance.
5. **APPLIANCE REPAIRS**
  - under 10% variance YTD \$5,072 June  
This category is currently in line with the budget.
6. **INTERIOR PREVENTATIVE MAINTENANCE**
  - under 10% variance YTD (\$3,444) June  
This category is currently in line with the budget.
7. **JANITORIAL SERVICE**  
Favorable variance:
  - \$24,054 YTD \$7,726 June  
There are currently a few vacancies in the Janitorial Work Center
8. **PEST CONTROL**  
Favorable variance:
  - \$51,662 YTD \$5,591 June  
Although this expenditure item is distributed evenly by 12 months encompassing both localized treatment of pest as well as fumigation by whole structure tenting, the bulk of this line item is allocated to fumigation by whole structure, which begins in May and runs through October. There is currently a delay in vendor invoicing. Once staff receives all outstanding invoices for work contracted to the outside vendors, the variance should diminish.

**UNITED LAGUNA HILLS MUTUAL  
MAINTENANCE PROGRAMS  
OPERATING FUND VARIANCE EXPLANATIONS  
As of June 30, 2019**

<b>9. GUTTER CLEANING</b> Favorable variance:	-	\$41,234	YTD	\$13,917	June	Although this budget item is distributed evenly by 12 months, this program conducted by outside services does not begin until September and runs through the end of the year.
<b>10. COUNTERTOP/FLOOR/TILE REPAIRS</b>	-	under 10% variance	YTD	(\$1,176)	June	This category is currently in line with the budget.
<b>11. WELDING</b>	-	under 10% variance	YTD	(\$4,344)	June	Overall expenses are in line with budget, expect additional work due to lead abatement and remediation
<b>12. ENERGY PROGRAM</b> Favorable variance:	-	\$16,350	YTD	\$4,166	June	There is a slight delay in invoicing but for the most part the solar equipment has been up and running very well. Our expectation is that this category will remain under budget for the remainder of the year.
<b>13. MISC. REPAIRS BY OUTSIDE SERVICE</b> Favorable variance:	-	\$1,960	YTD	(\$4,550)	June	There is currently a delay in vendor invoicing. Once staff receives all outstanding invoices for work contracted to the outside vendors, the variance should diminish.
<b>14. TRAFFIC CONTROL</b> Favorable variance:	-	\$2,183	YTD	\$115	June	Overall expenses are in line with budget. Delayed invoices should be processed soon.
<b>15. FIRE PROTECTION</b> Favorable variance:	-	\$1,302	YTD	(\$1,929)	June	Inspection and servicing of fire extinguishers started in May. There is currently a delay in vendor invoicing. Once staff receives all outstanding invoices for work contracted to the outside vendors, the variance should diminish.





## **STAFF REPORT**

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**DATE:** August 28, 2019  
**FOR:** Maintenance and Construction Committee  
**SUBJECT:** Copper Pipe Supply Line Leak Report

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### **RECOMMENDATION**

Receive and file.

### **BACKGROUND**

The United Maintenance and Construction Committee requested staff to track leak rates in the Mutual. Staff has since provided a quarterly report to the Committee on this activity.

### **DISCUSSION**

Staff analyzes leak data regularly to efficiently direct work efforts, and funding, towards the upkeep of copper lines in the Mutual. The data analysis indicates a decrease in the number of total interior copper pipe leaks from 2012 to 2016. However, there was an increase in the number of leaks reported in 2017 which has slowly tapered off due to timely repairs and proper maintenance of the existing lines.

Staff graphs the numerical data, and the attached charts indicate the total interior copper leaks recorded and repaired from 2012 through 2019 (Attachments 1-3).

Staff monitors the leaks on an ongoing basis and addresses repairs after detail analysis is conducted specific to each occurrence. An outside annual epoxy-lining contract was awarded by the Board. Staff utilizes these services to adequately and timely address the epoxy lining of pipes meeting specific lining criteria. The 2019 budget of \$250,000 adequately funded ten buildings (39 units). This contract has been executed and was completed in July. The 10 buildings that were completed are: 32, 200, 302, 419, 584, 645, 646, 668, 2023 & 2058.

There are a total of five buildings, housing twenty-eight units within United Mutual which currently meet the epoxy lining criteria for their failing potable copper pipes. Funding has been recommended by staff in the 2020 budget for these remaining five buildings.

Out of 1,124 buildings within United Mutual, only twenty-three have necessitated epoxy lining of their copper lines to date.

### **FINANCIAL ANALYSIS**

There is no fiscal impact associated with this report.

**Prepared By:** Christopher Naylor, Senior Management Analyst

**Reviewed By:** Ernesto Munoz, P.E., Maintenance and Construction Director

**ATTACHMENT(S):**

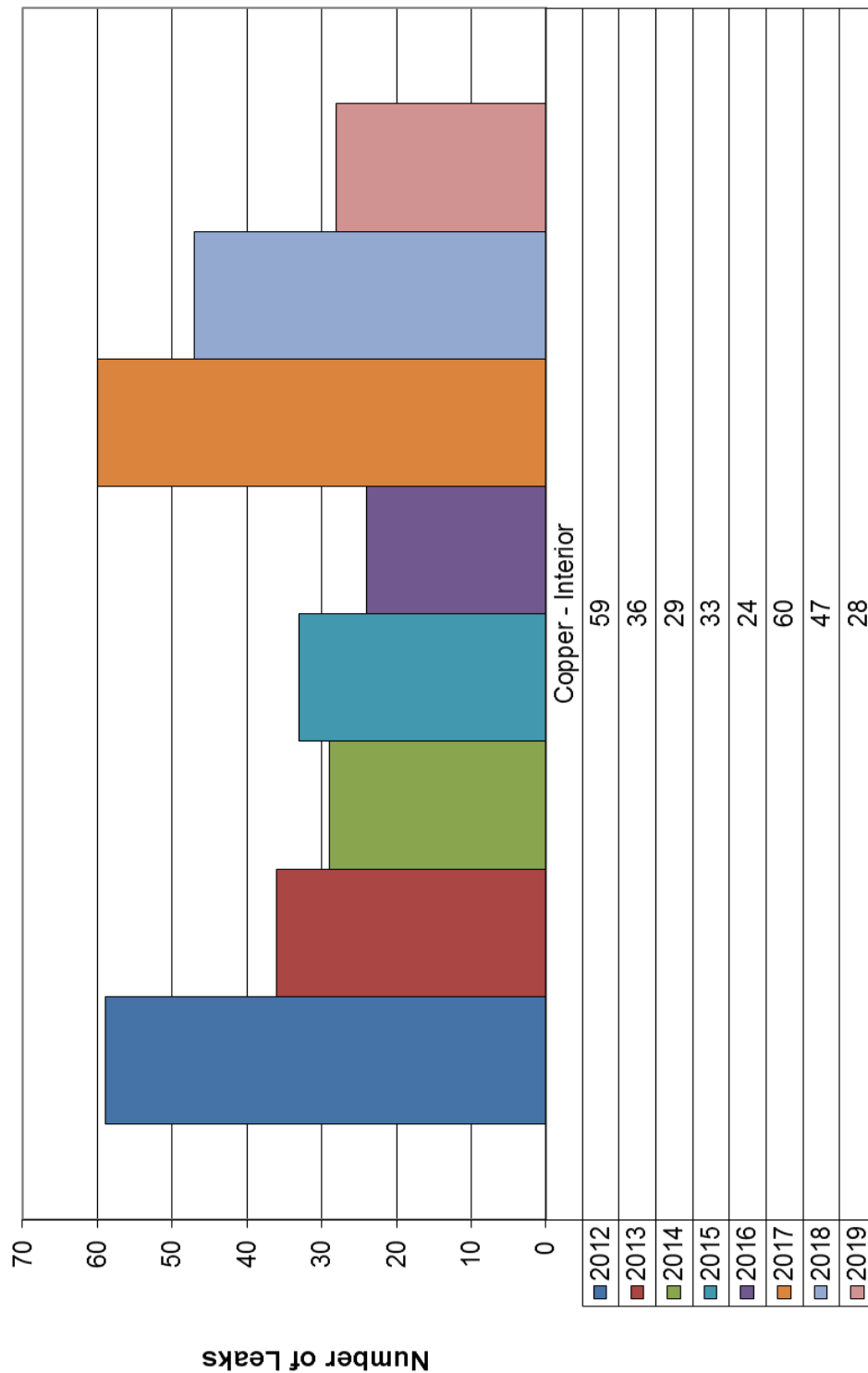
Attachment 1 - Copper Leak Repairs, 2012 to 2019 Q2

Attachment 2 - Copper Repair Plumbing Repair Costs, 2012 to 2019 Q2

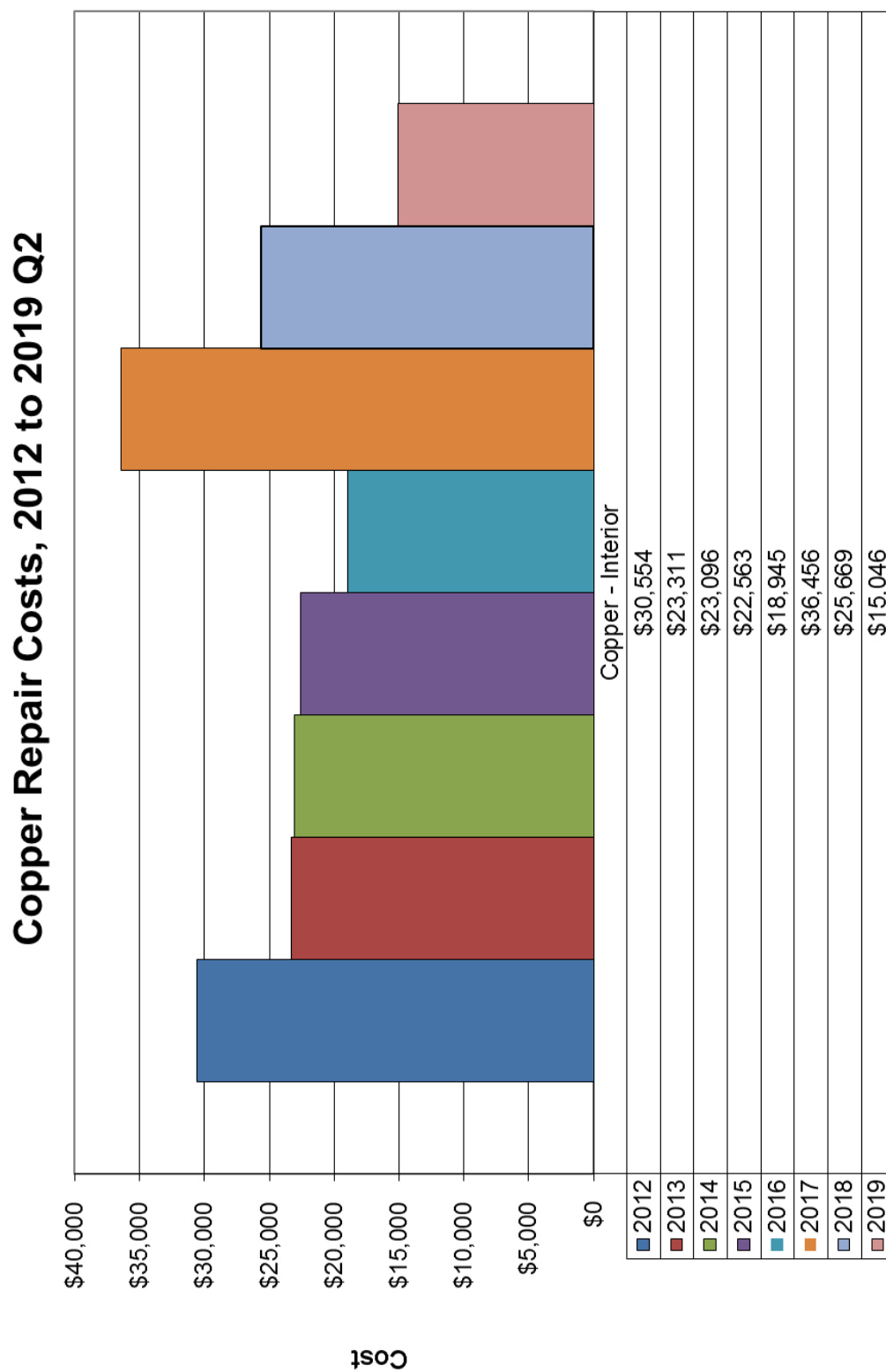
Attachment 3 - Copper Repair Plumbing Staff Hours, 2012 to 2019 Q2

**Attachment 1: Copper Leak Repairs, 2012 to 2019 Q2**

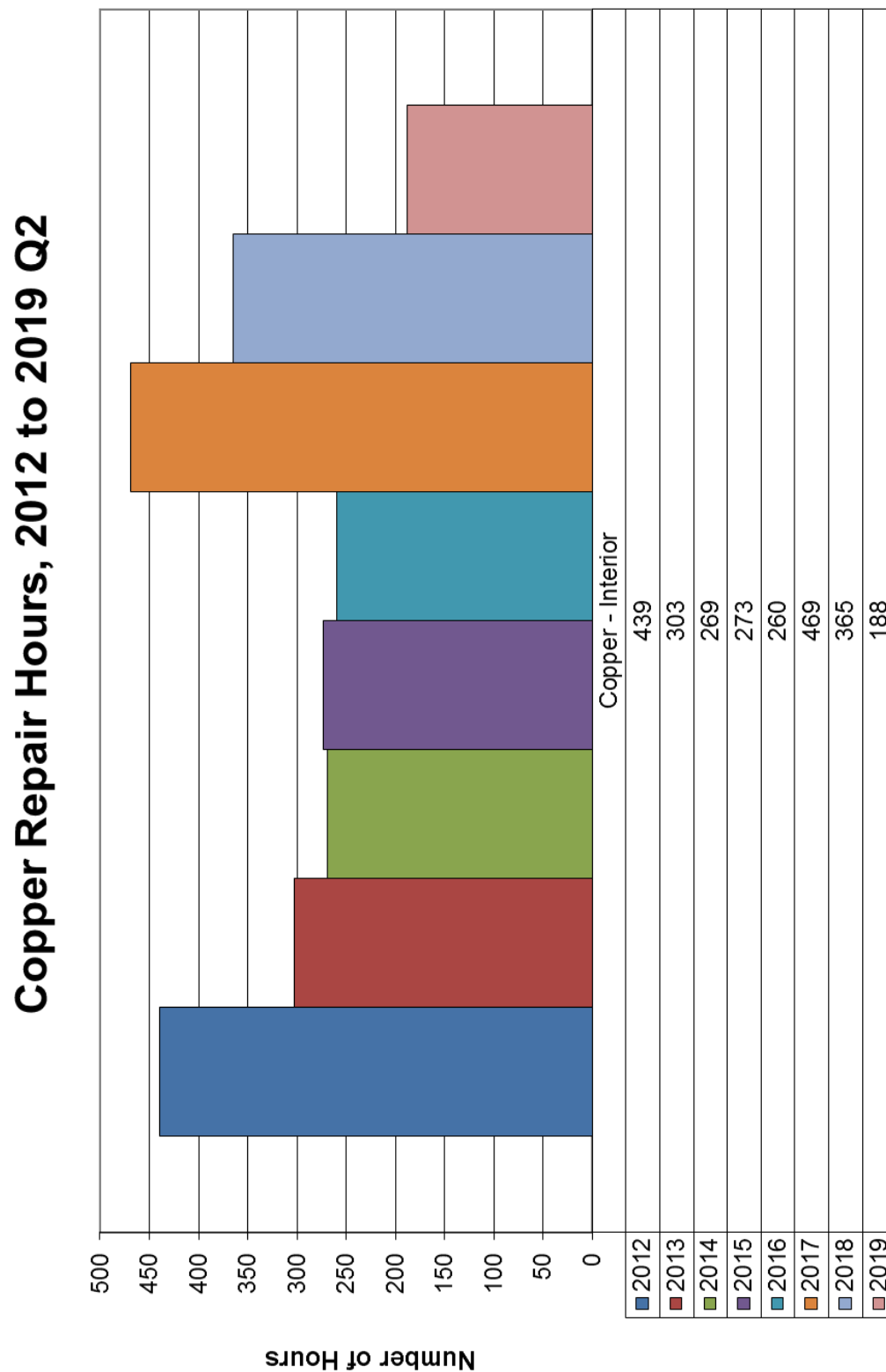
**Copper Leak Repairs, 2012 to 2019 Q2**



**Attachment 2: Copper Plumbing Repair Costs, 2012 to 2019 Q2**



**Attachment 3: Copper Repair Plumbing Staff Hours, 2012 to 2019 Q2**



## United Solar Powerplant Generation

Year One Production		Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
United Mutual Project		12,912	11,266	8,066	6,655	3,790	5,055	6,133	7,970	10,824	12,639	10,582	13,338
23		12,437	10,889	7,971	6,679	3,793	5,054	6,097	7,957	10,509	12,139	10,650	13,769
50		16,209	14,200	10,276	8,626	4,593	5,771	7,561	9,808	13,595	15,689	13,076	16,443
52		14,359	12,308	8,822	7,333	3,984	5,258	6,835	8,847	11,669	13,633	11,379	14,238
88		14,957	12,701	9,181	7,669	4,330	6,301	8,007	10,247	12,945	14,728	12,065	16,594
90		15,993	13,819	10,035	8,359	4,643	6,467	7,996	9,699	12,869	15,056	12,157	9,338
91		14,611	12,319	8,959	7,428	4,256	6,123	7,231	9,173	11,752	13,726	11,960	15,700
92		17,149	14,486	10,562	8,670	4,799	6,771	8,125	10,027	13,430	15,890	13,127	17,190
Total Production of kWh =		118,627	101,988	73,872	61,419	34,188	46,800	57,985	73,728	97,593	113,500	94,996	116,610

Year Two Production		Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19
United Mutual Project		12,808	11,466	9,306	8,418	6,101	5,229	5,623	6,887	10,504	11,168	12,475	11,298
23		13,130	11,695	9,831	8,591	6,143	5,165	5,596	6,536	9,547	10,379	11,250	10,493
50		16,540	14,795	12,026	11,245	7,445	6,091	6,795	8,740	13,088	14,470	15,113	13,896
52		14,280	12,785	10,398	9,544	6,586	5,708	6,105	7,385	10,651	12,542	13,358	12,034
88		16,019	14,617	11,883	10,379	7,601	6,702	6,935	8,640	13,034	14,131	14,905	13,249
90		15,033	13,787	11,200	10,344	7,797	7,010	7,288	8,702	12,811	14,008	14,661	13,148
91		14,822	13,548	10,951	9,414	7,136	6,432	6,841	8,159	11,981	13,263	13,967	10,641
92		16,369	15,066	12,066	10,510	7,924	7,091	7,402	8,931	12,736	14,773	15,223	13,566
Total Production of kWh =		119,001	107,759	87,661	78,445	56,733	49,428	52,585	63,980	94,352	104,734	110,952	98,325
YOY Change =		0.3%	5.5%	17.1%	24.3%	49.6%	5.5%	-9.8%	-14.2%	-3.4%	-8.0%	15.5%	-17.0%

2017/2018 kWh Production	
991,306	
2018/2019 kWh Production	
1,023,955	
YOY Total Change in kWh	
32,649	
YOY % Change	
3.29%	

Lifetime Production	
2,015,261	

## **Solar Panel Task Force Report**

### **BACKGROUND:**

In March 2019, United Laguna Woods Mutual's Board of directors selected a team of five United directors and two VMS directors to form an adjunct task force as part of the United M&C Committee. Its goal was to determine the status of United's currently operating Solar Power Plant and to recommend how to go forward in solving any problems identified in order to get the best productivity from the system in the future.

We had entered into a contract 6 July 2016 with Johnson Controls Incorporated (JCI) to install the solar panels and water heaters for \$3,794,951, and for an additional annual cost of \$16,201 JCI was to provide us a guaranteed production amount of kWh's, if certain contractual obligations were met by United Mutual, JCI, and Phoenix Renewable Service (Phoenix's first year's contract was \$19,616).

The system was activated 9 February 2017. For the first year up through February 2018 we were not getting the kWh's guaranteed nor the related dollar cost savings. JCI has taken the position that they performed all they were required to do under their contract and the decreased production of kWh's was the fault of either United and/or Phoenix for their failure to perform. The task force was convened to study the problem and see if mistakes were made to learn from them and so hopefully avoid making them in the future.

### **HERE IS A SUMMARY OF WHAT WE DISCOVERED**

1. There is a discrepancy in the location of one of the installation sites from the location specified in the contract.
2. The angle of the position of the panels as installed differs from the angle specified in the contract. Being shallower it is less optimal and more susceptible to pooling and requires cleaning more frequently.
3. The trimming of trees shading the new location was not done.
4. Items 1.) 2.) and 3.) resulted in the power plant producing 17.6% less energy than expected under the terms of the contract.
5. JCI was in charge of the installations. The JCI contract required issuance of "change orders" if there were any changes in the installation from that specified in the contract. but no change orders were ever issued.
6. The VMS staff was not given visibility into the project.
7. The assembled United board was not given visibility into the contract. Our lawyers were not given visibility into the contract.
8. The contract was signed off by one individual. No due diligence was applied.

#### OPERATIONAL DATA:

The United Solar Power Plant is made up of 2400 photo-voltaic cells arrayed in four locations ( eight laundry rooms and thirty carport roof locations in four cul-de-sacs) . JCI, the originating contractor, had promised a Yearly Production of 1,236,030 kWh. It has been documented that the production for the past 23 months of operation (from March 2017 through January 2019) is 1,916,936 kWh. This production has saved our local area from a production of 120,000 tons of CO2 in the air. Based on the data, and adjusted by estimated monthly production, the solar power plant is producing 17.6% less than what was guaranteed by JCI. For the 23 months of operation that should have produced solar electricity credits of \$342.053 before deducting SCE solar charges.

#### EXPENSES:

For operating expenses we were charged \$16,201 (first year ) and \$14,642 (second year) by JCI for Measurement & Verification Services, which was required by contract to provide the electric production guarantee, And we paid \$19,616 (first year) to Phoenix to monitor, clean the panels twice a year, and perform corrective maintenance on the plant. Corrective maintenance is performed at an additional cost.

As for the yearly fee we were paying to JCI to provide for a warranty on production and a yearly report, it turned out that the warranty did not warrant anything, because JCI set the terms such that we could not collect on the warranty. So we have recently cancelled this expense, since it was a cost that did not provide us with a benefit. An additional cost to maintain the Power Plant is paid to the Phoenix Renewable Services Company. For \$19.6K per year they monitor the performance of the power plant.

In addition, there was an unanticipated expense that we were hit with since the plant went into operation. This one-time expense was for a six months period where SCE put a software update fee on all solar power generators and a connect fee, which decreased our savings by over \$76K.

#### CONTRACTUAL FINDINGS:

Our expectations were not adequately guaranteed by the wording of the signed United installation contract with JCI. It seems that this contract was not fully vetted as outlined in United's governing documents. In accordance with our current governing documents, no contract should be entered into without VMS staff involvement. In addition, all contracts of this value should have a thorough reading and consultation with an attorney. The task force has been told that VMS informed the United board of directors that VMS was already involved with the solar project for Third Mutual and did not have sufficient staff to take on the solar project for United. Unfortunately, United chose not to follow proper protocol , such as putting VMS staff in charge of the project, getting advice from legal counsel and using prudent business practices.



Unfortunately, this methodology seems to have not been followed at the time of the execution of the contract in question, consequently, this leaves us with a contract that does not give us any power to go after JCI for a system that does not provide us with the power levels that were anticipated. <sup>1</sup> The Certificate of Final Completion, which accepted the solar panel project as complete and released to JCI, was signed by a United director without consultation and approval of the Board. And this leaves United no recourse with JCI.

In addition to the foregoing, it also has been determined that changes were made to the original design that were not documented in change orders, and if there was any documentation regarding these changes, it cannot be found at this time.

<sup>1</sup>This occurred during the transition from PCM to VMS, and as such, this may have been part of the reasoning for why that did not happen.

#### INSTALLATION SPECIFIC FINDINGS:

- During the installation process, the location of the solar panels was moved and the rationale and reasoning for this move are not documented.
- During the installation process, JCI directed United as to where we needed to prune and remove trees in order to maximize the sunlight to the panels. We made the changes that were asked to be made, however, when we informed JCI that the panels were not producing what was expected, JCI noted that it was because of trees that were obscuring them.
- As a part of our discussions with JCI during the installation process, they indicated that the panels needed to be cleaned once a year in order to ensure that the dirt on the panels would not obscure the sunlight to the panel. We followed that protocol, however, when we informed JCI that the panels were not producing what was expected, JCI noted that it was because the panels were dirty even though we were following their cleaning protocol.
- It has been noted that there are some trees that are partially shading the panels at certain times of the day, and at one site this has resulted in a 6% loss of power production. The landscape crew has taken care of those trees, and are aware that yearly we will need to inspect the areas for shading and continue to keep the trees from shading the panels. (See Tree Work Table below)
- The design specified a 5 degrees slope on the panels. There are no change orders indicating why the panels were constructed at 2 degree which affects the cleaning and diminishes the productivity. This is another example of a change being made without documentation.

#### FOLLOW THROUGH:

We met with Phoenix Renewable Services Company, our maintenance and monitoring contractor, and requested that they provide us with the following:

1. A monthly report of kWh that is being produced by panel site. This information will be presented at the United M&C meeting.
2. Assist us in setting up the Locus software with threshold data so we can have a quicker response time to problems and can determine if cleaning is required more frequently than the current twice a year interval.
3. Calculate the effects on power production of deep cleaning the panels twice a year so we can determine cost effectiveness of cleaning the panels more frequently.
4. Provide us with a recommended spare parts list that we should have on hand so we can quickly respond to part failures and minimize the down time of the plant and the loss of power production.
5. Provide a troubleshooting procedure that we can have VMS personnel perform before requiring a Phoenix technician to come to the site
6. Give us a list of their preferred Solar System Providers so when we are ready to install additional panels in the future, we have a starting point

#### ONGOING ISSUES THAT NEED ASSESSMENT:

There are still some issues that we will need to address in the future, e.g., the shading of the panels by trees and additional cleaning that may be required. We have put forth a plan whereby there is a person on VMS staff who is appointed as the plant manager and is co-monitoring the system with Phoenix. As noted above, we have canceled our contract with JCI because we felt it was not providing any value to us by just providing a yearly report. We will need to renegotiate the contract in August with Phoenix Renewable Services Company to clean and assist in the monitoring and will in the future, if necessary, draft a purchase order for them, if there are needed repairs that our staff cannot handle.

Other aspects the task force looked into was whether we qualify for a tax rebate, however it was determined that based on our tax status, we do not.

We also considered whether our current method for monitoring the system could be more effective. There are some glitches with the monitoring system due to intermittent communication problems. The LOCUS software provided with the system is excellent, and we need to address the implementation of a more effective alarm system,

In the future we will want to look into the need for a battery backup so we can smooth out the usage of the system. The battery backup can help us to achieve a not to exceed Tier 1 rate from SCE. We may even look into the benefits of installing a micro-grid. These will be issues that will be addressed by the Energy Task Force.

At present, this project does not appear to be a good investment based on the results of the first year of operation.

Here is a tabulation of the first year of operation.

Investment in Solar Panels	\$3,794,951
Estimated Life of Solar Panels	30 Years
Operating Expenses	
JCI	\$ 16,201
Phoenix	<u>\$ 19,616</u>
	<u>\$ 35,817</u>
SCE Credits Earned	
SCE Credit	\$151,210
SCE Fixed Charges	<u>\$ (76,477)</u>
SCE Net Credits	<u>\$ 74,733</u>
SCE Credits Earned Less Operating Expenses	<u>\$ 38,916</u>
Percentage Return	1.0255%

With anticipated future higher SCE electric rates, no extra charges from SCE and the cancelation of the JCI contract; the Solar power plant may provide us a better return on investment. Currently the results are not what was expected, but and when the rates we hope the return will improve. It also has a positive effect on our carbon footprint.

## LESSONS LEARNED

1. No contract should be entered into without VMS being responsible for all aspects of it.
2. No contract should be entered into without a reading by the treasurer and one other director (who approve expenditures from reserves as required under Davis-Stirling).
3. Before signing the contract all directors who choose to do so , are given the opportunity to review it prior to the signing,
4. Before signing the contract, all questions or ambiguities brought up by any director must be satisfactorily answered or explained by VMS staff and/or legal counsel.
5. A Return on Investment or appropriate analysis must be provided on all expenditures (greater than \$100,000 ) for projects approved by the board prior to signing a contract.

6. No changes to the contract are to be allowed without the execution of a change order authorizing the change in the work and subject to approval by the board of directors prior to the issuance of the change. There is no documentation or authorization for any changes in the JCI contract. Per the procedures that would have been used with VMS today, all changes are documented and a package of documents surrounding the execution of a contract is maintained by VMS. This did not appear to happen with the execution of this contract, but would have happened today if the contract were executed today. Lessons learned from the foregoing is that every new contract needs to be executed in accordance with current procedures and governing documents in order to preclude these mistakes from happening again. Based on a review of the protocols that are followed today, that appears to be happening.

### United Solar Panel Tree Work 2019

Date	CDS	Type of Work	Tree Name	Quantity	Cost
4/4/2019	10	Removal	Sik Oak Tree	1	\$562.50
4/4/2019	10	Crown Reduction	Crape Myrtle Tree	1	\$112.50
4/4/2019	10	Crown Reduction	Flaxleaf Paperback Tree	1	\$225.00
4/3/2019	28	Removal	Canary Island Pine Tree	2	\$900.00
4/4/2019	28	Crown Reduction	Jacaranda Tree	4	\$562.50
4/4/2019	28	Crown Reduction	Fern Pine Tree	3	\$281.25
4/4/2019	28	Crown Reduction	Crape Mrytle Tree	3	\$225.00
4/5/2019	38	Remove	Cajeput Tree	1	\$506.25
4/5/2019	38	Remove	Silk Oak Tree	1	\$393.75
6/5/2019	38	Remove	Crape Mrytle Tree	1	\$281.25
6/5/2019	38	Crown Reduction	Crape Mrytle Tree	2	\$168.75
Total				20	\$4,218.75

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