

MEMORANDUM

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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 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 or 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

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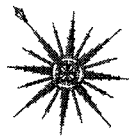
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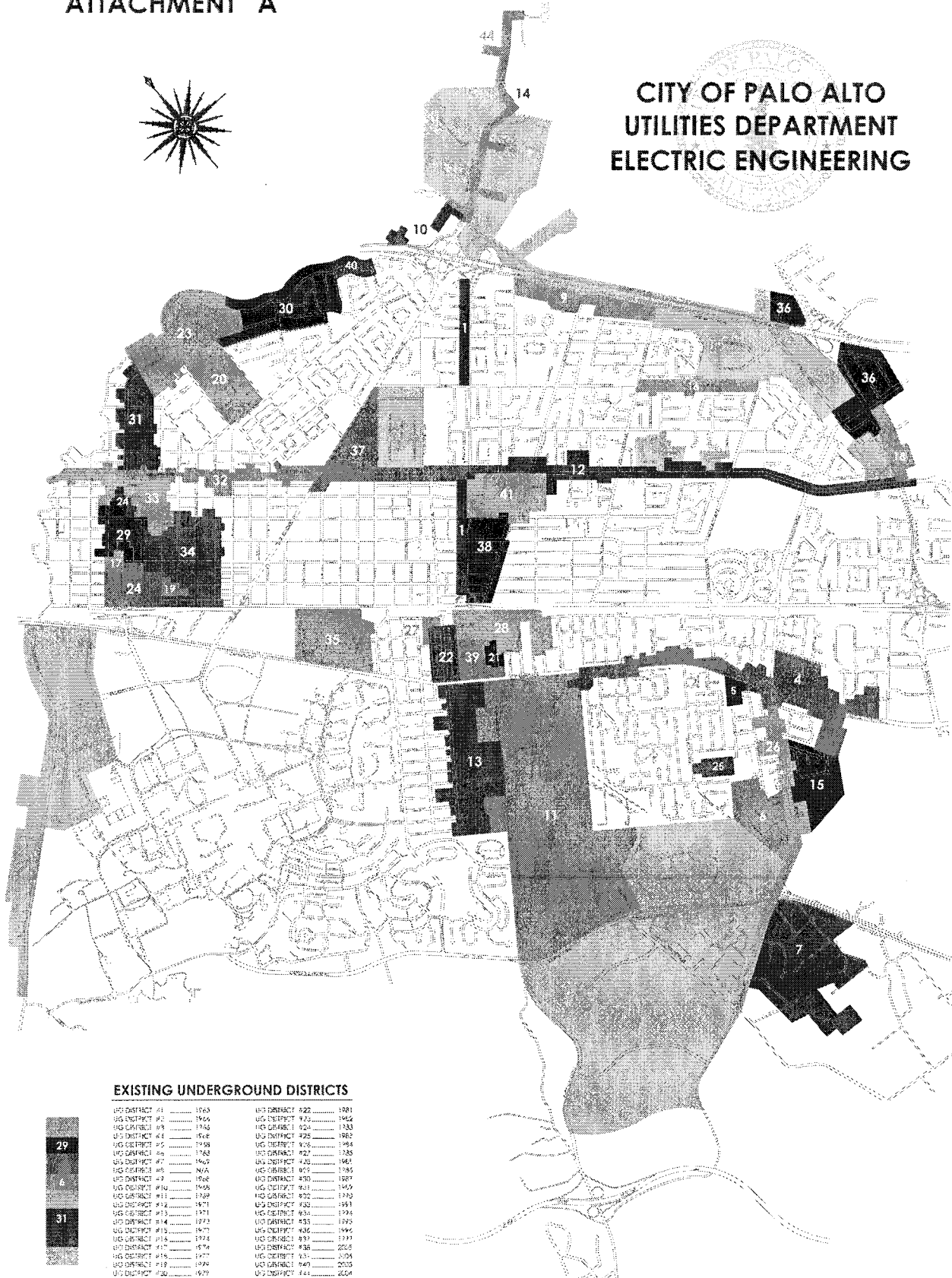
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EXISTING UNDERGROUND DISTRICTS

ATTACHMENT 'A'



CITY OF PALO ALTO
UTILITIES DEPARTMENT
ELECTRIC ENGINEERING



EXISTING UNDERGROUND DISTRICTS

UG DISTRICT #1 1963	UG DISTRICT #22 1981
UG DISTRICT #2 1966	UG DISTRICT #23 1962
UG DISTRICT #3 1960	UG DISTRICT #24 1983
UG DISTRICT #4 1968	UG DISTRICT #25 1963
UG DISTRICT #5 1968	UG DISTRICT #26 1984
UG DISTRICT #6 1963	UG DISTRICT #27 1985
UG DISTRICT #7 1965	UG DISTRICT #28 1961
UG DISTRICT #8 N/A	UG DISTRICT #29 1985
UG DISTRICT #9 1968	UG DISTRICT #30 1987
UG DISTRICT #10 1966	UG DISTRICT #31 1969
UG DISTRICT #11 1969	UG DISTRICT #32 1982
UG DISTRICT #12 1971	UG DISTRICT #33 1981
UG DISTRICT #13 1972	UG DISTRICT #34 1986
UG DISTRICT #14 1972	UG DISTRICT #35 1985
UG DISTRICT #15 1977	UG DISTRICT #36 1986
UG DISTRICT #16 1978	UG DISTRICT #37 1987
UG DISTRICT #17 1976	UG DISTRICT #38 2005
UG DISTRICT #18 1977	UG DISTRICT #39 2006
UG DISTRICT #19 1979	UG DISTRICT #40 2005
UG DISTRICT #20 1979	UG DISTRICT #41 2006
UG DISTRICT #21 1982	UG DISTRICT #42 2007



CONVERSION TO UNDERGROUND

RULE AND REGULATION 17**A. POLICY AND PRIORITIES:**

CPAU will replace existing overhead electric distribution facilities and fiber optic facilities with underground facilities due to system operational considerations, or upon application of an individual or group of individuals, and/or at the direction of the City Council, subject to budgetary considerations, the primary schedule listed below, and minimum project size specified in the applicable section of this Rule.

The extent of CPAU's financial participation in a conversion project will depend on whether the locale of the project is designated by the City Council as an area of general public interest and benefit, or an area of primary local public benefit, or whether the area fails to qualify for either of the foregoing designations.

Underground conversion in areas of general and local public benefit will be considered in accordance with the following order of priorities.

1. First Priority will be given to overhead CPAU lines along streets, roads, or rights-of-way on which major new roadway construction, realignment or on roadways designated as high priority for re-pavement/overlay by the City's Public Works Department.
2. Second priority will be given to overhead CPAU lines along rights -of-way through the interior of blocks which have heavy tree foliage where poles have deteriorated to the point where replacement is necessary and undergrounding is an economic alternative to pole replacement.
3. Third priority will be given to overhead CPAU lines along streets, roads, or rights-of-way in areas zoned commercial, light industrial, and limited manufacturing where load growth requires major overhead reconstruction and undergrounding is an economical alternative.
4. Fourth priority will be given to overhead CPAU lines which are hidden or partially hidden by surrounding tree foliage along streets, roads, or rights-of-way where poles have deteriorated to the point where replacement is necessary and under-grounding is an economic alternative to pole replacement.

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5. Fifth priority will be given to overhead utility lines which are constructed along a major arterial where poles have deteriorated to the point where replacement is necessary and undergrounding is an economic alternative to pole replacement.
6. Sixth priority will be given to overhead utility lines which are constructed along streets, roads, or rights-of-way in areas zoned residential.

The intent of the six priority schedule is to provide guidance when establishing or selecting areas for undergrounding overhead utility lines. However, any area where overhead utility lines are located in streets, roads, or rights-of-way may be included in an underground utility district for engineering, operating, or economic reasons.

B. IN AREAS OF GENERAL PUBLIC INTEREST AND BENEFIT:

CPAU will replace its existing overhead distribution lines and fiber optic cables with underground distribution facilities at CPAU's expense along public streets and roads, on public lands, and on private property across which satisfactory easement or rights-of-way have been obtained or may be obtained without cost or condemnation by the City provided that:

1. The Project extends a minimum distance of two City blocks or 750 feet.
2. The City Council has:
 - (A) Determined that such under-grounding is in the general public interest. Included among the reasons for such determination may be:
 - (1) Such under-grounding will avoid or eliminate an unusually heavy concentration of overhead distribution and fiber optic facilities or the construction of an existing pole line to accommodate additional overhead circuits.
 - (2) Said street or road or right-of-way is extensively used by the general public and carries a heavy volume of vehicular traffic.
 - (3) Said street or road or right-of-way adjoins or passes through a civic or public recreation area or an area of scenic interest to the general public.



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- (B) Adopted an ordinance creating an underground district in accordance with the applicable sections of Chapter 12.16, Underground Utilities, of the Palo Alto Municipal Code, which provides, among other things:
- (1) That all existing overhead communication and electric distribution facilities in such district shall be removed.
 - (2) That each property owner served from such overhead distribution and fiber optic facilities shall provide, within a period of time established by the City Council and at the property owner's expense and in accordance with CPAU applicable Rules and Regulations and schedule of charges for underground service connections, all electrical service facility construction and charges on his premises necessary to receive service from the underground distribution and fiber optic facilities after they are completed and in operation.
 - (3) CPAU is authorized to discontinue overhead services after the period of time established by City Council for reconnection to the underground distribution and fiber optic facilities has expired.

C. IN AREAS PRIMARILY OF LOCAL PUBLIC BENEFIT:

CPAU will replace its existing overhead distribution and fiber optic facilities with underground distribution and fiber optic facilities along public streets, roads, or other locations mutually agreed upon when requested by a group of Applicants or an authorized representative of a group of Applicants, provided that:

1. The project includes at least one block to 600 feet.
2. The City of Palo Alto City Council has:
 - (A) Determined that such undergrounding is in the general public interest, but primarily of local benefit.
 - (B) Adopted an ordinance creating an underground district in accordance with the applicable sections of Chapter 12.16, Underground Utilities, of the Palo Alto Municipal Code, which provides among other things:

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- (1) That all existing overhead communication and electric distribution facilities in such district shall be removed.
 - (2) That each property owner served from such overhead distribution and fiber optic facilities shall provide, within a period of time established by the City Council and at the property owner's expense and in accordance with the CPAU applicable Rules and Regulations and schedule of charges for underground service connections, all electrical service facility construction and charges on his premises necessary to receive service from the underground distribution and fiber optic facilities after they are completed and in operations.
 - (3) That CPAU is authorized to discontinue overhead service after the period of time established by the City Council for reconnection to the underground distribution and fiber optic facilities has expired.
3. The Applicant or group of Applicants pays 50 percent of the total costs, exclusive of transformers and associated equipment, for the replacement of the overhead electric distribution lines with underground electric distribution facilities in the public right-of-way or easement. CPAU will pay 50 percent of said costs and will provide the transformers and associated equipment.

Where the street-lighting system in areas to be under-grounded is mounted on overhead poles to be removed, the street-lighting facilities shall be replaced in accordance with the standards and requirements of CPAU, and the cost shall be borne by the Applicant or group of Applicants.

The cost of undergrounding communication facilities shall be borne by the Applicant or group of Applicants as determined by applicable tariffs and rules of the servicing utility.

Where overhead fiber systems exist, 100 percent of the cost to place them underground will be borne by the Applicant or group of Applicants.

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D. IN AREAS OF INSUFFICIENT PUBLIC BENEFIT TO QUALIFY UNDER SECTION B OR SECTION C:

When mutually agreed upon by the Director of Utilities and an Applicant, overhead distribution and fiber optic facilities may be replaced with underground distribution and fiber optic facilities provided that:

1. The Applicant requesting the change enters into an agreement with CPAU to pay, in advance, a non-refundable sum not less than 75 percent of the estimated total cost of the replacement of overhead electric distribution lines with underground electric distribution facilities, in the public right-of-way or easement, exclusive of transformers and associated equipment. The share borne by CPAU shall be determined by the Electrical Engineering Manager on his or her calculation of the benefit to CPAU.

Where the street-lighting system in areas to be under-grounded is mounted on overhead poles to be removed, the street-lighting facilities shall be replaced in accordance with the standards and requirements of CPAU, and the cost shall be borne by the Applicant or group of Applicants.

The cost of undergrounding communication facilities shall be borne by the Applicant or group of Applicants as determined by applicable tariffs and rules of the servicing utility.

Where overhead fiber systems exist, 100 percent of the cost to place them underground will be borne by the Applicant or group of Applicants.

2. Each property owner served from such overhead distribution and fiber optic facilities shall agree to provide at his or her own expense, within a period of time established by CPAU, all electrical and fiber optic service facility construction and changes on his or her premises necessary to receive service from the underground distribution and fiber optic facilities when they are completed and in operation.

(END)