XI. DRY UTILITIES

The dry utilities at Alameda Point include electric power, natural gas, communications and cable television.

A. Electric System

1. Existing Electric System

Alameda Municipal Power (AMP) owns and operates the existing electric power facilities at Alameda Point and throughout the City of Alameda. The existing electric system at Alameda Point consists of 115kV transmission, 12kV and 4kV distribution facilities. Electricity is supplied to the Project Site via the existing overhead 115kV transmission facilities along Pacific Avenue to the east, which turn north on Main Street and enter Alameda Point and connect to the Cartwright Substation near the Skyhawk / 11th Street intersection. The overhead 115kV transmission line continues north on Main Street and connects to NCPA Combustion Turbines twin peaking generators located north of the linear park & trail along Main Street.

The Cartwright Substation is a critical component of the existing electric system and is intended to remain in service throughout the redevelopment of Alameda Point. The substation provides local electric distribution to Alameda Point and portions of the surrounding areas to the east. Cartwright is a 115/12.47kV substation, equipped with two 33/44/55 MVA transformer banks. Nine active 12.47kV, 600 Amp underground distribution feeders (electric main lines) exit the substation to the west, providing local electric service throughout the Project Site. 600 Amp and 200 Amp looped underground distribution circuits provide feeds to local unit substations and existing customers throughout the Project Site. Unit substations located in strategic areas of the Project Site provide switching and/or protection for the various 12kV electric main lines. See Figure 49 depicting the existing electric system and associated key components

2. Existing Electric System Disposition and Capacity

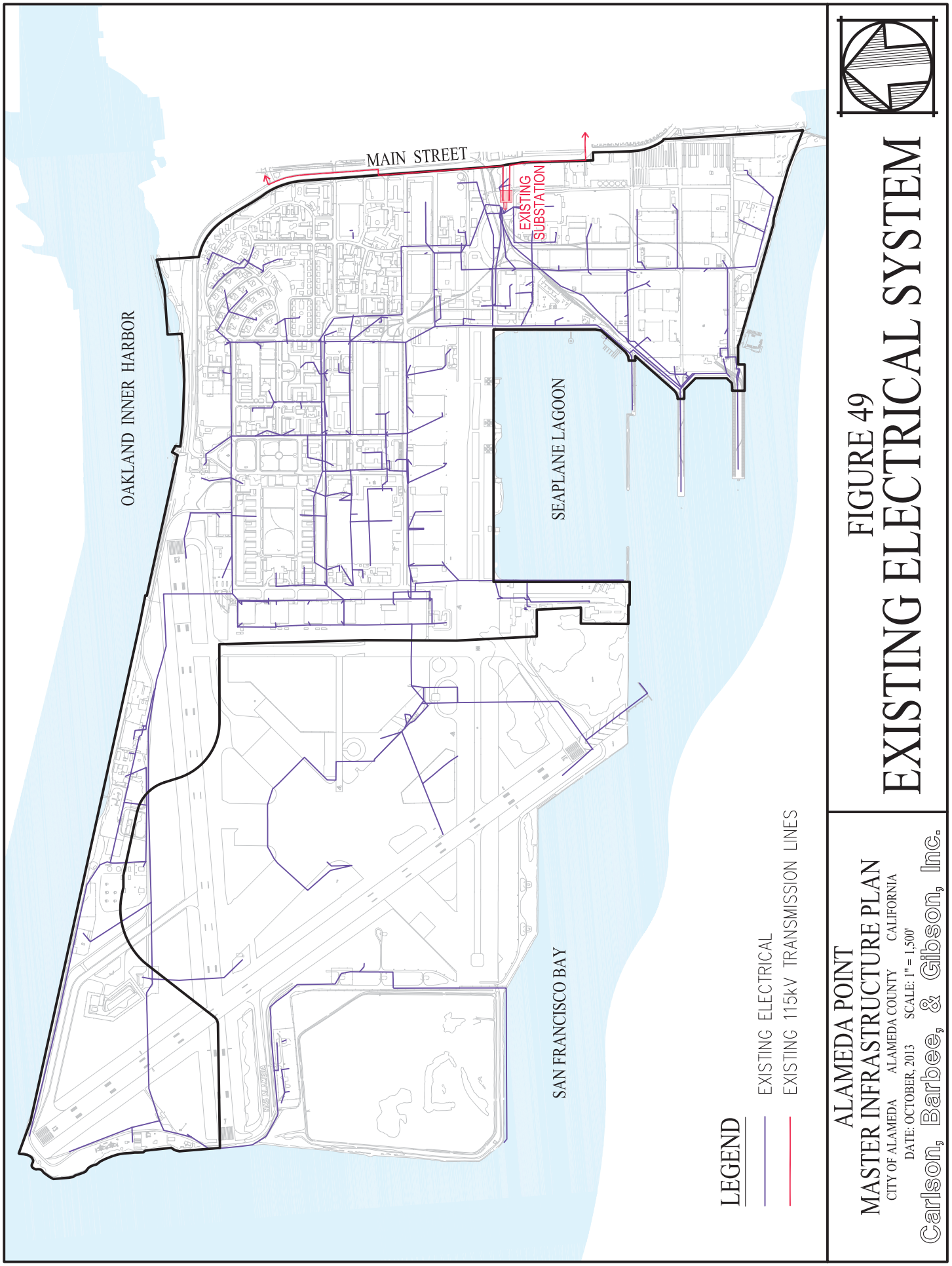
AMP estimates that the Cartwright Substation has an existing electric capacity for a maximum demand of approximately 50 MVA. The substation can be upgraded to increase the electric capacity, if necessary. The upgrades would most likely include a transformer and bus and breaker improvements within the substation.

The electric transmission system facilities, 115kV pole lines, providing electricity to Alameda Point will support an additional electric demand of approximately 80 MVA.

The existing electric system is operable and provides electricity to the existing tenants within the Project Site. The Cartwright Substation is in acceptable condition to AMP and will be preserved. The existing 115kV overhead electric transmission lines along Main Street and connecting to the Cartwright Substation will remain overhead, but may be relocated to accommodate adjacent street improvements or developments if determined necessary. The existing electric distribution facilities on the piers were recently replaced and will remain.

The majority of the existing electric distribution system meets current codes and standards; however there are reliability issues within portions of the Project Site.

The locations of the existing distribution facilities are commonly outside of existing streets, and are within future Development areas.


MAIN STREET
EXISTING SUBSTATION
OAKLAND INNER HARBOR
SEAPLANE LAGOON
SAN FRANCISCO BAY
LEGEND
EXISTING ELECTRICAL
EXISTING 115kV TRANSMISSION LINES
ALAMEDA POINT
MASTER INFRASTRUCTURE PLAN
CITY OF ALAMEDA ALAMEDA COUNTY CALIFORNIA
DATE: OCTOBER, 2013 SCALE: 1" = 1,500'
Carlson, Barbee, & Gibson, Inc.
FIGURE 49
EXISTING ELECTRICAL SYSTEM
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3. Proposed Electric Demand

The estimated total coincident electric demand for the ultimate redevelopment of Alameda Point is approximately 40 – 50 MVA. See Table 12 for a summary of estimated electric demands associated with the build-out of the Community Reuse Plan. The estimated demand is based on historical electric utility load data for the various proposed land uses in the local climate zone. The existing transmission facilities and Cartwright Substation have adequate capacity for the Project's estimated ultimate electric demand.

Table 12 - Estimated Electric Demand (Buildout)

Land Use	Units	Square Footage	Acres	Estimated Loads (MVA)
Residential	1,425			4.3
Commercial		5,300,000		36.4
Retail		200,000		2.5
VA Development Area			75	3.0
			Total Electrical Load:	**46.2**

If additional capacity is necessary to accommodate proposed use within Alameda Point that exceeds the available capacity, equipment additions and improvements can be implemented at the Cartwright Substation to increase the available capacity. Other capacity upgrades and system protection / automation could be developed with input from AMP on an as needed basis.

Large industrial or other types of uses with high electric demands may require additional electric capacity. These types of demands would be in excess of about 4 MVA, and would likely require to be served at Primary Voltage (12.47 kV). This proposed use and associated electric demand would need to be evaluated and coordinated with AMP.

4. Proposed Electric System

The existing 115kV overhead transmission facilities will remain and continue to provide electric power to the Project Site. The 115kV pole lines directly east and connecting to the Cartwright Substation will be preserved. There is an existing easement, approximately 140-feet wide, in favor of AMP for this area, which will be preserved restricting the potential land uses to landscaping or parking areas. The 115kV pole lines along the west side of Main Street will remain but may be relocated to eliminate conflicts with proposed street improvements or development sites. The new 115 kV transmission lines, where they are relocated to, must be constructed and energized prior to removal of the existing lines.

The Cartwright Substation will be preserved and remain as a key component of the proposed electric distribution system.

a. Development Areas

From the Cartwright Substation, a new underground electric distribution system will be installed with the Development Areas. This new electric system will replace the existing electric system in phases consistent with the development build-out. The proposed electric distribution system will consist of new underground conduits, vaults, boxes, and pads; which will accommodate 15kV rated cables, transformers, switches and other utility distribution equipment including its SCADA communication monitoring and controls. The existing nine (9) electric main lines emanating

from the west side of the Cartwright Substation will be replaced with approximately six (6) new main lines. These main lines will require a utility corridor and reserved easement in aggregate, approximately 40-feet wide, to assure utility compliance for minimizing exposure and maintaining separation of circuits to avoid mutual heating of conductors. See Figure 50 depicting a conceptual configuration of the electric utility corridors and easements near the Cartwright Substation.

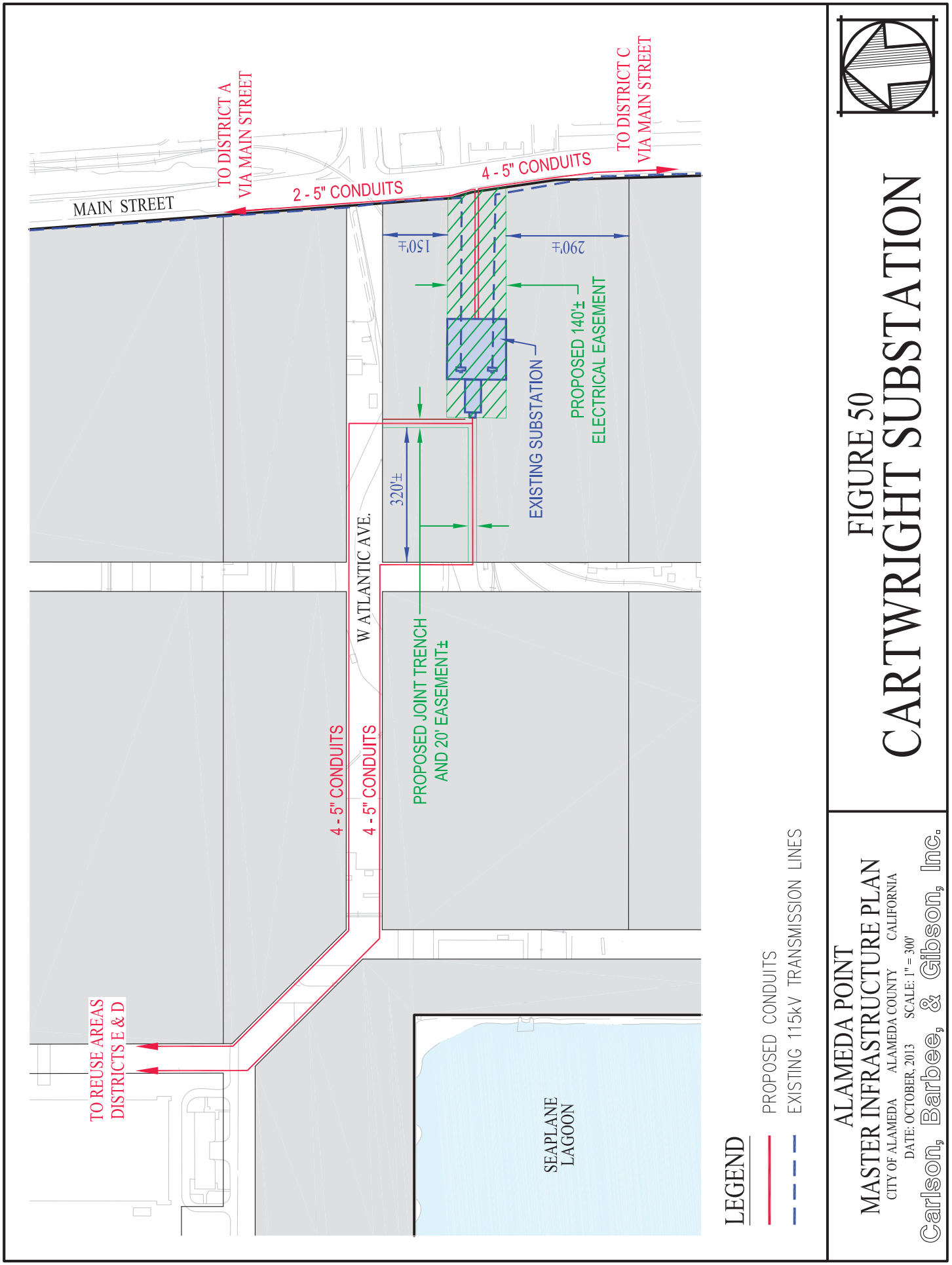
From the main lines, the electric distribution facilities will be installed within all backbone streets within the Development Areas. The electric conduits and cables will be placed in a joint utility trench. This trench will also accommodate the Pacific Gas & Electric (PG&E) natural gas, telephone, cable television, possible ancillary fiber optic cable systems and street light facilities. The proposed electric system and joint trench will be constructed in accordance with AMP's rules and regulations as outlined in their Material and Installation Criteria for Underground Electric Systems, latest version. See Figure 51 depicting the schematic proposed joint trench system at Alameda Point.

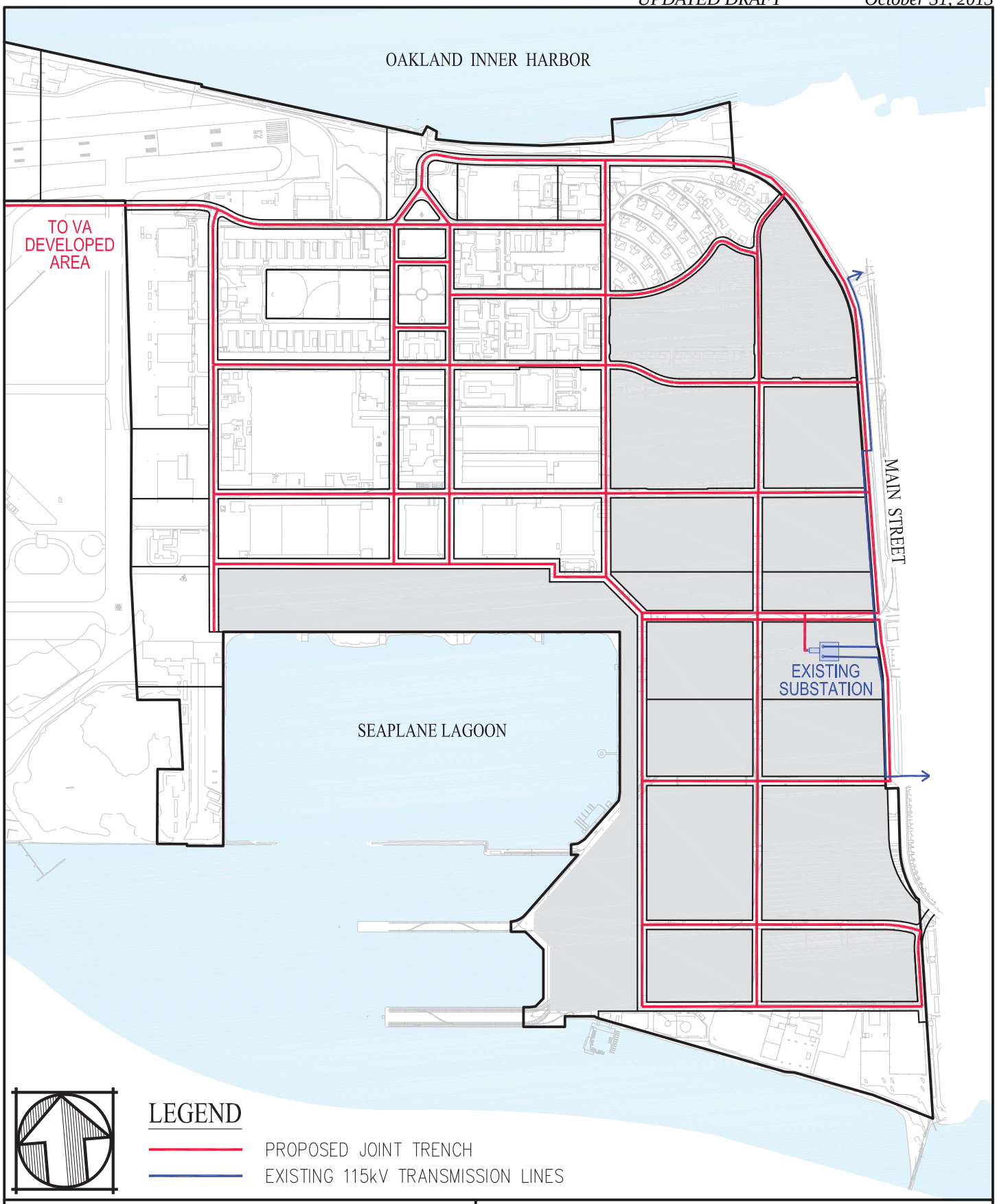
Some of the existing unit substations may remain if they do not conflict with other proposed utilities, streets or Development areas. Specifically, the existing unit substations, Substation #12 and Substation #14, near the piers will likely remain and provide service for the MARAD uses on the piers. The unit substations map also be used for underground trunk loop systems in the Development Areas.

b. Reuse Areas

The Reuse Areas within Alameda Point initially will continue to utilize the existing electrical distribution system through an enhanced maintenance program. This program will be administered by the City of Alameda / AMP and will rehabilitate the existing system to address deficiencies. Each proposed development within the Reuse Areas will be responsible for investigating and documenting the condition of the existing distribution facilities directly adjacent to that specific site. Any deficiencies identified shall be address at the time of that development. Additionally, each development project within the Reuse Areas will replace the transformer and electrical service to that site.

Ultimately, the electrical distribution system within the Reuse Areas will be replaced. The proposed system will be similar to the system proposed within the Development Areas, constructed in a joint utility trench. Similarly, the unit substations at preserved buildings within the Reuse Areas will likely remain and be served from the proposed distribution system. The replacement of the electrical system within the Reuse Areas will be completed over time as described in the Phasing and Implementation Section XIII.


MAIN STREET
TO DISTRICT A
VIA MAIN STREET
2 - 5" CONDUITS
4 - 5" CONDUITS
TO DISTRICT C
VIA MAIN STREET
150'±
290'±
PROPOSED 140'± ELECTRICAL EASEMENT
EXISTING SUBSTATION
320'±
W ATLANTIC AVE.
PROPOSED JOINT TRENCH AND 20' EASEMENT±
4 - 5" CONDUITS
4 - 5" CONDUITS
TO REUSE AREAS
DISTRICTS E & D
SEAPLANE LAGOON
LEGEND
PROPOSED CONDUITS
EXISTING 115kV TRANSMISSION LINES
FIGURE 50
CARTWRIGHT SUBSTATION
ALAMEDA POINT
MASTER INFRASTRUCTURE PLAN
CITY OF ALAMEDA ALAMEDA COUNTY CALIFORNIA
DATE: OCTOBER, 2013 SCALE: 1" = 300'
Carlson, Barbee, & Gibson, Inc.
G:\1087-10\ACAD-10\EXHIBITS\BASE CASE ALT - FIGURES\XB_50_CARTWRIGHT SUBSTATION.DWG



ALAMEDA POINT
MASTER INFRASTRUCTURE PLAN
CITY OF ALAMEDA ALAMEDA COUNTY CALIFORNIA
DATE: OCTOBER, 2013 SCALE: 1" = 1,000'
Carlson, Barbee, & Gibson, Inc.

FIGURE 51
PROPOSED ULTIMATE JOINT TRENCH

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B. Natural Gas System

1. Existing Natural Gas System

The existing natural gas supply facilities at Alameda Point are owned and operated by PG&E. Natural gas is supplied to Alameda Point by an existing 8-inch steel main, at an operating pressure of approximately 50 psi. This 8-inch main is located along W. Atlantic Ave and continues within the Project Site heading northwest along the former rail line route. The 8-inch main terminates at an existing regulating /metering station that is located at the Ferry Point / W. Tower Ave intersection. See Figure 52 depicting the Existing Natural Gas Facilities. The existing gas distribution facilities after the regulating / metering station are owned and operated by the City of Alameda. These facilities have deteriorated and are unreliable. The gas system does not extend to all areas within Alameda Point. Additionally, the operating pressure of the existing system is so low that many existing tenants cannot utilize the natural gas service. PG&E will not accept the existing gas distribution system as it does not meet their standards. PG&E is currently evaluating a system improvements and rehabilitation prior to the redevelopment of Alameda Point.

2. Proposed Natural Gas Demand

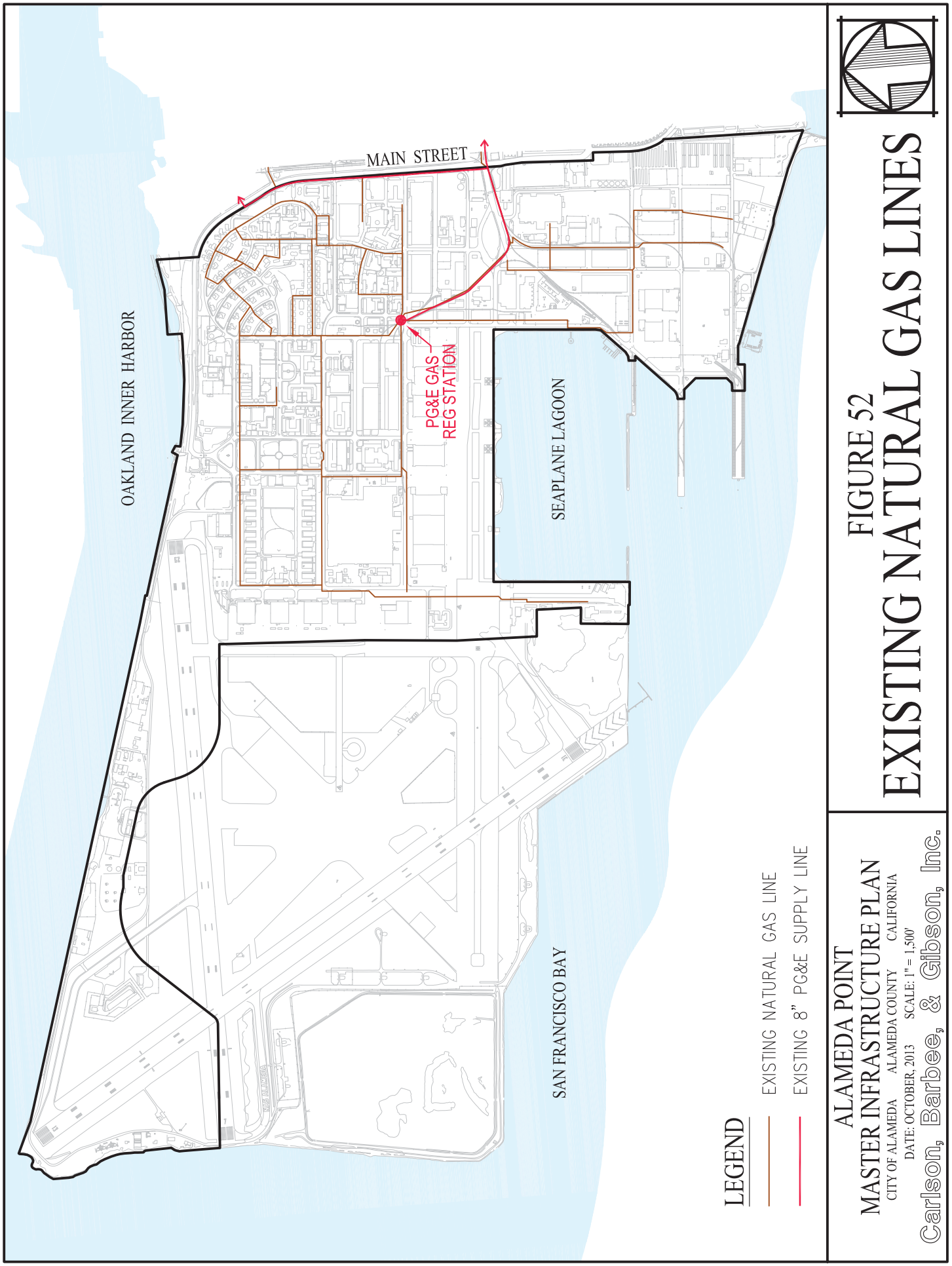
The estimated total coincident natural gas demand for the ultimate redevelopment of Alameda Point is approximately 1,160 mcfh. See Table 13 for a summary of estimated natural gas demands associated with the build-out of the Reuse Plan. The estimated demand is based on historical natural gas utility load data for the various proposed land uses in the local climate zone.

Table 13 - Estimated Gas Demand (Buildout)

Land Use	Units	Square Footage	Acres	Estimated Demands (Mcfh)
Residential	1,425			57
Commercial		5,300,000		1,060
Retail		200,000	200,000	40
VA Development Area			75	50
			Total Gas Demand:	**1,207**

The existing gas supply line in W. Atlantic Avenue has adequate capacity for the Project's anticipated gas demand. If a capacity upgrade to the existing gas supply line is determined to be necessary, it will be implemented by PG&E and at PG&E's expense per their tariff rules and regulations.

Atypical natural gas demands may necessitate the extension of gas distribution or transmission facilities and regulating stations. These will include any use with a natural gas demand of approximately 10 psi or higher, which is above typical distribution load and or pressure requirements


MAIN STREET
OAKLAND INNER HARBOR
PG&E GAS
REG STATION
SEAPLANE LAGOON
SAN FRANCISCO BAY
LEGEND
EXISTING NATURAL GAS LINE
EXISTING 8" PG&E SUPPLY LINE
ALAMEDA POINT
MASTER INFRASTRUCTURE PLAN
CITY OF ALAMEDA ALAMEDA COUNTY CALIFORNIA
DATE: OCTOBER, 2013 SCALE: 1" = 1,500'
Carlson, Barbee, & Gibson, Inc.
FIGURE 52
EXISTING NATURAL GAS LINES
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3. Proposed Natural Gas System

a. Development Areas

A new natural gas distribution system will be installed throughout Alameda Point, within the Development areas. This system will connect to the existing 8-inch steel main near the W. Atlantic Ave. / Main Street intersection. The proposed gas facilities will be constructed in all backbone streets, providing reliable gas service to all Sub-Districts. The new natural gas system will replace the existing natural gas system in phases consistent with the development build-out. The proposed gas distribution system will include steel and / or plastic pipe, fittings, regulators and meters, and supervisory control equipment that are compliant with the latest PG&E standard requirements. PG&E will own and operate the new gas system. The proposed gas system will be installed in a joint utility trench as previously described.

b. Reuse Areas

The existing system within the Reuse Areas will be rehabilitated and/or replaced by PG&E. New gas distribution facilities will be extended by PG&E into backbone streets where there are not current facilities.

C. Telecommunications and Cable Television

1. Existing Telephone and Cable Television System

The existing communication utility systems at Alameda Point are owned and operated by AT&T, AMP and Comcast.

AT&T operates the existing telephone system east of the Project Site. AT&T's system includes conduits and fiber optic cables that extend across the Project Site and terminate at the eastern corner of Building 2, near the W. Midway Ave / Lexington Street intersection. The AT&T facilities terminate at this location which is AMP's "head-end" facility and the demarcation point of AMP's telephone system. This telephone system provides service to the Project Site via conduits and sub-structure facilities that emanate from the AMP "head-end".

Comcast operates the existing cable TV system within the Project Site. Comcast has extended their wires within existing available conduits within AMP's sub-structure facilities. This approach results in inadequate clearances between the electric system and the cable TV system.

The existing telecommunication systems within the Project Site are not reliable and not constructed to current standards and regulations. Additionally, the existing systems are not located in the proposed backbone street corridors.

The existing communications, telephone, fiber optic and cable TV systems operated by AT&T and Comcast to the east of the Project Site have adequate capacity to serve the proposed project.

2. Proposed Telephone and Cable Television System

a. Development Areas

New telecommunications systems, including telephone, and cable TV will be installed within the Development Areas. Additional empty conduits shall be installed to accommodate the implementation of fiber optics by others. These systems will connect to the existing systems east of the Project Site, near Main Street. The proposed telecommunication facilities will be constructed in all backbone streets, within both the Development and Reuse areas, providing reliable service to all Sub-Districts. The new telecommunication system will replace the existing systems in phases consistent with the development build-out. The proposed system will include extensions of conduits, substructure facilities, and supervisory control equipment that are compliant with the latest AT&T and Comcast standard requirements. The proposed telecommunications systems will be installed in a joint utility trench as previously described.

b. Reuse Areas

The Reuse Areas within Alameda Point initially will continue to utilize the existing telecommunication system through an enhanced maintenance program. This program will rehabilitate the existing system to address deficiencies. Each proposed development within the Reuse Areas will be responsible for investigated and documenting the condition of the existing facilities directly adjacent to that specific site. Any deficiencies identified shall be address at the time of that development.

Ultimately, the telecommunication system within the Reuse Areas will be replaced. The proposed system will be similar to the system proposed within the Development Areas, constructed in a joint utility trench. The replacement of the telecommunication system within the Reuse Areas will be completed over time as described in the Phasing and Implementation Section XIII.

D. Street Light System

1. Existing Street Light System

The existing street lighting system at Alameda Point is owned and operated by AMP. The existing street lighting is operable but does not meet the current utility standards or lighting requirements.

2. Proposed Street Lighting System

A new street lighting system will be installed within all backbone streets of the Development Areas. The street light system within the Reuse Areas will be replaced over time as described in the Phasing and Implementation Section XIII. Photometric requirements and placement of lighting units shall comply with AMP's standards. The lighting criteria shall also be compliant with the latest Illuminating Engineering Society (IES) standards. The lighting units shall utilize energy efficient luminaires, such as light emitting-diode (LED) type luminaires.

The proposed lighting system will be designed in accordance and adhere to the lighting mitigation measures defined in the Biological Opinion issued by the United States Fish and Wildlife Service for Alameda Point and a Memorandum of Agreement with the VA regarding lighting mitigation measures.