

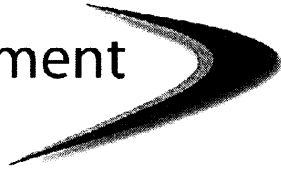
**City of Pasadena
Underground Utility Program Review**

July 2015

Management
Partners



Management Partners



July 22, 2015

Mr. Michael Beck
City Manager
City of Pasadena
100 N. Garfield Avenue
Pasadena, CA 91109

Dear Mr. Beck:

Management Partners is pleased to transmit our report containing results of our review of the City's Underground Utility Program (UUP). The City requested that we assess the UUP's administrative practices, responsibility, and procedures, and make recommendations for improving program administration.

In this report we provide a summary of our analysis and 13 recommendations to enhance internal controls to safeguard City assets and improve the management of the program. The City has made changes to the UUP in an effort to create strong internal controls and also to improve the timeliness of implementing underground utility projects. Management Partners' team members reviewed the changes made to date, created a process map to better understand the planned steps and identify where improvements could be made, reviewed a variety of documents, and analyzed program elements. We have concluded that the changes the City has already made or contemplated will be helpful, and that several additional changes will improve accountability and clarity of responsibilities. Of particular note in our recommended changes is placing ownership of the program with Pasadena Water and Power.

We want to thank City staff for assisting us with this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Gerald E. Newfarmer", written in a cursive style.

Gerald E. Newfarmer
President and CEO

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Executive Summary

The City of Pasadena retained Management Partners in January 2015 to conduct a review of its underground utility program (UUP). The review was focused primarily on the UUP's administrative practices, responsibilities, and procedures, with an aim toward improvement. As a result we have identified recommendations in assignment of responsibilities (including supervision and oversight), internal controls, policy changes, reporting and other procedural changes that will improve accountability of funds and performance of the program.

In 2014, an employee was arrested for embezzling approximately \$6.4 million from the UUP over a period of 11 years. This employee was responsible for managing the UUP. The alleged embezzlement was documented by KPMG LLP, which was engaged by the City to conduct forensic accounting services into the suspected misappropriation of City funds. KPMG's November 11, 2014 report identified questionable or unauthorized payments to vendors and weaknesses in the application of internal controls. Since that time, several staffing changes have occurred and the Los Angeles County District Attorney's Office is handling potential criminal prosecution.

Highlights of the recommendations are provided below and Attachment A contains a summary list of the 13 recommendations made in this report.

Program Administration and Ownership

- One department should be assigned responsibility for the program. We recommend that this assignment be given to the general manager of Pasadena Water and Power. The Public Works Department would continue to handle various tasks related to the program, such as roadway repair and street light replacement, encroachment permit approvals, and presenting the capital improvement project budget for City Council approval.

- New processes and internal controls have been implemented by the City but are not yet documented and that should be done. City staff must also be trained in the new procedures.

Project Management

- The master contractor arrangement being implemented by the City for connecting the newly undergrounded utilities with private properties is a best practice. The \$3,000 maximum allowance available to property owners choosing to opt out of the master contract should be evaluated over the next three years to determine whether the incentive is working as planned and if the allowance should be reduced. Having a master contract should improve efficiency by providing greater scheduling control, reducing costs through economies of scale, and mitigating opportunities for fraud through multiple vendors and property owner reimbursements. Pasadena Water and Power would be responsible for recommending and implementing changes to the private property owner reimbursement program.
- The right-of-entry letter template has a positive tone and is well written, but would be more informative if it included a timeline of the project, a deadline by which the customer should return the right-of-entry form to the City, and alternatives for accessing added information about the project. Pasadena Water and Power would handle these communications under the recommended assignment of responsibility for the UUP.

Financial Transaction Processes

- Written guidelines for determining authorized signers should be created for application on a citywide basis. Guidelines should consider both the level of position within the organization and how to ensure sound internal controls, including segregation of duties.
- Regular W-9 compliance audits for all current vendors in the accounts payable system should be conducted.
- As part of implementing the new financial information software there should be an evaluation of the internal control environment to ensure the new system effectively supports the components of effective internal controls.

- The procedures for charging engineering staff time to the UUP should be reviewed to ensure costs are being appropriated in the budget and allocated accurately.

Financial Management

- Additional analytical staff is needed in Public Works to increase the level of financial analysis being conducted for all of its capital improvement projects.

Policies and Ordinances

- The current goal of undergrounding all utilities throughout the community should be reviewed to determine if that continues to be desired policy of the City. If the goal is changed, analyze the financial and legal impacts associated with the surtax and when the surtax should be discontinued.

Challenges

Successful completion of underground utility projects relies not only on the efforts of City departments but also on the participation of outside parties. The key external parties are two telecommunications providers and individual property owners. A summary of the associated challenges is provided below.

- *Telecommunication providers:* AT&T and Charter Communications each have significant above ground infrastructure located throughout Pasadena. The City's program of undergrounding utilities requires that the telecommunication companies' infrastructure also be relocated underground. The existing above-ground infrastructure meets the business needs of the telecommunication companies and these partners do not have the same interests as the City in relocating their equipment underground. The City reports that delays often result in completing an undergrounding project because the City has no operational control over the telecommunications company's portion of the work.
- *Property owners:* Undergrounding any section of infrastructure requires 100% participation from individual property owners. While the City endeavors to effectively communicate and educate property owners on the benefits of undergrounding, delays can result due to reluctance, concerns or other factors pertaining to some property

owners. In order to complete a project, all of the private property sections must also be completed, which means having a right-of-entry waiver from each property owner for instances where the City will be completing the private property portion, or property owners must complete the undergrounding of infrastructure on their property themselves through the reimbursement program.

The City's implementation of a master contractor to handle the undergrounding of private property infrastructure is intended to provide for more efficient implementation of the program and mitigate the potential for fraud and/or inappropriate payments to individual parties. The City will be mindful of its implementation of the master contractor program, work through issues of coordination with City, private utilities, and individual property owners, and thoughtfully identify lessons learned in order to make the master contractor approach successful.

Project Approach

Management Partners' project team members used various analytical techniques in reviewing the UUP program. We examined documents provided by the City, conducted interviews, sent questionnaires to key staff involved in the program to understand their tasks and responsibilities, and developed a UUP process map to identify and analyze the various steps in the administration of the program. We also reviewed and summarized research on benefits and drawbacks of undergrounding utilities. Each of the techniques we used for this assessment is described below.

Interviews

Management Partners conducted interviews with 11 staff members in the following departments: City Manager's Office, Finance Department, Public Works, and Pasadena Water and Power. The purpose of the interviews was to gain an understanding of the program, policies and procedures, and opportunities for improvement.

Management Partners interviewed the following people:

- Julie Gutierrez, Assistant City Manager/Interim Public Works Director/Interim Finance Director
- Phyllis Currie, General Manager, Pasadena Water and Power
- Steve Wright, City Engineer, Public Works Department
- Jeff Barber, Superintendent, Pasadena Water and Power
- Chris Hernandez, Principal Engineer, Public Works Department
- Richard Thompson, Utility Services Planning Supervisor, Pasadena Water and Power
- John Orolfo, Principal Engineer, Pasadena Water and Power
- Brenda Harvey-Williams, Finance and Management Services Administrator, Public Works Department
- Antonio Watson, Purchasing Project Manager, Finance Department
- Bob Ridley, Controller, Finance Department

- Joe Awad, Assistant General Manager – Power Delivery, Pasadena Water and Power

Questionnaires

In addition to interviews, questionnaires were sent to six individuals who have some level of responsibility for components of the UUP. We have assessed the information from the questionnaires in identifying opportunities for improvement.

The questionnaires asked the following:

- Who are the key individuals involved in carrying out the UUP?
- Describe your overall responsibilities in the UUP.
- Describe each of the major tasks associated with your involvement in the UUP, and who reviews or approves the work performed in those tasks.
- What work is performed in the UUP process prior to and immediately after you complete your tasks and who performs that work?

Individuals who were interviewed and who received questionnaires are listed in Table 1. Several people both completed a questionnaire and were also interviewed.

Table 1. *Individuals Interviewed and/or Who Completed Questionnaire*

Name	Title	Department	Interview	Questionnaire
Julie Gutierrez	Assistant City Manager/Interim Public Works Director/ Interim Finance Director	City Manager's Office	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Phyllis Currie	General Manager	Pasadena Water and Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Joe Awad	Assistant General Manager	Pasadena Water and Power	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Jeff Barber	Superintendent	Pasadena Water and Power	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Richard Thompson	Utility Services Planning Supervisor	Pasadena Water and Power	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
John Orolfo	Principal Engineer	Pasadena Water and Power	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Steve Wright	City Engineer	Public Works	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Chris Hernandez	Principal Engineer	Public Works	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Brenda Harvey-Williams	Finance and Management Services Administrator	Public Works	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Bob Ridley	Controller	Finance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Antonio Watson	Purchasing Project Manager	Finance	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Document Review

Management Partners' team members analyzed numerous City documents related to the UUP. These included ordinances, policies and procedures, checklists, forms, budgets, reports from the external auditor, and staff reports to the Municipal Services Committee. A list of documents reviewed is provided in Attachment B.

Process Mapping

The processes involved in the UUP were mapped. These maps show the new processes developed by the City and are based on information received in interviews and subsequent discussions with staff. The process maps are included as Attachment C, and cover the following:

- Process overview,
- Underground utility undergrounding process,
- Public right-of-way,
- Private property, and
- Accounts payable processing.

Summary of Research on Undergrounding

Management Partners prepared a summary of research conducted by various parties over the past 15 years addressing the issue of utility undergrounding (Attachment D). The research indicates the benefits and drawbacks of undergrounding.

Analysis and Recommendations

This section contains the results of our analysis and is organized into the following sections:

- Background information
- Program management
- Internal control assessment
- Project management
- Financial transaction processes
- Financial management
- Policies and ordinances: scope of the underground utility program

Background Information

The underground utility program began in 1968 with the goal of undergrounding all power and telephone lines throughout the City. Cable television utilities were added in the late 1970s. The City's Underground Facilities Ordinance cites "public necessity, health, safety or welfare"¹ as the purposes behind the undergrounding of utilities. The issue of aesthetics is not mentioned within the ordinance, but City staff have indicated this is a driving factor in the decision to underground various utilities as part of the program.

The UUP is funded by the Underground Utility Special Revenue Fund. Revenues to this fund are from a utility surtax assessed on Pasadena residents based on electricity usage levels. The average surtax per resident is \$30 a year, through which the City generates approximately \$5.4 million in annual revenues. At the start of FY 2014-15, the fund had approximately \$34.4 million in available reserves for the program.

The City develops a five-year Capital Improvement Program (CIP) budget for review by the Finance Committee and ultimately, City Council

¹ Section 13.14.030 of Chapter 13.14 "Underground Utility Districts" of Title 13 "Utilities and Sewers" of the Pasadena Municipal Code.

adoption as part of its annual budget process. Capital improvement projects are projected for five years. Projects related to the UUP are developed based on the approved underground utility district. The development of the CIP budget is the responsibility of the Public Works Department.

In 2014, an employee was arrested for embezzling approximately \$6.4 million from the UUP over a period of 11 years. This employee was responsible for managing the UUP. The alleged embezzlement was documented by KPMG LLP, which was engaged by the City to conduct forensic accounting services into the suspected misappropriation of City funds. KPMG's November 11, 2014 report identified questionable or unauthorized payments to vendors and weaknesses in the application of internal controls. Since that time, several staffing changes have occurred and the Los Angeles County District Attorney's Office is handling potential criminal prosecution.

In a staff presentation to the Municipal Services Committee (MSC) in December 2012, estimates were shown that indicated it would take approximately 97 years to complete undergrounding of utilities through the entire community. In subsequent staff reports in 2013 and 2014, that estimate was revised, indicating that completion of Category I streets (arterial and collector streets) would take 61 years under the current program.

An alternative program was recommended to the MSC at its May 13, 2014 meeting. The recommendation would result in having 6.8 miles of utility infrastructure completed in seven districts within the next eight years. Doing so would allow the surtax to be sunsetted within three years. It is our understanding the Committee took no action on that recommendation, and due to the discovery of the misappropriation of funds, the issue has not gone back to the MSC for its consideration.

Changes Recently Instituted by the City

The City has instituted several changes in administering the underground utility program beginning in January 2015. At the time of Management Partners' interviews, conducted in March and April 2015, City staff were still considering their respective roles and responsibilities within the program. Our review included the assignments and processes in effect at the time of our interviews, and took into consideration plans that were being put into effect at the time. The impacts of those changes were not yet known as they were just being put into practice during our review.

The key changes being implemented by the City to the underground utility program are:

- Finance has moved the accounts payable function from the Purchasing Division to its own division under supervision of the controller. This provides appropriate segregation of duties.
- Pasadena Water and Power is initiating a master contractor approach to have one contractor serve all private properties within the district. Property owners still have the option of engaging their own contractor, with a cap of \$3,000 on the project. The master contractor arrangement will provide increased control by the City on the work performed and payments made to the contractor.
- Pasadena Water and Power (PWP) now has construction management responsibilities for the contractor(s) selected to underground utilities on private property.
- Public Works is responsible for seeking right-of-entry authorization from property owners to allow the master contractor on site for trenching and installation of conduits on private property.
- Private property owner reimbursement now requires greater substantiation of costs incurred and appropriate sign-offs from private contractors performing the work, City inspectors, and Power Division staff prior to sending the reimbursement request to Finance for payment. This process is now initiated by Pasadena Water and Power, which was previously handled by Public Works.
- The special handling request process is no longer allowed for the UUP, especially in the area of property owner reimbursements, and the City is placing stronger limitations on its use on a citywide basis.
- Conversion of the City's financial system is expected to integrate the accounts payable workflow system used for processing invoices into the core financial system. This conversion process is still underway.
- Management has reestablished an internal audit function within the City. An internal auditor will report to the assistant city manager. A recruitment for the position is underway now.

Program Management

The underground utility program is a multi-year capital improvement project administered by the Public Works Department, with participation and involvement by Pasadena Water and Power. There are nine phases of the utility underground program, as follow:

1. Establish priorities and estimates of potential underground utility districts
2. Develop the underground utility district
3. Plan the project
4. Develop the capital improvement project budget and secure City Council approval
5. Create and approve electrical, civil, and street light designs
6. Manage public right of way project requirements
7. Manage entry onto private property
8. Process payments through accounts payable
9. Provide financial management over the underground utility program

Based on the information received through interviews, questionnaires, and follow-up discussions with City staff, Management Partners developed process maps that identify the key activities in the implementation of the UUP (see Attachment C).

The maps describe the nine phases above in more detail and indicate the department with lead responsibility for each phase.

Table 2 includes an estimate of the amount of time it takes for each phase. The timing of these phases relates primarily to the timing in which the City has control. The time required for AT&T, Charter Communications, or private property owner improvements can have a significant impact the City's construction schedule and timeliness of the program's implementation.

Table 2. Description of Phases of the Underground Utility Program, with Current and Proposed Lead Responsibility Assignments

Phase	Description	Current Lead Responsibility	Proposed Lead Responsibility	Timing
1. Establish priorities and estimates of potential underground utility districts (UUD)	Identify priorities and goals of UUP; submit preliminary cost estimates for identified priority areas as part of the CIP, based on estimates provided by PWP; collaboration between Public Works and PWP is essential	Public Works	Pasadena Water and Power	2-3 months
2. Develop the underground utility district	Identify areas streets to be included within the UUD; develop preliminary design; schedule public hearings for City Council adoption	Public Works	Pasadena Water and Power	2 months
3. Plan the project	Develop plans, specifications, engineer's cost estimates, cost sharing agreements and preliminary timelines for project	Pasadena Water and Power	Pasadena Water and Power	1-4 weeks
4. Develop the capital improvement project budget	Develop budget appropriations requests based on project plans submitted by PWP; submit budget proposals to Finance Committee for review and City Council for adoption with annual budget	Public Works	Developing Budget: Pasadena Water and Power Submitting CIP Budget for Approval: Public Works	6-7 months (depending on timing relative to budget process)
5. Create and approve electrical, civil and street light designs				
a. Electrical, Civil	Develop detailed designs, plans and specifications of the project(s) moving forward; obtain approval from City Council to proceed	Pasadena Water and Power	Pasadena Water and Power	2-4 months
b. Streets repair, Street lights	Develop detailed designs, plans and specifications of the project(s) moving forward; obtain approval from City Council to proceed	Public Works	Public Works	2-4 months
6. Manage public right-of-way project requirements	Complete the undergrounding of all utilities (power, telecommunications and cable) on street poles in joint trenches within the public right-of-way	Pasadena Water and Power	Pasadena Water and Power	

Phase	Description	Current Lead Responsibility	Proposed Lead Responsibility	Timing
a. Joint trench agreement	Develop cost sharing agreements with utility providers (AT&T and Charter Communications) and obtain approvals in the form of a joint trench agreement	Pasadena Water and Power	Pasadena Water and Power	2-12 months (depending on cooperation of AT&T and Charter)
b. Procurement, purchasing and contract award				
• Electrical, Civil	Develop plans and specifications for joint trench; undergo competitive bidding process in accordance with City purchasing ordinance and policies; award contract	Pasadena Water and Power	Pasadena Water and Power	3-4 months
• Streets repair, Street lights	Develop plans and specifications for joint trench; undergo competitive bidding process in accordance with City purchasing ordinance and policies; award contract	Public Works	Public Works	3-4 months
c. Construction management, utility coordination, inspections				
• Electrical, Civil	Manage construction for public right-of-way utility connections; coordinate timely removal of above-ground utilities into completed trench; inspect work performed	Pasadena Water and Power	Pasadena Water and Power	3-6 months (depending upon size of the project)
• Streets repair, Street lights	Repair and repave street; install new street lights; inspect work performed	Public Works	Public Works	3-6 months (depending upon size of the project)
d. Vendor payment submittal				
• Electrical, Civil	Process progress payments from invoices submitted by public right of way contractor	Pasadena Water and Power	Pasadena Water and Power	Monthly
• Streets repair, Street lights	Process progress payments for street repair and street light contractors	Public Works	Public Works	Monthly
e. Project closeout – Joint Trench	Complete project; file notice of completion and final reports for City Council approval	Pasadena Water and Power	Pasadena Water and Power	3 months after project completion
7. Manage entry onto private property	Manage the undergrounding of all utilities (power, telecommunications and cable) on private property, connection to existing points-of-entry on private property	Public Works	Pasadena Water and Power	
a. Private property right-of-entry agreements	Conduct community outreach; send notices of right-of-entry agreements for private property owner approvals, or the notice for opportunity to hire private contractor for up to \$3,000 reimbursement	Public Works	Pasadena Water and Power	12 months

Phase	Description	Current Lead Responsibility	Proposed Lead Responsibility	Timing
b. Procurement, purchasing, contract award	Develop detailed plans and specifications for undergrounding private property connections into main point of entry into homes/businesses; oversee competitive bidding process for master contractor in accordance with city purchasing ordinance and policies; award contract	Public Works	Pasadena Water and Power	6-7 months
c. Construction management, utility coordination, inspections	Manage the master contractor; coordinate timely removal of above-ground utilities into completed trench; inspect work performed	Pasadena Water and Power	Pasadena Water and Power	5 months
d. Vendor payment/reimbursement request submittal	Process progress payments of invoices from master contractor; coordinate receipt of reimbursement requests from private property owners	Pasadena Water and Power	Pasadena Water and Power	As submitted
e. Project closeout	Complete project; file notice of completion and final reports for City Council approval	Pasadena Water and Power	Pasadena Water and Power	3 months after project completion
8. Process payments through Accounts Payable	Process invoices by departments for payment	Finance	Finance	Ongoing
9. Provide financial management over the UUP	Review and analyze revenues and expenditures, fund balance reserves of Underground Utility Special Revenue Fund and Capital Project Fund; review transactions charged to funds	Public Works	Pasadena Water and Power	Ongoing

Ownership of the Program

Prior to the discovery of the embezzlement, the Public Works Department had taken responsibility for the program. Since the discovery of the embezzlement, Public Works and Pasadena Water and Power have begun to share responsibilities for the program to improve internal financial controls. Neither department is designated as the “owner” of the UUP and we think that one department should be so designated for the reasons cited below.

The Underground Facilities Ordinance (Pasadena Municipal Code [PMC] Chapter 13.14) assigns responsibility to the General Manager of Pasadena Water and Power for consulting with all affected utilities and preparing initial cost estimates of the project, along with preparing an estimated time required to complete the project, to be submitted at the public

hearing when the City Council establishes the underground district. The ordinance appears to give the lead role to Water and Power but does not specifically delegate authority for the program to any department.

As it stands now, Public Works and Pasadena Water and Power each have discrete tasks for which each is responsible, but no one department is in charge of the program. This is unusual since typically one department has responsibility and authority, even when other departments contribute to the program's success (as is the case with virtually every municipal function). Without assigning either Public Works or Pasadena Water and Power as the owner of the underground utility program, with the authority that goes with it, it will be difficult to have accountability for the program's success. When two departments share a management role, neither department can be held accountable. By designating one department as the owner of the UUP, that department will be in a better position to ensure competing priorities are effectively managed.

At the present time, staff from the two departments are working collaboratively and the program changes appear to be off to a good start. However, once the immediate attention at the policy and executive level is reduced, or as staff members retire or leave the City, it may be difficult to sustain the same level of attention and collaboration. Effectiveness over time, which is the focus of Management Partners' engagement, requires one department be designated as the owner of the underground utility program. Lack of clarity about the program, oversight, and accountability contributed to the embezzlement in the first place.

Of course, even with a designated lead department, the other department will be participating as a partner because there are certain tasks that must be done by both. Multi-department engagement is the nature of capital program administration in any city. Strong collaboration and communication will always be needed for any utility underground project because of the responsibilities for the streets that rest with Public Works and the responsibilities for the power system that rests with Water and Power.

Inefficiencies in Current Arrangement

When we mapped the processes (see Attachment C) we were able to see where various responsibilities lie. It is clear that Pasadena Water and Power has much more responsibility for implementation than does Public

Works. Table 2 above also shows this. The following examples show some of the inefficiencies in the shared responsibility arrangement.

Public Works

The city engineer has been given responsibility for management of the UUP. Staff indicate that Public Works was appointed the lead role for the program because of their responsibility for the capital improvement budget, experience with community outreach on capital projects, enforcement oversight over the public rights-of-way, coordination of approval of private utilities, and role in street maintenance and moratoria for any trench cuts in the rights of way.

However, Public Works is not in control of the schedule or costs. We were advised during interviews that the intention is for Pasadena Water and Power to serve as a contractor to Public Works in carrying out the design and construction of electrical underground utilities. If that is the case, then as with any contractor, Public Works should be able to set the schedule.

We understand that costs of an undergrounding project are estimated by Water and Power. When there are cost overruns Public Works is notified. When additional appropriations are needed from the City Council, Public Works makes the request rather than Pasadena Water and Power. However, they have no control over the costs or budget. Therefore, while Public Works is the lead, in reality Water and Power has the primary responsibility for implementation and has control over both the budget and schedule. As noted in the section below on financial management, Public Works has limited staffing capacity for financial control of this program.

Pasadena Water and Power

Pasadena Water and Power does the majority of the work in undergrounding utilities. This includes establishing the civil and electrical plans and specifications for the district, preparing cost estimates, creating cost sharing allocation agreements with utilities, managing the construction projects in both the rights-of-way and on private property, constructing the undergrounding of the power infrastructure, determining the civil and electrical project schedule and coordinating with utility providers, having direct communication with customers regarding cutover of power service, and handling the invoicing for outside contractors.

Pasadena Water and Power has significantly more administrative capacity than Public Works. Each of the business units within Water and Power has a management analyst, and the financial management infrastructure within that department appears to be more robust than in Public Works. Additionally, Pasadena Water and Power has added two positions to handle public outreach assist in administering the work of the master contractor that will be hired to perform the private property construction as discussed below.

Perspectives of the Two Departments

Public Works and Pasadena Water and Power staff members have offered their opinions that the other department should be in the lead. We have stated their reasons, as articulated to Management Partners' project team members.

As we understand the view of Pasadena Water and Power, PWP staff believe that Public Works is the better department to be in the lead since Public Works has responsibility for the public rights of way, have ultimate enforcement responsibilities over AT&T and Charter Communications, have established systems for managing capital projects performed in the rights of way, have responsibility for street repairs and street light improvements, handle public outreach and engagement for capital projects, and coordinate and approve work on private property.

From Public Works' perspective, Pasadena Water and Power should be in the lead because they do most of the work. Pasadena Water and Power controls the costs, schedule, technical design, construction, master contractor coordination, and work with private property owners for electric utility connections. Public Works' staff also believe that since the predominant infrastructure to be undergrounded through the program is the electric system, which is owned by Water and Power, they should have ownership of the UUP.

Assignment of Ownership

Given the schedule and cost control exercised by Pasadena Water and Power, the fact that most of the work is done by them, and the technical expertise and organizational capacity within that department to administer the program, we believe that Pasadena Water and Power should be designated as the lead of the underground utility program.

Recommendation 1. Assign ownership of the underground utility program to Pasadena Water and Power for program administration and management.

If Public Works is designated as the lead department, then the department should be provided additional staffing, more influence over the construction schedule and budgets, and more authority in carrying out the program as a priority for the City. This will be challenging, however, because of the factors described above which necessarily will keep Pasadena Water and Power in control over schedules and costs of the electrical work.

Internal Control Assessment

Internal control is a set of policies and procedures intended to provide reasonable but not absolute assurance that the agency's objectives will be achieved regarding use of funds, compliance with policies and laws, and reporting requirements. Controls are established within the context of the overall mission of the organization. There are typically three categories of internal controls, as follow:

1. Operations – the effectiveness and efficiency of operations;
2. Reporting – reliability of reporting for internal and external use; and
3. Compliance – compliance with applicable laws and regulations.

The United States Government Accountability Office (GAO) issues a guide for federal agencies that provides a useful framework for documenting and assessing internal controls within those agencies. This guide is relevant to agencies at the state and local level, and is also a requirement for the receipt of some federal funds. The guide is called the "Standards for Internal Control in the Federal Government" (referred to as "GAO Green Book"). It provides step-by-step guidance in designing, implementing and operating internal controls to achieve the organization's objectives related to operations, reporting and compliance.

The five components of an effective internal control structure follow:

1. Control environment – the discipline and structure to help the city achieve its objectives;
2. Risk assessment – identifies the risks facing the city in achieving its objectives, providing a basis for development of appropriate risk responses (i.e., controls and procedures);

3. Control activities – actions established by management through policies and procedures to achieve its objectives and respond to risks in the internal control system;
4. Information and communication – the quality of information management and personnel communication and use to support the internal control system; and
5. Monitoring activities – established activities to assess the quality of performance over time and resolve areas where the internal control system is not operating effectively.

In developing internal control structures, most government agencies are now using a concept developed by the Committee of Sponsoring Organizations of the Treadway Commission (or COSO) known as the “Internal Control Cube” as depicted in the Figure 1.

Figure 1. *The Internal Control Integrated Framework (“The COSO Cube”)*



COSO suggests that a direct relationship exists among an entity’s objectives, the five components of internal controls, and the organizational structure of the entity. Objectives represent what the entity wants to achieve. The five components are requirements needed to achieve the objectives. The organizational structure encompasses the operating units, operational processes, and other structures management uses to achieve its objectives.

Pasadena’s internal control structure is consistent with the provision of the COSO Cube based on our assessment below. The COSO Cube provides a solid framework for Pasadena to adopt and refer to as it

implements internal controls relative not only to the UUP, but to all of its programs. In many regards, the City has been making changes to its internal controls at the “functional” organizational level depicted in the COSO Cube.

Assessment of Implementation of Principles of Internal Control

The GAO Green Book establishes 17 principles of internal control for an organization to consider in establishing its internal control systems. We have listed those in Table 3. The table also provides Management Partners’ assessment of the extent to which the City is implementing each of the 17 principles. Additionally, the table references the recommendations in this report that align with each of the principles.

Table 3. Principles of Internal Control and Assessment of Implementation

GAO Green Book Principle	Applicability to Underground Utility Program	Management Partners’ Recommendations Related to the Principle
Control Environment		
1. The oversight body and management should demonstrate a commitment to integrity and ethical values	City Council and management have restated their commitment to ethics and integrity following discovery of the embezzlement in the UUP.	None
2. The oversight body should oversee the entity’s internal control system	City Council Finance Committee is responsible for performing functions of an audit committee.	None
3. Management should establish an organizational structure, assign responsibility, and delegate authority to achieve the entity’s objectives	Ownership of the UUP is currently in question; documentation of internal controls is currently lacking; signature authorities need to be standardized through a policy taking into consideration department size, structure, and risks.	Recommendations 1, 2 and 7
4. Management should demonstrate a commitment to recruit, develop and retain competent individuals	No concerns noted through Management Partners’ review.	None
5. Management should evaluate performance and hold individuals accountable for their internal control responsibilities	Accountability as to financial performance is best manifested through ongoing financial review of operations; more emphasis is needed in ongoing, periodic financial reviews of the performance of the program.	Recommendation 11

GAO Green Book Principle	Applicability to Underground Utility Program	Management Partners' Recommendations Related to the Principle
Risk Assessment		
6. Management should define objectives clearly to enable the identification of risks and define risk tolerances	City is beginning to define its risk tolerance by identifying levels of variation in operational performance and ensuring it is in compliance with rules, regulations and laws. Greater emphasis needs to be placed on identifying risk tolerances regarding judgments about financial materiality in light of surrounding circumstances and the level of precision and accuracy of financial transactions. (The amounts and nature of the transactions in the past led to the embezzlement not being discovered.)	Recommendation 11
7. Management should identify, analyze and respond to risks related to achieving the defined objectives	City is implementing this principle in revising the UUP in light of the fraud risks that were in existence in the past. City is also conducting a fraud risk assessment throughout the organization in light of the issues discovered in the UUP.	None
8. Management should consider the potential for fraud when identifying, analyzing and responding to risks	City is implementing this principle in revising the UUP in light of the fraud risks that were in existence in the past.	None
9. Management should identify, analyze and respond to significant changes that could impact the internal control system	City is implementing changes in oversight, assignments, personnel and technology, all of which will be beneficial in responding to this principle.	None
Control Activities		
10. Management should design control activities to achieve objectives and respond to risks	City is implementing several aspects of this principle, including better segregation of duties, closer attention to proper execution of transactions, and appropriate documentation of transactions and internal control. Several added changes require focus, including top-level reviews of actual performance, implementing proper controls over information processing including access restrictions, and establishing and reviewing performance measures.	Recommendations 2, 7, 8, 9, 11
11. Management should design the entity's information system and related control activities to achieve objectives and respond to risks	The City is about to implement a new enterprise resource planning (ERP) financial system. It is uncertain to what extent the internal control environment relative to the lessons learned in the UUP fraud case are impacting internal control decisions for that system.	Recommendation 9
12. Management should implement control activities through policies	Management has responded quickly to the issues faced in light of the embezzlement case by making changes in procedures. The City still needs to document procedural changes through written policies.	Recommendation 2

GAO Green Book Principle	Applicability to Underground Utility Program	Management Partners' Recommendations Related to the Principle
Information and Communication		
13. Management should use quality information to achieve the entity's objectives	Management is reviewing the status of UUP projects and overall program budgets. Additional financial analysis will also be important to provide quality information to inform management and policy makers.	Recommendations 11 and 12
14. Management should internally communicate the necessary quality information to achieve the entity's objectives	City is now providing more communication across departments about the UUP, which was absent previously. Ongoing communications will be needed to ensure the objectives are met for the UUP and the elements of internal controls are understood by all participants.	Recommendations 1 and 3
15. Management should externally communicate the necessary quality information to achieve the entity's objectives	City is communicating with the public about the UUP, including stakeholders of the current undergrounding project. Communications with those stakeholders could be strengthened through information provided about the specific undergrounding project(s) underway. Communications must also be effective with contractors and the private utilities. Staff assignments and responsibilities should be clarified and documented.	Recommendations 1 and 6
Monitoring		
16. Management should establish and operate monitoring activities to monitor the internal control system and evaluate the results	Council and management are focusing on periodic reviews of the UUP, as well as reviewing the operations of the internal control structure. City is hiring an internal audit manager to assist in carrying out this principle. Additionally work is needed to properly document the processes and internal control systems, perform periodic financial reviews, and evaluate the overall goals of the program and whether they are being achieved.	Recommendations 2, 11 and 12
17. Management should remediate identified internal control deficiencies on a timely basis	The City has taken swift action to address the issues discovered regarding fraud, and is conducting a fraud risk assessment throughout the organization. City is also hiring an internal audit manager to assist in carrying out this principle.	None

Typically, cities assign the responsibility for the implementation of internal controls to its finance department or its internal audit function, as most of the internal controls relate to the protection and effective use of financial resources. It requires the vision and leadership of the city council and city manager to establish the environment in which the internal controls will operate, and the participation of operating departments in helping to design and implement the operational controls

that are part of the overall internal controls environment. Management Partners believes that the internal control structure should continue to be the ultimate responsibility of the finance department, with the internal audit function having shared responsibility to the extent that function is once again staffed.

Further details regarding our recommendations related to the internal control structure are identified below.

Documentation of New Processes

The City has implemented changes at an understandably brisk pace since the embezzlement was discovered. In the midst of those changes, however, we noted that most of the changes in processes and internal controls had not been documented as of the date of our analysis. Interviews with staff indicated a lack of understanding about the changes and fear regarding their roles and responsibilities.

The work being performed by Management Partners is intended to assist the City in documenting its new procedures and internal controls relative to the UUP. The process maps developed as part of our analysis will be a tool the City can use in communicating steps in the process to staff.

As the City emerges from the crisis that has unfolded, it will be important to document its revised internal control systems. Implementing the 17 principles as indicated in the GAO Green Book will assist in documenting the internal control structures. Communicating these internal controls will ensure that all parties to the UUP process have a clear understanding of their role.

Recommendation 2. Prepare written policies and procedures for the agreed-upon processes for the underground utility program.

Training and Communication

In interviews, we heard that each staff person is clear about his or her individual role in the UUP but they are not clear about everyone else's roles. This is partially due to the division of responsibilities between the two primary departments and also a lack of clarity about what the processes are and who is responsible for what. All staff involved in the program should understand the goals, processes, and how they fit into the process as a whole.

The GOA Green Book's Principle #14 indicates that a good internal control practice is to ensure that management communicates information down and across reporting lines to enable personnel to perform key roles in achieving the program's objectives, addressing risks, and supporting the internal control system.

If, for example, accounts payable staff understood the nature of the UUP, they would have been more likely to identify unusual activity. Payments directly to an organization such as a church, or recurring invoices of the same amounts and descriptions would have been unlikely given the nature of the program and could have been a sign of inconsistencies.

Training on the new policies will be critical for all staff with a role in the UUP. Information sharing can include newsletters on the program, written updates via email, team meetings across department lines, or other less formal means of communication.

Recommendation 3. Conduct training on the new policies and provide regular information updates for all staff who have a role in the underground utility program so that each person understands how they contribute to the intended outcome.

Project Management

This section provides recommendations pertaining to the master control approach for carrying out utility undergrounding on private properties and improving the right of entry letters and community outreach.

Master Contractor Approach for Private Property Utility Undergrounding

In the past, Public Works allowed private property owners to hire their own contractors to make the connections between the newly undergrounded utilities and the utilities on private properties. This practice contributed to the embezzlement uncovered in 2014. The practice led to contracts of a size not requiring approval by department heads, the city manager, or Council, thereby increasing the fraud risks.

The City is now proceeding with a new approach of hiring a single contractor, called the "master contractor" for performing the conversion from overhead to underground utility service on private properties. This is a sound practice. It will allow the City to have greater control over the work performed on private properties, gain economies of scale for a more

cost-effective implementation of the program, mitigate the potential for fraud by reducing the number of potential vendors seeking payment, and enable more timely implementation of the undergrounding project. Pasadena Water and Power has added staff positions to support this work.

The City is currently implementing its first project under the master contractor approach. The City will need to be mindful of the lessons learned from this first project, and identify ways to make the overall process more effective for future projects.

The City will need to ensure that the master contractor is managed effectively and all property installations are inspected and approved prior to payment of invoices. The City will also need to ensure that it actively engages the community if it is to maximize the use of the master contractor, secure the greatest economies of scale, and limit opportunities for reimbursement requests.

The master contractor approach will enable the City to evaluate if the \$3,000 maximum allowance to individual property owners should be lowered, and if that results in declining participation in the master contract. This will help ensure the amount is fair and reasonable for a routine connection to the underground utilities. The amount should be low enough so as to not encourage property owners to opt out of the master contract.

Recommendation 4. Complete the implementation of a master contractor for the private property portion of the UUP.

Recommendation 5. Evaluate the \$3,000 maximum allowance over the next three years to determine whether it is having the desired outcome.

Right of Entry Letters and Community Outreach

A letter is sent to private property owners notifying them of the underground utility work that will be done on their property. It is well-crafted and conveys a positive tone. It explains the program, indicates that the City has hired a contractor to perform the work, requires a right-of-entry form to be signed and returned, and states that the private property owner has the option of hiring his/her own contractor and obtaining reimbursement for up to \$3,000.

The following three items could be improved, however:

- The letter does not ask that the property owner respond by a specific date. As a result, staff often must follow up with individual property owners more frequently than might otherwise be necessary.
- The letter also does not provide a timeline for construction. Having such a timeline would help a property owner understand why he/she is being asked to respond by a certain date.
- The letter invites the recipient to contact the principal engineer in Public Works for more information, but does not suggest other options, such as the City's website, to learn more about the proposed project.

Proactive communication to the affected property owners will help them better understand their role in the UUP. The project cannot commence until there is verification if a property owner is intending to participate in the program, or if they will hire their own contractor. This creates inefficiencies in scheduling the master contractor to perform the work, and results in delays for all of the utility providers in terms of construction timelines and the cutover of services.

Recommendation 6. Modify the right-of-entry letter template to include a project timeline, a deadline by which the customer should return the right-of-entry form to the City, and alternatives for accessing additional information about the project.

Financial Transaction Processes

This section provides recommendations pertaining to signature authorization levels, W-9 compliance, implementing the proper controls with the upcoming financial system conversion, and ensuring costs are being properly allocated to the Underground Utility Fund.

Signature Authorization Levels

A common best practice within any organization is to identify the individual who have been delegated authority to approve financial transactions, at various levels. The GOA Green Book identifies this in Principle #3.

Management must assign responsibility and delegate authority to key individuals within the organization, and further determine what level of authority each key individual needs to fulfill their responsibilities. The

Guide indicates that authority should be delegated only to the extent necessary to achieve the organization's objectives, considering the various risk factors at play within the organization and even within each department, division, or program.

Delegation should take into consideration a proper segregation of duties to help prevent fraud, waste and abuse by considering the need to separate authority, custody and accounting (recordkeeping) within the organizational structure.

In some agencies, the city manager may execute contracts, for example, while in others the city manager will delegate those responsibilities to department directors. Some organizations will allow second-in-commands (e.g., assistant directors, senior managers) to approve payment to contractors, but the department head always maintains accountability and responsibility for every transaction that is approved through proactive, periodic review of the transactions being charged to the departmental budgets.

In Pasadena, each department head notifies the Finance Department of the authorized signers within their department for a variety of approvals (e.g., time sheets, purchase orders, invoices or paychecks). In interviews, we heard there is no consistency as to the level of position that can sign for various types of approvals across departments. It is understandable that a larger department with one or more assistant directors or senior managers may delegate some responsibilities for approving financial transactions; however, there should be guidance to management in authorizing signers in a way that ensures proper segregation of duties to help prevent fraud.

In Public Works, the former management analyst was allowed to approve property owner reimbursement requests and even invoices for payment. This person was also administering various aspects of the program, and was further allowed to request special handling of checks that allowed him the opportunity to pick up those checks and cash them for personal use.

It is not typical for an agency to allow an employee at a lower- or middle-tier level within the organization to be granted such approval authority, and the City has corrected this. An organization focused on strong internal controls that encourages ethics and integrity will develop citywide policies that identify the appropriate authority level within the organization.

Guidance may be provided in the form of purchasing policies, financial administration policies, or a specific policy relative to authorized signatures. Such guidance should consider the internal control objectives and risk factors in evaluating the types of transactions requiring certain authorization levels. For example, the City may wish to allow only assistant directors to approve invoices for payment.

Recommendation 7. Establish written guidelines for determining authorized signers. Guidelines should consider not only the level of position within the organization but how to ensure sound internal controls, including segregation of duties.

W-9 Compliance

In interviews with Finance staff, we learned they recently determined that several vendors in the accounts payable system do not have an IRS Form W-9 "Request for Taxpayer Identification" form on file with the City. It is easier for someone within the organization to create a false vendor if there is no requirement to submit a W-9.

Requiring vendors to submit a W-9 in order to conduct business with the agency is required by law and is also a best practice. Obtaining documentary evidence from a third party of their taxpayer status serves as an appropriate gatekeeping function. While obtaining a W-9 does not preclude the possibility of fraud, it creates another layer of control that makes it more difficult to perpetuate fraud by creating a false vendor. It is further incumbent upon the Finance Department to conduct periodic audits to ensure that all vendors being paid have filed a W-9 with the City.

Recommendation 8. Conduct regular W-9 compliance audits for all current vendors in the accounts payable system.

Financial System Conversion and Internal Controls

The GAO Green Book's Principle #11 indicates it is vital for the organization to design its information system and related control activities to achieve its objectives and respond to risks. For most organizations the investment in an enterprise resource planning (ERP) software solution is significant. The ERP becomes a vital component in the life cycle of information used by the organization to support its financial and operational processes.

The ideal implementation of an ERP incorporates efficiencies to allow the organization to process a greater volume of transactions and information with the same or fewer resources. However, in the interest of making things more efficient, the information system must also support management's protection of resources and ensure that information is accurate and timely to support operating departments' needs.

Today's ERP solutions include various internal control-related features that assist the organization in strengthening its internal control environment. These typically fall into two categories: general controls and application controls. General controls apply to all or a large segment of the ERP system and include features such as security management, physical and logical access, configuration management, segregation of duties, and contingency planning. Application controls include controls over input, processing, output, data management and interfaces with other information systems. The proper controls must be put in place when implementing such as system, otherwise the efficiencies gained by a new ERP solution may not offset the additional risks if the system is not setup with internal controls as a critical part of the implementation strategy.

As the city invests in a new ERP solution it will be important to ensure that any internal control process that is not effective now will not be put into place with implementation of the new software. The ERP must support the City's initiatives to strengthen its internal control environment as part of the changes being made as a result of the fraudulent UUP activity discovery.

Recommendation 9. Ensure that appropriate internal controls, including general controls, application controls, approvals and authorities, are implemented into the new financial information software conversion.

Payroll and Administrative Cost Allocations to UUP Fund

Public Works engineering staff track time spent on a capital improvement project and charge that time to the project through the payroll submittal process. Pasadena Water and Power similarly charge time and materials to the project for the electrical and civil design work they complete. There is a question whether time spent by Public Works and Water and Power staff on UUP-related capital projects is being charged and allocated properly and consistently. In addition, there are time and materials costs incurred by administrative departments relating to the

UUP that are currently not charged to the Underground Utility Fund, e.g., costs borne by the City Clerk's Office for public hearing notices.

The decision to allocate staff time to capital improvement projects is a policy decision. To the extent the City continues this practice, it should be uniformly applied to the UUP to ensure that the true costs of the program are borne by the Underground Utilities Fund. Budget preparation for the UUP should include an estimate of the time and materials expected to be incurred in support of the program.

Recommendation 10. Review the procedures for charging engineering staff time to the underground utility program to ensure the costs are appropriated in the budget and allocated accurately.

Financial Management

This section contains a recommendation pertaining to financial management within Public Works.

Financial Management in Public Works

The Public Works Department is keenly aware of the problems resulting from insufficient financial management of the underground utility program. As a result of the embezzlement, it was learned that Public Works was not proactively reviewing and monitoring the financial activities of the Underground Utilities Fund. This was evidenced by the lack of review of recurring invoices that were being charged to the program by the former management analyst.

The Finance Department had been conducting variance analyses of expenditures two or three times a year, comparing budget versus actual and year-over-year expenditures. However, because they did not completely understand the activities being conducted in the UUP by the Public Works Department, the Finance Department did not have the basis upon which to evaluate the propriety of activities.

Public Works should regularly analyze financial transactions charged to all capital project funds, which would include the UUF (to the extent that Public Works retains ownership of the UUP). Such regular analyses allows senior managers to question transactions and detect problems that could range from cost overruns to fraud.

Best practices in local government are to conduct regular financial analyses. These include periodic (e.g., monthly, bi-monthly, quarterly)

review of reports comparing budgets with actual expenditures along with a month-over-month and year-over-year comparison of revenues and expenditures at a line item, division, department, and fund level. It is also a good practice to periodically review year-to-date activity in significant or key expenditure line items to look for unexpected or unusual activity. These reviews are the responsibility of all operating departments as well as the Finance Department. Such reviews are an important component of any internal control environment.

Public Works currently has a Financial and Management Services Division that includes one manager, four analysts, and two administrative support staff. This division provides financial and management support to all of the divisions within the department. Support includes daily transactional assistance, such as payroll management, accounts payable, purchasing and grant reporting.

Staff report that the workload associated with day-to-day financial transactions does not leave time for thoughtfully analyzing the financial performance of the fund. The City's Finance Department periodically reviews all capital project and operating funds, which should continue. However, meaningful financial analysis within Public Works is the best defense to ensure funds are being properly accounted for and to identify possible errors, omissions or fraud.

The management analyst position previously assigned to the Underground Utility Program in the Engineering division was eliminated as a result of the embezzlement, which has impaired the capacity within that division to conduct the necessary financial analysis of the numerous capital projects managed within the division. Staff reports that the management analysts within the other Public Works divisions are already at capacity and do not have the existing skills sets needed to perform the required financial analysis of capital project fund activities.

The type of financial analysis needed requires a person with intermediate skills in fiscal analysis, as well as review by senior managers of the department. Regularly conducted financial analyses must also be reviewed and approved by the department head at least once a quarter.

The Department should also review the level and nature of work being assigned to its analysts and administrative support staff. Administrative support staff should, among other administrative tasks, be assigned to processing financial transactions (e.g., payroll hours, requesting purchase orders, invoice processing, processing reimbursement requests), whereas analysts should be performing higher level analytical work (e.g., budget

analysis and preparation, analyzing financial transactions, researching or assisting in regulatory compliance). Reviewing the level and nature of work assigned to staff will allow for better segregation of duties and better match the assigned roles and responsibilities to the skills of its staff.

Pasadena Water and Power has a robust structure for ongoing financial analysis that includes its Financial Administration Division and several business managers or management analysts within all of its business units. Pasadena Water and Power staff indicated they believe the level of analytical support they have is important to ensuring strong financial controls within their department.

Public Works may need additional staffing to monitor financial transactions relative to the significant number of capital improvement projects which it manages on an annual basis. If Public Works remains the lead department for the UUP, then even more financial analytical staff should be provided to the department.

Recommendation 11. Add analytical staff to Public Works to increase the level of financial analysis being conducted for all of its capital improvement projects.

Implement regular review of financial analyses by senior level managers for all capital project funds.

Policies and Ordinances: Scope of the Underground Utility Program

The ordinance does not specify whether or not the City's entire power structure will be undergrounded. However, staff report that the assumption by staff and policy makers has been that all of Pasadena's above-ground utility infrastructure will be placed underground at some point in the future. As discussed previously, reports presented to the Municipal Services Committee indicated that undergrounding of Category I streets (arterials and collector streets) will require 61 years to complete. Given the excessive amount of time it would take to complete undergrounding of utilities throughout Pasadena, the question is whether a 100% goal is reasonable or feasible.

Changes to the program, such as hiring master contractors to perform private property work, may marginally reduce the amount of time and construction costs. However, delays can still be expected as is the case now due to factors outside of the control of the City. As noted previously in this report, one factor is the need to rely on AT&T and Charter Communications to carry out their portion of an undergrounding project.

This has increasingly become difficult for the City to manage relative to its construction schedule. The second factor pertains to connections of utilities on private property. Delays occur due to indecision and/or unwillingness on the part of some property owners. Such delays can increase costs as well as time to complete an undergrounding project. Even with the master contractor arrangement, which will increase efficiency, if there are delays caused by problems on private properties, the master contractor's costs may go up and those costs may be passed along to the City.

The underground facilities ordinance indicates the primary objective of the project is "public necessity, health, safety or welfare." Discussions with staff and a review of various reports to the Municipal Services Committee and City Council suggest that the actual primary objective is one of aesthetics along the arterial streets and high-use public areas such as the downtown. From an electric system reliability perspective, Pasadena Water and Power staff members do not view undergrounding as either a safety or reliability issue, but rather one of aesthetics.

Management Partners prepared a summary of research conducted by various parties over the past 15 years addressing the issue of utility undergrounding (Attachment D). The research indicates the benefits of undergrounding include: aesthetics and increased home values; less vegetation management; and the potential for improved reliability and reduced operations and management costs based on various environmental factors such as traffic, wind, vegetation, lightning and wildlife. Drawbacks of undergrounding include: significant construction costs, increased duration of outages (although less frequent), and increased liability for accidental injuries related to excavation.

Pasadena officials must weigh the benefits and drawbacks of undergrounding as they determine whether to change the scope of the undergrounding plans. City staff noted in their interviews that if the undergrounding goal were modified, a program could be scheduled, funded, and constructed in a shorter timeframe and allow for greater coordination with private utilities. For instance, the proposal in the May 2014 report to the MSC to reduce the program to seven districts identified in the report could reduce the completion time to eight years, and allow for the surtax to be eliminated within three years.

A change in the goal and percentage of undergrounding in the City could have legal implications. When the UUP was established, the surtax was required of all residents based on the expectation that all parts of the City would receive this benefit. A change in the goal could result in legal

action stemming from those who have paid the UUP surtaxes and will not ultimately receive the benefit of undergrounding. Careful consideration should be given to the legal impacts of Proposition 218 and current case law on the existing surtax ordinance and any future changes to the surtax, its goals or the percentage of undergrounding.

Recommendation 12. Review the goal of the UUP to determine how much of Pasadena’s utilities are desired to be undergrounded.

Recommendation 13. Analyze the financial impacts of changing the undergrounding goal to determine if and when the surtax should be discontinued. Conduct a legal analysis to identify the legal impacts of changing the scope of the program and/or an end to the surtax.

Conclusion

The City has taken action to cure the issues relative to the discovered embezzlement. It is important that the changes to be implemented are strategically developed, thoroughly vetted, and take into consideration best practices for establishing an internal control environment that supports the efficient and effective implementation of the UUP. This can be done while protecting City assets and ultimately allowing Pasadena to achieve the purposes identified in the underground utilities ordinance.

The City has the opportunity to review the scope of its undergrounding utilities project. Policy level discussions by the Municipal Services Committee and City Council will be necessary in reviewing the overall goal of the undergrounding program. Due consideration should be given to identifying the extent to which the City desires to underground its above-ground infrastructure.

Attachment A – List of Recommendations

The following lists the recommendations made in this report. The City Manager will need to assign the responsibility for implementing these recommendations to the appropriate department.

Recommendation 1. Assign ownership of the underground utility program to Pasadena Water and Power for program administration and management.

Recommendation 2. Prepare written policies and procedures for the agreed-upon processes for the underground utility program.

Recommendation 3. Conduct training on the new policies and provide regular information updates for all staff who have a role in the underground utility program so that each person understands how they contribute to the intended outcome.

Recommendation 4. Complete the implementation of a master contractor for the private property portion of the UUP.

Recommendation 5. Evaluate the \$3,000 maximum allowance over the next three years to determine whether it is having the desired outcome.

Recommendation 6. Modify the right-of-entry letter template to include a project timeline, a deadline by which the customer should return the right-of-entry form to the City, and alternatives for accessing additional information about the project.

Recommendation 7. Establish written guidelines for determining authorized signers. Guidelines should consider not only the level of position within the organization but how to ensure sound internal controls, including segregation of duties.

Recommendation 8. Conduct regular W-9 compliance audits for all current vendors in the accounts payable system.

Recommendation 9. Ensure that appropriate internal controls, including general controls, application controls, approvals and authorities, are implemented into the new financial information software conversion.

Recommendation 10. Review the procedures for charging engineering staff time to the underground utility program to ensure the costs are appropriated in the budget and allocated accurately.

Recommendation 11. Add analytical staff to Public Works to increase the level of financial analysis being conducted for all of its capital improvement projects.

Recommendation 12. Review the goal of the UUP to determine how much of Pasadena's utilities are desired to be undergrounded.

Recommendation 13. Analyze the financial impacts of changing the undergrounding goal to determine if and when the surtax should be discontinued. Conduct a legal analysis to identify the legal impacts of changing the scope of the program and/or an end to the surtax.

Attachment B – Documents Reviewed

During the course of our work, we obtained and reviewed the documents below.

Documents Reviewed
Ordinances and Regulations <ul style="list-style-type: none"> • Underground Utility Districts Ordinance (Title 13, Chapter 13.14 of the Municipal Code) • Underground Utilities Special Activity Fund (Title 4, Chapter 4.24 of the Municipal Code) • Competitive Bidding and Purchasing Ordinance (Title 4, Chapter 4.08 of the Municipal Code) • Pasadena Water and Power Regulation 21 – Electric Service Requirements
Policies <ul style="list-style-type: none"> • Purchasing Handbook (2015) • Accounts Payable Procedures (2012) • Pasadena Water and Power Manual for Financial Policies and Procedures • Pasadena Water and Power Purchase Order Process Flow Guide • Pasadena Water and Power Invoice Processing Flow Chart And Guide
Financial Documents <ul style="list-style-type: none"> • Comprehensive Annual Financial Report (CAFR) – FY 2013-2014 • Annual Budget – FY 2014-2015
Organization Charts for FY 2014-15 <ul style="list-style-type: none"> • Citywide • Finance Department • Pasadena Water and Power • Public Works Department
Staff Reports <ul style="list-style-type: none"> • Sample staff report and resolution establishing underground utility district • Reports to Municipal Services Committee regarding Underground Utility Program: <ul style="list-style-type: none"> ○ December 2012 ○ June 6, 2013 ○ March 25, 2014 ○ May 13, 2014
Underground Utility Program Implementation <ul style="list-style-type: none"> • Administration <ul style="list-style-type: none"> ○ Underground Utility District 04-1 Project Checklist (2012) • Construction <ul style="list-style-type: none"> ○ Project Specifications – Utility District 04-2 Hill Avenue ○ Project Construction Schedule – UD 04-2 Hill Avenue • Private Property <ul style="list-style-type: none"> ○ Right-of-Entry Letter and Form Templates ○ Application for Utility Reimbursement ○ Underground Electrical Service Itemized Cost Form
Other Reports <ul style="list-style-type: none"> • KPMG Forensic Accounting Services Report Letter – Underground Utility Program, 11/14/2014; Appendix A – Report Memorandum

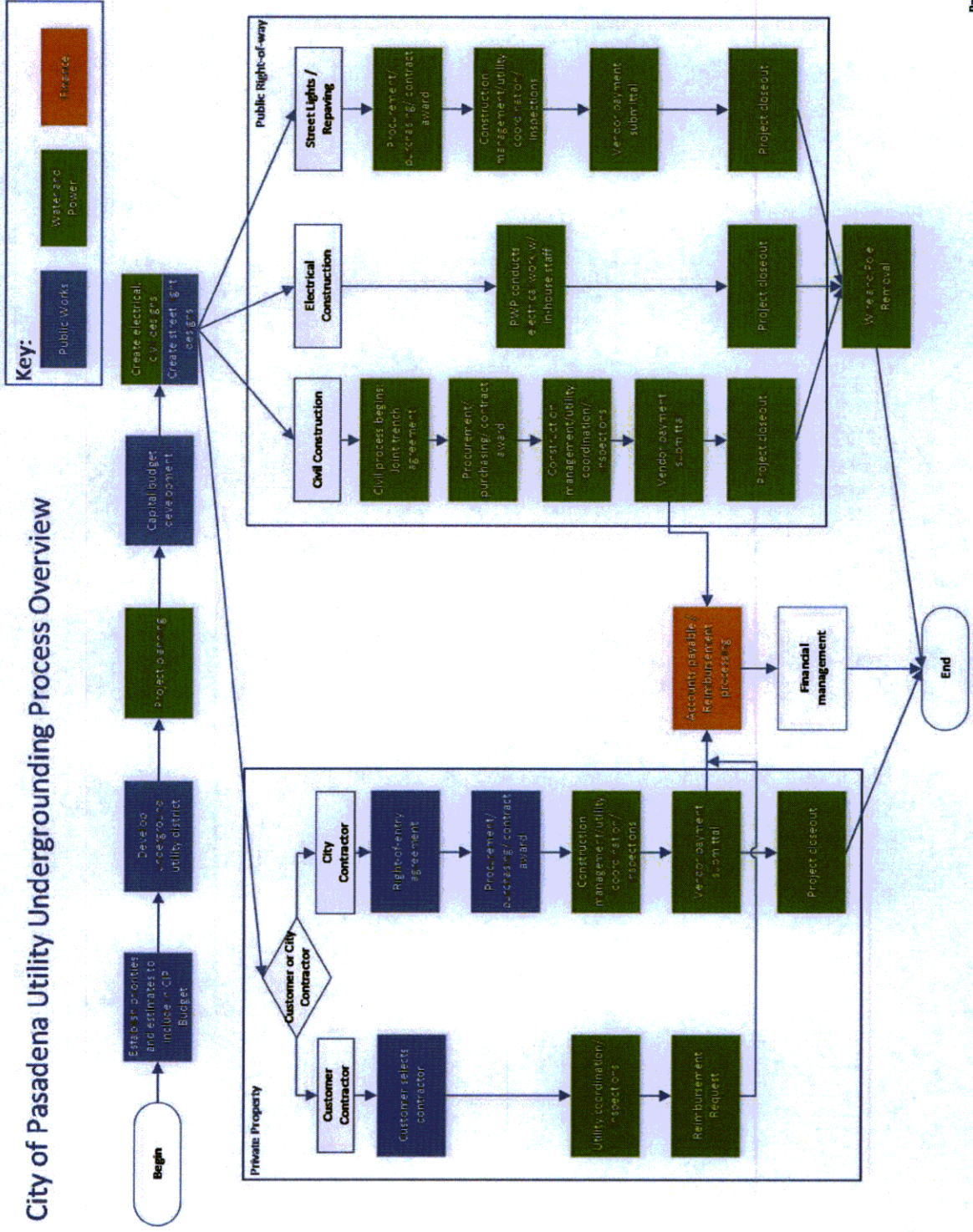
Attachment C– Process Maps

Management Partners developed process maps of the UUP process based on a review of documents received from the City and interviews with the various stakeholders in the UUP process.

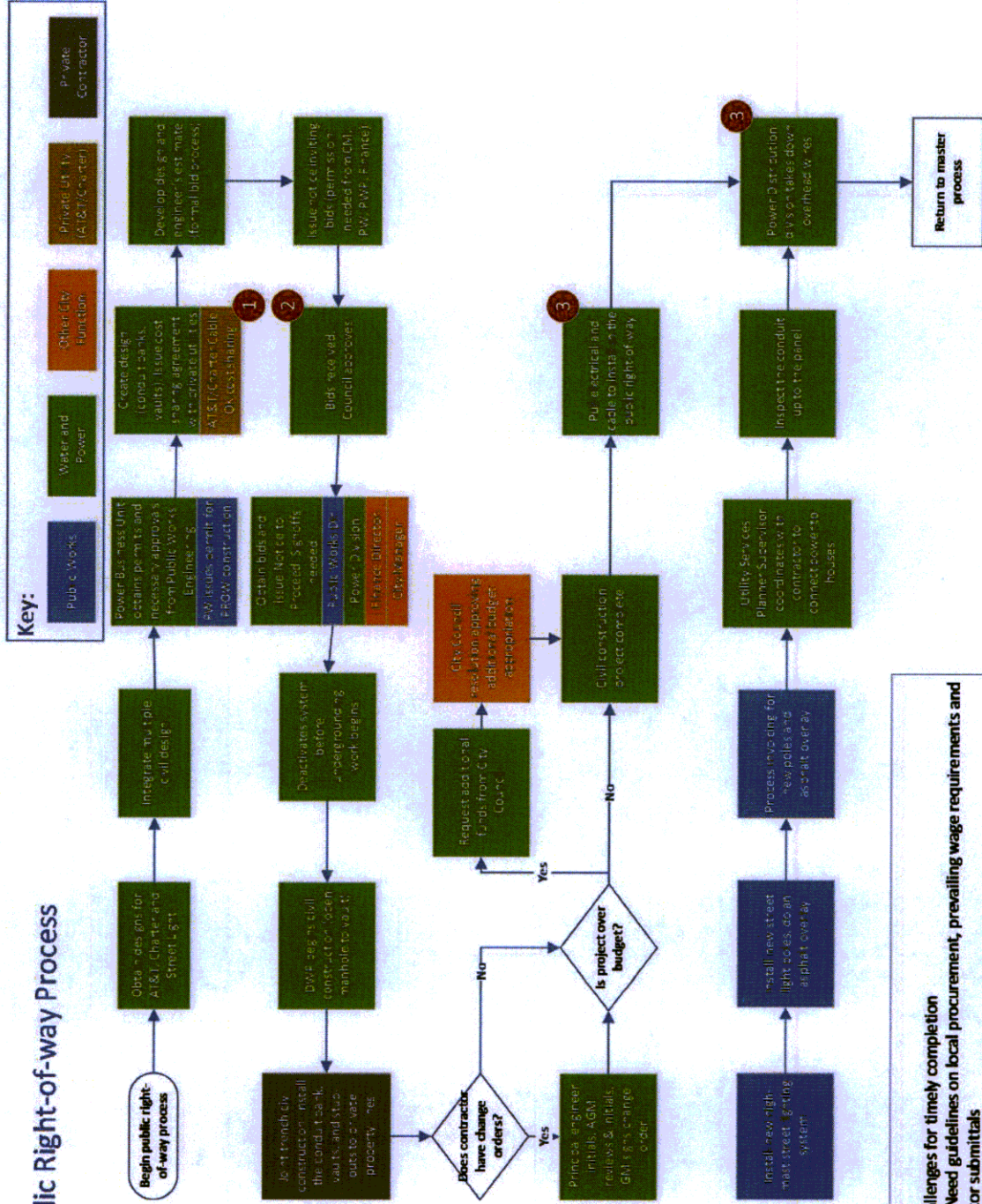
The City has been making modifications to its processes as it learns how best to affect positive changes to the UUP. The processes identified in the process maps that follow represent the processes that were in place effective April 30, 2015.

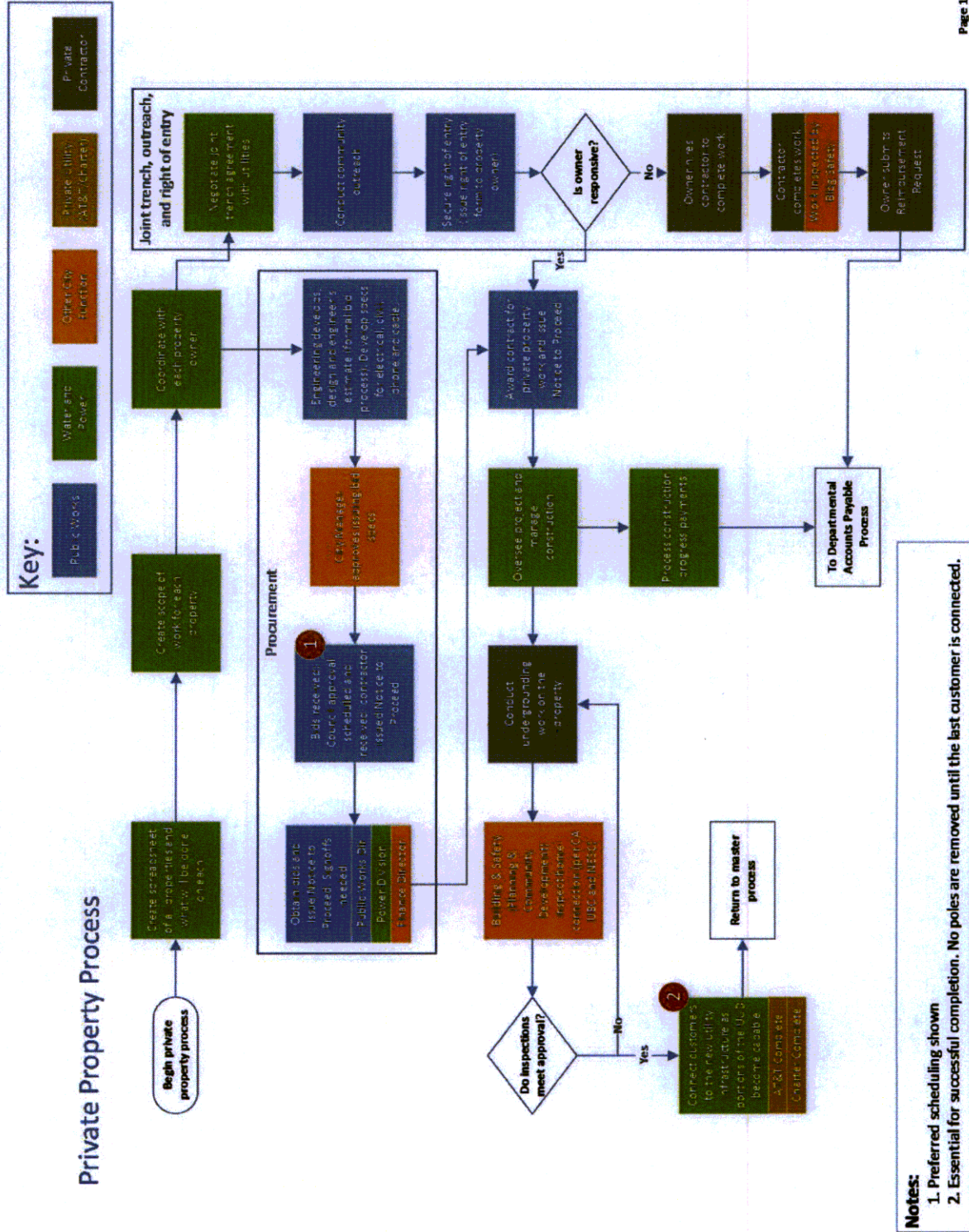
Any changes that the City makes to these processes as a result of these recommendations should be implemented and documented through updated process maps in a timely manner upon implementation of the revised process maps in order to assist staff in clearly understanding the steps involved.

City of Pasadena Utility Undergrounding Process Overview

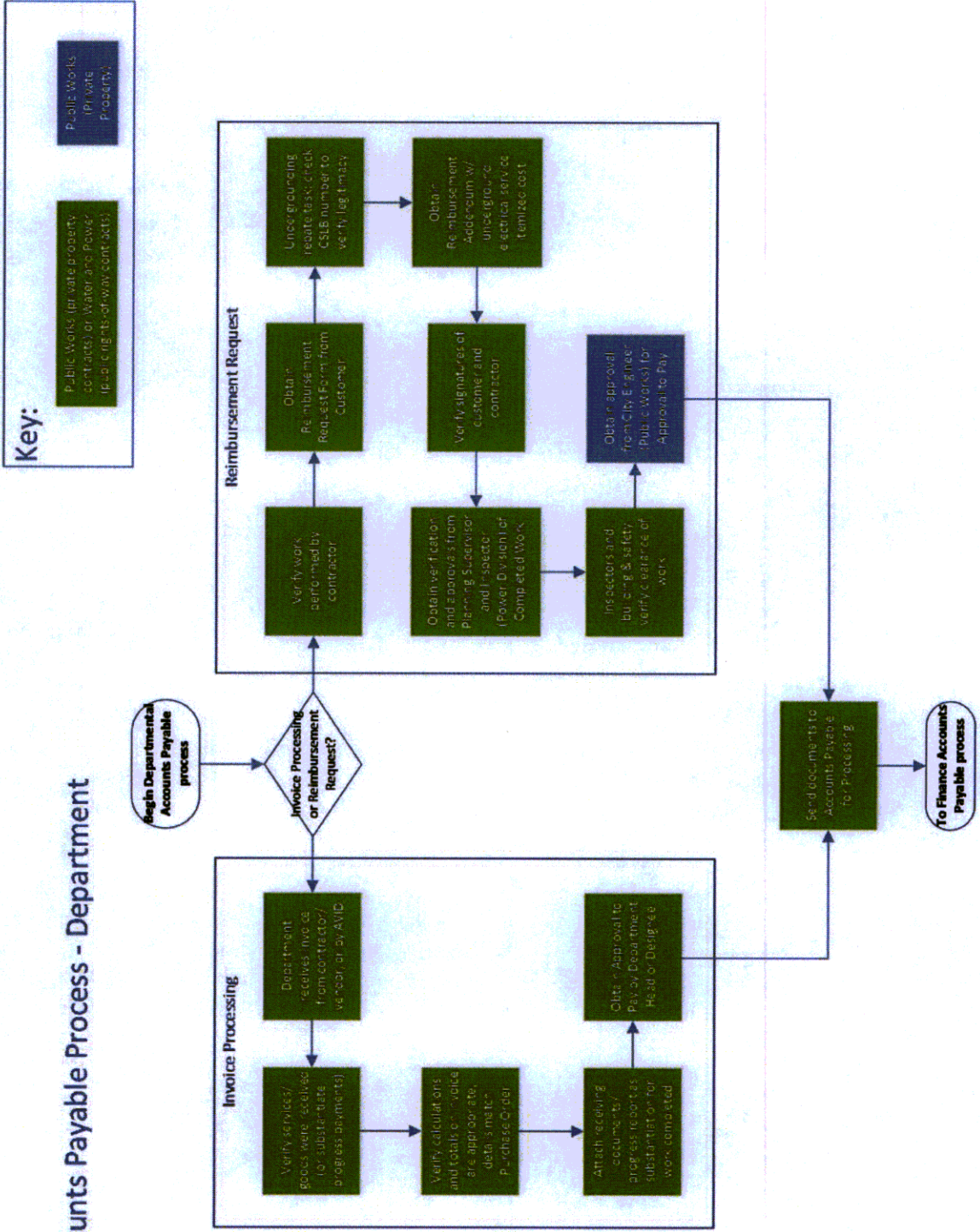


Public Right-of-way Process

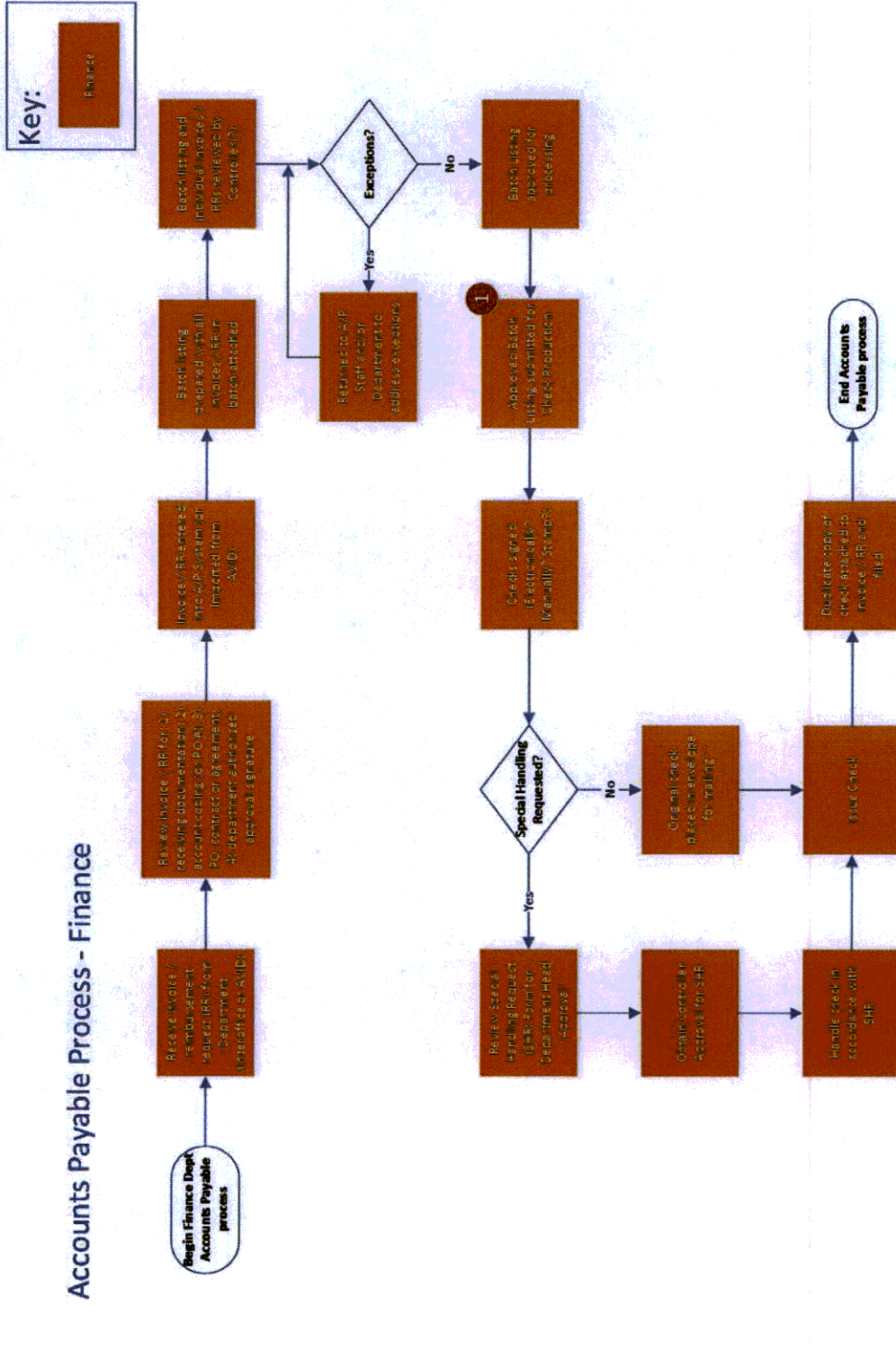




Accounts Payable Process - Department



Accounts Payable Process - Finance



Notes:
 1. Differing processes may exist from this point for Wire Transfers, but most UUP contractor payments made via check.

Attachment D– Summary of Underground Utility Research

The following is a summary of several research studies conducted over the past 15 years on the benefits of and drawbacks to undergrounding utilities. The research studies reviewed are as follow:

- Burlingame, M., & Walton, P. (2013). *Cost-Benefit Analysis of Various Electric Reliability Improvement Projects from the End Users' Perspective*. National Association of Regulatory Utility Commissioners (NARUC).
- des Rosiers, F. (2002). Power Lines, Visual Encumbrance and House Values: A Microspatial Approach to Impact Measurement. *Journal of Real Estate Research*, Volume 3, pp. 275-302.
- Fenrick, S. A., & Getachew, L. (2012). Cost and reliability comparisons of underground and overhead power lines. *Utility Policy*, Volume 20, pp. 31-17.
- Hall, K. L. (2013). *Out of Sight, Out of Mind 2012: An Updated Study on the Undergrounding of Overhead Power Lines*. Washington, DC: Edison Electric Institute.
- Martin, P. (1999). *Underground Public Utility Lines*. Honolulu, HI: Hawaii Legislative Reference Bureau.
- McNair, B. J., Bennett, J., Hensher, D. A., & Rose, J. M. (2011). Households' willingness to pay for overhead-to-underground conversion of electricity distribution networks. *Energy Policy*, Volume 39, pp 2560-2567.
- Shaw Consultants International, Inc. (2010). *Study of the Feasibility and Reliability of Undergrounding Electric Distribution Lines in the District of Columbia*. Washington, DC: Shaw Consultants International, Inc.

Benefits of Undergrounding

- **Improved Reliability and Lower Operations and Maintenance Costs.** Undergrounding utilities is correlated with improved reliability (fewer outage events occurring) and lower operations and maintenance impacts. Protection from most environmental conditions leads to a decrease in the frequency of outages caused by vegetation, wind, animals, lightning, vandalism, traffic accidents, and other factors. This decrease in frequency of outages lowers operations and maintenance costs. Multiple regression analysis demonstrates this relationship using a comprehensive dataset of 163 US electric utilities (Fenrick & Getachew, 2012). Other previous studies demonstrate a similar relationship.
- **Aesthetic Value and a Boost in Home Values.** Homes with a direct view of power lines have lower property values; residents and visitors seem to prefer the view uninterrupted by utility lines. There is also fear about electric and magnetic field emissions coming from overhead power lines, fueling a preference to have homes further from these more visible utilities.

- ***Less Vegetation Management.*** Overhead lines have additional costs, such as tree trimming and the use of pesticides in certain areas to control vegetation and to ensure the utility is accessible. Underground utilities do not carry these costs.

Drawbacks to Undergrounding

- ***Higher Construction Costs.*** Under most conditions, construction costs associated with undergrounding are higher than costs of constructing overhead lines. Undergrounding distribution lines can be five to ten times more expensive than constructing overhead lines.
- ***Increased Duration of Outages (although they are less frequent).*** Locating outage sources in underground facilities can be more time consuming, leading to an increase in the duration of outages on average. Advancements in technology are decreasing the duration of outages.
- ***Potential Liability for Accidental Injuries Related to Excavation.*** There is a potential for danger from accidental excavation that results in disrupted service or physical injury to the parties who dig without considering what is underground.