Peer Review of Town-Wide Underground Utilities Master Plan

Summary of Findings

December 6, 2017

Presented to:

Attention: Town of Palm Beach
951 Okeechobee Road Suite "D"
West Palm Beach, Florida 33401

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Patterson & Dewar Engineers, Inc. is pleased to submit to the Town of Palm Beach this Peer Review of the "Town-Wide Undergrounding of Utilities Master Plan" completed in April 2017 by Kimley-Horn and Associates. We examined the project's scope and identified the following areas of focus for our evaluation:

- Program Management and Delivery Method
- Costing and Applicability of Opinion of Probable Cost
- Scheduling and Sequencing
- Planning and Engineering Design
- Traffic Impacts

Based on our review and analysis, we have identified several topics for discussion and consideration. Our findings center around administrative procedures, cost estimate confidence, contract quantities, as well as technical details. In most cases, the recommendations presented are qualitative in nature, but we have attempted to quantify the potential impacts where possible based on available data. The anticipated effects of our findings will need further evaluation to determine the precise impact to the project's cost and schedule; the functionality and reliability of the final undergrounded utilities infrastructure; or the potential risk that can be mitigated from the overall undergrounding effort.

We are committed to working with the Town to communicate to all interested parties the reasonings behind our recommendations for action and the steps necessary to execute recommended potential changes to meet the needs of the project. If you have any questions about this peer review, the data we reviewed, or our methods of analysis, please contact me at any time at 615-838-4197 or ahanson@pdengineers.com.

Sincerely,

P Anthony Hanson

Patterson and Dewar Engineers, Inc.
P. Anthony Hanson, P. E.
Principal Engineer

Acknowledgement

The utilities undergrounding project initiated by the Town of Palm Beach (Town) is quite the undertaking, and our Project Team wishes to acknowledge how well the Town's staff has done at managing the project thus far. We recognize that this is an ambitious project that is plagued by numerous constraints that are outside of the Town's control. We would also like to note how diligent Kimley-Horn and Associates (KHA) has been in managing the design of the overall project and the successful engagement of the selected Construction-Manager-At Risk (CMAR) contractors for Phase 1. The individuals working on the project have, in our opinion, exhibited the highest degree of professionalism and demonstrated a desire to deliver an excellent project on-time and on-budget while mitigating, to the greatest extent possible, the impact on the Town's citizens. While our task has been to identify areas for improvement, we applaud the painstaking work that has already been undertaken and congratulate all stakeholders on the extraordinary efforts underway to meet this momentous challenge.

Executive Summary

Patterson & Dewar Engineers, Inc. (P&D) has been retained by the Town of Palm Beach to provide an independent, technical peer review of the "Town-Wide Undergrounding of Utilities Master Plan" (Master Plan) completed in April 2017 by KHA with the intent of improving the overall project cost, schedule, and/or quality, retained. This peer review sought to address specific "charge questions" posed by the Town in the analysis as well as other topics identified during the review. This peer review included examination of the project's approach and design consideration, the Master Plan, scheduling, sequencing, phasing, the probable cost of construction, and the overall plan for executing the project. Once submitted the current execution team including the Town staff and the KHA team will provide responses to the findings in this report.

Our approach for this project was to partner P&D's in-house expertise with outside specialty firms, Erdman Anthony and NewGen Strategies & Solutions, to provide a seamless team of professionals to perform the peer review for the Town. Collectively this team of subject matter experts is referred to herein as the "Project Team".

The Project Team was provided reference materials for the project, including more than 70 individual documents totaling 2,700+ pages. We analyzed data and drawings provided by the Town and KHA. Then we conducted interviews of the Town's staff, the KHA design team, staff from FP&L, Comcast, and AT&T, the Phase 1 CMAR contractors and Phase 1 electrical subcontractors, as well as electrical subcontractors whose bids for work were unsuccessful. All participants were open, forthcoming with information, and accommodating to the Project Team. These stakeholder consultations were an essential part of the review process, and included phone calls, team meetings, and attendance at a meeting on October 3, 2017 of the Town's Underground Utility Task Force (UTTF) Committee to learn of the issues and concerns of those individual citizens, as well as those of Town leadership.

Supplementing the core project team, expert advice was solicited from two utility construction companies, both with a large presence in the Southeast. Extensive conversations with these contractors further aided in assessing this project's approach to construction phasing and execution. The responses to all interview questions were factored into the Team's analysis.

The following report has been structured to address key focus areas which have been developed to address each of the charge questions provided by the Town. These focus areas are as follows:

- Focus Area I – Program Management and Delivery Method
- Focus Area II – Costing and Applicability of Opinion of Probable Cost
- Focus Area III – Scheduling and Sequencing
- Focus Area IV – Planning and Engineering Design
- Focus Area V – Traffic Impacts

Our consultations and analysis have been very informative. After assessing the project from every angle and taking an "out of the box" approach to this peer review, we have developed several recommendations for consideration by the Town. The effects of our recommendations vary from compressing the schedule to potentially impacting the budget to adding procedures or documents that will improve project execution. In some cases, the suggestions may increase the budget, but will improve the overall quality or lower the associated risks of the project. There are some findings for which we ultimately do not recommend the Town make changes, but our summary analysis is still presented herein to show our research of that focus area and let the reader know we gave in-depth consideration to every topic. The impetus for all of the Project Team's suggestions, as well as the potential effects, are detailed in our summary analysis.

Included on the following page is a matrix of our findings with notes on potential impacts to the project's budget, schedule, the functionality of the final system, or the potential mitigation of project risk. The chart identifies the impact category for each of the findings. These impacts, which may positively or negatively affect the overall project, are discussed comprehensively in the requisite section of the report.

Description	Potential Impact				Notes
	Budget	Sched.	Funct.	Risk	
Focus Area I – Program Management and Delivery Method					
1.1 Maintain CMAR delivery method, but execute as continuing contract	✓	✓			Similar to Finding 3.2
1.2 Retain CMAR earlier in the process	✓			✓	Allows for better collaboration
1.3 Develop a Project Management Plan	✓			✓	Helps identify responsibilities and track tasks
1.4 Carefully monitor the amount of work self-performed by CMAR	✓	✓		✓	Ensures proper use of CMAR while ensuring quality and minimizing overhead
1.5 Monitor competitiveness of the CMAR-conducted subcontractor bidding process	✓				Ensures participation from maximum number of bidders for subcontractor work
1.6 Use project management software for program coordination and execution	✓	✓		✓	Useful tool for enhancing and encouraging project reporting
1.7 Maximize benefits from CMAR delivery method	✓			✓	Critical to realize full benefits
Focus Area II – Costing and Applicability of Opinion of Probable Cost					
2.1 Prepare deterministic cost estimate for future phases	✓			✓	Improves confidence and accuracy of estimate
2.2 Maximize savings from tax-exempt status through Town's Direct Purchase Program	✓	✓		✓	AT&T and Comcast conduits
2.3 Minimize the number of exceptions to ensure integrity of GMP	✓			✓	Enhances integrity and reliability of overall program cost
2.4 Improve effectiveness of the Task Force	✓	✓		✓	Ensures proper use of time and project resources
Focus Area III – Scheduling and Sequencing					
3.1 Modify structure and organization of phases	✓	✓		✓	Not recommended
3.2 Improve schedule by minimizing number of contracts and utilizing unit pricing	✓	✓		✓	Max. 3 CMAR contracts for life of project
3.3 Consider engaging FP&L for electrical installation	✓	✓		✓	Not recommended
Focus Area IV – Planning and Engineering Design					
4.1 Validate design with appropriate electrical codes and standards			✓		Standard design practices
4.2 Vet FP&L design and negotiate improvement	✓		✓		Consider using more Vista equipment and less PME-4 switchgear
4.3 Monitor constraints to design completion and implementation	✓	✓		✓	Customer service entrance issue; Difficulty of easement acquisition
4.4 Optimize the number of geotechnical tests	✓	✓		✓	Provides more data for design phase, estimates
4.5 Optimize the number of subsurface utility locates	✓	✓		✓	Consider hiring a private locating service.
4.6 Expand other infrastructure improvements		✓		✓	Consider accelerating the water, sewer, drainage improvement projects
4.7 Request express circuits to mainland substation	✓		✓		Affects overall reliability of service to island
Focus Area V – Traffic Impacts					
5.1 Execute phases simultaneously	✓	✓		✓	Not recommended
5.2 Incentivize less disruptive construction methods	✓	✓		✓	Reduces travel delay for motorists and has significantly less impact on roadway rehabilitation.
5.3 Use FDOT Green Book Standards				✓	Provides less restrictive, yet fully acceptable, standards for design of roadway reconstruction

Project Background

The Town of Palm Beach is world-renowned for being beautiful and affluent. Part of the beauty of the Town is the historic estate homes. However, the historic overhead utility lines are neither beautiful nor reliable. With high property values, and associated tax burden, the residents and taxpayers expect and deserve a high level of service for their infrastructure system. There are locations where power outages are far too common due to the age and condition of the power facilities. There are many areas where overhead utility poles with multiple wires mar the otherwise beautiful streetscape in front of multi-million dollar estates.

After the hurricanes of 2004-2005, and in compliance with mandates from the Florida Public Services Commission (PSC), Florida Power & Light (FP&L) is implementing a hardening program to better withstand some of those extreme weather events. FP&L's solution is to replace the current wood poles with larger concrete poles. This solution will make the current view even more unsightly. Therefore, the Town is taking advantage of this opportunity to harden the utilities, improve the view, and obtain a reduction in the FP&L costs of 25% for large (3 miles or more) projects.

The goal of the project is to convert approximately 45 pole miles of overhead electric and telecommunication lines to an underground conduit system throughout the Town. The project budget has been estimated between $90M and $120M, with a duration of 6 to 10 years. This town-wide utility conversion project will require a joint effort among the Town, FP&L, AT&T and Comcast to accomplish the Town's goal of removing all overhead utilities.

While such undergrounding efforts are not uncommon, the Town's effort will be uniquely challenging in several ways. Some examples:

- The Town's beauty comes from an immense amount of landscaping and foliage. Efforts to minimize the disturbance and damage to this landscape will create challenging working conditions for utility contractors.
- There is limited open area within the Town for staging equipment and materials, which will make staging and mobilization of crews difficult.
- The Town's transportation infrastructure is such that the underground work cannot impede traffic flow without the creation of significant headaches for drivers.

The above is not an exhaustive list, but does serve to illustrate that the project is a significant undertaking for the Town and will have a vast impact on its residents. While the final result will improve reliability of the electric system and the aesthetics of the Town, the execution of the project will not be without its challenges and impacts to residents.

With the intent of improving the overall project cost, schedule, and/or quality, the Town of Palm Beach retained P&D to provide an independent, technical peer review of the Master Plan completed in April 2017 by KHA. The

peer review addresses specific "charge questions" in the analysis as well as other topics identified in the review process.

During the master planning stage, the KHA design team performed value engineering to identify potential cost savings or impacts. Some of these are still under discussion and have yielded positive impacts to the project. As evidenced by the value engineering efforts already undertaken, the Town has been extremely cost-conscious in the execution of the program. Significant effort has already been expended, and while this peer review provides additional considerations for Town leaders and key stakeholders, we applaud those involved for their diligent efforts to-date. At the time of our peer review, the Master Plan had been finalized and Phase 1 of the project had been bid out and awarded to two separate CMAR contractors. On-the-ground activities have commenced and are currently on schedule based on the latest update, despite a significant weather event halting work for several weeks. Survey and design services have also begun for Phase 2 work.

Overview of Peer Review Tasks

This peer review includes analysis of the project's approach and design consideration, the Master Plan, scheduling, sequencing, phasing, the probable cost of construction, and the overall plan for executing the project.

Kickoff Meeting

The peer review process began when the Project Team attended a kickoff meeting on July 27, 2017 wherein key stakeholders of the Town and the KHA team met with the Project Team representatives to discuss framework, direction, and overall objectives of the peer review. This allowed the Project Team to meet with key technical experts for the Town and KHA and to establish appropriate lines of communication and coordination. The accomplishments of the kickoff meeting included the following:

- Meet the Town team, design team, and introduce The Project Team
- Finalize the scope of services
- Finalize the peer review schedule and establish key milestones
- Obtain the data requested and review it with the design team

The following personnel attended the kick off meeting:

- P&D – Anthony Hanson
- NewGen – Chris Ekrut
- Erdman Anthony – Dana Gillette
- Erdman Anthony – James Noth
- Kimley-Horn – Kevin Schanen
- Kimley-Horn – Russel Barnes
- The Town of Palm Beach – Patricia Strayer
- The Town of Palm Beach – Steven Stern
- Burkhardt – Marc Kleisley
- Whiting Turner – Bo Huggins
- Whiting Turner – Frank Zamremba

Those attendees listed above participated in several consultations, but may have not been present for every meeting session.

Data Request and Review

Also as part of the effort, the Project Team submitted a comprehensive data request to both the Town and KHA that included the following:

- Construction Documents for current projects
- Engineer's Estimates of Probable Costs for current projects
- Engineer's Estimated Construction Schedule for current projects
- Engineer's Recommended Traffic Control Plan for current projects
- Contractor's Bids for current projects
- Contractor's Schedule for current projects
- Contractor's Traffic Control Plan for current projects
- Master Plan

A complete list of the documents requested by the Project Team is provided in Appendix A and a list of the documents reviewed by the Project Team is provided in Appendix B.

Stakeholder Consultations

After reviewing the information provided, the Project Team led a long summit onsite and conducted interviews with all stakeholders associated with the project. Additional consultations were held with those unable to attend the in-person interviews due to the weather event. The topics addressed included the following:

- Opportunities for enhancements
- Opportunities to reduce costs
- Review of contingency
- Review of inflation
- Review of cost estimates
- Review of proposed construction approach, methods, and equipment
- Review of proposed schedule and phasing
- Review of schedule and cost trade-offs
- Review of proposed traffic control impacts
- Review of project delivery methods, such as Design-Bid-Build, CMAR, Design-Build, Public-Private-Partnership.

The following personnel attended the interviews:

- P&D – Anthony Hanson
- NewGen – Chris Ekrut
- Erdman Anthony – Dana Gillette
- Kimley-Horn - Kevin Schanen
- The Town of Palm Beach – Patricia Strayer
- Burkhardt – Marc Kleisley
- Whiting Turner – Bo Huggins
- Whiting Turner – Frank Zamremba

Personnel from the following companies were interviewed by phone:

- FP&L
- CR Dunn
- Wilco
- Mastech
- Danella
- Hypower
- Pike Electric

The Project Team consulted by phone with several of the unsuccessful bidders of the electrical component of the phase bid process.

The Project Team also conducted in-person interviews with two large utility construction companies in the southeast. The companies were provided the Master Plan, the Phase 1 bidding documents, drawings, and the sequencing maps. Interviewees from these companies included regional vice presidents, underground project managers, and project estimators. Interviews were conducted on-site at their locations after those contractors completed an initial review of the project. The discussions centered around the delivery method, the project size and phasing, and the overall construction techniques needed. Summary information gleaned from these interviews is shown in Appendix C. We would note that we are, at this time, refraining from listing these contractors by name given the potential that they may wish to bid on future phases of the project. While the input of these construction contractors was critically important and proved instrumental in some of the recommendations made herein, we do not wish for their independent, third-party comments to jeopardize their capacity to assist the Town in the future. We appreciate the Town and Task Force's understanding on this issue.

Preparation of Report

The Project Team analyzed the responses and prepared this summary report to address the charge questions and other topics identified during the peer-review process. During this process, the Project Team attended a meeting of the Town's Underground Utility Task Force Committee to learn of the issues and concerns of those individual citizens as well as those of the Town leadership.

Once this report has been submitted to and reviewed by the Town staff, the design team, and the construction teams, the Town will develop a response to the suggestions made herein. Those responses will be incorporated into the overall peer review document for a complete and comprehensive study. After the report has been finalized, the Project Team will attend a meeting with the Town Council to present the results of our peer review and answer any questions the Town may have.

Peer Review Report Findings

Focus Area I
Program Management and Delivery Method

Introduction

The definition of a successful project is one that is delivered on-time, on-budget, and meets the project owner's expectations. Based on this definition, the constraints of a project are easily defined as:

1) the time available to conduct the project;
2) the monetary resources available for the project; and
3) the overall scope, or work to be accomplished.

In the case of the Town's Utilities Undergrounding effort, the process is made up of multiple projects, defined simply as a "program", with each project having its own unique constraints based on varying demands on schedule, cost, and work to be performed. Executing this program in a timely and cost-effective manner has required, and will continue to require, careful coordination between the Town, its various program contractors and subcontractors, as well as FP&L, Comcast, and AT&T.

Substantial work has been performed to-date to define the unique elements and constraints of the program, and our Team applauds the diligent efforts various stakeholders have taken to ensuring the program is executed in the most timely and cost-effective manner. No project is without its challenges, but the minimal disruptions that have occurred to-date speak to the competence of both Town of Palm Beach staff and the various engineering and construction contractors that are engaged in program execution. While other sections of this report will address the more technical aspects of completing the program, this section focuses on the management and delivery of the program to determine where areas for improvement might exist to either facilitate more timely or more cost-effective completion.

The Project Team would be remiss if we did not remind the reader that increasing layers of management or expanding the management of a program does typically come with either increases in cost or possibly an expansion to the program schedule to allow for execution of various processes or deployment of certain policies or practices. While such changes to management or program delivery may result in a near-term increase in cost, such cost increases may be offset by avoided cost at a future point in the program, or such changes may serve to reduce or mitigate risk factors which, should such risks manifest themselves during program execution, could result in added cost.

Charge Questions

- Are there any large-scale opportunities to modify the planning, phasing, construction methodology, and/or other implementation ideas that would significantly impact the recommendations in the Master Plan and could significantly impact the overall opinion of probable cost?
- Are there recommendations for construction delivery methods that could reduce the overall cost of the project? In reviewing the Master Plan, the Town wishes to know if there are alternative approaches that will deliver this program more efficiently.

Findings

Finding 1.1 – Maintain CMAR delivery method, but execute as a continuing contract

Summary

While it appears that CMAR is the most effective method of project delivery given the complexity and demands of the program, it is possible that other methods of program delivery may result in reduced costs to the Town. If CMAR is to be utilized, the Town should look for ways to, at minimum, streamline contracting and minimize the time committed to the procurement process. The Master Plan prepared by KHA does an excellent job of enumerating the strengths and weaknesses of a variety of program delivery methods. Based on this discussion, it ultimately is concluded that CMAR is the most effective method of delivery for the Town's utilities under-grounding program.

While the Project Team does not necessarily take issues with the employment of CMAR, it has been discovered through multiple conversations that the use of CMAR may result in increased costs to the Town. While this cost increase is noted within the Master Planning document, the advantages of said method with regards to enhanced project timing and risk mitigation are cited as a factor that outweighs the increased cost. The Project Team agrees with this assessment; nevertheless, the advantages of CMAR, namely construction management, can be achieved in other, potentially more economical, ways.

- For example, a number of larger subcontractors maintain in-house project management capabilities which are duplicative in nature to the services provided by the CMAR. These capabilities include, but may not be limited to, project controls and public engagement. While these services are being provided by the CMAR, it is possible that some subcontractors will embed the cost of these services into its prices as "overhead", despite the fact that said services are not being provided. If such cases exist, then the Town is effectively double-paying for these types of services, driving up the overall cost of the program. Were the Town to utilize the construction management services of individual contractors, it's possible that overall project management costs could be reduced.

Additionally, because of the enhanced risk of financial performance undertaken by the CMAR, there is a level of mark-up that is included within their cost to the Town. Were the Town to employ an alternative delivery method other than CMAR, and rely on the individual sub-contractors to provide project management services, it is possible the overall cost of the program could be reduced.

However, the Project Team notes that the cost of Project Management for Phase 1 North and Phase 1 South ranged from a low of approximately 8% to a high of just under 12%. Based on the Project Team's experience and discussions with other industry professionals, it is our opinion that this cost of construction management services falls within the industry standard acceptable range and is not considered excessive. As such, it is not anticipated that there would be significant cost savings should the Town deviate from the CMAR approach and rely on individual sub-contractors to provide said services.

Further, the cost of CMAR services is reasonable given the elevated level of service demanded by the Town and its residents. As noted earlier, the Town of Palm Beach is a unique community with distinctive clientele. The residents of the Town expect and rely on excellent and exacting customer service. With this level of service potentially comes increased cost. These standards will not be reduced even should individual sub-contractors provide construction management services and, as such, it is possible that there might actually be an increase in cost were an alternative method to be utilized. Further, the disjointed nature of construction management without a CMAR could lead to disruptions in the expected service level and unacceptable disruptions to citizens.

Moreover, should the Town undertake a differing project delivery approach, then it may place greater requirements on Town staff with regards to management of individual contractors for multiple, on-going phases. If existing staff is not able to manage this increase in workload with existing resources, then additional personnel may be needed, ultimately contributing greater cost to the Town because of the program. The Project Team does not have sufficient information to assess the capabilities and workload of Town staff, and cannot provide a definitive estimation of how changing from CMAR to internal management may impact cost. This type of review and assessment should be conducted prior to considering any type of amendment to the method of program delivery.

Recommendation for Action

Instead of moving away from CMAR delivery method, the Project Team encourages the Town to consider a single, continuing contract[1] with the selected CMARs. (This recommendation is explored further in Focus Area 3.) Such continuing contracts can be competitively bid on qualifications, and then negotiated with unit pricing that changes over the life of the project at agreed upon rates. Then, construction management can be negotiated as a percentage of the direct cost.

By engaging in a single contract that continues over time, the Town can reduce the time and internal resources committed to the purchasing process. While our Project Team recognizes that the procurement of a CMAR specific to each phase was likely designed to ensure the Town is protected in the event of non-performance of a specific CMAR contractor or sub-contractor, this constant procurement process adds time and cost to the project. Additionally, the lessons learned by CMARs through the process are lost if the Town makes significant changes in contractors through the life of the project. These lessons learned and knowledge gained are critical to maintain and can ultimately help to decrease the timeline of the project and overall project cost.

[1] *(**The term "continuing contract" here is <u>not intended</u> to represent a legal term defined by the Florida procurement laws**, but rather to imply "a single, longer term contract with a finite completion date". Any changes to the contracting method for this project must be in compliance with appropriate laws and approved by the Town's attorney.)*

While we are sensitive to the Town's desire to protect itself in the event of non-performance and to receive the most competitive pricing, it is our opinion that continuing contracts can be structured to provide sufficient protection to the Town. Further, given the quality of the Town's selected CMARs and their demonstrated record of excellent performance, we believe that the risk of non-performance is minimal compared to the time and cost that is being added to the project through on-going procurement efforts.

Potential Impact

By maintaining the CMAR method and structuring continuing contracts with the CMAR(s), we believe the timeline of the project can be shortened, and while the overall cost of the program may not be diminished, this change will likely free up the Town's internal purchasing resources thereby reducing cost. Currently, as we understand the Program schedule, 28 months (or 2+ years) are committed to the procurement process. By shortening this process, we believe substantial time can be saved, with a commensurate reduction in overall cost and further avoidance of cost increases from inflation.

Utilizing a continuing contracting method does introduce a greater risk of potential non-performance of selected contractors; however, the Project Team believes the continuing contract can be structured with sufficient legal protections to minimize this risk. Additionally, by agreeing now on unit pricing that will apply further into the future (as further discussed in Finding 3.2), it is possible that the Town may run the risk of not receiving the most competitive pricing, reflective of the unique pricing conditions at the time that the work is ready to perform. However, while this risk does exist, the Project Team believes the reduction in schedule that can potentially be achieved more than outweighs the potential risk.

Finding 1.2 – Retain CMAR earlier in the process

Summary

Based on the timing of when the CMARs for Phase 1 were retained, some of the advantages of the CMAR delivery method have not, in the Project Team's opinion, been fully realized. Specifically, the CMARs for Phase 1 had limited opportunity to offer input on design of these phases, or provide opinions on technical feasibility during construction reviews. One of the distinct advantages of the CMAR method of program delivery is that the CMAR is typically retained early in the project to provide their input and guidance on design, cost estimation, as well as provide their review and opinion on the technical aspects of constructing the project. As noted by the Town of Palm Beach's Construction In-Progress & Construction Project Bidding Internal Audit conducted by Crowe Horwath (Crowe Horwath Audit) from October 1, 2010 through June 30, 2011, in practice, if a CMAR arrangement is used, the Construction Manager is normally engaged early in the process to manage the design process. Specifically, the Town's amended Purchasing Manual language contained within the audit states:

> *"The greatest benefit is achieved when the contractor is brought into the design process at the outset. The benefit of this construction method is the contractor's input into the design resulting in a better scope of work and the expectation that fewer change orders and claims will occur due to design errors."*

Specific to the first phase of this project, it is the Project Team's understanding that the CMARs for the project were not engaged until design was relatively complete. Some of the CMAR advantages are lost due to the fact that the final project design is determined by FP&L, and very little can ultimately be changed without its direct approval. As such, even if the CMAR had time to provide suggestions for improvement, they may ultimately not be acceptable to FP&L.

However, while the impact of constructability reviews may be minimal, we believe it important that if the CMAR method is to continue to be employed, the selected CMAR contractor should be engaged earlier in the process to have input on design and overall constructability of each phase.

Recommendation for Action

Consider retaining the CMAR earlier in the design process to take full advantages of their expertise. Additionally, as noted in Finding 1.1, placing the CMAR on a continuing contract would also accomplish this objective.

Potential Impact

While engaging the CMAR earlier will likely lead to increased levels of cost due to retaining these professional services for a longer period, it is anticipated that having more input on the design and constructability of each phase may result in ideas for cost reduction or cost avoidance. However, we also recognize that the level of cost reduction or cost avoidance may be limited in this case due to the requirements of FP&L.

The early engagement of the CMAR allows for additional professional input on the design, which can also help to mitigate risks that the design may not be fully constructible due to unique field conditions. The Project Team believes this risk mitigation, and the avoidance of schedule delays or cost overruns, helps to offset the potential increase in cost from retaining professional services for a greater period of time.

Finding 1.3 – Develop a Project Management Plan

Summary

In the Project Team's opinion, there exists limited formal documentation on management of this complex program. While we recognize that execution of the program has only recently begun, it is our opinion that there is a lack of critical management documentation that should exist at this point in the life of the program. Specifically, our Team is not aware of the existence of a formal Project (or Program) Management Plan (PMP).

A PMP is an amalgamation of several smaller plans that address all the critical elements of a program or project. The PMP documents "the actions necessary to define, prepare, integrate, and coordinate all subsidiary plans."[2] Typically, a PMP, at minimum, would include sub-plans outlining the following areas:

- Scope
  - Including Work Breakdown Structure and acceptance process for completed deliverables

[2] A Guide to the Project Management Body of Knowledge (PMBOK Guide), Third Edition, 2004, Project Management Institute, Appendix F, Page 337

- Time Management
  - Including program sequencing documents outlining project dependencies, resource estimation, and duration estimation
- Cost Management
  - Including baseline cost estimate and cost control measures
- Quality Management
  - Including a definition of expected quality standards and metrics and the process for quality assurance
- Resource Management
  - Including documentation of project roles and responsibilities, team member competency and expected interaction
- Communications Management
  - Including a determination of communication needs, and a formal plan for information distribution and reporting
- Risk Management
  - Including the identification of both qualitative and quantitative risk measures and the response plan should such risks arise
- Procurement Management
  - Including contracting standards and documents, management of the procurement process, and measures for properly administering contracts

When the PMP for the program was requested from Town Staff, the response received was that the Master Plan, as prepared by KHA, represents the PMP for this program. However, while the Master Plan is a comprehensive and well-constructed document, it does not fully cover all aspects of program execution. Given the complexity of the program, it is our opinion that a formal PMP is essential to effective and efficient completion.

Additionally, as noted in the Crowe Horwath Audit, it was indicated that the Town's updated purchasing manual (which was not provided for review by the Project Team) includes language requiring that as part of the CMAR pre-construction services, the CMAR should:

> *"develop a project manual, which includes, but isn't limited to, issues such as project goals, project approach, work plan, communication/coordination procedures, emergency contacts, etc."*

At this time, the Project Team is not aware that either CMAR has produced such a project manual specific to their specific phase of the project. While some of these items are covered, albeit succinctly, within the contracts with each CMAR, the Project Team believes that the contemplated project manual would be of great assistance in the execution of each phase and can assist in mitigating project risk.

Our Team does note that in the exceptions to at least one of the GMP documents, it states the following:

> *"the project manual described in the contract shall mean the closeout project manual which shall be updated periodically and presented to the Owner upon completion of the project."*

However, Section 2.2 in the contract with the applicable CMAR states that they shall provide the following:

> *"Establish and maintain a) procedures for coordination among the Owner, Design Consultant, Sub-Contractors and Construction Manager with respect to all aspects of the Work; b) Implement such procedures, incorporate them into a Project resource manual, and distribute manuals to the Construction Team."*

It is the opinion of the Project Team that there is confusion that exists regarding what is meant by a "project manual". As anticipated by the Town, it appears such manual is meant to be a living document which governs the execution of the program phase. Specific to at least one of the current CMAR contractors, the "project manual" is more of a closeout document. The Project Team recommends the purpose of and contents of the contemplated project manual be better defined to enhance its use and function in executing and monitoring the various phases or projects within the program.

Further, in discussions with Town Staff, it was indicated that there have already arisen some limited issues of proper project communication between the Town and selected contractors. While these are likely single, isolated incidents, having a formal PMP inclusive of a Communications sub-plan which documents expectations, may minimize the occurrence of such instances in the future.

Finally, while no one anticipates a partial or complete failure of program delivery at any point, without formal documentation of program roles and expectations, should such failure occur, it could result in substantial time in litigation between the parties to determine overall responsibility. Development of a formal PMP clearly outlines said roles and responsibilities, as well as corresponding expectations, and can be used to mitigate risk should the program not be completed as planned.

Recommendation for Action

Consider the development of a formal PMP. As an alternative, enforce the requirement on CMAR contractors that project manuals be developed specific to each phase of the project.

Potential Impact

The development of a formal PMP, or even the development of project manuals specific to each phase, will likely result in a near-term increase in project cost as the development of such plans takes time and effort. However, the benefit of such a plan on stream-lined project execution may also result in cost reduction, or cost avoidance, in the future. Such cost/benefit cannot be formally quantified, but the development of a PMP is recognized in the industry as a "best practice" for the execution of a program of this complexity. Finally, in the event the Program experiences significant disruption and problems, the PMP could be a valuable asset in assessing roles and responsibilities, and mitigating the risk to the Town of non-performance by individuals.

Finding 1.4 – Carefully monitor the amount of work self-performed by CMAR

Summary

While at times advantageous, in general the self-performance of work by the CMAR should, in our opinion, be limited and carefully evaluated prior to approval.

While at times it may be advantageous in terms of time or cost for a CMAR contractor to execute work, allowing this process does introduce a certain level of risk into the traditional CMAR process. For example, when a CMAR utilizes a sub-contractor to execute a specific project element, the CMAR serves as the quality assurance check on the performance of that work. When the CMAR self-performs the work, then they must have a process in place within their organization to ensure quality. As anyone who has ever been responsible for quality knows, it is very difficult to check your own work, and a better product is often produced when there are multiple sets of responsible parties reviewing the work performed. If at any point in the process the CMAR is not diligent on quality, then the project may suffer.

Additionally, in the traditional CMAR contracting process, the CMAR obtains a mark-up on the direct cost of construction. Unless carefully monitored, construction work that the CMAR performs themselves could be higher cost than a competitive alternative, upon which the CMAR would then also earn a mark-up. Such instances can lead to the incurrence of even higher overall program costs through inappropriate "double-dipping".

The challenge of CMAR self-performance is noted in the previously referenced Crowe Horwath Audit. At Page 18, it notes that the Town's purchasing manual contains the following language:

> *"Ideally, the CMAR will not self-perform any construction work under this contract and will be secured prior to the commencement of the design process. The Owner reserves the right to allow the CMAR to self-perform work upon prior written notification and consent of the Town Manager or designee."*

Recommendation for Action

Continue to limit the allowances for self-performance of work by CMAR contractors and carefully weigh the advantages of such actions against the cost and/or risk. Presently the Phase 1 contracts limit self-performance to 20% of a certain demolition task. Future contracts should continue these limitations and monitor self-performed work throughout the contract term.

Potential Impact

Minimizing the amount of work performed by the selected CMAR(s) should assist in maintaining the project cost at baseline levels. While it likely will not result in cost savings, it will assist the Town in maintaining the overall project budget. As previously mentioned, there may be times when the benefits of self-performance outweigh the cost or risk. Those instances should be carefully evaluated and documented prior to permitting the CMAR to self-perform the indicated work. Also, the risk to maintaining quality assurance should be compared with the potential advantages to the project schedule, as well as compared against the potential impact to the overall project budget.

Finding 1.5 – Monitor the competitiveness of the CMAR-conducted subcontractor bidding process

Summary

The Town must ensure that the development of procurement packages and the competitive bidding process employed by each CMAR is adequate to ensure the competitiveness of the bidding process.

The Project Team was granted access to a substantial amount of the bid documents utilized by each CMAR in procuring subcontractors. Based on our review of this documentation, our Team believes the process was fair, open, and resulted in competitive and fair bids which ultimately form the basis for the CMAR agreed upon GMPs. At this time, we do not have further recommendations for improving or modifying the CMAR subcontractor bidding process, and recommend that similar processes continue to be followed in the future.

Further, we recommend that Town purchasing staff continue to carefully monitor the bidding process of the selected CMAR(s) and, should opportunities arise, provide guidance and support to ensure that the bidding process remains as competitive as possible which will ensure the price of each project, and resulting GMP, is as cost effective as possible. Such areas of monitoring include the level and overall distribution of the bid packages, as well as the sizing and structure of bid packages to ensure the maximum amount of interest by potential subcontractors.

Recommendation for Action

Town staff should continue to monitor and work directly with the selected CMARs to ensure the continued competitiveness of the subcontractor bidding process.

Potential Impact

The structure of the bid packages of each CMAR can have an impact on the types and number of subcontractors that respond to the requests for bid. Maintaining the competitiveness of this process is critical to ensuring the GMPs produced by each CMAR are as cost effective as possible.

Finding 1.6 – Use project management software for program coordination and execution

Summary

Use of a Project Management system by all team members may benefit the Town by reducing the time to file, find and manage documents, to reduce change orders, delays or overruns, to allow Town officials to access timely information, and to standardize the documentation and information across the various projects.

Just as changes in technology have simplified and enhanced our daily work and personal lives, it also has impacted and enhanced the management of complex programs. Currently there exists a number of off-the-shelf, as well as custom-built, programs that can assist organizations in managing and coordinating projects. These programs range in their complexity and capability, but all seek to enhance coordination and communication among key program stakeholders and facilitate the timely transfer of information. Such programs can also be useful in standardizing and streamlining work flow processes.

While such programs can be useful, they are only as good as the user and the information. As the old adage goes, "garbage-in, garbage-out." Given the complexity of the undergrounding program, our Project Team believes this particular program would lend itself very well to the use of such a software, and recommend the Town explore its options in this area.

Recommendation for Action

We recommend that the Town consider if the cost of purchasing, implementing, and maintaining a standardized tool for all team members would result in sufficient benefits which outweigh the cost

Potential Impact

The use of Project Management software will result in near-term increases in cost as the software would need to be procured and set-up, and users would need to be trained on the use and function of the program. Additionally, on-going Information Technology resources may be needed to maintain the program and to assist users with troubleshooting. However, use of such software can minimize errors and mitigate risk, thereby increasing the avoidance of cost, or reduce long-term program cost through stream-lined processes and procedures.

Finding 1.7 – Maximize benefits from CMAR delivery method

Summary

Based on provided documentation, the Project Team was not able to assess the overall effectiveness of the internal policies and procedures concerning the utilization of the CMAR project delivery method. As noted in the Crowe Horwath Audit, a recommendation was noted that the Town:

> *"review and revise its Policies and Procedures related to CMAR contracts to ensure the Town's procurement policies and procedures requirements are properly executed and documented… [and] the Town should ensure that the CMAR is used in a manner than benefits the Town."*

The audit did contain language that was to be included in a Purchasing Manual Update, and the Project Team is working under the assumption that this language is indeed included within the Town's current Purchasing Manual. Items contained within this language, and the Town's compliance with said requirements, will be further addressed in later findings.

Recommendation for Action

Ensure that the policies and procedures regarding the use of CMAR in the Town's Purchase manual have been fully updated and are fully complied with throughout the course of the project.

Potential Impact

As noted in the referenced Crowe Horwath audit, improvements to the policies and procedures concerning the use of the CMAR program delivery method were considered “high-risk”. While CMAR can be an effective method of program delivery, particularly at mitigating the risks of cost overruns to the Town, this method is only as effective as the governing policies and procedures, as well as the effective implementation and management of said governing policies and procedures.

CMAR is most certainly an appropriate method for mitigating the cost overrun risk to the Town while also facilitating an accelerated timeline for project delivery; however, the achievement of risk mitigation and accelerated project schedules comes with added cost. While the Project Team is supportive of the use of CMAR in this instance, the Town must ensure that its policies and procedures for the use of CMAR comply with best practices to achieve the greatest outcome in the process.

Focus Area II
Costing and Applicability of Opinion of Probable Cost

Introduction

The cost estimate is the mechanism wherein the financial needs for the project are identified. As a project progresses from the concept phase to planning and design, and ultimately, to the construction stage, the level of cost estimating detail will become more granular. As the level of detail increases, confidence in the accuracy of the figures will increase. A project as complex as this one undertaken by the Town presents a challenge to developing a very detailed cost estimate given the number of entities involved, uniqueness of the service area, and potential for unforeseen circumstances.

The Association for the Advancement of Cost Engineering (AACE) publishes a recommended practice document, 17R-97, tilted Cost Estimate Classification System which is used by Owners as they budget and estimate major construction projects. The AACE classifies estimates into the following five categories as the project plans become more complete[3]:

	Primary Characteristic	*Secondary Characteristic*			
ESTIMATE CLASS	**LEVEL OF PROJECT DEFINITION** Expressed as % of complete definition	**END USAGE** Typical purpose of estimate	**METHODOLOGY** Typical estimating method	**EXPECTED ACCURACY RANGE** Typical +/- range relative to best index of 1 [a]	**PREPARATION EFFORT** Typical degree of effort relative to least cost index of 1 [b]
Class 5	0% to 2%	Screening or Feasibility	Stochastic or Judgment	4 to 20	1
Class 4	1% to 15%	Concept Study or Feasibility	Primarily Stochastic	3 to 12	2 to 4
Class 3	10% to 40%	Budget, Authorization, or Control	Mixed, but Primarily Stochastic	2 to 6	3 to 10
Class 2	30% to 70%	Control or Bid/ Tender	Primarily Deterministic	1 to 3	5 to 20
Class 1	50% to 100%	Check Estimate or Bid/Tender	Deterministic	1	10 to 100

Notes: [a] If the range index value of "1" represents +10/-5%, then an index value of 10 represents +100/-50%.
[b] If the cost index value of "1" represents 0.005% of project costs, then an index value of 100 represents 0.5%.

[3] Cost Estimate Classification System (AACE International Recommended Practice No. 17R-97), Rev. Nov. 29, 2011, Association for the Advancement of Cost Engineering, Page 4

The Project Team has used the AACE chart as a point of reference when analyzing the cost estimates developed for this project.

Charge Questions

- Provide a high-level review of the Engineer's Opinion of Probable Cost.
  - Are there opportunities to increase the success of the program through enhancements that we should consider?
  - Are there opportunities to reduce the costs to our program and what should we consider?
  - Please list pluses and minuses for suggestions that will increase our costs or reduce our costs.
  - Is the contingency enough?
  - Are the fees in-line with industry standards?
  - List potential additional costs we may incur that are not noted in the Master Plan
  - What has been your experience with these early estimates?

Findings

Finding 2.1 – Prepare deterministic cost estimate for future phases

The Project Team understands that cost estimates will become more precise with finalization of plans. According to the AACE chart, the initial cost estimate, which was developed for the Town's project prior to the project kickoff, is reflective of a Class 5 estimate. The cost estimate included in the Master Plan has more detail and could be classified as a Class 4. Still, that cost estimate is based on generalized figures estimated for expected length, number of lots, and neighborhood types to be converted. One advantage to using generalized figures at this stage is that the KHA design team has experience with the activities required for undergrounding on the FP&L system. Although this simplified approach may very well prove to be accurate, the confidence level and contingency levels should be reviewed and confirmed throughout the life of the project. It appears at the time of our review that the contracted and spent amounts of Phase 1 are within the Master Plan budgets.

To date, a more detailed cost estimate has not been provided to the Project Team for several reasons, primary among which is that the engineering detail of the current system (e.g. all phases) has not been provided to FP&L such that they can prepare their design and, ultimately, provide a firm, fixed price for each specific phase. FP&L will not provide the existing system drawings to the Town or others because of security of the electrical grid. Therefore, we cannot opine on the current Opinion of Probable Cost.

Our analysis finds that the cost estimate included in the Master Plan is a Class 4 estimate with limited detail, which is appropriate for a Master Plan; increasing the detail in the cost estimate would require preliminary or final construction plans. This level of detail is expected to have an accuracy range of +/- 12%. The average rate for continency included in the Master Plan is approximately 10%.

Recommendation for Action

At this point in a project of this magnitude, a more deterministic cost estimate has usually been completed. As it stands now, the presentation of this project's $98,600,000 cost results in a false sense of security about the amount that will be needed to complete the project. To preclude that false sense of security, we recommend that the costs be presented as a range that includes a contingency portion for unforeseen circumstances and states a level of confidence regarding the accuracy of costs. That cost estimate range should be based on the project parameters identified and developed during Phase 1.

This would include an electric survey of the electrical equipment in question specific to the entire system minus FP&L providing the existing system maps. With either the survey or FP&L maps, a unit pricing based cost estimate could be implemented. The difficulty in this is identifying the existing underground facilities and the needed upgrades to connect to the new electrical system. With a complete survey or mapping of the electrical overhead system, a cost estimate based on unit pricing could be established with a higher confidence level. However, with the complexity of this project, a certain amount of contingency is still recommended for unforeseen things. With a detailed cost estimate, a 3-5% accuracy range could be achieved. Because of the complexity of the project and its potential for unforeseen circumstances, we recommend a 3-5% contingency amount be included in the estimate.

Potential Impact

The derivation of a detailed Class 2 cost estimate based on the actual existing system should increase the confidence level of all involved entities. By presenting the cost estimate as a range, there is a better potential for elected officials, the Undergrounding Task Force, and average residents to better understand the level of uncertainty that is appropriate at the Master Plan stage of the program, and will help to temper expectations that the final price will be within this range rather than a potentially unrealistic, precise amount.

Finding 2.2 – Maximize savings from tax-exempt status through Town's Direct Purchase Program

Summary

Based on available documentation, the Project Team was not able to determine the Town's efforts in employing its tax-exempt status via the direct purchase of materials.

As noted in the previously mentioned Crowe Horwath Audit, Observation Number 9 addresses the cost savings that can be realized by direct Town purchase of materials, such that the Town can receive full benefit of its exemption from sales tax. The Audit notes that Town staff has indicated such direct purchases have been utilized before in instances when long lead times are available. Such purchases are also contemplated via the Town's Direct Purchase Program terms and conditions as included as an Attachment to the CMAR contracts.

The Project Team recognizes that such tax savings on direct purchase of materials are limited on this program, as only purchases specific to Comcast and AT&T would be eligible for direct purchase. However, while limited, such actions still represent a savings and should be considered.

As mentioned above, direct purchase of materials is not possible specific to FP&L equipment. The Project Team has not assessed the potential savings were such purchases possible. There is a potential that the volume purchasing discount available to the Town via FP&L provided equipment is actually greater than the potential tax savings from direct purchase. If such volume discounts are substantial specific to Comcast and AT&T, then the Project Team would be remiss if we did not point out the advantage of the volume purchases over the direct purchases by the Town. In the end, the Town must carefully evaluate each purchasing option and evaluate the best course of action in an effort to reduce the project cost where possible.

Recommendation for Action

Where possible and where it makes sense from an overall cost standpoint, continue to employ the Town's Direct Purchase Program for direct purchase of materials for work associated with undergrounding the facilities of AT&T and Comcast.

Potential Impact

Based on available estimates, the direct costs specific to Comcast and AT&T is estimated at $5.66M for the program in total. These costs include both labor and purchase of materials. Assuming 25% of this cost is associated with materials, then the cost associated with direct purchase would be approximately $1.415M. Further assuming a sales tax rate of 7%, then total savings from direct purchases could approximate roughly $99K in total. This estimate is very general and based on the limited cost estimates available to the Project Team. As cost estimation improves, then the potential savings from this finding can be better quantified. However, we would be remiss if we did not note that direct purchase could also impact the timeline of the program if the Town fails to keep up with the direct purchase of materials, ensuring that such materials are on-site when needed.

Finding 2.3 – Minimize the number of exceptions to ensure integrity of GMP

Summary

The Town should work to restrict, where possible, the number of exceptions and limiting conditions contained within the GMP(s). Likewise, where exceptions exist, the Town must realize that the GMP may not reflect a true, guaranteed maximum price for a particular project phase.

As a CMAR contractor, a substantial amount of risk is undertaken when a GMP is offered and accepted by the Town. Given this, it is critically important to clearly define what is and is not covered within a GMP so that the contractor is properly protected and the Town clearly understands the ultimate level of cost overrun risk mitigation that has been achieved.

In reviewing the executed GMPs with the currently contracted CMAR's, our Project Team noted that there are a substantial amount of exceptions and clarifications. While many of these are expected and essential, some may be slightly aggressive given the nature of the work being performed.

For example, one GMP defines work hours as "Monday through Friday from 9:00 a.m. to 5:00 p.m. from December 1st through April 20th, and 8:00 a.m. to 6:00 p.m. from May 1st through November 30th." While such

clarification or exception is entirely normal, when cutovers of service occur specific to commercial business, such cutovers may have less impact on customers if performed on a weekend. Further, if such work does occur on a weekend, then it could be argued that this is an exception to the GMP and the CMAR should be granted a change order and an increase in the GMP.

Our Team understands that not every situation and circumstance can be thought of in advance and negotiated. There must be some latitude given on the part of the CMAR as well as on the Town. Recent experience indicates that, in practice, this latitude exists and most likely small exceptions and occurrences can be handled informally with no change to the GMP. That being said, the Town must also realize that every exception that is accepted within the GMP represents an instance when the GMP does not truly represent a "Guaranteed Maximum Price", but represents an area where costs may increase in time.

Recommendation for Action

Where possible, the Town should seek to limit the exceptions and clarifications included within a GMP so as to maintain the integrity of the guarantee that is being granted. Where such exceptions and clarifications cannot be avoided, then the Town should plan for potential risk of cost over-runs, or work with the CMAR to ensure that the exception or clarification does not ultimately result in an increase in price.

Potential Impact

As indicated above, every exception and clarification included within the GMP represents an area where the maximum price may be increased. The Town must consider that a Guaranteed Maximum Price may be subject to revision, and must account for said changes in the overall budget of the program.

Finding 2.4 – Improve effectiveness of the Undergrounding Utilities Task Force

Summary

Project meetings are an essential element to proper control and management of any endeavor. Given the complexity of the undergrounding effort, and its impact on the Town's citizenry, project meetings are critically important to the success of this program. Specific to the Undergrounding Utilities Task Force (UUTF), meetings with this group provide an excellent opportunity for the design team, contractors, and staff to communicate with the Town's citizens about the project status and challenges, as well as an opportunity for the Town leaders to offer input and suggestions to improve the project. The project is an important undertaking and that avenue for communication is valuable.

However, it is the Project Team's observation that the format of the current meetings is centered solely around project reporting. This format requires Town staff and key project stakeholders to spend extensive time in preparing for, attending, presenting, and responding to the Task Force on a monthly basis. This takes significant time from the technical execution of the project and the reporting component of these meetings may be better handled via more automated processes, such as implementation of a project management software as discussed in Finding 1.6 above, which the Task Force would presumably be granted access to, or via routine written reports delivered by the Town's Project Manager.

It is our opinion that the true value of the Undergrounding Utilities Task Force comes in communicating the concerns of the citizenry to Town staff and the project execution team, as well as providing their independent viewpoint on how the overall program can be better executed. The Task Force is comprised of individuals with impressive management backgrounds from a variety of industries. Applying this disparate knowledge to the execution of the project could have significant benefits which could lead to improvements in project delivery.

With regards to communicating the concerns of the citizenry, this task could be handled via the submission of requests via a project management system, or could be funneled via e-mail or phone call through the Town's Project Manager, with the Project Manager then coordinating the response and providing appropriate follow-up on the concern. A method such as the above could make better use of in-person meetings. Additionally, Task Force members should participate, where possible, in meetings out in the Community and serve as champions of the overall effort in interfacing with the other residents of the Town. Task Force members should be considered ambassadors of the undergrounding effort, and assist in the public communications efforts which are critical to project success.

In our opinion, the Task Force meetings, which in our opinion could be reduced to a quarterly, in-person basis, should be focused more on project improvement and risk management. Such meetings could be conducted in a "round-table" format, and the Town's Project Manager should chair and facilitate meetings that include topics such as overall planning, review of design plans, staffing, staging, or materials issues, risk register, lessons learned, quality issues, public comments, etc. The team should be flexible to adjust the agenda and the schedule of the meetings to react appropriately if the collaboration meetings are found to be of little value.

If there is a desire to continue at least part of the progress reporting component of the Task Force meetings, then the meetings could still be held quarterly, with the first part of the meeting devoted to limited progress reporting and answering specific, direct concerns from the Task Force members, and the second part of the meeting devoted to collaboration and project improvement.

Recommendation for Action

Seek ways to reduce, where possible the "reporting" component of the project and rely on more automated systems, such as a project management system discussed in Finding 1.6, to automate such tasks. The Town should consider amending the frequency of the Task Force meetings to a quarterly basis and utilize the extensive knowledge of this team to search for ways to improve the project, rather than to spend valuable project resources solely focused on the reporting of project tasks and status.

Potential Impact

By amending the content and focus of the Task Force meetings, as well as reducing the number of meetings, there is a potential to reduce cost associated with staff, consultants, and Contractors preparation and attendance. Additionally, by focusing more on the application of the unique knowledge of Task Force members, there is a potential that further improvements can be made to the overall execution of the project.

Focus Area III
Scheduling and Sequencing

Introduction

The most efficient sequence/schedule of such a complex project is difficult to identify and develop. The Master Plan outlines a viable and logical plan for completion of the project. Many factors affect the schedule and appropriate sequence of a project of this type. Factors considered in the process include:

- Varying design requirements of the different utilities involved
- Design coordination of all entities involved
- Disruption to the Town's citizens
- Weather conditions
- Contractor interest and ability to work on FP&L system
- Availability of labor resources in the area
- Availability of materials

One of the biggest challenges is the coordination of the design efforts in this project due to the number of entities involved. The development of the design is a sequential process that requires KHA to prepare detailed as-built maps of the current system in place. This process requires a thorough field survey of all existing utilities. Once this is completed, FP&L begins to detail its design. The length of the design time varies and is dependent on FP&L's current workload. After FP&L completes its design, KHA and others incorporate third-party systems into the FP&L design and other area improvements such as water line and storm drainage modifications. KHA work would include preparing combined detailed conduit drawings of the proposed system and coordinating conflicts.

Simultaneous to this process, easements are being acquired to place the facilities on private property where needed. FP&L allows 180 days for final approval of the design and the payment of the Contribution in Aid of Construction (CIAC). There are probably ways to streamline this process, but it is the Project Team's understanding that FP&L has not indicated that deviation from this process is allowed. Once major equipment locations are finalized, the KHA team can begin the easement acquisition phase. Easement acquisition represent a significant effort and can pose a risk to the schedule if not obtained in a timely manner. Failing to obtain any of the necessary easements could affect the schedule and costs due to the need for re-design. The easement acquisition process may also impact public relations.

Charge Questions

- Assumptions and limitations (based on the Town of Palm Beach's codes and ordinances and historic traffic congestion) were utilized in developing the size of each construction phase and the sequencing of construction. Are there recommendations for modifying these assumptions which would improve the overall opinion of probable cost?
- Are there adjustments that could be made to the construction phase sizes and sequencing that would reduce the opinion of probable cost?
- Do you have suggestions to reduce the number of years to complete the project?
- We are interested in the trade-offs of schedule vs. costs. Please, provide suggestions.

Findings

Finding 3.1 – Modify structure and organization of phases

Summary

Identifying the optimum number of phases for a project such as this is complicated. Currently, as defined in the Master Plan, there are fifteen phases to this undergrounding effort; each phase includes defined time for preliminary design, CMAR bidding, finalizing design, and active construction. The magnitude of the procurement tasks alone will affect the public, the Owner's personnel, the contractors who may be interested, as well as the interest of design and construction support entities. The present configuration requires separately bidding the CMAR work for each phase, effectively creating multiple bidding processes, which increases the Town's internal procurement overhead expenses. Executing the work this way will also require multiple mobilizations and demobilizations for the contractor in each phase, as well as duplicating activities such as establishing site offices and laydown areas, and securing the work area. This is especially true if consideration is given to the division of the work and the specialty equipment and crews needed for several of the work tasks as outlined.

Rethinking the phase structure could be beneficial. Based on our experience bidding utility work and the responses given by the contractors we interviewed, executing the project in fewer, more comprehensive phases will boost interest from contractors. Increased participation could improve competition and potentially decrease cost**.** Consolidating phases will reduce, though only slightly, the time needed for bidding activities and the cost of construction overhead. Further, completing the work faster would help to mitigate the impact of inflation on overall construction cost.

Nevertheless, changing the phase structure has its disadvantages. Increasing the size of the phases may negatively impact the public because it will necessitate a larger zone of heavy construction underway at one time. Larger zones of construction may increase roadway congestion or amplify traffic headaches for the Town's residents, creating additional public relations issues. It will also increase time needed for design, as the design process for each phase will have to be completed before bidding for the contractor can begin. While it may eliminate some mobilization/demobilization repetition by the prime construction crew, there will still be multiple mobilizations and demobilizations for the specialty crews. It may also decrease the capability to track progress across the overall project.

Recommendations for Action

While we recognize that restructuring phases (potentially reducing the quantity of phases but increasing their magnitude and complexity) is a viable alternative approach, we recommend the Town execute the project in the phases as currently defined for separating design services and controlling impact on the public.

Potential Impact

Reduced project duration with increased impact on Town citizens

Finding 3.2 – Improve schedule by minimizing number of contracts and utilizing unit pricing

Summary

As previously stated, the existing phase schedule has fifteen potential CMAR bidding processes and the period of time allowed for bidding/preconstruction period/construction phase award totals approximately 28 months (or 2+ years) for the duration of the project. This division of work was developed for several reasons, ranging from design time to impact on residents to the influence of FP&L. With this structure comes the potential need to execute up to 15 different construction contracts to perform work on various phases. Executing so many contracts necessitates a longer procurement process and limits cost-saving prospects. This problem is further compounded by the lengthy design time needed to accommodate the standard FP&L process coupled with the amount of coordination required between all utilities involved.

From our experience and our discussions with the current subcontractors and potential contractors, we know that for a project of this magnitude, the electrical portion alone will consist of approximately 4 distinct crew types whose work is coordinated by the CMAR or the subcontractor.

- Directional bore crew
- Equipment setting crew
- Cable pulling crew
- Termination crew

Even though the current schedule appears to have continuous activity on the ground throughout each phase, in actuality, each type of crew will only be active for approximately 25% of the year. So, the difficulty faced here is increasing the size of the contracts to facilitate fewer procurement activities and reduce construction time, but still maintaining the project controls for design and impact to the Town's residents.

When seeking out other ways to improve the project schedule, the Project Team also evaluated how the contracts for Phase 1 work were setup. Those CMARs were awarded work based on GMPs with exceptions. Based on our review of the ratios of CM activity to the work and the enhanced project support by the CMAR, we concluded the CMAR delivery method was an appropriate method for this project (see Finding 1.1). The process for selecting the CMAR is qualifications based. Once selected, the CMAR would use competitively based bidding on the final design drawings to the subcontractors performing the work. A review of the Phase 1 procurement process indicated the root of the bids was unit pricing based on the details of the final design. In this type of project, the units and circumstances are fairly repetitive.

An effective option for the Town to address duplicated construction efforts and competition in the procurement process would be to combine all phases into one contract and utilize unit pricing for the phases that have not had design completed. Executing construction using unit prices is common in the field of utility work, and it is most likely how FP&L would perform this work if contracted to execute it. Typical unit pricing includes an upper and lower bound for the units to protect the Owner and Contractor for large deviations of units. While CMAR is still selected as the delivery method, the CMAR's portion could be defined as a percentage of the total pricing for subcontracted work. This is similar to the General Contractor approach, but it includes the self-perform limitation. However, in this application it appears bounds could be set on the quantities if the electric survey identified in Finding 2.1 is completed. Typically, ±25% is the limit established on the unit deviation before unit pricing can be modified. Other restrictions could be implemented to limit the impact to the residences, such as limiting the phases in which boring can be conducted simultaneously. Also, escalators could be used for future work. These could be based on agreed factors or tied to financial indices published for each region on a yearly basis. Based on our understanding of the procurement and procedure for The Town and state of Florida, this process would be in compliance with the requirements.

The Project Team acknowledges that lump sum bids derived from complete designs are typically more efficient; however, with the repetitive nature of these phases, we believe a unit-pricing method could allow for an accelerated schedule, as well as a more favorable costing approach. It is our understanding this approach would still allow the CMAR to solicit additional competitive bids for future addons, such as water line modifications or modifications to other aspects of the project.

Recommendation for Action

As with our recommendation for Finding 1.1 (Maintain CMAR; Execute continuing contract), our proposed solution to these problems is for the Town to implement one large contract via the CMAR method for the remaining phases, but moreover, use unit pricing to establish the costs for the un-designed phases. Reducing the number of contracts could keep a tighter rein on construction activities occurring across multiple areas and using a unit pricing approach may open the project up to opportunities for additional cost savings. A short review time and comparison to the original estimated units would be required, but would be significantly less that the CMAR selection and bidding time.

A revised project schedule based on this recommendation is provided in Appendix D. The schedule maintains the phase structure as outlined in the Master Plan, and the individual length of each task within each phase remains the same, even though it should be anticipated that efficiencies in the design process may decrease the length of some tasks.

The chief constraint our Project Team placed on this revised schedule was to only have one phase at a time in the "heavy construction" phase or the directional boring phase. Heavy construction would occur during all times of the year, but only one phase would be in this activity at a time. The other phases of construction should be less intrusive and/or concentrated to a specific location on any given day. To facilitate the long design periods, development of both the survey and basemap is a sequential task throughout the project until complete. The design process for KHA and other entities would not be significantly impacted save for timing and resources needed. With the phases remaining the same, the only impact would be that several phases will be in design

simultaneously; however, they would be staggered to allow for construction to begin as soon as additional phases are completed. The project team will need to work with all entities involved to keep the design ahead of construction. The projected completion date with this approach would be 2022.

Potential Impact
Improved schedule and cost savings

Finding 3.3 – Consider engaging FP&L to perform the electrical installation

Summary
FP&L offers to complete the undergrounding project in-house. In theory, the Town could agree and pay the CIAC developed by FP&L, and then FP&L would perform all the electrical primary installation and conversion. It is the Project Team's understanding that several towns have utilized this approach, though the size of these projects are not on-par with the size of the Town's undertaking. Several factors limiting the attractiveness of this option have been identified and enumerated in several conversations and forums. Some items that FP&L would not perform are as follows:

- Site Restoration (sod, landscaping, pavement, roadway, curbing, sidewalks, etc.)
- Work on private property (i.e. installation of new service conduits from the front street and connections to meters)
- Underground conversion of any other utilities (i.e. CATV and Telephone)
- Removal of communications facilities from poles
- Easement acquisition

These items would be performed by others and the inefficiencies of multiple construction efforts, as well as design, would impact the overall cost and schedule. However, for completeness it should be noted that a probability of lower cost may exist. This opinion is based on the premise that larger Investor-Owner-Utilities will typically have lower established unit pricing for pre-approved contractors. This potential saving will need to be weighed against the disadvantages.

A variation from these two extremes (No FP&L /All FP&L) work would be for the Town to install the mechanical/conduit system, and then allow FP&L to install the medium voltage equipment.

Recommendation for Action
This option is not the recommended delivery method, but provides alternative discussions to the current plan.

Potential Impact
If selected, this would guarantee a longer schedule, but may result in lower costs. However, while the Project Team has included this finding for purposes of producing a comprehensive product, we are not recommending that this finding be acted upon at this time.

Focus Area IV
Planning and Engineering Design

Introduction

This focus area includes the review of the Master Plan and detailed design documents relative both to the civil engineering aspects, as well as the electrical engineering and components, such as conduit sizing, equipment selection, and conformance to electrical codes. The Master Plan outlines the design sequence for the project which involved the multiple entities and identified an organized procedure for the project phases.

The technical aspects of the project vary and present numerous constraints. The island is a unique environment with challenges encountered in few other locations. The lush and manicured landscape, as well as the compact street designs and the seasonal traffic issue, are a few of the constraints that must be considered in the project. Also, the environmental conditions of a barrier island must be considered. There is a balance between the desire for pleasing aesthetics and the need for reliable service that is affected by the water table, storm surge, and wind events.

Further, this project includes design constraints required by multiple outside entities. FP&L, Comcast, AT&T, and City of West Palm Beach each have individual requirements ranging from technical preferences to scheduling constraints that must be considered when reviewing the planning and engineering design of the combined project. The civil engineering elements of the project are significant as the survey, conduit installation, roadway resurfacing, maintenance of traffic, and associated projects for water, sewer or drainage improvements to be performed concurrently are a major portion of the work.

Charge Questions

- Have the appropriate and applicable engineering concepts been utilized?
- Is the design criteria and analysis/design methodology sound?
- Is the equipment utilized appropriate for our barrier island?
- Conduct a technical review of the Phase 1 design and specifications?
- Assumptions and limitations (based on the Town of Palm Beach's codes and ordinances and historic traffic congestion) were utilized in developing the size of each construction phase and the sequencing of construction. Are there recommendations for modifying these assumptions which would improve the overall opinion of probable cost?
- Are the geotechnical and site reports appropriate for this level of master planning? Are there recommendations that would improve the accuracy of the opinion of probable cost?
- Conduct a review of the analysis results and provide recommendations for improvements?

Findings

Finding 4.1 – Validate design with appropriate electrical codes and standards

Summary

The Project Team reviewed the design details of the Phase 1 specifications and drawings relative to the National Electrical Safety Code (NESC) standards and other applicable standards that dictate designs of this nature. The drawings reviewed included those packages provided by KHA and FP&L. The electrical design was performed by FP&L based on its standards for coastal environments. Various acceptable design concepts could exist for the system; however, adherence to FP&L standards is required since FP&L will own and operate the facilities after installation. FP&L's expertise has been developed through years of experience across the state of Florida. KHA consolidated the designs of the entities involved (FP&L, AT&T, Comcast) and produced mechanical drawings to summarize the designs. The Project Team notes the design team has electrical engineers who are familiar with the FP&L design and the design standards and codes that will apply.

Recommendation for Action

Continue to review the designs to validate the design with appropriate codes and standards.

Potential Impact

None anticipated at this time.

Finding 4.2 – Vet FP&L design and negotiate improvement

Summary

With underground systems of this nature, the selected material and methods for the installation can have a dramatic effect on all aspects of the project, including schedule and cost. Selecting the correct materials and methods will impact the long-term success of the project and may impact the reliability of the system. With FP&L controlling the design, there is limited potential for variation, yet it is our understanding there is some room for negotiation.

The process for evaluating and negotiating equipment selection should be considered. In some cases, there could be a case for betterment of some of the areas within the design selected. It is our understanding that the Government Allowance Factor (GAF) accounts for these betterments; however, in some cases the use of certain equipment could be considered betterment and will assist FP&L in operational issues in the future.

The single most important piece of equipment in an underground system is the equipment used to connect, isolate, and protect all of the multiple connection points with the private property. For this project, these devices are pad-mounted switchgear. Several variations of this equipment exist that will vary in cost and operational benefits. It is our understanding the FP&L designs have some flexibility with the type of equipment used.

Vista Switchgear: The current designs utilize the S&C Vista and PME type pad-mounted switchgear. Both devices are considered acceptable by industry standards for underground applications. The Vista units are the newest generation of switchgear. The relative costs of the two units are quite different.

The Vista gear is a hermetically sealed unit, whereas the PME unit is air-insulated. The hermetically sealed system theoretically provides better protection during storm surges or flooding events because of the its construction. There are still components that could be affected by the water level in the Vista gear, but the high voltage compartment is sealed. The Vista gear provides electronic protection for the tapped ways, versus one-shot expulsion fuses. This would affect the long-term operation and the cost of maintaining the equipment. The fuses will degrade over time and not perform as originally designed as well as they are one-shot devices meaning they will need to be replaced if it experiences a fault. Also, the Vista unit can be mounted below-grade in submersible vaults. It should be noted that the long-term performance of equipment in coastal areas has not been validated and this equipment style is not used by FP&L.

While the Vista style switchgear is substantially more expensive, it has operational advantages over the PME. One additional benefit of the Vista gear is its conversion to allow for distribution automation for smart grid applications. The Vista can have motor operators and electronic controllers added to facilitate automatic feeder restoration. The PME gear can also be retrofitted, but it is generally considered difficult and cost prohibitive. Although, the Project Team notes that the cost differential identified in some of this project's discussions does not appear to be consistent with typical pricing. The price differential for the Vista should be in the range of $20,000. Installation for manual versions of these devices should be similar to each other.

PME-4 Switchgear: Other less costly methods exist for the isolation points in the underground system. The current designs utilize series connected PME-4 switchgear with expulsion fuses for isolation and coordination. Sectionalizing cabinets with load break disconnectable elbows could be utilized to minimize cost. The disadvantage of this configuration is isolation during fault conditions. The sectionalizing cabinet does not isolate the faulted section; therefore, the upstream device would need to provide this isolation. However, for routine maintenance and planned events, the sectionalizing cabinets can be used to isolate sections. The overall cost differential for these devices is unknown. The advantage if this equipment is entirely budget drive, the disadvantage is exposure. More customers would be exposed to an outage for a single event.

Recommendation for Action

The Town should continue to vet the FP&L design and look for areas of improvement in relation to balancing equipment selection and location with up-front cost, reliability and operational considerations. The Town should continue to review and select the use of the Vista gear in strategic areas, considering the differences in the two types of switchgear and their relative advantages. FP&L's experience and familiarity with the operational differences should be communicated to the decision-makers of the Town.

Potential Impact

Initial cost and long-term operational and maintenance effect. The two options presented in this finding can impact reliability and budget in differing ways. It is the opinion of the project team that the Vista switchgear offers a more reliable and expandable solution for underground applications similar to this project. However,

the cost is prohibitive and should be applied in limited situations. Discussions with FP&L about the type of switchgear to use should include consider the distribution automation implementation, as that could justify the use of the Vista switchgear and possible classification of betterment for the upgrade, thereby minimizing the impact to the budget. The other option should reduce cost because of the equipment cost, but would affect reliability in small pockets of customers served by a tapped feeder.

Finding 4.3 – Monitor constraints to design completion and implementation

Summary

During our review, a couple of areas were identified as potential risks to the project. These items were first identified by the KHA project team, but are restated here for importance.

Service Entrance: Typically, with public-private projects, the interface between the public equipment and the private equipment is one of the areas of most uncertainty. Several factors could affect the completion of the project and potentially create publicity issues. For this project, the rework of the low voltage service at the house and on private property is always a potential issue. Whether it is the condition of the private facilities or the surrounding area, unforeseen issues always occur and thus the Town should be prepared to encounter them. The discrepancy between who will pay for those costs is problematic, even though the equipment is homeowner owned, the Town is initiating the change. It is recommended that the Town and the design team come to a consensus on how this will be handled and even develop a policy for distribution. If funded by the Town, an allowance for modifications should be included in the budget

Easements: It appears the design team, including staff from the Town and the KHA team, are diligently pursuing the necessary easement acquisition for the program. Acquiring the proper easements is a legal necessity, and is an element that could ultimately be of significant impact to the schedule should the Town run into difficulty. At present, the Town is pursuing all non-monetary channels for easement acquisitions with the public. Failure to acquire even one of these easements has the potential to impact the schedule causing delays and redesigns. The current process does allow for an effective rework process, but the schedule will be impacted nevertheless.

Recommendation for Action

For the private service entrance issue, we recommend a preemptive survey by qualified personnel of each service entrance; the Project Team is not aware of such a survey currently. Typically, an allowance for issues discovered at this level is part of the cost estimates.

The easement process should remain a focus of the Town and all members of the Project Team.

Potential Impact

Cost, schedule, and public relations

Finding 4.4 – Optimize the number of geotechnical tests

Summary

The Master Plan recommends "that geotechnical explorations, record drawing research, and sub-surface utility locating be performed during the design phase" to "reduce the risk of unforeseen sub-surface conditions including unknown/unmarked utilities, unsuitable soils, contaminated soils, and/or rock conditions". The contractors for Phase 1 North and South have both commented that the quantity and hardness of the rock encountered as they excavate or drill to install the conduits has increased the construction cost. There is no solution to the presence of rock; the only recommendation is to aid the construction effort by identifying the location of the rock. The cost of soil borings must be compared to the benefit of the additional knowledge gained.

Recommendation for Action

Schedule meetings with the design team and contractors for Phase 1 North and Phase 1 South to review the various risks that will be faced and develop strategies to mitigate those risks. Perhaps providing the contractors with more data on the soil conditions that they will encounter will allow them to better price the project by clarifying the amount of rock that they will encounter. The contractors, designers, and geotechnical engineers can, by working together, recommend an optimum number of geotechnical soil borings to provide the future phases with the data needed by the contractor without expending excessive dollars on testing.

Potential Impact

By optimizing the number of solid borings, there is a potential to reduce the overall project schedule if the Contractors have more certainty about the soil conditions they will encounter and can plan accordingly. There is also the possibility that overall costs can either be reduced, or future costs increases avoided, if there are no change orders due to unexpected soil conditions. Further, with prior knowledge of soil conditions, Contractors will have better knowledge of the limits of the rock and can tighten their bid accordingly.

Finding 4.5 – Optimize the number of subsurface utility locates

Summary

The Master Plan recommends "that geotechnical explorations, record drawing research, and sub-surface utility locating be performed during the design phase" to "reduce the risk of unforeseen sub-surface conditions including unknown/unmarked utilities, unsuitable soils, contaminated soils, and/or rock conditions". The contractors for Phase 1 North commented that they have encountered gas mains in unexpected locations on two occasions. The location of underground utilities is important and for Phase 1 was dependent on the data provided by the utility owner. The cost of utility locates must be compared to the benefit of the additional knowledge.

Recommendation for Action

Consider using a private utility location service rather than relying on the utility owner to mark its facilities. Private locating services use electro-magnetic locator wands, like the utility companies use, as well as Ground Penetrating Radar. They would locate all underground lines, where a utility company locates only the lines that they own. Private locators would locate private lines as well as the public lines owned by the utility companies.

Utility companies do not charge to locate their lines; however, a private locating company would charge $200-$250/hour for their service. A private locating company may respond quicker than the utility company. Private locating companies can also include liability coverage for their services, for a fee. The cost of a private locating service must be compared to the benefits of improved accuracy and faster response.

Potential Impact

By utilizing a private utility location service, there is a potential to reduce the project schedule, or avoid costly delays, if the Contractors have more certainty about the underground conflicts they will encounter and can plan accordingly. Further, better knowledge of the existence and location of other services may help reduce potential future change orders due to unexpected underground utilities. Finally, the use of a private service has the potential to reduce the project schedule, or avoid delays, if the utility companies are slow to mark their facilities and a private locator will perform the service in a more timely manner.

Finding 4.6 – Expand other infrastructure improvements

Summary

The water mains, sewer mains, and drainage lines in the Town are aging and many are past their design life of 50 years. As a municipality plans for proactive rehabilitation and maintenance of its basic infrastructure, a system with a 50-year design life will result in roughly 2% of the total system being replaced each year. Clearly many of the mains in the Town are exceeding the anticipated 50-year design life and the cost of replacing water, sewer or drainage pipes is high. This topic is further complicated by the fact that the City of West Palm Beach owns and operates the water mains in the Town of Palm Beach.

There are benefits to replacing all infrastructure within a roadway at one time: The construction impacts can be limited to one time. The cost of surface restoration can be limited to one paving effort. Foliage and landscaping can be minimally disturbed and new plantings can be limited. The overhead costs for mobilization, procurement, management, inspections, etc. can be combined and reduced. However, there are deterrents to replacing all infrastructure at one time: Mainly the cost is very high. The planning effort is time consuming. The effort involves multiple utility owners with various priorities that will not be aligned.

Recommendation for Action

Consider expanding the water, sewer and drainage replacement efforts. The Master Plan notes that the City can afford to budget up to $800,000 a year for water main replacement projects. The Town should review with the City the condition and age of the entire system and the fees paid by the owners for water service to determine an appropriate annual budget for water main replacement. This undertaking is well beyond the scope of the undergrounding project.

The Town's Retail Water Service and Franchise Agreement with the City expires in 2029 at which point the Town will need to address the future of the water infrastructure system. Potential solutions could be to:

- Extend the agreement with the City,
- Negotiate a new agreement with the City,
- Take over the operation of the water mains, or
- Enter an agreement with a different local utility or private utility company to operate the water system

Although not an immediate concern, the opportunity to combine projects with the undergrounding effort makes this a topic of interest.

While expanding the overall program to include water, sewer, and drainage infrastructure is not necessarily a topic within the scope of this peer review, our Team would be remiss if we did not point out the larger infrastructure improvement goals and objectives that could be achieved by expanding the program. We understand that the Town is concerned about the cost and overall time it will take to perform the undergrounding program; however, taking the time now to improve this infrastructure could save the Town substantial time and effort later. Infrastructure programs require long-term viewpoints as they involve improvements which will serve generations to come. As the Town considers what other water, sewer, and drainage improvements to undertake in conjunction of the conversion of overhead utilities to underground, it should evaluate and carefully consider the longer-term opportunities available to current stakeholders to expand and enhance the infrastructure for future generations of Town residents.

Potential Impact

As the Town has already experience, there is a potential to reduce project cost specific to the undergrounding effort if the surface restoration can be applied to or shared with another infrastructure project rather than being assigned solely to the undergrounding program. There is also a potential to reduce impacts to the residents if the roadway which is disturbed due to undergrounding would also be subject to other construction project in the near future. By performing all the work at once, there is less overall impact to citizens. However, as discussed above, expanding the program to include other infrastructure will result in an overall greater level of cost for the Town and should be considered carefully against other Town priorities.

Finding 4.7 – Request express circuits to mainland substation

Summary

It appears the island's feeder lines are connected to multiple substations on the mainland. It is our understanding that all but two feeders are tied to different substations. This division of the load provides a reasonable level of reliability to the island. The existing overhead feeds from the substations are approximately 0.5 to 0.75 miles from the intercoastal underground dip. The feeders currently serve local load on the mainland. To provide more reliable service, some or all of the feeders could be connected to dedicated express feeders during the hardening process to remove exposure on the circuits feeding the island.

Recommendation for Action

Discuss the express feeder option for some feeders on the mainland.

Potential Impact

If successful, this change would increase the reliability of the island's electric service, but may increase project cost.

Focus Area V
Traffic Impacts

Introduction

Hurricane Irma spotlighted the importance of the Transportation Management element of this project. The Town of Palm Beach is accessed by four bridges over the Intracoastal Waterway and is served by one north-south roadway on the south half of the Town and two north-south roadways on the north half. The roadways operate at close to maximum capacity in normal traffic conditions so emergency ingress-egress is of paramount importance. Ensuring the undisturbed flow of traffic throughout all phases of the undergrounding effort is of critical importance.

Charge Questions

- Construction related traffic congestion is a particular concern of Town officials, residents, and local businesses. Do you have any recommendations that would reduce construction traffic related problems?

Findings

Finding 5.1 – Execute phases simultaneously

Summary

The Transportation Management Plan (TMP) developed for the project phases the construction by concurrently constructing projects from the north and south sides of town working towards final completion in Phase 8 at the middle of the Town. All phases cover the full width of the island and therefore impacts all north-south roadways during each phase. The Project Team reviewed the TMP to determine if alternative phasing's would be more efficient and/or cost effective.

To maintain continuous traffic flow, a phasing allowing at least one of the parallel north-south roadways on the north side of Town to remain un-touched is preferable. This would require construction of the undergrounding facilities to split the neighborhoods which is inefficient and would require restoration of disturbed areas within the neighborhoods to take an extra year. The concern of potentially blocking all north-south lanes on both routes appears to be adequately addressed in the TMP through restrictions placed on the contractor requiring construction activities to be staggered such that one route or the other is always fully accessible. This condition will need to be closely monitored and carefully coordinated with any future construction activities unrelated to the undergrounding project.

Our team also considered a phasing option that would construct all undergrounding improvements commencing from the north or south sides of the Town and progressing sequentially until completion. This phasing would have the benefit of isolating the construction activity within the Town but would be problematic in allowing multiple contractor teams to work without interfering with one another and was therefore dropped from further consideration.

A “bundled” phasing operation was also evaluated. Under this option the construction would be divided into three segments, north, middle and south. Contractors could access their areas by separate bridges, avoiding interference with each other, and the work would progress simultaneously in three segments instead of the two segments currently being implemented. This concept would shorten the overall duration of the construction by tackling the work in three simultaneous segments instead of two. We believe this concept merits further evaluation and consideration by the design team.

Recommendation for Action

This option is not recommended due to the additional traffic control zones required and discontinuity in the design process.

Potential Impact

The Project Team has included this finding for purposes of producing a comprehensive product, however we are not recommending that this finding be acted upon at this time. For discussion, by utilizing three simultaneous phases centered around key access points to the island, there is a potential to reduce the overall schedule by increasing the number of phases constructed simultaneously. This, in turn, could also potentially reduce overall cost. A key element of this concept is the ability of FPL to energize the three segments. The current plan is to energize from the north and south towards the middle of the town. The need of FPL to energize the new work from the north and the south coupled with the questionable adequacy of labor, material, and the availability of appropriate staging area in proximity to work locations and the impact to Town residents by increasing the number of active work zones, and therefore traffic control areas, renders this a non-viable option.

Finding 5.2 – Incentivize less disruptive construction methods

Summary

Construction methods play a key role in the level of traffic control required to place the underground conduits. Conventional open cut construction requires extensive lane closures and longer construction duration for pavement restoration. Directional bore methods are less intrusive, require much less restoration and are the preferred method of construction from a traffic management perspective. The construction of the first phases is using directional bore to place the underground conduit. It is anticipated that this method will continue to be more cost effective for the contractors, dependent on the availability and cost of the required specialized equipment.

To motivate contractors to utilize the least disruptive construction method possible, the contract documents should consider a “lane rental” concept whereby the contractor would be required to pay for lane closures to perform open cuts. Under this concept, inconvenience to the traveling public is minimized by reducing the amount of time during which the Contractor closes one or more lanes as permitted by the Contract, an incentive - disincentive provision for Lane Rental Days can be established for the Contract. The contractor includes his estimated lane closure days in the bid price. A total incentive payment or disincentive deduction is established based on the total allowable number of Lane Rental Days provided in the contract at the per day cost.

If the Contractor uses fewer Lane Rental Days than the total allowable number of Lane Rental Days, the Contractor receives an incentive payment for every Lane Rental Day less than the total allowable number of Lane Rental Days established for the Contract. If the Contractor uses more Lane Rental Days than the total allowable number of Lane Rental Days, a disincentive deduction for every Lane Rental Day more than the allowable number of Lane Rental Days established for this Contract, is assessed from funds otherwise due the Contractor.

Other construction activities such as transformer placement and pole removals allow for the use of temporary and/or moving operations for maintenance of traffic setups. This results in less disruption to the roadway users and is easily removed for emergency access.

Periodic Presidential visits and the reconstruction of the Southern Boulevard bridge will also impact traffic flow to and from the Town for the next several years. The Florida Department of Transportation will maintain two lanes of traffic on Southern Boulevard, which is the current laneage, so overall minor impact is anticipated. Presidential visits occur with little advance notice due to security reasons and generally require construction activities along the route and in the vicinity of Mar-a-Lago to cease for the duration of the visit. Coordination with the local police department will continue to be needed to determine the limitations to construction activities.

Recommendation for Action

The design team should evaluate requiring Lane Rentals to incentivize the contractors to use less disruptive construction methods i.e. directional boring for the installation of the underground conduit.

Potential Impact

While traffic impact will be minimized, there is the potential that overall cost will be greater if directional boring proves to be more expensive than open cuts.

Finding 5.3 – Use FDOT Green Book Standards

Summary

Review of the Master Plan indicates that the design team has applied and utilized the appropriate engineering concepts. The Master Plan notes that the Florida Department of Transportation (FDOT) Design Standards will be used during the design. FDOT's Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways, commonly referred to as the "Greenbook", establishes the minimum criteria for local roadways. Authority for the Florida Greenbook is established by Chapters 20.23(3)(a), 334.044(10)(a), and 336.045, Florida Statutes, and Rule 14-15.002, Florida Administrative Code. This manual is intended for all projects off the state and national highway systems. The standards in the Greenbook are less stringent than those used for state highways. The Master Plan does not specifically reference this manual; however, the Phase 1 North plans to appear to be designed to the Greenbook standards.

Recommendation for Action

Confirm that the Greenbook standards are applied on the local roadways to confirm that the roadways are not over-designed during the surface restoration effort for the conduit installation.

Potential Impact

By ensuring that only the required standards are complied with, there is the potential to reduce the overall project budget by minimizing excessive design standards. However, at this time, the Project Team believes that the appropriate standards are being followed, so potential cost reduction from this finding are minimal.

In Closing

We applaud the Town and KHA design team on their efforts to date. The Master Plan developed by KHA is very thorough, and the data and drawings we received were invaluable to our review. Further, we appreciate the cooperation of all stakeholders who participated in our consultations and proffered constructive feedback on the project. Substantial, quality work has been performed to-date to bring this monumental effort to fruition, and our Project Team appreciates the opportunity to be included in an effort to further enhance the stellar work already being performed.

As stated previously, our task was to seek out ways to positively impact the project's budget, schedule, and risk potential, as well as to improve the overall quality. Much time and thought has already been put into determining the best ways of achieving success on this project, and our Team hopes that our suggestions further contribute to the substantial value that has already been achieved.

The changes our Project Team advocates that we believe have the highest potential to mitigate risk and positively impact cost, schedule, and/or quality are to:

- Finding 1.1 and 3.2: Maintain CMAR delivery method, but execute as continuing contract utilizing the unit pricing approach
- Finding 1.3: Implement a formal Project Management Plan;
- Finding 2.1: Prepare deterministic cost estimate for future phases;
- Finding 4.2: Vet FP&L design and negotiate improvement on equipment selection where possible.

These changes would assist in formalizing management of the project allowing for better control of the schedule, costs, and quality, as well as improving the accuracy of the project's cost estimates. Our recommendations would also eliminate the multiple CMAR bidding phases and the repeated mobilization efforts, helping to further diminish the project timeline and overall cost of project execution.

However, while we believe our recommendations are sound and would contribute to the overall benefit of the project, we encourage the Town and other project stakeholders to evaluate and carefully consider our suggestions to ensure the anticipated benefits could be realized. There may be specific conditions of which the Project Team is unaware that may limit the anticipated benefits from implementation of the above recommendations. Those with day-to-day knowledge and experience of the project should carefully review our findings and recommendations prior to implementation.

Again, our Team is grateful for this opportunity, and we stand ready to answer any questions or provide additional information in support of our findings and recommendations. We look forward to assisting the Town, the Task Force, KHA, and other project delivery stakeholders as they continue to work to improve and enhance the reliability of the Town's infrastructure.

Appendices

Appendix A – Complete List of Documents Requested

Appendix B – Complete List of Documents Reviewed

Appendix C – Summary Results of Interviews

Appendix D – Revised Proposed Project Schedule

Appendix E – Town Staff Responses to Report Findings

Appendix F – Report Feedback from TC and UTTF

Appendix G – Supplemental Information

Appendix A
Complete List of Documents Requested

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Appendix A - Complete List of Documents Requested

Subject	Item #	Document Requested	Received	Notes
General Documents	1	Formal Project Management Plan, if available	N/A	Beyond KHA scope of services and project approach described in the RFP response, KHA believes this to be the overall org chart that the Town developed and presented to the Task Force.
	2	Supporting documentation and analysis specific to the development of Chapter 7 of the Master Plan prepared by KHA	Yes	PDR -Provided information is just industry documentation.
	3	Contact information for FPL, ATT, and CATV	Yes	
	4	Listing of the scope changes/reductions made to the undergrounding program to-date in an effort to bring cost down. Describe the change and provide an estimate of the program savings associated with the change.	Yes	
	5	FP&L Flowchart showing its process associated with preparing the undergrounding design plan.	Yes	
	6	Sample or links of any program dashboards that have been prepared to track program status.	Yes	
	7	Documentation or guidelines available to contractors working with the Town which indicate working days, working hours, site conditions, rules of access, etc.	Yes	
Planning and Design	8	Finalized copy of Master Plan	Yes	Includes info on original analysis of delivery methods
	9	Construction Documents for current projects Phase 1S	Yes	
Schedule/Phasing Documents	10	Engineer's Estimated Construction Schedule for current projects	Yes	Part of Master Plan
	11	Any applicable schedules prepared by CMAR specific to on-going work	Yes	Uploaded schedules received from CMARs
Cost Estimates	12	Original $90M Probable Cost Estimate reflecting as much detail as available and copies of all source documents, as applicable.	Yes	PDR- Current provide estimates are high level and do not indicate the level of detail in the estimates.
	13	Engineer's Estimates of Probable Costs for current projects reflecting line-item detail and copies of backup sources	Yes	Master plan has a summary of costs. PDR request more detail with quantities, unit prices, sources for prices, backup, xls files showing calculations, etc.
	14	Contractor's Bids and Schedules of Values for current projects	Yes	Uploaded GMP documents received from CMARs
	15	Cost estimate, assumptions, options and technical requirements of FPL, Comcast, and ATT	Yes	Part of Master Plan
	16	Any binding cost estimates prepared and received by the Town from FP&L	Yes	
Traffic Control Documents	17	Engineer's Recommended Traffic Control Plan for current projects	Yes	Part of Master Plan
	17A	Sample FPL final design submittal	Yes	
	17B	Metrics of each phase relative to the quantities of major items such , kFT three phase , kFT of single Phase, # transformers,# of meters		
	18	Contractor's Traffic Control Plan for current projects	Yes	KHA asked that Town upload this from the MOT permitting process
Procurement Documents	19	Copy of the RFQ used to procure the services of CMAR Firms	Yes	PDR believes documentation is necessary to properly understand Bid tabulation in 22
	20	Bid tabulation sheets and Evaluation Committee Scorecards from Engineering Master Planning procurement process showing ranking of KHA	Yes	PDR team understands from Town communication that procurement of KHA is outside scope of peer review
	21	Contract(s) for Master Plan Development, Phase I, and Phase II Design between the Town and Kimley-Horn and Associates	Yes	PDR team understands from Town communication that procurement of KHA is outside scope of peer review
	22	Bid tabulation sheets and Evaluation Committee Scorecards from CMAR Contracting Process showing ranking of Burkhardt Construction and Whiting-Turner		PDR believes bid tabulations are important to assessing competitiveness of CMAR process
	23	Contract(s) for CMAR Services between the Town and Burkhardt Construction and Whiting-Turner	Yes	PDR believes contracts are important for purposes of understanding construction of GMPs. We have the technical specs , but wanted the terms and conditions

Subject	Item #	Document Requested	Received	Notes
Procurement Documents	24	Copies of the bid packages released to contractors by Burkhardt Construction and Whiting-Turner to their subcontractors	Yes	PDR requests are necessary to understanding how requests might have impacted bid method / competitiveness of bids received
	25	Copies of the advertisements released by CMAR for notification of subcontracting opportunities and list of firms each CMAR notified directly of bidding opportunity	Yes	PDR believes documents are necessary to assess competitiveness of CMAR subcontracting process
	26	Copies of the competitive bids received by the CMAR from their subcontractors	Yes	PDR believes documents are necessary to assess competitiveness of CMAR subcontracting process
	27	Bid tabulation sheets and scorecards, if applicable, for procurement of subcontractors by Burkhardt Construction and Whiting-Turner	Yes	PDR believes documents are necessary to assess competitiveness of CMAR subcontracting process.
	28	List of the concessions that the CMAR and/or subcontractors requested. Indicate those that have been approved and those that were rejected by the Town.	Yes	The potential restrictions placed on the CMAR and subcontractors can have impact on cost and schedule. Understanding what concessions were requested but not permitted may have impact on cost.
	29	Copy of the Town's Procurement Policies and Procedures including indication of procurement methods available to the Town. Please include a copy of Procedure No. 1-02-7 Construction Contracts and Project Management Procedures and the Town's Purchasing Policy and Procedures Manual.	Yes	PDR Team understands from Town communications that the Town's procurement policies and procedures are beyond the scope of the peer review. Previous internal audits have addressed Town's procurement practices and, in particular, with use of CMAR, such practices could impact overall program cost and may impact competitiveness of bid process.
	30	Any management reviews performed of the contracts with the Town's CMAR contractors.	None	The routine monitoring of contracts is an important part of project management and risk control. If routine management audits are not being conducted, this could indicate a potential area of weaknesses in internal control and the possibility for cost overrun or schedule slippage.
	31	Please discuss the Town's efforts to ensure the tax-exempt status of materials procured by the CMAR as part of the undergrounding effort.	Yes	The Town's ability to apply its tax exempt status to materials purchases can assist in reducing the cost of the program.
	32	Please verify that the CMAR will not be performing any construction work themselves. If approval has been granted for the CMAR to perform the construction work, please provide documentation of said approval.	Yes	There is an inherent conflict in the performance of construction work by the CMAR. This can impact the competitiveness of the cost of the work. Also, if formal approval of such practices are not received, then it can demonstrate a lack of internal control and the possibility for cost overrun.
	33	List of plan holders that requested the phase 1 Bid documents	Yes	
	34	List of Prebid attendees at Phase 1 pre bid meetings	Yes	

Appendix B
Complete List of Documents Reviewed

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Exhibit B - Complete List of Documents Reviewed

	Type	Document	Pg Ct
Overall Project	Document	Engineer RFQ No. 2016-07 - Dec 2015	28
	Document	Engineer RFQ No. 2016-07 - Addendum 1	6
	Document	Engineer RFQ No. 2016-07 - Addendum 2	2
	Document	Engineer Ph. 1 Master Professional Services Agreement with TPB *(Incl. KHA proposal revised 5-6-16)*	100
	Document	Project Delivery Primer, AIA and AGC	15
	Document	CM/GC Guidelines for Public Owners, NASFA and AGC	102
	Document	Owner's Guide to Project Delivery Methods, CMAA	37
	Document	Risk in CMAR, CMAA	9
	Document	Retail Water Agmt	41
	Spreadsheet	Comcast invoice	1
	Document	TPB Ordinance 01-13 Environment_Construction Hours	3
	Document	TPB Ordinance 23-04 Environment_Construction Hours	2
	Document	TPB Capital Project Management Audit Memo (6-22-12)	6
	Document	TPB Capital Project Management Audit Memo (2-25-14)	6
	Document	Town Council Meeting Minutes, Bradford Memo, FP&L Hardening Plans - Oct 2014	8
	Document	Town Council Meeting Minutes - Feb 2017	45
	Document	TPB project dashboard	1
	Document	TPB Purchasing Policy and Procedures Manual	40
	Document	TPB Direct Purchase Program	12
KHA	Document & Spreadsheet	KHA Master Planning Phase Scope and Cost Estimate for Engineering Services (3-29-16)	9
	Document & Drawings	KHA Master Plan, draft *(Incl. Phasing Map, Trans. Mgmt Plan, and OPC)*	204
	Document & Drawings	KHA Master Plan, final *(Incl. Phasing Map, Trans. Mgmt Plan, and OPC)*	210
	Spreadsheet	Master Plan Cost Estimates (R1)	18
	Spreadsheet	KHA Master Plan Unit Cost Derivation	5
	Spreadsheet	KHA Master Plan OPC PerPhase and Quantity Sheets	20
	Document & Spreadsheet	KHA Revised Ph. 1 Scope WO1 and Cost Estimate for Engineering Services (4-29-16)	19
	Document	KHA Phase 1 OPC and GMP	4
	Document	KHA Cost Savings, OPC for UG program	7
	Document	KHA overall wire quantities	1
	Document & Spreadsheet	KHA Ph. 2 Scope and Cost Estimate for Engineering Services (5-26-17)	10
Phase 1, North	Document	CMAR RFQ No. 2017-14, Ph. 1 North, Final - 2017	48
	Drawings	Plan Drawings, Ph. 1 North, Preliminary - Dec 2016	56
	Document	Technical Specs, Ph. 1 North, Preliminary - Dec 2016	155
	Drawings	Plan Drawings, Ph. 1 North, IFC - July 2017	102
	Document & Drawings	Technical Specs, Ph. 1 North, IFC - Aug 2017 *(Incl. Geotech, FPL, AT&T, and Comcast dwgs)*	377
	Drawings	AT&T comments to KHA - May 2017	7
	Drawings	FP&L dwgs - Updated June 2017	39
	Document	Phase 1 North, CMAR GMP with unit pricing	13
	Document	AT&T North estimate	1
	Document	FDOT Maintenance of Traffic, N. Ocean, Ph. 1 North	5
Phase 1, South	Document	CMAR RFQ No. 2017-14, Ph. 1 South, Draft - 2017	43
	Document	CMAR RFQ No. 2017-14, Ph. 1 South, Whiting Turner Bid - Feb 2017	98
	Document	Pre-Construction services agreement, Whiting Turner - Apr 2017	9
	Document	Phase 1 South Bid Schedule, Whiting Turner - June 2017	4
	Spreadsheet	Phase 1 South, CMAR bid comparison	14
	Document	Phase 1 South, CMAR GMP with unit pricing, Whiting Turner	19
	Document & Drawings	Technical Specs, Ph. 1 South, IFC - Aug 2017 *(Incl. Geotech, FPL, AT&T, and Comcast dwgs)*	363
	Drawings	Ph. 1 South Plans - IFC July 2017	129
	Drawings	Comcast - South Conduit Ibis	1
	Drawings	Comcast - South End Design	1
	Drawings	FP&L Phase 2 dwgs - Updated June 2017	205
	Drawings	FP&L Phase 2 LW dwgs - Updated June 2017	7
	Drawings	AT&T Southend Conduit Design	15
	Document	AT&T South estimate	1
	Document	FDOT Maintenance of Traffic, Ibis Isle, Ph. 1 South	2
	Document	FDOT Maintenance of Traffic, Whiting Turner, S. Ocean, Ph. 1 South	2
	Document	FDOT Maintenance of Traffic, Wilco, S. Ocean, Ph. 1 South	5
FP&L	Document	FP&L ballpark estimate	11
	Document	FP&L sample schedule	1
	Document	FP&L Phase 1 North customer all UG	4
	Document	FP&L Phase 1 South customer all UG	4
	Document	FP&L Phase 1 South LW customer all UG	4
	Document	FP&L invoice 1800112832	1
	Document	FP&L invoice 1800112837	1
	Document	FP&L invoice 1800116955	1
	Document	FP&L invoice 1800119531	1
	Document	FP&L invoice 1800119572	1
	Document	FP&L invoice 1800119575	1
	Document	FP&L invoice 1800119577	1
	Document	FP&L invoice 1800119579	1
	Document	FP&L invoice 1800119581	1
	Document	FP&L invoice 1800133797	1
	Document	FP&L invoice 1800141883	1
	TOTAL NUMBER OF DOCUMENTS REVIEWED		**73**
	TOTAL PAGE COUNT OF DOCUMENTS REVIEWED		**2,727**

Appendix C
Summary Results of Stakeholder Interviews

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Exhibit C - Summary Results of Interviews

INTERVIEW WITH KHA

#	Question	Answer
1	How many projects via CMAR have you executed? What % of projects use CMAR you work on?	Do all three types, Do more DBB
2	Has FPL shared the metrics of the island system with you?	No
3	Do you have a breakdown of the metrics by phase?	Only the exisitng lines
4	What are the major challenges/major cost drivers associated with the engineering design?	Easements and redesigns if needed
5	What do you consider the most constraining aspect to the project relative to Schedule? To Construction?	Easement acquistion
6	Besides the Master Plan and the engineering design, what others services is KHA providing the Town?	Full design, Constr Engr, RFI responses, Constr Observeration
7	What interface/coordination has KHA had with the CMAR's? How much involvement do the CMARs have in the design process?	Not much due to time constraints
8	Based on what they know now, will the cost associated with designing future phases be similar or will there be anticipated cost savings for future phases?	Straight percentage; no cost savings
9	What public outreach are you doing? What is the cost for that service?	
10	What Construction Inspection, Management, Representation, etc. are you doing? What is that fee?	8.50%
11	General Comments	Not much duplication of effort, every entity is doing their part
12	General Comments	No detailed cost estimated; it is based on typical areas
13	General Comments	Feeder is large conductor; Primary is taps (3-2" conduits)
14	General Comments	10-12 feet at the most for depth
15	General Comments	Didn’t get okay for Phase II until August 2017
16	General Comments	Current plan to bid CMAR for each phase
17	General Comments	Phase I currently under budget by 5% of original estimate
18	General Comments	Only got one other CMAR to submit SOQ

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Exhibit C - Summary Results of Interviews

INTERVIEW WITH CMARs

#	Question	Answer
1	What % of projects do execute via the CMAR process?	98-100%
		70%
2	What public outreach are you doing?	On ground with liaison, talking to public daily
3	How did you learn of the project?	Demand Star
		Combined effort with superintendent
4	What was your contributions to the pre construction review? Were you given opportunity review and comment on design? What amendments were made based on your comments?	Design complete, not much input
		Following for years
5	What tasks and % of work are you performing?	None
		Yes we did a constructability review
6	How many subs for each trade did you solicit ?	It varies; at least 3 for major subs
7	Would you participate in a Typical GC role if delivery method changes?	No
8	Do you see larger phases practical ?	Yes
		Not sure
9	Were you given the opportunity to do both Phase I sections?	No
		Yes
10	Could combining phases be beneficial from a overall project cost standpoint?	Not Really - savings in general conditions and Mob/Demob charges
		Not sure
11	What process did you undertake in determining the sizes/work to be included in the sub bid packages	Divided by trades
12	What process did you go through for pre-qualifying subconsultants? How were subs notified of this process/opportunity?	No pre-qualifying conditions; Advertise in Palm Beach Post
13	Do you feel FP&L's list of prequalified subs is adequate? Is there sufficient availability of subs?	Yes
14	What are the capabilities of your chosen subs with regards to project management? Do any of them provide similar services as WT/Burkhart?	
15	In negotiating your contract with the Town, did you request additional contract exceptions? If so, what were they and were they granted?	Some minor rewording, our goal is to work for the client
16	Which subs are doing which work? Who is installing the conduit? Who is installing the cables? Who is installing the transformers? Who is repairing the streets? Who is installing the water main?	See bids, electric sub doing all of the electrical and patching
17	What methods are you using to install the conduit? Why did you decide to use that method?	HDD
		HDD
18	Plans have FPL sheets, ATT sheets, Comcast sheets, water main sheets. Is that a challenge? How do you recognize conflicts?	Yes
19	Did you do Program Management Plan?	No; doing by committee with KHA
20	General Comments	Goal is to work for all of town residents
21	General Comments	Process seems efficient
22	General Comments	Pricing would be higher with DBB
23	General Comments	Local contractors are an advantage
24	General Comments	Drawings okay

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Exhibit C - Summary Results of Interviews

INTERVIEW WITH LARGE UTILITY CONTRACTORS (NOT INVOLVED WITH PHASE 1 OF THIS PROJECT)

#	Question	Answer
1	General Comments	Would prefer if this were executed as one large project
2	General Comments	Would prefer if work was performed directly for Owner
3	General Comments	Has capability to perform CM work a well. Have performed large municipal and coastal environments
4	General Comments	Resources would not be an issue if the phases were larger
5	General Comments	CMAR process is not saving the project money
6	General Comments	Would recommend larger contract with possible unit pricing
7	General Comments	Risk is dollars, so whoever takes risks should get margins
8	General Comments	Multiple phases means duplicate mobilization and demobilization charges
9	General Comments	Each phase would be a learning curve for new contractor
10	General Comments	Shrinking the schedule would be advantageous
11	General Comments	Contractor capacity should not be a problem
12	General Comments	Larger phases would be better
13	General Comments	Can perform CM work internally
14	General Comments	Would bid as prime contractor
15	General Comments	Multiple sets of drawings is confusing
16	General Comments	Would consider open cut if bidding
17	General Comments	Parallel bore is difficult
18	General Comments	Only got 1 other CMAR to submit SOQ

Participants:

Project Team: Anthony Hanson, Dana Gillette, Jim Noth, Chris Ekrut

Contractor Representatives: Josh Post (Vice President), Keith Simpson (Vice President), Barry Bartlett (Project Manager), David Abernathy (Project Manager), Tony Harris (Project

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Exhibit C - Summary Results of Interviews

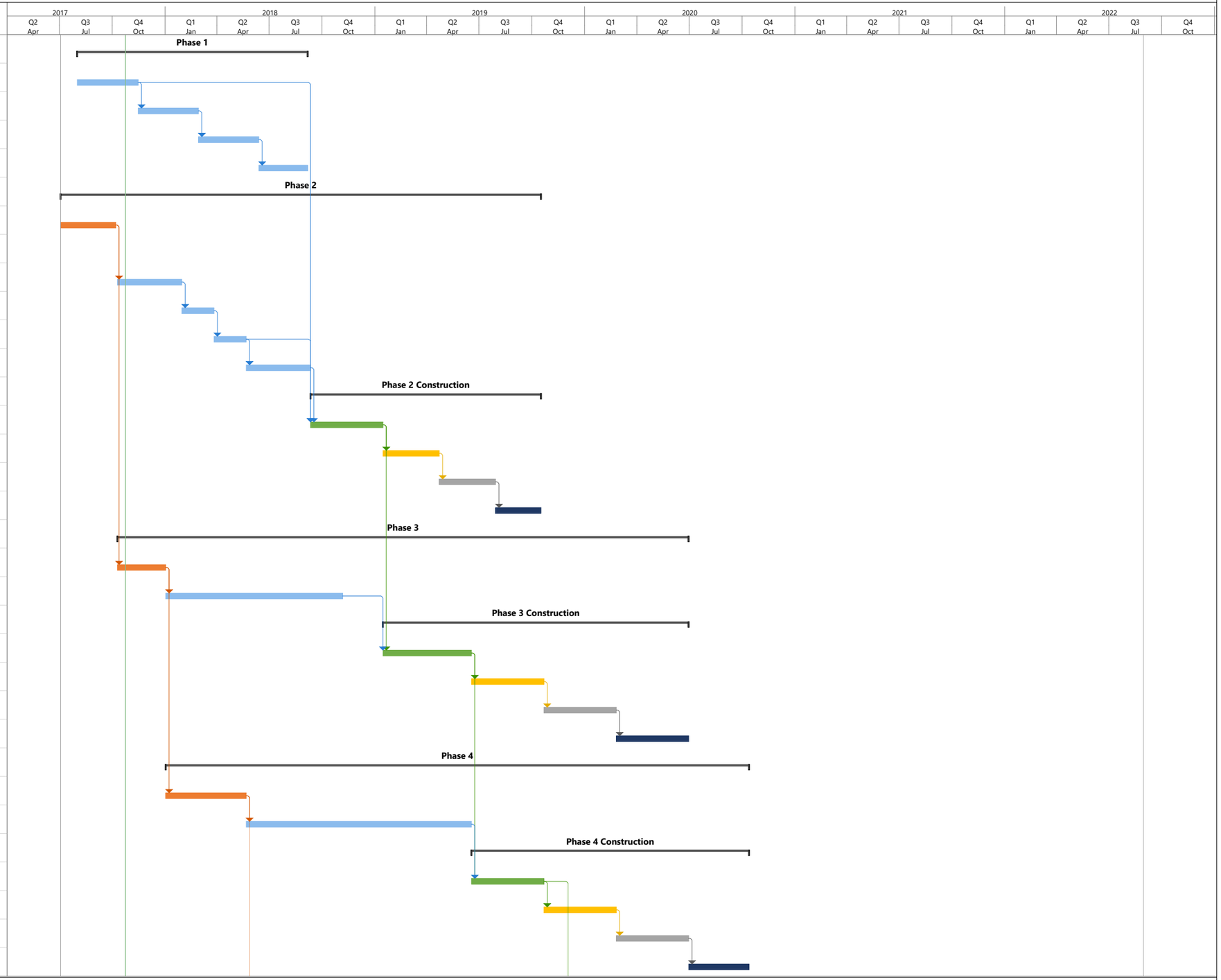
INTERVIEW WITH ELECTRICAL SUBCONTRACTORS

#	Question	Answer
1	Are you an approved FPL contractor ?	Yes
		Yes
		Yes
		Yes
2	What percentage of work do you do for FPL?	Mostly for FPL
		Mostly for FPL
		Not sure but FPL is only a small portion
		12 projects a year
3	Where you involved in any other Coastline UG projects?	Yes
		Yes
4	Are you performing the directional boring as well?	Yes, self-performing
		Subbing this work out to others
		Yes, self-performing
		Subbing this work out to others
5	Do you see any modifications to the design thsat could save money?	No
		No
		No
		Executing bigger phases = lower prices
		Allow patching, new project for resurfacing
6	Would it be of finanicial benefit to use only one sub on both on Phase I N and S?	Not sure, but probably yes it would
		Yes larger pieces would be beneficial
		Yes larger pieces would be beneficial
7	General Comments	Typically work directly for FP&L or Owner and avoid CMAR
8	General Comments	3-4 type of crews for work with speciality crews for each phase
9	General Comments	Prints not finalized causing confusion
10	General Comments	Normally prime contractor
11	General Comments	We sometimes do unit work for FPL; but have also done lump sum pricing
12	General Comments	The general approach of the project is good
13	General Comments	Could be performed with a General Contractor approach
14	General Comments	There is incomplete info for accurate bidding
15	General Comments	Staging is a problem
16	General Comments	The size of phases is too small
17	General Comments	Mutiple crews typically used on a project like this - boring, pads setting, equipment setting, cable pulling and terminating
18	General Comments	The bid process is a little fast; we needed more time
19	General Comments	Had staffing issues

Appendix D
Revised Proposed Project Schedule

Exhibit D - Proposed Revised Schedule for Town of Palm Beach, Peer Review of Undergrounding of Utilities Master Plan

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Phase 1**	**286 days**	**Tue 8/1/17**	**Wed 9/5/18**
2		Directional boring	75 days	Tue 8/1/17	Tue 11/14/17
3		Equipment setting	75 days	Wed 11/15/17	Tue 2/27/18
4		Cable install and term	75 days	Wed 2/28/18	Tue 6/12/18
5		Conversion	61 days	Wed 6/13/18	Wed 9/5/18
6		**Phase 2**	**597 days**	**Mon 7/3/17**	**Wed 10/16/19**
7		Survey and base map	3.5 mons	Mon 7/3/17	Fri 10/6/17
8		**Phase 2 Design**	**160 days**	**Tue 10/10/17**	**Mon 5/21/18**
9		FPL Design	4 mons	Tue 10/10/17	Mon 1/29/18
10		KHA review of drawings	2 mons	Tue 1/30/18	Mon 3/26/18
11		FPL final design	2 mons	Tue 3/27/18	Mon 5/21/18
12		Procurement	4 mons	Tue 5/22/18	Mon 9/10/18
13		**Phase 2 Construction**	**287 days**	**Tue 9/11/18**	**Wed 10/16/19**
14		Directional boring	90 days	Tue 9/11/18	Mon 1/14/19
15		Equipment setting	70 days	Tue 1/15/19	Mon 4/22/19
16		Cable install and term	70 days	Tue 4/23/19	Mon 7/29/19
17		Conversion	57 days	Tue 7/30/19	Wed 10/16/19
18		**Phase 3**	**710 days**	**Tue 10/10/17**	**Mon 6/29/20**
19		Survey and basemap	3 mons	Tue 10/10/17	Mon 1/1/18
20		Design	11 mons	Tue 1/2/18	Mon 11/5/18
21		**Phase 3 Construction**	**380 days**	**Tue 1/15/19**	**Mon 6/29/20**
22		Directional boring	110 days	Tue 1/15/19	Mon 6/17/19
23		Equipment setting	90 days	Tue 6/18/19	Mon 10/21/19
24		Cable install and term	90 days	Tue 10/22/19	Mon 2/24/20
25		Conversion	90 days	Tue 2/25/20	Mon 6/29/20
26		**Phase 4**	**725 days**	**Tue 1/2/18**	**Mon 10/12/20**
27		Survey and basemap	5 mons	Tue 1/2/18	Mon 5/21/18
28		Design	14 mons	Tue 5/22/18	Mon 6/17/19
29		**Phase 4 Construction**	**345 days**	**Tue 6/18/19**	**Mon 10/12/20**
30		Directional boring	90 days	Tue 6/18/19	Mon 10/21/19
31		Equipment setting	90 days	Tue 10/22/19	Mon 2/24/20
32		Cable install and term	90 days	Tue 2/25/20	Mon 6/29/20
33		Conversion	75 days	Tue 6/30/20	Mon 10/12/20

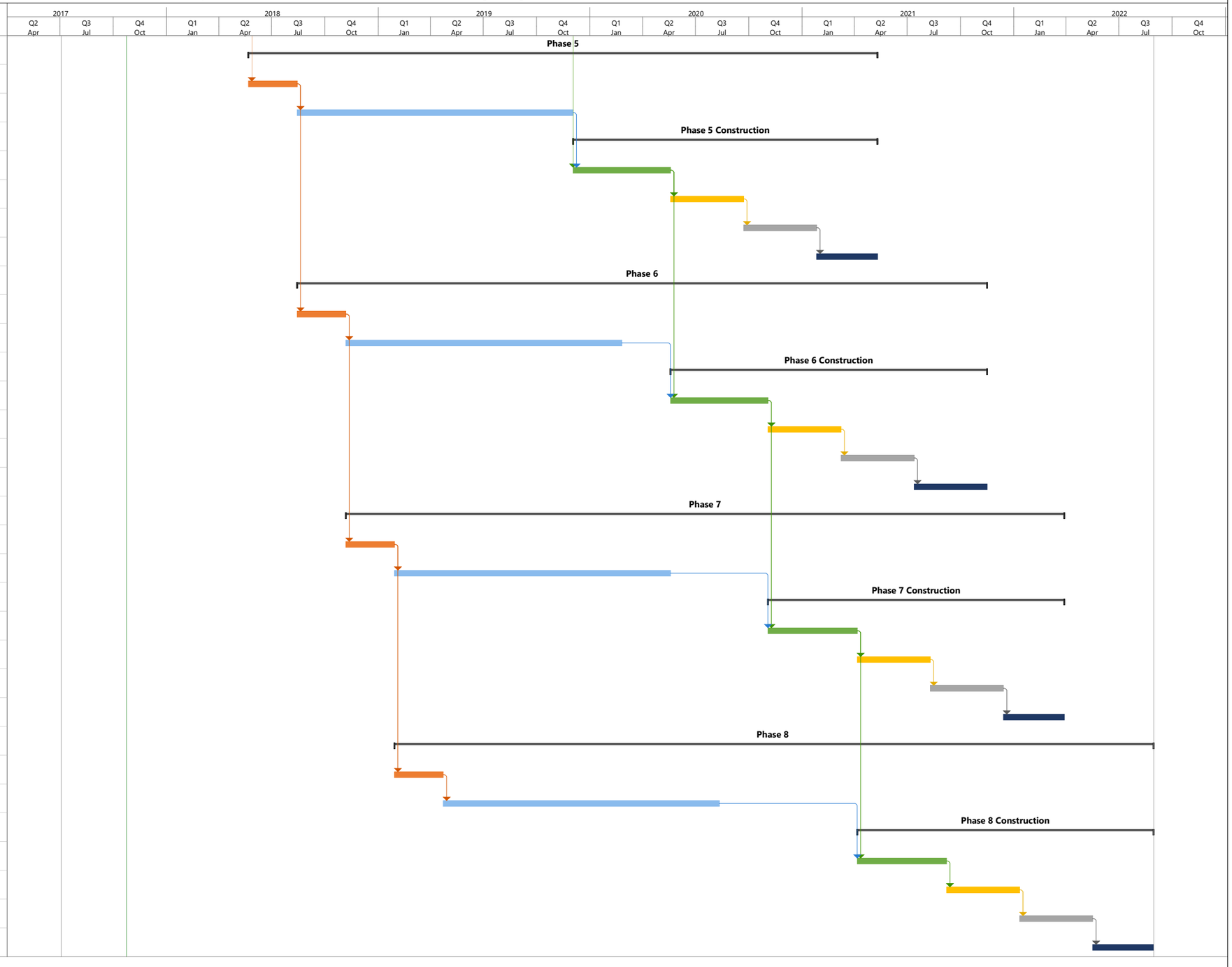


Project: TPB, Peer Review of UG of Utilities Master Plan, Proposed Revised Sched
Date: Tue 10/24/17

Task | Split | Summary | Project Summary

Exhibit D - Proposed Revised Schedule for Town of Palm Beach, Peer Review of Undergrounding of Utilities Master Plan

ID	Task Mode	Task Name	Duration	Start	Finish
34		**Phase 5**	**775 days**	**Tue 5/22/18**	**Mon 5/10/21**
35		Survey and basemap	3 mons	Tue 5/22/18	Mon 8/13/18
36		Design	17 mons	Tue 8/14/18	Mon 12/2/19
37		**Phase 5 Construction**	**375 days**	**Tue 12/3/19**	**Mon 5/10/21**
38		Directional boring	120 days	Tue 12/3/19	Mon 5/18/20
39		Equipment setting	90 days	Tue 5/19/20	Mon 9/21/20
40		Cable install and term	90 days	Tue 9/22/20	Mon 1/25/21
41		Conversion	75 days	Tue 1/26/21	Mon 5/10/21
42		**Phase 6**	**850 days**	**Tue 8/14/18**	**Mon 11/15/21**
43		Survey and basemap	3 mons	Tue 8/14/18	Mon 11/5/18
44		Design	17 mons	Tue 11/6/18	Mon 2/24/20
45		**Phase 6 Construction**	**390 days**	**Tue 5/19/20**	**Mon 11/15/21**
46		Directional boring	120 days	Tue 5/19/20	Mon 11/2/20
47		Equipment setting	90 days	Tue 11/3/20	Mon 3/8/21
48		Cable install and term	90 days	Tue 3/9/21	Mon 7/12/21
49		Conversion	90 days	Tue 7/13/21	Mon 11/15/21
50		**Phase 7**	**885 days**	**Tue 11/6/18**	**Mon 3/28/22**
51		Survey and basemap	3 mons	Tue 11/6/18	Mon 1/28/19
52		design	17 mons	Tue 1/29/19	Mon 5/18/20
53		**Phase 7 Construction**	**365 days**	**Tue 11/3/20**	**Mon 3/28/22**
54		Directional boring	110 days	Tue 11/3/20	Mon 4/5/21
55		Equipment setting	90 days	Tue 4/6/21	Mon 8/9/21
56		Cable install and term	90 days	Tue 8/10/21	Mon 12/13/21
57		Conversion	75 days	Tue 12/14/21	Mon 3/28/22
58		**Phase 8**	**935 days**	**Tue 1/29/19**	**Mon 8/29/22**
59		Survey and basemap	3 mons	Tue 1/29/19	Mon 4/22/19
60		Design	17 mons	Tue 4/23/19	Mon 8/10/20
61		**Phase 8 Construction**	**365 days**	**Tue 4/6/21**	**Mon 8/29/22**
62		Directional boring	110 days	Tue 4/6/21	Mon 9/6/21
63		Equipment setting	90 days	Tue 9/7/21	Mon 1/10/22
64		Cable install and term	90 days	Tue 1/11/22	Mon 5/16/22
65		Conversion	75 days	Tue 5/17/22	Mon 8/29/22



Project: TPB, Peer Review of UG of Utilities Master Plan, Proposed Revised Sched
Date: Tue 10/24/17

Task Split Summary Project Summary

Appendix E
Town Staff Responses to Report Findings

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Appendix E - Town Staff Responses to Report Findings

Report Findings	Town Response
Finding: 1.1 – Maintain CMAR delivery method, but execute as a continuing contract	Concur, but limited to State Procurement Laws.
Finding: 1.2 – Retain CMAR earlier in the process	Concur, we adopted this approach prior to the recommendation and thus Phase 2 was advertised 10/26/17.
Finding: 1.3 – Develop a Project Management Plan	Concur, while documentation contained in the above bulleted list exists, there is not a single repository. Staff time and resources are the key constraints to timely development of the comprehensive PMP. Additional resources will be required by staff to accomplish this recommendation.
Finding: 1.4 – Carefully monitor the amount of work self-performed by CMAR	Concur, the Town has mechanisms in place to manage this. First, the CMAR contract limits self-performance of work by the CMAR to 20% of the contract value. The intent of this limit is to allow the CMAR to perform some work activities in order to expedite the schedule. For example, the restoration of any damage due to pole removal is expected to be performed by the CMAR as it is impossible to accurately quantify this and bid it out in a timely manner after pole removal is complete. Second, the Town reviews the work proposed by the CMAR and the associated cost, along with the Engineer of Record, prior to the CMAR being approved to proceed. Additionally, the quality of the work is reviewed in the field by the Town and the Engineer of Record prior to approval of any payment to the CMAR.
Finding: 1.5 – Monitor the competitiveness of the CMAR-conducted subcontractor bidding process	Concur, CMAR is required to follow TOPB purchasing procedures and the Town monitors this process.
Finding: 1.6 – Use project management software for program coordination and execution	Concur, presently our consultants and contractors utilize their own software. TOPB will investigate purchasing one tool. This can be a tool that is applied as part of item 1.3 above.
Finding: 1.7 – Maximize benefits from CMAR delivery method	Concur, the Town is working closely with Purchasing to ensure benefits are maximized.
Finding: 2.1 – Prepare deterministic cost estimate for future phases	Concur, this is included in the Consultant's scope of services and will be prepared for each Phase of the program as those designs are completed.
Finding: 2.2 – Maximize savings from tax-exempt status through Town's Direct Purchase Program	Concur, direct purchases for tax-savings will be used when the savings are significant enough to justify the additional risk and the staff effort to support the process.
Finding: 2.3 – Minimize the number of exceptions to ensure integrity of GMP	Concur, the exceptions have been and will continue to be negotiated with the CMAR during the GMP development process.
Finding: 2.4 – Improve effectiveness of the Undergrounding Utilities Task Force	These recommendations should be implemented at the discretion of the UUTF.
Finding: 3.1 – Modify structure and organization of phases	We agree that the project should be executed with the phases as currently defined.
Finding: 3.2 – Improve schedule by minimizing number of contracts and utilizing unit pricing	We can explore reducing the number of CMAR contracts for the duration of the program along with the development of unit pricing for common elements to dictate future costs. We do not concur with the revised construction schedule presented in Appendix D for the following reasons: 1. It is not possible to install all underground conduits within a duration of 90 to 120 days as presented. The schedule in the master plan overlaps several activities such as boring, equipment/cable installation, and conversion on a per loop basis through use of multiple crews/contractors working on multiple streets simultaneously under the CMAR method. The Appendix D schedule relies on unrealistically short conduit installation durations that are sequentially back to back with no consideration of weather delays, seasonal construction restrictions, traffic impacts, material storage/delivery, etc. 2. Much of the design work for phases 3 through 8 occurs between the second half of 2018 through early 2020. We do not believe that it can be realistically expected that approximately 700 easements could be procured within an 18-24 month period. We also do not believe that the utility owners could keep up with this design/construction pace as they are resource limited and cannot provide the staffing required to meet this schedule. 3. Pole removal is excluded from the schedule which artificially reduces the overall duration. The alternate schedule proposes construction activities in four phases at one time (five phases if pole removal is included). Having more than 60% of the entire town area under construction at one time is not feasible as impacts will be far too great for the road system or the community to tolerate.
Finding: 3.3 – Consider engaging FP&L to perform the electrical installation	We agree that this finding should not be acted upon.
Finding: 4.1 – Validate design with appropriate electrical codes and standards	Designs have been and will continue to be validated with applicable codes and standards.

Town of Palm Beach
Peer Review of Town-Wide Underground Utilities Master Plan
Appendix E - Town Staff Responses to Report Findings

Report Findings	Town Response
Finding 4.2 – Vet FP&L design and negotiate improvement	We agree that the FPL designs should be vetted and negotiated throughout the program. This was done for Phase 1 and will continue throughout the program. We further agree with the peer review statement that the exclusive use of Vista gear is cost prohibitive and should be applied to limited situations. To this point, a mix of standard and Vista gear is being used in Phase 1. We agree with the recommendation that Vista gear should be applied in limited situations. We acknowledge that the Vista gear has some advantages over the standard PME style equipment, however the decision to employ FPL standard equipment was made after much discussion with Town staff and presentations to the Task Force and Town Council. Standard PME style gear exists in the Town today where FPL performed the design and installation. Since FPL has no issues installing their standard equipment in coastal areas, and they will be responsible for maintaining it into the future, and standard equipment offers significant cost advantages to the Town, the decision was ultimately made to predominantly use standard PME gear. Vista gear will be proposed in areas where accessibility is problematic since the Vista gear only requires access from one side. The PME-4 configuration is intended to allow existing underground primary cable radial tap facilities that serve vaults without fuse cabinets or Molded Vacuum Interrupter/primary breakers (MVI) to be included in a total underground system when installation of the fuse cabinets or MVI at the vault is considered to not be feasible. (Costly reconstruction of the vault and/or the costly addition of new underground primary cable facilities and their associated easement requirements). Sectionalizing cabinets are available from FPL but the reduced cost of this cabinet needs to be combined with the cost increase for vault work, fuse cabinets, MVI, and/or new primary cable installation (with associated restoration costs) on private property. Additionally, use of the sectionalizing cabinets would decrease reliability of the primary loop if the radial tap cable failed between the sectionalizing cabinet and the vault. We do not believe there to be any significant cost savings through the use of sectionalizing cabinets and we feel the private property work and reduced reliability through their use to be an overall detriment to the
Finding: 4.3 – Monitor constraints to design completion and implementation	Concur, FPL staff conducts a survey during the design of each phase that consists of visiting each service entrance, removing the meter cover, and documenting the conductors. For Phase 1, FPL reported that they saw no non-conforming service entrances.
Finding: 4.4 – Optimize the number of geotechnical tests	We are making a limited number of geotechnical test borings to canvas an area to provide soils information to contractors bidding on the project. Bore locations are chosen based on USGS Soil Maps that were overlaid on the Town during the master planning phase of the program. Any specific recommendations to further optimize this process will be considered.
Finding: 4.5 – Optimize the number of subsurface utility locates	We have hired private utility locators for the detailed design of each Phase area. This significantly increases the accuracy of utilities shown on the plans. However, in underground construction, there will continue to be unknown facility encounters as potholing needs to be limited to that which is cost effective. There is no doubt that the amount of potholing that has been done has reduced the number of utility strikes that could have occurred if no potholing was performed. However, we do not believe that increasing the number of potholes would have a dramatic impact on reducing strikes of unknown facilities. Any specific recommendations to further optimize this process will be considered. Ground Penetrating Radar techniques were employed early in the project to test effectiveness of this locating technique. Due to the high groundwater table in Palm Beach, the technology was found to be ineffective and its use was abandoned in favor of potholing.
Finding:	This is being done and the master plan describes the infrastructure improvements that are planned to occur concurrent to undergrounding. There needs to be a balance with this work however, in order to prevent schedule expansion and minimize community impacts. With Horizontal Directional Drilling being employed for much of Phase I, a large expansion of watermain and drainage work would increase community impacts because of the need for installation by open cut. Funding constraints also exist that prevent the full-scale replacement of all infrastructure under the roadways.
Finding: 4.7 – Request express circuits to mainland substation	Concur, we can discuss this with FPL and we agree that it will increase reliability but will also increase project costs.
Finding: 5.1 – Execute phases simultaneously	We agree that this option should not be implemented.
Finding: 5.2 – Incentivize less disruptive construction methods	Concur, we will explore the use of incentives/disincentive payments. However, for Phase 1 we were able to achieve the lowest cost bid with all Horizontal Directional Boring construction methods.
Finding: 5.3 – Use FDOT Green Book Standards	The Florida Greenbook along with Transportation Design for Livable Communities (TDLC) requirements (Chapter 21 of the FDOT Plans Preparation Manual), was used in the design of Phase 1 and will continue to be used throughout the duration of the project.

Appendix F
Report Feedback from TC and UTTF

LINE #	FOCUS AREA / FINDING	REQUESTOR	COMMENT	RESPONSE
1	1.2 Retain CMAR earlier in the process	Dennis Bottorff UUTF	A little more clarity on unit pricing method will be useful.	See discussion on Finding 3.2
2	2.4 Improve effectiveness of the Task Force	Tom Parker UUTF	I agree with P&D that our UUTF meetings are too dedicated to project reporting. When I have participated in projects, my efficiency has been inversely correlated tc the frequency with which I was required to interrupt productive activity in order to report it. Progress can be continuously and securely reported to the UUTF online and to the public as appropriate. While I agree that Task Force members should participate in "…meetings out in the Community," their participation should seek to inform. I do not believe we should act as "champions of the overall effort" or "ambassadors." I believe that the time for advocacy expired when the Undergrounding referendum was tallied. Argument should by now have given way to our execution of the will of the voters, no matter how narrowly the question was carried. "Whether" is no longer in question. Engaging in fruitless debate with opponents of our project who refuse to accept the certified result only invites repetition of their failed argument. We should focus, as does P&D's draft review, on the delivery of an underground system of high quality as expeditiously as is practical.	The recommendation is to make the interaction more efficient with automated reports directed to the TC and the UUTF. The meeting can then be more productive with the basics out of the way.
3	3.2 Improve schedule by minimizing number of contracts and utilizing unit pricing	Dennis Bottorff UUTF	A little more clarity on unit pricing method will be useful.	Unit pricing can be used before design is completed for all phases. The concept is to execute one sinlge contract that include all phases. Before the bid process is begun, the design team would perform a system inventory and preliminary design based on the common construction units in the project. These units would be used for bidding purposes. As the final design pe phase is completed, the unit price tabulation would be adjusted. This method allows for field changes to inform the project as the unit pricing is reconciled at the end of the phase. Requires monitoring and reconciliation by Owner. Hopefully will provide higher degree of confidence to all since it will be based on the completed, actual system.
4	4.2 Vet FP&L design and negotiate improvement	Julie Araskog TC	Vista Switch vs Switch using now. Understand original budget vs now planning to install. What was the original number of Vista Switch Gear originally planned to be installed before the budget was found to be 30 million over budget and where were the Vista switches going? Why were we originally using Vista Switches? Who recommended the change away from Vista and why? How many switch changed from Vista to switch gear now using for the whole Island? How many Vista Switch Gear planned for Phase 1 originally and where? What Vista Switch Gear were changed to the less expensive switch gear and where they are being placed? Did FP&L recommend we use Vista originally? Who recommended we use the lower priced? What was FP&Ls recommendation or response to not using the Vista? Why did we make the change? Was it just budgetary? What is the estimated number of Vista Switch Gear boxes we plan for all phases? Where are they going now? Why?	See item 68 below for more information
5	4.2 Vet FP&L design and negotiate improvement	Bobbie Lindsay TC	Switchgear equipment brand/type and location. How many PME switch units are being located in Phase 1 North and South. Are any of these units are being located in Flood prone areas, like A3, according to the recently released Flood Maps by FEMA. Based on the draft Peer Review I received yesterday, and In looking at Phase 1 North, for example, it appears that it would be wise to place Vista switch gear in all locations except those on North Ocean Way and parts of the eastern ocean blocks on the side streets that are out of the flood zone in Phase 1 North. Perhaps the easiest way to do this is to overlay the switchgear type on the FEMA maps for both Phase 1 North and South and mark the locations where the different gear type is located. Vista vs. PME. I'd like to see both north and south Phase 1.	See item 68 below for more information
6	4.2 Vet FP&L design and negotiate improvement	Jeff Smith UUTF	The peer review discusses using Vista Switchgear in lieu of PME type pad-mounted switchgear. Can you please direct them to put photos or specifications with drawings of the two types of switchgear in their report with dimensions for comparison.	Descriptive bulletins will be added to an appendix. Sizes are comparable, approximately 66"by 60"
7	4.2 Vet FP&L design and negotiate improvement	Tony Dowell UUTF	We want to reduce costs not increase them by adding more VISTA switches. FP&L is responsible for all electrical repairs.	
8	2.1 Prepare deterministic cost estimate for future phases	Bobbie Lindsay TC	It is disappointing that they will not opine on the Town's cost estimate, since that is one of the principal charges we gave the peer review, and that they use the accuracy level of +/-12%. I'm unclear as to whether this is due to KHA's inability to provide engineering detail to FP&L (page 23) that impacts FP&L's ability to prepare design docs for all phases. How did this process work at Jupiter Island or Longboat or Gulfstream? Did they use CMAR: did they design it all first? Did P&D review other comparable (at least 41 pole mile) projects our size?	The estimate could be refined to a Class 2 or 3 with a field inventory and preliminary design for the entire town, which would increase the degree of confidence in the estimate and possibly allow contingencies to be reduced. It is important that the Town think of the cost as a range at this early stage of the project. Gulfstream is a smaller Town and did their $8M project in two phases with traditional low bid.
9	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Bobbie Lindsay TC	How many other undergrounding efforts of our size in the SE used the CMAR approach to contracting?	Based on our information, CMAR is not routinely utilized.
10		Bobbie Lindsay TC	Page 6. Review Summary of Findings matrix to TC and UUTF. Go through it so we all understand it.	
11	5.1 Execute phases simultaneously	Bobbie Lindsay TC	Why not recommend modifying structure or phases? Need to understand reasoning.	See Finding 5-1, recommending executing phases simultaneously - The design process is a very complicated process with the many entities involved. The smaller phases allow for better control of the design process. It also allow the Project to monitor and control the impact to the citizens. As mentioned elsewhere all contractors indicated the larger the phases and the latitude they are given is a better situation for the contractor and could result in better pricing, but this would potentially allow the contractor to have free rein on the island with multiple construction zones underway at the same time. The phasing allows monitoring and limiting the construction zones. The larger contract(s) could allow the best of both scenarios by awarding to one contractor with larger volume but allowing control of the work area.
12	General	Bobbie Lindsay TC	P. 7 Why are they saying the budget is 90-$120 MM?	$90M initial estimate, $120M highest KH estimate, with $98M the current estimate
13	General	Bobbie Lindsay TC	While on page 7, P&D says this project is a joint effort among Town, FP&L, AT&T and Comcast, only the Town and Town consultants were consulted at kick off. P&D please identify meetings, consultations with FP&L, AT&T and Comcast including the names and titles of those consulted at the companies and how much time was spent with them. Was FP&L asked about our phasing, ability to generate drawings, their ability to respond to our drawings, CMAR approach and whether our phasing was the optimal approach? Explain.	FP&L was interviewed by phone. The interview was conducted by Anthony Hanson of P&D. The interview lasted about 1 hour. FP&L was non-committal about the multiple phases in design at the same time. They did not deny the possibility, but indicated it would be evaluated on a case by case basis.
14	General	Bobbie Lindsay TC	On page 10, which of the contractors and engineers interviewed bid CMAR contracts for under grounding? On page 10, were the 2 large construction companies personally interviewed, but unnamed in Exhibit C, from the list on page 10? Explain comment in Exhibit C re: 1 other CMAR bidder. Were there only 3 bids for the Phase 1?	It is our understanding there were three SOQ received for the CMAR project
15	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Bobbie Lindsay TC	Page 12. In our CMAR approach, at what point in contract negotiations was the GMP established? The report is somewhat confusing as it recommends staying with CMAR yet it says other methods might result in reduced costs to Town.	It is our understanding the GMP was established after the CMAR was selected. Once selected the CMAR produced competitive bidding packages and awarded based on price and compliance. This is the typical processes for CMAR style projects.
16	2.1 Prepare deterministic cost estimate for future phases	Bobbie Lindsay TC	Explain the 8-12% cost of the construction management. Is this fixed throughout all phases? Who was 8% and who was 12% as that is a considerable spread?	The two projects are different in size. The cost of equipment is a component of the total cost and the derivation of the %. With the larger cost of equipment on the south side, it causes the CMAR % to be a smaller portion of the overall project.
17	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Bobbie Lindsay TC	p 13. Is P&D stating that the team is recommending extending the two existing contractors without further competitive bidding? "Instead of moving away from CMAR delivery method, the Project Team encourages the Town to consider a single, continuing contract with the selected CMARs." Explain 3 CMAR contracts? We have two now. Is P&D suggesting we re-bid only once more for the entire project?	Yes, only one more rebid to award 1-3 continuing service contracts. Utilizing the unit pricing described above, the project could be bid once more to adhere to the contractors' responses about project size. The "1 to 3" is recommended because of the three distinct areas mentioned in the Master Plan (Residential- MidTown - Multi residential). The other option is one contract for the remaining phases with unit pricing. The next round of bidding will begin after the Phase II design is complete (at the earliest).
18	1.3 Develop a Project Management Plan	Bobbie Lindsay TC	p. 16 Please review with us the Project Management Plan comments explaining the confusing. Would a PMP be an expected deliverable for the cost of KHA to the taxpayer?	A PMP would be developed by a program manager. To our knowledge, there is not a true "program manager" on this effort. Not certain this is a KHA responsibility.
19	1.4 Carefully monitor the amount of work self-performed by CMAR	Bobbie Lindsay TC	P. 18. Better explain Finding 1.4, particularly P&D's point about potential for double dipping," as well as the conflict with the Town's purchasing manual.	No conflict, just a point. Town is complying with their procedures.
20	1.6 Use project management software for program coordination and execution	Bobbie Lindsay TC	P 19. It appears we don't use project management software. What will this cost to implement and does staff agree with the recommendation?	Cost can vary wildly depending on platform. Platform exists for the public facing information via the website. This would be for internal use for more detailed info to the UUTF or TC.
21	2.1 Prepare deterministic cost estimate for future phases	Bobbie Lindsay TC	Page 24. Explain the more deterministic cost estimate not being completed, and what can be done to get a more accurate estimate.	It is not possible to have a more precise cost estimate without having more precise plans. It is important for the Town to think of the cost estimate as a range at this early stage in the project. The unit approach described above is an incremental approach to more deterministic cost estimate. Usually completed in the preliminary design phase.
22	2.1 Prepare deterministic cost estimate for future phases	Bobbie Lindsay TC	P. 23 Does P&D think it's possible to get preliminary construction plans for the entire project and would that be sufficient for FP&L to provide existing drawings for entire project?	No, the phased approach is still the recommended way to provide progress and allow for simultaneous design and construction. The large contract approach provides for the continuing progress, but not excessive overhead with multiple bidding phases.
23	2.3 Minimize the number of exceptions to ensure integrity of GMP	Bobbie Lindsay TC	Page 26. Explain GMP being subject to revision and give examples of how the Town can limit exceptions and clarifications.	After hours work, unsuitable soil and meter base replacements are a few. The exceptions appear to be reasonable. However could result in some unanticipated cost.

LINE #	FOCUS AREA / FINDING	REQUESTOR	COMMENT	RESPONSE
24	3.1 Modify structure and organization of phases	Bobbie Lindsay TC	p. 27-30. Is P&D aware of any undergrounding conversions of similar size that have created as many phases as Town? Even though P&D says it may boost interest from contractors and make the bidding more competitive to have larger phases, are its primary reasons to not recommend doing that inconveniencing more residents at the same time? Discuss the cost savings of Reduced project duration vs. the inconvenience to more resident.	Shortening project length will reduce inflation and future unknowns. With a compressed schedule there will be enhanced pressure for design completion and easement acquisition therefore increased risks. The ideal situation is a complete design and then start construction, With an constantly changing system this is not realistic or does it show progress to the citizens.
25	3.2 Improve schedule by minimizing number of contracts and utilizing unit pricing	Bobbie Lindsay TC	Page 31. We need to have a discussion with P&D about its recommendation to execute one large contract via the CMAR method with unit pricing. How does this impact costs and why wouldn't it reduce schedule? Why wouldn't one look at bigger phases if you had a single contractor?	The design process has several steps and is fairly complex. The smaller phases allow for progress and control over the Town impact. The large contract with multiple phases allow progress and tries to allow for specialty crews to move from one phase to another in a continuous process. The limiting factor is the design process and easement acquisition. To utilize this approach the project team will need to dedicate the necessary resources to keep the design process ahead of the construction. With an compressed schedule there is an increase risk for construction cost impacts such as mob/demob and change orders.
26	3.3 Consider engaging FP&L for electrical installation	Bobbie Lindsay TC	Page 32. If this is a lower cost, are we looking at this?	It is our understanding it was evaluated early in the process. FP&L provided a price, but it does not include the items listed in the report. Additionally the impact to other citizens would be substantially increased and the duration would be undetermined due to the FP&L priority to these types of projects. An variation of this would be for the Town to install the conduits for FP&L, ATT and Comcast, then have the utilities install the equipment.
27	General	Bobbie Lindsay TC	Also, please explain if large utility contractors typically use CMAR and if not, why not?	Typically they do not. The larger contractors have such capabilities in-house and therefore shy away from these arrangement.
28	4.2 Vet FP&L design and negotiate improvement	Bobbie Lindsay TC	Page 35. Vista Switchgear. I've spoken to Patricia about this and emailed Town project manager, Steven. P&D seems to think the Vista units are more reliable and I'm guessing flood proof because they are hermetically sealed? Please confirm. I am wondering where the Vista switches are being installed. I'd like to make sure Vista units are not being installed in areas that are not flood prone and that no PME units are being installed in A3 or 100 year flood areas. Is the $20K price differential correct between the PME and Vista gear? Does P&D believe it's best to place Vista units in lower lying areas?	see line item 68
29	General	Bobbie Lindsay TC	Were audit comments re: CMAR acted upon by Town with these Phase I contracts?	Yes
30	General	Bobbie Lindsay TC	Explain why only 18 of 33 documents that were requested by Peer Reviewer were supplied. Please provide the dates that the remaining docs needed were required. What impacts if any do we think this may have on the report?	All documents requested have been provided. The staff has been very helpful and prompt in suppling information.
31	General	Bobbie Lindsay TC	In Exhibit C, Confirm only 2 CMARs answer? Big utility contractors said we'd save money if we did the construction in bigger phases. If they not going to suggest bigger phases, and the bigger companies don't do CMAR, what will they be bidding on (What is the point of hiding their names?)	Initial discussions with these contractors were based on the guidelines given in the original SOQ proposals with stipulated the future bidding restriction. Their position is always to not eliminate an opportunity. Based on the feedback concerns, we have had conversations with the contractors and they are okay with the disclosure. The companies interviewed were Davis H Elliot Construction (Lexington, KY) and Service Electric Construction (Chattanooga, TN).
32	General	Bobbie Lindsay TC	How many subs are we using now? P&D said using only one sub in north and south would be better. Does staff agree?	Not sure where this reference is, but generally the fewer the subs, the less layers of overheads and continuity of work and processes.
33	General	Bobbie Lindsay TC	There is no discussion or mention of the potential impact of other Infrastructure projects on the cost or schedule.	Concur-the recommendations assumes the design process in the Master Plan of up to 17 months per phase would allow for the design of the infrastructure improvements needs. These items would also be need to be estimated in the Bidding stage and reconciled in the final pay request.
34		Bobbie Lindsay TC	High Level Questions for FP&L VP Bryan Olenick:	
35		Bobbie Lindsay TC	If we went to larger phases would they be able to get the design done for bigger phases to shorten duration? Will a senior officer at FP&L confirm that they can only design the phases at the rate they are doing now?	FP&L
36		Bobbie Lindsay TC	Is FP&L doing the Jax project and how many pole miles per year are they designing there?	FP&L
37		Bobbie Lindsay TC	Explain "questionable adequacy of labor, material, and the availability of appropriate staging area in proximity to work locations", when we have a almost half acre site in WPB directly across the bridge. Will we consider or be allowed to use the state ROW on Southern Blvd causeway?	FP&L
38	5.3 Use FDOT Green Book Standards	Bobbie Lindsay TC	Confirm that the traffic design is to no more than Greenback standards.	The Florida Department of Transportation's Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (commonly referred to as the "Florida Greenbook") provides criteria for public streets, roads, highways, bridges, sidewalks, curbs and curb ramps, crosswalks, bicycle facilities, etc. used by the public for vehicular and pedestrian travel. Authority for the Florida Greenbook is established by Chapters 20.23(3)(a), 334.044(10)(a), and 336.045, Florida Statutes, and Rule 14-15.002, Florida Administrative Code. This manual is intended for all projects off the state and national highway systems and is appropriate for this project.
39	5.1 Execute phases simultaneously	Bobbie Lindsay TC	On p. 40 the statement re: continuous traffic flow only applies to approximately half of the island, where there are two north-south routes. From S. County/ So Ocean Blvd intersection southward to end of Town there is only one route north/south. Please explain this sentence, "This would require construction of the undergrounding facilities to split the neighborhoods which is inefficient and would require restoration of disturbed areas within the neighborhoods to take an extra year."	You are correct in noticing that this applies to the north portion of the Town only where two north/south roadways are available. The sentence before the one you note says "To maintain continuous traffic flow, a phasing allowing at least one of the parallel north-south roadways on the north side of Town to remain un-touched is preferable."
40	5.1 Execute phases simultaneously	Bobbie Lindsay TC	on page 40 explain, the statement, "Our team also considered a phasing option that would construct all undergrounding improvements commencing from the north or south sides of the Town and progressing sequentially until completion. This phasing would have the benefit of isolating the construction activity within the Town but would be problematic in allowing multiple contractor teams to work without interfering with one another and was therefore dropped from further consideration." What does P&D mean when they say the contractor teams would interfere with each other?	If all work was conducted proceeding from one end of the island or the other, the work zones would be immediately adjacent to each other. Assuming two separate contracts are issued for the work, the contracting teams would need to use the same roadways to haul materials and equipment since they would be working in the same general area. Th close proximity of the work zones could create potential conflict areas.
41	General	Bobbie Lindsay TC	It would be nice to understand better the contractor interviews in Exhibit C. I'm not sure what P&D expects us to conclude, since majority don't prefer CMAR and think we should do it in bigger phases!	The larger contract with the multiple phases accomplishes both the Town's interest and the contractors interest. The larger contract would increase volume for the Contractor's and potentially reduce unit pricing while the current phasing keep control to limit impact to the citizens
42	General	Julie Araskog TC	1. The motion that carried at the Town Council meeting was: Peer Review to hire a national company of national reputation with broad experience in large undergrounding projects to conduct a Peer Review of the Master Plan prepared by KHA, opine on the cost of undergrounding, the plan for construction, enumerate possible cost savings procedures and to specify the risk factors with optional plans suggested.	
43	General	Julie Araskog TC	2. Page 8: states that all of the stakeholders were present for a kick-off meeting, yet the major stakeholders being the Town Council and the Civic Association were not present to discuss the final scope of services. There also was not anyone from the UUTF. This is troubling to me. Please respond.	TPB: Those present at the kick-off meeting included representatives of ToPB staff and the Patterson and Dewar team to introcude the project stakeholders and review the contracted scope of services. The Patterson and Dewar team came to a UUTF meeting to solicit their input in a separate meeting. The budget and scope did not include the same level of meeting with Town Council. Staff reached out to the Civic Association and they indicated that they are not technical and would rely on staff. The Town Council, UUTF and Civic Association receive recommendations through the Master Plan Review in draft and final document delivery and do not contribute to the technical or procedures in effect which were reviewed.
44	General	Julie Araskog TC	3. Page 8: the Town has been extremely cost conscious in the execution of the program: did Patterson& Dewar look at the KHA contract? Did they opine on the contracts of all subs (including Cornerstone), the time spent and efficiency of such meetings, the cost associated with such meetings, the contracts for each sub, and the method for billing and oversight of KHA and by KHA of the subs? Did they opine on whether there is enough budgetary oversight of KHA and the subs?	The proposal/contract for KHA to prepare the master plan was reviewed and found to be thorough. Much of the work performed to prepare the master plan will also serve other purposes including public relations and research needed to prepare final construction plans. Our interviews with KHA and review of the scope of services revealed that their design fees are approximately 8% of the construction cost, which is in line with industry standards. The Town procurement staff is responsible for negotiating fair design fees on behalf of the taxpayers.
45	General	Julie Araskog TC	4. One of the components that we discussed and that I believe was supposed to be part of the Peer Review team was having a company that was experienced in Utility Undergrounding to assess our Master Plan, the work and direction being taken by our present Construction Subs, and to comment on our phasing and possibilities for reducing the time from ten years. I was disappointed and frustrated that this was not done. Can someone be added to as I believe was promised to state their name and give a full report?	Construction contractors unanimously discussed larger contracts with more control as a more attractive solution for them. There is several constraints to limit that possibility in the TPB project. The contractor will only comment on construction period. The constraining aspect of this project is the design process and the desire to limit the impact on the citizens.

LINE #	FOCUS AREA / FINDING	REQUESTOR	COMMENT	RESPONSE
46	General	Julie Araskog TC	5. I was surprised and not confident in the reasoning on page 10 stating that there were in-person interviews with two large utility construction companies, but there was not a Utility Construction Company on the Peer Review Team. P&D states that they are refraining from listing those Utility Construction Companies by name that were interviewed because those companies could want to bid on future phases. This does not work for me. I thought the whole point was to have an independent review with an independent utility construction company. This was probably the most disappointing and disturbing issue for me with this peer review. I thought we were clear about the importance of the timeline and this aspect of the peer review. Perhaps if some of us were present at the Stakeholders meeting, this would have been reiterated. I further understand when Selection Committee made its final decision to accept Dewar Patterson's proposal that there was an agreement that a Utility Construction Company with experience in Undergrounding would be part of the team. 100,000 dollars is being spent on this Peer Review. I believe a major aspect is missing that we did request. I would like to be told the names of the construction companies that P&D consulted for this Peer Review.	Names and project profiles will be provided - See line item 31 above
47	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Julie Araskog TC	6. Please comment on the suggestion on Page 13 of considering a single, continuing contract with the selected CMARs.	TPB: The term continuing contract is a purchasing term in the State of Florida and is limited in its use for construction under $2 million. We believe the Peer Review intended this comment as a recommendation to have one CMAR contractor for the duration of the project. With the most recent CAMR advertisement staff has worked with Purchasing to include language to allow the contract to cover up to 3 phases.
48	1.2 Retain CMAR earlier in the process	Julie Araskog TC	7. Do you agree that the chosen CMAR should be involved earlier in the design process? (pg. 15)	TPB: Staff agrees that the CMAR contracor should be on board as early as possible to participate in constructibility review and value engineering. We hope to have the CMAr contract awarded for phase 2 by February. This will be significantly earlier that we were able to have them on board for the Phase 1 construciton. Also with including more than one phase in the contract scope staff will have the CMAR consultants engaged very early in the process for future phases.
49	1.3 Develop a Project Management Plan	Julie Araskog TC	8. How can we develop a project management plan? Please comment on all suggestion, including: (a) having better formal documentation of this project as stated on the bottom of pages 15-16? (b)How about the project manual specific the CMARs specific phase of the project ? (pg. 16) (c)Formal documentation of program roles and expectations to prevent possible litigation because of the lack of an understanding of overall responsibility.	We can provide sample templates
50	1.4 Carefully monitor the amount of work self-performed by CMAR	Julie Araskog TC	9. Please comment on Summary and Recommendation for Action on page 18.	This is currently being limited, it was state here to reinforce the need to monitor and comply in the future
51	1.5 Monitor competitiveness of the CMAR-conducted subcontractor bidding process	Julie Araskog TC	10. How can the Town ensure that the CMARS are bidding subs competitively to keep costs down. (p.19)	Purchasing needs to oversee the contracting and review the results.
52	1.6 Use project management software for program coordination and execution	Julie Araskog TC	11. Project Management Software? (p.19) Why doesn't KHA already provide this as they oversee this project?	KHA
53	1.7 Maximize benefits from CMAR delivery method	Julie Araskog TC	12. Finding 1.7- Maximize benefits from CMAR delivery method. Pg.20. Now that P&D has the internal policies and procedures concerning the utilization of the CMAR delivery method, will they evaluate it properly? They state on page 20 that they did not receive the requested documents.	Documents received and evaluated, Policies and Procedures are reflective and consistent with all other documentation. As best as we can tell, they are complying with policies and procedures.
54	2.1 Prepare deterministic cost estimate for future phases	Julie Araskog TC	13. Findings 2.1- Prepare a deterministic cost estimate for future phases. Please comment on the Findings in this section and especially in regard to the "false sense of security." As I understand the comments on page 23, FP&L is unable to provide a firm price because FP&L has not been given engineering detail of the current system (all phases). Please comment on the recommendations for Action recommended at the top of page 24.	FP&L has provided a non-binding cost estimate, based on general specifications. The deterministic cost estimate is to solidify the cost estimate and confidence in the estimate. The estimate described is a preliminary design estimate based on the actual system and an field inventory or FP&L provided existing system information (For security reasons will not be provided). To provide a binding cost estimate FP&L is requiring an as-built style land survey. This is the first component in the design process and per phase is scheduled for approximately 2 months.
55	2.1 Prepare deterministic cost estimate for future phases	Julie Araskog TC	14. I am disturbed at the Findings in this section and under Potential Impact on page 24. The budgetary concerns have been an issue since this project began and what P&D seems to be stating is that we do not have enough detail in our budget to actually pinpoint the cost.	That is correct. It is not possible for a precise cost estimate to be prepared until precise construction plans are prepared. It is important for the Town to recognize the appropriate level of precision that is possible at this stage of the project. The Finding in 2.1 recommend an preliminary design estimate based on actual conditions to be determined by a field survey by electrical engineers.
56	2.2 Maximize savings from tax-exempt status through Town's Direct Purchase Program	Julie Araskog TC	15. Have we employed our tax-exempt status for direct purchase of materials and cost savings by volume purchases?	Not sure on the telecom conduits. It is our understanding FP&L has not allowed any direct purchased items. The direct purchase is contemplated in each contract, just not sure if it is being done or not. Also not sure if FP&L would allow non electrical items such as conduit to be direct purchased or if it would be a savings because of the bulk discount FP&L probably gets.
57	2.3 Minimize the number of exceptions to ensure integrity of GMP	Julie Araskog TC	16. Finding 2.3: Minimize the number of exceptions to ensure integrity of the GMP. I raised this issue in TC meetings. Could P&D please be more specific in listing other exceptions that it feels are aggressive other than just the allotted work hours?	Unsuitable backfill material, delays by FP&L for switching procedures, Working dates/times
58	Focus Area III – Scheduling and Sequencing	Julie Araskog TC	17. Do we need to protect ourselves with FP&L's 180 final approval deadline?(bottom of page 28)	Just need to be aware and as soon as possible accept the estimate
59	3.2 Improve schedule by minimizing number of contracts and utilizing unit pricing	Julie Araskog TC	18. Finding 3.2- please comment on their summary, observations and recommendations. Is it possible to complete this project by 2022?	The proposed timeline is based on our high level review. The difficult items will be the design process with all the entities. In some phases 17 months is provided, which should be doable with cooperation from FP&L. The easement acquisition would also need to be included in this time period and will require a enhanced effort by all involved.
60	4.2 Vet FP&L design and negotiate improvement	Julie Araskog TC	19. Page 35; Vista Switch Gear versus PME. I sent questions I would like answered by FP&L. Please see those questions and the others I sent in regarding the decision to change from FP&Ls suggestion that we use Vista through out the Town. This section is troubling for me and I would like specific answers regarding reliability, long-term operation and maintenance costs, differences during storm surge or flooding, longevity, and all other issues discussed on pages 35-6.	See item 68 below for more information
61	4.3 Monitor constraints to design completion and implementation	Julie Araskog TC	20. Finding 4.3 Please comment	TPB: 1. Service Entrance: CMARs document privately owned infrastructure prior to commencment of work and responsible for repairs to private property if damage occurs during construction. 2. Voluntarty easements are pursued when platted easements or right of way placement is not practical. For phase 1 the Town has been successful to develop alternative easement solutions through collaboration with FPL, Kimley Horn and property owners when necessary to avoid condemnation. As a last resort comdennation could be considered to facilitate the project's success.
62	4.4 Optimize the number of geotechnical tests	Julie Araskog TC	21. Finding 4.4 (p. 37) How much has the construction cost risen due to the rock? Why is this the first we are hearing of this? Also, please comment on the recommendation for action.	
63		Julie Araskog TC	22. Comment on recommendations for 4.5, 4.6 and 4.7.	See item 68 below for more information
64	5.2 Incentivize less disruptive construction methods	Julie Araskog TC	23. Page 42: do we know if the directional boring is proving to be more expensive than open cuts? Your comments? Lane rentals?	Our understanding is the contractor was allowed to bid either, both contractors choose the HDD on phase 1.
65	General	Julie Araskog TC	24. Pg. 44: Please comment overall on their findings and suggestions listed in their closing.	TPB: Staff concurs with the recommendations in the overall findings. Staff is working on how best to implement these and will discuss in detail at the UUTF meeting in January.
66	General	Julie Araskog TC	25. Appendix C: I reiterate that I do not like reading comments by unknown entities and I am concerned and frustrated that we did not include a construction company as part of the team and full process.	See 57 above
67		Susan Gary	The peer review describes several major areas that need to be addressed by the Town: Focus Areas No. 1. and 2. point out major deficiencies that the Town needs to address: including how and when will they develop the project controls and management plan noted by P&D?	TPB: Staff plans to research the recommendation to deploy additional management and reporting software and consoladate existing documentation such as the master plan, policies, procedures and construction phase schedules and address remaining gaps through delivery of a PMP. The PMP availibility is targeted for start of phase 2 construction, mid 2018.
68	Focus Area III – Scheduling and Sequencing	Susan Gary	Focus Area 3 includes two major areas regarding equipment. We need more specific recommendations from the P&D team regarding the Vista boxes and express circuits.	First, confirm the cost differential of the Vista and the PME gear and the equipment and accessories included. This differential would be based on the TPB doing the installation. Second, have a discussion with FP&L about their current philosophy about the use of the Vista vs the PME. An understanding of the island circuits schematically could allow the efficient deployment of the two styles of switches. It is our understanding that the first phase does include a mix of Vista vs PME gear. A confirmation of the cost differential could allow for additional units being utilized with less impact to the budget. For the express circuit additional discussions with FP&L about the amount of exposure and how the feeders are sectionalized on the mainland would determine if express circuits are necessary.

LINE #	FOCUS AREA / FINDING	REQUESTOR	COMMENT	RESPONSE
69	Focus Area I – Program Management and Delivery Method	Susan Gary	1) Vulnerability to lawsuits due to lack of project management controls: • develop a Project/Program Management Plan (P/PM) • employ project management software • implement the CMAR contract according to the recommendations of the Crowe & Horvath Audit. Example: Bringing CMAR on-board earlier, not allowing CMAR to self-perform work etc. The report states that a PMP is recognized in the industry as a "best practice". It can mitigate risk to the Town in the event of nonperformance or litigation as roles and responsibilities of all parties are clearly defined. (Pgs 16-17) At a minimum, the PMP should include: scope, time, cost, quality, resource, communication, risk and procurement management plans. (Pgs. 15-16) These items are tools that will help the Town manage the program and help mitigate the risks inherent in a large & complex program. These items need to be addressed by Town officials as soon as possible.	
70	Focus Area II – Costing and Applicability of Opinion of Probable Cost	Susan Gary	2) Cost – apparently, our cost estimate needs "fine tuning"; we are not where we need to be. The peer review states that at this juncture a more deterministic cost estimate has usually been completed. It further states that the cost estimate should be a "range". Pgs 22-23-24 The Town should determine which consultant will perform this cost estimate.	That is correct. It is not possible for a precise cost estimate to be prepared until precise construction plans are prepared. It is important for the Town to recognize the appropriate level o precision that is possible at this stage of the project. This Finding recommends the development of a system review to help determine the equipment and estimate the ultimate final design. A field review would and preliminary design could be used to increase the confidence level of the estimates and provide a unit count for the contract recommended in Finding 3.2.
71	Focus Area IV – Planning and Engineering Design	Susan Gary	3) Reliability of the new system – Two recommendations critical to the reliability of the UG system: more detailed advice would be helpful. • use of Vista switchboxes @ $20,000 differential. The peer review notes that "this is the single most important piece of equipment in an underground system", "the equipment is used to connect, isolate and protect all of the multiple connection points with the home." Further, "it is the opinion of the project team that the vista switchgear offers a more reliable & expandable solution for underground applications similar to this project." Pgs. 34-35 • Finding 4.7 request express circuits to mainland substation. The review states "to provide more reliable service some or all of the feeders could be connected to dedicated express feeders. Pg 39	See Line 68 above
72	General	Maggie Zeidman	Revised proposed project schedule appears to reduce the life of the project by 3 years, ending in Fall of 2022 as a result of overlapping phase construction. There must have been a reason why we decided not to do this. What is the downside of this proposal? What will the impacts be to our residents: traffic congestion, re-routing of traffic, traffic delays?	The revised schedule includes staggared "Heavy Construction"periods, however the impact on the citizens will be greater. Other factors will be the ability/willingness of FP&L to keep up with the design schedule and the easement acquisition.
73	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Maggie Zeidman	Execute CMAR as continuing contract. Makes sense to use same construction manager, contractors and subs throughout process – creates efficiencies. They know us, know our expectations, know the topography.	
74	1.1 Maintain CMAR delivery method, but execute as continuing contract.	Maggie Zeidman	Please comment on "duplication of services." How can we make sure that subs are not charging us for services provided by CMAR?	With multiple layers of entities involved, there will be a slight amount of overlap. The clear definition of roles and responsibilites will help mitigate this. The checks and balances of the typical % mentioned in the document is a check for this concern.
75	1.2 Retain CMAR earlier in the process	Maggie Zeidman	Involve CMAR earlier in process. Makes sense.	
76	1.4 Carefully monitor the amount of work self-performed by CMAR	Maggie Zeidman	If our CMAR performs the work what process is in place to assure quality and cost containment?	The design/construction observation team would be responsible for this. It is my understanding the only task being performed by the CMAR is the pole removals after completion. Site restoration will be the major impact from this tasks and policing the quality will be the responsibility of the design/construction observation team in conjunction with the Town.
77	2.1 Prepare deterministic cost estimate for future phases	Maggie Zeidman	When can we expect to give engineering detail of all phases to FP&L so they can provide a firm, fixed cost? Should we increase the contingency to 4 or 5%? The longer the life of this project, the higher the contingency should be. I am encouraged that we are under budget thus far in Phase 1.	The proposed schedule includes a sequential as found survey. Based on this schedule the final phase would be available by 3rd quarter 2022
78	2.4 Improve effectiveness of the Task Force	Maggie Zeidman	I do not agree with their suggestion to reduce Task Force meetings from monthly to quarterly. Leave it as is. This can be revisited as we move through phases- perhaps in Phase 4. Let's get the wrinkles out first.	The intent of this finding is to provide efficent design and construction process once all of the concepts has been defined. When and if all stakeholders believe project to be at this point the meeting schedule can be revisited. The alternative solution metioned was a less formal process; perhaps an automated software reporting package could be used to inform the UUTF and TC.
79	4.2 Vet FP&L design and negotiate improvement	Maggie Zeidman	Please address the suggestion "use more Vista equipment and less PME-4 switchgear." States "the single most important piece of equipment in an underground system is the equipment used to connect, isolate and protect all of the multiple connection points...". The Vista is "hermetically sealed." Should we be using more or all Vista switches? What is the experience with Vista vs PME-4 in other coastal towns? P&D suggest the price increase for using Vista is $20,000. Could we use Vista in lower lying areas and use PME-4 on higher ground- correlate with new FEMA flood plane maps?	See Line 68 above
80	4.3 Monitor constraints to design completion and implementation	Maggie Zeidman	Do we need to hire a firm to obtain easements? What is the cost? Can this be handled and coordinated more efficiently and appropriately by Steven Stern? What is the average percentage of refusals to give easements? What is the experience of similar towns? Have other towns hired an easement specialist? What amount of money do we have allocated to easement acquisition- consider all sources; KH and JS? Please compare cost of in house and outsourcing. Has Paragon given us a cost estimate based on their experience of % of easement refusals? It is possible to use a hybrid approach—the town for the low hanging fruit and those with issues of placement and Paragon for the refusals to grant easements? We need to compare cost and look at method we think best suits our needs but also with an eye to getting this done.	As mentioned above, this is a signifcant risk to the accelerated schedule.
81	4.3 Monitor constraints to design completion and implementation	Maggie Zeidman	Service entry: Do we need Service Entry Survey? They recommend it. P&D suggests we have an allocated allowance for "modifications." We have an allowance for greenery replacement but not a kitty for "modifications." They also recommend a policy be established. Good idea.	
82	4.6 Expand other infrastructure improvements	Maggie Zeidman	Water Infrastructure. "the city can afford to budget up to $800,000/ year"- Are we using the full amount? I know Paul is on top of this.	
83	4.7 Request express circuits to mainland substation	Maggie Zeidman	I have red marks and stars all over this one. EXPRESS FEEDER OPTION. It would be such a shame to go through all of this and not have the best feeder system. We will only be as good as our weakest link.	Suggested to find more information about the feeder system. Additional information is needed to decide if adequate system.
84	5.2 Incentivize less disruptive construction methods	Maggie Zeidman	Consider "Lane Rental" option- really? Is this an industry standard?	FDOT uses the lane rental concept on many of their projects to control travel disruption. See the link below for FDOT's rationale behind the concept of lane rentals. The second link is for boilerplate bid language for FDOT projects. The third link is for an example of an actual bid for an FDOT project that used lane rental. http://www.fdot.gov/construction/AltContract/General/LaneRental.shtm http://www.fdot.gov/programmanagement/Implemented/Workbooks/JanWorkbook2018/Files/SP0081300IDLR.pdf http://www.fdot.gov/contracts/d2/bid%20tabs/2017/Mar/E2T50BidPosting.pdf

Appendix G
Supplemental Information
(Provided Under Separate Cover)

- Project Management Book of Knowledge Sample Templates
- Sample Program Management Plan (Clean Water Nashville, Vol. 1)
- Switchgear Descriptions
  - PME-descriptive-bulletin-665-30
  - VISTA descriptive-bulletin-680-30
- Lane Rental Information
  - FDOT rationale
  - FDOT boilerplate language
  - Bid tabulation example
- Material on utility contractors consulted
  - Davis H Elliot Service Card
  - Davis H Elliot Company Profile
  - Service Electric Brochure