Summary Title: Update Report on Electric Undergrounding

Title: Update Report on the Electric Overhead to Undergrounding Conversion Program

From: City Manager

Lead Department: Utilities

Recommendation
This is an update report on the Electric Overhead to Undergrounding Conversion Program for the Finance Committee study session. No committee action is required.

Executive Summary
The purpose of this report is to provide information to the Finance Committee on the Electric Overhead to Undergrounding Conversion Program for the study session. Attached are two previous UAC reports that were prepared by staff on the undergrounding program. These reports provide background information, current status of the program, options for continuing the current program, and an option for accelerating the program. Included in the report are rough cost estimates for the various program options.

Staff will be returning to Council with a recommendation on a process to engage the community in the discussion about the future plans for the Electric Overhead to Undergrounding Conversion Program.

Attachments:

- a: Attachment A_UAC Underground Report - Sept 2011 (PDF)
- b: Attachment B_City Map of Underground Conversion Areas (PDF)
- c: Attachment C_UAC Undergrounding Report - Jan 2010 (PDF)
- d: Attachment D_Excerpt of Draft UAC Minutes from September 7, 2011 (PDF)

Prepared By: Tomm Marshall, Assistant Director

Department Head: Valerie Fong, Director

November 15, 2011
Page 1 of 2
(ID # 2096)
City Manager Approval:

James Keene, City Manager
MEMORANDUM

TO: UTILITIES ADVISORY COMMISSION
FROM: UTILITIES DEPARTMENT
DATE: SEPTEMBER 7, 2011
SUBJECT: Report on the Status and Future Alternatives to Consider for Completion of the Electric Overhead to Underground Conversion Program

The purpose of this report is to present options for changes to the Electric Overhead to Underground Conversion for review and discussion by the Utilities Advisory Commission (UAC). This report is a follow up to the status report presented to the UAC on January 6, 2010.

EXECUTIVE SUMMARY
On January 6, 2010, staff presented to the UAC a report on the status of the overhead to underground conversion program and alternatives for continuing the program. That report contained background information on the history of the program; benefits and disadvantages of underground electric facilities; how underground districts are established, constructed, and funded; and alternatives for the future of the program and is included with this report as Attachment B.

This report provides data on three alternatives for the Underground Program: continue the program on the current time line, discontinue the program, or accelerate the completion of the program. The report also provides some options for possible funding sources for the program. Undergrounding of the 60kV transmission system and the overhead lines in the foothills is not included in this report; those poles will remain in place.

BACKGROUND
Historically, approximately 2% of the annual electric revenue has been used for funding an undergrounding program in an underground district, which typically takes three years to complete. The undergrounding program was started in 1965 and approximately 46% of the City has been either undergrounded through overhead to underground conversion or was originally developed with underground utilities.

Most of the areas of the city that were converted from overhead to underground were considered General Public Interest and Benefit Undergrounding (see Attachment B for definition) projects and focused on highly traveled areas and business districts. Due to this status, AT&T reimbursed the City for the cost of installation of their substructures.

As reported in January 2010, most of the remaining undergrounding will be in areas that are 100% residential neighborhoods. The underground tariff under which AT&T operates, California Public Utilities Commission (CPUC) Rule 32 (A)1, does not require AT&T to pay for telephone substructure work in most residential neighborhoods. The funding restrictions in this tariff mean that any additional
costs associated with AT&T work due to undergrounding of electric facilities will have to be funded by the City and its customers. The funding change will increase the undergrounding substructure costs by 20% and the overall construction costs by 10%.

In the past, AT&T funded its substructures in a small number of residential areas even though AT&T was not strictly required to under the tariff. However, AT&T has indicated in discussions with Staff that it will strictly follow the tariff in all future undergrounding projects.

It should be noted that the CPUC has not established contribution rules for cable TV so Comcast is still required to fund its share of the undergrounding.

**STATUS**
Approximately 46% of the City’s electric, telephone, and cable systems are underground, the majority in commercial areas of the city. Approximately 2,400 residences have been converted from overhead to underground service and all new housing developments are constructed with underground utility facilities. The overhead lines for approximately 14,050 homes remain to be undergrounded and the current program undergrounds facilities for approximately 150 to 200 homes per Underground District.

It should be noted that an underground electric system has a design life of 40 to 50 years. While the conduit and other substructure should last well beyond this timeframe, the electric cable and equipment needs to be replaced about every 50 years. Currently, staff needs to rebuild one district each year at an annual cost of up to $1.9 million to maintain an appropriate replacement cycle.

**CAPITAL COST OF UNDERGROUNDING**
The cost to complete the undergrounding of the entire city, excluding transmission lines and the foothills, is estimated at present value to be $281 million. The Electric Utility would be funding approximately $155 million of the cost, AT&T’s share is $28 million, and Comcast’s share is $28 million of the total. Property owners would be responsible for the remaining $70 million of the total cost as they are responsible for the cost of conversion of their electric service from overhead to underground. This is typically in the range of $5,000 to $10,000 per home, depending on the amount of work required or desired by the customer. Table 1 shows a breakdown of the typical cost of undergrounding per home.

If the City proceeds with the program at the present rate of one district every 2-3 years, it is expected to take more than 70 years to complete the undergrounding of the entire city. The Capital and Operation & Maintenance (O&M) Funding requirements for the Overhead to Underground Conversion program are presented in Figure 1 (on page 6) and Figure 2 (on page 7).

<table>
<thead>
<tr>
<th>Category</th>
<th>Per House</th>
<th>Total Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approximate Total Cost</td>
<td>$20,000</td>
<td>$281,000,000</td>
</tr>
<tr>
<td>Electric Facilities (55%)</td>
<td>$11,000</td>
<td>$155,000,000</td>
</tr>
<tr>
<td>AT&amp;T Substructures (10%)</td>
<td>$2,000</td>
<td>$28,000,000</td>
</tr>
<tr>
<td>Comcast Substructures (10%)</td>
<td>$2,000</td>
<td>$28,000,000</td>
</tr>
<tr>
<td>Customer’s Service Conversion (25%)</td>
<td>$5,000</td>
<td>$70,000,000</td>
</tr>
</tbody>
</table>

Table 1: Typical breakdown of the costs of Overhead to Underground Conversion Projects
COMPARISON OF OVERHEAD AND UNDERGROUND ELECTRIC SYSTEMS

The current makeup of the electric system is 54% Overhead and 46% Underground. The information in Table 2 compares some of the key characteristics of the two systems on an annual basis:

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing System</th>
<th>100% Underground</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>54% Overhead</td>
<td>46% Underground</td>
<td></td>
</tr>
<tr>
<td>Capital Cost to maintain Existing System (i.e. system replacement, etc.)</td>
<td>$2,000,000</td>
<td>$1,900,000</td>
<td>$4,300,000</td>
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<tr>
<td>Operation and Maintenance Cost</td>
<td>$3,900,000</td>
<td>$3,700,000</td>
<td>$9,000,000</td>
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<tr>
<td>Reliability - total Customer Minutes of Interruption for FY 2011</td>
<td>1,557,311</td>
<td>334,874</td>
<td>728,000</td>
</tr>
</tbody>
</table>

Table 2: Overall annual cost of ownership of the electric system. Costs for “Existing Overhead” and “100% Underground” include transmission line replacement projects.

Conversion of the remaining overhead system to underground would result in an annual increase in Capital Cost of $400,000 and O&M cost of $1.4 million. Based on FY 2011 outages, the conversion of the remaining overhead system to underground (excluding the foothills and 60kV lines) could result in a reduction of 61% in the total customer minutes of outage.

FUTURE OPTIONS FOR PROGRAM

Staff has reviewed several options for the undergrounding program:

**Option 1: Discontinue the program**
There are costs other than the initial capital cost to place overhead facilities underground that need to be considered in the decision to continue the program. These include maintenance, inspection, replacement, and reliability. A comparison of the costs of Overhead and Underground electric systems is provided later in this report and is summarized in Table 2.

Discontinuing the program could result in an immediate decrease in rates of up to 1% (amount budgeted to fund this program). There would also be savings to the Electric Fund in later years due to a reduction in underground equipment that needs to be replaced.

**Option 2: Proceed at the current rate of construction under existing rules**
Staff will continue to work with AT&T in finding potential non-residential areas for undergrounding that qualify under Rule 32 (A)1. Once these areas are exhausted, reimbursement for AT&T’s substructures would cease. At that point the program would be discontinued.

**Option 3: Pursue CPUC rule change**
In order to continue the undergrounding program as in the past, the City could try to obtain a CPUC rule change that permits full cost recovery by AT&T and Comcast and appropriate reimbursement by the City for AT&T’s and Comcast’s substructure costs. If a CPUC rule change is successful, then the
remaining areas can be undergrounded in approximately 70 more years if conversion is done at a rate of one Underground District per year.

It should be noted that seeking a CPUC rule change is a very complex process, and would require significant time and a budget for dedicated legal resources. If this process is undertaken, the City would need to align itself with other municipally owned utilities in California and it could be years before any result is obtained, with no guarantee that the endeavor would be successful.

**Option 4: Pursue AT&T surcharge from residents for AT&T Costs**

In order to continue the program with AT&T participation, the City could request that AT&T pursue a surcharge on their customers in the city to pay for the undergrounding costs. The funds collected through this surcharge would be used to replace those reimbursed to the City under CPUC Rule 32 (A)1 and continue the undergrounding program as its current rate. This option puts the burden of collecting the funds on AT&T and would impact only those residents who utilize AT&T land based communications lines, which is shrinking due to increased use of wireless communications. The amount of the surcharge would be based on the scope and schedule of future undergrounding projects. Just as in Option 3, this could be a very complex process and require significant staff time and budget to achieve.

**Option 5: City funds costs formerly covered by AT&T**

Continue the program with the Electric Fund funding the Electric cost, Comcast funding its costs, and the City or the property owners paying the telephone substructure costs. This program would be continued at the current funding rate.

Pursuit of Option 5 could be done in several ways, each of which would require additional legal and feasibility research before moving forward. These include:

**Assessment Districts** – Establish assessment districts that match the underground districts. The properties within a given underground district would be the only ones assessed for these costs.

**Rate increase or fixed charge for all customers** – The cost would be distributed to all electric customers. An average rate increase or a fixed charge for 30 years equivalent to $32 (today’s dollars) per year per customer would be needed to cover these costs.

**Rate increase or fixed charge for residential customers only** – The cost would be distributed only to residential customers, as these are the areas where AT&T has indicated that it will not reimburse the City. An average rate increase or a fixed charge for 30 years equivalent to $38 (today’s dollars) per year per customer would be needed to cover these costs.

**Bond financing** – Pursue financing through city-issued bonds. Bond financing could cost $2.5 million over the next 30 years.

Depending on which funding method is used, those that have already had their areas undergrounded would not be assessed additional charges to cover costs formerly paid by AT&T. To date, a majority of the funds collected for the undergrounding program have come from commercial customers, and these funds have been primarily applied to the electric systems that serve commercial customers as they comply with CPUC Rule 32 guidelines. In addition, there are some residential areas that directly benefitted from the current program.
ACCELERATION OF PROGRAM FOR EARLIER COMPLETION

Any of the options described above could be accelerated. At its current rate of construction, staff estimates it will take 70 years to complete the undergrounding of all overhead facilities in the city. In order to complete the program over a 30-year period, additional funding is required to fund the electric substructures in addition to any costs associated with paying for AT&T substructures. These funding options include:

Assessment Districts – Assessment districts could be established that match the underground districts. The properties within a given underground district would be the only ones assessed for these costs.

Rate increase for all customers – A rate increase equivalent to an average of $210 per customer per year for 30 years would be required to fund an acceleration of the program. This includes costs associated with paying for AT&T substructures, but does not include the individual service conversion cost (ranges from $5000 to $10,000) that each property owner would pay to connect to the new underground system.

Rate increase for residential customers only – A rate increase equivalent to an average of $249 per customer per year for 30 years would be required to fund an acceleration of the program. This includes costs associated with paying for AT&T substructures, but does not include the individual service conversion cost (ranges from $5000 to $10,000) that each property owner would pay to connect to the new underground system.

Figure 1: This chart compares the annual capital required if we discontinue the undergrounding program, continue at our current rate (70 year completion), and continue at an accelerated rate (30 year completion). Dollars are not escalated (today’s dollars).
Figure 2: This chart compares the annual O&M required if we discontinue the undergrounding program; continue at our current rate (70 year completion); and continue at an accelerated rate (30 year completion). Dollars are not escalated (today’s dollars).

Figure 3: This chart shows the cumulative capital required if we discontinue the undergrounding program; continue at our current rate (70 year completion); and continue at an accelerated rate (30 year completion). Dollars are not escalated (today’s dollars).
Figure 4: This chart shows the cumulative O&M required if we discontinue the undergrounding program; continue at our current rate (70 year completion); and continue at an accelerated rate (30 year completion). Dollars are not escalated (today’s dollars).

The charts in Figures 3 & 4 show the cumulative effect on cost of the three alternatives over time. Accelerating the undergrounding program could result in an extra $200 million in Capital Cost and $100 million in O&M expense when compared to the current rate of construction.

NEXT STEPS
A recommended next step is to obtain public opinion on the different options and the overhead to underground program in general. This could be accomplished through phone, mail, or online surveys; social media; town hall meetings; or during Council meetings. The fundamental questions to be answered are:

- Should CPAU continue with program?
- How much are customers willing to pay to continue program?
- How should future projects be funded: rate increases, bonds, special assessments, other methods?

Staff will return at a future date with a report on the public’s opinion.

RESOURCE IMPACTS
Funding and staffing needs, as a part of, and a result of, the Overhead to Underground Conversion Program will be impacted by the future policy decisions on the direction of the program.

The program cannot be completed in 30 years with existing resources. Initially acceleration of the program would require the addition of 3 Engineers and 1 Engineering Tech/Estimator. Operations would need 2 inspectors initially and one 4-man crew for construction of projects in year 3 of initiating
the undergrounding program when electrical construction commences. Additional resources may be required in subsequent years.

POLICY IMPLICATIONS
This project supports Utilities’ Strategic Objectives C1 – Provide Reliable Service and BP3 – Replace infrastructure before the end of its useful life.

ATTACHMENTS:
A: Map - Existing Underground Districts
B: Staff Report to the UAC dated January 6, 2010 on Current Status and Future Alternatives to Consider for Continuing the Electric Overhead to Underground Conversion Program (without attachments)

PREPARED BY: PATRICK VALATH, Management Specialist
               TOM TING, (Acting) Electric Engineering Manager

REVIEWED BY: TOMM MARSHALL, Assistant Director, Engineering

APPROVED BY: VALERIE O. FONG
              Director of Utilities
MEMORANDUM

TO: UTILITIES ADVISORY COMMISSION

FROM: UTILITIES DEPARTMENT

DATE: JANUARY 6, 2010

SUBJECT: REPORT ON CURRENT STATUS AND FUTURE ALTERNATIVES TO CONSIDER FOR THE CONTINUING THE ELECTRIC OVERHEAD TO UNDERGROUNDING CONVERSION PROGRAM

The purpose of this report is to provide an update the status of the Electric Utility’s Overhead to Underground Conversion Program, and to solicit comments from the Utilities Advisory Commission (Commission) in regards to the future direction of the program. Staff will return at a future date with recommendations on changes to the Electric Overhead to Underground Conversion Program after collecting input on the program.

EXECUTIVE SUMMARY

Since 1965, approximately 45% of the City’s electric, telephone, and Cable TV systems have been undergrounded. The majority of utility facility undergrounding that has occurred has been in the commercial areas of the City. This is partly because AT&T and Comcast participated in these areas as General Public Benefit projects under current California Public Utilities Commission (CPUC) rules and therefore have reimbursed the City for costs to install substructure needed for undergrounding their facilities. In the residential areas in Palo Alto, electric facilities for approximately 2,350 residences have been undergrounded out of a total of 16,400 residences. Nearly all remaining areas to be undergrounded are residential, and under the current CPUC requirements as explained below, AT&T and Comcast will not reimburse the City for costs associated with their substructure needs.

To give a perspective on this impact, the present cost to the City for undergrounding in the public right of way (electric substructure, cable and equipment) is about $15,000 per home. This does not include the additional cost for each homeowner of about $5,000 for their service conversion. If the City continues undergrounding without AT&T and Comcast reimbursements, the cost to the City per home increases to approximately $20,000, an increase of 25% and a total estimated cost to underground the entire City of $280 million.

In the past, the City has funded the electric costs of general public interest and benefit undergrounding projects with 2% of its annual electric revenue. At the 2% rate, with reimbursements from AT&T and Comcast for the installation of their substructure, the City was able to underground its overhead facilities in areas covering between 150 and 200 homes per district for an approximate annual expenditure of $1.8 million. In the future, without these reimbursements, the City will no longer be able to underground facilities at the same rate without increasing the budget for this program or passing the additional costs onto the residents.
BACKGROUND
History of Undergrounding
The City of Palo Alto began a program to underground overhead electric, telephone, and cable TV facilities in 1965 with a project along Oregon Expressway. Since that time 43 Underground Districts have been formed (See Attachment A).

To establish the undergrounding program, the city amended the Municipal Code adding Chapter 12.16 titled Underground Utilities. In conjunction with the Municipal Code, Utility Rule and Regulation 17 was created (See Attachment E).

All new development after 1965 was required to have underground facilities. This requirement resulted in the undergrounding of electric facilities for most of the commercial areas outside of the older commercial developments in the University Avenue and California Avenue districts.

The Benefits Undergrounding
Undergrounding existing overhead facilities dramatically increases costs for electric service delivery. In exchange for these increased costs, customers can realize a number of potential benefits from the undergrounding of overhead systems. The following is a list of benefits most often cited in justifying undergrounding:

Potential Benefits of Underground Electric Facilities
- Improved aesthetics
- Lower tree trimming cost
- Lower storm damage and restoration cost
- Fewer motor vehicle accidents
- Increased safety and reduced potential for live-wire contact during storm and earthquakes
- Fewer momentary interruptions
- Improved utility relations regarding tree trimming
- Fewer structures impacting sidewalks

There are also a number of potential disadvantages which need to be considered whenever the conversion of overhead facilities to underground is evaluated. The following (although not all of them are applicable to Palo Alto) is a list of disadvantages very often mentioned in underground reports and studies:

Disadvantages of Underground Electric Facilities
- Reduced electrical equipment life expectancy
- Higher maintenance and operating costs
- Longer outage duration and more customers impacted per outage
- Stranded asset costs for existing overhead facilities
- Increased utility employee work hazards during vault and manhole inspection
- Increased exposure to dig-ins
- Susceptibility to flooding and damage during post-flooding clean-up
- Reduced flexibility for both operations and system expansions
- Higher costs for providing telecommunication services
Types of Underground Districts in Palo Alto

Rules for establishing an underground district in the City are covered by Utility Rule and Regulation 17. This rule establishes three types of underground districts: General Public Benefit, Primarily of Local Public Benefit, and areas that do not qualify under the preceding types. General Public Benefit projects are established by the City and the City pays for the installation of the electric system in the public right-of-way (ROW) and the residents pay for conversion of the facilities on their property. In the remaining two conversion area types, the residents must request the underground district and fund the service conversion on their property as well as a portion of the utility costs in the public ROW.

Most of the projects completed have been established under the General Public Benefit provision.

Joint Construction

The poles within the City of Palo Alto are jointly owned with AT&T or in a few cases jointly owned with AT&T and PG&E. Comcast leases space on the poles from AT&T for the attachment of cable TV cables. Due to the joint ownership of the poles, Underground Districts require agreement on the project boundaries of the other joint owners. Once agreement on the Underground District boundaries has been reached, the conduits and structures are jointly constructed. Joint construction is used to reduce costs and coordinate the construction to minimize impacts on the neighborhoods.

During the process of determining the boundaries of the project, AT&T must also determine the applicable section of the California Public Utilities Commission’s (CPUC) Schedule A2 Rule 32 on undergrounding to use on the project. Rule 32 is similar to the City’s Rule 17 in that it specifies the criteria for different levels of financial participation by AT&T.

The applicable section of Rule 32 is critical to the financial viability of the underground project. If a project qualifies under section A.1 of Rule 32, the project has been found to have General Public Benefits, and AT&T and Comcast fund all the their improvements in the public right-of-way. If it is determined that Rule 32A.2 or 32A.3 are applicable to the project, the cost responsibility for the Cable TV and Telephone conduits and other structures must be borne by the City or by the residents. In the past, once AT&T had determined that the proposed area did not qualify under Rule 32A.1 the City has cancelled the underground project because of the increased costs to the Electric Utility and moved forward on undergrounding projects in areas where the telephone company would participate. Currently there are only a few small areas where the telephone company will participate.

To facilitate the coordination between the parties in an Underground District, a master agreement has been signed by the City, AT&T, and Cable TV. This master agreement is amended each time an underground district is formed to include the new Underground District.

Funding for Underground Districts

General Benefit Undergrounding is funded at approximately 2% of annual electric revenues. The current funding converts, on average, electric facilities for approximately 150 to 200 homes per year.
In 1998, funding was reduced for a few years to 1% per year due to the need to shift electric resources to rebuilding aging infrastructure. The reduction in funding to 1% of revenues for underground districts was initiated due to the number of underground facilities reaching the end of their useful lives. Cables installed in the sixties and seventies had an expected cable life of 30 years. In the late nineties a significant portion of the city’s underground system had exceeded its expected life and failures were beginning to occur at an increasing rate. To reduce the rate of failure, underground electric cable and equipment replacements were increased. Because of existing manpower constraints the underground program was temporarily scaled back. The funding was recently returned to the 2% of annual electric revenue.

It should be noted that the CPUC also limits the AT&T costs that are recoverable from its rate payers for funding General Public Benefit Undergrounding under Rule 32A.1. The restrictions on AT&T’s funding would limit the City’s ability to accelerate the undergrounding program beyond 2% of revenues and still receive the full rule 32A.1 level of participation from AT&T.

**Budgeting**

Funding for the Underground Districts is approved by the City Council during the annual budget process. In addition to the current fiscal year’s funding, staff also provides four additional years of projected funding for proposed undergrounding projects. These future projects are not approved for construction until the budget for these projects is approved each fiscal year. Each year staff reevaluates the future year recommendations and proposes changes based on additional information acquired since the last budget cycle including telephone company participation in covering project costs.

**DISCUSSION**

**Selecting Underground Districts**

Proposed undergrounding districts are determined by applying the priorities in Rule 17 and negotiations with AT&T (see Attachment E). The undergrounding of electrical lines is a joint process between the City and AT&T due to joint ownership of the poles. In addition to AT&T, Comcast leases pole space from AT&T and must also fund part of the underground costs to move their facilities.

When an underground district is being conceptualized, one part of the process is to reach a joint agreement with AT&T on the boundaries of the underground district. In almost all cases the City Electric Utility takes the lead in proposing boundaries for an underground project. When AT&T evaluates its interest in the Underground District it must determine whether the proposed district meets criteria established by California Public Utilities Commission’s (CPUC) Rule 32A.1 before committing to the project. Since their rules are not the same as ours, the boundaries must be negotiated with AT&T to establish mutually agreeable underground districts.

In 2006 AT&T advised City staff that underground district proposed in residential areas will not qualify for 100% of funding under section A.1 of Rule 32. This meant that the City or the residents within the proposed districts would be responsible for paying for AT&T’s substructure costs if districts were created in residential neighborhoods.

**Future of Program**

The overhead lines for approximately 14,100 homes remain to be undergrounded and the current program undergrounds facilities for approximately 150 to 200 homes per Underground District.
If the City proceeds with the program without AT&T and Comcast reimbursements at the present funding rate of 2% of annual electric revenues, it is expected to take more than 70 years to complete the undergrounding of the entire city at a cost of $282,000,000. This is based on the current value of the dollar. Under the current program the Electric Enterprise Fund would be responsible for funding approximately $211,500,000 and the property owners would be responsible for funding about $70,500,000 of total cost.

Interim Plan
In light of the recent position taken by AT&T, staff has continued to work with AT&T in finding potential non-residential areas for undergrounding that qualify under Rule 32 A.1. Currently there is mutual agreement to establish four new underground districts the estimated costs of which are reflected in the five year Capital Improvement Projects forecast.

Financing Options
With or without AT&T’s participation, continuing the undergrounding program will require substantial funding. The following are some financing options available:

**Financing Options**
- Set Aside of a Percentage of Utility Revenues
- Direct Customer Funding
- Special Tax Assessments
- Bond Financing

In addition to the substantial funding requirements to support undergrounding projects, there are numerous social equity issues that will also need to be addressed. If costs were to be fully funded by the customers, then only the wealthy will be able to afford the undergrounding projects. On the other hand, if undergrounding is financed through a broad-based tax or through electricity rates, people may end up paying for undergrounding projects that do not get to their neighborhoods for a decade or more after they have already moved.

If the City were to decide to continue the undergrounding program by funding the additional expenses, a determination would need to be made as to the source of funding that could legally be used for this purpose. Alternatively, if the additional costs were to be passed on to the residents, resident support of the additional expense would be necessary.

Policy Options for the Overhead to Undergrounding Conversion Program
Below are some of the policy options that could be considered in reevaluating the program:

1. **Obtain CPUC Rule Change** In order to continue the undergrounding program as in the past, the City could try to obtain a CPUC rule change that permits full cost recovery by AT&T and Comcast and appropriate reimbursement by the City for AT&T’s and Comcast’s substructure costs. If a CPUC rule change is successful, then the remaining areas can be undergrounded in approximately 70 more years. The total cost for this (based on $15,000 per home cost) would be $211,500,000. The Electric Utility would be responsible for funding approximately $141,000,000 and the property owners would be responsible for funding about $70,500,000 of total cost. The Electric Fund costs would also be the same if the General Fund pays the telephone and cable company portion of the substructure costs.
It should be noted that the effort of seeking a CPUC rule change is a very complex process, and would require significant time and a budget for dedicated legal resources. If this process is undertaken, the City would need to align itself with other municipally-owned utilities in California and it could be years before any result is obtained, favorable or otherwise.

2. **Continue the Undergrounding Program as long as AT&T’s participation is available.**
Staff will continue to work with AT&T in finding potential non-residential areas for undergrounding that qualify under Rule 32 A.1. Once these areas are exhausted, then funding of undergrounding projects requiring reimbursement for AT&T’s substructure would cease.

3. **Initiate a new Undergrounding Program where AT&T’s costs are funded by the City or the property owners.** Electric utilities will continue funding the Electric cost and the General Fund or the property owners will pay the telephone substructure costs. This program would be continued at the current funding rate. There are several options available for the funding of the AT&T costs that would need to be investigated to determine if they are feasible and legal to implement. These options include:
   - Customers benefiting from the AT&T improvements pay the cost through direct payment.
   - Customers benefiting from the AT&T improvements pay the cost through a ten year special property assessment.
   - City funds the cost of through a surcharge on the electric bill.
   - City funds the cost the AT&T improvements through assessment districts that require each district to vote.

4. **Accelerate the Undergrounding Program Through the Use of Bond Financing**
If the community wanted to complete the Undergrounding Program in a shorter time period bond financing could be used to accelerate the program.

It should be noted that an underground electric system has a design life of 30 to 40 years. While the conduit and other substructure should last well beyond this timeframe, the electric cable and equipment needs to be replaced about every 40 years. Currently, staff needs to rebuild one district each year at an annual cost of $500,000 to $1 million to maintain an appropriate replacement cycle.

**RESOURCE IMPACTS**
Funding and staffing needs for the Overhead to Underground Conversion Program will be impacted by the future policy decisions made on the direction of the program.

**POLICY IMPLICATIONS**
This project supports Utilities’ Key Strategy Number 7 – Implement programs that improve quality of the environment and Supporting Objective Number 2- Invest in utility infrastructure to deliver reliable service.
ATTACHMENTS:
A: Map - Existing Underground District
B: Rule and Regulation 17

PREPARED BY: PATRICK VALATH, Electric Engineering Manager

REVIEWED BY: TOMM MARSHALL, Assistant Director, Engineering

APPROVED BY: VALERIE O. FONG
Director of Utilities
NEW BUSINESS

ITEM 1: DISCUSSION: Report on the Status and Future Alternatives to Consider for Completion of the Electric Overhead to Underground Conversion Program

Assistant Director Tomm Marshall introduced Senior Electrical Engineer Tom Ting, who provided a presentation on the information contained in the written report.

Chair Foster opened the floor to clarifying questions from the commissioners.

Commissioner Eglash asked if other cities do undergrounding, or have overhead systems, and does it depend on if it's a new development. Marshall responded that underground utilities are required in new developments in Palo Alto and other cities, but PA has many older neighborhoods that would need to be converted from overhead to underground.

Commissioner Melton asked for clarification on prior information regarding funding the AT&T costs. Could Utilities pay for these costs or would they need to come from the general fund? Marshall responded that he would need to clarify with the City Attorney's office, but if they cannot be collected from rates, there may be other ways, such as assessment districts. Commissioner Melton asked if every property owner must agree to an underground district and how do you work with customers who refuse conversion. Marshall stated that the decision on an underground district is the Council's. Staff will survey customers in an underground district on their level of interest and provide the results to Council who make the final decision. Once established, all customers must convert from overhead to underground service.

Commissioner Waldfogel asked if the $5000-$10,000 cost of conversion is a cost that the homeowner has to pay. Marshall responded this is correct. Commissioner Waldfogel asked if the substructures work was done concurrently. Marshall stated that the cost estimates are based on joint trench construction which provides significant savings on costs. The primary cost of the work is digging the trench and restoration. Commissioner Waldfogel stated that if AT&T does not participate in the undergrounding with the other utilities it could put them at risk for a higher cost should there be a City rule change that requires undergrounding of facilities in the future. Marshall stated they would likely fall back to the CPUC rules on undergrounding.

Public Comment

Jeff Hoel asked why anyone would do an underground district if the cost to maintain it was higher than aerial systems. The current report indicates a 10% AT&T, 10% Comcast, and 80% CPAU and customer split. It was previously reported that cost was split into thirds between the three utilities.

Gary Lundgren recommended accelerating the undergrounding program. He recommended not pursuing the option to change a rule at the CPUC as it would be too costly for legal fees. He stated that the AT&T cost was only 10% of the cost so the City or customers should pay that. He also
noted that it is a good time to do undergrounding projects as there is the possibility of getting federal stimulus grants and installation costs can be low in this economic environment.

Herb Borock noted that the useful life of an undergrounding is identified as 30-40 years in one report and 40-50 years in another. He stated that it should be at least 50 years. He asked who paid for the Electric Fund’s share of the costs – residents, businesses, or all customers. He stated that the rebuilding of underground districts delays the construction of new districts. These should be done in addition to the new projects. He suggested an alternative, which we may not like, is to underground just the electric service and retain the AT&T lines on the aerial poles. He stated that the main concern is the equity with the entire City paying for the undergrounding in certain areas.

Commissioner Discussion
Chair Foster asked for clarification on the split of costs between the three utilities. Marshall stated that the 60-20-20 split that was previously reported was only for the substructures. It did not include the cost of electrical facilities.

Commissioner Eglash stated there is a question of equity and fairness across the City. Residents appreciated the aesthetic benefit and any decision to stop leaves some with and some without. A decision to discontinue the undergrounding program may need to be brought to a vote of the people. He is struck by the cost of completing the program ($281 million) and ongoing maintenance. He does not see a sensible way to proceed given these costs, but we need to involve public in discussion.

Commissioner Keller was struck by the cost and concerned about the equity issues. She stated we should try to quantify the value of the benefits – property value, safety (fire, etc.), improved reliability; less exposure to EMF’s – noted in the report from January 2010, and maybe ask real estate professionals for advice to better compare the costs and benefits.

Commissioner Waldfogel asked what is or was the rule that required undergrounding at homes. Marshall replied that there was a rule that required boxes be placed in the sidewalk and that services be underground, but this was changed about 10 years ago since facilities were in wrong place and had to be abandoned.

Commissioner Melton agreed with speaker Lundgren not to pursue any changes with the CPUC. He stated that we need to proceed under our existing rules. He is torn between cost and desire to have facilities undergrounded and felt that it would be best to put the alternatives before the public to decide which direction to move in. We should move as quickly as we can to a decision.

Commissioner Keller stated she is not necessarily a proponent of undergrounding, but wants to see benefits quantified. She also felt that we should look at how else we could spend the money needed for this program.

Commissioner Waldfogel stated that the accelerated program would cost $17.50/month per customer so should show the public this as it may be affordable.

Commissioner Eglash asked how much of system is already underground. Marshall stated half of city, but only a small amount of residential areas.
Commissioner Melton stated that the remaining areas to be undergrounded are residential and primarily a residential issue. It is not just $17.50 per month per customer, but also the cost of converting their services.

Commissioner Eglash stated that approximately half of the city has underground facilities which should be kept in mind in terms of equity. Marshall stated that some of these facilities went in underground when the area was developed and that a majority of the money for undergrounding has come from business customers, collected through the rates, who make up 80% of our revenue.

Commissioner Cook disagreed with AT&T’s position that the residential areas were not of public benefit, felt that we should continue the program with all customers paying for cost, we should not vote to discontinue the program, and advocates moving forward with the accelerated program.

Commissioner Keller asked if we always know that maintenance cost was higher for underground systems. Marshall replied yes, this was not a surprise as this was noted in reports in the 1960’s. He also mentioned that the old cables lasted 30-40 years, but new ones are expected to last 40-50 years.

Commissioner Keller felt that we should sit back and reassess for residential areas. The fact that it was a good idea in the past is not a reason to continue now.

Chair Foster requested clarification on costs. All customers would pay $230 (if paid by residential customers only) per year for 30 years and those being undergrounded would also have to pay to underground their services. Marshall stated yes.

Marshall stated that we will return to UAC after discussions with Finance Committee.

Commissioner Melton wanted to go on record that the UAC is in support of staff pursuing a survey with the public with a sample size large enough to adequately represent how the community feels about this item.

Commissioner Keller would like the opportunity to review the questions prior to starting the survey.

Chair Foster would like to see the underground program move forward but is cognizant of the cost; he is supportive of surveying customers to try to reach as many people as possible and asks that we not rely on getting comments at a Council meeting. He realizes that $210 (if paid by all customers) per year is not an insubstantial sum of money.