

**Appendix to the
Ad Hoc Technology Committee
Report**

To the

**Golden Rain Foundation
Board of Directors**

Submitted December 2018

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Project Title: Autonomous Vehicle Developments	
Status GRF:	Status Committee:
Project Sponsor:	Kelso and Heinz Category: Transportation
Time Frame:	Soon Importance: Medium
Community Objective THE WHAT	1.To develop a list of requirements to be met by any company proposing to test or run a pilot program with autonomous vehicles in Rossmoor. 2. To decide if GRF should be proactive in seeking test projects.
Target Client THE WHY	1. To protect GRF and residents we need to make sure legal, insurance and regulatory conditions are met. 2. Autonomous car companies with technology that needs to be tested.
Key Technology and Features THE HOW	No special technology required to develop the list of requirements.
Crucial Factors DETAIL OF HOW	<p>Currently fully autonomous vehicle operation is far from perfect, but it is evolving quickly. For each proposal a decision will need to be made as to whether the potential for accidents and problems outweighs the potential benefits to GRF and residents. It is unclear if anyone on staff has the knowledge to make such a determination. It is impossible to fully establish the requirements in advance since the technology and regulations are evolving so quickly and the particulars of any proposal can vary so much.</p> <p>There are two scenarios envisioned.</p> <ol style="list-style-type: none"> 1. A company wanting to test its technology in Rossmoor with no services offered to the residents. 2. A company wanting to pilot a service in Rossmoor that would provide services to the residents. <p>Scenario one, technology testing- Insurance requirements:</p> <ul style="list-style-type: none"> o Establish a minimum dollar amount of insurance required as well as language of coverage. Consult with our insurance agent as to the sufficiency of the insurance provided. (Waiting on comments from GRF broker.) (The Villages required 5 million dollars of liability and 7.5 million for auto insurance.) o GRF to be fully indemnified and held harmless o Workers compensation coverage should be included for any employees, drivers, etc.

	<p>Government regulations:</p> <ul style="list-style-type: none"> o Any vehicles and testing procedures to be fully compliant the California vehicle code. These codes will probably be changing quickly. A review will need to be made at the time of a contract proposal. o Federal rules? There are no current Federal rules that would apply. <p>Operational considerations:</p> <ul style="list-style-type: none"> o Hours and days of operation o possible limitations during special events o Location of parking for vehicles when not in use o If electric where will vehicles be charged? Will they be allowed to use GRF's PGE installed chargers? o Process for vehicle repair and maintenance. o Problem reporting process o Term of agreement and termination process for cancelling the contract early. o Community education program o Will the company need a small office as in the Villages. o The Villages structured the agreement to be a license to use the streets for a specific time that can be renewed. o The Villages limited the number of vehicles. o Require employees to be identifiable so residents know who is working for the company. <p>Financial considerations:</p> <ul style="list-style-type: none"> o For testing programs GRF should be compensated for any testing. Staff will be spending time on the project. <p>The CEO and GRF attorney will be negotiating the contract.</p> <p>The Public Safety manager will be reviewing all procedures.</p> <p>Staff will be reviewing parking, charging, etc.</p> <p>Some technical review will need to be done by staff or consultant.</p> <ul style="list-style-type: none"> o Non-monetary compensation. <p>Companies should be encouraged to include residents in the testing.</p> <p>Companies should be encouraged to offer Rossmoor residents early access to the technology if appropriate.</p> <p>Scenario two, pilot programs-</p> <p>Insurance requirements will be mostly the same with the possible addition of coverage for passengers or contents.</p> <p>Governmental regulations will be much the same with the possibility of additional requirements that might be needed to carry passengers.</p> <p>Operational considerations will be mostly the same with the addition of expanded community education and interaction needed for community involvement in the pilot. The Villages screened residents for participation at first.</p> <p>Financial considerations will depend on the actual services provided to residents. If the services are minor or restricted to a</p>
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	<p>small number of residents then compensation should still be part of the contract. If the services provided are significant then compensation could be waived at the discretion of the GRF Board. Non-monetary compensation would be much the same but with even more opportunity for resident participation. Staff should encourage resident participation during initial discussions.</p>
Relevant Numbers	<p>Since each scenario could vary significantly the compensation component will vary.</p>
SOLUTION: BENEFITS TO USERS	<p>Possible monetary benefits to GRF</p> <p>Possible early access to technology that might help residents.</p> <p>Possible services provided to residents.</p>

Project Title:	BI Business Intelligence: DSS Decision Support Systems		
Status GRF:	Status Committee:		
Project Sponsor:	Chris Slee	Category:	
Time Frame:	Immediate	Importance	High
Community Objective THE WHAT	<p>Purpose: Enable management to get quicker insights and make better decisions</p> <p>Processes: investigative analytics,</p> <ul style="list-style-type: none"> • use of Key Performance Indicators [KPI]¹² and Dashboards <ul style="list-style-type: none"> ○ E.g. in the '80s, Motorola introduced the Quality 5-up, 5 KPIs to drive better quality and performance • Probably don't exist much as this is extremely labor intensive without these tools, especially using them on a regular basis • Usually limited to basic reports and Excel exports <p>Problems addressed:</p> <ul style="list-style-type: none"> • Information overload, inconsistencies, exception detection and management <ul style="list-style-type: none"> ○ E.g. the monthly reports used by GRF • Data integrity and inconsistency from multiple sources <p>No-one runs a nuclear power station without a dashboard!</p>		
Target Client THE WHY	<p>Management: Board and Senior Staff. Mutual Boards.</p> <p>Residents: some 1000's who want to better understand how Rossmoor performs and where their money goes</p> <p>User Practices: Simplify review of complex data and documents</p>		
Key Technology and Features THE HOW	<p>Key Features: See Error! Reference source not found.</p> <p>Key Technologies: [See one company's progression]³</p> <ul style="list-style-type: none"> • Reporting ... typically directly from the main database [Operational Data Store in DSS/BI terminology. First early step • ETL [Extract Translate and Load] to create analysable data [1+ sources] • DSS/BI to report, highlight and present information for insights <ul style="list-style-type: none"> ○ Using a Data Warehouse designed for analytics using star schemas ○ Data visualization ○ Dashboards • OLAP cubes [online analytical processing]⁴ <ul style="list-style-type: none"> ○ SAS like [later]: statistical analysis software, correlations 		

¹ Performance Indicators ... see https://en.wikipedia.org/wiki/Performance_indicator

² Examples: <https://www.klipfolio.com/resources/kpi-examples>

³ http://pugchallenge.org/2012PPT/PUGChallenge2012_OpenSourceBI.pdf

⁴ An **OLAP cube** is a multidimensional database that is optimized for data warehouse and online analytical processing (**OLAP**) applications. An **OLAP cube** is a method of storing data in a multidimensional form, generally for reporting purposes. In **OLAP cubes**, data (measures) are categorized by dimensions. ... see searchdatamanagement.techtarget.com/definition/OLAP-cube

	<p>Potential Vendors</p> <ul style="list-style-type: none"> • Crystal Reports, Domo, Pentaho, Tableau, Sisense, etc.⁵ • Talend, Pentaho Data Integration <p>Specific Features: N/a ...</p> <p>Benchmarks:</p> <ul style="list-style-type: none"> • Tahoe-Donner dashboard⁶ • CA Schools⁷ • Any company!!!
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>Interactions, Dependencies:</p> <ul style="list-style-type: none"> • With operational system • <i>Obstructed, defeated if outsourced / remotely hosted applications do not grant access to databases and/or hide data structures</i> <p>Reliability and quality: Could be used to improve issues with data quality in Jenark</p> <p>Database Conversions etc.:</p> <ul style="list-style-type: none"> • No the Opposite. Operational systems are left in place, even • ETL is used to extract, transform [clean, consolidate] and load into data warehouse etc. <ul style="list-style-type: none"> ○ Could also be used to retroactively clean data in Operational DBs <p>Maintainability (likelihood that support will be available in future):</p> <ul style="list-style-type: none"> • well established, proven over 20+ years <p>Potential for design growth or modification</p> <p>Ergonomics: User experience design is critical to adoption</p>
<p>Relevant Numbers</p>	<p>What is the overall size of this project and can it have a phased implementation?</p> <ul style="list-style-type: none"> • This is heavily dependent on the approach chosen and skills available. Like other IT projects, this is an ongoing PROCESS, not an implementation PROJECT <p>Cost – both upfront and ongoing: Open source is free. Analytics tools are sold per seat per month⁸ \$50-100 per user/month. Or flat fee (e.g. Domo \$2,000) More TBD</p> <p>Cost savings: Potentially very significant. E.g. 30% of the water at M68 wasted!</p> <p>Implementation budget: depends on skills and support mechanisms</p> <p>Time to implement: 1-2 months to start, ongoing PROCESS</p> <p>Contract negotiations: yes, but not to start if using Open Source Solutions</p>
<p>SOLUTION</p> <p>BENEFITS TO USERS</p>	<p>Extract, cross-reference and consolidate data from multiple sources</p> <p>Analyse and highlight anomalies to facilitate regular insights</p> <ul style="list-style-type: none"> • Simplify Board reviews to replace lengthy “flat” reports • Dashboards of critical functions, with highlighted exceptions • Visualize Key Performance Indicators⁹ [KPIs], information and insights¹⁰ • Balanced Scorecards

⁵ See Gartner Magic Quadrant in accompanying graphics

⁶ <http://www.tahoedonner.com/wp-content/uploads/2018/02/DR1-1.pdf>

⁷ <https://www.caschooldashboard.org/#/Details/07617546004360/3/StudentGroupReport>

⁸ <https://www.geekwire.com/2017/tableau-software-continues-move-to-subscription-model-releases-new-prices-for-data-visualization-products/>

⁹ <https://kpidashboards.com/kpi/>

¹⁰ <https://kpidashboards.com/tour/#reports>


- "A recent global study by Bain & Co listed balanced scorecard [BSC] fifth on its top ten most widely used management tools around the world, a list that includes closely-related strategic planning at number one. BSC has also been selected by the editors of Harvard Business Review as one of the most influential business ideas of the past 75 years."¹¹ [Original concept behind use of KPIs and Management Dashboards produced by BI Analytics]

Support ad-hoc analyses and reports for investigations
Bottom line: Power Tools to Empower management and residents to

- Understand and manage complex situations
- Uncover both opportunities and problems
- Drive accountability and improve performance

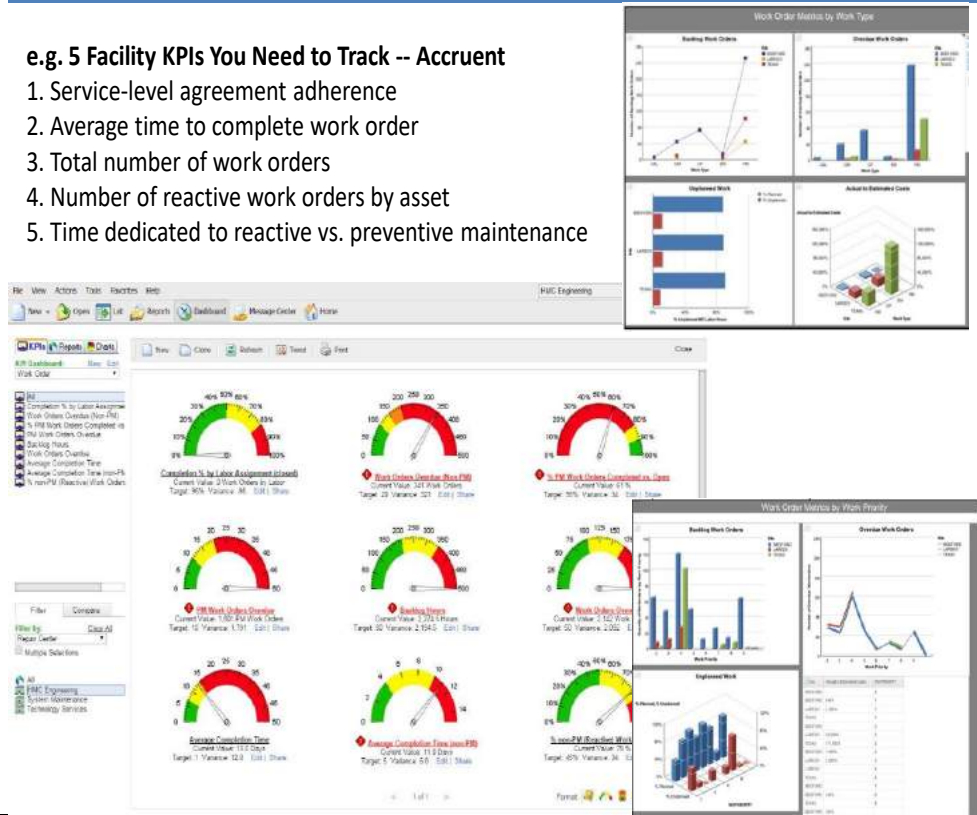
APPENDIX

Decision Support Systems [DSS] / Business Intelligence [BI] examples


DSS Work Order KPI Dashboard

e.g. 5 Facility KPIs You Need to Track -- Accruent

1. Service-level agreement adherence
2. Average time to complete work order
3. Total number of work orders
4. Number of reactive work orders by asset
5. Time dedicated to reactive vs. preventive maintenance



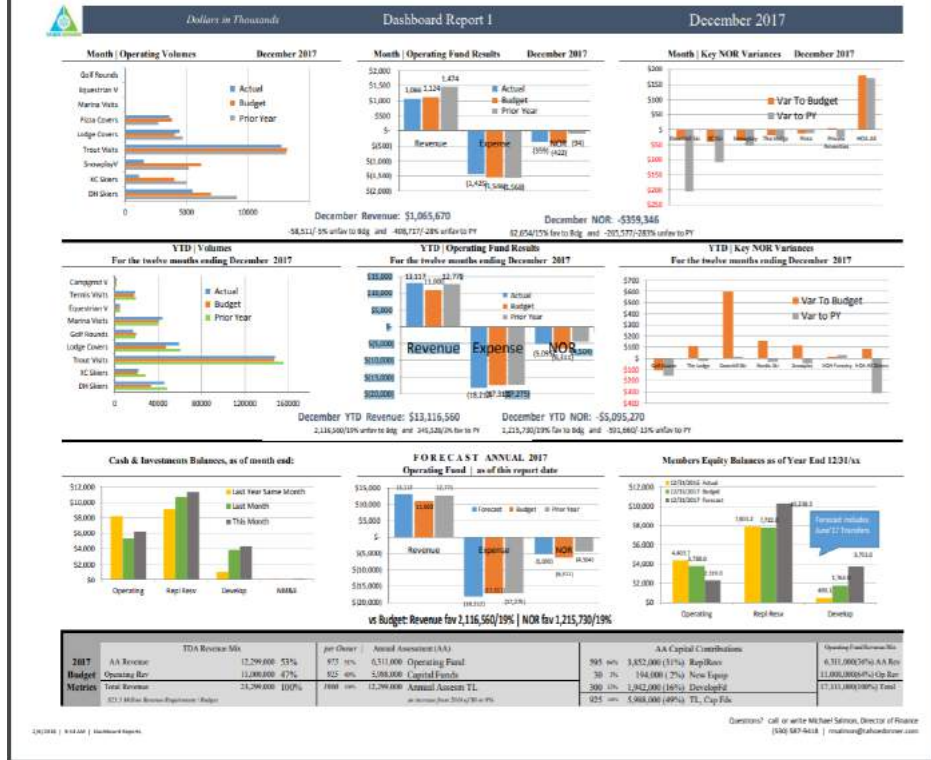
The dashboard screenshot displays a grid of KPIs. Key metrics include:

- Completion % by Labor Assignment:** A gauge showing 70% completion, with a target of 80%.
- Backlog Work Orders:** A gauge showing 127 work orders, with a target of 127.
- Average Completion Time:** A gauge showing 11.9 hours, with a target of 5.0 hours.
- Work Orders Completed on Time:** A gauge showing 61% completion, with a target of 80%.
- Work Orders by Asset:** A bar chart showing the distribution of work orders across different assets.
- Work Orders by Priority:** A bar chart showing the distribution of work orders by priority level.

¹¹ <http://www.balancedscorecard.org/BSC-Basics/About-the-Balanced-Scorecard>



Business Intelligence Dashboard Tahoe-Donner



DSS Benchmark: CA School Dashboard





DSS/BI Data Visualization Examples

Dollars in Thousands Dashboard Report 1 November 2017

November Revenue: \$270,552
November NOR: -\$665,872

12,3642% var to Bdg and -31,114/-10% var to PY

1,1281% var to Bdg and -85,045/-18% var to PY

For the eleven months ending November 2017

For the eleven months ending November 2017

For the eleven months ending November 2017

Name	Metric	Raw	Percentile
Corey Dickerson	Age	27	53%
	G	148	82%
	PA	548	76%
	1B	62	60%
	2B	36	94%
	3B	3	73%
	HR	24	85%
	18%	50%	5%
	28%	29%	95%
	38%	2%	66%
	HR%	19%	80%
	XBH%	50%	95%
	BB%	6%	24%
	K%	25%	30%
	AVG	0.245	42%
	SLG	0.469	80%
	ISO	0.224	86%
	BABIP	0.285	38%

FORCAST ANNUAL 2017
Starting Fund 1 as of this report date

Revenue for 1,900,000/17% | NOR for 1,000,000/16%

Operating Fund
Capital Funds
General Assets TL

AA Capital Contributions:
555 m, 3,853,000 (31%)
39 m, (94,000) (2%)
303 m, 1,942,000 (16%)
925 m, 3,989,000 (69%) TL Cap Exp

Members Equity

Overview

Project Title: CAM/Resident Services Software			
Status GRF:	Current	Status Committee:	Complete
Project Sponsor:	Mary England Della Temple	Category:	IT
Time Frame:	1-3 Years	Importance	High
Community Objective THE WHAT	<p>The Jenark Property Management system has been operational in GRF for 20 years, and includes software modules that support accounting, property management, HR and inventory. Because Jenark (now Corelogic) is lacking in key functionality around access control systems, gate control, event management and golf pro shop needs, over the years GRF has added six additional application databases to support these functions.</p> <p>Moreover, most of these databases do not talk to each other, requiring GRF and MOD staff to develop certain “work arounds”, often physically walking documents from one office and one database to another.</p> <p>The inefficiency, redundancy, and time spent is hard to quantify but very obvious. Something must change.</p> <p>Along with this, most active adult communities, ours included, are moving to a “member or resident based” secure website that offers members the ability to sign up and pay for a recreation or fitness class online, submit a work order request from their smart phone, or book a tee time without calling the Pro Shop.</p> <p>In fact, a number of GRF Ad Hoc Technology Committee projects involve either interfacing or impacting how Jenark software functions within GRF/MOD. Some of these projects include:</p> <ol style="list-style-type: none"> 1. Online Event Management 2. EFT Capability 3. Electronic Signature-DocuSign 4. Website Redesign, Member Portal 5. Database Synchronization/Integration 6. Online Work Order/Property Management System 7. Document Scanning & Online Retrieval 8. Decision-Support/Business Intelligence 9. Modern Web Infrastructure 10. Upgrade Rossmoor News to “Smart Technology” <p>The GRF Board has the following choices:</p> <ul style="list-style-type: none"> • Integrate the existing 7 databases (covered in a separate project report) or • Find an accounting/property management software package that accepts information (through a function called “batching”) from specific resident-centered software applications or 		

	<ul style="list-style-type: none"> • Find a complete one-database integrated solution that supports accounting, property management and member/resident services functionality, or • Build customized interface between a new property management program and a couple of the existing databases. <p>This Technology Project Description provides the background on first steps towards finding a new accounting, property management and resident services solution.</p>
<p>Target Client</p> <p>THE WHY</p>	<p>With 7 databases it's nearly impossible to synchronize data and information in order to provide answers to basic questions. What if we had an integrated database solution that could provide a cross-section of useful information?</p> <p>What if in our future....</p> <ul style="list-style-type: none"> • A Mutual President's personal dashboard allowed her to check on how many sales closed yesterday, the status of outstanding work orders in a certain project, or how many rental agreements were expiring within the next week? • What if the GRF Board members could instantly see the cost per round of golf played or the cost of a bus ride? • What if a member/resident could monitor the progress of a submitted work order by smart phone? <p>All this is possible with the right combination of property management and customer-centered software applications.</p> <p>In addition to ease of use and more effective data analysis, one could likely expect increased efficiencies in GRF/MOD operations with a one or two database solution, resulting in reduced coupon payments for Member/Residents of GRF.</p> <p>Additionally, it should not be overlooked that expectations of Prospective Buyers have changed over the last couple of years. New buyers (current residents too) want fast, efficient, accessible information on technologies that are in real time. In choosing among communities, those that offer mobile connectivity project a "young, vibrant and forward-thinking" image. Who doesn't want to be a part of that?</p>
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>What Software Solutions Are Similar Communities Using? (Details in Exhibit A)</p> <p>To determine what key technology and features are a good fit for our "young, vibrant and forward-thinking" member/residents, GRF does not need to reinvent the wheel. We can look to other 55+ communities and learn from their experiences.</p> <p>To that end, we've contacted the IT staffs at 6 Leisure World communities, 6 Sun City communities, 2 additional over 55 communities and 2 multi-generational Property Owner Associations. We've asked the following questions:</p>

- What accounting/ property management program are you using?
- Do you offer a “resident portal” on your website and what services do you provide through that connectivity?
- Did you design your own system? Or, if you purchased a software package – which one and how’s it working?
- Do your databases talk with each other? How?

With this information in hand, our next step was to interview prospective vendors. We interviewed the 10 most promising vendors. We asked each vendor whether they could accommodate Rossmoor's unique membership requirements and work order requirements and in the Recommendation section present configurations that to the best of our knowledge would be a good fit for our community.

Vendor Infrastructure and Technical Platform Considerations (Details in Exhibit B)

In interviewing vendors, the following infrastructure/ platform questions have been asked:

1. What is your Data & Network Security?
2. What Database system do you operate on (System Query Language?)
3. Vendor Hosted Database Applications, Cloud-based?
4. Are Applications, Modules fully integrated into 1 Database?
5. Do you have any Accounting/Budgeting module forecasting tools?
6. What is Business Continuity, back-up, Recovery plan?
7. How scalable is your solution?
8. Can you support one Master Member & 30 HOA Member Files?
9. How many unique classifications in your Membership Files?
10. How do you support data conversion from existing applications to your solution?
11. How frequently do you upgrade?
12. Looking forward 3-5 years, what is in your development pipeline?
13. How do you customize client requirements?
14. Do you have integrated member/resident portal to provide services online, in real-time?
15. Can you schedule, reserve, book, pay, confirm scheduling, calendaring online?

Property Management/CAM Solutions

- **Caliber is an accounting software product with fully integrated property management features.** It offers robust accounting and property management features including a portal that enables homeowners and board members to access information in real time. Homeowners can view their accounts and pay online, view compliance issues including copies of compliance letters, view maintenance issues including submitting service requests, update profile information, and view

documents. Mutual Board members can view compliance and maintenance issues for the entire association, view and approve (or reject) invoices, view delinquent accounts and view board-only documents. Features can be enabled or disabled individually and are secured with proper permissions and encryption. This application is primarily an accounting/property program with a few resident services features. It may be possible to pair with another application offering more robust golf and recreation features.

<https://www.youtube.com/watch?v=cDOqGNP91O8>

- **Buildium – a cloud-based property management software program.** Residents can submit maintenance requests and upload photos directly from phone or tablet. They can see when an item has been assigned to a technician and view status updates. This application, like Caliber, is primarily an accounting/property management program with a few resident service features. However, it does not support an Open API.
- **Microsoft Dynamics GP (Great Plains) is a financial accounting project management system** originally developed by North Dakota-based Great Plains Software and was acquired by Microsoft in 2001. Microsoft Dynamics GP has applications for financial management, project management with job costing, human resources management, business intelligence, collaboration, compliance and IT management. It's intuitive and easy to use because it looks like, and works with, other familiar Microsoft technologies, such as Microsoft Office. Modules can be purchased separately, along with hundreds of third-party applications which can be added to the system to fit additional needs. The system can be deployed on-site or hosted for a monthly fee. This application directly integrates with Total e Integrated (discussed below), offering a full suite of resident service modules, including golf and recreation.
https://www.youtube.com/watch?v=bToyogAM_uY.
- **TOPS [ONE] is a web-based platform for community association management.** Unlike the property management software that caters to the variety of users, TOPS [ONE] serves only community associations. The dashboard offers various custom fields to track details like house numbers, parking spots, and other owner details. The real-time alert feature allows sending alerts/reminders to both owner and tenants about maintenance schedules or other activities. Other features include ad hoc reporting, role-based permissions, activity logging and automatic notifications. An issue is that in rolling out this updated version of their original TOPS program, there are lots of bugs, including problems with ACH reporting and slow return of calls to support. TOPS[ONE] does not include a golf or recreation

module however they support an open API and have vendors in the golf and recreation field that interface.

- **Yardi Voyager Condo, Co-op, and HOA management is a browser-based software system**, to efficiently manage condominiums, co-ops, and homeowner associations. Powerful, fully integrated, and intuitive in its design, the cloud-based platform provides strong functionality in property management and accounting, and includes ownership tracking, automated fee charges, portals for resident services such as online payments and document and certificate processing. The Advanced Maintenance module provides complete scheduling, tracking and management of routine and emergency maintenance tasks. A location tracking feature allows you to match technicians with tasks, ensuring rapid response to emergency requests. Inventory consumption in the maintenance process is automatically tracked and recorded in Yardi Voyager. Yardi Voyager does not include a golf or recreation module.
- **Northstar – one database, no batching, all in one software package from accounting to resident services.** NS Office is the backbone accounting module and CAM Management is the property management module. There are 25 other modules from which to choose. Book tee times, sign up online and pay for rec or fitness classes. Club Now mobile app acts as access control so no need for separate ID cards. Membership profiles allow for members to communicate with other members directly. In our research we talked with two communities that are either currently using Northstar or have used it in the past. One was happy with the product and is using all modules, the other was not and has chosen to limit their usage to the resident services module.
- **Jonas – one database, no batching, all in one software package from accounting to resident services.** Over 60 modules including property management, payroll and accounting, along with golf and recreation. Recreation and fitness classes can be scheduled online or with an app on your phone. Tee times can be booked that way too. The communities we talked with found Jonas provided excellent customer support. A deeper dive into the property management module is warranted. http://www.jonasclub.com/Software-Solutions/Jonas_Club_Management.aspx

Resident Services/Activity Management Programs

- **Front Steps/Association Voice is a resident information platform that integrates with Jenark and Caliber.** Interactive community newsfeed, email, voice, text notifications, and a calendar of events. Scheduled maintenance, events, or emergencies. With a centralized inbox, multiple community managers can work as a team to maintain clear communication. Residents can also pay dues online and fill out an online work

	<p>order form. It is not as full featured as some of the newer resident service platforms and does not have features for golf, recreation or fitness.</p> <ul style="list-style-type: none"> • Total eIntegrated (TEI) is a Club membership software package that “batch” integrates with Microsoft’s GP Dynamics. The Total e Integrated suite offers a wide variety of resident management systems that can be purchased modularly. The modules eGolf, and the TEI member portal allow residents to book tee times online, receive news and announcements via a social networking platform, and stay current on classes and events within the community. Ability to develop membership types with extensive privilege controls to amenities, services and more. The property management module acts as the main resident and property database. Because this software program “batches” with Microsoft Dynamics, information is entered once, preventing data entry errors and saving staff time. The communities we talked with raved about the customer support that Total e provides and said their golf pros really liked the Total eGolf module. YouTube Total eGolf: https://www.youtube.com/watch?v=AqeqJ4dilm8 <p>Vermont Systems – Similar to Total e Integrated, a Recreation, Activity Management Software application. Separate modules provide specificity of services. MainTrac provides ability to track work orders, do asset management and other functions. RecTrac, FinTrac, and Golf Trac are other modules. Does not directly interface with outside property management /accounting applications. Would have to export and then upload manually. GRF’s senior staff previewed this program last year and did not choose to pursue and we concur.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>If the choice is made to continue to evaluate new software options for GRF/MOD, some initial questions must be answered first:</p> <ol style="list-style-type: none"> 1. Does Jenark provide accurate data and support efficient work flow? 2. Is Jenark the preferred property management program for the foreseeable future? If so, could the most serious work-arounds be solved by integrating or interfacing with only a couple of the 7 databases, leaving the others standing alone for now? 3. If Jenark <i>is not</i> the preferred property management program for the future, are there software programs that GRF operates that would be beneficial to find a way to interface with a replacement property management program? <p>GRF Currently Operates Seven GRF Databases</p> <ul style="list-style-type: none"> • Jenark for property management and accounting <ul style="list-style-type: none"> ○ Progress database language ○ Closed system – not an open API

	<ul style="list-style-type: none"> ○ Staff in Golf, Security use “look up” function in Jenark but their databases are not integrated, requiring staff to key in all member data a second time. ● Activenet – used exclusively in Recreation Department <ul style="list-style-type: none"> ○ Facility requests, class registrations, excursions, ticket sales, POS, invoicing to member clubs. ○ There is an online resident component that could be linked to the Rossmoor website, however not in use at this time. ○ Activenet does not work well for fitness and golf. ● MindBody – new for the Tice Creek fitness center. <ul style="list-style-type: none"> ○ Separate website (ticefitnesscenter.com) used to promote purchase of Pilates reformer classes or private sessions with trainers. ○ In the future may be able to sign up for a drop-in class. (Currently have sign-up sheet at front desk and must come 30 minutes early and manually register for certain very popular classes.) ○ Resident may at some point be able to sign up for a fee-based class run by a lessee such as yoga, however each sub-contractor must handle their own collection of fees so will not have a POS feature for those classes. ○ Could expand to add Recreation Department, however not a good fit for golf. ○ Point of Sale (POS) automatically links to GRF bank account. Daily activity print out is manually sent to accounting department to manually verify against bank deposit. ● SiPass – access control software, currently in use only at the fitness center. <ul style="list-style-type: none"> ○ Through a customized interface, Jenark sends updated member data to SiPass each night. ○ Resident comes to the Fitness Center to register, verified through lookup of Jenark information – that information along with specific fitness information (key fob #, release forms, email address, etc.) exist in SiPass database only. ○ In the future: SiPass – through a customization program – could connect to MindBody. This will need to be evaluated for data security issues. ○ May be possible through future customizations of SiPass to link various other modules (Recreation, Golf, Amanonet for RFID). Needs to be evaluated for data security issues. ● Clubsoft for the Golf Shop POS and inventory <ul style="list-style-type: none"> ○ Newer version is called Clubessential ○ Offers mobile app, make tee times online, not in use at this time ● Amanonet for gate control <ul style="list-style-type: none"> ○ SQL database ○ Ability to differentiate between resident, co-occupant, renter, GRF employee, etc. ● GlobalSearch from Square 9 for document scanning and retrieval <ul style="list-style-type: none"> ○ Square 9 interfaces with other MOD and GRF programs through the import/export and print features. ○ Work order personnel can either export the document to the document management system or select the print feature which includes the ability to select the document management system as the print destination instead of an actual printer. ○ Square 9 also integrates with MS Dynamics. <p>It may be possible to customize an interface between either Jenark or a new property management program and a couple of the existing databases. One</p>
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approach is to find a solution that incorporates SiPass, Square 9, Clubessential, and MindBody.

However, if a decision is made to change some or all of GRF software applications, the question of how to integrate the databases remains critical.

Critical Factors/ Requirements for Integration:

Clean data

- There are questions as to the reliability of data housed in the Jenark database. A process should be undertaken to test the accuracy and consistency of current data.
- Lincoln Hills had the same type of issue and chose to re-register all 12,000 of their residents in a week-long “festival”. They took over the main ballroom, and with the help of lots of volunteers, succeeded in processing almost all their residents. They also made house calls for the home bound.
- The vendor solutions which support integration provide a series of data “templates” for source data entry into the new system. However, the client must confirm all data is correct, valid, and clean.

Open/User API

- An open/user API is a set of requirements that govern how one application can communicate and interact with another. It provides developers with programmatic access to a proprietary software application so that two disparate programs can communicate.
- If GRF chooses to have an accounting/property management program and a separate resident services program, it is necessary that they both have open APIs so they can communicate easily without the need for costly customization.

Database Language Compatibility

- There are large numbers of *database languages* like Oracle, MySQL, MS Access, dBase, FoxPro etc.
- During integration it’s necessary for two databases, in our case property management and resident services, to speak the same language. As an example, either both databases are written in SQL, or one of the databases has a separate “translator” that reformulates one language into the other.

Data, Application, and Network Security

- Personally-Identified Data must be protected for privacy by security protocol.
- Access to Application(s), Websites, and across the GRF-managed Network needs to be secured by managing security levels for all users, including GRF staff, third parties, members and residents.
- See Committee recommendations for GRF Data Web/Internet Security Policies May, 2018.

The next step is a Pre-Selection Process.

- Last year GRF senior staff began the process of researching alternatives to our current multi-database systems dilemma. Unfortunately, they did not find a good alternative and put research on hold.

	<ul style="list-style-type: none"> • The GRF Ad Hoc Technology Committee began the search again and we are encouraged by our preliminary research. In a later part of this report, we present three options that deserve a “deeper dive” into the complexities of each solution. <p>Deeper Dive</p> <ul style="list-style-type: none"> • GRF Senior staff (and we hope some member/residents) may choose to “live” demo the most promising software applications and narrow the field down to a shorter list that offer the most benefits and the fewest compromises. • Some scenarios and questions to focus on at the Demo stage: <ul style="list-style-type: none"> ○ Property management capabilities: model how to set up a Mutual – one a condo, the other a coop. ○ Choose two or three current work arounds (example: how work orders are currently handled) and have each contender model how their system would handle the issue. ○ Walk through the process of registering a new community member who owns two cars, plays golf, swims each day and wants to register for a Recreation Department event. How many ID tags will they have and how many “registration stops” do they have to make? Review this from both the staff and the resident side. ○ Does the application require customization to fit our needs? ○ What are the integration requirements for data? ○ Is the vendor providing regular system upgrades? ○ Is this an intuitive, work-flow-based solution? <p>Evaluation & Selection Process</p> <ul style="list-style-type: none"> • Finally, before choosing a new system, it’s important to talk with current users and find out about their relationship with the vendor. • Of course, it’s also important to compare vendor contracts: <ul style="list-style-type: none"> ○ Is there a signup fee? Monthly per user fee or yearly contract? ○ Compare vendor support for technical training and on-boarding support. Are there on-demand learning options like product videos, tutorials available? ○ Costs for upgrades, patches, fixes, testing, etc. ○ See Appendix A for suggested evaluation checklist. • Understand capital budget investment costs • Quantify yearly operating costs • Develop a project management and implementation timeline. • Hire a project manager and assign project implementation team to guide staff through the conversion process • Present recommended option(s) to GRF Board for consideration, funding, and approval. <p>Migration & Conversion</p> <ul style="list-style-type: none"> • Once a software solution is selected, the migration, conversion and implementation phase are a 12 to 18-month (or longer) process. • Prepare GRF staff, Board, and community members for the process. • Develop a plan to keep everyone up to date.
<p>Relevant Numbers</p>	<p>The 2018 GRF Operating Budget (Account #6809), Computer Program Maintenance, line item is \$139,000. Software support/maintenance contracts and licensing for applications including Jenark, Clubsoft, Amanonet, Activenet, Office 365 email, Nimble storage, Nixle, and others, are costed to this line item.</p> <p>What’s not accounted for in the GRF Operating Budget are the unidentifiable “work around” costs such as staff time spent entering and re-entering the same</p>

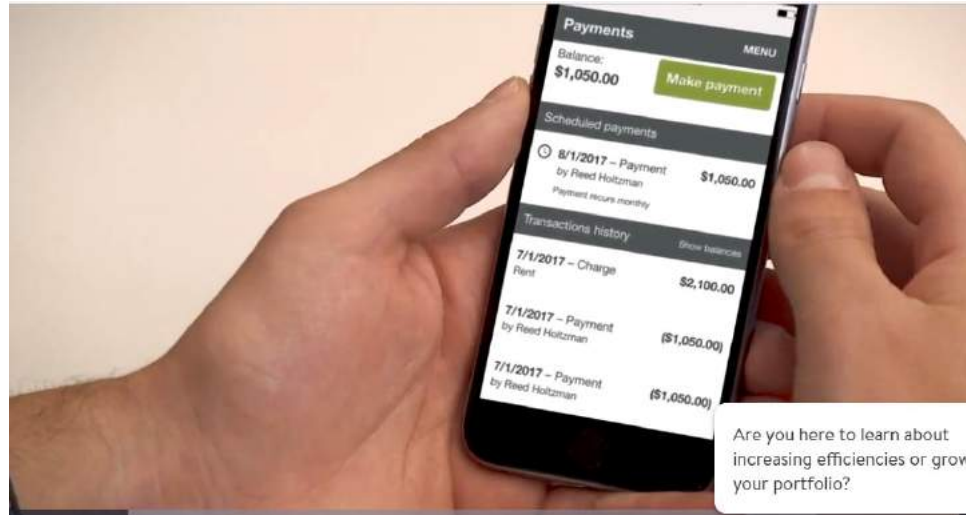
	<p>data in separate databases or hand carrying documents from one department to another.</p> <p>When moving to a new operating platform, one-time costs for training and set up must be considered as well as any upgrades to hardware.</p> <p>Consideration must also be given to cleaning up the existing data.</p> <p>Some vendors we spoke with offer both cloud hosting and client hosted applications. Others are cloud hosted only. This becomes a major decision point for GRF staff.</p> <p>While estimates are provided below for some of our suggested configurations, care must be taken to remember that these are ball park figures and probably only reflect a portion of the total cost of upgrading and moving to a new platform. On average it appears that initial costs are running between \$75,000 and \$100,000 for licensing of the modules/programs. In addition, we would expect consulting fees, training, and data clean up to range between \$200,000 and \$250,000.</p> <p>Initial cost can be recaptured by operational efficiencies perhaps beginning year three after the core application modules go live.</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>It's a daunting task to change accounting and property management systems and one of the crucial factors driving such a change is that the cost (in staff time and new software costs) is worth the long-term benefit. We believe it does.</p> <p>In this report we have presented the first phase of research. We believe that the next step would be to do a Deeper Dive into the following three CAM/PM - property management/resident service configurations:</p> <p>Configuration 1 – Consider MS GP Dynamics and Total e Integrated. Sun City West, Sun City AZ Hot Springs Village POA and Bella Vista POA use this combination. Estimated pricing: Cloud: a) back office \$89/user/month b) POS \$115/terminal/month c) GP Dyn \$125/user/month. On Premise: software licensing is based on users and modules. Guesstimate of \$50,000 to \$100,000.</p> <p>Configuration 2 – Consider Jonas as main resident services platform. Sun City Palm Desert, Sun City Roseville, and Heritage Palms HOA are either using this program or moving in this direction. May need to pair with a separate property management program, maybe not. Pricing not available however some of the current users cite higher than expected costs.</p> <p>Configuration 3 – Consider Yardi paired with a combination of some or all of the following: SiPass, MindBody, Square 9 and Clubessential. Yardi offers only a web-based (cloud-hosted) solution. Yardi pricing: licensing is per dwelling unit with unlimited designated users. Pricing will vary depending on which modules/products are licensed beyond the core Voyager 7S program. Licensing for Voyager 7S is \$45,000/year plus \$0.75/unit/month, or approximately \$105,000/year. Licensing fees for Clubessential, SiPass, MindBody and Square 9 are additional yearly costs.</p> <p>We also suggest a review of Caliber, Buildium, TOPS[ONE] and Northstar for possible inclusion in Configurations 1-3. Caliber pricing: a) Purchase approximately \$36,020/year. b) Hosted \$.025/unit/month or approximately \$1,975/month. Additional pricing for Caliber Portal, the homeowner access portal, \$10/month/association. TOPS[ONE] is a cloud hosted platform. Price: \$5/annual/unit. Licensing fees for Clubessential, SiPass, MindBody and Square 9 are additional yearly costs.</p>

General Cost Estimate for the above Configurations: Initial software licensing \$100,000, project manager to shepherd conversion \$125,000, contingency and staff training, \$75,000. Yearly licensing, beginning in year 2, \$50,000. Total = \$350,000 over a two-year period of time. (see **Appendix B** for Hot Springs POA/Total e Integrated price sheet.)

SUMMARY

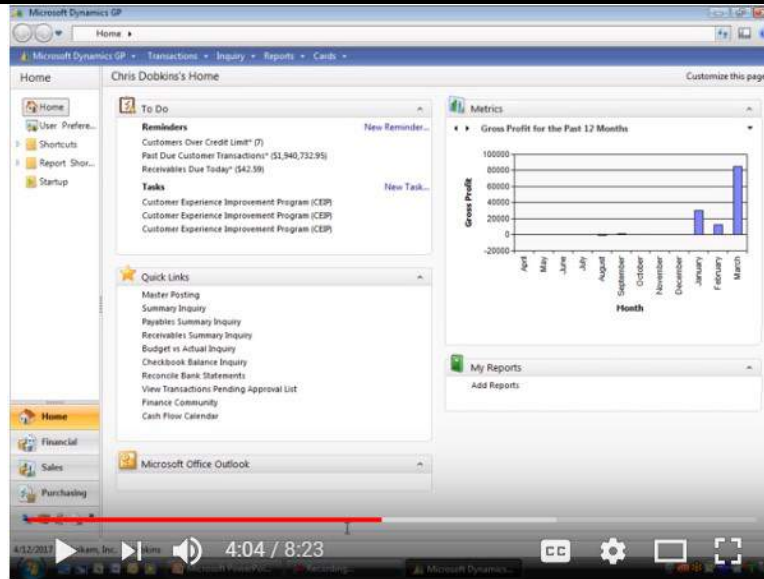
Implementing integrated software solutions will enable GRF to:

1. Foster efficient interaction and communication between GRF and members/residents. Modern CAM/PM software applications allow the automation and tracking of communications anytime, via email, mail and text. It's easy to organize and share unlimited documents such as by-laws, community financials and meeting minutes from any device. Residents have easy access to a free, customizable professional portal to pay online, sign up for a recreation class, submit maintenance tickets, and communicate with staff. Residents also have access to a resident directory and community message board.

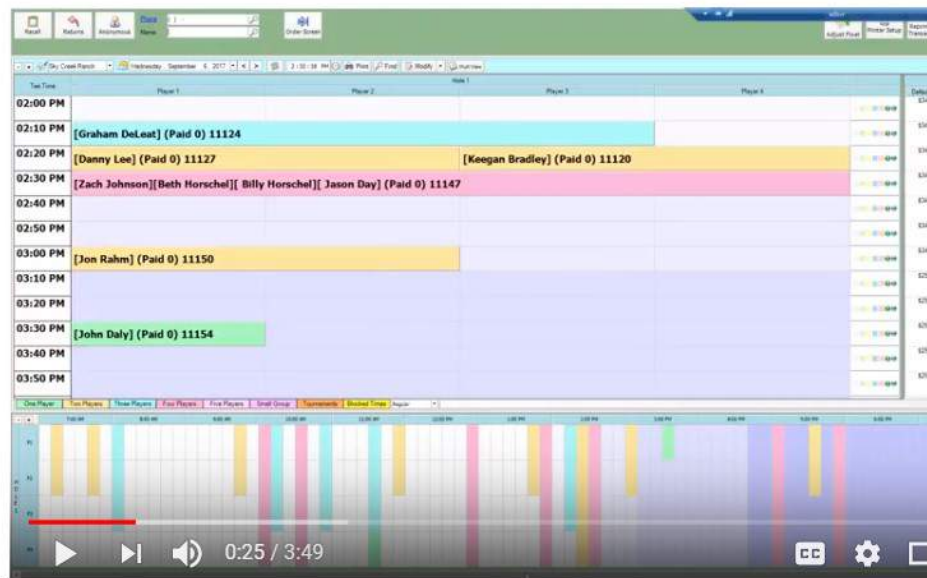


See video demonstration of [resident portal](https://www.buildium.com/features/resident-portal):
(<https://www.buildium.com/features/resident-portal>)

2. Enable GRF Board Members and Mutual Presidents access to critical association decision-making information from their personal dashboard. The personal dashboard can be customized to each individual's needs. A Mutual President's dashboard may include a list of outstanding work orders, a list of disbursements to approve and a graph of representing average sales price in the Mutual to date. Track and manage violation reports, access by-laws, policies, and meeting minutes through a dedicated, customizable secure portal.



3. Golf pro shop management is modernized with a touch screen that allows a view of currently available tee times and tools to quickly view daily course statistics such as rounds played, projected and actual revenue and realization rate.



See full video demonstration here:
<https://www.youtube.com/watch?v=L1oG12IHx28>.

The Community Association Management marketplace has many clients already onboard with CAM/PM solutions. For example, there are currently:

- 12,000 CA/PM Clients of Buildium
- 4,000 CA/PM Clients Yardi Voyager 7s or 20,000 Companies
- 40,000 CA/PM Clients or 5 Million homes on TOPSSoft ONE

	<p>The opportunity for GRF to move forward with the Initiative to provide more highly integrated Information Technologies is timely. Solid decision making using tools that provide a wider range of data derived from one database will result, we believe, in operational efficiencies and a more connected community.</p>
<p>EXHIBIT A</p>	<p>Exhibit A Software Solutions for Similar Communities</p> <p>Leisure World Seal Beach, Seal Beach, CA</p> <ul style="list-style-type: none"> • https://www.lwsb.com • 6,608 units/9,000 residents • No portal/Jenark acctg prop mgt program/no resident services application • Migrated to Jenark 2-3 yrs. ago because they thought Jenark could "do everything". Have found it can't but not willing to change again right now. <p>Rossmoor New Jersey, Monroe Township, NJ</p> <ul style="list-style-type: none"> • http://rcainj.com • 2,300 units/ 3,000 residents • No portal/TOPS acctg prop mgt program with Peachtree for prop mgt./no resident services application • Integrate TOPS and Peachtree via batch. Adding TOPS modules for online submission of work order or reading of CCRs <p>Leisure World Maryland, Silver Spring, MD</p> <ul style="list-style-type: none"> • www.leisureworldmaryland.com • 5,659 units/8,000 residents • Yes portal/ Jenark acctg and prop mgt/ Frontsteps/AssociationVoice resident services • AssocVoice - resident communication dashboard Pros: daily updates on news, can reserve&pay rooms, pay dues, work order/ form tracking integrates w/Jenark, Caliber. Cons: one-way communication only - lots of staff time required to keep this website current, no golf and no phone apps <p>Laguna Woods Village, Laguna Woods, CA</p> <ul style="list-style-type: none"> • www.lagunawoodsvillage.com • 12,736 units/18,000 residents • Yes portal/ MS Dynamics AX acctg prop mgt/vTiger software to develop links back to MS Dynamics AX for various club mgt applications they have yet to define • Microsoft AX too many bells and whistles - would prefer Dynamics GP (heard good things about it) Currently using Dwelling Live- can access docs online - not interactive - no ability to sign up for classes - using TeamUp software to create calendars however just viewable <p>Lansdowne Woods of Virginia, Lansdowne Woods, VA</p> <ul style="list-style-type: none"> • http://www.lwva.org • 1,120 units/1,600 residents • Yes portal/ Activenet for acctg/ Frontsteps/AssociationVoice resident services

**EXHIBIT A
(cont'd)**

- Small community Activenet for their GRF acctg and main database. Mutuals are self-managed. When they add resident portal in the coming years will add Association Voice. (Have been told that they can batch the two - but haven't done it yet)

Leisure World Arizona, Mesa, AZ

- <https://lwca.com>
- 2,664 units/6,000 residents
- Yes portal/ Jenark acctg prop mgt/ various resident service applications however none are integrated
- Member portal is only a pdf storage of documents. No ability to sign up for classes or tee times. Starting to look at how to move from multi-databases to one.

Sun City West, Phoenix, AZ

- <https://suncitywest.com>
- 17,000 units/ 28,000 residents
- Yes portal/MS Dynamics GreatPlains acctg prop mgt/ Total e Integrated resident services
- Total e integrates really well with Great Plains - support is very responsive - Good about using open API for other interfaces

Sun City Arizona, Mesa AZ

- www.suncityaz.org
- 27,000 units/ 35,000 residents
- Yes portal/MS Dynamics – GreatPlains acctg prop mgt/ Total e Integrated resident services
- Total e and MS GP Dynamics batch integrate. Manage membership, golf, rec through various integrated modules

Sun City Lincoln Hills, Lincoln CA

- <https://www.suncity-lincolnhills.org>
- 12,000 residents
- Yes portal/ Caliber acctg prop mgt/ Northstar for resident services
- Northstar does not provide a robust acctg/prop mgt module so using Caliber for that. Caliber Database runs on Microsoft SQL Server. Only using Northstar for resident services side

Sun City Roseville, CA

- <http://suncityroseville.org>
- 3,110 units
- Yes portal/ Jonas acctg, prop mgt and resident services
- Have used Jonas for a while, looking seriously at Northstar

Sun City Palm Desert, CA

- <http://www.scpdca.com/index.cfm>
- 4,985 units/ 9,000 residents
- Yes portal/ SmartWebs for prop mgt and Jonas for acctg and resident services
- Love Jonas -use if for golf, acctg, tenant forms. Property mgt -choosing now between Jonas & SmartWebs - moved from TOPS

Sun City Huntley, Huntley IL

- <http://sccah.com>
- 6,405 residents
- Yes portal/ Northstar for everything (acctg, prop mgt and resident services)

**EXHIBIT A
(cont'd)**

- Very happy with their system - not much detail provided

Heritage Palms HOA, Indio, CA

- <http://heritagepalmsindio.com>
- No information on size of community
- Yes portal/ Jonas for everything (acctg, prop mgt, and resident services)
- Jonas is a solid program however gate RFID does not integrate Would recommend Jonas Encore

The Villages San Jose, CA

- www.thevillagesgcc.com
- 2,536 units/ 4,000 residents
- Yes portal/ Nvision for acctg, Wordpress with plug-ins for Paylease and icontract for newsletter
- No integration with acctg/propmgt pkg. Work order online submittal form, same for clubhouse reservation

Bella Vista POA

- <https://bellavistapoa.com/>
- 33,000 units/ 55,000 residents
- Yes portal/ MS Dynamics - Great Plains acctg and Total e Integrated prop mgt and resident services
- Total eGolf holds main database - batch to Acctg (MS Dynamics) Very happy with support from Total eGolf - not much customization

Hot Springs POA, Hot Springs, AK

- <http://hsvpoa.org/>
- 36,000 units
- Yes portal/ MS Dynamics - Great Plains acctg and Total e Integrated prop mgt and resident services
- Extremely happy with Total e. Went live in 2015 - golf module is super and prop mgt can handle their large volume and unique situation

Exhibit B on next page

EXHIBIT B

Exhibit B Comparison Different Software Applications

Exhibit B Comparison Different Software Applications											
	Property Management/ Community Association Management Software						Resident Services Software				
	Jenark	Caliber	Buildium	MS Dynamics	TOPS ONE	Yardi Voyager	Northstar	Jonas Club Encore	Association Voice	Vermont Systems	Total e Integrated
Data Network Security											
Where is data stored? Cloud or in-house?	in house	Select cloud-hosted or in-house	Cloud - Amazon Web Services (AWS)	Cloud or own server	Cloud-based	SaaS "Select"-Cloud	AWS-Northstar Servers or client servers	client server	either cloud or own server	either cloud or own server	either cloud or own server
Firewalls		unkown	redundant		yes, Data Center	multiple	SSL, HTTPS				
Reliability: Online availability 99.99%			yes		yes	yes	depends on servers location				
Back up servers/Data Center		not if client in -house servers	yes		Microsoft Azure	12 Data Centers	If hosted off site				
Data encryption?		SSL for hosted clients	TLS 2048 Bit Certificate Shgned SHA-256		yes	yes	yes if hosted off site				
Data storage limit?					Unlimited		server dependent				
						Disaster Recovery					
Database Language	Progress	SQL	AWS	SQL	SQL	SQL	SQL, on Oracle, Software Java	SQL with .Net framework	.NET	Progress	SQL
Software features - Property Management											
Scalability: Largest client association # of doors	140,000 largest client		18,000		#####	Unlimited	42,000				
Open/User API for 3rd party integration	NO closed systems	Yes	No except for Paylease, Forte for EFT	Yes	Yes		Front Gate for RFID,	Possible			MS Dynamics GP -and RFID - others too
Resident Portal for lookup of documents?	No	Maintenance requests, view compliance and violation history	can fill in work order form online, view Mutual docs, online and automated	No	Online work order and service requests, history online	Module for Gate, golfcourse, Amenities, Review documents	ticketing, pay, print, golf Tee-times, Amenity booking,		communication - website based community platform		centered - tee times, tennis club reservation. Rec center
Notes											
PROS	After 20 years of customization the staff is comfortable with it	Can sort individuals by Association (HOA), integrated modules, 2 products: Web Portal, Onsite Anywhere in the field	Good online resources, video library, etc. Good reviews for customer service response times good	Share chart of accounts and resident database between GRF and Mutuals. Allows for separate vendors for each mutual. Good HR functions	Serves only the community assoc industry so specific to our needs but can do 150 different Associations	Prop Mgt module allows scheduling, tracking mobile location tracker of technicians. 1 Master and 30 sub-member lists search function	Lincoln Hills just migrated to Northstar, however not happy with property mgt	Top of the line club software that also offers property management and acctg - all in one database	Integrates with Jenark and Caliber. Community events website - newsletters type, keep informed, submit work order form online	Each person entered into a "household" and linked to separate activities	Allows multi-course config on eGolf - online reservations for golf, tennis. Good customer support - onsite visits for live demo possible
Cons	Closed system - requiring 6 other databases to do the day to day work - Heavy customization	Small vendor	No forecasting of capital budgets	May be more program than we need	TOP[ONE] charges per door. Support is slow to answer questions and offer solutions. Lots of	No golf or recreation modules - would have to customize. Would need only 4-5 Modules,	Is property management module robust enough - light in compliance area	Not full featured - no golf module, no phone app. Lots of staff time required to keep events	No direct interface with any accounting, property management software. Would have to export	Does this integrate well with applications other than MS GP Dynamics?	

APPENDIX A

Software Evaluation Process

**Appendix A
Software Evaluation Process**

EVALUATING SOLUTIONS TO IDENTIFIED PROBLEM IN A BUSINESS PROCESS
HOW TO EVALUATE POSSIBLE TECHNOLOGIES AS SOLUTIONS
WHAT ARE THE COMPONENTS OF A PROJECT?

PRIORITY LEVEL	PROBLEM to SOLVE	PRICING MODEL	PLATFORM	PRODUCT
Immediate Near-term Long-term	Communication Commerce Core GRF Competency	Enterprise license Seat license Transactional model In/Outsource	Dependencies on infrastructure requirements	Proof of concept Beta development Generally available Industry standard Sun-setting
PEOPLE IMPACT	PROCESS IMPACT	POTENTIAL ROI	PERFORMANCE	PITFALLS
GRF Human resource GRF in-house skills GRF recruit skills GRF Training	Integration issue? End-User access? Continuity of GRF business process	Cost of acquisition, Manage/maintain, Operational cost-saving of In/Outsource	Measure process improvement Measure product reliability Measure customer satisfaction	Lost opportunity costs-risk of not implementing Security risks Vendor v. Partner

CHECKLIST PRE- Selection Process:

- ✓ Assess GRF Applications: Assess Current operations with 7 Databases
- ✓ Make a Strategic Recommendation to evaluate new Software Solutions
- ✓ Interview other Mutual Benefit Corporations and CAM clients
- ✓ What CAM/PM Solutions are you using, why? Positives, limitations
- ✓ What CAM/PM Solutions are you using, why? Positives, limitations
- ✓ ID & Focus on GRF Core Business functions –
- ✓ What are integration requirements for Data?
- ✓ Focus on Data, Application, Network, and User Security
- ✓ Security Considerations are Critical:
 - ✓ Is data encrypted? How?
 - ✓ Are security procedures reviewed regularly?
 - ✓ Where is data stored (for example, Rackspace, Amazon Web Services, or Airlock)?
 - ✓ Are there backup servers? Where, if hosted “cloud-based” solution?
 - ✓ Is there easy to access system status?
 - ✓ What Network bandwidth is required for Software as a Service)SaaS) Solution
- ✓ Identify GRF Core business functions and Compare with Vendor Solutions
- ✓ What is included? What is limited? CAM or just PM Software?
- ✓ Is Solution fully implemented in other Community Associations? Where?

<p>APPENDIX A (cont'd)</p> <p>Software Evaluation Process</p>	<ul style="list-style-type: none"> ✓ Is Solution Modular? Which Modules are core to the software, which are optional? ✓ What Level of Integration exists between Modules? What Third Party Applications does GRF need? ✓ How will GRF achieve integration/interface between Core Property Management and Third Party Applications? ✓ Project % of Core Business functions integrated in each Solution. ✓ Compare 10 P's for each Solution: ✓ 10 P's: Priority, Problem, Pricing, Platform, Product, People, Process, Potential, Performance, Pitfalls <p>Evaluation & Selection Process</p> <ul style="list-style-type: none"> ✓ Demonstration of Solution Modules, Features, Functionality ✓ Re-assess overall 5-10-15-20 Year Projected Cost: Benefit Ratio ✓ Project Capital Budget Investment Costs ✓ Project Operations Budget cost savings ✓ Project Impact on Operations Resources ✓ Assess GRF & IT Staff skillsets for Project Management, Database Administration, Implementation Teams ✓ Present Information Architecture for Board Planning Committee Review, Approval <p>VET THE SOLUTION VENDOR COMPANIES, PARTNERS, Third Party software providers</p> <ul style="list-style-type: none"> ✓ Compare Vendor Contracts: ✓ Calculate value to GRF by asking smart questions: What is the licensing, pricing, support model? ✓ Is there a signup fee? Is there a minimum monthly payment? ✓ Will GRF be locked into annual contracts? What is pricing beyond the minimum (\$1 per unit, \$5 per 10 units, etc.)? ✓ Are there additional setup fees for add-on services? With a package plan, GRF pay for services need? ✓ Compare GRF Costs projections: hiring, training, implementation, onsite software server support vs. hosted, cloud-based server, data integrity "Cleaning source data" costs ✓ Compare Vendor support for: <ul style="list-style-type: none"> 1. Technical Training and onboarding support 2. On-demand learning options like product videos, tutorials, and more 3. Phone and ticket support, 4. Customized services – percent of revenue based on R & D, development software, services pipeline 5. Upgrades, patches, fixes, testing, etc. ✓ Conduct User testing based on scenarios of GRF core business functions ✓ Compare user testing results for short list of vendors ✓ Trial of Solutions – narrow based on GRF core business functions & vendor ability to complete GRF Scenarios ✓ Attend Vendor Customer Conferences, webinars, join vendor blogs
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APPENDIX B

**Hot Springs
POA**

**Total e
Integrated
Proposal**

**Hot Springs Village Property
Owners Association
Board of Directors**

Memo

To: Board of Directors
From: Lesley Nalley, CFO 
Date: August 29, 2014
Re: Proposal to Modernize the POA's Accounting and Operations Software Programs

Background

Hot Springs Villages' 2010 strategic plan calls for a comprehensive information technology plan. Tasks under this objective included a survey of existing systems and subsequent completion of an integrated management system, as well as a resulting increase in employee productivity. Through integration, automating several manual processes, and increasing the ability to perform real time reporting, this solution was deemed to meet those objectives.

The information provided below summarizes the activities surrounding the ensuing year long analysis project and resulting recommendation. Due diligence included in depth conversations, demos, and cost discussions with four providers: Total e Integrated (TEI), ClubTec, Jonas, and Northstar. After analyzing data provided by each provider, interviewing the department heads, and getting input from property owner experts, the TEI solution was identified as most capable of providing a comprehensive integration. TEI has been in business since 2000, is experiencing consistent growth, and currently serves communities, similar to HSV, such as Sun City West and Sun City Arizona.

Software Functionality

The following functional areas are included with the overall TEI solution: golf, retail, recreation, property management, membership management, accounting, HR & payroll, marketing and web portals, events and facilities management. Most of these functions will be handled through Total e and Microsoft Great Plains software programs. Other software packages will be integrated with these two components for the comprehensive solution.

Cost Summary

The total cost for all quoted components is just under \$400k as detailed in the summary attachment. These costs include software, hardware, custom programming, training, maintenance support, monthly platform fees, licensing fees, specific data migration, and a contingency for outside IT consulting. Approximately \$185k is to be spent in 2014 using IT amounts already budgeted. Approximately \$216k is to be spent in 2015, which will be included in the 2015 budget.

Timeline

The timeline includes staggered go live dates. Payroll will go live January 1, 2015. The general ledger, payables, property, membership, marketing and golf components are tentatively planned to go live April 1st. The remaining interfaces will be rolled out throughout 2015 in order of their priority. As noted, not all quoted components will definitely go live. Existing functionality will be converted first and then additional functionality will be assessed.

Attachments

- Summary of Project Costs (\$10k more than contract because contract did not include a travel estimate)
- Flowchart of AS-100 vs. TEI solution
- Total e Integrated Presentation (pdf)

**APPENDIX B
Hot Springs
POA**

**Total e
Integrated
Proposal
(cont'd)**

Hot Springs Village POA
Summary of Costs for Total e Integrated Solution
August 29, 2014

	2014	2015	Total
Software Purchases			
Total e Golf	80,000		80,000
Microsoft Great Plains	19,798	17,702	37,500
Sierra Time & Attendance	15,000		15,000
ID Flow Card (ID badge printing)	1,495		1,495
Mekorma (AP & Payroll Check Printing)	4,900		4,900
Thin Print (print management)	2,590		2,590
Total Software Purchases	123,783	17,702	141,485
Software Maintenance			
Total e Product		26,900	26,900
Monthly platform fees		10,920	10,920
Non Total e Products		13,377	13,377
Total Software Maintenance	-	51,197	51,197
Professional Service Fees			
Professional Services by Total e	56,250	68,750	125,000
Contingency for Travel Costs***		10,000	10,000
Customer Defined Product Development*		41,500	41,500
Total Professional Service Fees	56,250	120,250	176,500
Fees Paid to Total e Integrated	180,033	189,149	369,182
Additional Costs paid by HSVPOA			
Contingency for Outside Consulting/Misc.		15,000	15,000
Windows Server License	1,000		1,000
Terminal Services License	3,000		3,000
Dedicated Server Hardware		10,000	10,000
Vmware License		1,200	1,200
Additional Costs Paid by HSVPOA	4,000	26,200	30,200
Total Estimated Integration Costs	184,033	215,349	399,382

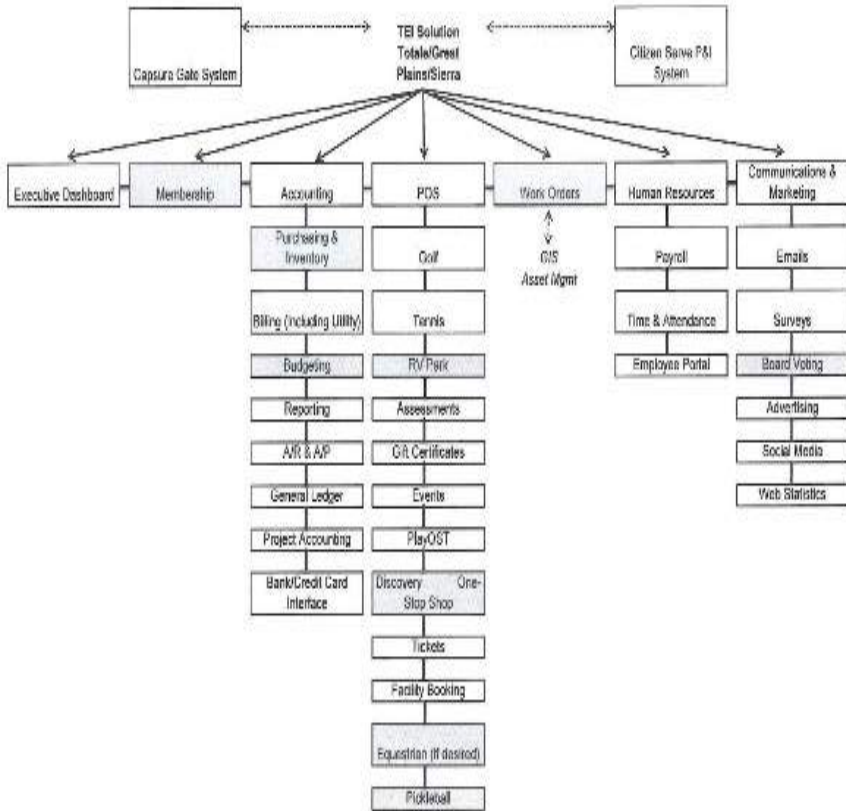
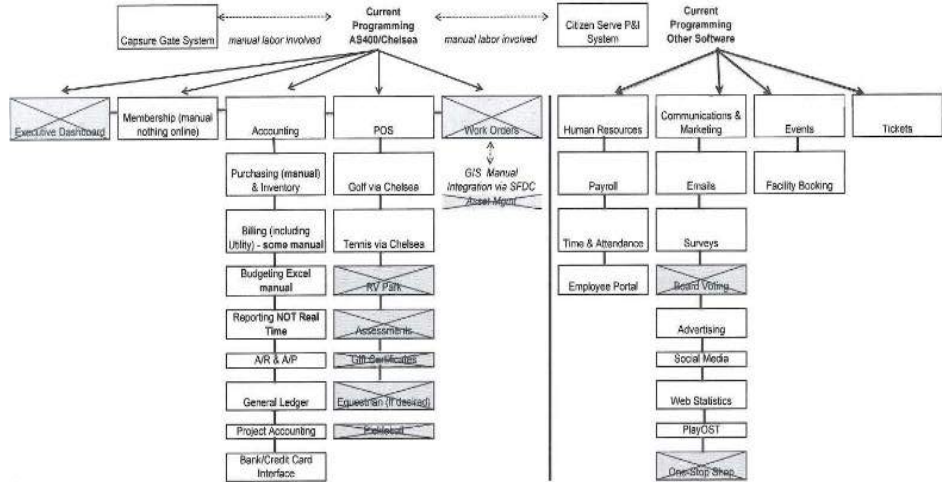
*These costs assume that all products listed on page 12 of the Total e contract are developed. These costs will increase or decrease if different components are developed. Such changes would be handled/communicated according to HSVPOA's capital purchasing policies.

**Please note that licensing fees and software maintenance fees are recurring annual costs.

***Per Mike, typical travel would be three people twice during the project.

**APPENDIX B
Hot Springs
POA**

**Total e
Integrated
Proposal
(cont'd)**



*Highlighted items reflect new or improved functionality

Project Title: Data Integration	
Status GRF:	Researching
Status Committee:	First Reading
Project Sponsor	Bob Kelso
Category:	IT
Time Frame:	Importance:
Executive Summary	<p>GRF uses 6 different databases to organize data on members.</p> <ul style="list-style-type: none"> • Jenark for resident information and accounting • Amanonet for gate control • Activenet for room reservations • Sipass for access control, currently only at the Fitness Center • Clubsoft for the Golf Shop POS and inventory • GlobalSearch for scanning and manor records <p>It would be useful to be able to crosscheck and cross post data in all databases which would save on data entry time, reduce the potential for errors, and allow for queries to be made of the GRF data.</p> <p>In 2017 the CEO and staff looked at community management software that might incorporate all of the uses listed above in one package but have not been able to find a program that will do everything we need done. As an alternative it was suggested GRF explore data integration programs that would allow us to create one connected database out of the six that are currently in use.</p> <p>Data41 has been contracted with to review our current database configuration and propose a plan to connect the databases. The cost of that plan will be part of the options going forward to provide for an online portal for GRF members.</p>

Project Title:	Document Scanning and Online Retrieval - Phase 2		
Status GRF:	None	Status Committee:	Recommended
Project Sponsor:	Vicki Swisher	Category:	IT Projects
Time Frame:	2019	Importance:	High
Community Objective THE WHAT	<p>The purpose of implementing a MOD/GRF Trust Document Scanning and Online Retrieval System includes:</p> <ol style="list-style-type: none"> 1. Greatly improving document search capabilities 2. Automating access to documents that previously required printing and paper-based hand-offs within and between departments and personnel 3. Reducing the necessity to generate paper documents 4. Minimizing requirements for storing paper documents for historical purposes 5. Improving work management for MOD/GRF Trust <p>The previous document storage and retrieval system was completely offline, manual, and paper-based. Personnel needing historical documents were required to retrieve them from storage boxes and file cabinets. For example, in the process of developing a Mutual work order, often MOD staff were required to look at past alterations to a manor to determine the extent of work under the responsibility of the Mutual versus the owner. The Building Management staff and Contracts staff had to manually retrieve paper documentation from storage locations and read all of the documentation in order to identify financial responsibility. A second example of this cumbersome process often occurred when a potential buyer wanted to have copies of all of the permits, inspections, and alterations for their manor in their escrow package. This required MOD staff to search through paper files to retrieve this information, often taking many hours of effort.</p> <p>Realizing the limitations and antiquated methods of historical document access, the Information System Manager under the direction of the Chief Financial Officer, explored opportunities for upgrading this process. As a result, a new electronic document scanning and online retrieval system was launched in 2017.</p>		
Target Client THE WHY	<p>The Primary Beneficiaries of the Phase 1 Document Scanning and Online Retrieval System included:</p> <ul style="list-style-type: none"> - MOD Alterations Department - MOD Work Order Department - Member Records <p>The Primary Beneficiaries of the Phase 2 Document Scanning and Online Retrieval System include:</p>		

	<ul style="list-style-type: none"> – MOD office and field personnel – Human Resources – Public Safety <p>The Secondary Beneficiary is:</p> <ul style="list-style-type: none"> – Mutual members that pay for MOD support in their monthly coupons
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>What Technology Solutions Are Available To Support Document Management?</p> <ul style="list-style-type: none"> • There are literally hundreds of Document Management software solutions available. They vary widely based on functionality, accessibility, scalability, and cost. Document management software, which falls within the larger category of content management systems (CMS), helps users digitally upload, track and archive documents while keeping them secure. Many document management systems include workflow tools to manage the life cycle of specific documents, such as articles or legal contracts, and assist in future document searches. • General Definition of Document Management Software: There is a wide variation in the definition of document management software systems. Some software tools simply enable the user to organize electronic files, while others are designed for intricate document scanning, processing, and storage. For purposes of this project, the technology that defines a document management software system are the following: <ul style="list-style-type: none"> – Electronic filing cabinets that provide a framework for organizing all digital and paper documents. – Works in tandem with scanners, which convert paper documents into digital versions. – Provides sophisticated search engines to allow quick access to any document or file. – Enables varying levels of document security. – Is accessible from various devices (e.g. PC, tablet, smart phone). • Important Features and Functionality of Document Management Software: <ul style="list-style-type: none"> – File structure: The system should offer an easy-to-use file structure that makes sense to users, such as a cabinet-drawer-folder approach. – Searching: The system should have a wide variety of options for quickly finding files. The ability to search not only by the file's name, but also by the content inside the file. – Ease of use: The system should be simple for individuals to use. If it is too difficult, you won't get complete buy-in from the staff, which will make the system less effective. – Mobile access: The document management system should be accessible via smartphones and tablets. – Integration: The system should easily integrate with the programs already in use, such as your email client and work management software.

	<ul style="list-style-type: none"> - Scanning: The solution should be compatible with a wide variety of scanners. - Security: The system should allow the user/owner to restrict who can see specific folders and files. The ability to set access permissions by user. <p>- Location of Document Management Software: One of the final considerations associated with document management software is whether a self-hosted or remote-hosted system is implemented. Self-hosted software is owned by the purchaser and typically resides on local computers and servers. Remote-hosted software refers to applications, services or resources made available to users on demand via the internet from vendor servers. Both systems offer the same features, but they have several key differences.</p> <p>Self-Hosted Document Management System</p> <ul style="list-style-type: none"> o All the software is stored inside your business on your company's own servers. o You can store as many documents and files as your server allows. o The software has a one-time cost based in part on the number of users. Self-hosted systems typically cost at least several thousand dollars. Some systems charge an initial fee for the software, as well as license fees for each user. In addition, some charge an installation fee. o There is an optional yearly charge for ongoing support and software upgrades. <p>Pros: The biggest benefit of a self-hosted document management system is that you are always in control of your system and not relying on anyone else to keep it up and running. You're not dependent on the internet either. If your online connection goes down, you still have access to all your documents.</p> <p>Cons: The downside comes in the large upfront costs, as well as the extra yearly expense of software updates. In addition, it's up to you to make sure you have a proper backup system in place, since your files aren't automatically saved in the cloud. Another possible negative is that not all self-hosted systems work with both Windows and Mac computers. Many are compatible with only one or the other.</p> <p>Remote-Hosted Document Management Software:</p> <ul style="list-style-type: none"> o All the software is hosted by a provider and accessible online. o You can log in to these systems from any computer or mobile device connected to the internet. o You pay a monthly fee for each user. Costs range from a few dollars to close to \$100 per user, depending on the provider, the number of features you choose and the amount of storage you want. o The system's provider, for no additional cost, handles the software upgrades and maintenance. <p>Pros: The biggest benefits are that you don't need an IT team to install the software and keep it running properly, and that there aren't any large upfront costs. You also can tap into these systems from anywhere that has online access, and you don't need to back up your files, since they are automatically saved in the cloud.</p>
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	<p>Cons: You are at the mercy of your provider to keep the system up and running. If your provider has a problem with its data center, it could prevent you from accessing your files until the situation is resolved. In addition, if your internet connection fails, you won't be able to get to your files. Remoted-hosted systems may also have storage limitations.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Implementing the MOD/GRF Trust Document Scanning and Online Retrieval System <p>In 2017, the MOD/GRF Trust Information Management organization undertook the task of selecting a document management software system that best suited the needs of Rossmoor. Although functionality and cost were at the top of the criteria, ensuring the software provided a user-friendly platform also played a very important role. Various personnel were involved in the evaluations before making a final software selection. The Information Management organization determined that Square 9 Softworks Document Capture Automation software (https://www.square-9.com/products/document-capture-automation) was best suited for MOD and GRF Trust applications. This software includes the following features and capabilities:</p> <ul style="list-style-type: none"> – File Structure: The system has an easy-to-use file structure for sorting and storing documents according to departments, users, or subject matter. The documents are currently accessible from any MOD or GRF PC. – Search Capability: The system has a wide variety of search options for quickly finding documents. The software incorporates a “work flow” tool that allows customized search capabilities for each type of document. The “work flow” tool essentially permits an administrator to define what areas of a document establish keywords and pertinent information that can be automatically entered into a dropdown list for users. Typical keyword searches include document title, address, and date range. Currently Square 9 develops the “work flow” tools with input from the MOD/GRF Trust Information Management organization and users. The “work flow” tool creates customized user search screens for each type of document. The screens “walk” a user step-by-step through a document search. Users have the ability to search not only by the document's name, but also by the content inside the document. All documents can also be searched for any word or string of words. Developing the “work flows” is not considered customization of the software. Therefore any future software upgrades are not affected. – Scanning: The Square 9 software is compatible with almost every scanner or multi-function printer (MFP) on the market today. Initial scanning of historical documents was performed remotely by the Swenson Group. Currently scanning is performed on the MFPs located in MOD and Gateway or using desk-top scanners connected to individual's personal PCs. In-house scanners are capable of scanning 8¹/₂ X11, legal, and 11X17 documents. If there is a requirement to scan larger documents, this can be done offsite and electronically transferred to the document storage system. Documents are scanned, then undergo optical character recognition

(OCR), and finally saved as a PDF. If a document is of very poor quality, the software will first change the document to a negative to enhance contrast before performing OCR. To-date, 60% to 90% of text in poor quality documents has been recovered.

- **Integration:** The Document Scanning and Online Retrieval System integrates with other MOD and GRF programs through their import/export and print features. For example, a completed work order does not need to be printed and then scanned into the document management system. Work order personnel can either export the document to the document management system or select the print feature which includes the ability to select the document management system as the print destination instead of an actual printer. Document retrieval can be performed from any MOD or GRF network PC.
- **Security:** The online retrieval system has built in restrictions regarding who can access specific documents. Documents are stored based on a specific department or function. The files containing the documents each have their own access restrictions linked to active user directory rights. For example, if invoices can only be viewed by the “financial group”, your user directory rights must include “financial group” to access the scanned invoices. Documents are also stored as “read only” so individuals accessing the documents cannot make any changes.
- **Mobile access:** The Square 9 document management system has the capability to be accessed via smartphones and tablets. This feature is scheduled for implementation later this year.

The Square 9 document scanning and retrieval software is self-hosted on the MOD/GRF server. The primary software is located on the MOD/GRF server with the client software loaded on each PC work station. The document management system has three levels of backup. Documents are stored on the MOD server with backups in real time on the GRF server at Gateway. Every night the documents are stored on the cloud.

The MOD/GRF Information Management organization contracted the Swenson Group, a business technology products and services company located in Livermore, California, to implement the Square 9 document scanning and retrieval software package and perform the initial historical document scanning. The initial installation included installing the client software on all MOD and Member Records PCs. The historical document scanning included Alterations Department and Work Order Department documents. The GRF funded portion of this phase is complete.

The second phase is ongoing. MOD is continuing to scan historical documents in house as well as saving any new documents to the document management system. The 2nd phase also includes the expansion of scanning on the GRF side to the human resources, recreation and public safety departments. Additionally, the online document retrieval process will be implemented on MOD/GRF tablets and smart phones.

- Dependencies on Other Software Systems

	<p>There are no dependencies on other MOD and GRF software systems. Changes made to any property management software modules should have no impact on their ability to transfer documents to the document management system.</p>
<p>Relevant Numbers</p>	<ul style="list-style-type: none"> • Resource Requirements for MOD/GRF Trust Document Scanning and Online Retrieval System: <ul style="list-style-type: none"> – There are no requirements to add staff to support this system. Historical documents continue to be scanned by MOD and Member Records personnel as work load permits. – When the system is introduced to new personnel, a 1 ½ hour training course is provided. – MOD/GRF Information Management staff supervise and evaluate the document management system during the various phases of installation. • Licensing Requirements: <p>The Square 9 Document Management package included purchase of the original software and 250 user licenses. These licenses are based on number of simultaneous users, not specific equipment (e.g. PCs, tablets, smart phones). There are approximately 25 users online at any one time now. System growth is not an issue during the next two years. The original contract and current licensing costs were not available at the time this document was prepared.</p> • Maintenance Requirements: <p>The current contract with Square 9 includes maintenance support. Any operating issues will be supported by Square 9 and future software upgrades will automatically be installed at no additional cost as long as the maintenance contract is in place.</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>The GRF Ad Hoc Technology Committee recommends the following:</p> <ul style="list-style-type: none"> • Move to Phase 2 to provide document scanning and online retrieval to Public Safety, Human Resources, and Recreation Departments at an initial investment of \$75,000 in contractor scanning and personnel training costs. Continue using Square 9 Document Capture Automation software in accordance with the current licensing and maintenance agreements with Square 9 Softworks. There is no additional licensing fee for Phase 2. • Install and test the usability of the online document retrieval features on tablets and smart phones. • Evaluate the system for potential upgrades or modifications in 2020 after it has been utilized for 2 years. <p>Benefits to MOD and GRF staff include the following:</p> <ul style="list-style-type: none"> • Ease in locating historical data, both in-house and at remote locations. • Efficient method of cataloguing and storing MOD/GRF records. • Eliminates most paper records. • Reduces physical storage requirements. • Eliminates physical degradation of historical documents.

Project Title	Drone Technology		
Stat US GRF :	None	Status Committee:	Highly Recommended
Project Sponsor:	Vicki Swisher	Category:	Physical Infrastructure
Time Frame:	2019	Importance:	Medium
Community Objective THE WHAT	<ul style="list-style-type: none"> • Purpose of Using Drones: Increasing work efficiency and productivity, decreasing workload and maintenance costs, and enhancing documentation are a few of the top uses drones offer. Uses specific to GRF include: <ul style="list-style-type: none"> – Effective method of evaluating structures before and during modifications, improvements, and maintenance. – Excellent tool to document infrastructure and land issues using photos and video. – Efficient method of identifying preventive maintenance issues. – Improves identification of long term maintenance issues by tracking levels of deterioration through photographic documentation. – Provides visual data needed for future capital improvements or structural modifications (e.g. topography, interference from trees and power poles, impact on landscaping or roadways, etc.). – Easily monitor improvements to determine effectiveness (e.g. roofing materials, downspout strainers, etc.). – Permits inspection of exterior parts of structures that are normally very difficult to reach. – Provides a bird's eye view that previously could only be obtained by hiring an aerial photographer. 		
Target Client THE WHY	<ul style="list-style-type: none"> • Beneficiaries: <ul style="list-style-type: none"> – GRF maintenance is a primary beneficiary of this technology because of the following. <ul style="list-style-type: none"> ○ Reduced man-hours required to evaluate infrastructure issues since there is no need for ladders and scaffolding. Only one individual is needed to operate the drone. ○ Improved preparation for work activities by being able to visualize the work site and identify the correct tools and replacement parts. ○ Reduces risk to personnel. ○ Provides a better method to identify soil erosion, weed abatement, and other potential land management hazards. 		

	<ul style="list-style-type: none"> – GRF Landscape Manager and Golf Course Director both can benefit from drone usage to spot-check expanses of land for adequate irrigation and erosion issues. The drone can also assist Golf Course management with evaluating wildlife that may be negatively affecting the golf courses. – GRF security is another beneficiary of this technology. Drones can be used by security to evaluate parking problems and traffic flow issues in locations where security cameras are not available. • Direct Impact on Rossmoor Residents: <ul style="list-style-type: none"> – Drones cannot be flown over or near Rossmoor residents due to safety implications. Precautions are required to cordon off areas where the drone is in use. – Noise can also be a consideration if GRF flies the drone close to any manors.
<p>Key Technology and Features</p> <p>THE HOW</p>	<ul style="list-style-type: none"> • Technology Available: <ul style="list-style-type: none"> – Drones are defined as “Unmanned Aircraft Systems” (UAS) by the Federal Aviation Administration (FAA). Flying a drone is regulated by FAA guidelines, policies, and instructions. – Over the past few years, drones have become central to the functions of various businesses and governmental organizations. Drones have proven to be extremely beneficial in evaluating locations that are difficult to reach in a timely and efficient manner. – Drone technology has grown from recreational to commercial fairly quickly as more and more businesses and organizations start to realize its potential scope and scale of usage. – Whether drones are controlled by a remote or accessed via a smartphone app, they possess the capability of reaching the most remote areas with little to no manpower needed and require the least amount of effort, time, and energy. This is one of the biggest reasons why drones are being adopted for numerous commercial uses. Some of these uses include: <ul style="list-style-type: none"> ○ Aerial photography for journalism and film ○ Express shipping and delivery ○ Gathering information or supplying essentials for disaster management ○ Thermal sensor drones for search and rescue operations ○ Geographic mapping of inaccessible terrain and locations ○ Building safety inspections ○ Precision crop monitoring ○ Storm tracking and forecasting hurricanes and tornadoes • Technology Considerations for GRF: <p>Current drone technology easily supports potential GRF usage. There are numerous drone designs on the market today. These designs fall into four main categories: small recreational drones designed to entertain the user, medium sized recreational drones designed for photographing personal adventures or vacation activities, medium sized drones designed for photo and video commercial applications, and large drones intended for package delivery or military applications.</p>

	<p>For GRF purposes, a medium sized drone with photo and video capabilities is ideal. Features that need to be considered when purchasing the drone include:</p> <ul style="list-style-type: none"> – Ability to provide high definition photos and videos from a distance of 10 – 20 feet. – Equipped with a 3-axis gimbal camera for flexibility. – Stable in light winds (5 - 10 mph) to be useful during most weather conditions. Current drones are not recommended to be flown during rain or heavy fog due to potential electrical problems. – Easily maneuverable near buildings and trees. – Must be have manual controls for all operations versus autopilot. – Must have single battery life of at least 25 – 40 minutes. – Considered a “commercial aircraft” rather than a “model aircraft”. An example of a drone model that can be used for GRF applications is contained in Attachment A. <ul style="list-style-type: none"> • Technology Manufacturers: <ul style="list-style-type: none"> – There are numerous drone manufacturers available. – Drones can easily be purchased off-the-shelf from an electronics outlet such as Best Buy or Fryes. • Specific Features Required: <ul style="list-style-type: none"> – The drone must be able to operate in “pilot” mode to meet current FAA requirements. • Examples of Current Usage: <ul style="list-style-type: none"> – Mutual 4 is implementing this technology for roof assessments, drainage issues, weed abatement, fire prevention, slope erosion, asphalt erosion, and parking assessment. Test runs to assess the drone’s capabilities to perform the desired uses has proven successful. – MOD recently purchased a drone to support Mutual maintenance efforts. – Golf Course Management has a small drone for surveilling geese on the golf courses.
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Dependencies <ul style="list-style-type: none"> – Drones weighing over 0.55 pounds must be flown in accordance with FAA rules. – Based on FAA Part 107, the drone must be registered with the FAA. – According to Davis-Stirling HOA rules, associations cannot use drones for business purposes such as inspecting common areas, monitoring vendors, documenting rules violations, etc. without first getting a Section 333 exemption from the FAA. This can be obtained by completing an exemption request and submitting it to FAA. Currently it takes 30 - 45 days for approval. – Based on Davis-Stirling and FAA Part 107, using drones by HOAs to perform inspections of common areas is considered commercial usage. Therefore, any drones weighing over 0.55 pounds requires a Remote Pilot Certificate for a Small Unmanned

	<p>Aircraft Systems Rating as required by Title 14 of the Code of Federal Regulations (14 CFR) part 107, section 107.73(a). Unfortunately, the FAA currently places all non-recreational drone pilots in this category. Some of the areas covered by the knowledge test include: regulations relating to small unmanned aircraft, effects of weather on small unmanned aircraft performance, determining the performance of small unmanned aircraft, aeronautical decision-making, and airport operations. After reviewing the FAA Study Guide, an individual must pass a 60 question exam at the nearest FAA testing center to qualify for the pilot certificate. An individual also must be at least 16 years old and pass Transportation Safety Administration (TSA) vetting to qualify for the certificate. The knowledge requirements for a Remote Pilot Certificate go far beyond the piloting information needed to fly a non-recreational drone in Rossmoor. However, the certificate must be obtained before using the drone for any GRF sanctioned activities.</p> <ul style="list-style-type: none"> – Special insurance is required to fly a drone for GRF purposes. This insurance is separate from the Rossmoor blanket policy but can be obtained through the same agency. <ul style="list-style-type: none"> • Reliability and Quality <ul style="list-style-type: none"> – Dependent on the type of drone. The higher priced drones have proven track records for reliable long-term use. Most of these drones are made of resilient materials and have some crash avoidance technology. • Maintainability <ul style="list-style-type: none"> – Drone maintainability is primarily based on re-charging batteries. – If the drone malfunctions while under warranty, it must be sent back to the manufacturer for re-work. Most warranties are for 1 year. Shipping and repairs are included in the warranty. If the drone malfunctions after the warranty period, it must be replaced. – It is recommended to purchase spare propeller blades since these items are the most likely to be damaged during usage. – Most drones use SD cards to collect photographic data. Spare cards are also recommended. • Design Growth <ul style="list-style-type: none"> – Currently photos or video recording taken by the drone must be downloaded from an SD card. It is expected in the near future to be able to transmit these photos and videos directly to any location through a Wi-Fi system similar to how your cell phone transmits pictures to your friends or the web. This feature could be used to enhance the work order system. More important is the ability for multiple organizations to assess information in real time. For example, the drone operator could send info to the maintenance department showing them the problem and enabling them to bring the right tools to the job. • Ergonomic <p>Ergonomic factors associated with a drone are dependent on the drone's design and features. Drone ergonomics vary greatly depending on brand and cost. The drone purchased for GRF use needs features useful for</p>
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	<p>work activities not entertainment. Also, because the FAA requires that the drone must be operated in manual mode for commercial purposes, the layout of the controller and the hand controls need to be user friendly and responsive.</p>
<p>Relevant Numbers</p>	<ul style="list-style-type: none"> • Overall Size of this Project <ul style="list-style-type: none"> – This project can be started with one drone. • Cost <ul style="list-style-type: none"> – A high quality drone with a second battery can be purchased for \$700 - \$1500. There are no maintenance costs. – Obtaining on-line instructions to assist with passing the Remote Pilot Certificate exam costs approximately \$100. – The Remote Pilot Certificate exam costs \$150. – Preparation for the Remote Pilot Certificate exam requires approximately 20 hours of study. – Special drone liability insurance is estimated at \$300 - \$500 per year. This cost is dependent on the number of expected hours of usage and types of tasks performed with the drone. • Cost Savings <ul style="list-style-type: none"> – The use of a drone will reduce maintenance personnel manhours. Hundreds of dollars should be saved per month. – Timely assessment of infrastructure issues improves preventive maintenance. This should translate into lower replacement costs. • Time to Implement <ul style="list-style-type: none"> – This technology can be implemented within 30 - 120 days of purchasing a drone. The timeline is dependent on scheduling availability for the FAA exam and obtaining the FAA Section 333 exemption.
<p>SOLUTION: BENEFITS TO USERS</p>	<ul style="list-style-type: none"> • Drones are another tool that can be used to improve preventive maintenance, landscape management, architectural planning, traffic management, weed abatement, and work coordination. The photographic documentation can be electronically shared between GRF staff and vendors to improve proposals and better coordinate work. GRF should purchase one or more drones. • Benefits: <ul style="list-style-type: none"> – Reduces manpower requirements leading to less labor costs. – Reduces personnel risks. – Provides high quality electronic photographic and video documentation. – Potential to reduce long term maintenance replacement budget. – Assistance in planning future building and landscape development. <p>Requires only one staff to perform the work typically done by two or more individuals.</p>

APPENDIX

Attachment A
Example Drone Model
YUNEEC Typhoon Q500 4K



16.5 X 16.5 X 8.3 inches without propellers

APPENDIX
Continued



Has 3 axis gimbal camera with ultra-high resolution



5.8GHz Antenna

Take pictures
Start/Stop motors

Camera pitch angle/
Position control

Joystick 1

Built-in
touch screen

ST10+ Ground Station

Project Title Electric Vehicle Charging Stations GRF	
Status GRF: Completed	Status Committee: Already Funded
Project Sponsor: Dave Vereeke	Category: Transportation
Time Frame: 2018	Importance: High
Community Objective THE WHAT	<p>The migration to hybrid (gas & plug-in electric) or all electric vehicles is accelerating. The pace of adoption is expected to increase significantly over the next few years. This type of vehicle is a wonderful fit with many Rossmoorians that only travel a limited distance at any one time.</p> <p>Unfortunately, the Rossmoor community is ill equipped to supply the electric vehicle charging stations. With its 50 year old infrastructure, most areas do not have enough power available to provide the needed charging levels.</p> <p>By installing charging stations within Rossmoor, the community will move to the forefront of many senior communities and be viewed as one of the most progressive communities around</p>
Target Client THE WHY	<p>Rossmoor is already getting complaints from new owners who assumed that there would be locations available for charging their electric vehicles. When they discover that is not the case, they are quite unhappy to find that they have to go to Lafayette or Walnut Creek to charge their cars.</p> <p>Having charging stations at some of our highly used facilities will significantly alleviate this problem.</p>
Key Technology and Features THE HOW	<p>Rossmoor has a rare opportunity to take advantage of a PG&E pilot program that is rolling out effective the beginning of 2018. This program, mandated by the CPUC will result in the installation of 700 charging sites with 10 charging heads per site. As a result of the efforts of a number of dedicated individuals, PG&E has approved the installation of 3 sites. They are: the Gateway, Dollar and Tice Creek parking areas. PG&E will install and maintain the charging stations for a period of 10 years. They will also take responsibility for obtaining all necessary permits.</p> <p>Rossmoor has to purchase the charging heads.</p> <p>The charging stations will be what is called "Level 2" charging. This means that the charging will be at 240 Volts. Various flavors of Level 2 charging are available in terms of amperage. Commonly these are 30, 40, 48 and 75 amps. (Currently, only Tesla can take advantage of all 75 amps if that much power is available)</p>

<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>A preliminary survey by PG&E indicates that the physical locations selected will be in a close proximity of a transformer with enough spare capacity to supply all charging needs in each location. It is worth noting, that while it is desirable to install charging heads that can handle 75 amps, the bank of 10 charging stations is limited to the total power available at the transformer. Almost invariably the total available power won't be able to provide 75 amp charging concurrently to the 10 charging stations.</p>
<p>Relevant Numbers</p>	<p>Charging heads will cost approximately \$1500 each. (Although the price is dropping).</p> <p>PG&E bills the users for the cost of electricity used to charge the vehicle. PG&E offers two options for recovering the cost of use; owner maintained and PG&E maintained. Currently, it appears that having PG&E undertake the cost recovery and billing, is the better option for Rossmoor</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>Have PG&E install the charging stations at the 3 selected locations as soon as possible. Have PG&E undertake the responsibility for billing and maintaining the charging stations</p>

Project Title: Electronic Funds Transfer Payments	
Project Sponsor: Chris Slee	Category:
Time Frame: Immediate !!	Importance:
Community Objective THE WHAT	<p>Purpose: Accept payments electronically either in response to bills or online transactions. Note: most Rossmoor payments are not made to GRF but to MOD, Mutuals and Clubs</p> <p>Processes:</p> <ul style="list-style-type: none"> • Accepting online web payments for transactions [events, membership, etc.] • Accept other payments [coupons, car passes, etc.] • Member initiated bill payments to Rossmoor entities including bank automated bill payments <p>Problems addressed:</p> <ul style="list-style-type: none"> • Lots of checks for Rossmoor transactions!! • Enables online event ticketing, payments, memberships etc. • Fees can be an issue in the US (ranging from 3% down to 0.8% vs. 0.3% or less in Europe) so can obstruct online economics • Aggregating Rossmoor payments via ACH [e-checks] could <ul style="list-style-type: none"> ○ Create major savings over credit card payments ○ Enable clubs etc. to accept EFT ○ Save 1-2% of revenue as payment fees are significant, prohibitive in many cases
Target Client THE WHY	<p>Residents ... initial portal and gateway to other Rossmoor Sites Clubs, Rec Dept GRF, Mutuals</p> <p>Practices:</p> <ul style="list-style-type: none"> • Merchant [Billor, Payee] Practices: <ul style="list-style-type: none"> ○ Register as a bill Issuer / payment recipient to simplify member usage • Resident / Member Practices: <ul style="list-style-type: none"> ○ Set up online bill pay thru personal bank account
Key Technology and Features THE HOW	<p>What Technologies will be utilized, enhanced or replaced</p> <ul style="list-style-type: none"> • Credit/debit/ACH (Automated Clearing House) e-checks • Paypal etc. gateways <p>Potential Vendors</p> <ul style="list-style-type: none"> • Authorize.net¹², Paypal Pro¹³, Chase Payment Tech¹⁴ Forte, etc. etc. • P2P cash transfer [Peer to Peer] players like Venmo, Apple Pay Cash, Google Wallet seem limited to occasional non-merchant transactions¹⁵, and impose delays in transfer (1-3 days) <p>Benchmarks? Actual examples or possible comparisons?</p> <ul style="list-style-type: none"> • This is already ubiquitous everywhere ...

¹² <https://www.authorize.net>

¹³ www.paypal.com/Payments/Pro

¹⁴ <https://www.chasepaymenttech.com/>

¹⁵ "Which of these payment services should you use to send money to your friends, family, and others? We put them side by side to find the best." ... <https://www.digitaltrends.com/mobile/paypal-vs-google-wallet-vs-venmo-vs-square-cash/>

<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Gateways¹⁶, Online Payment Service Providers¹⁷ <p>Interactions, Dependencies: Typically a supporting feature to other areas such a work order management, event management, membership management and community management. So driven by payment gateways supported by and embedded in other software</p> <p>Reliability and quality: very reliable once set up Will it require a (major?) conversion of existing databases or other record keeping systems? Na/a</p> <p>Maintainability (likelihood that support will be available in future): YES</p> <p>Potential for design growth or modification: ACH is likely to grow in popularity, and allow far greater adoption of online payments</p> <p>Ergonomics: ... n/a</p> <p>Security: Most host software vendors outside holding card / account details to gateway / embedded / plugin vendors</p> <ul style="list-style-type: none"> • These should be PCI Compliant¹⁸ (payment card industry) • Host software must then interface in a PCI Compliant way so Rossmoor should evaluate vendors with this in mind
<p>Relevant Numbers</p>	<p>What is the overall size of this project</p> <ul style="list-style-type: none"> • Very dependent on software choices in other areas such work order management, event management and payment systems supported by each choice • Incidental <p>and can it have a phased implementation? Phased by definition e.g.</p> <ul style="list-style-type: none"> • Bank to bank payments with bill pay from bank accounts, including automated bills such as coupons; possibly later issue ebills, depending on software • Register as a merchant with various ACH banks • Identify and select preferred payment gateways where the 3% cost is not a barrier • Aggregate to get advantageous ACH rates <ul style="list-style-type: none"> ○ Possibly a drop box common account? ○ Distribute monies received to appropriate parties • Then implement as other software is implemented • Open issue: does JenArk support online ACH payments <p>Implementation budget:</p> <p>Cost – both upfront and ongoing</p> <ul style="list-style-type: none"> • Setup fees are typically modest (<\$100) per service • Ongoing fees are complex¹⁹ but approximate to <ul style="list-style-type: none"> ○ swipe fees are typically start at ~3% on credit / debit cards, ○ 1.78% for the average interchange fee (think credit, debit) ○ 0.8% or down to \$0.25 on ACH [e-check] transactions

¹⁶ https://en.wikipedia.org/wiki/Payment_gateway

¹⁷ https://en.wikipedia.org/wiki/List_of_online_payment_service_providers

¹⁸ <https://www.pcisecuritystandards.org/> ...

https://en.wikipedia.org/wiki/Payment_Card_Industry_Data_Security_Standard

<http://www.onlinetech.com/resources/references/what-is-pci-compliance>

¹⁹ <https://www.merchantmaverick.com/a-visual-guide-to-credit-card-processing-fees-and-rates-infographic/>

	<ul style="list-style-type: none"> • Stripe has an example²⁰ <p>Cost savings, if any:</p> <ul style="list-style-type: none"> • Reduce manual costs in all areas of payments, events, etc. • Save 1-2% on revenue processed thru credit cards <p>Happiness: significant simplify transactions allowing online event ticketing and payments, MOD payments ... and thus avoid driving, parking etc.</p> <p>Time to implement: months for initial steps, other areas gated by host software</p> <p>Will contract negotiations with vendors be required? Yes!</p> <ul style="list-style-type: none"> • Aggregating Rossmoor payments will command significant discounts
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>Pitch: Simplifying payments is a major convenience issue and a significant barrier to improving productivity and flexibility</p> <p>High Priority:</p>

²⁰ <https://stripe.com/blog/accept-ach-payments>

Project Title: Eliminate Dead Spots in Cellular Coverage	
Status GRF: Status Committee: First Reading	
Project Sponsor: Bob Kelso	Category: Communications
Time Frame:	Importance: Low to moderate
Community Objective THE WHAT	Eliminate dead spots in cellular coverage in the Rossmoor valley.
Target Client THE WHY	Rossmoor residents.
Key Technology and Features THE HOW	Possible addition of new cell towers. Some people have access to phones with wifi calling and with the new Comcast contract 95% of all manors now have wifi.
Crucial Factors DETAIL OF HOW	<ul style="list-style-type: none"> • Difficulty of getting new towers authorized by 4 cell phone companies. • Difficulty of permitting process.
Relevant Numbers	
SOLUTION: BENEFITS TO USERS	Cellular coverage with no dead spots will allow more residents to eliminate landline coverage saving at least \$240 per year. Many residents have already eliminated their landline but with spotty cellular coverage this can be an inconvenience but more importantly a health risk if they can't make emergency calls. Those residents who might have good coverage at their home might not have coverage in other parts of Rossmoor limiting their ability to call emergency services.

Project Title	Emergency Back Up Infrastructure
Status	GRF Complete
Project Sponsor:	Mary A. England Category: Infrastructure
Time Frame:	2018 Importance: High
Community Objective THE WHAT	<p>For GRF business resumption purposes, funding for the following projects was approved in November, 2017, and scheduled for implementation in 2018.</p> <p>GRF intent is to provide emergency back-up infrastructure with these approved projects which include:</p> <ul style="list-style-type: none"> • backup power generation • backup phone system • increased battery power generation to support phone and IT systems • Increased capacity and redundancy in data storage • Need to divide the server capacity to support high load and high demand
Target Client THE WHY	<p>GRF Operations Staff, employees, thus GRF members are the target beneficiaries. In emergency situations, continued operation and/or recovery of operations for GRF will be vital to GRF fulfilling its obligations.</p> <p>Continuous power generation to support GRF phone or radio communication, to sustain or recover IT computer operations, and meet server availability requirements in times of peak demand (which will be enhanced by additional server capacity), are components of emergency backup infrastructure.</p>
Key Technology and Features THE HOW	<p>Acquisition and operation of additional backup power generation is needed in emergency situations when PGE power is not available.</p> <p>GRF Public Safety has acquired a propane-powered, automatic back-up generator for the Entrance Facility. The generator can power the Entrance Facility for about three days. The generator will keep the gates functioning for about three days.</p> <p>Acquisition and operation of an additional IT controlling server for the GRF Network and an additional phone system controller will provide emergency backup.</p> <p>GRF Radio communications will need to operate in the event ATT phone networks are out. Radio networks operated by GRF can include Motorola, FRS, CB. Mobile devices may function if mobile networks are</p>

	<p>not overloaded. Mobile devices for online internet access may function if networks and internet access are available.</p> <p>Recent local disaster scenarios have highlighted that in the event mobile cellular networks are overloaded, some networks may accommodate mobile capacity for “text messaging”. This is a benefit in case the “Nixle Alert” system is activated, text messaging may be utilized to communicate with “Nixle” subscribers (which is free to subscribers). GRF operates a valuable “Rossmoor” Nixle alerts system for Rossmoor subscribers.</p> <p>The installation of a larger battery for the Gateway building, (the central location for all fiber optic network cabling, and backup for Nimble storage arrays for data) is imperative for business operations and emergency recovery.</p> <p>For available transportation vehicles, GRF will need to provide access to fuel requirements in case fuel pumps (which are electric) are down. The question of whether the GRF Solar Farm will be able to supply power in emergency conditions needs to be explored.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>Critical success factors involve installation of newly acquired backup infrastructure prior to emergency loss of power, network communications, and computer functions. The loss of backup systems may limit GRF Operations and Communications availability.</p> <p>Crucial factors in returning GRF operations to acceptable levels include:</p> <ul style="list-style-type: none"> • Capacity planning for core business functions -as power allows • Contingency planning for emergency backup infrastructure failure • Planning for staged resumption of core GRF business functions • Availability of GRF Staff to implement back-up plans <p>GRF has plans for Incident Command Structure (ICS), with assigned Staff in place to function under an ICS organization. Implementation of an ICS structure will be crucial to GRF functioning in sustained disaster or emergency.</p> <p>Additional dependencies include other GRF Technology project implementations and rely on contingency and capacity planning for:</p> <ol style="list-style-type: none"> 1. Upgraded Data Capacity via Network 2. Improved Universal Power System (UPS) & AC for Servers, etc. 3. Considerations for sustained power generation via Solar sources <p>GRF human resource or staff contingency planning will be key for operational business continuity and business recovery in event of any outage, or any emergency or disaster. GRF Senior Staff has trained on the updated GRF Emergency Operations plan which include Incident Command System (ICS).</p>

Relevant Numbers	<p>2018 Funding has been approved. Costs of implementation and vendor contracts has not been pursued by sponsor since additional funding has not been requested.</p>
SOLUTION: BENEFITS TO USERS	<p>In an emergency situation in which some or all infrastructure systems are unavailable, GRF will need to provide priority services to the primary beneficiaries, the Mutuals and GRF members.</p> <p>By ensuring adequate backup power generation, selective power allocation to sustain phone, computer, controlling server (for the IT network), and battery generation (to power the Gateway, Front Gate, Tice Creek Fitness Center, Creekside and Event Center), GRF staff can operate limited emergency infrastructure for core business functions during limited duration outages.</p>

Project Title: Event Management and Room Reservations	
Status GRF:	Status Committee:
Project Sponsor:	Chris Slee, Bob Kelso Category:
Time Frame:	Months Importance: High, low barriers
Community Objective THE WHAT	<p>Purpose: Rossmoor has 1,000s of events [per week?] Think meetings, tournaments, trips, lectures, staff coordinated events, all those room reservations ... and all those without room reservation such as aquatics, fitness, golf etc. Even TV programming and inevitable future online events!</p> <p>Processes: Allow electronic processes, displays etc. at group situations</p> <p>Problems addressed:</p> <ul style="list-style-type: none"> • Inaccurate information, lack of timely information • Driving, searching • No automated notifications etc.
Target Client THE WHY	<p>Group Attendees:</p> <ul style="list-style-type: none"> • ~80,000 events per year²¹ plus others <p>User Practices: [See Event Management Life Cycle diagram below]</p> <ul style="list-style-type: none"> • Every step of Planning, executing and learning from previous events requires collaboration, publicity, ticketing, reminders etc. etc. • This is a considerable burden on paper processes with limited inaccurate publicity that require driving, manual searches, etc. etc. • Accurate event information drives accurate and timely NEWS
Key Technology and Features THE HOW	<p>Key Features: See diagram. Events have</p> <ul style="list-style-type: none"> • dates [and may repeat], • reserve resources [think rooms, AV equipment, support people], • publicity [online and on paper through Rossmoor News, flyers [minutes] etc.], • reservations [invitations, tickets, EFT payments, etc], • reminders, adjustments, changes • the event itself [including check-in, preferably using bar codes and e-tickets], • reporting after event [articles, minutes, feeds to Rossmoor news, newsletters, etc.] and more. • Learning ... Procedures, templates, descriptions etc. <p>Used, enhanced or replaced:</p> <p>Vendor identified: Some</p> <ul style="list-style-type: none"> • CMS Plugins [See Modern Online Infrastructure] ... i.e jEvents • SAAS Hosted ... e.g. Activenet

²¹ Need reference ... number from Mary England

<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>Dependencies: CMS ... security in</p> <p>Reliability and quality: Much better than</p> <p>Conversions: NO, depending on desire to document history</p> <p>Maintainability: YES</p> <p>Growth or modification:</p> <ul style="list-style-type: none"> • CMS ... dependent on vendors, possible to contract with vendors. Multiple sub vendors encourage an active marketplace with competition and evolving capabilities. Possible to develop custom extensions for specific requirements • SAAS .. paced by vendors and their client base. Missing functionality addressed at their will. Little opportunity to extend
<p>Relevant Numbers</p>	<ul style="list-style-type: none"> • Cost <ul style="list-style-type: none"> ○ CMS Plugins .. typically < \$500/year for unlimited sites; can abandon at will while still having functioning software ○ SAAS Hosted: typically hidden / negotiable ... \$3000+ per year expanding rapidly with number of users, sites etc.. TBD from staff <ul style="list-style-type: none"> ▪ Multi-year contracts and • Cost savings, if any: <ul style="list-style-type: none"> ○ Lots of manual costs, would need study ○ Much better communications etc. [automated emails, newsletters] and feeds to Smart News • Implementation budget: Depends on approach chosen and number of sites <ul style="list-style-type: none"> ○ CMS ... less than 1 month for qualified novice, 1 week experienced ○ SAAS ... TBD • Time/phases to implement: Can be phased by site need and obstacles <p>Contract negotiations required: CMS ... none, SAAS ... yes</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>Core function of Rossmoor and critical to Members enjoyment of the Community</p> <p>Currently not well served across the community with paper, emails and phones</p>
<p>APPENDIX</p>	<p>Online Event Management</p> <p>Event Examples: Board meeting, club meeting, art, music, speech, movie, sports tournament, openings, tours, trips Audience: planners, staff and residents Volumes: estimated ~80,000/year at Rossmoor</p> <p>Flowchart Description: The diagram illustrates the event management cycle. It starts with 'Idea' (red arrow) leading to 'Research' (blue arrow). From 'Research', the process branches into 'Room Reservation' (orange box) and 'Work Orders Published' (orange box). 'Research' also leads to 'Learning' (green arrow) and 'Resources' (green arrow). 'Learning' leads to 'Post Event' (green arrow), which includes 'Reporting Minute' and 'Email list'. 'Resources' leads to 'Publicity' (blue arrow), which includes 'Agendas' and 'Invitations*'. 'Publicity' leads to 'Register' (blue arrow), which includes 'E-Tickets', 'Phone tickets', and 'Check-in [Scans]'. 'Register' leads to 'Build Up' (yellow arrow), which includes 'Reminders*', 'Confirmations', and 'Home ticketing'. 'Build Up' leads to 'Event' (purple arrow), which includes 'E-Tickets', 'Phone tickets', and 'Check-in [Scans]'. 'Event' leads to 'Post Event' (green arrow). 'Post Event' leads to 'Smart News' (orange box), which includes 'News', 'Ads', 'Newsletters', 'Syndicated News', and 'Personal Calendars'. 'Smart News' leads to 'Room Reservation' (orange box). 'Room Reservation' leads to 'Work Orders Published' (orange box). 'Work Orders Published' leads to 'Smart News' (orange box). There are also feedback loops from 'Post Event' back to 'Learning' and 'Resources', and from 'Smart News' back to 'Publicity'.</p>

Project Title: Fiber Optic Cable Replacement	
Status GRF:	Status Committee:
Project Sponsor:	Fred Kern Category: IT
Time Frame: Within 18 months Importance: Medium to high	
Community Objective THE WHAT	<p>Currently Rossmoor has an interconnected fiber optic cable network linking the major common facilities and the front gate guard facility building. It also has a fiber link to the John Muir medical center that has been abandoned. The hub for interconnection is at Gateway. The highest capacity link is between Gateway and the MOD building.</p> <p>Significantly increase the capacity of the backbone communication facilities within Rossmoor</p> <p>Replace existing Fiber cable with significantly faster and more reliable cable.</p> <p>The existing system is approximately 21 years old. It has reached its maximum capacity and is starting to become very difficult to find replacement parts. Some cable strands have failed, further reducing capacity</p>
Target Client THE WHY	<p>Primarily the IT Department and its need to synchronize a growing amount of data on a real time basis. The introduction of an increasing number of digital, real time cameras has significantly increased the data loads.</p> <p>The Rossmoor community as a whole will significantly benefit at more data hungry services are implemented.</p>
Key Technology and Features THE HOW	<ul style="list-style-type: none"> • Fiber Optic cables come in two general flavours; Multi Mode and Single Mode. Rossmoor has Multi Mode cabling. • The cables themselves contain a varying number of glass strands (they carry the actual data). In Rossmoor both 12, 8, and 4 strand cables were installed. • At the time of installation, Multi-Mode cabling and the accompanying Amplifiers, receivers and Transmitters were much less expensive than Single Mode. However, it has had several drawbacks. It is slow, with each strand pair only able to transmit at about 100 Mb. The transmission distance is also very limited. (Rossmoor's backbone has several repeaters to get connections to Hillside and Creekside. Single Mode cable transmits at around 100 Gb and for a longer distance without needing a repeater. • Today, 21 years later, the cost of Single-mode cable and associated gear has dropped dramatically.

	<ul style="list-style-type: none"> Fiber links to all of the GRF properties should be reviewed. Using the same hardware and software throughout the Valley will likely yield long term reliability and savings.
Crucial Factors DETAIL OF HOW	<ul style="list-style-type: none"> Rossmoor had negotiated with Comcast to include a dedicated conduit for linking the buildings to be served by a fiber network. The actual size of the conduits are a little hazy in people's memories, but are likely either 4 or 6 inch. Ability to reuse existing conduit is crucial. Today, the cost of cable is cheap, and the physical size of the new cable is quite small (about 1/2" for 144 strand cable)
Relevant Numbers	<p>Cost of replacing the system – <i>Actual numbers are still pending</i></p> <ul style="list-style-type: none"> Cable costs are estimated to be between \$1.50 and \$4.00 per linear foot <ul style="list-style-type: none"> This is for a 144 strand Single Mode cable Installation is estimated to be between \$8.00 and \$15.00 per linear foot. Total installation is estimated at \$175,000 - \$225,000.
SOLUTION: BENEFITS TO USERS	<p>Pull new cable and abandon existing cable in place. Utilize a phased approach.</p> <p>Phase 1 – Add new cable between Gateway and MOD Phase 2 – Add cable between Gateway and the entry gate Phase 3 – Add new cable between all other locations.</p>

Project Title: Gateway Data Site Relocation	
Status GRF:	Status Committee:
Project Sponsor: Fred Kern	Category: Highly Recommended
Time Frame: Less than 1 Year Importance: Medium to High	
Community Objective THE WHAT	<p>The Rossmoor IT department houses its data bases in two separate physical locations that mirror each other. They are currently at the MOD offices and at the Gateway location.</p> <p>The MOD office location has been upgraded over time to include robust AC systems for cooling, better battery backup. A power generator of sufficient capacity to power the computer room, telephone systems and a dedicated AC system is to be installed in the near future. The Gateway location has a UPS battery backup, but does not have a dedicated AC system or a Generator.</p> <p>This Technology Project Description provides some recommendations on improving the reliability and robustness of Rossmoor's systems from a physical environment stand point.</p>
Target Client THE WHY	<p>This is a core infrastructure project that has a goal of improving the reliability and safety of the Rossmoor IT and telephone systems during periods of power outages and high temperatures.</p> <p>The Rossmoor telephone system is digital and requires continuous power to operate. It is located in the MOD complex and is designed to stay up even if the power has failed at Gateway as part of the MOD UPS.</p>
Key Technology and Features THE HOW	<p>Virtually all IT systems have some level of protection to guard against power fluctuations or outages. They are called UPS or Uninterrupted Power Systems. For small offices a simple UPS can be purchased for a few hundred Dollars. These systems filter power coming into the computers and data switches to remove power spikes and voltage drops which can significantly harm the machines. They also provide enough power to keep the machines running for a period of time. In a small office it allows enough time for the machines to be powered down in an orderly fashion. In a larger operation there is enough battery power to allow a backup generator to be started and brought online. This allows the computers to run as long as there is sufficient fuel to keep the generator running.</p> <p>However, another factor needs to be accounted for – the temperature in the computer rooms. Again, most IT operations have AC ducted into the computer room. AC power needs are significant and usually cannot be supplied by the battery banks. A generator can supply enough power to the computer room if it only has to supply power to a smaller dedicated AC system instead of supporting an office environment system.</p>

	<p>At Gateway, the situation is a bit different as more equipment has been added to a room that does not have a dedicated AC unit. The temperature in the room gets quite high on warm days. A solution needs to be found in the near future to prevent equipment failures.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>MOD has battery backup plus a generator. It also has a dedicated AC that can be supported by the generator.</p> <p>Gateway has a small UPS, but no generator or separate AC unit.</p> <p>At this time staff is considering relocating the Gateway systems to the Creekside building. There is considerably more space with better AC systems. The reason this approach has become feasible is the upcoming installation of a new fibre optic back bone that has much higher capacity and does not require a repeater for the distances involved.</p> <p>However, this option is dependent on the installation of an upgraded Fibre Optic cable. This installation is itself dependent on being able to pull a cable or micro duct through the old (and probably clogged) ducting.</p> <p>It should also be noted that there is sufficient room to install a dedicated AC at Gateway. However, there are no feasible locations where backup generator and fuel storage can be added.</p>
<p>Relevant Numbers</p>	<p>Total installation and relocation costs for UPS at Creekside are estimated to be in the range of \$35,000.</p> <p>Ongoing operating costs are minor, mostly associated with the periodic testing of the generator.</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>The Technology Committee recommends that the size of the battery backups in each location should be given a modest upgrade.</p> <p>The Committee recommends that improvements to the Gateway site be deferred until a final decision is made about moving the Gateway systems to Creekside.</p> <p>As an interim partial solution, it is recommended that an industrial strength fan be located in the Gateway computer room. In addition, the staff may want to buy/rent a small portable AC and Generator that can cool the room in case of a power failure.</p> <p>When (and if) equipment is relocated to Creekside, the installation of a dedicated computer room AC unit should be considered as well as the installation of a backup generator.</p>

Project Title: Irrigation Watering Technology	
Status GRF: None	Status Committee: Recommended
Project Sponsor: Vicki Swisher	Category: Physical Infrastructure
Time Frame: 2019 - 2023	Importance: High
Community Objective THE WHAT	<ul style="list-style-type: none"> • Purpose of Improving Irrigation: <ul style="list-style-type: none"> – Water is expensive. – A large portion of the GRF property is under some form of irrigation to maintain the vegetation. This includes the golf courses and the GRF landscaped property shown in red on Attachment A. Incorporating an optimal irrigation solution for each of these areas results in reducing water usage while maintaining the current beauty of the property. – Poor irrigation management can lead to collateral damage. <ul style="list-style-type: none"> ○ Standard sprinkler spray nozzles result in wasting water through evaporation and overspray onto sidewalks, streets, buildings, and bare ground. ○ Water sprayed on structures escalates deterioration leading to wood rot. ○ Water sprayed on bare ground contributes to soil erosion. – Constantly evolving technologies provide an opportunity to improve our irrigation systems.
Target Client THE WHY	<p>Primary Beneficiary:</p> <ul style="list-style-type: none"> – Rossmoor Residents <ul style="list-style-type: none"> ○ Lower water costs translate into lower coupons. ○ Implementing state-of-the art equipment extends the operating lifetime of equipment, thereby reducing capital costs. – GRF grounds maintenance also benefits because of the following: <ul style="list-style-type: none"> ○ Implementing state-of-the art equipment reduces man-hours required to maintain irrigation components. ○ Implementing state-of-the art equipment extends the operating lifetime of equipment thereby reducing time spent in preventive maintenance. – Improving watering helps ensure healthier vegetation.
Key Technology and Features THE HOW	<ul style="list-style-type: none"> • Technology Currently Available: Irrigation systems are a combination of watering techniques, specific types of hardware components, and mechanisms controlling the irrigation cycle. There is no one combination that suits all installation requirements. Currently there are two types of irrigation systems widely used for residential and commercial properties. These systems are typically referred to as high pressure sprinklers and low pressure / low volume drip irrigation. Typical sprinkler systems are, on average, about 75% water efficient, while drip irrigation systems have 90% or higher water efficiency.

	<ul style="list-style-type: none"> - High pressure sprinkler systems are made to deliver large volumes of water at relatively high pressures and are generally used for lawns, ground cover and other large volume areas that are not amenable to drip irrigation. The new MP rotator sprinkler heads deliver 1/3 the volume of water in the form of droplets instead of mist, reducing evaporation, run-off, and pooling. However, sprinklers are less effective for watering trees and plant since much of the water falls around the plant rather on the roots. High pressure sprinkler systems also have a greater potential for water run-off leading to soil erosion. - Drip irrigation delivers a slow-moving supply of water at a gradual rate directly to the soil. It is considered one of the most water and energy-efficient methods of irrigating trees, plants, and shrubs in clay soil because the water is applied slowly, allowing the soil to absorb the water and avoid runoff. This reduces evaporation and minimizes soil erosion. Drip devices use a fraction of the water that overhead spray devices use. Two of the most common types of drip irrigation are referred to as bubblers and drip tube emitters. There are some down sides to using this method of watering. Drip irrigation is not very useful for large open areas such as lawns. Because tubing, bubblers, and emitters are typically placed on the ground surface, they are prone to damage from landscapers and pedestrians walking over the components. Also it is very difficult to identify plugged emitters and the tubing often becomes buried even if they were originally installed above ground. - Smart water controllers are essential for effective irrigation systems. These electronic devices are used to automatically open and close the valves that send water to the sprinklers and drip emitters. The reason they are labeled “smart” controllers is because they use numerous inputs to determine when and how long water should be delivered to the vegetation. These inputs include: soil type, plant or tree type, root depth, land grade, irrigation system (high pressure or drip), sun exposure, and current weather. Smart water controllers reduce manpower required to start and stop watering as well as better manage water application by cycling the systems off and on over short cycles to permit absorption of water into the soil rather than pooling or run-off. • Current Irrigation Practices by GRF: Numerous upgrades to the GRF irrigation systems were made over the past 10 years. Many of the major irrigation changes were implemented during the 2012–2016 drought. Both GRF Landscape Management and Golf Course Management received praise from EBMUD for their efforts in significantly reducing water usage. <ul style="list-style-type: none"> - GRF Landscaped Property Improvements Attachment B contains a list of the major GRF irrigation improvements, their costs, and rebates obtained for the landscaped property. All these improvements were completed by the end of 2015. As indicated in Attachment B, most of the irrigation improvements for the GRF landscaped property were related to removing lawns and upgrading sprinkler heads to rotator types.
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	<p>Approximately 1000 sprinkler heads have been upgraded to rotator type. Very few spray nozzles still exist in the system. The reason drip irrigation has not been widely implemented to-date on the GRF landscaped property is primarily because of the following:</p> <ul style="list-style-type: none"> ○ Drip irrigation is not efficient for watering lawns and ground cover vegetation. Much of the landscape on the GRF landscaped property is lawn or ground cover. ○ If trees, plants, and shrubs are enveloped by a lawn, they do not need drip irrigation since they are automatically being watered by the lawn sprinklers. ○ Each water station that is run off the same timer and control valve must have the same type of watering devices (spray nozzles, rotator nozzle, bubbler, or drip tube emitter). If there is an area containing trees and shrubs adjacent to a lawn, a separate water line must be connected to drip tube emitters that are placed around the trees and shrubs. <p>– Golf Course Improvements</p> <p>Golf Course Management implemented major landscape and irrigation upgrades between 2008 and 2015 to ensure water usage was efficient and fell within the EBMUD guidelines during the drought. These upgrades included:</p> <ul style="list-style-type: none"> ○ Unnecessary lawns and ground cover were removed around trees, shrubs, and plants. Existing sprinklers were replaced with drip irrigation covered with mulch. It should be noted that subsurface drip irrigation is available for lawn usage, but it has numerous drawbacks and therefore is not a viable option for the golf course fairways. ○ Numerous sprinkler head were upgraded to rotator type and equipped with angle adjustment to maximize efficiency, limit watering overlap, and watering bare ground. ○ The golf course also added numerous control valves to permit operation of fewer sprinkler heads per station for greater efficiency and water management. <p>– GRF irrigation systems for the landscaped property and golf courses both utilize ET Water smart controllers linked to a weather satellite system for optimum watering. The controllers are hardwired to power and their output is hardwired to the irrigation control valves. The link to the weather satellite and other internet data is done over cellular data networks using the same technology as your cell phone. There are 17 controllers for the GRF landscaped property and 72 controllers for the golf courses. This brand of irrigation control system is extremely effective, very sophisticated, and considered state-of-the-art. Golf Course Management recently upgraded their ET Water smart controller software to the most recent version to permit better watering efficiency. The installation of the ET Water smart controllers was a significant improvement to GRF irrigation and resulted in a 20% reduction in irrigation water usage.</p>
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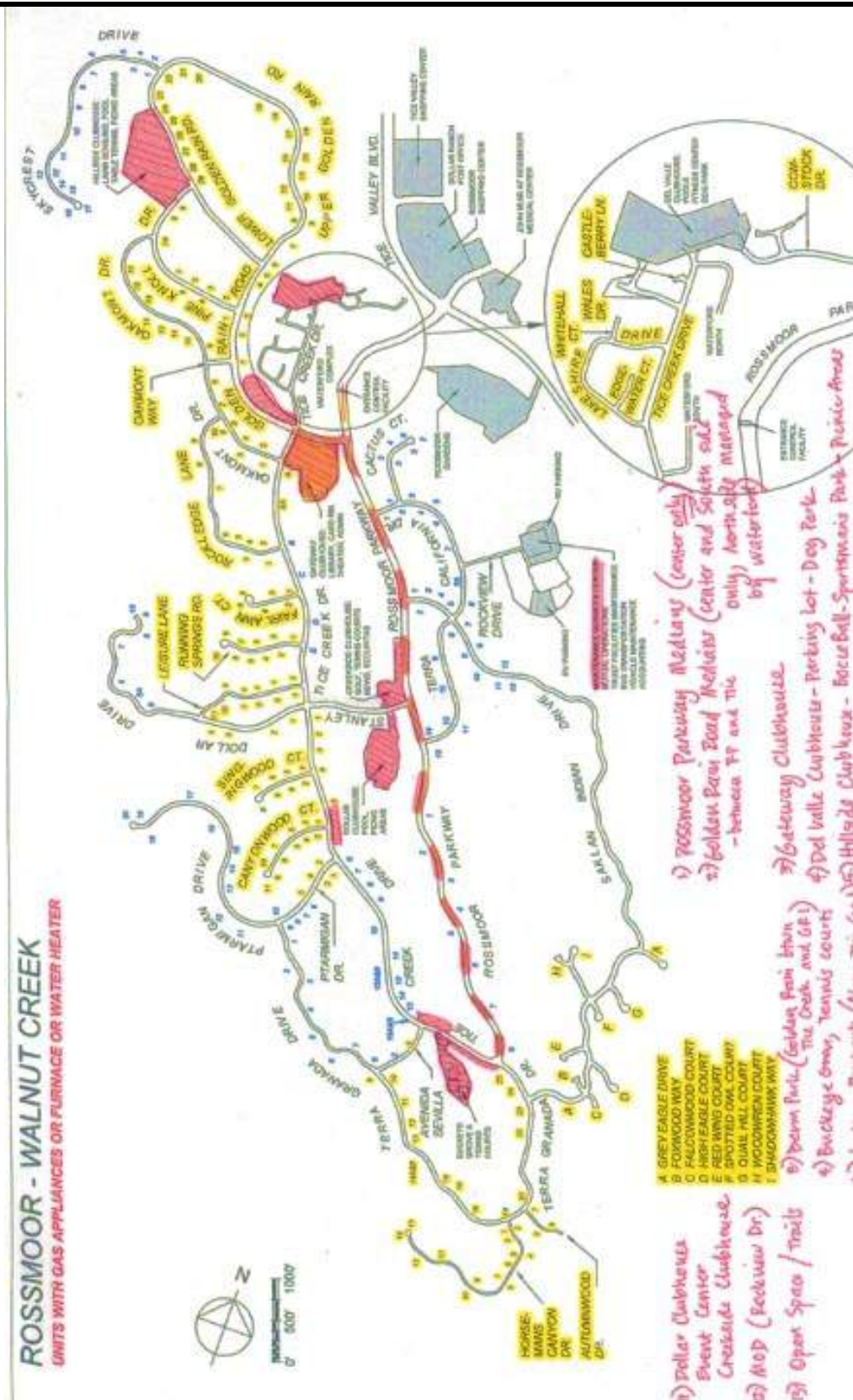
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Potential for Irrigation Upgrades <p>Although many significant upgrades were made to the GRF irrigation systems during the recent drought, there is still more improvements that can be made. The following factors are important to further enhancement of landscape irrigation and reduction of water usage:</p> <ul style="list-style-type: none"> – Replacing remaining spray nozzles with rotator nozzles. – Removing unnecessary lawns and ground cover and replacing with plants and/or mulch supported by drip irrigation. – Identifying areas on the GRF landscaped property that can be changed to drip irrigation. – Installing soil moisture monitors in strategic locations to determine if the smart controllers are over watering. Because there are thousands of irrigation stations that cover the GRF landscaped property and the golf courses, it would not be feasible to install a soil moisture sensor for each one. A few representative ‘zones’ around the property should be selected to install moisture sensors and use them as a barometer for the other parts of the property with comparable conditions. These monitors are also effective in identifying plugged emitters in drip irrigation systems. Note: Golf Course Management currently uses a manual soil moisture monitor to gauge moisture content on the greens and fairways. – Installing submeters downstream of each control valve to more effectively identify system leaks and irrigation water usage. While this upgrade has great potential for water savings, the cost of installing thousands of submeters with electronic remote readout is quite expensive with current technology (\$300 - \$800 per submeter). Golf Course Management has indicated that submeters may not be as important for water lines feeding fairway and green sprinklers since players notice wet areas caused by leaking irrigation pipes and report this to the staff. Installation on GRF landscape property may be phased-in, starting with areas known to have leaks due to regular damage or aged systems. – Replacing old and dying plants and shrubs with drought tolerant vegetation. • Availability of adequate staff to monitor and perform preventive maintenance on irrigation equipment. GRF Landscaping has one manager that is shared with all of the Mutuals, one supervisor, one full time irrigation technician, and some support by other MOD technicians. Golf Course Management has 12 maintenance personnel that are responsible for the upkeep on both golf courses. • Interaction with Existing Systems: <ul style="list-style-type: none"> – GRF has made substantial investments in their current irrigation systems. Any future modifications need to interface with existing equipment. It is not economical, practical, or necessary to make wholesale changes to the GRF irrigation systems to further reduce water usage. – Partially changing any of the smart irrigation controllers to another manufacturer would require investing in a second weather satellite station and considerable installation costs. Previous quotes from other vendors have been significantly higher.
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	<ul style="list-style-type: none"> • Dependencies that May Impact Upgrades <ul style="list-style-type: none"> – The irrigation systems need to comply with EBMUD policies for water usage. EBMUD has the following outdoor water restrictions in effect that impact GRF Landscape Property and the golf courses: <ul style="list-style-type: none"> ○ When watering outdoor landscapes, avoid runoff on sidewalks, streets and hardscapes. ○ Turn off fountains or decorative water features unless the water is recirculated. ○ No watering of outdoor landscapes within 48 hours of rainfall. – During drought conditions, EBMUD restricted outdoor watering during daylight hours. This restriction has apparently been lifted since it is not in their current list. This restriction can impact drip irrigation usage since it typically runs for many hours and may exceed night time hours in the summer. – EBMUD rebates are dependent on irrigation system equipment upgrades and landscape design. • Reliability and Quality <ul style="list-style-type: none"> – Major irrigation system vendors have a proven track record for components manufactured to “commercial” standards. – Problems have been identified with subsurface and surface installed drip irrigation emitters and micro-sprayers due to blockage and lack of visibility. • Maintainability <ul style="list-style-type: none"> – As with any system, the more components the greater requirements for preventive maintenance or replacement. A preventive maintenance program, if not already in place, should be established to monitor equipment that is reaching the end of its predicted lifetime. – Most above ground components are easily maintained or replaced. One exception is determining whether drip irrigation emitters are plugged. – Smart controllers are leased with a 5-year subscription / warranty program that also enables continued use after 5 years for a discounted rate. Upgrades of hardware and software are available when new controllers are purchased during or after the 5-year subscription period.
<p>Relevant Numbers</p>	<ul style="list-style-type: none"> • Cost <ul style="list-style-type: none"> – Attachment B illustrates the monies previously spent for major upgrades of GRF landscaped property. – Irrigation system upgrades will continue over the lifetime of Rossmoor as technology improves. These upgrades should be considered in the GRF long term maintenance replacement budget. As an example, replacement costs for each ET Water smart controller is \$2090 for a 5-year subscription. After 5 years, GRF can continue to use the same controller for approximately \$200 per year until a replacement is required. • Cost Savings <ul style="list-style-type: none"> – EBMUD has the following rebate programs:

	<ul style="list-style-type: none"> ▪ Changing conventional spray nozzles to rotator nozzles – up to \$2.00 each ▪ Adding pressure regulators in 1” or less lines – up to \$75 each ▪ Adding irrigation submeters in 1” or less lines – up to \$75 each ▪ Lawn conversion rebate - \$0.50/sq. ft. ▪ Maximum rebate not to exceed \$15,000 for 2018 <p>– Previously replacing 1000 spray nozzles with rotators in the GRF landscaped property has resulted in a 30% reduction in water usage and an estimated cost saving of \$5600/month.</p> <p>– Implementing drip irrigation can result in another 20% - 30% reduction in water usage.</p> <p>– As an example, Mutual 8 has recognized a water cost saving of \$40 per month per manor by removing large swaths of lawn, adding drought resistant plants and shrubs, and replacing the spray nozzle sprinklers with drip irrigation.</p> <ul style="list-style-type: none"> • Implementation Budget The GRF Landscape Property Manager and the Director of Golf already incorporate some state-of-the-art irrigation upgrades in their yearly maintenance plans. The budget for 2018 was already approved and work is ongoing.
<p>SOLUTION:</p>	<ul style="list-style-type: none"> • Both GRF Landscape Property Management and the Director of Golf need support from GRF to continue upgrading and maintaining their irrigation systems. Each of these organizations requires a different level of support. <ul style="list-style-type: none"> – Golf Course Management Because of the previous major irrigation upgrades done on the golf courses and their current use of manual soil moisture monitoring, there are no major irrigation upgrades required at this time. Golf Course Management is currently “fine tuning” their irrigation system by adjusting/upgrading MP rotator nozzles, removing unnecessary lawns, and installing more drip irrigation. They are able to perform this work within their typical yearly budget. The GRF long term maintenance replacement budget currently specifies replacement of the irrigation pump and re-surfacing the gunite that seals the bottom of the lake. This work needs to be supported and budgeted in order to ensure efficient water usage. – GRF Landscape Management <ul style="list-style-type: none"> ○ To achieve the maximum reduction in irrigation water usage and realize all of the benefits, it is recommended that a 5-year plan be developed and funded to complete the water reduction initiatives started during the previous drought. ○ Starting in 2019, GRF maintain yearly landscape property maintenance budget to start the changeover of sprinklers to state-of-the-art drip irrigation. ○ In addition, the GRF budget should support the installation of electronic soil moisture monitors in strategic areas on the property to gauge watering efficiency.

<p>BENEFITS TO USERS</p>	<ul style="list-style-type: none"> ○ GRF should add funds to the landscape property maintenance budget over the next 5 years for removing the lawn on the 5 sections of median on Rossmoor Parkway and replacing it with drought resistant plants and state-of-the-art drip irrigation technology similar to the project completed at the entrance to Rossmoor. The recommendation is to replace one section per year at a cost of \$40,000 per section. The re-landscaping of any one section of median can be treated as a stand-alone project. Approving the re-landscaping of one section of median does not commit the GRF Board to completing all of the medians. The proposed 5-year plan can be terminated or extended after the completion of each median section, depending on the actual costs, resident reaction, and whether the cost savings per section achieves or exceeds \$4,900/year. ○ Other potential irrigation upgrades listed in the section “Crucial Factors” should also be factored into the yearly budget over the next 5 years. ● Continuing to support the implementation of state-of-the-art irrigation technology will provide the following benefits: <ul style="list-style-type: none"> – Realizing a substantial decrease in water bills while still maintaining beautiful landscaping. – Reducing cost to maintain / replace vegetation effected by poor irrigation and during periods of drought. – Reducing maintenance costs due to failure of old irrigation components. – Eliminating manpower requirements for monitoring changes in irrigation requirements based on weather conditions. – Reducing collateral damage such as soil erosion and wood rot. – Receiving rebates from East Bay Municipal Utility District (EBMUD) for landscaping and irrigation systems that conserve water. – Being a good custodian of our environment.
<p>APPENDIX X</p>	<p style="text-align: center;">Attachment A</p> <p style="text-align: center;"><u>GRF Landscaped Property</u></p>

APPENDIX
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Attachment B
GRF Lawn and Sprinkler Conversion Summary

**APPENDI
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GATEWAY

Lawn by Fireside Room: remove and convert to mulch and shrubs	
1,800 sq ft	\$2,880.00
Heads 6 rotors	\$ 255.00
Cost	\$3,135.00
Rebate	\$ 930.00
Lawn north corner: remove and convert to mulch and shrubs	
1,600 sq ft	\$2,560.00
Heads 16 spray	\$ 584.00
Cost	\$3,144.00
Rebate	\$ 880.00
Courtyard: remove lawn and convert to mulch	
1,000 sq ft	\$1,600.00
Heads 21 spray	\$ 766.00
Cost	\$2,366.00
Rebate	\$ 605.00
Vinca bed SW corner: remove and convert to chips	
Labor to spread	\$0.00
Heads 11 rotors, cap	\$0.00
Rebate	\$0.00
Gateway total cost	\$8,645.00
Rebate	\$2,415.00

HILLSIDE CLUBHOUSE

Lawn on Pine Knoll Drive: remove and convert to mulch	
10,000 sq ft	\$16,000.00
Heads 11 rotors, delete	\$ 0.00
Total Cost	\$16,000.00
Rebate	\$ 5000.00
Lawn north of pool: remove and convert to chips	
11,000 sq ft	\$ 0.00
Heads 11, delete	\$ 0.00
Cost	\$ 0.00
Rebate	\$5,500.00
Lawn by bowling greens: upgrade heads	
Heads 60 spray	\$2,190.00
40 rotors	\$1,700.00
Cost	\$3,890.00
Rebate	\$ 500.00
Hillside Clubhouse total cost	\$19,890.00
Rebate	\$11,000.00

Attachment B (continued)

**APPENDI
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ROSSMOOR MEDIAN ISLANDS

South Island: remove lawn and convert to rock	
600 sq ft	\$ 960.00
Heads 10 spray,cap	\$ 450.00
Cost	\$1,410.00
Rebate	\$ 350.00
All other islands, convert to high efficiency heads	
Heads 223	\$8,139.00
Rebate	\$1,115.00
Median Islands Total Cost	\$9,549.00
Rebate	\$1,465.00

BERM PARK

Station #10: remove lawn and convert to mulch	
2,600 sq ft	\$4,160.00
Heads 8 rotor, delete	\$ 0.00
Cost	\$4,160.00
Rebate	\$1,300.00
Station #11: remove lawn and convert to mulch	
1,600 sq ft	\$2,560.00
Heads 8 rotor, delete	\$ 0.00
Cost	\$2,560.00
Rebate	\$ 800.00
Station #12: remove lawn and convert to mulch	
6,000 sq ft	\$9,600.00
Heads 13 rotor, delete	\$ 0.00
Cost	\$9,600.00
Rebate	\$3,000.00
Station #15: remove lawn and convert to mulch	
3,600 sq ft	\$5,760.00
Heads 8 rotor, delete	\$ 0.00
Cost	\$5,760.00
Rebate	\$1,800.00
Station #17: remove lawn and convert to mulch	
1,000 sq ft	\$1,600.00
Heads 4 rotor, delete	\$ 0.00
Cost	\$1,600.00
Rebate	\$ 500.00
Berm Park total cost	\$23,680.00
Rebate	\$7,400.00

Attachment B (continued)

**APPENDI
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LUTHER BURBANK PARK

Remove shrubs and install chips		
Labor		\$ 0.00
Heads spray 36, cap		\$1,620.00
Rotor 25, upgrade		\$1,062.50
Cost		\$2,682.00
Rebate		\$ 305.00

BIRD WATCHERS PARK

Convert to high efficiency heads		
Heads spray 90		\$3,285.00
Rebate		\$ 450.00

FAIRWAY PARK

Convert to high efficiency heads		
Heads spray 48		\$1,752.00
Rotor 56		\$2,380.00
Cost		\$4,132.00
Rebate		\$ 520.00

ROTARY PEACE PARK

Convert to high efficiency heads		
Rotor 46		\$1,955.00
Rebate		\$ 230.00

Total Parks		\$12,054.00
Rebate		\$ 1,505.00

SUMMARY

GATEWAY	COST	\$8,645.00
	REBATE	\$2,415.00
HILLSIDE	COST	\$19,890.00
	REBATE	\$11,000.00
BERM PARK	COST	\$23,680.00
	REBATE	\$ 7,400.00
MEDIAN ISL	COST	\$9,549.00
	REBATE	\$ 1,465.00
PARKS	COST	\$12,054.00
	REBATE	\$ 1,505.00
 <u>GRAND TOTAL</u>	 COST	 \$73,818.00
	REBATE	\$23,785.00

Project Title: Jenark Upgrade	
Status GRF:	Status Committee:
Project Sponsor:	Mary A. England Category: Core Systems
Time Frame:	2-3 years Importance: High
Community Objective THE WHAT	<p>Golden Rain Foundation has operated Property Management software, Jenark (now Corelogic) for 20 years. Jenark Property Management software has been functional for accounting software and has been customized for MOD management of the GRF & Mutuals' work order processing. The limitations of the Jenark database technology, the lack of integration of other GRF software solutions has been described in the following:</p> <ol style="list-style-type: none"> 1. Database Integration Project 2. Community Association/Property Management Software Solutions (CAM/PM) 3. Web -Enabled Member Interactions <p>Evaluating software solutions that integrate with Jenark is of value and may offer a solution to better deliver GRF services and manage GRF member interactions.</p>
Target Client THE WHY	<p>GRF employees interacting with Jenark, other 6 GRF Software solutions. GRF members desiring direct online interaction with GRF. Jenark software modules for accounting and work-orders now are integrated with selective Integration solutions.</p> <p>The integration partner software may offer an alternative option and migration pathway with Jenark to a conversion/ implementation to a new CAM/PM software solution. Jenark (owned by Corelogic) is in the process of attempting to catch-up with other software developers in the Community Association/Property Management Software market.</p>
Key Technology and Features THE HOW	<p>In 2020 Jenark is expected to move to 1 standardized API + Proxy for Progress 10 Database (push & pull data)</p> <p>Since the API standardization does not affect Jenark "product code", Jenark also targets the following development to extract data and build calculations to pull account balance during 2019:</p> <ul style="list-style-type: none"> • Association Data (names, association tables) • Residential Data Q1 • Accounts Payable, General Ledger Q2 <p>Of particular interest to GRF with the plans to standardize API to Jenark and push/pull data in the Paradox database is the Jenark plan to "strip-out" custom code which also impacts half-50% of other clients of Jenark as well. This issue will need further investigation since GRF/MOD has significantly customized/built the Jenark work-order module.</p> <p>Of benefit however, is the new 2020 target by Jenark to achieve 1 standardized API + Proxy which will allow clients to integrate with SQL databases. An additional benefit of the new standardized API will be that</p>


	<p>clients of Jenark can “validate” data extracts on Jenark’s Progress database.</p> <p>Future Jenark software development plans include a standard new work order module, and online member portal to process credit card payments, at a cost of \$3/per member/per month. Also, Jenark plans to upgrade the Progress database to V.11 which will impact users of earlier versions if they upgrade to V.11. No date is announced for these plans.</p> <p>Jenark Integration Partners Offer Significant Functionality (See Appendix page 4)</p> <p>This sponsor has identified the following software platforms which integrate with Jenark accounting module and/or with Jenark work order system:</p> <ol style="list-style-type: none"> 1. FRONTSTEPS CONNECT (integrate with both modules) 2. PILERA 3. EUNIFY (accounting) 4. CONDOCerts (accounting)
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>A number of important questions on Jenark development will need to be clarified in order for GRF to pursue future migration to the updated technology before 2020.</p> <ol style="list-style-type: none"> 1. Has Jenark achieved “roadmap” development milestones within stated timeframes? 2. How many integration vendors will have adopted the standardized API or Proxy? 3. Can GRF integrate some/any of the current 6 Applications with Jenark’s database? 4. When will Jenark make the new work order module generally available? 5. Will GRF be able to maintain the customized work order module – what does it mean that “customizations will be stripped”? 6. When will/how many current customers of Jenark be on board with the new API? <p>The GRF Ad Hoc Technology Committee recommends that GRF Board consider:</p> <p>Commissioning a GRF taskforce to evaluate the possible pathways for upgrading, migrating or converting current property management (Jenark) software beginning in 2019. The taskforce be comprised of GRF/MOD department stakeholders who use Jenark, other software applications, perhaps GRF members with subject matter expertise (CAM/PM), a consultancy to guide the process with appropriate funding requests prior to 2020.</p>

<p>Relevant Numbers</p>	<p>The Jenark upgraded API fee structure, as of 9/2018 is, in addition to current fees:</p> <ul style="list-style-type: none"> • Integration or communication monthly API fee = \$0.10 per unit per month • 1 time server communication fee of \$2500+ maintenance fee of 3 % • API vendor fee are independent of Jenark fee structure <p>FRONTSTEPS CONNECT licensing fees include:</p> <ul style="list-style-type: none"> • FS CONNECT = monthly per unit per month = \$0.35 = \$2345.00 • FS Set-up fee 1 time = \$750.00 • Monthly recurring = \$2345.00 • Total Price = \$3095.00 <p>Pilera Premium pricing for less than 10,000 units includes:</p> <ul style="list-style-type: none"> • \$0.25 per unit per month • Optional add-ons: (Accounting Integration, Knowledge base, tickets, vendors) = \$0.13 per unit per month • Additional fees for: Websites, Online Forms, SMS, phone • Set-up fees for each community = \$150 per community <p>Initial Portfolio Set-up max \$2500</p>
<p>SOLUTION: BENEFITS TO USERS</p>	<p>GRF/ MOD employee users, GRF members, Mutual beneficiaries, Mutual Board Directors will benefit by improved access to relevant business transactions, communications, and integration with Jenark accounting and work-order system.</p>
<p>APPENDIX</p>	<p>*A brief description of these four Integration Partners' software platforms follows:</p> <p>The FRONTSTEPS CONNECT platform offers a broad line of online services including the integration to Jenark Accounting and Work Order software. The FRONTSTEPS integration is achieved by API key. The new CONNECT platform fits best for medium sized communities and delivers:</p> <ul style="list-style-type: none"> Front-facing Website with secure member login Portal Mobile Apps for access Community News Dashboard (SMS messaging & Notifications) Community communication Bulletins (GRF, HOA: email Newsletter Template, Forms) Calendaring Events: Amenity Booking/integration to member accounts(online payment) Financials: Member/Unit Account Balance, transaction history, integrated/Jenark accounts Financial Reporting integrated with Jenark Digital Document Storage -File access by user type (manager, member, director)

	<p>Work-Order Integration: Online creation, submittal, assignment, status by HOA/Mutual/GRF</p> <p>Work-Order Billing integrated in Jenark</p> <p>Work-Order Reporting of usage statistics: Average hours, responsibility, resolution</p> <p>Online Surveys, Voting capability for HOA Board approvals</p> <p>Online Architectural request forms</p> <p>User (employee) statistics: Performance reporting and Cost savings vs. manual process</p> <p>Master and Member Community Directory (by Units, Building, Mutual)</p> <p>The PILERA PREMIER software platform includes the following:</p> <ul style="list-style-type: none"> Manager & Resident Web Portal, & Mobile App Email Communications Online payments and integration with Jenark Financials Document Library, Send documents Events Notification Marketplace Rule Violation Notifications Address Tracking for billing, vacations, etc. Work Order service requests Incident, Call, Pet tracking Occupants Managing other Residents Vehicle/Parking Space Tracking Alternate Contacts for residents (relatives, tenants, guests) <p>The EUNIFY and CONDOCerts software both include:</p> <ul style="list-style-type: none"> Integration to Jenark Accounting Module <p>Jenark will provide an “API Toolkit” for vendors to achieve integration with the database. We do not yet know if the software platform vendors we identified are “preferred Vendors”.</p>
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Project Title: LED Street Lighting	
Status GRF:	In Progress Status Committee: Highly Recommend
Project Sponsor:	Vicki Swisher Category: Physical Infrastructure
Time Frame:	2018-2019 Importance: High
Community Objective THE WHAT	<p>The purpose of implementing LED street lighting in Rossmoor includes:</p> <ol style="list-style-type: none"> 1. Reducing power consumption costs. 2. Greatly reducing maintenance costs. 3. Improving street lighting patterns and minimizing light pollution in residents' manors. <p>All of the current street lights in Rossmoor are 70 watt high pressure sodium lights. They are located on all of the public thoroughfares in the valley, as well as some cul-de-sacs. GRF Trust Maintenance has indicated that there are a total of 433 street light fixtures in the valley. The following is a breakdown by type of light fixture and location:</p> <ul style="list-style-type: none"> • 293 Cobra Heads - located on Rossmoor Parkway, Tice Creek, Terra Granada, and Horseman's Canyon Drive • 71 Top Hats - located primarily on Skycrest Drive and around clubhouses • 69 Drop Globe - located on Saklan Indian Drive and Grey Eagle Drive <p>Most of the cobra head fixtures are under a "Power and Glass" rate structure which means that GRF owns the fixtures and pays PG&E a flat monthly rate for power and maintenance. The remaining fixtures are under a PG&E flat monthly charge for power and are maintained by GRF Trust maintenance.</p> <p>Approximately two years ago, the GRF Director of Residential Services started a program to implement LED street lights. The changeover process varied by type of light fixture. The top hat and drop globe fixtures only require changing the bulbs and photocells. The cobra heads require disconnecting the ballast and starter, re-wiring the connection, and replacing the entire cobra head. All of this work must be completed with the light fixture energized.</p>



	<p>The first street lights to be re-bulbed were all 20 of the top hat lights located in the Gateway parking lot and 5 top hat lights around the Gateway Plaza. 3000 Kelvin white (warmer color) LED lights were installed (as opposed to the harsher, older model 5000 Kelvin bluish LED lights). The estimated cost for the entire job was \$1200. Within the past few months, GRF Trust Maintenance changed 10 of the high pressure sodium 70 watt cobra head lights on Rossmoor Parkway between the Security entrance and Terra California Drive to 25 watt LED cobra heads.</p>  <p>One feature of the new cobra head LED lights is the fixtures have a tilt adjustment. This enabled the installers to tilt the heads slightly so the light is better positioned to illuminate the street and at the same time reduce light pollution in manors located along the Parkway. To-date, both of these sets of LED installations have proven successful from a usability and cost reduction perspective.</p>
<p>Target Client</p> <p>THE WHY</p>	<p>The Primary Beneficiaries of an LED street light retrofit include:</p> <ul style="list-style-type: none"> - GRF Operating budget - reduction on power consumption - GRF Trust Maintenance Department - reduction in maintenance requirements <p>The Secondary Beneficiary is:</p> <ul style="list-style-type: none"> - Rossmoor residents - potentially lowered coupon and enhanced street lighting
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>What Technology Solutions Are Available To Support a GRF LED Street Light Retrofit?</p> <ul style="list-style-type: none"> - There are literally dozens of LED lighting manufacturers competing in today's marketplace. This has resulted in a rapid advance in LED lighting products. Not only have LED bulbs increased in efficiency over the past few years, many features, particularly with street lights, have been developed to enhance lighting patterns, reduce glare, create warmer color temperatures, and enable remote operation through a Wi-Fi app. <p>Advantages of LED Street Lights</p> <p>The use of LEDs in street lights has proven to be an excellent alternative to traditional lighting. LEDs are the most energy-efficient lighting option on the market today. They can last 2 - 3 times as long as ordinary sodium-vapor street lights and their prices have consistently dropped due to heavy competition among manufacturers. Chief among the advantages of LED lights include the following:</p> <ul style="list-style-type: none"> - Extremely long lifespan - An LED light can last up to 100,000 hours since they don't have filaments that can quickly burn out. Based on an average usage of 12 hours per day, this translates into 20 years of operation compared to 5 - 10 years for a high pressure sodium bulb.

- **Environmentally friendly** - LED lights do not contain lead or mercury and do not emit any poisonous gases. Also they give off less heat than other bulbs. Lower energy consumption and operating costs also translate into a lower carbon footprint, which satisfies initiatives adopted by many cities to be more eco-friendly and to seek environmentally sustainable solutions to common issues.
- **Reduced maintenance costs** - Because of their long lifespan and fewer operating parts (no ballast or starter), maintenance is minimal. This is extremely beneficial when dealing with the inconvenience and difficulty in replacing street lights on uneven terrain and busy streets.
- **Highly energy efficient** - LEDs use approximately 35 percent of the energy of a high pressure sodium light while generating more lumens per watt. Current LEDs can produce over 200 lumens per watt, while traditional streetlights typically produce 60 - 80 lumens per watt.
- **Enhanced lighting patterns** - LEDs are becoming more common in street lighting applications because they project the lumen output of the LED more efficiently, which allows for wider coverage with a consistent light pattern. Uniformity is one of the benefits of a well-designed solid state lighting product. Improved uniformity means fewer hot spots (and subsequent pools of darkness) versus traditional light sources. This improves visual acuity and safety. From the safety perspective, light from LED fixtures can be aimed and controlled to eliminate the dark spots and shadows that are common with more traditional high pressure sodium street lights. LED luminaires are available in many different light dispersion patterns, and those luminaires can be mixed and matched to shed uniform lighting across sidewalks and roadways.
- **Minimal lumen degradation over the LED lifespan** - Lighting specifiers often had to over-compensate with an abundance of initial lumens to account for lumen depreciation over the life of a high pressure sodium light source. LEDs depreciate more slowly than many traditional light sources.
- **Lights reach full brightness instantly** - LEDs do not require time to warm up, which makes them a flexible light source.
- **Insects don't like LED lights** - This is because they don't give off ultraviolet rays and they are sealed to protect against outdoor life.
- **Less glare** - As they are directed at the road surface, they do not badly affect driver's vision.
- **Accurate color rendering** - The quality of LED street lighting is also a substantial improvement over traditional lights. LEDs are capable of generating light with a higher color rendering index (CRI) than traditional lighting. A higher CRI better illuminates small differences and subtle contrast changes in road and sidewalk surfaces. Motorists and pedestrians alike will see everything more clearly. High Pressure Sodium bulbs have a CRI between 20 and 40. LED CRI typically starts at or above 70 on the scale of 0 to 100. The function of providing security is compromised with lights with

low CRI. Poor contrast and color rendering necessitate that more powerful lights are needed to achieve the objectives of street lighting. Powerful lights in turn lead to glare which again compromises the ability of the human eye to see objects clearly. LED lights with a high CRI solve this visibility problem.

- **Higher light output** - LED lights perform better at lower temperatures, which is beneficial over the winter months.
- **Can withstand most weather conditions** - They are dustproof, waterproof and work in all temperatures.
- **Can change brightness** - LEDs can be dimmed or brightened, allowing for more flexibility in controlling light levels. Some cities are using LED lights to create clever effects, such as increasing in brightness when a pedestrian walks by or integrating systems that alert officials when a particular light needs maintenance. They can also be used to blink rapidly to signal to emergency responders where they are needed.

- Disadvantages of LED Street Lights

- **Only provide directional light** - LEDs only provide directional light, so they can't produce a spherical "glow" emanating in all directions, like most lights. Because of this feature, they are generally used in street lights that are hanging or facing downward, rather than in lamp-type lights.
- **Initial cost is higher than high pressure sodium bulbs** - The initial cost of LED lighting is high, and consequently, it can take several years for the cost difference to be made up through cheaper energy bills. The high cost derives in part from the material used. LEDs are often made of sapphire or other expensive substances. The estimated costs are summarized in the Relevant Numbers section below.
- **Eyestrain** - Some original LED street lighting systems created eyestrain as a result of their brightness and glare, and the preponderance of blue-wavelength light. Newer fixtures and systems have addressed the glare issue with lenses and diffusers. The bluish LEDs are a stark change from the orangish high-pressure sodium lights. Manufacturers started adding more and redder phosphors to a white LED to make its light look warmer and more agreeable to the eye, but at the cost of reduced efficiency. That's because energy is lost in converting high-energy blue photons to lower-energy yellow and red photons. Recently LED lighting manufacturers started making further design changes to eliminate the blue-rich LEDs, but at the same time maintain lumen levels. Cree, one of the top U.S. makers of LED lighting, began offering 3,000-K LEDs that could generate the same number of lumens per watt as 4,000-K LEDs (modern sodium lights have a color temperature of 2,100 to 2,300 K). This breakthrough involved adding a new high-efficiency red-emitting LED to the standard blue LED with yellow phosphors. As it turns out, producing red light directly from the new LEDs generates more lumens per watt than adding red-emitting phosphors to the standard yellow-emitting ones in a white-light LED. Another promising approach is developing

	<p>optical systems that reduce the intensity of light from the LED device before directing it toward the street. A Cree offering called WaveMax uses transparent waveguides to collect light from LEDs and deliver it to ports that diffuse the emitted light. The effect is similar to that of a frosted incandescent bulb, which spreads light from the bright filament across the bulb's surface.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Implementing GRF LED Street Lights <p>There are three options for installation of the LED street lights. Each of these has pros and cons involved in the process.</p> <ul style="list-style-type: none"> – Option #1 - The first option is to have GRF Trust Maintenance purchase the LED lights and complete the installation over a period of 1 year with resources available. The advantages of Option #1 are the following: <ul style="list-style-type: none"> ○ No manpower costs beyond the current Operating budget. ○ GRF Trust Maintenance has the necessary equipment. ○ GRF Trust Maintenance already has experience. ○ Likely the least expensive option. <p>The disadvantages of Option #1 are the following:</p> <ul style="list-style-type: none"> ○ May take longer to complete the project because of limited manpower. GRF Trust Maintenance estimates 1 to 1 ½ years to complete. ○ Work must be done with street light energized. Only two technicians are currently qualified to do this work. ○ May not get as good a rebate on materials versus having PG&E do the work. – Option 2 - The second option is to have an outside lighting contractor provide a fixed price bid for materials and labor. The advantages of Option #2 are the following: <ul style="list-style-type: none"> ○ Contractor should be able to complete work in 2 - 3 months. ○ No issue if special equipment becomes necessary for steep roadways. ○ Contractor may be able to get better material rebates. ○ Contractor carries own workman's comp and liability insurance. ○ Contractor warranties work for 1 year. <p>The disadvantages of Option #2 are the following:</p> <ul style="list-style-type: none"> ○ May be most expensive option. ○ May be limited number of qualified local contractors. – Option #3 - The third option is to use the PG&E or Contractor Turnkey Replacement Service such as Enovity. The advantages of Option #3 are the following: <ul style="list-style-type: none"> ○ No issue if special equipment becomes necessary for steep roadways.

	<ul style="list-style-type: none"> ○ Turnkey Service should provide best material rebates. ○ Turnkey Service carries own workman's comp and liability insurance. ○ Turnkey Service warranties work for 1 year. ○ Financing is provided through On-Bill Financing (OBF) which may mean no out of pocket costs to GRF. Cost of project is deducted from energy savings each year. <p>The disadvantages of Option #3 are the following:</p> <ul style="list-style-type: none"> ○ This program may no longer be available. ○ Costs more than Option #1. ○ May not be completed for more than a year since PG&E is currently 8 months behind schedule. ○ OBF must be paid off through savings in 10 years. <ul style="list-style-type: none"> ● Dependencies on Other Lighting Systems <p>There are no dependencies on other GRF lighting systems. However, Mutual 61 is actually responsible for 26 120v cobra heads and Mutual 68 is responsible for 25 drop globes. These street lights are on cul-de-sacs and therefore the cost of LED retrofits should be passed on to those two Mutuals.</p>
<p>Relevant Numbers</p>	<p>The cost of retrofitting the GRF street lights with LED lighting has the following components and considerations (see Attachment A for complete spreadsheet):</p> <ul style="list-style-type: none"> ● Materials (estimated cost if purchased by GRF Trust Maintenance) <ul style="list-style-type: none"> – Cobra Head - \$210 per fixture = \$61,530 – Top Hat - \$70 per fixture (only a bulb is required) = \$4,970 – Drop Globe - \$70 per fixture (only a bulb is required) = \$4,830 ● Labor <ul style="list-style-type: none"> – \$0 additional cost if installation is performed by GRF Trust Maintenance as time is available from other daily activities. Technicians' daily costs are already included in GRF Operating budget. – Assume \$300 per hour for lighting contractor or PG&E; this includes 2 technicians and a bucket truck; estimated time to change cobra heads is 30 minutes per light (based on actual times performed by GRF Trust Maintenance + bucket truck set-up time); estimated time to change bulbs in top hats and drop globes is 20 minutes per light (based on actual times performed by GRF Trust Maintenance + bucket truck set-up time); total time equals (30 min. X 293) + (20 min. X 159) = 193 hours; total cost is \$57,950 for outside labor. ● Rebates <p>Both the PG&E and MCE rebate programs are undergoing modifications as of June 1, 2018. They plan to provide some numbers in the next two weeks. The following are rebates and cost reductions for LED street light installation that were previously available:</p>

	<ul style="list-style-type: none"> – PG&E used to provide a \$25 rebate per LED light when purchased from one of their qualified vendors. – MCE had a lower incentive/rebate rate for LED street light power usage. – PG&E provided a discounted turnkey replacement service that included parts and labor. It is unknown whether this service will continue since they are 8 months behind schedule (see Attachment B for details). • Cost Per Year for High Pressure Sodium Lights <ul style="list-style-type: none"> – Cobra Heads are on the “Power and Glass” program with PG&E; this includes electrical usage and maintenance; estimated cost per light is \$5.411/month for 240v and 70 watt and \$4.615/month for 120v 70 watt based on the 2017 PG&E LS-2 Rate Schedule (see Attachment C) plus \$2.50/month based on old PG&E LS-3 Rate Schedule; total cost = \$27,567 – Top Hat and drop globe fixture are on the “Power only” program with PG&E; only includes electrical usage; estimated cost per light is \$5.411/month for 240v and 70 watt and \$4.615/month for 120v 70 watt based on the 2017 PG&E LS-2 Rate Schedule (see Attachment C); total cost = \$8,431 • Cost Per Year for LED Lights <p>All 25 watt LED fixtures cost \$1.225 per month (see Attachment D) for a total cost of \$6,365</p> • Cost to Retrofit Street Lights with LEDs using GRF Trust Maintenance Personnel - \$71,330 (materials only) • Cost to Retrofit Street Lights with LEDs using Contract Personnel - \$129,140 (materials and labor) • Years to Recoup LED Retrofit Costs Assuming No Rebates and Installed by GRF Trust Maintenance - 2.4 years • Years to Recoup LED Retrofit Costs Assuming No Rebates and Installed by Contractor - 4.4 years • Maintenance Requirements: <p>There would be minimal maintenance requirements following installation of the LED street lights since the bulbs are warranted for 10 years, but are expected to last 20 years.</p>
<p>SOLUTION :</p> <p>BENEFITS TO USERS</p>	<p>The GRF Ad Hoc Technology Committee recommends the following:</p> <ul style="list-style-type: none"> • GRF should evaluate the proposals listed below and continue their discussions with PG&E, Century Commercial Services, and Enovity to determine the best OBF Turnkey Program (see Attachment E for details). • GRF’s final determination and contract signoff should be in 2018 to obtain the best prices and installation schedule for 2019.

- GRF negotiates with Mutuals 61 and 68 to determine if their street lights will be included in the retrofit at their cost.
- Based on the rebate data, contractor proposals, and Mutuals 61/68 participation, GRF selects final installation option and adjusts 2019 budget accordingly.

Benefits to GRF and Rossmoor residents include the following:

- Minimal street light maintenance for 10 years following installation.
- Savings in GRF street lighting costs of almost \$30,000 per year.
- Enhances driver and pedestrian safety due to better lighting.
- Ability to adjust lighting direction and brightness.
- Reduces carbon footprint.

APPENDIX

Attachment A

Sodium Lights	No. of Fixtures	Monthly Cost for 70w Bulb	PG&E Maintenance Cost	Monthly Cost	Yearly Cost
Cobra Head 120v	26	\$4.615	\$2.500	\$184.99	\$2,219.88
Cobra Head 240v	267	\$5.411	\$2.500	\$2,112.24	\$25,346.84
Top Hat 240v	71	\$5.411	\$0.000	\$384.18	\$4,610.17
Drop Globe 120v	69	\$4.615	\$0.000	\$318.44	\$3,821.22
Total Yearly Cost					\$35,998.12

LED Lights	No. of Fixtures	Monthly Cost for 25w Bulb	PG&E Maintenance Cost	Monthly Cost	Yearly Cost
Cobra Head 120v	26	\$1.225	\$0.000	\$31.85	\$382.20
Cobra Head 240v	267	\$1.225	\$0.000	\$327.08	\$3,924.90
Top Hat 240v	71	\$1.225	\$0.000	\$86.98	\$1,043.70
Drop Globe 120v	69	\$1.225	\$0.000	\$84.53	\$1,014.30
Total Yearly Cost					\$6,365.10

Savings Per Year **\$29,633.02**

**APPENDIX
Continued**

Installation Cost	No. of Fixtures	Materials	Material Costs	Labor Hours	Labor Cost GRF	Labor Cost Contractor @ \$300/Hr
Cobra Head 120v	26	\$210.00	\$5,460.00	0.5	\$0.00	\$3,900.00
Cobra Head 240v	267	\$210.00	\$56,070.00	0.5	\$0.00	\$40,050.00
Top Hat 240v	71	\$70.00	\$4,970.00	0.33	\$0.00	\$7,100.00
Drop Globe 120v	69	\$70.00	\$4,830.00	0.33	\$0.00	\$6,900.00
Subtotals			\$71,330.00		\$0.00	\$57,950.00
Total Cost using GRF Maintenance						\$71,330
Total Cost using Contractor						\$129,280
<hr/>						
Years to Recoup using GRF Maintenance						2.4
Years to Recoup using Contractor						4.4



LED Street Light Program Fact Sheet

Turnkey Replacement Service

Your one-stop solution for LED upgrades



Pacific Gas and Electric Company's (PG&E) Light Emitting Diode (LED) Street Light program offers incentives to customers who own and maintain street light fixtures in the PG&E service area on the LS-2 fixed pricing schedule. Through the program, customers can replace or upgrade their existing street lights with new PG&E-approved LED fixtures. Customers are eligible for new lower pricing and product rebates.

Complementing the program, PG&E also offers a LED Street Light Turnkey Service. This provides a one-stop solution for customers who want to take advantage of the LED Street Light program and improve their energy efficiency, while minimizing material and labor resource impacts. The service provides significant cost savings by eliminating the project management expense associated with city personnel or contractor subcontracted labor.

Drawing on 100 years of experience in street light installation and maintenance, PG&E helps with project design, installation and billing updates, including:

- Volume purchasing power for LED lights
- Coordination of LED lighting selection
- LED fixture installation
- Rebate application completion and processing
- Billing record updates
- Geographic Information Systems (GIS) data
- Waste disposal and salvage of removed street light lamps and fixtures

Reducing Energy Use and Cost

Street light replacement represents a significant savings opportunity for cities. In some large cities, street lights may account for one-third of all municipal energy use. In the PG&E service area, street lights consume about 860 gigawatt-hours of electricity every year, roughly equivalent to powering more than 126,500 homes for a year. As energy savings and return on investment of LED street lighting continues to improve as technology progresses.

LED Lighting Advantages

In recent years, LED lighting has emerged as a valuable alternative to high-pressure sodium (HPS) lights because it provides good lighting performance in terms of light output, uniformity and correlated color temperature. The yellow-orange HPS lights typically produce over-lit "hot spots" directly beneath them, while LEDs maintain consistent luminance levels.

PG&E recently conducted a study in Oakland, Calif., where 15 HPS street light fixtures were replaced with LED lights. A comparison of the two technologies found that the LED lights used 30 percent less power, while delivering better lighting quality than HPS luminaires.

Attachment B

Attachment B (continued)

APPENDIX Continued



In a PG&E pilot study in Oakland, California, HPS street lights were replaced with LED street lights. Following the study, a neighborhood survey found that 70% of respondents preferred the LED street lights, saying the new lights significantly improved pedestrians' ability to see and to recognize people at night while driving.

Turnkey Replacement Service Benefits

Purchasing

- Technical consultation to determine appropriate LED replacement and fixture selection
- Competitive LED fixture pricing using PG&E's volume purchasing power
- LED fixtures that meet PG&E's stringent standards and qualify for PG&E Light rates and rebate program
- A product demonstration of LED lights before final lamp size selection

Installation

- Subcontracted labor and installation to qualified electric contractors
- Utilization of a competitive bid process
- Union and/or union-friendly contractors to assure prevailing wages
- Completion of work in 90-120 days (completion times may vary due to factors such as heavy traffic or limited work hours permitted by a city)
- Each city will be responsible for securing required permits

Quality Control

- PG&E-trained subcontractors and PG&E inspector verification of all work
- One-year guarantee of PG&E workmanship
- Five-year manufacturers' warranty on LEDs
- One-year coverage for failed lamp removal and replacement installation

Disposal

- Assistance with street lamp and fixture disposal

Administration

- Solicitation of material and contractor bids
- Completion of all rebate applications and rate change forms
- Updates to the GIS system
- Data gathering and sample documents for American Recovery and Reinvestment Act (ARRA) reports

Project Justification

- Help with justifying street light replacement to local governing bodies
- Projected savings calculations related to energy consumption, maintenance and lowered greenhouse gas emissions

Complete Package Pricing

- Material, distributor, shipping, sales tax, installation, inspection, PG&E and project management costs (several factors will influence final price)

Taking Action

For more information on how PG&E's LED Street Light Program Turnkey Service can streamline your street light replacement project, contact PG&E Business Customer Service Center at 1-800-468-4743.

LED Street Light Rebate	
Fixture Replacement	
Replace 70 Watt fixture with new LED fixture	
Replace 100 Watt fixture with new LED fixture	
Replace 150 Watt fixture with LED fixture	
Replace 200 Watt fixture with LED fixture	
Replace 250 Watt fixture with LED fixture	
Replace 310 Watt fixture with LED fixture	
Replace 400 Watt fixture with LED fixture	



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Attachment C

APPENDIX
continued



**Pacific Gas and
Electric Company**

U 39 San Francisco, California

Revised
Cancelling Revised

Cal. P.U.C. Sheet No. 41698-E
Cal. P.U.C. Sheet No. 40103-E

ELECTRIC SCHEDULE LS-2
CUSTOMER-OWNED STREET AND HIGHWAY LIGHTING

Sheet 3

RATES: (Cont'd.)

LAMP WATTS	kWh per MONTH	AVERAGE INITIAL LUMENS	All Classes	Half-Hour Adjustment
HIGH PRESSURE SODIUM VAPOR LAMPS AT:				
120 VOLTS				
35	15	2,150	\$2.307 (I)	\$0.109 (I)
50	21	3,600	\$3.342 (I)	\$0.152 (I)
70	29	5,500	\$4.615 (I)	\$0.210 (I)
100	41	8,500	\$6.525 (I)	\$0.297 (I)
150	60	16,000	\$9.545 (I)	\$0.434 (I)
200	80	22,000	\$12.731 (I)	\$0.579 (I)
250	100	26,000	\$15.914 (I)	\$0.723 (I)
400	154	46,000	\$24.505 (I)	\$1.114 (I)
HIGH PRESSURE SODIUM VAPOR LAMPS AT:				
240 VOLTS				
50	24	3,600	\$3.619 (I)	\$0.174 (I)
70	34	5,600	\$5.411 (I)	\$0.246 (I)
100	47	8,500	\$7.450 (I)	\$0.340 (I)
150	69	16,000	\$10.901 (I)	\$0.499 (I)
200	91	22,000	\$12.890 (I)	\$0.596 (I)
250	100	25,500	\$15.914 (I)	\$0.723 (I)
310	119	37,000	\$16.936 (I)	\$0.801 (I)
360	144	45,000	\$22.916 (I)	\$1.042 (I)
400	154	46,000	\$24.505 (I)	\$1.114 (I)
LOW PRESSURE SODIUM VAPOR LAMPS:				
35	21	4,600	\$3.342 (I)	\$0.152 (I)
55	29	8,000	\$4.615 (I)	\$0.210 (I)
90	45	13,500	\$7.161 (I)	\$0.326 (I)
135	62	21,500	\$9.867 (I)	\$0.449 (I)
180	70	33,000	\$12.413 (I)	\$0.564 (I)

(Continued)

Advice 5207-E
Decision

Issued by
Robert S. Kenney
Vice President, Regulatory Affairs

Date Filed December 27, 2017
Effective January 1, 2018
Resolution

APPENDIX
continued

Attachment D



**Pacific Gas and
Electric Company**
U 39 San Francisco, California

Revised
Cancelling Revised

Cal. P.U.C. Sheet No. 41700-
Cal. P.U.C. Sheet No. 40105-

ELECTRIC SCHEDULE LS-2
CUSTOMER-OWNED STREET AND HIGHWAY LIGHTING

Sheet 5

RATES: (Cont'd.)

LIGHT EMITTING DIODE (LED) LAMPS OR COMPARABLE LIGHTING TECHNOLOGY (unless otherwise specified in this tariff):

LAMP WATTS****	kWh per MONTH*****	Energy Rates Per Lamp Per Month	Half-Hour Adjustment	
0.00-5.00	0.9	\$0.143		\$0.007
5.01-10.00	2.6	\$0.414	(1)	\$0.019
10.01-15.00	4.3	\$0.664	(1)	\$0.031
15.01-20.00	6.0	\$0.955	(1)	\$0.043
20.01-25.00	7.7	\$1.225	(1)	\$0.056
25.01-30.00	9.4	\$1.496	(1)	\$0.068
30.01-35.00	11.1	\$1.766	(1)	\$0.080
35.01-40.00	12.8	\$2.037	(1)	\$0.093 (1)
40.01-45.00	14.5	\$2.308	(1)	\$0.105
45.01-50.00	16.2	\$2.578	(1)	\$0.117
50.01-55.00	17.9	\$2.849	(1)	\$0.130 (1)
55.01-60.00	19.6	\$3.119	(1)	\$0.142 (1)
60.01-65.00	21.4	\$3.400	(1)	\$0.155 (1)
65.01-70.00	23.1	\$3.670	(1)	\$0.167
70.01-75.00	24.8	\$3.947	(1)	\$0.179
75.01-80.00	26.5	\$4.217	(1)	\$0.192 (1)
80.01-85.00	28.2	\$4.488	(1)	\$0.204 (1)
85.01-90.00	29.9	\$4.758	(1)	\$0.216
90.01-95.00	31.6	\$5.029	(1)	\$0.229 (1)
95.01-100.00	33.3	\$5.299	(1)	\$0.241 (1)
100.01-105.00	35.0	\$5.570	(1)	\$0.253
105.01-110.00	36.7	\$5.840	(1)	\$0.265
110.01-115.00	38.4	\$6.111	(1)	\$0.278 (1)
115.01-120.00	40.1	\$6.382	(1)	\$0.290 (1)
120.01-125.00	41.8	\$6.653	(1)	\$0.303 (1)
125.01-130.00	43.5	\$6.939	(1)	\$0.315
130.01-135.00	45.3	\$7.209	(1)	\$0.328 (1)
135.01-140.00	47.0	\$7.480	(1)	\$0.340 (1)
140.01-145.00	48.7	\$7.750	(1)	\$0.352 (1)

(Continued)

Advice 5207-E
Decision

Issued by
Robert S. Kenney
Vice President, Regulatory Affairs

Date Filed December 27, 20
Effective January 1, 20
Resolution

Attachment E

APPENDIX
continued



PG&E LED Street Light Turnkey Replacement Service

Non-binding price estimate to be used for budgetary purposes only

City of: Golden Rain Foundation
 Date of this estimate: 17-Aug-2018 Expiration date of this estimate: 16-Sep-2018

Number of Lights to be Replaced	Voltage	Type	Wattage (Nominal/Actual)	Rate	Suggested Replacement LED Wattage
208	120	HPS	70/85	LS-2	28
55	240	HPS	70/100	LS-2	28
263					

Total Project Price: \$90,124
Total PG&E Rebates: \$2,630
Net Estimated Price: \$87,494

The rebates are subject to funding availability and are administered on a first come, first-serve basis. If rebate funding is depleted, customer must pay Total Project Price.

Energy cost savings in first year*: \$10,326
Energy savings (kWh/year): 65,158
CO2 reduction (lbs/year): 34,143
Avoided maintenance expenses in first year:** \$1,841

Simple Payback (Energy Only): 8.47

Project Price Notes:

Price includes purchase of requested street lights, installation and field verification of installed lights, rate change and rebate application processing.
 No permitting costs included in total project price.
 Project price assumes all lights to be replaced will be cobra head fixtures and will not include post top, shoe box, tear drop, or decorative fixtures.
 Project price assumes all street lights to be replaced are currently in operating condition.
 Project price assumes no restrictions on installations will be made (e.g.--heavy traffic area, special hours for installation, etc.)
 Project price assumes all street lights to be replaced are at an operating voltage between 120-240 volts AC.

Notes:

*Future year savings will grow with the expected increase in electricity and labor costs.
 **Avoided maintenance expenses are compared to maintaining HPSV lights.
 ***The street light manufacturer is CREE LED.

Assumptions:

- » 4100 operating hours annually
- » \$0.15848/kWh electricity cost
- » 0.524 lbs/kWh emission factor
- » \$26 per year maintenance cost for HPSV
- » \$19 per year average maintenance cost for LED
- » City has full jurisdiction over street lights

Attachment E (continued)



CUSTOMER INFORMATION

Date: 10/29/2018
Company: Rossmoor in Walnut Creek
Project Site: Rossmoor in Walnut Creek
Address: 800 Rockview Drive
City/State/Zip: Walnut Creek, CA 94595
Customer Contact: Jeffrey Matheson

PROJECT INFORMATION

LED Upgrade - Exterior Lighting - Street Lighting

Job Description:

Project Price: \$144,342.00
Estimated Utility Rebate: \$7,375.00
Cost After Utility Rebate: \$136,967.00

1 Year Energy Savings: \$17,453.70
1 Year Maintenance Savings: \$5,000.00
1 Year Total Savings: \$22,453.70

Payback in Months: 73
Payback in Years: 6.1
Return on Investment: 16.0%

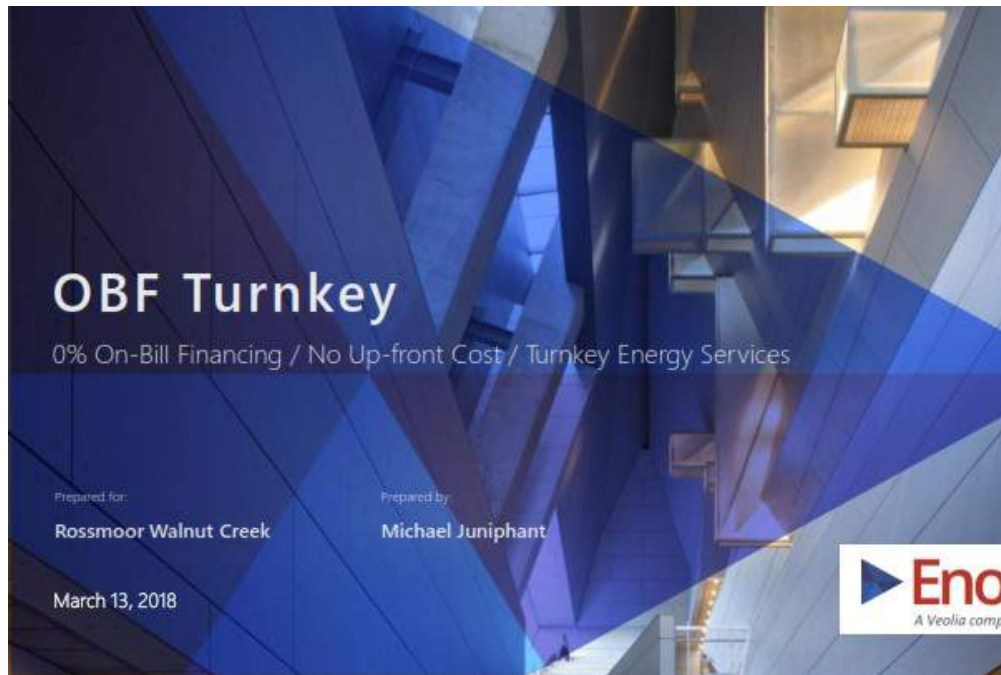
Electrical Cost Reduction: 72%
**Maintenance Savings
based on 120 Months:** \$50,000.00

***Note PG&E's exterior Energy Efficiency Rebate Incentive Program expires December 31st, 2018.

***Maintenance Savings is calculated using the dollar figure presented from customer.

12820 Earhart Ave. P.O. Box 6793, Auburn, CA 95604 (530) 823 -1004 (800) 522-1004 FAX (530) 823-
www.centuryservice.com
CA Contractors License #668894

APPENDIX
continued



What is OBF Turnkey?

Process Developed by Enovity

- ▶ Means for PG&E institutional customers to implement comprehensive energy efficiency projects with no out-of-pocket expense or upfront capital expenditure
- ▶ PG&E approves the project and provides up to \$2,000,000 of funding at 0% interest (\$4,000,000 per customer)
- ▶ Enovity provides Turnkey Energy Services from program approval through project M&V
- ▶ Enovity provides the upfront capital to develop and implement the project with input from the customer
- ▶ Enovity is only compensated upon successful completion of the project as defined by the customer, including verification of the energy savings and project costs
- ▶ *In essence, OBF Turnkey projects are guaranteed savings projects since OBF funds are never released until successful verification of the energy savings by PG&E*

Project Title: Modern Online Infrastructure	
Status GRF: Status Committee:	
Project Sponsor: Chris Slee Category: Infrastructure	
Time Frame: Importance: High, low barriers	
Community Objective THE WHAT	<p>Purpose: Provide an infrastructure to support multiple Rossmoor applications and web sites.</p> <p>Processes: Allow better productivity within and outside groups</p> <ul style="list-style-type: none"> • Anything that requires collaboration, knowledge management etc. • Any shared information processes typical of an intranet [maintenance, projects, task forces, etc] <p>Problems addressed:</p> <ul style="list-style-type: none"> • Custom development is expensive, so blocks new sites <p>Obstacles to new sites means more expensive business processes as collaboration and knowledge management is manual thru email etc</p>
Target Client THE WHY	<p>Anyone building or needing a web site in Rossmoor</p> <ul style="list-style-type: none"> • GRF • Staff • Mutuals • Clubs • Other Groups
Key Technology and Features THE HOW	<p>Key Technologies:</p> <ul style="list-style-type: none"> • See diagram below ... Baseline Infrastructure and Content Management that Supports Multiple Sites • Content management system [CMS]²² <ul style="list-style-type: none"> ◦ CMS Plugins • ETL for Data Integration • X500/LDAP etc. for security <p>A Content Management System should provide</p> <ul style="list-style-type: none"> • User management, groups, security, permissions and access rights ** • Content management and dynamic publishing • Content workflow and moderation • Categorization, tagging • Personalization and filtering based on permissions and categories • Templates, Menu, Look and Feel customization • Banner Advertisements • Multi-language ** • News Feeds, syndication • Search • ** [Some are weak here, a problem] <p>Plugins [extensions] add further functionality</p>

²² https://en.wikipedia.org/wiki/Web_content_management_system :

- Work ticket management
- News, subscriptions, mailings, SMS etc.
- Group subscriptions etc.
- Events and calendar management
- EFT
- Social / community
- Etc. etc.

Further laundry lists are easily found²³:

“Content Management Systems are now being utilized to facilitate the following:

- Online commerce
- Knowledge management
- Document management
- Enterprise collaboration
- Information management and dissemination
- Integration with accounting, distribution or business systems
- Seamless login to the CMS from the network, such as Microsoft Active Directory
- Moving business processes online
- Business process engineering
- Customer experience management
- Digital workplace collaboration
- Team workspaces
- Interaction with community, whether staff, customers, suppliers or other trading partners
- Self- service capability, providing a more effective and lower cost of service
- Compliance”

Vendors:

- Free open leaders²⁴²⁵²⁶²⁷: Wordpress [2003->], Joomla [2005->], Drupal [2000->]
 - NOTE: by its very definition, it should be impossible to scan INTRANETS, so there can be no reliable statistics on who uses what solution for intranets [i.e. internal internet sites]
 - “Joomla and Drupal are content management systems that appeal to different audiences than their biggest contender, WordPress. Both are slightly more complicated but can be better suited for complex websites.
 - If you intend to run a large community-based site, Joomla is the clear champion with integrated permission levels for specific user groups and social networking features out-of-the-box.”
- Many others²⁸ including Microsoft Sharepoint [paid]
- Numerous SAAS hosted offerings

²³ https://en.wikipedia.org/wiki/Web_content_management_system

²⁴ <https://www.webhostingsecretrevealed.net/blog/web-tools/compare-top-3-cms-2017-wordpress-vs-joomla-vs-drupal/>

²⁵ <https://www.cmscritic.com/awards/>

²⁶ https://w3techs.com/technologies/overview/content_management/all

²⁷ <https://www.opensourcecms.com/cms-market-share/>

²⁸ <https://financesonline.com/top-15-content-management-software-systems-business/>

<p>Crucial Factors</p>	<p><u>It is critical to find an appropriate combination of basic, essential capabilities and available plugins with reasonable compromises on features and functions</u></p>
<p>DETAIL OF HOW</p>	<p>It is also critical to understand the progression of web sites and where things inevitably progress. [See Online Sites evolve from brochure-ware to full service solutions]</p> <p>This is because there is a considerable hurdle to cross as multiple sites evolve with many different authors and collaborators. Sophisticated security, ACL and permissions become critical and cannot be plugged-in to software that is not built to support them.</p> <p>The choice²⁹ is build vs. buy, functionality vs infrastructure, hosted vs local. e.g.</p> <ul style="list-style-type: none"> • a hosted SAAS solution is likely to be harder to integrate with other solutions, have few / no plugins and therefore relatively static functionality. i.e. business processes will evolve slowly • An open source CMS platform [infrastructure] relies on plugins to add specific functionality, which compete and drive each other to better capabilities [i.e. evolving functionality]. This encourages vendors to interface and cross-integrate with other leading vendors • See Modular using Content Management Solution with Plug-ins and Costs <p>The Integrated vs. Modular Dilemma</p> <ul style="list-style-type: none"> • See Clock Speed Integrated vs. Modular Dilemma graph below • Integrated solutions provide immediate benefits but tend to lock in processes, productivity and then drift into slow, obstructed rate of change • Integration tends for work in stable mature products • Modularity works for more specific faster changing products • Which is why the web, mobile, social etc. have obsoleted many integrated products <p>Comparing Approaches – Major Integrated Solutions vs. Hybrid Approaches vs. Custom</p> <ul style="list-style-type: none"> • This choice requires careful evaluation and consideration, including objectives, BPR reengineering, requirements, IT support, interfaces and trade-offs!
<p>Relevant Numbers</p>	<p>Costs</p> <ul style="list-style-type: none"> • Content Management Systems <ul style="list-style-type: none"> ○ Typically Open Source [i.e. Free] ○ “Freemium³⁰” plug-ins with <\$100 cost, <\$400 for unlimited sites and 60% annual ○ <u>Probably < \$2,000 for unlimited Rossmoor sites / year</u> <ul style="list-style-type: none"> ▪ <u>See Modular using Content Management Solution with Plug-ins and Costs for an example configuration with Joomla</u> ▪ <u>Well known users³¹³²: eBay, GE, IKEA, Holiday Inn, Harvard ... The Hill, UN Europe, Linux</u> ▪ <u>Popular sites³³: Holiday Inn Express, U.K National Crime Agency, OpenVPN, High Charts</u> • Infrastructure

²⁹ <https://www.amazon.com/Clockspeed-Winning-Industry-Temporary-Advantage/dp/0738201537> See

Figure 8 model for choosing between internally integrated vs. loosely coupled modular products

³⁰ <https://en.wikipedia.org/wiki/Freemium>

³¹ <https://www.a2hosting.com/blog/top-5-well-known-businesses-use-joomla/>

³² <https://www.templatemonster.com/blog/8-popular-websites-using-joomla/>

³³ <https://websitesetup.org/popular-cms/>

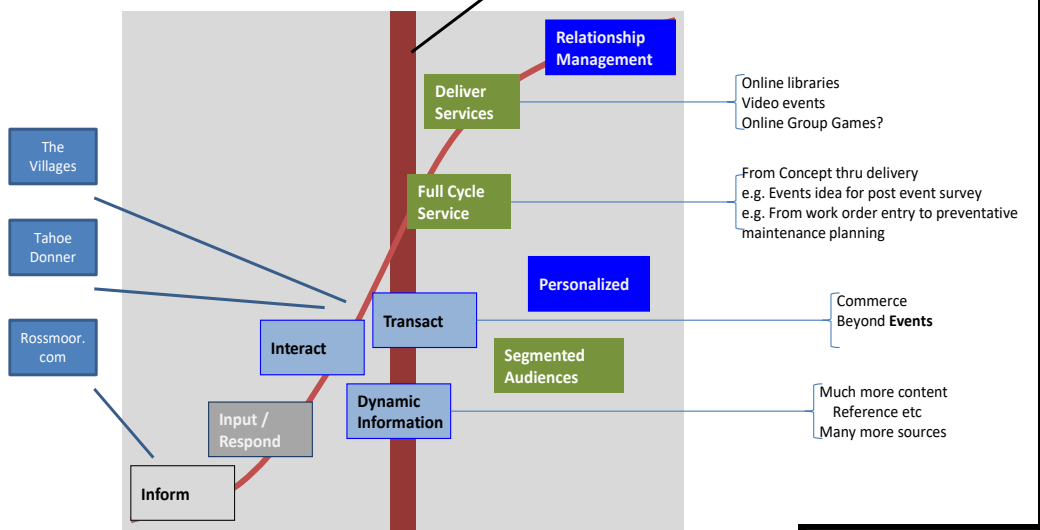
	<ul style="list-style-type: none"> ○ Many Open Source [i.e. Free] with some potential compromises on functionality. E.g. ETL³⁴, also use Freemium model ○ Effectiveness is dependent on choosing other products that are compliant to chosen industry standards [e.g. LDAP etc.] and provide open interfaces <ul style="list-style-type: none"> ● Labor to configure, <ul style="list-style-type: none"> ○ dependent on number of sites, ● Modifications: probably best to contract with plug-in vendors [many are offshore with low labor rates] <p>Benefits</p> <ul style="list-style-type: none"> ● Dramatically reduce costs of development [there is no development, just configuration] ● Enables many sites to be built ● Common infrastructure can be re-used for <u>GRF, Staff, Mutuals, Clubs, Departments</u> <p>Contract Negotiations required? Not for open source / freemium vendors but possibly for consultants if Rossmoor outsources configuration etc. Note: This is probably not a desirable approach as it assumes a one off purchase, like buying a shed, rather than an evolving set of solutions that drives effectiveness and efficiency through the community.</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>Provides an infrastructure to build a more productive future environment. In almost every area of community. Essential to almost all modern,</p> <p>“Currently the trend is to purchase Content Management Software due to the following reasons (depending on the vendor):</p> <ul style="list-style-type: none"> ● Extensive pre-built features ● Upgrade path ● Scalability ● More functionality ● Increased security ● Fewer software issues ● Improved usability ● Mature product ● External support ● Integration expertise ● Resources to develop additional functionality ● Lower total cost of ownership ● Training availability ● User and technical documentation ● Application help ● Problem knowledge base ● Not reliant on employees with an organization ● Modularity ● Product roadmap ● Application Program Interface (API) available <p>Compliant with standards such as W3C”</p>
<p>APPENDIX IX</p>	<p>Online Sites evolve from brochure-ware to full service solutions</p>

³⁴ <https://www.datasciencecentral.com/profiles/blogs/10-open-source-etl-tools>
<https://solutionsreview.com/data-integration/4-purely-open-source-etl-data-integration-tools/>
<https://www.predictiveanalyticstoday.com/top-free-extract-transform-load-etl-software/>

Modern Infrastructure

FROM: Static, few changes
Single Common Site ... Internet + Community

Security Access
 Permissions Wall
 MAJOR changes
 Enables secure access, payments, personalization
 Requires Modern Online Infrastructure



Online libraries
 Video events
 Online Group Games?

From Concept thru delivery
 e.g. Events idea for post event survey
 e.g. From work order entry to preventative maintenance planning

Commerce
 Beyond Events

Much more content
 Reference etc
 Many more sources

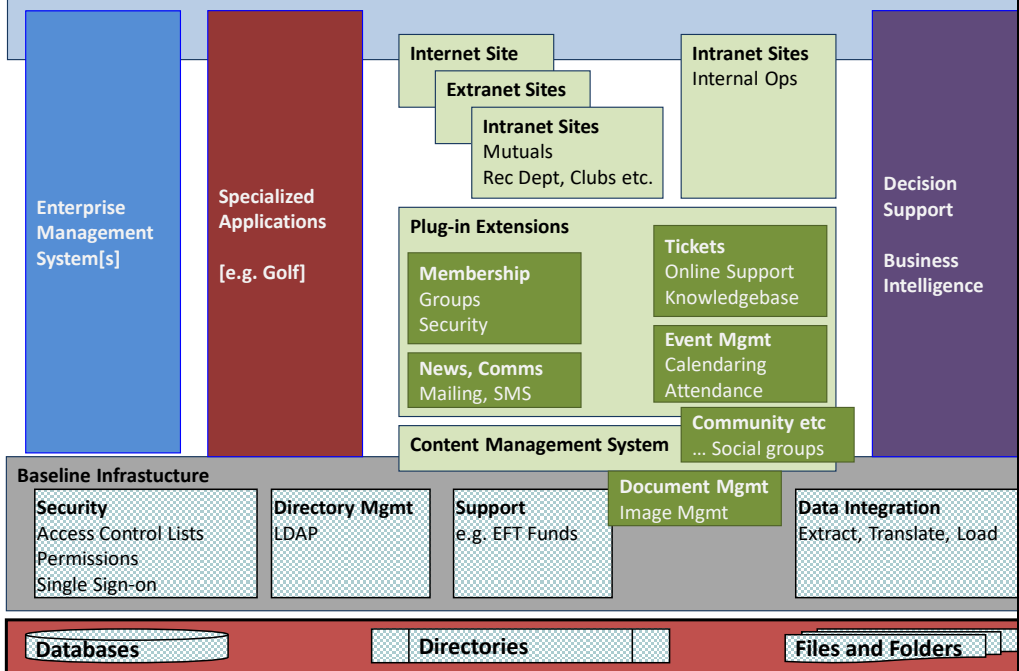
Visitors	One time visits	Occasional	Periodic	Frequent	Continuous
	Edited		Moderated		Crowd Sourced
Publishers	Single	Few	Several	Many	Numerous

TO: Dynamic
 Multi-site, single purpose
 Segmented Audiences
 Personalized, Secured

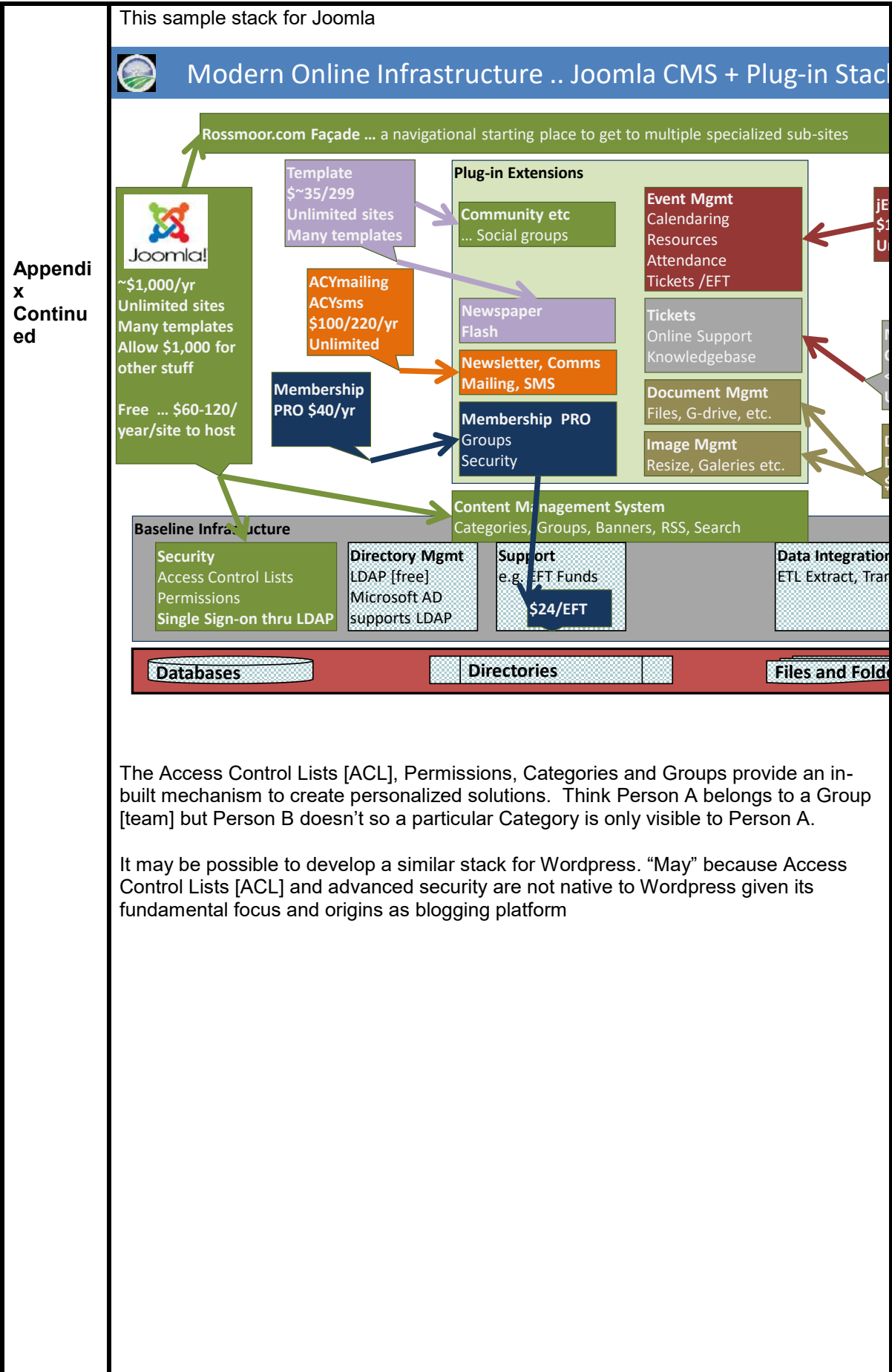
Baseline Infrastructure and Content Management that Supports Multiple Sites

Modern Online Infrastructure

Rossmoor.com Façade ... a navigational starting place to get to multiple specialized sub-sites



Modular using Content Management Solution with Plug-ins and Costs

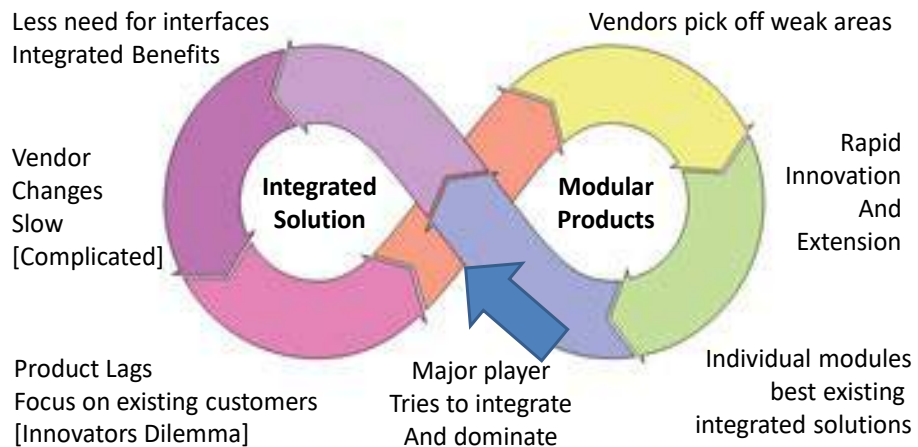


The Access Control Lists [ACL], Permissions, Categories and Groups provide an in-built mechanism to create personalized solutions. Think Person A belongs to a Group [team] but Person B doesn't so a particular Category is only visible to Person A.

It may be possible to develop a similar stack for Wordpress. "May" because Access Control Lists [ACL] and advanced security are not native to Wordpress given its fundamental focus and origins as blogging platform



Appendix
Continued



The Content Management System [CMS] approach is fundamentally Modular

The Plugins are modules that plug in to a CMS. This approach is similar to a PC motherboard with specialized boards that plug in to provide special capabilities. The OPEN “Market” forces collaboration [interaction] while each module competes to move ahead.

SAP, Oracle [packages] or an SAAS [think Salesforce.com] is an All-in-One, Integrated Solution

The advantage is that one vendor has “integrated” a CLOSED Solution, hopefully. Large players have to provide [and support] configuration options. Others sell a one-size-fits all integration where all customers evolve in step with the vendor’s choices. This tends to prioritize some areas and coast on others.

Of course, many things don’t need to integrate much

Appendix continued

Comparing Approaches – Major Integrated Solutions vs. Hybrid Approaches vs. Custom This requires careful evaluation and consideration, including objectives, BPR reengineering, requirements, IT support, interfaces and trade-offs

	Major Integrated SW as a Service	Enterprise Package	Hybrid Solution			Business Intelligence DSS
			Enterprise Core	Specialized Application[s]	Content Mgmt System	
a.k.a.	SAAS	ERM	Property Mgmt		CMS	ETL + BI DSS
Example	Salesforce.com Community	SAP, Oracle JenArk	Work Order, Financials	Golf Shop Best of breed		Business Intelligence
Potential Vendors	CAMS	???	Buildium , Appfolio	HOAsites? WildApricot?	Joomla, Wordpress	Pentaho, Dome, Tableau, etc.
Functionality	Lots Compromises?	Lots	Lots	Lot	Lot thru plugins	Very open
Evolution	Paced by Vendor and Client needs	Paced by Vendor and Client needs	Paced by Vendor and Client needs	Relatively fixed, scope is fixed	Market forces Faster	Market forces, Faster
Customization	Not possible ?? CLOSED ??	Risks future upgrades	Risks future upgrades	Risks future upgrades	Switch plug-ins [Pay] vendor	Yes, the who point
Entry / Exit [Lock in]	Major effort Exit: Locked in	Major effort Exit: Difficult	Entry: Effort Exit: Difficult	Entry: Work Exit: Work	Entry: Easy Exit: Easy	Entry: Easy Exit: Easy
Cost	\$\$\$ Priced by users? Sites? Etc.	\$\$\$ One off + annual maintenance	\$\$ One off + annual maintenance	\$\$ One off + annual maintenance	\$ By site, typically capped at 3-5x	\$
IT Role	Outsourced Little integration with DSS etc. etc.	Outsourced Some integration possible	If not a CLOSED SAAS: Interfaces to BI DSS	If not a CLOSED SAAS: Interfaces to BI DSS	Configures CMS and integrations if needed	High value analysis
Productivity, Quality Increases	Outsourced [No IT]	Outsourced [No IT]	Outsourced, one time boost	Outsourced, one time boost	Self controlled, self paced	Data driven improvement

Great	Good	Fair	Poor
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Project Title: Mutual Shared EV Charging Stations	
Status GRF : New	Status Committee:
Project Sponsor: David Vereeke	Category: EV Charging Stations
Time Frame: 2018-2023	Importance: High
Community Objective THE WHAT	Develop a plan to allow mutual residents to pool resources and establish an EV Charging Station (EVCS) to be shared by the residents who funded and established the EVCS. This plan has no financial impact on the mutual since the resident group assumes all cost and liability.
The Why	The demand for charging stations within the Mutuals is likely to increase annually over the next 5 years. With the advent of CA Code 4745 a mutual must allow a resident to install an EV charging station in a mutual commonly owned parking space if it is economically justified. Rossmoor Mutuals have a very limited number of open parking spaces and an antiquated electric infrastructure. The goal of this plan is to limit the demand for parking spaces and provide an orderly and economically efficient way to establish charging stations as demand grows.
Key Technology and Features THE HOW	No new technologies are required. The plan is a suggested outline that Mutuals can adapt to their needs and publish as a method residents can follow to establish a charging station. Such action will prevent individual residents from claiming a parking spot for their own use since the mutual will be offering a more cost effective plan.
Crucial Factors DETAIL OF HOW	Up to six residents pool resources to install and establish a charging station. They select the best available parking location to minimize installation cost. They reserve the 10 pm to 8 am time slot for overnight EV charging. They allocate one charging night to each member. During the day all residents can use the parking spot on first come - first served basis. EVs can charge for only 3 hours during the daytime. The group sets the charging cost per kilowatt hour, gathers session data and collects funds.
Relevant Numbers	Six members to a charging station. When demand increases six new members join the EV charging owners and purchase and install a new charging station. As time goes by and all available parking locations are wired, charging stations can be upgraded for higher charging speed and possibly provide access to more members.
SOLUTION: BENEFITS TO USERS	The Mutual avoids a demand run on the parking locations and manages controlled, cost effective growth. Non EV owners still have access to daytime parking and night time parking if a spot is not occupied by 10 pm. EV owners have a cost effective way to access to a charging station since the cost will be 1/6 of what it would cost them to establish their own station.

Project Title: On Demand Transportation Service	
Status GRF: None	Status Committee:
Project Sponsor: Kelso, Weihrich Vereeke	Category: Transportation
Time Frame: TBD	Importance: TBD
Community Objective THE WHAT	<p>Uber and Lyft have both introduced custom ride sharing programs for private use by companies and organizations. The Livermore Valley Transportation Authority (LAVTA) under Executive Director Michael Tree developed a custom on-demand ride sharing program that has been in service since July, 2016. The program uses both Lyft and Uber platforms for implementation. The goal of this program has been to reduce parking at the Bart stations and to eliminate at least one low-ridership bus line within the district.</p> <p>The trial program operates under a two year grant that expires this July, 2018. Mr Tree reports that they have decided to continue the program indefinitely, due to its greater than expected success.</p>
Target Client THE WHY	<p>Michael Tree believes that Rossmoor would have a good chance of qualifying for a grant from the Bay Area Air Quality Management District (AQMD) to implement a similar custom system. The AQMD is tasked with the goal of incentivising the public to use fewer personal cars and more public and shared transportation. The large number of our residents that make daily trips to the Walnut Creek Bart station and the surrounding area makes us a good candidate for their grant.</p> <p>We could apply for a similar grant to establish a trial Rossmoor branded service - let's brand it Rossmoor Transportation on Demand (RTOD) for the sake of this discussion.</p> <p>The grant would be acquired to develop and fund the RTOD program which would subsidise a resident's round trip within a designated area.</p> <p>Our RTOD program could benefit Rossmoor in a number of ways:</p> <ol style="list-style-type: none"> 1. Ridership on the existing on-call bus service in early morning is relatively low. We might find that if residents use RTOD it would be more cost effective and we could eliminate the early on-call service for this trial period. Likewise with the evening on-call transportation bus service. 2. We may find that the program is popular enough to encourage residents to abandon a second car if they were assured at the end of the two year trial that the RTOD service would be continued. 3. This could be a good opportunity for residents to try an on-demand service that may eventually be replaced with an affordable

	<p>autonomous service.</p> <ol style="list-style-type: none"> 4. We might start the trial by offering the service only to the Bart station. Since it costs at least \$3 to park at the station and since parking is very difficult to find until 3 pm, we may attract many new residents to use this RTOD instead of their cars. This would help reduce congestion at the station and potentially decrease some pollution since the rides to the station would be shared rides if more than one person in Rossmoor is hailing the service in the same time period. 5. Many residents rarely use public transportation. However, LAVTA detected an overall uptick in ridership in other public transportation (buses, shuttles) in the area where the Uber/Lyft program was operational. At this time they can't say for certain that this was driven by the program since they don't have sufficient statistics, but it is interesting since it might encourage our residents to explore other means of transportation once they start to use RTOD as their first leg of a trip. Having a reliable method to get out and return to Rossmoor with efficient on-demand service may prove to be a catalyst to encourage more use of public transportation.
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>The RTOD trial would use the custom services offered by Uber and Lyft. Their services are fairly similar and both companies could be contracted and used at the same time.</p> <p>The following is an example of how we could implement the RTOD program:</p> <ol style="list-style-type: none"> 1. Rossmoor would submit artwork for an RTOD badge that would display on the standard app of Uber or Lyft when a resident was within the Rossmoor geographic boundary. The RTOD badge would only appear on the app at the start a trip from inside Rossmoor. Likewise, only residents who started a trip from inside Rossmoor would see the the badge on their app when they were outside of Rossmoor wishing to hail a return ride from the defined geographic service area. 2. Rossmoor would specify the geographic area that it was willing to subsidize for service. Examples of such a service area might be within a 10 mile radius of the Gateway or within the city of Walnut Creek, or to just the Bart Station and Kaiser. Users could only book a ride using the special Rossmoor badge when they selected a destination within the approved geographic location. Users that do not wish to use a smartphone would be able to use an established phone service that will do their bidding for them. 3. Finally, Rossmoor would set the % of the fee it would subsidize and the type of service it would provide. LAVTA uses 50% subsidy up to \$5 and mandatory ridesharing. Ridesharing is the lowest cost service of Uber and Lyft. Since the cars only have room for 3 riders they would only make as many as two extra stops enroute. Realistically, they only pick up additional riders when they are

	<p>within a mile or so of the intended route so ridesharing should still provide a superior travel time.</p> <p>This is all that is required to setup the service except signing a contract. Michael Tree has offered to put us in touch with contacts at Uber, Lyft and Bay Area AQMD if we have interest in pursuing this opportunity.</p>
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>Necessary funding would have to be secured to cover the cost of the subsidy that will be offered to the Rossmoor riders. Grants are currently available for such trial programs, but are not likely to be available after 2019.</p>
<p>Relevant Numbers</p>	<p>An average of 354 riders use Rossmoor buses daily. The average per passenger cost per ride was \$9.11 (2016 figures). If we pursue the RTOD we will perform a comprehensive review of the data that we received from the recent bus transportation study to determine if we can justify this interesting trial program.</p>
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>The majority of current Rossmoor bus riders are infrequent round trip users due to the many stops along a fixed route resulting in a very long travel time. This trial would give us an opportunity to study how resident behaviour might change if true on-demand service was available at a low cost for all residents.</p> <p>Perhaps, a new, more desirable model of transportation funding would evolve that better suits the community at large.</p>

Project Title: On-Line Work Order System	
Status GRF: None	Status Committee: Mutual Parking Lot
Project Sponsor: Vicki Swisher Mary England	Category: IT Projects
Time Frame: 2019 - 2023	Importance: Medium
Community Objective THE WHAT	<p>The purpose of upgrading GRF/MOD Work Order System includes:</p> <ol style="list-style-type: none"> 1. Improved customer (Mutual Member & GRF Trust) service satisfaction 2. Automate current manual steps in the work order process require paper-based hand-offs within and between departments 3. Improve efficiency of MOD/GRF staff handling paper-based processes <p>The current work order system has four process elements:</p> <ul style="list-style-type: none"> – Customer work order reporting – Data Input into the work order system – Work Order Management – Accounting/Financial Transaction (Billables/invoices/payments) – Reporting <p>The current work order system has many offline, manual, and paper-based interfaces for inputting data and providing worker information in the field, accounting hand-offs and payment processes. These gaps in automation present many opportunities for work process flow improvements, efficiencies, and upgrade to the work order system. For example, in the process of customer work order reporting, the work order system can be improved by one or both of the following options:</p> <ul style="list-style-type: none"> – Implementing a web-based on-line reporting screen in current work order system which is filled in by the reporting customer. – Providing a template for submittal by email or web portal. – Replacing the Jenark property management module with new software solution to incorporate on-line requests. <p>Attachment A contains detailed description of the current work order process.</p> <p>Background Information on Jenark Existing Work Order Processes:</p> <ul style="list-style-type: none"> – Current work order system is one of the software modules included in the Jenark Property Management and accounting software system package. – Jenark was implemented 20 years ago (1998) and includes software modules that support work order system, accounting, member records, inventory, and security. The modules include manor address or location description. Note: Individuals' names can vary in each Jenark module since address/location is the primary identifying data element.

	<ul style="list-style-type: none"> - GRF currently pays a batch licensing fee per user, and a yearly fee for updates and software fixes to Jenark which is now owned by Corelogic. - Based on the age and version of the Jenark software design limitations, it can be difficult and expensive to customize.
<p>Target Client</p> <p>THE WHY</p>	<p>The Primary Beneficiaries of Work Order System Upgrades:</p> <ul style="list-style-type: none"> - Both GRF staff and Mutual members are beneficiaries because of improved work flow efficiency and of reporting with an on-line work order system. - MOD Work Order staff also benefit from expedited information. <p>The Secondary Beneficiaries include:</p> <ul style="list-style-type: none"> - MOD customers pay for GRF Trust property work orders (GRF coupon) - Mutuals pay for Mutual work orders through Mutual portion of coupon - Customers of GRF Handyman Services pay annual subscription fee - Individual work orders and billing customers pay fee-for-service
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>What Technology solutions are available to improve work order workflow?</p> <p>There are dozens of Property Management software solutions available which vary widely based on capabilities, scalability, flexibility, and cost. Some software solutions are designed for Community Association Management (CAM) other solutions focus on Property Management (PM) specifically for HOAs. Most of these systems, just like our current Jenark system, are designed as software modules that provide tools to streamline multiple operations including portfolio management, service request management, account management, and reporting.</p> <p>One important consideration is whether the software can support custom design without massively increasing initial or future upgrades costs. Some software systems provide features such as sending alerts/reminders to owners about coupon due dates, payment acknowledgments, maintenance schedules, ad hoc reporting, role-based management access, activity logging and automatic notifications.</p> <p>Another significant consideration is whether GRF wants to invest in a Jenark work order system upgrade to support on-line work order capabilities which supports incremental improvements, OR invest an entirely new Community Association Management/property management (CAM/PM) software solution which integrates with a common database and improves operational efficiencies.</p> <p>What CAM/Property Management Technology Vendors have we checked?</p> <p>The current CAM/PM technology vendor is CoreLogic (Jenark).</p>

	<p>Three examples of potential technology vendors and their products are listed in Attachment B. These vendor solutions and their offerings can be reviewed at the following sites:</p> <ol style="list-style-type: none"> 1. topssoft.com 2. buildium.com 3. Yardi.com
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<ul style="list-style-type: none"> • Potential for Upgrading Work Order System <p>GRF Business Operations Manager considered upgrades to include on-line work order system reporting module approximately 2 years ago. At that time there were two major obstacles to the upgrade:</p> <ul style="list-style-type: none"> – Since the work order system is part of the Jenark property management software package, any software/system changes are required to be performed by CoreLogic Systems/Jenark software. – The work order system has some MOD-requested customization in the software and screen presentation, so Third party software that existed through CoreLogic 2 years ago could not provide on-line access due to CoreLogic restrictions. • Dependencies on Other Software Systems <ul style="list-style-type: none"> – Integration is key to cost savings. If new stand-alone, Third Party work order system software is purchased for the work order process upgrade, it won't integrate to a common database nor to other Jenark modules. – Maintainability, scalability, reliability, depends on the application platform and level of integration with other CAM/PM Software modules such as Financial Accounting (accounts receivable, accounts payable, general ledger, billing, payment method, etc.). – Rossmoor.com website could launch a user-intuitive work order template which could be delivered to workorder@rosmoor.com email address. – Rossmoor.com website needs to launch a member portal for intake of on-line work orders that will be: <ol style="list-style-type: none"> 1. integrated into the Jenark system using Third- party software or 2. to another CAM/PM property management software member portal. The data on the member/customer portal back-end intake processing will be needed. • Potential for Design Growth or Modification <ul style="list-style-type: none"> – Jenark is designed without any Data mapping, so Database management requires managing data in 50 separate data tables. – Management reporting has been customized by the Business Operations Manager utilizing Crystal Reports. – Jenark modules and data reside in the CoreLogic Data Center. – GRF has a single point of contact between MOD/Jenark (<i>staff person out on leave so will wait for return to work to inquire about Jenark/Third Party Vendor option for online service requests</i>).

	<ul style="list-style-type: none"> - MOD Work orders are printed, assigned to field/maintenance technicians, vendors, manually distributed, updated, assigned completion status by the technician on paper. This involves technicians physically traveling to MOD for some service assignments, or to monitor assignments verbally on radios, or vendors to get assignments by phone. - Mobile devices which can interact with work order system remotely need to be explored so technician travel time and expense to/from MOD is minimized. This will involve improved communications via internet-accessible devices, wifi access, text-based mobile communications, etc.
Relevant Numbers	<p>What are the Resource requirements for MOD Work Order processing:</p> <ul style="list-style-type: none"> • Staffing: Currently, The GRF/MOD work order system requires the following staff to operate specifically within the Jenark module: <ol style="list-style-type: none"> 1. One Business Operations Manager (part-time) 2. Six Service Order Specialists (SOS) • Work Orders Generated: There were 40,410 work orders generated by the six Service Order Specialists (SOS) in 2017, or approximately 150 work order requests per day. Of these requests, between 1 and 10 are GRF Trust work. Approximately 32,000 work orders were placed by telephone, 5,000 by email, and the balance were administrative work orders, created as follow-up to previous work orders, or work orders requested directly by mutual boards of directors and/or maintenance managers. • Intake Time for SOS to Obtain Work Order Data: Most GRF/MOD telephone work order requests are handled in 1 - 2 minutes. Handyman requests typically require 5 minutes for the work order intake. Follow-up telephone calls for additional details or to discuss email requests last approximately 1 minute. Adding a front end on-line work order intake request process may reduce this time, but it is expected that the SOS will still need some contact with some requestors for further details. • Data Fields Involved in Jenark Work Order Request Module To open a work order, a SOS has to complete at least 10 data fields. 5-10 are automatically populated, such as the address based on the file number. To close a work order, there can be an additional 5-15 fields requiring data entry. The primary table in Jenark devoted to work orders contains approximately 50 fields. In addition, there are a total of approximately 40 tables related to work orders, each containing 5-50 fields. The following data fields in the current work order system have drop down lists: Order #, File #, Unit, Resident, Job Code, Assign To, and Bill To. Of these fields (5 of 7), could not be completed by a requestor using an on-line work order intake form. • What is the Cost of Managing the MOD Work Order System? Since the Jenark work order system supports GRF Trust Facilities, 17 Mutuels, GRF Handyman Service, and individual service requests, understanding the total cost of managing the system is a challenge.

	<p>Contributing to the cost of managing the work order process is the cost of paper-based hand-offs in the current work flow. Invoices are signed off by a manager, forwarded to Accounting, and paid via check, from the relevant account or Mutual. All of this work process is currently performed manually. MOD work orders are totalled monthly (in Jenark) and billed to the customer (GRF Trust/Mutuals/residents). Resident-billable work orders are paid manually by check at the time of service, based on a form completed by the field technician.</p> <p>The manual processes are inefficient, work intensive, and add to the expense of each work order.</p>
<p>SOLUTION:</p>	<p>The work order system is primarily used by the Mutuals rather than GRF. Since the cost of this technology upgrade will be the responsibility of the Mutuals unless an entire new CAM system is incorporated, the GRF Technology Ad Hoc Committee recommends that this project be placed in the Mutual Parking Lot.</p> <p>The Mutuals have the following four change options to choose from:</p> <ol style="list-style-type: none"> 1. Develop and implement a simple email-based service order request template to be launched on Rossmoor.com. Benefits are short-term, immediate. (2019) 2. Develop and implement a member Portal on Rossmoor linked to the Jenark work order module via Third Party Software. Benefits are near term (2019) 3. Upgrade Jenark Property Management (Community Association Management) software to most current version to include: <ul style="list-style-type: none"> • #2 above • Service calls and preventive maintenance • User-definable inquiries and management reports • Owner/community bill-back with coupon/invoice • Interface with receivables, purchase orders, and inventory • Wireless PDA integration for work order resolution <p style="text-align: center;">OR</p> 4. Wait for GRF to implement a new Community Association Management/Property Management Software Solution with modules appropriate for GRF/MOD. (2023) A new CAM system with an integrated database and PM work order module would provide the following benefits: <ul style="list-style-type: none"> • Eliminate manual handoffs such as printing invoices for work orders, hand-delivered paper to Accounting, and processing by hand, by paper check, collection by field technicians. • Automating workflow that is interrupted by manual hand-offs will save staff time and contributes to GRF/MOD Operations budget management. • An (On-line) integrated work order system will provide economic and user-friendly benefits. • Mobile device communication to distribute/status work order assignments

<p>BENEFITS TO USERS</p>	<ul style="list-style-type: none"> • All residents of Rossmoor are served by upgrading work order process. • May reduce MOD/GRF coupon by lowering work order costs.
<p>APPENDIX</p>	<p style="text-align: center;">Attachment A</p> <p style="text-align: center;"><u>Current Work Order System Process</u></p> <p>The following is a description of the current work order system process:</p> <ul style="list-style-type: none"> – Data Input into the Work Order System <p>Currently work requests are made through telephone calls to the Work Order Desk or through an unformatted email. When a Service Order Specialist (SOS) receives a telephone call, they asked the caller questions regarding the problem and first determine whether the request is covered by Mutual or GRF Trust policy, or the Handyman Service Description List. If the request qualifies, the SOS then checks to see if an identical request has already been placed in the system. If this is a new request, the SOS obtains further details from the caller to enable accurate and complete data entry in the work order system (Jenark software module).</p> <p>When work order email requests are received, they are processed in the same manner as telephone calls. The Rossmoor web site specifies that “e-mail requests are for exterior work that does not require an appointment”. Experience has shown that approximately 5% of Mutual/GRF email requests and 25% of Handyman Services email requests require a follow-up telephone call to the individual to obtain more details. This partially is due to the fact that the emails are open format (i.e. no template was provided to ensure consistent input from requestors). However, these calls are usually shorter than the phone-in requests because the SOS already has some of the information.</p> – Work Order Management <p>Once the work order is accepted, the SOS enters the required information into the data fields. There are various documents, accessible through an intranet system available to staff, which outline some if not all considerations and procedures. These are internal MOD documents, and do not include Jenark documentation.</p> <p>The work order is assigned as a resident-billable item, a mutual-covered item, or a Handyman item. Other considerations are who the work order is assigned to, and, if a mutual item, what fund will it be paid from (Operating or Reserves). Most of these are dropdown lists. Categories are then identified that enable the work effort to be assessed for cost. If cost is greater than a specified upper limit, the work order is printed and submitted to the affected Mutual or GRF Trust for approval signature on the paper. If applicable, an appointment time is made and logged in using a shared Outlook calendar.</p> <p>When all of the data has been entered into the work order system, a hard copy of the work order is printed and distributed to the person or</p>

**APPENDIX
Continued**

vendor assigned the work. If it is assigned to MOD staff, the work order is turned in each time any labor is performed so that the labor, any materials, and any notes can be added into the work order system database. Once the job is marked completed on the physical work order, it is “closed” in the system, after which no further changes can be made with the exception of the “notes” section.

If the work order is assigned to a vendor, the work order remains open until a final invoice is received, signed off by a manager, and paid. Any notes as to what work was performed is entered, and it is closed in the system. Partial invoices are paid and noted in the system as received and paid without closing the work order.

After closing, the physical work order is scanned for future retrieval if needed (questions or audits).

As indicated in the work order management process described above, MOD staff relies on paper copies of the work order to perform their duties. If updates occur in the work order system, staff in the field are not notified until they return to MOD and receive new paperwork.

- Accounting/Financial Transaction (Billables/Invoices/Payments)
Internal costs for Mutual and GRF work is automatically transferred to the accounting module. Any outside interfaces such as vendor invoices, material invoices, or work billable to an individual owner is processed through paper and subsequently entered by hand into the system.
- Reporting – Electronic or paper reports are provided by the Business Operations Management using Crystal Reports. These reports are used to provide Mutual and GRF Trust staff with general work request and cost information. The work order data can also be downloaded into an EXCEL table for further electronic distribution and sorting.

As indicated by the information above, the current work order system has many offline, manual, and paper-based interfaces for inputting data and providing worker information in the field.

Attachment B

Potential Property Management Software Vendors

- TOPSOFT
The integrated work order module in topsssoft.com has these features:
 - Work order assignment to “Maintenance” or vendor
 - Set up custom “approval” codes for assigned work orders
 - Schedule maintenance, track vendor assignments, update records
 - Assign tasks, assign inspections
 - Customer Portal service request: Features of the TOPSSOFT Portal include:
 - Online Work order and Service Requests
 - Financial account information (account balance, history online assessment payment)

**APPENDIX
Continued**

- Online Architectural Alterations Request
- Visitor, Vehicle Information and Requests
- Online CAM Directory
- [HomeownerPortalsStarterPack](#) for example, describes the features of a Community Association Management Integrated Software solution.



- BUILDIUM
The integrated work order module in [Buildium.com](#) has these features:
 - Integrated into the software is an on-demand, online Resident Portal
 - Fill in form for maintenance/work-order-service requests
 - Online and automated payment for account charges, coupons
 - Manage all communication from/to resident
 - View resident financial accounts
 - View documents of association/ Property Manager online
 - Provides enterprise document storage security in the Amazon RDS 'cloud', with HTTPS access provides SL, Secure Socket Layer, requires unique user name/password and RDS encryption.
 - Software tracks maintenance work orders with attachments such as videos, images, and related documents. Software also tracks recurring tasks, property inspections, etc.
- The integrated work order module in <https://www.yardi.com/> has these features:
 - Provides Property Management & Accounting, Financial Processing Software as a Service (SaaS) which allows GRF to leave database hosting, software upgrades, and server maintenance to yardi so GRF can focus on core business. GRF could choose from three different SaaS options, and dial in the level of database and network support. The software resides on a single platform and information is accessed on a single database.

	<ul style="list-style-type: none">- Yardi.com provides a suite of mobile, web browser-accessed “add-on” Applications. The Property Management software includes Facilities Management, Budgeting & Forecasting, and Business Intelligence with real-time analytics.- A Yardi.com Property Maintenance module enables maintenance scheduling, tracking, and integrates with Accounting. Maintenance can allow remote location tracker for technicians, etc.
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Project Title: Robust Data Back Up System	
Status	GRF Complete
Project Sponsor: Mary A. England	Category: Information Technology
Time Frame: 2018	Importance: High
Community Objective THE WHAT	GRF Board approved funding for 16 Terabytes “in-house” data storage and unlimited “cloud” storage with Barracuda Networks. Data storage is an increasing need for enterprise management of data, files, applications, and images. Currently, the term “Cloud Storage” is used to refer to a network of data storage servers which can be solely owned by the corporation, contracted out for storage, or a hybrid storage function. As GRF continues to manage capacity for increasing data files from multiple applications (common), and multiple databases, storage for security, safe backup is a business imperative. 16 Terabytes for GRF inhouse operations is a considerable data store and projected to meet data storage required for a number of years.
Target Client THE WHY	GRF Operations, Mutual Operations, and members will benefit from more secure data storage backup systems, both inhouse and Cloud-based. Due to the 2017 funded project for scanning documents from paper-based storage to digital storage, due to increasing data file storage requirements, the target clients mentioned above will expect safer, more reliable, more secure data storage.
Key Technology and Features THE HOW	The “new cloud-based backup system for data storage from Barracuda Networks incorporates an in-house storage capacity of 16 Terabytes and unlimited cloud storage”. (GRF Finance Committee 12/5/2017,p. 8a5). The previous data storage capacity of 2 Terabytes was inadequate for projected data storage needs.
Crucial Factors DETAIL OF HOW	Critical to the safe and secure utilization of “Cloud-based” storage are the following considerations: <ol style="list-style-type: none"> 1. Reliability 2. Fault-tolerant Servers 3. Network and Data Security 4. Data Privacy 5. Data Ownership 6. Data Encryption

	GRF will need to clarify the “unlimited” nature of Data storage with Barracuda Networks. Does “unlimited” include CCTV, Video files from security cameras, and if so, what file formats will be stored.
Relevant Numbers	Project funded in 2017.
SOLUTION: BENEFITS TO USERS	Access to adequate secure data storage is a planning function which will benefit GRF Operations, Mutual Operations and their constituents, GRF and Mutual Members.

Project Title: Smart Rossmoor News	
Status GRF:	Status Committee:
Project Sponsor:	Slee, Kelso Category: Communications
Time Frame:	Importance: High
Community Objective THE WHAT	<p>Purpose: move to online channels with improved timelines, convenience, accuracy, completeness, readability. "Rossmoor News" is about:</p> <ul style="list-style-type: none"> • facilitating "news" with the Rossmoor community, across groups, clubs etc. and the various web sites involved • Improving community relations, communications, • not just printing a paper or running a TV channel <p>Processes: See graph in Appendix below Reengineer with multiple sites, authors, multiple moderators, faster cycle time [event to publish], more specialization, categorization: e.g.</p> <ul style="list-style-type: none"> • Main / flash news • Management site[s] • Fitness site³⁵[s], recreation and events • Clubs and other groups • A lot of "news" is actually "social networking" [think clubs etc.] <p>Publish "news" immediately [ASAP] online in multiple formats [Text, audio / podcasts, photo, video] and move to print, TV news etc. later</p> <p>Problems addressed:</p> <ul style="list-style-type: none"> • Few expect news to be paper only, once per week any more • Paper News is late / very late, <ul style="list-style-type: none"> ○ hard to find [not organized for the reader], ○ "one version fits all" so its is lengthy, requires manual searching • Bottleneck of <u>weekly</u> paper timing, formal editing and limited authors • Paper limits emerging content such as <u>video, audio, photo galleries, links</u> • Cannot search, link, cut and paste, save, forward articles to others • Calendars are incomplete, inaccurate, inconsistent to content [too manual] • Classifieds have largely disappeared to online solutions; Print ad revenue is shrinking fast
Target Client THE WHY	<p>Readers: probably build to 6000+ Rossmoor Residents (SWAG), including those who will not read the Rossmoor News</p>

³⁵ E.g. <https://www.inshape.com/gyms/concord-california-94521/>

	<ul style="list-style-type: none"> ○ 3500³⁶ initially, growing at 700³⁷+ per year ○ Is a baseline expectation of most currently aged 65 or less <p>Promoters, Publishers: from all the Rossmoor organization: 500³⁸ (SWAG)</p> <p>Advertisers [2nd]: are generally leaving print media [expensive, poor targeting]³⁹</p> <p>User Practices: daily+ automatic feeds, filtered news, push notifications</p> <ul style="list-style-type: none"> • Personalized newsletters, newspaper • Sharing [forwarding], saving, etc.
<p>Key Technology and Features</p> <p>THE HOW</p>	<p>Key Features:</p> <ul style="list-style-type: none"> • Online content and publishing, moderation • Syndicated news feeds in/out • Automated and Smart Newsletters, online subscriptions [opt in/out] <ul style="list-style-type: none"> ○ Alerts ○ Email and potential SMS messaging • Searching, Filtering ... for items of interest • “Favorites” sections <p>Enhanced, changed: existing interfaces to news management, production software</p> <ul style="list-style-type: none"> • Eliminate manual transcription of articles and content <p>Benchmarks: Actual examples or possible comparisons</p> <ul style="list-style-type: none"> • Every newspaper is online, article centric, shareable etc.⁴⁰ • Paperless papers: Vox, Huffington Post, • Meta papers: Drudge, • Personalized news papers: Flipboard, News360 <ul style="list-style-type: none"> ○ Google News, Google phone feed [future integration?] ○ Social Media [Facebook, Twitter, YouTube, etc.] ○ MSN • Newsletters: e.g. Villages FastLane⁴¹ <p>Vendors: several, dependent on <u>Modern Web Infrastructure</u></p> <ul style="list-style-type: none"> • Probably freemium CMS⁴² • Could use newspaper centric CMS ... e.g. BLOX CMS [expensive?]
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>Interactions: Newspaper publishing, <u>Event Management</u>, other web site feeds</p> <p>Dependencies:</p> <ul style="list-style-type: none"> • <u>Modern online infrastructure</u> with a <ul style="list-style-type: none"> ○ CMS^{43,44} [content management system] ○ including security, ACL and SSO

³⁶ 1000*100% [55-65], 3000*50% [65-75], 6000@20% [75+]

³⁷ 70% of 1,000 people who move in per year

<http://rossmoor.com/wp-content/uploads/2017/05/2016-Demographics.pdf>

³⁸ 5% of residents [SWAG] representing boards, staff, club representatives, other groups etc.

³⁹ “Gannett reported an 18.7% drop in print advertising revenues.” “the promise of better ROI measurement — has syphoned off a large share of the advertising spend.”

<https://www.inma.org/blogs/research/post.cfm/a-rant-about-print-newspaper-advertising-declines> Best ROI? <https://www.linkedin.com/pulse/online-marketing-vs-print-advertising-which-best-max-mridu-sinha/>

⁴⁰ <https://nypost.com/> <http://www.bostonherald.com/> <http://www.richmond.com/>

<https://www.nytimes.com/>

⁴¹ <http://resident.thevillagesgcc.com/category/fl/>

⁴² <https://www.quora.com/What-is-the-most-popular-CMS-for-newspapers>

⁴³ <https://www.rjionline.org/stories/tools-we-use-1-publishing-print-newspapers-online-cms>

⁴⁴ <https://www.rjionline.org/stories/tools-we-use-2-publishing-print-newspapers-online-servers>

- Youtube channel[s] etc.

Reliability and quality:
Major conversion: unlikely, use a phased introduction, replacement approach
Maintainability (likelihood that support will be available in future)
Potential for design growth or modification: Lots!
Ergonomics: Needs a somewhat standardized approach to site UX [User Experience] including information architecture, site navigation etc.

- i.e. it will confuse the community to have a hodge podge of loosely connected sites with different organization, navigation, terminology, categorization, look and feel, content presentation, publishing approaches etc.

Relevant Numbers

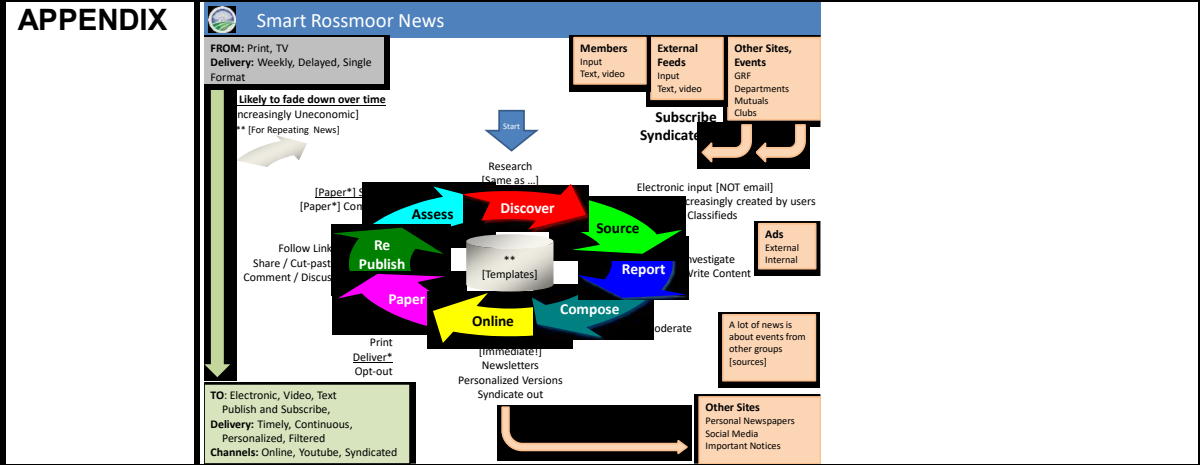
What is the overall size of this project and can it have a phased implementation?
Cost: see Modern online infrastructure, software less than \$2,000 /yr, hosted HW
Cost savings: employment in paper news is down 70% since 2000
 Circulation, C revenue, Print ad revenue halved in 10+ years⁴⁵

- Rossmoor News runs a \$360,000 deficit
- How many Rossmoor Newspapers go unread?
- What is the viewership vs. Cost for Rossmoor TV?

Implementation budget: dependent on staffing approach, and number of sites
Time to implement: definitely phased introduction, less than 3 months, subsequent sites should be completely more quickly
Will contract negotiations with vendors be required? See Modern Online Infrastructure

SOLUTION: Pitch: High Priority catch up evolution for News at Rossmoor for match the changing in news delivery and readers expectations over the last 10 years

BENEFITS TO USERS



⁴⁵ <http://www.journalism.org/2013/08/07/the-newspaper-industry-overall/>

Project Title: Solar Systems for Common Areas	
Status GRF:	Status Committee:
Project Sponsor:	Brad Waite/ Fred Kern Category: Highly Recommended
Time Frame:	Short to Medium Importance: High
Community Objective THE WHAT	<ul style="list-style-type: none"> • Provide renewable electricity to GRF common areas • Reduce amount GRF pays PG&E for electricity • Provide shade for parking areas – if residents approve • May also extend useful life of the asphalt surface
Target Client THE WHY	<p>Rossmoor residents in general. The following areas are possible sites of one or more solar PV system installations:</p> <ul style="list-style-type: none"> • Hill and Parking areas at MOD • Gateway • Tice Creek Fitness Center • Hillside • Other (?)
Key Technology and Features THE HOW	<p>Implementation savings, just like costs, are dependent on the size of the field or fields to be installed and on the installation location. A just completed analysis by PG&E (Through September 2018) on the past 12 months is that GRF meters consumed about 3,506,000 kwh. The projection for the Hill solar field is about 2,000,000 kwh. That leaves another 1,500,000 kwh that GRF can offset against their PG&E bills.</p> <p>The following calculations are an example based on installing a field of approximately 725,000 kwh per year. (This is from a model using the Gateway parking lot.)</p> <ul style="list-style-type: none"> • The installed purchase price of the system, if GRF were to buy it outright, is currently estimated at \$1.3 million. • Assuming GRF has no tax advantages, the payback period would be 9.6 years, and 25-year cumulative savings would be just over \$4 million. • However, GRF may choose to finance the system by using either Lease approach or a PPA (power purchase agreement). The main advantages of using either of these methods, are: <ul style="list-style-type: none"> ○ Cash flow positive from Day 1. ○ No out of pocket costs, other than paying a below-market rate for all the electricity the system produces.

	<ul style="list-style-type: none"> • For the Lease approach on a 7 year payback, the net savings over a 25 year period would be in the range of \$2.7 million. • For the PPA approach the estimated net savings over the 25-year term would be \$1.3 million. • Both of the financing approaches take advantage of the 30% Solar Tax credit. <p>If the calculations were extended to cover the remaining available offsets, the 25 year savings would grow to: (Based on offsetting 80% of remaining power usage)</p> <ul style="list-style-type: none"> • Purchase \$6.6 Million • Lease Back \$4.5 Million • PPA \$2.2 Million
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>When the original Hill Solar project was approved in 2015 there was a size limit of one megawatt on a solar field to qualify for NEMA rebates. (the annual generation output from a 1.0 mw field is approximately 2.0 mwh. There was also a series of conditions PG&E on aggregating separate meters that qualified for rebates. (they had to be connected through a physical link which Rossmoor achieved through some adroit planning) Rossmoor’s power usage billed to GRF meters at the time was approximately 4.0 mwh.</p> <p>Being able to offset the additional 2.0 mwh would require a separate Solar project and was unlikely to achieve a physical linking of the remaining meters.</p> <p>Fast forward to 2018 and one finds those conditions have changed. Under the new NEM2 plan, PG&E has dropped their 1.0 mw restriction on solar field sizes. They have also significantly reduced the restrictions on how meters qualify through the use of “virtual” meters.</p> <p>Under these new conditions, Rossmoor can now take advantage to the remaining available savings gained from a second power generation Solar field.</p>
<p>Relevant Numbers</p>	<ul style="list-style-type: none"> • Current total GRF usage is about 3,506,000 mwh (this differs considerably from the 2015 calculation of 4.0 mwh). • Assuming the Hill project will produce 2.0 mwh, there is 1,506,000 mwh hours that can be offset. • Assume the field sizing would be 80% of the total available to ensure that the field would not generate more than the power used. • Total target field or fields sizing would be 1,506,000 X 80% or 1,205,000 mwh
<p>SOLUTION:</p> <p>BENEFITS TO USERS</p>	<p>This project would be expected to achieve all the objectives stated under Community Objective above. Permitting on a canopy system over an existing parking lot is radically simpler and faster than a hillside where endangered species may live among protected trees, etc. However, providing over remaining parking areas on the Hill may simplify the permit process</p>

	Existing parking areas at Gateway and Tice are great candidates from a permit and construction viewpoint. Conversely, the reaction of the residents from the Waterford Solar field highlights just how sensitive this issue is to the residents.
APPENDIX	A detail model of a solar field over the Gateway parking lot is available upon request.

Project Title: TV/Internet Provider Alternatives	
Status GRF: None	Status Committee: Final
Project Sponsor: Bob Kelso	Category:
Time Frame: 12-18 months	Importance: High
Community Objective THE WHAT	<p>Explore possible alternatives to the existing Comcast contract that expires in a little over 3 1/2 years. Contractually Comcast is obligated to provide:</p> <ul style="list-style-type: none"> • Digital preferred cable package • High definition TV service • 100 mbps internet service (recently upgraded for free to 150 mbps) • Ch. 28 standard definition broadcasting capability • Free upgrade to Xfinity voice activated remote • Free installation • Wifi in the clubhouses • Onsite customer service 3x per week • Free modem/router • Special call-in number just for Rossmoor that includes free tech support for internet, WiFi, television. <p>In addition they provide tens of thousands of dollars in support of various clubs and events.</p> <p>At least two years prior to the expiration GRF needs to appoint a team to explore possible alternatives in order to be prepared to negotiate with Comcast and/or switch delivery methods for TV and Internet.</p> <p>Two strategies should be explored.</p> <p>Look at possible competitors to Comcast, specifically Wave (which was under consideration when the Comcast contract was signed, and Sonic which is expanding in the Bay Area.</p> <p>For this approach cost and availability of content will be critical since Comcast owns a number of content providers such as those for local sports teams.</p> <p>Look at the installation of a fiber and/or point to point high capacity backbone that GRF would own. GRF would hire others to manage and provide tech support. It would be useful to contact other community owned ISP's to see how they are doing. Some of these can be found at https://muninetworks.org/communitymap.</p> <p>Costs of microfiber installation and point to point technology may make this feasible. During the Comcast contract negotiations this was researched and companies like Hurricane Electric can deliver 100Gbps service at \$1500 per10Gbps. 100Gbps will provide 15Mbps per manor at \$2.25 per month.</p> <p>Delivery of content is moving to the internet with the growth of Netflix, Amazon, and Hulu in addition to apps for the various TV networks. At some point the primary delivery system will most likely be the internet. This will necessitate a complete re-evaluation of our model for content delivery. TV content and delivery, the largest part of the monthly Comcast</p>

	bill, \$38 out of \$55, may go away. Each resident will then subscribe to the content they want.
Target Client THE WHY	To provide better and/or cheaper content (television) and internet connectivity. To improve the wifi coverage in clubhouses and throughout the valley.
Key Technology and Features THE HOW	Comcast has a significant advantage over any competitors because they own the fiber and cable currently in place. However fiber installation is relatively inexpensive. And there are new point to point technologies that might reduce or eliminate the need for fiber. Comcast's existing infrastructure is old and for some is at its limit for speed. Content delivery is changing from a fixed channel situation to over the internet delivery. Most channels now have apps and there are providers like Netflix, Amazon and Hulu.
Crucial Factors DETAIL OF HOW	A survey of residents should be undertaken to see how they access content and to assess whether Comcast is meeting its speed commitments. Possible additional services should be considered extended wifi coverage phone??? Alternative potential replacements for Comcast should be contacted. Wave Sonic??? Alternative models should be explored GRF owning the fiber/delivery system GRF would contract with content providers, possibly even Comcast, and isp's to provide content, support, and manage the system.
Relevant Numbers	GRF's contract with Comcast is over \$4,400,000 per year, one of Comcast's largest contracts in California. This is a sizable carrot that might attract a competitor. It is also a place where significant savings might be realized depending on the costs of content.
SOLUTION: BENEFITS TO USERS	Potential savings on the coupon. GRF would be in control of this critical amenity. Improved wifi coverage throughout the valley, especially at the clubhouses

Project Title: Water Reclamation Plant	
Status GRF: None	Status Committee:
Project Sponsor Bob Kelso	Category: Infrastructure
Time Frame: Long term	Importance: high
Executive Summary	<p>During the last drought EBMUD mandated a 40% water reduction for golf courses. During the next drought it is possible that golf courses will face even more stringent reductions or be banned from using EBMUD water altogether. Consideration of a GRF water treatment plant is in the General Plan update. Diablo Country Club is in process of designing such a system now and GRF staff have visited to discuss the process. Since the timeline for such a project is likely 10 years or more from start to finish it makes sense to start reviewing options now. It will involve extensive negotiations with EBMUD and CCSD. Some of the points of discussion are 1) would it just be Rossmoor wastewater or include some of Walnut Creek, 2) location (somewhat dependent on number one, 3) cost, 4) impacts- visual and olfactory. Benefits would be guaranteed water for the golf course and possibly other GRF landscaping. This is a current GRF Board goal and is an action item in the updated General Plan adopted by the GRF Board in 2016. A feasibility study is being prepared by a consultant for the GRF Board.</p>

Project Title Web Enabled Member Interaction	
Status GRF: In-Process	Status Committee:
Project Sponsor: Mary A. England	Category:
Time Frame: 2018-9	Importance: High
Community Objective THE WHAT	<p>Active Adult communities offer a lifestyle which embrace convenience, customer service, and affordability to members. Core to the delivery of services is the access and interaction between members and employees.</p> <p>The objectives of the GRF Website redesign initiative highly correlate with the “Member Access to GRF Services” project. The objectives of both projects are to deliver GRF services in the most effective, efficient, and cost-effective way. The Web-enable platform can be the “operating system” for Golden Rain Foundation. The GRF Board approved \$49,000 for Website redesign plans to be complete in 2018 and complete by June, 2019. A comprehensive redesign and implementation will be in the six-figures.</p> <p>An Active Adult community such as supported by GRF is being re-nued in an ongoing way. Younger, more technology-reliant members expect a website to link them with member-related operational functions, no matter what GRF or Mutual department delivers those services. Real-time, online, mobile connectivity, and interactive transactions is key to meeting this expectation.</p>
Target Client THE WHY	<p>The strategic redesign of Rossmoor.com website to deliver convenient, direct access with GRF operations benefits current and potential GRF Members, Mutuals, GRF staff, and those who need connectivity with GRF services.</p> <p>A Strategic Analysis (Strengths, Weakness, Opportunities and Competition or SWOC) of several other Active Adult community websites demonstrate opportunities for GRF to significantly deliver greater value with mobile/online access, online communication, and online transactions with constituents.</p> <p>Assessing the Active Adult community market in Northern California reveal other community websites integrating online connectivity and service delivery. The combination of technology-enabled operations and improved customer service no doubt result in improved customer (Member) satisfaction.</p> <p>A significant portion of the GRF budget is Operations or staff departmental expenses. Implementing online GRF service delivery has the potential to significantly improve workflow efficiency, and realize cost-saving benefits.</p>

<p>Key Technology and Features</p>	<p>Strategic planning for redesign of the Rossmoor.com website is a significantly different approach to managing GRF resources. Redesign of the new GRF website(s) and operational workflow will need to:</p> <ul style="list-style-type: none"> • deliver user-friendly functionality and “site map” • incorporate timely content from the members for the members • integrate with GRF, Mutual department functions • delivers operational services conveniently to constituents <p>1. Below is a list of Web-based functionality which can enable GRF and Mutuals’ services to deliver value on the Rossmoor.com platform: Secure, single sign-on Member-only Portal “MyRossmoor.com”</p> <ol style="list-style-type: none"> 2. Secure/Member-only Profile of preferences, settings, password, sign-off 3. Secure access to GRF “Membership Credentials” documentation 4. Mobile App Downloadable to Mobile Devices 5. Downloadable Membership Application Forms 6. Opt-in/Opt-out Forms for Membership Directories (GRF, Mutuals) 7. Member subscription to online GRF, Mutuals’ Newsletters 8. Member Service Request forms fill-in and online response and status 9. Work-order request form fill-in with attached pictures/documents, and option to browse requests already submitted 10. Searchable Documents in separate Governance sites for GRF, Mutuals 11. Searchable FAQ documentation of Governing documents, structures 12. Searchable Corporate documents for both GRF, Mutuals 13. Inquiry of FAQs, “was this helpful? Need Follow-up on Topics?” 14. Customized delivery of Website and Mobile device Nixle- Alerts 15. Zoom-enabled Google Imagery for Rossmoor Maps, labeled facilities 16. Communication Forms fill-in for GRF Management, GRF Board letters, responses posted 17. GRF & Mutual Election documents, procedures, rules, FAQs 18. Post Board Director Voting Records, Board Actions, decisions 19. Selectively Filter Announcements in real-time daily Newsletter 20. Searchable Event Calendar by date, time, event type 21. Link to Searchable GRF Video repository including Fitness Center Training (You Tube Channel) 22. Unedited GRF Board of Directors’ Meetings - Live Streaming? 23. Post GRF Board PowerPoint, Excel, proposal documents/presentations 24. Gateaccess.Net gate entrance, public safety requests forms fill-in 25. Member Portal feedback form (fill-in what type of Computer, Operating System, Browser are you using to access portal) 26. Member Portal Technical support, suggestions, Not a Robot verification 27. Request form for Member-specific Records, files from GRF, Mutuals 28. Organizational Notices of GRF Meetings, Agendas, Events 29. Annual Schedule of GRF Fees, Charges for Services described 30. Graphics and Photos Announcing Upcoming GRF-sponsored events 31. Daily Notice of Golf Courses Condition
<p>THE HOW</p>	

32. Weekly Notice of GRF Holidays, times of closures
33. Secure PAYLEASE link -GRF/MOD Payment for Invoiced services
34. Form for Capital & Operational Projects Idea documentation
35. Application Forms for GRF Board, Advisory, Ad Hoc and Committees
36. Dashboard GRF, Mutual Financial Reports (Charts, Graphical Displays)
37. Interactive PDF, Video of Financial Presentations to GRF Board
38. Annual, and monthly Pie Charts showing GRF Coupon % "Expenses"
39. GRF List of Services Covered under Coupon
40. Separate Mutuals' (18) List of Services Covered under Coupon
41. MOD List of Services Covered by Mutual "Management Agreement"
42. New GRF Member Orientation "Resource Guide"
43. GRF FAQ's mostly commonly asked questions and the answers
44. GRF Master Property Insurance Policy Documentation
45. Opt-in form: Electronic delivery of Documents, Newsletter, Magazine, Announcement, Events, and Notices delivery
46. Resale procedures and Architectural Requirements documentation
47. Mutual Resale & Remodel Manor History of permitted, approved projects documentation
48. Building Permit Applications, plans, drawings, inspection documentation
49. Member Portal Live Chat"
50. Autopay Enrollment Form
51. Website Feedback Form
52. GRF Budget Reports2018_web.PDF
53. Newsletter, Magazine Article, Announcements Submission Form
54. Newsletter, Magazine Letter to "Residents Forum" Submission Form
55. Form for "How did you hear about Rossmoor?"
56. Press Releases with Media-kit for PR
57. Voting - publishing voters' results

The redesign of the "public-facing" portion of Rossmoor .com can include links to external sites to enhance Rossmoor marketing presence on the internet. Some links include:

1. Facebook Page
2. You Tube Video Gallery
3. Pinterest
4. Flickr
5. Instagram
6. Twitter
7. Blog.com
8. Google Maps of Amenities, Trails, Facilities
9. PhotoStream Albums
10. Searchable Images in Galleries, Toggle, Share Images

Specific Payment and financial transactions may be achieved using:

1. Officialpayments.com (3rd Party online credit card payment processor)
2. PayLease for online payments

	<p>Integral to a safe, secure website infrastructure will be protection of “Personally-Identified” data. Website designers/users need to understand new GRF and Mutual Privacy Policy requirements for:</p> <ol style="list-style-type: none"> 1. Secure log-on/off 2. Password-protected Member-only Website Portal content 3. Internet, Network, Application, Database Security
<p>Crucial Factors</p> <p>DETAIL OF HOW</p>	<p>The GRF Board is crucial to initiating the shift to a strategic website redesign.</p> <p>A major shift in strategic direction for planning and implementation of GRF operations needs to be at the direction and oversight of the GRF Board.</p> <p>Senior Management of GRF will be key in “operationalizing” the redesign of the Website, creating an environment in which online connectivity becomes a preferred platform for communication and transactions with constituents.</p> <p>Funding and implementation of other GRF Ad Hoc Technology Committee Projects will be crucial to achieving this initiative. Those projects include dependencies on the “Physical Infrastructure”, “IT Projects”, “Customer Interaction” and “Communication” projects.</p> <p>Examples of interactive benchmarking websites for comparison are at:</p> <ul style="list-style-type: none"> • TahoeDonner.com • Villagesgcc.com • http://www.mytrilogylife.com/ <p>Of note, the Villages has a standing “Technology Advisory Committee(TAC)” to “Advise the Board on technology matters relating to The Villages. The mission of the TAC is “to introduce technologies into The Villages that will benefit the residents of The Villages.”</p> <p>A CASE STUDY:</p> <p>The MyTrilogyLife (MTL) members.mytrilogylife.com/login is a secure, member-only web portal for Trilogy members. MTL has a Webmaster and development team who customized the member site to be “the operating system” for Trilogy communities.</p> <p>The MTL member portal has a Privacy Policy which prioritizes “customer privacy first”. The site was recently re-designed for a cost in the six figures, all Trilogy members pay site maintenance fee of \$1.50/member/month, and each Trilogy location has an administrator for refreshing local content.</p> <p>MTL members have personalized accounts, can edit and post their profile, access to a private secure log-in member-only directory. MTL content can be downloaded to mobile devices, members can register for Trilogy events (including ticketing, payment, confirmation), can access content about member clubs and log in their interest in specific clubs. Members can customize notifications, events, club news, “daily digest”, bulletins and community news.</p>

Event news can be filtered by personal preference based on type and interest.

Members can access links for all local member clubs or just "My Clubs".

Since MTL is a sophisticated member-portal, MTL-specific training videos and clear instructions coach members in "How to" use site functionality.

What web-enabled technology tools were used by the Villages, Trilogy, and Tahoe Donner to deliver all this customized functionality?

The following **technologies (software, plug-ins, apps, and downloads)** are some of the tools available to develop and deliver **web-based functionality** for GRF website transactions and interactivity:

1. PayLease, paylease.com/registration/pay_portal
2. Trustware
3. Norton Secured, Digicert
4. SSL Certificate
5. Apple Store
6. Google Play
7. ZenDesk Live Chat
8. ZenDesk Online Help Center
9. HD Vimeo.com like & share Video (Board, Committee Meetings)
10. Web.PDF
11. PowerPoint
12. Re-CAPTCHA online verification
13. Adobe PDF
14. Adobe FlashPlayer Video
15. Dropbox Gallery for Images and Press/MediaKit
16. Dashboard.xls Financial Reports Graphical Display Charts, Tables
17. Vimeo.com Narrated Financial Report Video Presentations
18. Javascript submit check form
19. Takesurvey.aspx
20. Netpromoter.com Customer Experience Software
21. FinnGroup.com Customer Experience Software
22. Infographics.PDF
23. ONESTOP Building Project Permit & Review Application Forms
24. homewisedocs.com/nxlapp/appres/index.xhtmll
25. Davenport Group, USA
26. Issuu.com online Magazine Library
27. Icontact-archive.com Newsletter Archives
28. RSS ONLINE content feed
29. 3D Design, Green Design
30. Liveperson.net
31. Eedition, townnews.com
32. GateAccess.Net ABDi
33. Map.jpeg
34. Network Security ACL
35. SSO (Single Sign On Authentication)
36. what3words.com (location designation for meeting)
37. Progressive Web App
38. Bandicam.com (record & capture PC screen shots, videos for training)

	<p>This proposal to “operationalize” the Rossmoor.com website will not at this time address the GRF security and privacy policy issues involved in:</p> <ol style="list-style-type: none"> 1. GRF member access to GRF Application Databases 2. Mutual member access to Mutual-related Application Databases 3. Secure protection of member “Personally-Identified Data” <p>The GRF policy issues will need further analysis of risks, benefits, and risk mitigation. That discussion will need to resolve the issues before access is incorporated into the redesign of Rossmoor.com and a member Portal.</p> <p>GRF Ad Hoc Technology Committee will look at a separate project on the feasibility of “Database Integration/Synchronization”. Security/privacy issues above need to be resolved prior to implementation of 1, 2, and 3 above.</p>
<p>Relevant Numbers</p>	<p>Costs recovered or saved by GRF constituents include decreased travel/trips to physically interact with GRF, saving energy, fuel, mileage, MOD parking and time. Decreased GRF operational costs and resulting savings to GRF operations budgets will be realized by:</p> <ul style="list-style-type: none"> • more efficient staff workflow • less repetitious customer interactions • saving in both time, effort addressing operational redundancies • decrease in repeated searches for GRF “help” <p>Savings from more efficient workflow may result in reallocating staff resources to more valuable work activities and assignments. Costs savings may be realized from delivering online Newsletters, Daily digests, Magazine(s), and documents rather than relying on hard-copy - paper-based, printing. This will result in savings of the expense of hired staff delivery of Rossmoor News. This needs to be a “Sustainability” goal.</p> <p>Training of GRF staff and constituents will result in increased efficiency of GRF service delivery and member satisfaction. Online and mobile service transactions do not necessarily preclude or completely replace “in person” services.</p> <p>Transition planning will be critical to the conversion of GRF departmental operations to a web-enabled platform.</p> <p>The transition will be an opportunity to redesign workflow GRF efficiency and create new operational structures for GRF.</p> <p>The GRF Board approved \$49,000 for Website redesign plans to be complete in 2018 and complete by June, 2019. A comprehensive Rossmoor.com redesign and implementation will be in the six-figures.</p> <p>The alternative approach may be to evaluate Website delivery within these projects:</p> <ol style="list-style-type: none"> 1. Community Association Management (CAM)

	<p>2. Jenark Third-Party Integration & Web-Platform Modules (5 years away)</p>
<p>SOLUTION: BENEFITS TO USERS</p>	<p>GRF Members and staff can both benefit by a functional, interactive web infrastructure which delivers GRF services effectively, efficiently and enhances the customer experience and marketing presence.</p> <p>Developing and delivering a number of GRF services through a platform which “operationalizes” the website, including a secure, single-logon GRF Member Portal, will improve member experience and will be adopted as standard operating practice for GRF, Mutuals, and Members.</p> <p>Phased development of a web infrastructure which supports secure interaction between GRF Service staff and GRF constituents will become the preferred platform for customer transactions.</p> <p>This project has high degree of overlap with “Member Access to Information”, “Online Event Management”, Upgraded “Communications”, possible access to “Databases”, network security, and “Modern Web Infrastructure” (Slee) etc. to improve GRF processes, efficiency, customer satisfaction.</p>

Project Title: Wi-Fi Communications, Ubiquitous Access	
Status GRF:	Status Committee:
Project Sponsor:	Chris Slee Category: Communications
Time Frame:	Importance: High, low barriers
Community Objective THE WHAT	<ul style="list-style-type: none"> • Purpose: Clear communications at all common group meeting places, sized with adequate internet addresses and bandwidth for peak loads / users [e.g. Event Center with 400 attendees] <ul style="list-style-type: none"> ○ Beyond personal communications, Wi-Fi is essential to enable electronic computer interactions and transactions • Processes: Allow electronic processes, displays etc. at group situations <ul style="list-style-type: none"> ○ Separate paper processes are needed without Wi-Fi at all common communal locations ○ Replaces expensive hard wiring in many implementations • Problems addressed: <ul style="list-style-type: none"> ○ Current Wi-Fi coverage is spotty: <ul style="list-style-type: none"> ▪ i.e. Event Center has one channel access point and limited bandwidth, addresses for 400 users ▪ Group sites have very limited upload bandwidth, meaning video would rapidly overload the network ▪ Use of Xfinity AND Rossmoor encourages devices to automatically connect to a network and use an IP address ○ Wi-Fi is non-existent in many common group / social locations <ul style="list-style-type: none"> ▪ I.e. Creekside Restaurant, Bar, Buckeye Tennis, Sportsman Park, Bowling Center, Acquatics ○ Smart devices IoT⁴⁶ will demand many more IP addresses and break existing configurations ○ Cell coverage⁴⁷ is sometimes weak or non-existent, is outside GRF control, and does not serve a computer, tablet etc.;
Target Client THE WHY	<ul style="list-style-type: none"> • Group Attendees: perhaps 6000+ Rossmoor Residents (SWAG⁴⁸) using <ul style="list-style-type: none"> ○ ~80,000 events per year⁴⁹ plus others ○ Obviously nowhere near all use Wi-Fi at events • Wi-Fi VOIP⁵⁰ calls are available on selected cell phones⁵¹, which may be a solution for poor Cell Phone Coverage – another Project • User Practices:

⁴⁶ Internet of Things ... smart switches, devices, controllers, fitness monitors, health monitors etc.

⁴⁷ <https://opensignal.com/networks>

⁴⁸ Scientific Wild Guess

⁴⁹ Need reference ... number from Mary England

⁵⁰ VOIP Voice over Internet Protocol

⁵¹ E.g. Project Fi [Google], Xfinity Mobile, iPhone, Samsung, LG phones

	<ul style="list-style-type: none"> ○ Many technologies don't work without Wi-Fi, e.g. cannot use access control swipe, a screen, a kiosk, smart lock, cast video etc. ○ As a result, users can get forced to choose <ul style="list-style-type: none"> ▪ Either paper based processes ▪ Or not serve some members of the group
Key Technology and Features THE HOW	<ul style="list-style-type: none"> • Local with existing wired Internet: Wi-Fi choices include <ul style="list-style-type: none"> ○ Mesh networking with multiple access points ○ Powerline extenders ○ Wired secondary access points ○ [less than \$1,000/site uninstalled] • Mid-range, where there is currently no service: <ul style="list-style-type: none"> ○ Possible extensions from Comcast hubs at access points ○ Point to point⁵² from Rossmoor network: see Ubiquiti Wireless Planning Tool⁵³ for examples of coverage options ○ Cell phone access point [slow, limited bandwidth] ○ [less than \$1,000/site uninstalled] ○ Wi-Fi AD [wide area solution, later phases?] • Used, enhanced or replaced <ul style="list-style-type: none"> ○ Existing Routers, Access Points • Vendor identified: No. Comcast partially <ul style="list-style-type: none"> ○ Almost every restaurant, bar, fitness center, airport etc. etc. has Wi-Fi communications ○ Many malls, cities have are deploying Wi-Fi
Crucial Factors DETAIL OF HOW	<ul style="list-style-type: none"> • Dependencies: n/a • Reliability and quality: Same as current • Conversions: NO • Maintainability: YES • Growth or modification: critical to IoT ... Internet of Things
Relevant Numbers	<ul style="list-style-type: none"> • Needs site surveys and subsequent analysis • Cost – TBD • Cost savings, if any: no obvious direct saving. In enabled processes • Implementation budget: <\$1,000 for immediate benefits • Time/phases to implement: Can be phased by site need and obstacles • Contract negotiations required: Comcast + other purchases
SOLUTION: BENEFITS TO USERS	<ul style="list-style-type: none"> • Ubiquitous Wi-Fi coverage has become “table stakes”, a basic expectation of modern society <ul style="list-style-type: none"> ○ Saves cell phone data, including conversations sharing videos ○ Enables consistent electronic business processes with no paper ○ Complement to poor cell phone coverage, use Wi-Fi calling etc. ○ Avoid labor for connect/disconnect, expensive wired installations ○ Critical to IoT, lower power bluetooth for smart devices

⁵² <http://www.barcodegiant.com/proxim-wireless/gb-830.htm> ... ~\$725-850 for a pair

⁵³ Ubiquiti Wireless Planning Tool <https://link.ubnt.com/>

- Extensible to wide area Wi-Fi common in malls⁵⁴, airports etc.
- It's an opportunity cost / option cost as the lack of Wi-Fi obstructs modern technology deployment

APPENDIX Wi-Fi Heat Map of Rossmoor [Start]

Rossmoor needs to do a site survey to produce a Wi-Fi heat map. This map shows coverage in various spaces. The legend is:

- Bandwidth Mbs ↑Up ↓Down
 - [↑25 ↓100 would be Good] [25+Mbs = "FCC Broadband"]
- Color denote signal strength:
 - Green – Good, Orange – Marginal, Red – Poor-Nothing, Grey -- Nothing
- For example: appreciably better in a house, and non-existent in the Restaurant

⁵⁴ E.g. Broadway Plaza Walnut Creek