APPENDIX B

PLAN FOR SERVICES

PLAN FOR SERVICES

Reorganization of the Northeast Antioch Area to the City of Antioch and the Delta Diablo Sanitation District, consisting of three separate applications for Subareas 1, 2a, and 2b

REQUEST:

The City is requesting the reorganization of a total of approximately 630 acres of land to the City of Antioch (City) and to the Delta Diablo Sanitation District (DDSD). The land being considered for reorganization is referred to as the Northeast Antioch Annexation Area, and consists of three separate Subareas that differ significantly from each other in terms of physical setting, existing and planned land uses, existing General Plan and zoning designations, typical lot sizes, and other characteristics. All three Subareas are located within the Spheres of Influence of the City and DDSD, and also fall within the City's Urban Limit Line (ULL), as approved by Antioch voters in November 2006.

PHYSICAL AND REGULATORY SETTING:

The Northeast Antioch Annexation Area is located northeast of the current Antioch City limits, and includes three Subareas, designated as Subarea 1, Subarea 2a, and Subarea 2b. These three Subareas are described below:

- **Subarea 1:** This is an approximately 481 acre area almost entirely occupied or previously occupied by heavy industrial uses. It is located in the "Eastern Waterfront Employment Focus Area" of the City's General Plan. Subarea 1 is designated within this General Plan Focus Area with a combination of "General Industrial" and "Rail Served Industrial" designations. The City's prezoning for this Subarea is primarily "Heavy Industrial" with a smaller section south of Wilbur Avenue prezoned as "Light Industrial". The Federally owned wildlife preserve at the western end of Subarea 1 is prezoned "Open Space". The County General Plan and Zoning designations are "Heavy Industrial" for all of Subarea 1.

  This Subarea was developed with industrial uses from the late 1940's to the early 1970's, and provided the East County area with thousands of jobs during this time frame. The majority of these industrial uses are no longer in operation, and in many cases the industrial buildings have been torn down. At present less than 50% of the land is occupied by operating businesses. This Subarea presents both the City of Antioch and the region with an excellent opportunity for future economic growthand job creation, given the amount of vacant land, the large size of the parcels, and the access to electrical power generation. Also increasing the potential for future job growth in this Subarea is the accessibility provided by the Burlington Northern rail line that runs east/west through Subarea 1, and the presence of the San Joaquin River deep water channel that is located along the Subarea's northern boundary. There is an existing deep water port located on the "Northstar" property within this Subarea. No residential uses are located in Subarea 1.

  In 2008 PG&E completed construction of the 430 megawatt "Gateway Power Generating Station" at the eastern edge of Subarea 1. Another large power generation facility, the 730 megawatt GenOn "Marsh Landing Generating Facility" located just west of the Gateway power plant , is under construction in this subarea. LAFCO in 2008 authorized the City of

Antioch to execute an "Out of Agency Service Agreement" to provide sewer and water services and DDSD sewer treatment services to the PG&E Gateway Facility. An Out of Agency Agreement for Gateway was subsequently executed in September 2008. LAFCO in 2011 granted the City the authority to enter into an Out of Agency Service Agreement with GenOn to provide City sewer and water services to the Marsh Landing Power Plant. The Out of Agency Service Agreement was executed with GenOn in August 2011.

There is an existing approximately 70 acre Federal Wildlife Preserve located in the western portion of Subarea 1. This Preserve serves as habitat for endangered species.

- **Subarea 2a**: This Subarea consists of 94 acres, and lies east of Subarea 1, north of Wilbur Avenue, and west of SR 160. This Subarea has City General Plan designations under the "Eastern Waterfront Employment Focus Area" of "Marina Support Uses" and "Commercial". The County's General Plan and Zoning Designations are "Heavy Industrial".

  Subarea 2a is much different in character from Subarea 1, and consists almost entirely of two existing marinas and storage uses. While the intensity of existing development is low, the amount of vacant land in this area is minimal. Approximately five residential units are located in this Subarea, along with a few "live aboards" on boats docked in the two marinas. Both of the marinas currently receive City potable water based on previous arrangements with the City that predate the formation of LAFCO. All existing uses in this Subarea utilize on site septic systems to handle their waste water.

- **Subarea 2b :** This Subarea is 103 acres in size, and consists almost entirely of residential uses. The City General Plan Designation for this Subarea is "Medium Low Density Residential", which allows residential densities of up to 6 units/acre. The County's General Plan and Zoning designations for Subarea 2b call for residential uses with 10,000 minimum square foot lots in the eastern portion of Subarea 2b, with a combination of very low density with 40,000 sq. ft. minimum lots and A-2 Agricultural. This area is generally located south of Wilbur Avenue and north of East 18th Street, with most of the residential uses located in close proximity to Viera Avenue. There are approximately 120 existing residential units in this area, with the majority of these being single family homes that were built in the 1940's and 1950's. There are a number of newer homes located in the southwest portion of the Subarea, most of which date back to the 1970 and 1980's.

  Almost all of the residential uses within Subarea 2b rely on aging septic fields and drinking water wells. Based on information from the County Health Department none of the existing wells and septic fields in Subarea 2b meet the current minimum separation requirements between the boundary of the septic field and the potable water well head. The majority of the residential properties within Subarea 2b also don't meet the lot size requirements to contain a septic field and potable water well. In addition, most of the wells are older and therefore lack an impervious casing to protect the well from infiltration.

  The County Health Department has stated to City staff that they are concerned about the public health situation facing Subarea 2b, given the small lot sizes coupled with the almost total reliance on wells and septic fields that don't meet current standards. However, the ability of the County Health Department to inspect and monitor the condition of these wells and septic fields is limited, and typically only occurs on a complaint basis or if a building permit is applied for and issued. The few wells the County Health Department has the authority to monitor on a regular basis are limited to those wells that provide water to multiple properties. While these regular inspections of wells serving multiple properties

have not to date resulted in the closure of any wells for public health reasons, the County Health Department has noted high levels of nitrates in the wells. County Health staff has indicated that high nitrate levels are commonly precursors to bacterial contamination.

The streets in the area are in poor to very poor condition, and lack storm water drainage. Most of the streets, other than Viera Avenue lack paving, with their surfacing consisting largely of gravel and dirt. The lack of storm drainage creates "ponding" during moderate to heavy rains. While the majority of the streets in the area are public streets, there are a number of private streets. These private streets are located in the southwest section of the Subarea, just north of East 18th street.

PROVISION OF CITY, DDSD, AND OTHER AGENCY SERVICES AND INFRASTRUCTURE TO THE THREE SUBAREAS:

Overview

The following sections describe the means by which the City, DDSD, and other agencies will provide municipal and special district services and infrastructure to the three annexation Subareas. The description of the services being provided is applicable to all three Subareas unless otherwise noted. The attached table (see Attachment 1) presents a summary of which service provider is currently providing services to the annexation area and which provider will be providing services after annexation, along with additional information.

Level of Detail Provided: While all three Subareas are addressed collectively, more detailed information is provided on the sewer, water, and storm drain infrastructure systems to serve Subarea 2b. This is due to the fact that the City, through the terms of its Tax Sharing Agreement with the County, has agreed to jointly fund with the County the sewer, water, and storm drain infrastructure to serve Subarea 2b. The additional detailed information provided for Subarea 2b includes data such as pipe sizes, pipe depths, pipe locations etc. The information for the other two Subareas (1 and 2a) is more conceptual, and presents a "broad brush" picture of the proposed infrastructure system needed to serve those two Subareas.

The other point to note in relation to Subarea 2b is that the funding needed to install the infrastructure within Subarea 2b is presumed to come from the tax revenues the City anticipates from the annexation of Subarea 1. From a financial perspective, given the high infrastructure costs to serve Subarea 2b (a minimum of $6 million) and given Subareas 2b's almost total reliance on wells and septic fields, tax revenues generated by the annexation of Subarea 1 are necessary to pay for the costly water and sewer infrastructure system to serve Subarea 2b. The City, through the terms of its Tax Sharing Agreement with the County, has agreed to jointly fund the $6 million cost (each party contributes $3 million), and install the backbone infrastructure to serve Subarea 2b. Another correlation between Subarea 2b and Subarea 1, is the trunk sewer and water lines to serve Subarea 2b need to be installed along Wilbur Avenue through the length of Subarea 1.

Assumptions Concerning Infrastructure Funding and Construction:

It is important to emphasize that given the current and foreseeable financial constraints facing local governments, and given the policies in the City's General Plan that emphasize the importance of new development "paying its own way", it is not reasonable to assume the City will be funding and constructing the infrastructure improvements that will be needed to serve the reorganization Subareas (with the specific exception of Subarea 2b as discussed elsewhere in this document). The City is therefore assuming that the infrastructure improvements needed

to serve each Subarea (with the exception of Subarea 2b) will be primarily funded by one of the two following mechanisms:

- Future industrial/commercial development projects will be required as conditions of approval to construct the infrastructure extensions needed to provide services such as sewer, water, and storm drainage to their project. At this point in time the size, type, and location of any such future development projects is unknown, and therefore the exact size and locations of infrastructure improvements is also unknown. These will ultimately be determined through a future entitlement and environmental review process.

- In conjunction with future development projects, another possibility is that land based financing districts, such as assessment districts, may be formed to fund and construct needed infrastructure improvements. This was the primary mechanism by which infrastructure improvements were funded in Antioch in the past, such as in the Southeast Antioch Area.

Despite these unknowns about what precise form the future infrastructure system will take, conceptual drawings are provided (see Figure 3) depicting how an infrastructure system may be developed to serve Subareas 1 and 2a, taking into account the location of existing infrastructure and the area's geography.

Provision of City, DDSD, and Other Agency Services

As previously mentioned, Table 1 provides a summary of the various services that will be provided to the Northeast Antioch Annexation Area, and links each service with the service provider. The following is a description of the full range of services that will be provided to the three Subareas, along with a discussion analysis of the ability/capacity of the agency in question to provide the needed service. The services are described in the order they appear in Table 1.

Water Services:

Distribution System: The City currently has existing "looped" water mains located in the Northeast Antioch Annexation area, consisting of an 16 inch main that runs north/south the length of Viera Avenue, and 12 inch waterline then runs east/west along the length of Wilbur Avenue through Subarea 1, and 12 inch and 16 inch water lines that run along E. 18th Street. Such a looped system has the benefit of ensuring higher water pressure and reliable water flows than a non looped configuration. These existing water lines provide the "backbone" of any future water system that will ultimately be developed to serve properties and businesses located on streets other than Wilbur and Viera Avenues. There is an existing 8 inch waterline in Bridgehead road that can serve properties in that area. The exact configuration of waterlines that will extend from this exiting system within Subareas 1 and 2a is unknown, and will depend on the location and type of future development in the area.

Figure 2 depicts the precise location and size of the water lines necessary to serve existing and future uses within Subarea 2b. This map depicts the location and sizes of the water lines to serve all the properties in Subarea 2b. This is the water system that will be constructed according to the terms of the Tax Sharing Agreement between the City and the County.

Water Supply/Treatment Capacity: The City, in its Water Master Plan examined the City's ability to serve all three Subareas. This analysis documents that given the City's allocation of raw water and the City's rights to future supplies of raw water, and based on the City's current and

planned treatment capacity, the City has the ability to provide potable water to all three Subareas, based on the level of existing development and foreseeable future development..

Sewer Services:
Collection System: The City provides sewer collection services. There is currently a 15 inch sewer line that runs from the DDSD Bridgehead pump station to the eastern edge of the GenOn property. GenOn is in the process of extending this sewer line across its frontage. Figure 3 depicts the location of this existing line, along with schematics of possible sewer line extensions from the Wilbur "trunk" sewer line.
Figure 2 provides a detailed plan of the sewer line extensions needed to serve Subarea 2b, along with the size and the depth of the sewer lines. These sewer lines have the capacity to handle existing and projected future development in Subarea 2b. As previously discussed, these sewer lines will be jointly funded and constructed by the City and the County according to the terms of the Tax Exchange Agreement.

Sewer Treatment: DDSD provides sewer treatment. The majority of the effluent from the three Subareas will flow east to DDSD's bridgehead pump station, which has been sized to handle the existing and future projected flows from the three Subareas. The DDSD treatment facility located at the western edge of Antioch has the capacity to handle the projected flows from all three Subareas.

Police Services: The City's standard for providing public safety services is 1.2 sworn officers per 1000 residents. Given that Subarea 1 contains no residents, the annexation of this Subarea will not impact the City's ability to deliver Public Safety Services. There are approximately 18-20 residents living within Subarea 2a, some of whom reside in the 5 existing homes while the others are "live aboards" in the marinas. Applying the ratio of 1.2 officers per 1000 population results in a minimal cost of police services, which calculates to be $3600. Area 2b contains 120 homes, the majority of which are single family. Applying standard occupancy factor based on the type of unit results in an upper end estimate of 320 residents. Applying the ratio of 1.2 officers per 1000 population results in the need for .4 officers, or a police cost of $60,000. The total "cost" of police services to the City of annexing all three Subareas is $63,600/year.

While Police Services is currently staffed below the staffing goal of 1.2 to 1.5 officers per 1000 population, the relatively small additional cost of police services to serve all three Subareas ($63,600) will be more than offset by the projected annual revenue from Subarea 1 alone. Based on the terms of the Tax Exchange Agreement with the County, the City will be receiving in excess of $1,000,000/year in tax revenue once the GenOn facility comes on line in June of 2013.

Fire Services: Fire protection services are provided to the City by the Contra Costa County Consolidated Fire Protection District (Confire). Confire currently serves all three Subareas proposed for annexation. Therefore, annexation will not add to or increase the demand on ConFires services. Any future development in the three Subareas will be required to pay the established Confire fire protection impact fee, which is intended to fund capital facilities such as fire stations and equipment to offset any impacts of new development.

Street Maintenance: There are___ miles of public streets in the annexation area, with Subarea 1 containing __ miles, Subarea 2a ___miles , and 2b ___ miles. Subarea 2b also contains __ miles of public streets which would not be maintained by the City. The City currently has ___ miles of streets, which the City spends ___/year to maintain.

Drainage: There is currently no storm drainage that serves the annexation area, although there are two large storm drain trunk lines (42 inch and 48 inch) that cross Wilbur Avenue and drain into the San Joaquin River. Any future storm drainage constructed as a result of new development in Subarea 1 will likely connect to these existing lines. However, capacity in these existing storm drain lines is limited, and significant new development within the three Subareas will likely require the construction of a new outfall to the San Joaquin River. Storm drainage improvements for Areas 1 and 2a are shown schematically in Figure 3, although the exact layout will depend on the location of future development within Subareas 1 and 2a.

Figure 2 depicts the location and size of storm drain facilities to serve Subarea 2b. As with the sewer and water lines, these utilities will be jointly funded by the City and the County, and constructed by the City.

Parks and Recreation: There are no existing public recreation facilities within any of the three Subareas, although the existing marinas in Subarea 2a provide recreational opportunities. The City's park standard is 5 acres of improved parkland per 1000 residents. Based on the number of residents estimated to be living in all three Subareas (340 total residents, with 95% of these located in Subarea 2b)), approximately 1.6 acres of improved parkland would be required. As a practical matter the City, due to maintenance costs, does not typically construct park facilities of less than 5 acres in size, with 8 to 10 acres being the preferred "minimum" park size. Given this fact, and the presence of an existing City park located less than ½ mile away from Subarea 2b within the Almondridge Development, the City does not intend to improve new park land as a result of the proposed annexation. However, a portion of the significant tax revenue generated from Subarea 1 could be used to enhance/augment the facilities in the nearby existing park.

Refuse: Pleasant Hill Bayshore currently serves all three Subareas. They also serve the City of Antioch. As a result, there would be no change in refuse service as a consequence of the proposed annexation.

Street Lighting: There are no existing public streetlights in any of the three annexation Subareas, with the exception of a few existing street lighting installed and maintained by Caltrans in close proximity to State Hwy 160. Any new streetlights installed within Subareas 1 and 2a would be in conjunction with new development. The City is not initially intending to install streetlights in Area 2b as part of the infrastructure improvements to the area. However, the City may install street lighting in the future for Public Safety purposes if it is deemed to be necessary.

Roads: The road network is already in place in all three Subareas, with no new public streets planned. The question in relation to roads is the condition of the existing roads, which is generally poor to very poor. Within Subareas 1 and 2a the City anticipates that as development occurs appropriate frontage improvements will be made to existing public streets. In Subarea 2b the City as part of the proposed infrastructure improvements is intending to perform limited road resurfacing to public streets in conjunction with the installation of the sewer and water lines. It should be noted that the City does not intend to impose its current residential street standards in Subarea 2b, as the building setbacks are not wide enough to accommodate the standard street right of way.

Library: The County currently provides library services to the annexation Subareas. This will not change with the proposed annexation.

APPENDIX C

COST ESTIMATE FOR INFRASTRUCTURE IMPROVEMENTS, SUBAREA 2B

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
ASSUMPTIONS
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description

GENERAL

1 This estimate details specific improvements to area 2B within the Antioch Annexation. Improvements to the following streets are included in this estimate:

- Wilbur Avenue (~3,900 LF) from Viera Avenue to the connection of the 15" sanitary sewer line at San Joaquin Harbor Road.
- Viera Avenue (~340) from Wilbur Avenue to area 2B boundary
- Viera Avenue (~2,640 LF) from the North Side of the 18th Street Intersection to the area 2B boundary south of Wilbur Avenue
- Santa Fe Avenue (~850 LF)
- Walnut Avenue (~800 LF)
- Bown Avenue (~600 LF)
- Vine Lane (~890 LF)
- Stewart Lane (~350 LF)
- St. Claire Drive (~1,200 LF)
- Trembath Lane (~980 LF)
- Mike Yorba Way (~250 LF)
- Wymore Way (~900 LF)

2 This following resources were used to prepare this estimate:
- Site Visits/Photographs
- Existing Utility Maps provided by the City of Antioch
- 10' Contour Maps of Contra Costa County
- Contra Costa County Base Maps
- FEMA Flood Insurance Rate Maps
- Contra Costa County Flood Control Drainage Area Maps
- PGE Gateway Sewer Plans dated August 2008
- Initial Study and Negative Declaration - Northeast Antioch Reorganization dated March 2008
- Northeast Antioch Annexation Feasibility Study dated January 2005

STREET IMPROVEMENTS

3 Street improvement costs have been included in the unit pricing for utility improvements.

4 No land acquisition costs for street improvements are included in this estimate.

5 The sewer line proposed in Wilbur Avenue can be installed without relocating any existing facilities and without any additional right of way.

6 The sewer line proposed in Wilbur Avenue will be installed under traffic control.

7 A 2" AC Overlay is assumed in this estimate for all existing paved streets.

Item	Description
	SANITARY SEWER
8	Existing facilities that would serve these roads are adequately sized. Increasing the capacity of the existing infrastructure is not required.
9	The proposed sewer lines can gravity flow to the existing facilities.
10	Detailed sewer studies were not prepared.
	WATER SUPPLY
11	Existing facilities that would serve these roads are adequately sized. Increasing the capacity of the existing infrastructure is not required.
12	Detailed water studies were not prepared.
13	No water improvements are proposed to Wilbur Avenue.
	STORM DRAIN
14	Land acquisition costs are included for the storm drain easements from Santa Fe Avenue to the existing basin and from Vine Lane to the existing basin.
15	Storm drainage fees are not included in this estimate due to no new impervious area being constructed.
16	This estimate assumes no water quality facilities will be constructed as part of the phase 2B improvements.
17	Storm drain improvements are per the Drainage Area 29J information provided by Contra Costa County Flood Control District.

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
STREET SUMMARY
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Description		Amount
VIERA AVENUE SITE		
OFF-SITE IMPROVEMENTS	$	1,147,100
TOTAL VIERA AVENUE IMPROVEMENTS COST	$	818,700
TOTAL SANTA FE AVENUE IMPROVEMENTS COST	$	592,000
TOTAL WALNUT AVENUE IMPROVEMENTS COST	$	371,800
TOTAL BOWN LANE IMPROVEMENTS COST	$	230,800
TOTAL VINE LANE IMPROVEMENTS COST	$	678,400
TOTAL STEWART LANE IMPROVEMENT COST	$	108,900
SUBTOTAL VIERA AVENUE SITE CONSTRUCTION COST	**$**	**3,947,700**
MIKE YORBA WAY SITE		
TOTAL ST. CLAIRE DRIVE IMPROVEMENTS COST	$	351,200
TOTAL TREMBATH LANE IMPROVEMENTS COST	$	191,600
TOTAL MIKE YORBA WAY IMPROVEMENTS COST	$	60,400
TOTAL WYMORE WAY IMPROVEMENT COST	$	201,900
SUBTOTAL MIKE YORBA WAY SITE CONSTRUCTION COST	**$**	**805,100**
SUBTOTAL AREA 2B CONSTRUCTION COST	**$**	**4,752,800**
25% CONTINGENCY	**$**	**1,188,200**
TOTAL AREA 2B CONSTRUCTION COST *(to the nearest $100)*	**$**	**5,941,000**
ESTIMATE OF FEES		
STORM DRAINAGE AREA FEE	$	-
POTABLE WATER AND SANITARY SEWER CONNECTION FEE *(112 Units x $6,283)*	$	703,696
TOTAL AREA 2B CONSTRUCTION COST AND FEES *(to the nearest $100)*	**$**	**6,644,700**

Description			Amount
ESTIMATE OF PROFESSIONAL SERVICES AS A PERCENTAGE OF CONSTRUCTION COST			
ENVIRONMENTAL / BIOLOGICAL MITIGATION	2.0%	$	118,800
ARCHAEOLOGICAL MITIGATION	0.5%	$	29,700
DESIGN SERVICES	9.0%	$	534,700
CONSTRUCTION SERVICES	6.0%	$	356,500
CITY PLAN CHECK & INSPECTION	6.5%	$	386,200
BONDING & INSURANCE	2.5%	$	148,500
CONTRACT ADMINISTRATION	2.0%	$	118,800
CONSTRUCTION MANAGEMENT	4.0%	$	237,600
CFD ADMINISTRATION	4.0%	$	237,600
TOTAL ESTIMATE OF CONSTRUCTION COST, FEES, AND PROFESSIONAL SERVICES		**$**	**8,813,100**
(To the nearest $100)			
ESTIMATE OF PRIVATE IMPROVEMENTS			
ABANDON EXISTING SEPTIC SYSTEMS *(112 Units x $2,500 (Assumed))*		$	280,000
ABANDON EXISTING WELL SYSTEMS *(112 Units x $1,000 (Assumed))*		$	112,000
COUNTY PERMIT FEES FOR ABANDONING EXISTING SEPTIC SYSTEM/WELLS *(112 Units x $0 (Assumed))*		$	-
DELTA DIABLO SANITARY DISTRICT SIDE SEWER INSPECTION FEE *(112 Units x $250)*		$	28,000
DELTA DIABLO SANITARY DISTRICT ANNEXATION CHARGE *(112 Units x $156)*		$	17,472
DELTA DIABLO SANITARY DISTRICT CAPACITY CHARGE			TBD
HOUSE CONNECTION TO NEW WATER METER *(112 Units x $2,000)*		$	224,000
HOUSE CONNECTION TO NEW SEWER *(112 Units x $2,000)*		$	224,000
ENCROACHMENT PERMIT FROM CITY *(112 Units x $0)*		$	-
TOTAL AREA 2B PRIVATE IMPROVEMENT CONSTRUCTION COST		**$**	**885,500**
(To the nearest $100)			
TOTAL AREA 2B COST		**$**	**9,699,000**
(To the nearest $1,000)			

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
OFF-SITE IMPROVEMENTS
(WILBUR AVE AND PORTION OF VIERA AVENUE)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(Viera Avenue 32' x 370')*	11,840	SF	$ 1.50	$ 17,760.00
2	2" AC Overlay *(Wilbur Avenue 20' x 3,900')*	78,000	SF	$ 1.50	$ 117,000.00
3	Replace Striping	1	LS	$ 10,000.00	$ 10,000.00
4	Traffic Control	3,900	LF	$ 50.00	$ 195,000.00
	Subtotal Street Improvements				$ 339,760.00
	SANITARY SEWER				
5	15" VCP Sanitary Sewer Pipe *(15'-20' Deep - Including Street Replacement)*	3,900	LF	$ 175.00	$ 682,500.00
6	Manholes *(Assumed at 400')*	10	EA	$ 7,500.00	$ 75,000.00
7	Connect to Existing Sewer Pipe	1	EA	$ 1,500.00	$ 1,500.00
	Subtotal Sanitary Sewer				$ 759,000.00
	SANITARY SEWER (VIERA AVENUE TO SANTA FE RAILROAD)				
8	8" Sanitary Sewer Pipe *(15'-20' Deep - Including Street Replacement)*	340	LF	$ 120.00	$ 40,800.00
9	Manholes *(Assumed at 400')*	1	EA	$ 7,500.00	$ 7,500.00
	Subtotal Sanitary Sewer				$ 48,300.00
	ELECTRICAL IMPROVEMENTS				
10	Streetlights *(Fitted to Existing Utility Pole - Viera Avenue)*	3	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL OFF-SITE IMPROVEMENTS COST				**$ 1,147,100.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
VIERA AVENUE (~2,640 LF)
(NORTH SIDE OF SANTE FE RAILROAD TRACKS TO 18TH STREET INTERSECTION)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(32' x 2,640')*	84,480	SF	$ 1.50	$ 126,720.00
2	Replace Striping	1	LS	$ 2,500.00	$ 2,500.00
3	Traffic Control	2,640	LF	$ 5.00	$ 13,200.00
	Subtotal Street Improvements				$ 142,420.00
	STORM DRAIN				
4	30" Storm Drain Pipe	200	LF	$ 108.00	$ 21,600.00
5	24" Storm Drain Pipe	1,960	LF	$ 72.00	$ 141,120.00
6	18" Storm Drain Crossings *(40' each x 300')*	30	LF	$ 54.00	$ 1,620.00
7	Catch Basins *(Assumed 2 x 300')*	1	EA	$ 3,000.00	$ 3,000.00
8	Manholes (*Assumed at 500')*	1	EA	$ 3,500.00	$ 3,500.00
	Subtotal Storm Drain				$ 170,840.00
	SANITARY SEWER				
9	8" Sanitary Sewer Pipe *(Including Street Replacement)*	1,160	LF	$ 90.00	$ 104,400.00
10	8" Sanitary Sewer Pipe *(10 - 15' Deep - Including Street Replacement)*	100	LF	$ 90.00	$ 9,000.00
11	8" Sanitary Sewer Pipe *(15 - 20' Deep - Including Street Replacement)*	1,000	LF	$ 120.00	$ 120,000.00
12	Manholes *(Assumed every 400')*	6	EA	$ 5,000.00	$ 30,000.00
13	Sewer Laterals	31	EA	$ 2,500.00	$ 77,500.00
14	Bore and Jack *(Under Railroad Right of Way)*	70	LF	$ 600.00	$ 42,000.00
	Subtotal Sanitary Sewer				$ 382,900.00
	WATER SUPPLY				
15	Water Laterals *(Hot Tap Existing 16" Main - Including Street Replacement)*	31	EA	$ 2,500.00	$ 77,500.00
16	Fire Hydrant *(Assumed at 400')*	6	EA	$ 7,500.00	$ 45,000.00
	Subtotal Water Supply				$ 122,500.00
	ELECTRICAL IMPROVEMENTS				
17	Streetlights *(Fitted to Existing Utility Pole)*	8	EA	$ 4,000.00	NIC
18	Budget to Replace Existing Street Light	6	EA	$ 2,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL VIERA AVENUE IMPROVEMENTS COST				**$ 818,700.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
SANTA FE AVENUE (~850 LF)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(24' x 575')*	13,800	SF	$ 1.50	$ 20,700.00
2	Traffic Control	850	LF	$ 5.00	$ 4,250.00
	Subtotal Street Improvements				$ 24,950.00
	STORM DRAIN				
3	24" Storm Drain Pipe	630	LF	$ 72.00	$ 45,360.00
4	Catch Basins *(Assumed 2 x 300')*	5	EA	$ 3,000.00	$ 15,000.00
5	18" Storm Drain Crossings *(36' each x 300')*	80	LF	$ 54.00	$ 4,320.00
6	Manholes (*Assumed at 500')*	2	EA	$ 3,500.00	$ 7,000.00
7	Off-Site Storm Drain Pipe *(27" - 36")*	1,360	LF	$ 108.00	$ 146,880.00
8	Off-Site Storm Drain Manhole	3	EA	$ 3,500.00	$ 10,500.00
9	Basin Outfall	1	LS	$ 10,000.00	$ 10,000.00
10	Easement for Storm Drain Pipe *(Assumed 20' Wide)*	27,200	SF	$ 2.50	$ 68,000.00
	Subtotal Storm Drain				$ 307,060.00
	SANITARY SEWER				
11	8" Sanitary Sewer Pipe *(15'-20' Deep - Including Street Replacement)*	850	LF	$ 120.00	$ 102,000.00
12	Manholes *(Assumed at 400')*	2	EA	$ 5,000.00	$ 10,000.00
13	Sewer Laterals *(Including Street Replacement)*	12	EA	$ 2,500.00	$ 30,000.00
	Subtotal Sanitary Sewer				$ 142,000.00
	WATER SUPPLY				
14	8" PVC Water Line *(Including Street Replacement)*	850	LF	$ 80.00	$ 68,000.00
15	Water Lateral *(Including Street Replacement)*	12	EA	$ 2,500.00	$ 30,000.00
16	Fire Hydrant *(Assumed at 400')*	1	EA	$ 7,500.00	$ 7,500.00
17	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 118,000.00
	ELECTRICAL IMPROVEMENTS				
18	Streetlights *(Fitted to Existing Utility Pole)*	1	EA	$ 4,000.00	NIC
19	Budget to Replace Existing Street Light	3	EA	$ 2,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL SANTA FE AVENUE IMPROVEMENTS COST				**$ 592,000.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
WALNUT AVENUE (~800 LF)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(24' x 800')*	19,200	SF	$ 1.50	$ 28,800.00
2	Traffic Control	800	LF	$ 5.00	$ 4,000.00
	Subtotal Street Improvements				$ 32,800.00
	STORM DRAIN				
3	24" Storm Drain Pipe *(Assumed)*	800	LF	$ 72.00	$ 57,600.00
4	18" Storm Drain Crossings *(36' each x 300')*	100	LF	$ 54.00	$ 5,400.00
5	Catch Basins *(Assumed 2 x 300')*	6	EA	$ 3,000.00	$ 18,000.00
6	Manholes (*Assumed at 500')*	2	EA	$ 3,500.00	$ 7,000.00
	Subtotal Storm Drain				$ 88,000.00
	SANITARY SEWER				
7	8" Sanitary Sewer Pipe *(Including Street Replacement)*	800	LF	$ 90.00	$ 72,000.00
8	Manholes *(Assumed at 400')*	2	EA	$ 5,000.00	$ 10,000.00
9	Sewer Laterals *(Including Street Replacement)*	18	EA	$ 2,500.00	$ 45,000.00
	Subtotal Sanitary Sewer				$ 127,000.00
	WATER SUPPLY				
10	8" PVC Water Line *(Including Street Replacement)*	800	LF	$ 80.00	$ 64,000.00
11	Water Lateral *(Including Street Replacement)*	18	EA	$ 2,500.00	$ 45,000.00
12	Fire Hydrant *(Assumed at 400')*	2	EA	$ 7,500.00	$ 15,000.00
	Subtotal Water Supply				$ 124,000.00
	ELECTRICAL IMPROVEMENTS				
13	Streetlights *(Fitted to Existing Utility Pole)*	6	EA	$ 4,000.00	NIC
14	Budget to Replace Existing Street Light	1	EA	$ 2,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL WALNUT AVENUE IMPROVEMENTS COST				**$ 371,800.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
BOWN LANE (~600 LF)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(24' x 600')*	14,400	SF	$ 1.50	$ 21,600.00
2	Traffic Control	600	LF	$ 5.00	$ 3,000.00
	Subtotal Street Improvements				$ 24,600.00
	STORM DRAIN				
3	24" Storm Drain Pipe *(Assumed)*	575	LF	$ 72.00	$ 41,400.00
4	18" Storm Drain Crossings *(36' each x 300')*	70	LF	$ 54.00	$ 3,780.00
5	Catch Basins *(Assumed 2 x 300')*	4	EA	$ 3,000.00	$ 12,000.00
6	Manholes (*Assumed at 500')*	2	EA	$ 3,500.00	$ 7,000.00
	Subtotal Storm Drain				$ 64,180.00
	SANITARY SEWER				
7	8" Sanitary Sewer Pipe *(Including Street Replacement)*	600	LF	$ 90.00	$ 54,000.00
8	Manholes *(Assumed at 400')*	1	EA	$ 5,000.00	$ 5,000.00
9	Sewer Laterals *(Including Street Replacement)*	3	EA	$ 2,500.00	$ 7,500.00
	Subtotal Sanitary Sewer				$ 66,500.00
	WATER SUPPLY				
10	8" PVC Water Line *(Including Street Replacement)*	600	LF	$ 80.00	$ 48,000.00
11	Water Lateral *(Including Street Replacement)*	3	EA	$ 2,500.00	$ 7,500.00
12	Fire Hydrant *(Assumed at 400')*	1	EA	$ 7,500.00	$ 7,500.00
13	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 75,500.00
	ELECTRICAL IMPROVEMENTS				
14	Streetlights *(Fitted to Existing Utility Pole)*	1	EA	$ 4,000.00	NIC
15	Budget to Replace Existing Street Light	2	EA	$ 2,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL BOWN LANE IMPROVEMENTS COST				**$ 230,800.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
VINE LANE (~890 LF) (PARTIAL DIRT ROAD)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(24' x 750')*	18,000	SF	$ 1.50	$ 27,000.00
2	Traffic Control	890	LF	$ 2.00	$ 1,780.00
	Subtotal Street Improvements				$ 28,780.00
	STORM DRAIN				
3	30" Storm Drain Pipe *(Assumed)*	890	LF	$ 108.00	$ 96,120.00
4	18" Storm Drain Crossings *(36' each x 300')*	110	LF	$ 54.00	$ 5,940.00
5	Catch Basins *(Assumed 2 x 300')*	6	EA	$ 3,000.00	$ 18,000.00
6	Manholes (*Assumed at 500')*	2	EA	$ 3,500.00	$ 7,000.00
7	Off-Site Storm Drain Pipe *(30" - 36")*	1,350	LF	$ 108.00	$ 145,800.00
8	Off-Site Storm Drain Manhole	3	EA	$ 3,500.00	$ 10,500.00
9	Easement for Storm Drain Pipe *(Assumed 20' Wide)*	27,000	SF	$ 2.50	$ 67,500.00
	Subtotal Storm Drain				$ 350,860.00
	SANITARY SEWER				
10	8" Sanitary Sewer Pipe *(Including Street Replacement)*	890	LF	$ 90.00	$ 80,100.00
11	Manholes *(Assumed at 400')*	2	EA	$ 5,000.00	$ 10,000.00
12	Sewer Laterals *(Including Street Replacement)*	22	EA	$ 2,500.00	$ 55,000.00
	Subtotal Sanitary Sewer				$ 145,100.00
	WATER SUPPLY				
13	8" PVC Water Line *(Including Street Replacement)*	890	LF	$ 80.00	$ 71,200.00
14	Water Lateral *(Including Street Replacement)*	22	EA	$ 2,500.00	$ 55,000.00
15	Fire Hydrant *(Assumed at 400')*	2	EA	$ 7,500.00	$ 15,000.00
16	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 153,700.00
	ELECTRICAL IMPROVEMENTS				
17	Streetlights *(Fitted to Existing Utility Pole)*	5	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL VINE LANE IMPROVEMENTS COST				**$ 678,400.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
STEWART LANE (~350 LF) (DIRT ROAD)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	Street Fine Grading *(Assumed 20' wide section)*	7,000	SF	$ 0.40	$ 2,800.00
2	Traffic Control	350	LF	$ 2.00	$ 700.00
	Subtotal Street Improvements				$ 3,500.00
	STORM DRAIN				
3	24" Storm Drain Pipe *(Assumed)*	350	LF	$ 72.00	$ 25,200.00
4	18" Storm Drain Crossings *(36' each x 300')*	40	LF	$ 54.00	$ 2,160.00
5	Catch Basins *(Assumed 2 x 300')*	3	EA	$ 3,000.00	$ 9,000.00
6	Manholes (*Assumed at 500')*	1	EA	$ 3,500.00	$ 3,500.00
	Subtotal Storm Drain				$ 39,860.00
	SANITARY SEWER				
7	8" Sanitary Sewer Pipe	350	LF	$ 50.00	$ 17,500.00
8	Manholes *(Assumed at 400')*	1	EA	$ 3,500.00	$ 3,500.00
9	Sewer Laterals	4	EA	$ 750.00	$ 3,000.00
	Subtotal Sanitary Sewer				$ 24,000.00
	WATER SUPPLY				
10	8" PVC Water Line	350	LF	$ 60.00	$ 21,000.00
11	Water Lateral	4	EA	$ 750.00	$ 3,000.00
12	Fire Hydrant *(Assumed at 400')*	1	EA	$ 5,000.00	$ 5,000.00
13	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 41,500.00
	ELECTRICAL IMPROVEMENTS				
14	Streetlights *(Fitted to Existing Utility Pole)*	2	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL STEWART LANE IMPROVEMENTS COST				**$ 108,900.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
ST. CLAIRE DRIVE AND PORTION OF EAST 18TH STREET (~1,200 LF) (DIRT ROAD)
(EXTENSION TO LIPTON STREET)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	Street Fine Grading *(Assumed 20' wide section)*	24,000	SF	$ 0.40	$ 9,600.00
2	Traffic Control	1,200	LF	$ 2.00	$ 2,400.00
	Subtotal Street Improvements				$ 12,000.00
	STORM DRAIN				
3	24" Storm Drain Pipe *(Assumed)*	1,100	LF	$ 72.00	$ 79,200.00
4	18" Storm Drain Crossings *(36' each x 300')*	130	LF	$ 54.00	$ 7,020.00
5	Catch Basins *(Assumed 2 x 300')*	8	EA	$ 3,000.00	$ 24,000.00
6	Manholes (*Assumed at 500')*	3	EA	$ 3,500.00	$ 10,500.00
	Subtotal Storm Drain				$ 120,720.00
	SANITARY SEWER				
7	6" Sanitary Sewer Pipe	1,200	LF	$ 50.00	$ 60,000.00
8	Manholes *(Assumed at 400')*	3	EA	$ 3,500.00	$ 10,500.00
9	Sewer Laterals	10	EA	$ 750.00	$ 7,500.00
	Subtotal Sanitary Sewer				$ 78,000.00
	SANITARY SEWER (ST. CLAIRE DRIVE TO CONNECTION)				
10	6" Sanitary Sewer Pipe *(Including Street Replacement)*	300	LF	$ 90.00	$ 27,000.00
11	Manholes *(Assumed at 400')*	1	EA	$ 5,000.00	$ 5,000.00
12	Connect to Existing Sanitary Sewer	1	EA	$ 1,500.00	$ 1,500.00
	Subtotal Sanitary Sewer (St. Claire Drive to Connection)				$ 33,500.00
	WATER SUPPLY				
13	8" PVC Water Line	1,200	LF	$ 60.00	$ 72,000.00
14	Water Lateral	10	EA	$ 750.00	$ 7,500.00
15	Fire Hydrant *(Assumed at 400')*	3	EA	$ 5,000.00	$ 15,000.00
16	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 107,000.00
	ELECTRICAL IMPROVEMENTS				
17	Streetlights *(Fitted to Existing Utility Pole)*	6	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL ST. CLAIRE DRIVE IMPROVEMENTS COST				**$ 351,200.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
TREMBATH LANE (~980 LF) (DIRT ROAD)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	Street Fine Grading *(Assumed 20' wide section)*	19,600	SF	$ 0.40	$ 7,840.00
2	Traffic Control	980	LF	$ 2.00	$ 1,960.00
	Subtotal Street Improvements				$ 9,800.00
	STORM DRAIN				
3	18" Storm Drain Crossings *(36' each x 300') (Main existing)*	120	LF	$ 54.00	$ 6,480.00
4	Catch Basins *(Assumed 2 x 300')*	7	EA	$ 3,000.00	$ 21,000.00
5	Manholes (*Assumed at 500')*	2	EA	$ 3,500.00	$ 7,000.00
	Subtotal Storm Drain				$ 34,480.00
	SANITARY SEWER				
6	8" Sanitary Sewer Pipe	750	LF	$ 50.00	$ 37,500.00
7	Manholes *(Assumed at 400')*	2	EA	$ 3,500.00	$ 7,000.00
8	Sewer Laterals	8	EA	$ 750.00	$ 6,000.00
	Subtotal Sanitary Sewer				$ 50,500.00
	SANITARY SEWER (EAST 18TH STREET CROSSING)				
9	8" Sanitary Sewer Pipe *(Including Street Replacement)*	50	LF	$ 90.00	$ 4,500.00
10	Manholes *(Assumed at 400')*	1	EA	$ 5,000.00	$ 5,000.00
	Subtotal Sanitary Sewer				$ 9,500.00
	WATER SUPPLY				
11	8" PVC Water Line	980	LF	$ 60.00	$ 58,800.00
12	Water Lateral	8	EA	$ 750.00	$ 6,000.00
13	Fire Hydrant *(Assumed at 400')*	2	EA	$ 5,000.00	$ 10,000.00
14	Cut-In Tee with Valves	1	EA	$ 12,500.00	$ 12,500.00
	Subtotal Water Supply				$ 87,300.00
	ELECTRICAL IMPROVEMENTS				
15	Streetlights *(Fitted to Existing Utility Pole)*	6	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL TREMBATH LANE IMPROVEMENTS COST				**$ 191,600.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
MIKE YORBA WAY (~250 LF) (DIRT ROAD)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	Street Fine Grading *(Assumed 20' wide section)*	5,000	SF	$ 0.40	$ 2,000.00
2	Traffic Control	250	LF	$ 2.00	$ 500.00
	Subtotal Street Improvements				$ 2,500.00
	STORM DRAIN				
3	18" Storm Drain Crossings	100	LF	$ 64.00	$ 6,400.00
4	Catch Basins	2	EA	$ 3,000.00	$ 6,000.00
5	Manholes (*Assumed at 500')*	1	EA	$ 3,500.00	$ 3,500.00
	Subtotal Storm Drain				$ 15,900.00
	SANITARY SEWER				
6	8" Sanitary Sewer Pipe	250	LF	$ 50.00	$ 12,500.00
7	Manholes *(Assumed at 400')*	1	EA	$ 3,500.00	$ 3,500.00
8	Sewer Laterals	4	EA	$ 750.00	$ 3,000.00
	Subtotal Sanitary Sewer				$ 19,000.00
	WATER SUPPLY				
9	8" PVC Water Line	250	LF	$ 60.00	$ 15,000.00
10	Water Lateral	4	EA	$ 750.00	$ 3,000.00
11	Fire Hydrant *(Assumed at 400')*	1	EA	$ 5,000.00	$ 5,000.00
	Subtotal Water Supply				$ 23,000.00
	ELECTRICAL IMPROVEMENTS				
12	Streetlights *(Fitted to Existing Utility Pole)*	2	EA	$ 4,000.00	NIC
	Subtotal Electrical Improvements				$ -
	TOTAL MIKE YORBA WAY IMPROVEMENTS COST				**$ 60,400.00**
	(to the nearest $100)				

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
WYMORE WAY AND PORTION OF EAST 18TH ST. (~900 LF) (DIRT ROAD)
AREA 2B
NORTHEAST ANTIOCH REORGANIZATION
ANTIOCH, CALIFORNIA

November 1, 2011
Job No.: 1622-010
Revised: July 25, 2012

Item	Description	Quantity	Unit	Unit Price	Amount
	STREET IMPROVEMENTS				
1	2" AC Overlay *(24' x 900')*	21,600	SF	$ 0.40	$ 8,640.00
2	Traffic Control	900	LF	$ 2.00	$ 1,800.00
	Subtotal Street Improvements				$ 10,440.00
	SANITARY SEWER				
3	8" Sanitary Sewer Pipe	900	LF	$ 50.00	$ 45,000.00
4	Manholes *(Assumed at 400')*	3	EA	$ 3,500.00	$ 10,500.00
	Subtotal Sanitary Sewer				$ 55,500.00
	SANITARY SEWER (WYMORE WAY TO ST. CLAIRE DRIVE)				
5	8" Sanitary Sewer Pipe	600	LF	$ 50.00	$ 30,000.00
6	Manholes *(Assumed at 400')*	2	EA	$ 3,500.00	$ 7,000.00
7	Easement for Sewer Pipe *(Assumed 20' wide)*	12,000	SF	$ 2.50	$ 30,000.00
	Subtotal Sanitary Sewer				$ 67,000.00
	WATER SUPPLY				
8	8" PVC Water Line	900	LF	$ 60.00	$ 54,000.00
9	Fire Hydrant *(Assumed at 400')*	3	EA	$ 5,000.00	$ 15,000.00
	Subtotal Water Supply				$ 69,000.00
	TOTAL MIKE YORBA WAY IMPROVEMENTS COST				**$ 201,900.00**
	(to the nearest $100)				

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APPENDIX D

THE FISCAL IMPACTS OF THE NORTHEAST ANTIOCH ANNEXATION

THE FISCAL IMPACTS OF THE NORTHEAST ANTIOCH ANNEXATION

A Report To

THE CITY OF ANTIOCH

From

GRUEN GRUEN + ASSOCIATES
Urban Economists, Market Strategists & Land Use/Public Policy Analysts

In Association With

CARLSON, BARBEE & GIBSON, INC.
Civil Engineers, Surveyors & Planners

C1247

January 2009

THE FISCAL IMPACTS OF THE NORTHEAST ANTIOCH ANNEXATION

A Report To

THE CITY OF ANTIOCH

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C1247

January 2009

APPLYING KNOWLEDGE
CREATING RESULTS
ADDING VALUE

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CHAPTER I

INTRODUCTION, METHODOLOGY AND STUDY AREA CHARACTERISTICS

INTRODUCTION AND PURPOSE

The City of Antioch asked Gruen Gruen + Associates ("GG+A") to evaluate the potential fiscal impacts of annexation of three areas in Contra Costa County northeast of the current municipal boundaries of Antioch. The "Northeast Antioch annexation area" has been within the City of Antioch's sphere of influence for over 30 years. Following development of a strategic plan for the annexation, in 2007, the City Council authorized the initiation of the annexation of approximately 500 acres of industrial land on the north and south sides of Wilbur Avenue. The Pacific Gas and Electric Gateway Generating Station ("PG&E Generating Station") is under construction in this industrial area which is depicted in Map I-1 and described further in Table I-1 below as "Area 1".

A wholly-owned subsidiary of the merchant power producer Mirant Corporation ("Mirant") has requested the annexation of land adjoining the PG&E Generating Station into the City of Antioch and the provision of water service by Antioch to a 930-MW power plant Mirant proposes to construct, own, and operate. City staff have prepared much of the analysis and documentation required to complete an annexation application to LAFCO. To complete the application requires the preparation and execution of an agreement with Contra Costa County about the allocation of tax revenues applicable to the annexation area between the City and County.

County representatives have proposed a conceptual agreement under which the County would relinquish the rights to collect certain tax revenue that would otherwise in the absence of the annexation accrue to the County if the City also agrees to annex a residential area described below as "Area 2b". Area 2b contains potentially health-threatening infrastructure deficiencies, including the presence of failing septic fields and water wells. In addition, County representatives have proposed also conditioning the annexation of Area 1 into the City upon the annexation of an area described further below and referred to as "Area 2a". Area 2a includes a mix of industrial and residential uses to which the County is constrained in providing services because of the relative distance of Area 2a from other County areas. Area 2a is also affected by infrastructure deficiencies.

An interview with the Executive Director of LAFCO confirms LAFCO's preferred policy of a single annexation of Area 1, Area 2a, and Area 2b. Accordingly, an information base about the potential fiscal ramifications of the conceptual proposal is needed to provide a framework for the negotiation of an agreement for the allocation of tax revenues from the annexation of Area 1, Area 2a, and Area 2b into the City of Antioch. Therefore, in order to assist the municipal representatives responsible for making prudent decisions about the proposed annexation, GG+A was asked to prepare a forecast of the

likely costs to the City of Antioch resulting from the annexation and the revenues likely to flow into the City's General Fund after the annexation. A comparison of the forecast of annual revenues and costs estimated to be induced by the annexation are made to present an estimate of the potential net balance between revenues and costs resulting from the proposed annexation.

DESCRIPTION OF AREA 1, AREA 2a, AND AREA 2b

Map I-1 shows the location of Area 1, Area 2a, and Area 2b.

MAP I-1

Depiction of Area 1, Area 2a, and Area 2b Comprising the Annexation Area

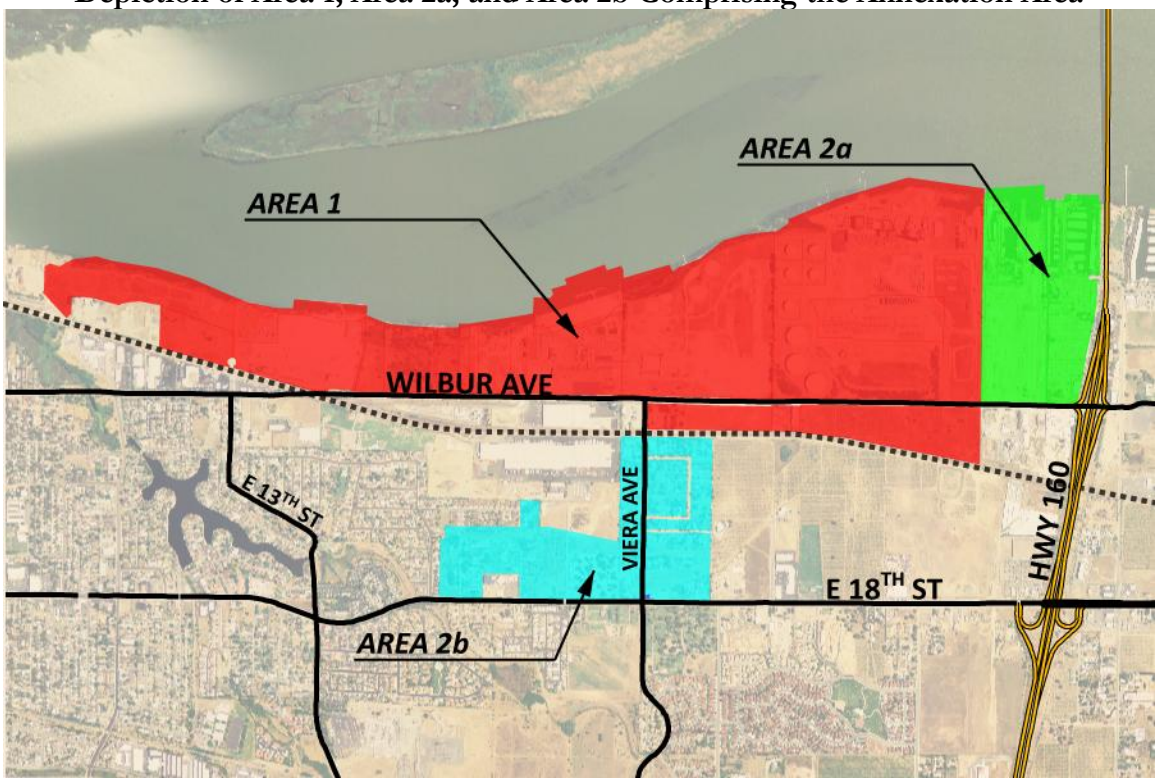

Table I-1 summarizes the current land use, demographic, employment, and assessed valuation characteristics of Area 1, Area 2a, and Area 2b.

TABLE I-1

Current Characteristics of Northeast Antioch Annexation Area

	Area 1	Area 2a	Area 2b	Total
Total Land (# Acres)	388.934[1]	93.55	101.7	584.184
Vacant Land (# Acres)	168.27	0	19.04	187.31
Existing Building Space (# Square Feet.)	213,269	100,180	7,949	321,398
Number of Employees[2]	176	105	16	297
Number of Households	0	3	90	93
Number of Residents	0	9	264	273
Number of Resident Equivalents[3]	88	62	272	422
2008 Assessed Valuation	$421,286,455	$11,664,541	$20,234,588	$453,185,584

[1] Federal and state owned non-taxable land in proposed annexation Area 1 total 88.95 acres and is not included in the 388.934 acres figure.

[2] Employment estimates for Area 1 are based on discussions with businesses in Area 1; and employment estimates in Area 2a are based on discussions with businesses in Area 2a and the assumption of one employee per 1,000 square feet of building space. Employment estimates in Area 2b reflect the assumption of one employee per 500 square feet of building space because the space in Area 2b is commercial in nature.

[3] Assumes municipal revenues and costs generated by every two employees equal that of one resident.

Sources: Contra Costa County Assessor; PG&E; Mirant Delta LLC; Kiewit Construction; Monterey Mechanical; Gruen Gruen + Associates.

Area 1 is located on Wilbur Avenue from the PG&E Generating Station west to Antioch Dunes National Wildlife Refuge. Area 2a is located north of Wilbur Avenue and east of the PG&E Generating Station and to the immediate north of the existing boundary of the City of Antioch. Area 2b is located north of East 18th Street and south of Wilbur Avenue.

Area 1 consists of approximately 389 acres of land of which approximately 168 acres of land are vacant. Area 1 includes approximately 213,000 square feet of non power plant building space. Area 1 is estimated to contain 176 jobs. Employers in this area include the Mirant Contra Costa Power Plant, an existing power plant owned and operated by Mirant Delta; PG&E which is currently constructing the PG&E Generating Station, a new generation facility; and Georgia Pacific, a major gypsum product manufacturer.

Area 2a consists of nearly 94 acres of build-out land. Area 2a contains approximately 100,000 square feet of building space and 105 jobs as well as three households. Kiewit Construction and Monterey Mechanical Company, an industrial contractor and metal fabricator, as well as Antioch Storage & Trailer and the Sportsmen Yacht Club, comprise the major users in the area.

Area 2b consists of approximately 102 acres of land. Approximately 19 acres of land in Area 2b is vacant because it is PG&E right-of-way. Area 2b includes approximately 7,900 square feet of nonresidential building space and 90 older single-family housing units in neighborhoods along Viera Avenue and Trembath/Lipton Lanes. Area 2b is estimated to

contain 16 jobs and 294 residents. The area is served by served private water wells and septic systems.

With an assessed valuation in 2008 of approximately $421.3 million, the assessed valuation of Area 1 comprises 95 percent of the total assessed valuation of the three areas. The 2008 assessed valuation of Area 2a totals $11.7 million and the assessed valuation of Area 2b totals $20.2 million.

DESCRIPTION OF CURRENT INFRASTRUCTURE CONDITIONS

Carlson, Barbee & Gibson, Inc. completed a review of the infrastructure conditions of the Northeast Antioch annexation area and has also estimated the costs of bringing the infrastructure up to the City of Antioch standards. The following summarizes the current infrastructure conditions.

Area 1 consists of three existing streets of varying levels of service. Wilbur Avenue is an arterial roadway that connects the City of Antioch to Highway 160 just south of the John Nejedly Bridge. The existing road consists of two 12-14' lanes with an intermittent median. Approximately 0.85 miles of this road are within the Northeast Antioch annexation area. However, in the build-out condition approximately two miles of roadway, from the Santa Fe railroad overpass to the Highway 160 interchange, would need additional infrastructure improvements in order to provide utility service to each parcel within the annexation area and to comply with current City standards.

Existing utilities in Wilbur Avenue include a 12" waterline, a 36" storm drain line constructed in a portion of the road, a 15" sanitary sewer line recently constructed to provide service to the PG&E parcel, a regional Delta Diablo Sanitation District sewer force main, and electrical power lines.

Minnaker Avenue is an industrial cul-de-sac north of its intersection with Wilbur Avenue. Approximately 130 feet of Minnaker Avenue is within the annexation area. Existing utilities in Minnaker Avenue include a sewer line, storm drain line, and a power line for a portion of the road.

Viera Avenue from its intersection with Wilbur Avenue to the northern right of way of the Santa Fe railroad crossing is also within Area 1; the remainder of Viera Avenue is in Area 2B. Viera Avenue is a residential collector street that connects East 18th Street to Wilbur Avenue. Approximately 340 feet of this road is within Area 1. Existing utilities in Viera Avenue include a 16" water line and electrical power lines.

Area 2A consists of two residential streets that have a total length of 0.46 miles, Fleming Lane and Bridgehead Road. Fleming lane is a narrow road with existing building structures close to the existing pavement. There is an existing power line on the east side of the street. There are no other utilities in this street. There is an existing 6" water line in Bridgehead

Road.

Area 2B consists of five paved streets and four dirt roads that combine for a total length of 1.6 miles. The existing utilities in this area consist of electrical power lines, a 16" water line in Viera Avenue, and a storm drain line in Trembath Lane.

The existing infrastructure in each area would require significant improvements to conform to the City of Antioch standards, such as:

- Widen existing roads – requires additional right of way;
- Remove and replace existing pavement section;
- Construct curb, gutter, and sidewalk;
- Connect additional water lines;
- Install sewer mains and manholes;
- Install water and sewer laterals to each parcel;
- Construct storm drain improvements, manholes, and catch basins; and
- Relocate existing electrical utilities.

METHODOLOGY

The analysis and resulting estimates of the dollars likely to flow into and out of Antioch's General Fund as the result of the proposed annexation focuses on the recurring rather than one-time, short-run fiscal effects of the potential annexation. Therefore, this analysis excludes all short-run fiscal impacts associated with the process of development. In other words, permit, plan checking, building inspection and other development process fees are assumed to be set at rates that will offset service costs. The estimates of the revenues and costs likely to be associated with the completion of the annexation reflect the review and analysis of data and information obtained from a variety of sources including the City Manager of Antioch as well Antioch's Finance Director, Public Works Director, Community Development Director, Economic Development Director, and the Support Services Captain of the Police Department. Additional sources included members of the real estate brokerage firm Colliers International, and representatives of PG&E, Mirant, Georgia Pacific, Kiewit Construction, Monterey Mechanical and representatives of the City of Pittsburg, California State Board of Equalization, Contra Costa County Assessor's Office, and LAFCO.

Analysis of the Budget and interviews and reviews of secondary sources provided information and insight used to estimate the demand for municipal services and the costs of providing services to the residents and businesses occupying property in Area 1, Area 2a, and Area 2b as well as the revenues resulting from the annexation. In estimating General Fund revenues, we have assumed that the current Antioch tax and fee structures remain constant. If the average costs and revenues to be generated by new businesses or residents occupying property in the Northeast Antioch annexation area are estimated to be similar to those generated by existing businesses or residents such as sales taxes, penalties, motor vehicle in-lieu taxes, such items are estimated on an average per capita, or household, or

other basis. The specific methodologies used to estimate each cost and revenue items are reviewed in the appropriate section of this report.

To consider the implications of varying alternatives on how the City and County could potentially share in property tax receipts after annexation, we prepared estimates of property tax revenue based on two alternative assumptions: (1) the rates that would apply as if Area 1, Area 2a, and Area 2b were already within the City's jurisdiction; and (2) the rates that would apply as if the "1980 Master Property Tax Transfer Agreement for Allocation of Property Tax Between the County of Contra Costa and City of Antioch Upon Jurisdictional Changes" (the "Master Property Tax Agreement") governed the annexation. We also have modeled the allocation of sales and franchise taxes under the assumption that the County would obtain such taxes as the allocation was made under the "Agreement for Allocation of Tax Revenues Between the County of Contra Costa and the City of Pittsburg for the Mirant Power Plant Annexation Area". We also modeled an alternative in which the City would collect sales and franchise taxes as if Area 1, Area 21, and Area 2b were already within the City's jurisdiction.

We compared the estimated annual revenues and annual operating costs associated with the annexation and occupancy of property in Area 1, Area 2a, and Area 2b following annexation and at the full build-out of the proposed annexation area in the future. We then compared the estimated net annual operating revenues potentially resulting from the annexation to the estimated annual costs of financing the capital facilities identified as needed to cure infrastructure deficiencies and bring up the infrastructure in the proposed annexation area to City standards.

As a condition of annexation, the City of Antioch will need to provide levels of service to the Northeast Antioch annexation area equivalent to the current levels of services provided to areas already incorporated into the City. To conform with the City standards require a significant improvement in the levels and quality of capital facilities and ongoing municipal services provision. This basic requirement underlies the assumptions used to forecast the costs and revenues likely to result from the proposed annexation in order to determine the positive or negative fiscal effect of the annexation on the General Fund of the City of Antioch.

All cost and revenue projections in this report are expressed in constant 2008 dollars. That is, the possible effects of inflation or deflation on both municipal revenues and costs are ignored.

ANNEXATION AREA CHARACTERISTICS AND DEMOGRAPHIC AND ECONOMIC PROFILE

Demographic and Economic Profile and Baseline Assumptions

Table I-2 shows the present demographic and economic data for Antioch based on which those revenue and expenditure projections that cannot be directly allocated to a specific business or other source are estimated.

TABLE I-2

Population, Households, and Employment in the City of Antioch: 2008

	#
Population	100,361
Households	33,059
Average Persons Per Household	3.04
Estimated Total Jobs in Antioch[1]	21,270
Estimated Total Resident Equivalents[2]	110,996

[1] Association of Bay Area Governments estimate for 2005.
[2] Assumes that two employees generates the same revenues or costs as one resident. Resident equivalents equals 100,361 + 21,270/2 = 110,996.

Sources: California Department of Finance; City of Antioch; Association of Bay Area Governments; Gruen Gruen + Associates.

The population of Antioch is estimated at 100,361. The number of households is estimated at 33,059. The number of total jobs is estimated to be 21,270. As described in more detail in the individual sections summarizing the revenue and cost estimates by category, we use the estimates for population and employment to create per capita and related metrics for categories of current City costs and revenues and extrapolate these "service unit" measures to the additional service units estimated to be associated with the Northeast Antioch annexation area. A frequently used service unit measure is referred to as "resident equivalents". This measure is used to evaluate certain revenues and costs because workers in Antioch in addition to residents add to municipal revenues and the demand for municipal services. For purposes of this analysis, total resident equivalents are a function of the total residential population in Antioch plus one-half of the employment in Antioch which results in a total resident equivalent service base of 110,996.

REPORT ORGANIZATION

Chapter II presents a description of the present characteristics of the annexation area and a forecast of potential land use, population, employment and related conditions when the Northeast Antioch annexation area is fully developed. Chapter III presents estimates of the annual revenues the City of Antioch is estimated to collect from the annexation area after the annexation and in the future when the area is assumed to be fully built-out. Chapter IV presents estimates of the annual costs of providing municipal services to Area 1, Area 2a,

and Area 2b after the annexation is completed and in the built-out condition of the annexation area. Chapter V presents a comparison of the estimated annual revenues with the annual operating costs following the annexation of Area 1, Area 2a, and Area 2b and at the built-out condition of the annexation area in the future. Chapter VI presents a review of the capital facilities estimated to be required to bring the proposed annexation area into conformance with City standards. Chapter VI also presents the estimated costs to install the required capital facilities. Chapter VII presents an analysis of the potential annual costs to finance the construction of the necessary improvements. A comparison is made to the estimated net operating revenue to identify the potential net fiscal effect on the treasury of the City of Antioch.

CHAPTER II

PRESENT AND FORECAST CONDITIONS OF THE NORTHEAST ANTIOCH ANNEXATION AREA

CURRENT LAND USE, DEMOGRAPHIC, AND EMPLOYMENT CHARACTERISTICS OF NORTHEAST ANTIOCH ANNEXATION AREA

The forecasts of annual revenues and costs to the General Fund of the City of Antioch following the annexation of Area 1, Area 2a, and Area 2b draw on the land use, demographic and employment characteristics summarized in the following tables. Table II-1 presents the current characteristics of Area 1.

TABLE II-1

Current Land Use, Demographic, and Employment Characteristics and Assessed Value for Area 1 in Northeast Antioch Annexation Area

Built Space	Amount of Land # Acres	Building Space # Square Feet	Number of Employees #	2008 Assessed Valuation $
Georgia Pacific	36.5	196,000	97	22,965,078
PG&E Gateway Generating Station	21.44	N/A	21.5	350,000,000
Mirant Contra Costa	147.26	N/A	40	34,135,351
Other Industrial	15.11	17,269	17	2,701,225
Residential	0.35		N/A	47,193
Total Built	220.66	213,269	176	409,848,847
Vacant Land (Taxable)				
Land North of Wilbur Avenue[1]	138.25	0	0	11,430,909
Land South of Wilbur Avenue[1]	29.72	0	0	N/A
Other Industrial Land	0.30	0	0	6,699
Total Vacant	168.27	0	0	11,437,608
Total	388.93	213,269	176	421,286,455

[1] PG&E land included in acreage is assessed by State of California Board of Equalization and is not included in total 2008 assessed valuation.

Sources: Contra Costa County Assessor; 2000 Census; Gruen Gruen + Associates.

Area 1 includes developed land of approximately 221 acres with 213,000 square feet of building space, primary due to the Georgia Pacific plant. The PG&E Generating Station under development with an expected completion date of January 2009 is in Area 1 as is the existing Mirant Contra Costa plant. Approximately 168 acres of land is vacant. The PG&E Generating Station at $350 million comprises much of the assessed valuation. The other

major sources of assessed valuation are the Georgia Pacific Plant (almost $23 million) and the Mirant Contra Costa plant (currently approximately $34 million). While Area 1 has a very small amount of land zoned for residential use, no households presently live in the area. The businesses in Area 1 are estimated to provide jobs for 176 workers.

Table II-2 presents the current characteristics of Area 2a.

TABLE II-2

Current Land Use, Demographic, and Employment Characteristics and Assessed Value for Area 2a in Northeast Antioch Annexation Area

Built Space	Amount of Land # Acres	Building Space # Square Feet	Number of Employees or Residents #	2008 Assessed Valuation $
Light Industrial[1]	56.06	95,035	95	7,170,637
Commercial Boat Harbors	34.43	5,145	10	4,051,248
Residential	3.06	0	9	442,656
Total	93.55	100,180	105 employees 9 residents	11,664,541

[1] Includes Kiewit Construction and Monterey Mechanical, which together occupy 82,000 square feet of space and employee 82 workers.

Sources: Contra Costa County Assessor; 2000 Census; Gruen Gruen + Associates.

Area 2a includes a light industrial and boat harbor area of approximately 56 acres and 34 acres of land, respectively. The light industrial area contains approximately 95,000 square feet of building space associated primarily with the operations of Kiewit Construction and Monterey Mechanical. Area 2a employers provide jobs for an estimated 105 workers. Included in Area 2a is approximately three acres of residentially-zoned land.

Table II-3 presents the current characteristics of Area 2b.

TABLE II-3

Current Land Use, Demographic, and Employment Characteristics and Assessed Value for Area 2b in Northeast Antioch Annexation Area

Built Space	Amount of Land # Acres	Building Space # Square Feet	Number of Employees or Residents #	2008 Assessed Valuation $
Single-family and Multi-family Residential1	59.25	90	264	17,762,858
Commercial[2]	6.56	7,949	16	1,604,491
Industrial	8.58	0	0	832,319
Institutional	8.27	0	0	34,920
PG&E Land[3]	19.04	0	0	N/A
Total	101.70	7,949 square feet 90 households	16 employees 264 residents	20,234,588

[1] Number of residents is based on 2000 Census data.
[2] Employment in Area 2b is based on assumption of one employee per 500 square feet of commercial space.
[3] PG&E land is assessed by State of California Board of Equalization and is not included in total 2008 assessed valuation.

Sources: Contra Costa County Assessor; 2000 Census; Gruen Gruen + Associates.

Area 2b consists of approximately 102 acres of land. Approximately 59 acres of land includes primarily residential uses and 264 residents. The properties have an assessed valuation of $17.8 million. Area 2b includes relatively small amounts of commercial, industrial, and institutional land with relatively low assessed valuations and 19 acres of vacant PG&E land parcels used for right-of-way.

LAND USE, DEMOGRAPHIC, AND EMPLOYMENT CHARACTERISTICS OF NORTHEAST ANTIOCH ANNEXATION AREA FORECAST AT THE BUILD-OUT CONDITION IN THE FUTURE

Table II-4 summarizes the estimated land use, demographic and employment characteristics of the Northeast Antioch annexation area when the area is fully built-out in the future. Appendix A presents detailed tables summarizing the forecast of conditions when Areas 1 and 2a are fully built-out in the future. Area 2b is assumed to not change. Based on information from the Community Development Department, the existing zoning is assumed to be "grandfathered in" and essentially preserve the existing development pattern patterns and uses. The forecast of future Antioch General Fund revenues and costs induced by the annexation of Area 1, Area 2a, and Area 2b reflect the assumptions about the future characteristics of the proposed Northeast Antioch annexation area.

TABLE II-4

Forecast Northeast Antioch Annexation Area Conditions at Full Build-out in the Future

	Area 1	Area 2a	Area 2b	Total
Total Land (# acres)	388.934[1]	93.55	101.7	584.184
Vacant Land (# acres)	0.3	0	19.04	19.34
Building Space (# s.f.)	2,171,923	772,597	7,949	2,952,469
Number of Employees[2]	1,855	1,529	16	3,400
Number of Households	0	3	90	93
Number of Residents	0	9	264	273
Number of Resident Equivalents[3]	927	774	272	1,973
Future Assessed Valuation	$1,418,655,614	$158,240,881	$20,234,588	$1,597,131,083

[1] Federal and state owned non-taxable land in proposed annexation Area 1 total 88.95 acres and is not included in the 388.934 figure.

[2] Employment estimates for Area 1 are based on discussions with businesses in area; employment estimates for Area 2a are based on discussions with businesses in area and the assumption of one employee per 1,000 square feet of building space for existing space, and two employees per 1,000 square feet for redeveloped space. Employment estimates for Area 2b are based on the assumption of one employee per 500 square feet of building space because space is commercial in nature.

[3] Assumes municipal revenues and costs generated by every two employees equal that of one resident.

Sources: City of Antioch; Contra Costa County Assessor; 2000 Census; Colliers International; Gruen Gruen + Associates.

The 168 acres of land both north and south of Wilbur Avenue in Area 1 is assumed to be redeveloped into industrial and warehouse uses. Based on discussions with local real estate brokers and the Director of Economic Development for Antioch, the vacant land north of Wilbur Avenue, which includes the former Kemwater 18-acre site, the 107.82 acres owned by Forestar Real Estate Group (the former Temple Inland site), and approximately 12 acres owned by PG&E, is likely to be developed with heavy industrial uses. Assuming a floor-area ratio of 0.25 for heavy industrial uses results in an estimate of building space at build-out of 1.5 million square feet. The resulting employment of 753 workers is based on the assumption of ½ worker per 1,000 square feet of building space. Heavy industrial space is expected to be constructed at a cost of $80 per square foot resulting in total added assessed value of $120.4 million.

PG&E owns approximately 30 acres of vacant land south of Wilbur Avenue in Area 1. Based on discussions with local real estate brokers and the Director of Economic Development for Antioch, the vacant land is anticipated to be developed in the future with multi-tenant light industrial uses. Assuming a floor-area ratio of 0.35 for light industrial uses results in an estimate of potential building area of over 450,000 square feet of space. The resulting employment estimate of 906 workers is based on the assumption of two workers per 1,000 square feet of building space. Light industrial space is expected to be constructed at a total cost of $195 per square foot resulting in total added assessed value of $88.4 million.

Mirant has filed an application seeking approval to build a new power plant, Marsh Landing, within its existing Mirant Contra Costa facility in Area 1. The value of the construction improvements is estimated to total $800 million. According to a Mirant representative, the drycooled units will come on line in summer 2011, and the combined cycle units will come on line in summer 2012. Construction is expected to take 33 months. Once complete, the new Mirant plant will employ 20 full-time workers

Under the assumptions outlined above about the potential future build-out of Area 1, 1,679 new workers will be employed and nearly two million square feet of new industrial space (excluding the new Mirant plant) would be developed. Under this build-out scenario, the future assessed value of Area 1 will increase by $997.4 million to nearly $1.4 billion.

Within Area 2a, approximately 53 acres land is assumed to be redeveloped into industrial/warehouse uses. The redevelopment in Area 2a is assumed to occur for the approximately 38-acre Kiewit Construction property, much of which is presently used for outdoor equipment storage, and the approximately 15-acre Antioch Trailer Storage property. Development of these two properties is assumed to add approximately 670,000 square feet of industrial space and over 1,400 new workers. This scale of redevelopment and employment growth assumes a floor-area ratio of 0.35 and two workers for every 1,000 square feet of building space. The construction of the new space of approximately 670,000 square feet is assumed to be built at a total cost of $195 per square foot of building space. Under this build-out scenario, the assessed value of Area 2a is forecast to increase by $146.6 million to an assessed value of $158.2 million.

Note that according to data from the Colliers International 3rd Quarter 2008 Industrial Market Report, Antioch currently contains approximately 3.3 million square feet of industrial space. Approximately 736,000 square feet or 22 percent of the industrial space inventory is vacant. The interviews suggest that the East 18th Street Specific Plan Area south of Area 1 represents another location for industrial space users in Antioch. The availability of deep water access and docks, significant contiguous land, and the potential for a stream-lined permitting process for heavy industrial users are comparative advantages that can be capitalized upon. In the near term, however, the most assured revenue-generating sources for the Antioch General Fund are the PG&E Generating Plant and the proposed Mirant plant. Accordingly, the analysis also identifies whether the revenue from these two uses in Area 1 would be sufficient to offset the costs of providing services to Areas 2a and 2b.

CHAPTER III

ESTIMATED REVENUES GENERATED BY THE COMPLETION OF THE PROPOSED NORTHEAST ANTIOCH ANNEXATION FOR THE CITY OF ANTIOCH

INTRODUCTION

This chapter presents estimates of the revenues that annexation of Area 1, Area 2a and Area 2b may generate for the City of Antioch through property taxes and other revenue sources, including property transfer tax, sales and use tax, franchise taxes, penalties, business license tax, and intergovernmental transfers.

Gas taxes are the only non-General Fund revenue item included in this analysis. We estimate gas taxes because funds from the as tax are transferred unto the General Fund and are used to cover the costs of street maintenance.

SUMMARY OF ESTIMATED GENERAL FUND REVENUES FOLLOWING ANNEXATION AND AT THE FULL BUILD-OUT OF THE NORTHEAST ANTIOCH AREA

Table III-1 summarizes the estimated municipal General Fund revenue potentially generated following completion of the proposed annexation and at the full built-out condition of Area 1, Area 2a, and Area 2b, assuming all of the estimated sales tax revenue and franchise fee revenue is allocated to the City. For this analysis, the Mirant plant is assumed to come on line and on the tax rolls after the completion of the proposed annexation. The Mirant plant is factored into the build-out condition scenario.

TABLE III-1

Summary by Area of Estimated Annual General Fund Revenue to the City of Antioch Assuming the City Receives All of the Sales Tax Revenue and Franchise Fee Revenue

	Estimated Annual Revenue Following Annexation $			Estimated Annual Revenue At Built-Out Condition $		
	Area 1	Area 2a	Area 2b	Area1	Area 2a	Area 2b
Property Tax[1]	152,055-412,814	4,211 – 11,431	7,304 – 19,830	870,163-1,390,236	106,709-155,076	7,304 - 19,830
Property Transfer Tax	2,043	642	1,113	12,899	8,703	1,113
Sales and Use Tax	546	0	0	43,654	37,035	0
Sales and Use Tax – Public Safety Allocation	52	0	0	4,160	3,554	0
Franchise Fee Tax	63,050	15,190	5,538	585,550	115,690	5,538
Penalties	174	122	539	1,838	1,534	539
Business License Tax	18,000	N/A	N/A	18,000+	N/A	N/A
Motor Vehicle In-Lieu Fees	0	54	1,578	0	54	1,578
Gas Tax	0	46	1,342	0	46	1,342
Total by Area	235,920-496,679	20,265-27,485	17,414-29,940	1,536,264-2,056,337	273,325-321,638	17,414-29,940
Total Area 1, Area 2a and Area 2b	273,326-554,104			1,827,003-2,407,915		

[1] Range based on minimum property tax to City of Antioch using 3.61% tax rate based on current master tax agreement for property in base year and 7.2% tax rate for additional property in build-out year and maximum property tax to City of Antioch using 9.8% tax rate as if property is in City limit.

Sources: City of Antioch; Gruen Gruen + Associates.

Overall, the completion of the annexation Area 1, Area 2a, and Area 2b is estimated to contribute total annual revenues to the Antioch General Fund of $273,000 to $554,000 and $1.8 million to $2.4 million when the Northeast Antioch annexation area is fully built-out in the future. Taxes and fees associated with the proposed Mirant Plant and PG&E Generating Station are estimated to generate a total of $725,000 to $1.1 million or 41 to 49 percent of total revenue resulting from the annexation.

Following the completion of the proposed annexation, Area 1 is estimated to account for $235,900 to $496,700 or 86 to 90 percent of the total revenue generated by the annexation of the Northeast Antioch area. Area 2a is estimated to account for $20,300 to $27,500 or five to seven percent of the total revenue generated by the annexation while Area 2b is estimated to account for $17,400 to $30,000 of the total revenue of $273,300 to $554,100 generated by the annexation. Property tax revenue of $163,600 to $444,000 is estimated to comprise 60 to 80 percent of the total revenue from the completion of the annexation. The PG&E Generating Station is estimated to generate total annual revenues of approximately $150,000

to $365,000 or 55 to 66 percent of the estimated total revenues upon completion of the annexation, depending on the allocation of the revenues between the City and the County.

Area 1 is estimated to account for $1.5 million to $2.0 million or 85 percent of the total revenue generated by the annexation when the Northeast Antioch annexation area is fully built-out. Area 2a is estimated to account of $273,300 to $321,600 or 14 percent of the total revenue generated by the annexation when the area is fully built-out while Area 2b is estimated to account for $17,400 to $30,000 of the total revenue of $1.8 million to $2.4 million generated by the annexation when the area is fully built-out in the future. Property tax revenue of $983,700 to $1.5 million is estimated to comprise 56 to 67 percent of the total revenue from the annexation when the area is fully built-out. The next largest source of revenue estimated to result of the annexation at the built-out condition is franchise fee tax of $706,800 or 30 to 40 percent of total revenue. Property taxes and franchise fee taxes comprise together about 97 percent of the total revenues at build-out. The PG&E Generating Station is estimated to account for total revenues of $150,000 to $365,000 or eight to 16 percent of the total revenue when the annexation area is fully-built-out. The proposed Mirant Marsh Landing Facility is estimated to account for total revenues of approximately $576,000 to $784,000 or 33 percent of the total revenue of the annexation area when it is at a fully-built-out condition. Together the PG&E Generating Station and Mirant Marsh Landing facility are estimated to account for 41 to 49 percent of the potential revenues generated for the City's General Fund as the result of the completion of the proposed annexation of the Northeast Antioch area.

Table III-2 presents the total dollars and percentages the components of the estimated sources of revenue comprise of the total revenue forecast for the entire Northeast Antioch annexation area, assuming that the City collects all of the sales tax and franchise fee revenue.

TABLE III-2

Summary for Total Annexation Area of Estimated Annual General Fund Revenue to the City of Antioch Assuming the City Receives All of the Sales Tax Revenue and Franchise Fee Revenue

	Estimated Annual Revenue Following Annexation		Estimated Annual Revenue At Built-Out Condition	
	$	% of Total[2]	$	% of Total[2]
Property Tax[1]	163,570-440,075	60-79	984,176-1,565,142	54-66
Property Transfer Tax	3,798	1	22,715	1
Sales and Use Tax	546	0	80,689	3-5
Sales and Use Tax – Public Safety Allocation	52	0	7,714	0
Franchise Fee Tax	83,778	15 -34	701,240	29-39
Penalties	835	0	3,911	0
Business License Tax	18,000	3-7	18,000+	1
Motor Vehicle In-Lieu Fees	1,632	1	1,632	0
Gas Tax	1,388	1	1,388	0
Total Area 1, Area 2a and Area 2b	273,326-554,104	100	1,809,003-2,389,915	100

[1] Range based on minimum property tax to City of Antioch using 3.61% tax rate based on current master tax agreement for property in base year and 7.2% tax rate for additional property in build-out year and maximum property tax to City of Antioch using 9.8% tax rate as if property is in City limit.
[2] Figures are rounded.

Sources: City of Antioch; Gruen Gruen + Associates.

Table III-2 shows that the key sources of revenues are the property tax at 60 to 79 percent of the estimated total revenues generated initially by the annexation of the entire area and 54 to 66 percent of total revenues at the full build-out of the area. Franchise tax is the other primary source of potential revenue at 15 to 34 percent of forecast total revenue following completion of the annexation and 29 to 39 percent of total revenue forecast at build-out. At full build-out, sales tax is estimated to comprise three to five percent of total revenue. As indicated below, the business license tax revenue is currently only estimated for PG&E.

Table III-3 summarizes the estimated municipal General Fund revenue potentially generated following the proposed annexation and at build-out condition of Area 1, Area 2a, and Area 2b, assuming one-half of the sales tax revenue is allocated to the City and none of the franchise fee revenue is allocated to the City (in this scenario, the revenue is assumed to be allocated to the County).

TABLE III-3

Summary by Area of Estimated Annual General Fund Revenue to the City of Antioch Assuming the City Receives One-Half of Sales Tax Revenue and No Franchise Tax Revenue

	Estimated Annual Revenue Following Annexation $			Estimated Annual Revenue At Built-Out Condition $		
	Area 1	Area 2a	Area 2b	Area1	Area 2a	Area 2b
Property Tax[1]	152,055-412,814	4,211 – 11,431	7,304 – 19,830	870,163-1,390,236	106,709-155,076	7,304 - 19,830
Property Transfer Tax	2,043	642	1,113	12,899	8,703	1,113
Sales and Use Tax	273	0	0	21,827	18,518	0
Sales and Use Tax – Public Safety Allocation	52	0	0	4,160	3,554	0
Franchise Tax	0	0	0	0	0	0
Penalties	174	122	539	1,838	1,534	539
Business License Tax	18,000	N/A	N/A	18,000+	N/A	N/A
Motor Vehicle In-Lieu Fees	0	54	1,578	0	54	1,578
Gas Tax	0	46	1,342	0	46	1,342
Total by Area	172,597-433,356	5,075-12,295	11,876-24,402	928,887-1,448,960	139,118-187,485	11,876-24,402
Total Area 1, Area 2a and Area 2b	189,548-470,053			1,079,881-1,660,846		

[1] Range based on minimum property tax to City of Antioch using 3.61% tax rate based on current master tax agreement for property in base year and 7.2% tax rate for additional property in build-out year and maximum property tax to City of Antioch using 9.8% tax rate as if property is in City limit.

Sources: City of Antioch; Gruen Gruen + Associates.

Assuming as in the case for the City of Pittsburg of the annexation of the Mirant power plant into that City, that only one-half of the sales tax and none of the franchise fee revenue would be allocated to the City of Antioch, the completion of the annexation Area 1, Area 2a, and Area 2b is estimated to contribute total annual revenues to the Antioch General Fund of almost $190,000 to approximately $470,000 and almost $1.1 million to nearly $1.7 million when the Northeast Antioch annexation area is fully built-out in the future. Taxes and fees associated with the proposed Mirant Plant and PG&E Generating Station are estimated to generate a total of $721,000 to $1.1 million or 67 percent of total revenue resulting from the annexation.

Under the assumption that only one-half of the sales tax and none of the franchise fee revenue is allocated to the City of Antioch, following annexation, Area 1 is estimated to generate approximately $173,000 to $433,000 or 91 to 92 percent of the total revenues. Area 2a is estimated to generate only $5,000 to $12,000 in total revenue, while Area 2b is estimated to generate nearly $12,000 to $24,000 in total revenue for Antioch's General Fund. Property tax revenue of $163,600 to $444,000 is estimated to comprise 86 to 95 percent of

the total revenue from the completion of the annexation. The PG&E Generating Station is estimated to generate total annual revenues of approximately $145,000 to $361,000 or 77 percent of the estimated total revenues upon completion of the annexation.

At the full built-out condition of the Northeast Antioch annexation area, Area 1 is estimated to account for $911,000 to $1.4 million or 86 to 87 percent of the total revenue generated by the build-out of the annexation area. Area 2a is estimated to account for $139,000 to $187,000 or 11 percent to 13 percent of the total revenue generated by the build-out of the annexation while Area 2b is estimated to only account for $12,000 to $24,000 (less than two percent) of the total revenue estimated to be generated for the General Fund of Antioch due to the full build-out of the Northeast Antioch annexation area. Property tax revenue of approximately $984,000 to $1.6 million is estimated to comprise 82 to 95 percent of the total revenue from the build-out of the annexation area. The PG&E Generating Station is estimated to account for total revenues of $145,000 to $361,000 or 14 percent to 22 percent of the total revenue when the annexation area is fully-built-out. The proposed Mirant Marsh Landing Facility is estimated to account for revenues of approximately $576,000 to $784,000, or 48 percent to 54 percent of the total revenue of the annexation area when it is at a fully-built-out condition. Together the PG&E Generating Station and Mirant Marsh Landing facility are estimated to account for 67 percent to 70 percent of the potential revenues generated for the City's General Fund as the result of the full build-out of the annexation area.

Table III-4 presents the total dollars and percentages the components of the estimated sources of revenue comprise of the total revenue forecast for the entire annexation area, assuming that the City collects one-half of the sales tax and none of the franchise fee revenue.

TABLE III-4

Summary for Total Annexation Area of Estimated Annual General Fund Revenue to the City of Antioch Assuming the City Receives One-Half of Sales Tax Revenue and No Franchise Tax Revenue

	Estimated Annual Revenue Following Annexation		Estimated Annual Revenue At Built-Out Condition	
	$	% of Total[2]	$	% of Total[2]
Property Tax[1]	163,570-444,075	86-94	984,176-1,565,142	91-94
Property Transfer Tax	3,798	1-2	22,715	1-2
Sales and Use Tax	273	0	40,345	2- 4
Sales and Use Tax – Public Safety Allocation	52	0	7,714	0
Franchise Tax	0	0	0	0
Penalties	835	0	3,911	0
Business License Tax	18,000	4-9	18,000+	1-2
Motor Vehicle In-Lieu Fees	1,632	1	1,632	0
Gas Tax	1,388	1	1,388	0
Total Area 1, Area 2a and Area 2b	189,548-470,053	100	1,079,881-1,660,846	100

[1] Range based on minimum property tax to City of Antioch using 3.61% tax rate based on current master tax agreement for property in base year and 7.2% tax rate for additional property in build-out year and maximum property tax to City of Antioch using 9.8% tax rate as if property is in City limit.
[2] Figures are rounded.

If franchise tax is not allocated to the City of Antioch, property tax would comprise most of the potential revenue resulting from the completion of the annexation. Sales and business license taxes would represent other relatively small sources of potential revenue.

The following sections of this chapter present the estimates of revenues potentially generated for the City of Antioch through property taxes and other sources following the completion of the annexation and from the full build-out of Area 1, Area 2a, and Area 2b in the future.

PROPERTY TAX FOLLOWING ANNEXATION

Table III-5 presents an estimate of the property tax estimated to initially result from the City's annexation of Area 1, Area 2a, and Area 2b under two alternative assumptions: (1) the property tax rate that would apply is equivalent to the property tax rate as if the property was already within the City's jurisdiction; and (2) the property tax rate that would apply is equivalent to the property tax rate specified if the Master Property Tax Agreement governed the allocation of property tax revenue.

TABLE III-5

Annual Property Tax Revenue Estimated to Result from Completion of Annexation

	Area 1	Area 2a	Area 2b	Total
2008 Assessed Valuation	$421,286,455	$11,664,541	$20,234,588	$453,185,584
Total Property Tax[1]	$4,212,865	$116,645	$202,346	$4,531,856
Property Tax to City of Antioch Using 9.8% Tax Rate as if Property is in City Limit	$412,814	$11,431	$19,830	$444,076
Property Tax to City of Antioch Using 3.61% Tax Rate Based on Current Master Tax Agreement for Property in Base Year	$152,055	$4,211	$7,304	$163,570

[1] Based on one percent tax rate of 2008 assessed valuation.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; Gruen Gruen + Associates.

Under the Master Property Tax Agreement, the City is allocated 19.5 percent of the County's base year tax for the annexation area and the County is allocated the balance.[1] The Agreement provides that the City will be allocated 39 percent of the County's share of the increment or increase in the property tax due to the increase in assessed valuation.[2] The County's current share of the basic one percent property tax is 18.5115 percent. Accordingly, the estimate of the property tax revenue to the City of Antioch following the annexation if the Master Property Tax Agreement applies reflects the assumption that the City collects property tax revenue equivalent to 3.61 percent of the one percent total property tax.

Based on information provided by PG&E, the assessed valuation of the PG&E Generating Station is estimated to total $350 million. The PG&E Generating Station is estimated to comprise 85 percent of the total assessed valuation in Area 1 and 77 percent of the total assessed value of all three areas. The next largest properties comprising 13 percent of estimated current assessed valuation of all three areas are the Mirant Contra Costa plant and the Georgia Pacific plant. Areas 2a and 2b comprise about seven percent of the total $453.2 million of assessed value for all three areas.

Under the assumption that the Master Property Tax Agreement applies, then the completion of the annexation of Area 1, Area 2a, and 2b is estimated to produce total property tax revenue to the City of approximately $163,600. Of this total amount, approximately $157,000 or 93 percent of the total would be attributable to Area 1. Area 2a would generate only $4,200 in property tax revenue, while Area 2b would generate only approximately $7,300 in property tax revenue.

[1] MASTER PROPERTY TAX TRANSFER AGREEMENT FOR ALLOCATION OF PROPERTY TAX BETWEEN THE COUNTY OF CONTRA COSTA AND CITY OF ANTIOCH UPON JURISDICTIONAL CHANGES, Page 3, Section 7.a. (a) Base Tax.
Id. at Page 3, Section 7.a. (2) Annual tax increment.

Under the assumption that the City collected property tax revenue as if the property was already within the City's boundaries, then the annual property tax revenue following the annexation would be 172 percent higher at nearly $444,100. Area 1 would contribute approximately $412,800 in property tax revenue, while Area 2a would contribute $11,400 and Area 2b almost $19,900.

AT BUILD-OUT PROPERTY TAX

Table III-6 presents an estimate of the property tax revenue at build-out of Area 1, Area 2a, and Area 2b for the City of Antioch General Fund under two alternative assumptions: (1) the property tax rate is equivalent to the property tax rate as if the property was already within the City's jurisdiction; and (2) the property tax rate is equivalent to the property tax rate that would apply if the Master Property Tax Agreement governed the allocation of property tax revenue. The base year assessed value is taxed at 3.61 percent and the annual increment of added assessed value is taxed at 7.2 percent of the one percent total property tax.

TABLE III-6

Comparison of Forecast Property Tax Receipts at Build-out Under Differing Allocations

	Area 1	Area 2a	Area 2b	Total
Future Assessed Valuation	$1,418,655,614	$158,240,881	$20,234,588	$1,597,131,083
Total Property Tax[1]	$14,186,556	$1,582,409	$202,346	$15,971,311
Property Tax to City of Antioch Using 9.8% Tax Rate as if Property is in City Limit	$1,390,236	$155,076	$19,830	$1,565,142
Property Tax to City of Antioch Using 3.61% Tax Rate Based on Current Master Tax Agreement for Property in Base Year and 7.2% Tax Rate for Additional Property in Build-out Year	$870,163	$106,709	$7,304	$984,176

[1] Based on one percent tax rate of future assessed valuation.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; Gruen Gruen + Associates.

Under the assumption that the Master Property Tax Agreement applies, then the annexation of Area 1, Area 2a, and 2b at build-out is estimated to produce total property tax revenue to the City of approximately $984,000. Of this total amount, approximately $870,100 or 88 percent of the total would be attributable to Area 1. Area 2a is estimated to generate at build-out $106,700 in property tax revenue, while Area 2b is estimated to generate only $7,300 in property tax revenue.

Under the assumption that the City collects property tax revenue as if the property was already within the City's boundaries, then the property tax revenue at build-out would be 59 percent higher at nearly $1.6 million. Area 1 would contribute approximately $1.4 million in property tax revenue, while Area 2a would contribute $155,100 and Area 2b only about $19,900.

Compared to the estimated property tax induced following completion of the annexation, annual property tax revenue at the build-out condition would increase by $1.1 million under the assumption the annexed property is taxed at the same rate as property within the City's boundaries. Under the Master Property Tax Agreement, at full build-out of the annexation area, the annual property tax revenue is estimated to increase by over $820,000. For the at build-out scenario, property tax attributable to the PG&E is estimated at $126,000 and almost $576,000 is estimated to be attributable to the proposed Mirant Marsh Landing facility.

PROPERTY TRANSFER TAX REVENUE FOLLOWING ANNEXATION

Table III-7 presents an estimate of the property transfer tax potentially attributable to the sale of housing units and the sale of nonresidential properties in Area 1, Area 2a, and Area 2b following completion of the proposed annexation. Note, for purposes of this analysis, the PG&E Gateway Generation Station and Mirant Contra Costa are assumed to not be sold.

TABLE III-7

Estimated Annual Property Transfer Tax Revenue
Following Completion of Northeast Antioch Annexation

	Area 1	Area 2a	Area 2b	Total
2008 Assessed Valuation[1]	$37,151,104	$11,664,541	$20,234,588	$69,050,233
Average Assessed Valuation of Transferred Property[2]	$3,715,110	$1,166,454	$2,023,459	$6,905,023
Property Transfer Tax to City of Antioch[3]	$2,043	$642	$1,113	$3,798

[1] Not including PG&E and Mirant facilities.
[2] Assumes property transfers once every 10 years.
[3] Transfer tax is $1.10 per $1,000 of transfer value and the tax is split 50/50 between City and County.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; Gruen Gruen + Associates.

When the ownership of real property is transferred, the City of Antioch collects property transfer tax. The transfer tax rate for the sale of real property is equal to $0.55 per $1,000 of value (The City's General Fund share of the total $1.10 per $1,000 levy, of which one-half is received by the County). The estimate of annual property transfer tax revenue of approximately $3,800 reflects an assumption that in any given year following completion of the proposed annexation 10 percent of the assessed valuation of the property (excluding the PG&E and Mirant facilities) in the three areas is sold.

AT BUILD-OUT PROPERTY TRANSFER TAX REVENUE

Table III-8 presents an estimate of the property transfer tax at build-out potentially attributable to the sale of housing units and the sale of nonresidential properties in Area 1, Area 2a, and Area 2b. Note, that for purposes of this analysis, the PG&E Generating Station, Mirant Contra Costa, and Mirant Marsh Landing are assumed to not be sold.

TABLE III-8

Estimated Annual Property Transfer Tax Revenue at Build-out of Northeast Antioch Annexation Area

	Area 1	Area 2a	Area 2b	Total
Future Assessed Valuation[1]	$234,520,263	$158,240,881	$20,234,588	$412,995,732
Average Assessed Valuation of Transferred Property[2]	$23,452,026	$15,824,088	$2,023,459	$41,299,573
Property Transfer Tax to City of Antioch[3]	$12,899	$8,703	$1,113	$22,715

[1] Not including PG&E and Mirant facilities.
[2] Assumes property transfers once every 10 years.
[3] Transfer tax is $1.10 per $1,000 of transfer value and the tax is split 50/50 between City and County.

Sources: Contra Costa County Assessor; Colliers; 2000 Census; Gruen Gruen + Associates.

Excluding the PG&E and Mirant facilities, under the assumptions about the characteristics of the annexation area at full build out, the total assessed valuation of the three areas is estimated to total $413.0 million with Area 1 comprising 57 percent or $234.5 million of the assessed valuation and Area 2a comprising 38 percent or $158.2 million of the assessed valuation. Ten percent of the total assessed valuation for all three areas is estimated to be $41.3 million. Therefore, the annual property transfer tax revenue when the annexation area is fully built-out is forecast to total $22,700. This is an annual property transfer tax revenue increase of $18,900 over the estimate of property transfer revenue following annexation of Area 1, Area 2a, and Area 2b of $3,800.

SALES TAX REVENUE FOLLOWING ANNEXATION

For purposes of this analysis, we do not factor in the sales tax contributions already made by existing residents and employees of Area 1, Area 2a, and Area 2b. New employees working at the PG&E Generating Station will generate sales tax.[3] PG&E reports approximately 21 full-time workers will be located at the Station. Without the benefit of surveys, it is difficult to accurately forecast the sales tax contributions of these sources of taxable expenditures for such as items such as meals, retail goods and services, gasoline, and a variety of other items. Assuming that on average employees spend the equivalent of $10 per employee per day produces an annual sales estimate of $54,600 (21 employees x $10.00 x 260 work days) and annual sales tax revenue of $546 (one percent sales tax x $54,600 sales). The range of total revenue reflects alternative assumptions that all of the sales tax revenue is allocated to the City and that only one-half of the sales tax revenue is allocated to the City with the other one-half allocated to the County in order to consider the implications of the County's

[3] For analytical simplicity, we estimate the sales tax based on the basic one percent sales tax rate the City collects on taxable sales and do not separately estimate "sales tax in-lieu revenue" and take into account the timing differences due to the State of California reducing the distribution of the one percent of sales tax revenue in a given year to the City to 0.75 percent and making up the difference the following fiscal year via sales tax in-lieu revenue.

agreement with the City of Pittsburg concerning the annexation of the Mirant power plant into the City of Pittsburg. The County's agreement with Pittsburg provides that 50 percent of the sales tax revenue is allocated to the County in the range of total revenue. Therefore, for estimating the lower part of the range of total potential revenue resulting from the annexation, we assume one-half of the sales tax revenue or $273 is allocated to the County. As indicated below, sales tax is estimated to become more significant in the future at the build-out condition when over 3,000 new workers are estimated to be added in Area 1 and Area 2a.

SALES TAX REVENUE AT BUILD-OUT

Table III-9 presents an estimate of the sales tax in a future year when Area 1, Area 2a, and Area 2b are assumed to be fully built-out. Sales tax revenue is assumed to be generated only from the addition of new workers in Areas 1 and 2a. Given Area 2b is assumed to remain as the status quo and no new households are assumed to be added in Areas 1 and 2a, no sales tax revenue will be generated from either Area 2b or the addition of new households.

TABLE III-9

Estimated Annual Sales Tax Revenue at Build-out of Northeast Antioch Annexation Area

	Area 1	Area 2a	Area 2b	Total
Estimated Number of New Workers	1,679	1,434	0	3,113
Annual Sales[1]	$4,365,400	$3,702,400	$0	$8,067,800
Sales Tax to City of Antioch if City Retained its Full Share[2]	$43,654	$37,035	$0	$80,689
Sales Tax to City of Antioch Assuming County Allocated One-Half of Tax Revenue	$21,827	$18,518	$0	$40,345

[1] Based on expenditure assumption of $10.00 per day for 260 work days.
[2] One percent sales tax rate to City of Antioch.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; Gruen Gruen + Associates.

A total of 3,113 new workers are estimated to be added due to the future build-out of Area 1 and Area 2a. Assuming that each new worker expends $10 per day on retail goods and other items over 260 work days per year results in total annual sales of over $8.0 million. Applying the one percent sales tax rate results in annual sales tax revenue of $80,700 assuming the annexation area is fully built-out. In order to illustrate the effects of following the terms of allocation of tax revenues under the May 15, 2007 agreement between the City of Pittsburg and Contra Costa County for the annexation of the Mirant power plant into Pittsburg, for estimating a range of potential total revenue resulting from the annexation, we also assume for one scenario that one-half of the sales tax is shared with the County. Under this assumption, at the build-out of the proposed annexation area, sales tax revenue is estimated to total $40,345 for the City of Antioch.

SALES AND USE TAX – PUBLIC SAFETY ALLOCATION

The City has a one half cent sales and use tax whose revenue is allocated to the police department. Because not all of the sales and use tax revenue for the public safety allocation is transferred to the General Fund, we estimated this revenue source on a per resident equivalent basis. As in the case of the estimate of the sales tax revenue presented above, we assume the sales and use tax for public safety allocation would only be generated from sales made by additional employees due to the future build-out of the annexed areas. For fiscal year 2008-2009, the City has budgeted $550,000 in sales and use tax revenue – public safety allocation. This results in a per capita equivalent estimate of $4.96. We estimate that following the completion of the annexation, only 21 new workers are to be added in Area 1 due to the PG&E Generating Station coming on line in 2009. This results in approximately $52 of sales and use tax revenue generated for the City of Antioch, assuming that none of the public allocation is shared with the County.

Based on the forecast addition of 1,679 workers (i.e., 840 resident equivalents) in Area 1 and 1,434 workers (i.e., 717 resident equivalents) in Area 2a when Area 1 and Area 2a are fully built-out, sales and use tax revenue to the City of Antioch would approximate $4,160 and $3,554, respectively, assuming none of this revenue is shared with the County.

FRANCHISE TAXES

The franchise tax in Antioch applies to revenue from the consumption of gas, electricity, cable T.V., and refuse. Private companies or franchises collect revenue from their users, which in turn, are taxed by the City. The City collects one percent of the gross receipts of gas consumption and 0.5 percent of the gross receipts on electric consumption. The City collects five percent of cable franchise gross receipts. The City collects 12 percent of refuse service gross receipts but only five percent goes to the General Fund. Thus, the annual franchise tax revenue can be calculated on a per household basis, or per resident equivalent, or by type of business.

According to the Mirant representative, because the Mirant Contra Costa Power Plant is a merchant power plant, it will not generate any franchise fee revenue to the City of Antioch because it sells its power directly to PG&E. PG&E has forecast its franchise fees payable to the City of Antioch. The forecast is presented below.

PG&E Franchise Revenue

Under PG&E's gas franchise agreement with the City (Ordinance No. 480-A), franchise fees are paid in based on the greater of two computations: two percent (2.0%) of the gross annual receipts arising from the use, operation and possession of the franchise (known as the Broughton Act formula); or one percent (1.0%) of the gross annual receipts from the sale, transmission or distribution of gas within the City (the formula established in the Franchise Act of 1937, Public Utilities Code section 6201, et seq. ('37 Act)). For calendar year 2007,

PG&E's payment of gas franchise fees to the City was based on the Broughton Act formula.

Within Areas 1, 2a, and 2b of the proposed annexation area are an estimated three to four miles of public gas line subject to franchise fees (a private gas line is not subject to franchise fees). For the period 2007 gas franchise fees of $427 per public mile of gas line were calculated for the City of Antioch. This results in additional total gas franchise fee revenue of approximately $1,495.

Within Area 1, 2a and 2b of the proposed annexation area are an estimated three to four miles of public electric line subject to franchise fees (private electric line is not subject to franchise fees). For the period 2007 electric franchise fees of $730 per public mile of gas line were calculated for the City of Antioch. This results in additional total electric franchise fee revenue of approximately $2,555.

Thus, total gas and electric franchise fee revenue generated by the addition of PG&E gas and electric lines added to the City results in total additional franchise fee revenue of $4,050 if this revenue source is allocated to the City. Under the agreement between the City of Pittsburg and Contra Costa County, franchise revenue attributable to PG&E is allocated to the County instead of the City. Accordingly, for modeling the effects of the terms of that contract as if it applied to Antioch, the range of total potential revenue estimates reflect the alternative assumptions that Antioch collects the PG&E franchise revenue or that it is instead allocated to the County.

Franchise Revenue Attributable to Businesses and Residents Following Annexation

Table III-10 presents estimates of gas, electricity, cable TV, and refuse taxes attributable to the residents and businesses in Area 1, Areas 2a, and Area 2b following completion of the proposed annexation.

TABLE III-10

Estimated Annual Franchise Fee Revenue
Following Completion of Northeast Antioch Annexation

	Area 1	Area 2a	Area 2b	Total
Added Number of Residents	0	9	264	273
Added Number of Employees	176	105	16	297
Revenue				
Franchise Fees From Residents[1]				
Gas	0	$17	$499	$516
Electric	0	$29	$843	$872
Cable TV	0	$75	$2,186	$2,261
Refuse	0	$69	$2,010	$2,079
TOTAL	0	$190	$5,538	$5,728
Franchise Fees From Employees/Businesses[2]				
Gas	$47,000	$12,000	$0	$59,000
Electric	$12,000	$3,000	$0	$15,000
Cable TV	$0	$0	$0	$0
Refuse	$0	$0	$0	$0
TOTAL	$59,000	$15,000	$0	$74,000
Franchise Fees From PG&E				
Gas	$1,495	$0	$0	$1,495
Electric	$2,555	$0	$0	$2,555
TOTAL	$4,050	$0	$0	$4,050

[1] Based on resident equivalent estimate of $1.89 for gas; $3.19 for electric; $8.28 for cable TV; and $7.61 for refuse.

[2] Based on annual consumption estimate of 30 therms per square foot for large industrial users and 15 therms per square foot for smaller industrial users; and 68 kilowatt hours per square foot for large industrial users and 34 kilowatt hours per square foot for smaller industrial users. Total gas charge estimate of $0.789605 per therm. Total electric charge estimate of $0.17388 per kilowatt hour. City of Antioch gas franchise fee on gross receipts of one percent and electric franchise fee on gross receipts of 0.5 percent.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; PG&E; Gruen Gruen + Associates.

The best approximation of the added revenue from franchise fees on gas, electric, cable TV, and refuse consumption is based on resident equivalents to take into account that some franchise fee revenue is due not only to residents but to employees working in Antioch. For fiscal year 2008-2009, the City has budgeted $210,000 in gas franchise fee revenue. This results in a per resident equivalent estimate of $1.89 ($210,000 divided by 110,996 resident equivalents). Electric franchise fee revenue is budgeted at $354,355 for 2008-2009 which results in a resident equivalent estimate of $3.19. Cable TV franchise fee revenue is budgeted at $919,107 for 2008-2009 resulting in a resident equivalent estimate of $8.28. Refuse franchise fee revenue is budgeted at $845,000 resulting in a resident equivalent

estimate of $7.61.

The number of added residents following the completion of the proposed annexation is estimated at nine in Area 2a and 264 in Area 2b. Using the resident equivalent estimates for franchise fee revenues results in estimates of additional base case total franchise fee revenue for gas of $516; electric of $872; cable TV of $2,261; and refuse of $2,079 to the City of Antioch.

For Area 1, we estimated franchise fees from gas and electric usage generated by the existing businesses. We estimated gross receipts from gas and electric usage based on an average total rate of $0.17388 per kilowatt hour and $0.789605 per therm based on rate information from PG&E. We multiplied these rates based on utility consumption estimates provided by businesses in Area 1. This results in an estimate of total gas and electric revenues of $47,000 and $12,000, respectively, in Area 1.

For Area 2a, we estimate gas and electric consumption based information on provided by an existing business in Area 1. We discount the consumption amounts by one-half given that Area 1 contains heavy industrial users and Area 2a is likely to attract light industrial users which may likely to consume relatively fewer amounts of gas and electricity. Therefore, based on a gas consumption estimate of 15 therms per square foot of space and electric consumption estimate of 34 kilowatt hours per square foot of space, Area 2a with approximately 100,200 square feet of space s estimated to generate 1.5 million therms of gas and 3.4 million kilowatt hours of electricity usage. Multiplying these estimates by the PG&E rates described above results in estimated gross gas receipts of $1.1 million and gross electric receipts of $591,200. Using the one percent franchise fee rate for gas and the 0.5 percent franchise fee rate for electric results in estimated total franchise fee revenues to the City of Antioch of $12,000 for gas and $3,000 for electric from Area 2a.

For the estimate of the range of total potential revenue resulting from the annexation, we assume in one case that the City collects the gas and electric franchise revenue and in the other case, the revenue is allocated to the County.

Franchise Revenue Attributable to
Annexation Area Businesses and Residents at Build-out

Table III-11 presents for the forecast at build-out condition of the Northeast Antioch annexation area estimates of gas, electricity, cable TV, and refuse taxes attributable to the residents and businesses in Area 1, Areas 2a, and Area 2b.

TABLE III-11

Estimated Annual Franchise Fee Revenue at Build-out of Northeast Antioch Annexation Area

	Area 1	Area 2a	Area 2b	Total
Added Number of Residents	0	9	264	273
Added Number of Employees	1,679	1,434	0	3,113
Revenue				
Franchise Fees From Residents[1]				
Gas	$0	$17	$499	$516
Electric	$0	$29	$843	$872
Cable TV	$0	$75	$2,186	$2,261
Refuse	$0	$69	$2,010	$2,079
TOTAL	$0	$190	$5,538	$5,728
Franchise Fees From Employees/Businesses[2]				
Gas	$465,800	$92,500	$0	$558,300
Electric	$115,700	$23,000	$0	$138,700
TOTAL	$581,500	$115,500	$0	$697,000
Franchise Fees From PG&E				
Gas	$1,495	$0	$0	$1,495
Electric	$2,555	$0	$0	$2,555
TOTAL	$4,050	$0	$0	$4,050

[1] Based on resident equivalent estimate of $1.89 for gas; $3.19 for electric; $8.28 for cable TV; and $7.61 for refuse.

[2] Based on annual consumption estimate of 30 therms per square foot for large industrial users and 15 therms per square foot for smaller industrial users; and 68 kilowatt hours per square foot for large industrial users and 34 kilowatt hours per square foot for smaller industrial users. Total gas charge estimate of $0.789605 per therm. Total electric charge estimate of $0.17388 per kilowatt hour. City of Antioch gas franchise fee on gross receipts of one percent and electric franchise fee on gross receipts of 0.5 percent.

Sources: Contra Costa County Assessor; Colliers International; 2000 Census; Gruen Gruen + Associates.

Franchise fee revenue estimated to be generated by residents in the Northeast Antioch annexation area at build-out is the same forecast following completion of the annexation because the number of residents is not anticipated to change under the build-out condition. Franchise fee revenue from PG&E is based on the public miles of pipes and lines in Antioch. Therefore, the franchise fee revenue will also remain the same under the at build-out condition. Franchise fee revenue from businesses/employees is forecast to increase when the annexation area is fully built-out. To estimate franchise fee revenue from

businesses occupying additional space developed in the annexation area, we estimated how much gas and electricity is likely to be consumed by larger and smaller industrial businesses which are the kinds of users anticipated to occupy building space in Areas 1 and 2a. Using the consumption levels of a large industrial user currently operating in the annexation area as a prototype, we estimated gas and electric usage on a per square foot basis. For larger industrial users we estimate gas usage of approximately 30 therms per square foot of space and electric usage of 68 kilowatt hours per square foot of space. For smaller industrial users we assume one-half the consumption volume per square foot for gas and electricity. Applying these usage standards to the 2.2 million square feet of industrial space in Area 1 and 772,600 square feet of industrial space in Area 2a results in an estimate of potential consumption of nearly 70 million therms and over 158 million kilowatt hours. Multiplying the estimated consumption of 70 million therms and the 158 million kilowatt hours by the gas rate of $0.789605 per therm and electric rate of $0.17388 per kilowatt hour results in estimated gross gas receipts of $55.3 million and gross electric receipts of $27.5 million from businesses. Based on the one percent gas franchise rate and 0.5 percent electric franchise rate, franchise fee revenue for gas usage at build-out of the annexation area is forecast to total $558,300 and electric usage is forecast to total $138,700. Again, for the estimate of the range of total potential revenue resulting from the build-out of the annexation area, we assume in one case that the City collects the gas and electric franchise revenue and in the other case, the revenue is allocated to the County.

LICENSES

The City of Antioch charges an annual business license fee to businesses operating in the City of Antioch. The fee is based on the gross receipts of sales or service made in the City of Antioch plus a one-time $30.00 application fee for new businesses. The fee is a flat fee for gross receipts up to $20,000; $1.25 per $1,000 of receipts between $20,001 and $1,000,000; and $1,250 plus 20 cents for each additional $1,000 over receipts of $1,000,000. To be conservative, we have only included the business license fee revenue that will be generated by the operation of the PG&E Gateway Generating Station. PG&E estimates it would generate $18,000 in annual business license fee calculated on 2007 gross receipts from customers within the City.

PENALTIES

Penalties Revenue Attributable to Annexation Area Businesses and Residents

Table III-12 presents an estimate of penalties revenue following the annexation of Area 1, Area 2a, and Area 2b.

TABLE III-12

Estimated Annual Penalty Fee Revenue Following Completion of Northeast Antioch Annexation

	Area 1	Area 2a	Area 2b	Total
Added Number of Residents	0	9	264	273
Added Number of Employees	176	105	16	297
Estimated Additional Equivalent Residents[1]	88	62	272	422
Estimated Total Penalties Revenue[2]	$174	$122	$539	$835

[1] Assumes municipal revenues and costs generated by every two employees equal that of one resident.
[2] Based on resident equivalent estimate of $1.98.

Sources: Contra Costa County Assessor; City of Antioch; 2000 Census; Gruen Gruen + Associates.

The best approximation of the added revenue from penalties is based on resident equivalents to take into account that penalty revenue is due not only to residents but to employees working in Antioch. For fiscal year 2008-2009, the City has budgeted $220,000 in penalties revenue. This results in a per resident equivalent estimate of $1.98 ($220,000 divided by 110,996 resident equivalents). Total penalties revenue from all three areas approximates $835 in the base case annexation year assuming 422 resident equivalents in the annexed areas.

Penalties Revenue Attributable to Annexation Area Businesses and Residents at Build-out

Table III-13 presents an estimate of penalties revenue upon build-out of Area 1, Area 2a, and Area 2b.

TABLE III-13

Estimated Annual Penalty Fee Revenue at Build-out of Northeast Antioch Area

	Area 1	Area 2a	Area 2b	Total
Added Number of Residents	0	9	264	273
Added Number of Employees	1,679	1,434	16	3,129
Estimated Additional Equivalent Residents[1]	927	774	272	1,973
Estimated Total Penalties Revenue[2]	$1,838	$1,534	$539	$3,911

[1] Assumes municipal revenues and costs generated by every two employees equal that of one resident.
[2] Based on resident equivalent estimate of $1.98.

Sources: Contra Costa County Assessor; City of Antioch; 2000 Census; Gruen Gruen + Associates.

Based on a per resident equivalent estimate of $1.98 for penalty fee revenue, total penalty fee revenue from all three areas approximates $3,900 at build-out assuming the addition of 1,973 resident equivalents in the Northeast Antioch Annexation Area.

REVENUES FROM OTHER AGENCIES

Motor Vehicle In-Lieu Fees

The City of Antioch receives funds from the State of California for vehicle license fees called "motor vehicle in lieu fees". The funds from this tax are transferred into the General Fund and used to cover the cost of street maintenance. The amount of motor vehicle in lieu fees transferred from the State decreased beginning in fiscal year 2004-2005. The motor vehicle in lieu fees are allocated to the City through complex formulas that consider population, street miles, and the number of registered vehicles. The best approximation of the added revenue from motor vehicle in lieu fee is based on population. Table III-14 presents the results of the estimated motor vehicle-in lieu fees to the City of Antioch.

For fiscal year 2008-2009, the City has budgeted $600,000 in motor vehicle in lieu fees. This results in a per capita estimate of $5.98. Therefore, based on the addition of nine residents in Area 2a and 264 residents in Area 2b, motor vehicle in lieu fee revenue would approximate $54 and $1,578, respectively. The total motor vehicle in-lieu fees of $1,632 are estimated to remain the same upon build-out of the annexed areas because no new households are forecast to be added into the three areas.

TABLE III-14

Northeast Antioch Annexation Area Estimated
Annual Franchise Fee Revenue in Base Year and Build-out Year of Annexation

	Area 1	Area 2a	Area 2b	Total
Added Number of Residents	0	9	264	271
Total Motor Vehicle In-Lieu Fee Revenue[1]	$0	$1,578	$54	$1,632
[1] Based on per capita estimate of $5.98.				
Sources: Contra Costa County Assessor; City of Antioch; 2000 Census; Gruen Gruen + Associates.				

Gas Tax

Gas taxes is the only non-General Fund revenue source include in this analysis. Gas taxes are included because funds are transferred into the general fund and used to cover the costs of street maintenance. Gas taxes are redistributed from the State to local government units based on a combination of factors including population. This analysis estimates gas tax revenues on a per capita basis. For fiscal year 2008-2009, the City has budgeted gas tax fund revenue of $510,000. Based on a City population of 100,361, the budgeted gas tax fund revenue results in per capita gas tax revenue of $5.08. Based on an anticipated initial annexation and build-out resident population of 271 in Areas 2a and 2b, gas tax resulting from the proposed annexation is estimated to total $1,388.

CHAPTER IV

ESTIMATED OPERATING COSTS OF PROVIDING CITY SERVICES INDUCED BY THE ANNEXATION OF THE NORTHEAST ANTIOCH AREA

INTRODUCTION AND SUMMARY OF OPERATING COSTS INDUCED BY ANNEATION

This chapter presents estimates of the annual operating costs potentially induced by the annexation of Area 1, Area 2a, and Area 2b. (Chapter VI presents estimates of the capital costs associated with the proposed annexation; that is, the costs associated with building new or upgrading to City standards the required infrastructure such as streets, drainage, sewage, and related facilities). The Chapter does not cover costs for services offset by user chargers.

As described in Chapter I, the City will provide the same standard of services to the area proposed to be annexed into the City. Based on our interviews with and information obtained from municipal staff, and analysis of the Budget, the General Fund costs that the City of Antioch will incur in providing municipal services to the residents, businesses and visitors to Area 1, Areas 2a, and Area 2b include the following categories:

- Legislative and Administrative and Finance;
- Police;
- Public Works;
- Community Development, and
- Non-departmental.

Based on discussions with and input from the Finance Director, City Manager, and other department directors, we use the Budget for 2008-2009 as a benchmark for estimating General Fund costs likely to be induced by the proposed project. To estimate the potential costs of providing services to the proposed annexation area, we draw heavily on the use of extrapolating estimates of average per capita or resident equivalent metrics. We rely on these techniques in the absence of available data on costs of providing services to industrial areas or nonresidential uses versus residential areas and residential uses and based on the interviews which suggest that residential use and households generate greater demands for municipal services than nonresidential uses.

Table IV-1 summarizes the total annual operating costs estimated to be induced by the completion of the proposed annexation and at the build-out of Area 1, Area 2a, and Area 2b.

TABLE IV-1

Summary of Estimated Annual Service Costs Induced Following the Annexation of Area 1, Area 2a, and Area 2b and at Build-out[1]

Service	Estimated Initial Base Case Annual Cost $			Estimated at Build-out Annual Cost $		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Legislative and Administrative	5,385	3,778	16,664	56,827	47,410	16,664
Police	19,752	13,859	61,121	208,432	173,893	61,121
Public Works	8,649	6,664	22,342	45,338	37,800	22,342
Community Development	1,254	880	3,881	13,235	11,041	3,881
Non-Departmental	246	173	761	2,594	2,164	761
Total	35,286	25,354	104,769	326,426	272,308	104,769
Total Area 1, Area 2a, Area 2b	165,409			703,503		

[1] Figures have been rounded.

Sources: City of Antioch; Gruen Gruen + Associates.

In total, the annexation of Area 1, Area 2a, and Area 3b is estimated to initially induce annual operating costs of approximately $165,400. Under the characteristics assumed to apply at the full build-out of Area 1, Area 2a, and Area 3b, the annexation is estimated to induce annual operating costs of a total of $703,500.

The following sections present estimates of the operating costs associated with the existing conditions assumed to apply following completion of the proposed annexation and at the future built-out condition of Area 1, Area 2a, and Area 2b.

LEGISLATIVE AND ADMINISTRATIVE AND FINANCE

Legislative and administrative services include the functions of the City Council, boards and commissions and the administration operations of the City, including City Manager, City Attorney, City Clerk, and Personnel/Labor Relations departments. The cost of providing legislative and administrative services to the annexation area is a function of the increased burden placed on the City's administrative and support services. Typically, legislative and administrative government services contain a significant fixed cost that does not change much as the result of new development. Based on our interview with the City Manager, and review of the Budget, we assume 10 percent of legislative and administrative costs are fixed and will not vary with changes in population and employment in Area 1, Area 2a, and Area 2b.

TABLE IV-2

Estimated Annual Operating Cost of Providing Legislative and Administrative and Finance Services Initially to the Northeast Antioch Annexation Area and At Its Full Build-out[1]

2008-2009 Legislative and Administrative Budget	$7,557,140					
2008-2009 Legislative and Administrative Costs Adjusted by 10% to Reflect Fixed Costs	$6,801,426					
2008 Antioch Population	100,361					
2008 Antioch Employment	21,270					
2008 Resident Equivalent Population	110,996					
2008-2009 Cost per Equivalent Resident	$61.28					
	Following Annexation			At Build-out Annexation		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Estimated Equivalent Residents	88	62	272	927	774	272
Total Annual Legislative and Administrative Services and Finance Cost by Area	$5,385	$3,778	$16,664	$56,827	$47,410	$16,664
Total Legislative and Administrative and Finance Services Cost for Area 1, Area 2a, Area 2b	$25,827			$120,901		

[1]Figures are rounded.
[2] The demand for municipal services reflects the assumption that the demand for municipal services from two residents is equivalent to one job in Antioch.

Sources: City of Antioch; California Department of Finance; Gruen Gruen + Associates.

As shown on Table IV-2, to estimate the cost of providing legislative and administrative services to the households and businesses of the areas potentially annexed, we use the fiscal year 2008-2009 legislative and administrative budget of $7,557,140 as a baseline. We further assume that 10 percent of the legislative and administrative and finance department's budget is fixed and does not vary with changes in population. Accordingly, we adjusted the 2008-2009 Budget of $5,005,985 by 10 percent to account for a fixed cost component of legislative and administrative services. This results in estimated legislative and administrative services costs affected by additional households and businesses of $6,801,426. Dividing this estimated total cost by the estimated 100,361 population of Antioch and Antioch employment of 21,270 results in a per capita resident equivalent legislative and administrative and finance services cost estimate of $61.28. This per capita equivalent or service unit measure reflects the assumption that the demand for municipal services from two residents is equivalent to the demand generated by one worker. Multiplying the estimate per equivalent resident cost of $61.28 by the estimated number of equivalent residents or service units produces an estimate of total legislative and administrative and finance services costs following the completion of the proposed annexation of $25,800. Area 2b is estimated to induce approximately $16,700 of the total legislative and administrative and finance costs following completion of the proposed annexation or 65 percent of total costs. Area 1 is estimated to induce approximately $5,400 (21 percent) and Area 2a is estimated to induce approximately $3,800 (15 percent) of total legislative and administrative and finance costs

following completion of the proposed annexation.

Under the characteristics assumed to apply to the full built-out condition of the proposed annexation area, legislative and administrative and finance costs are estimated to increase by 368 percent to approximately $120,900. Area 1 is estimated to account for approximately $56,800 or 47 percent of the total costs. Area 2a is estimated to induce approximately $47,400 or 39 percent, while Area 2b is estimated to induce the same amount as at annexation of approximately $16,700 or 14 percent of total legislative and administrative and finance costs at full build-out. This reflects the assumption of no change in the population and employment make-up of Area 2b.

POLICE

The estimated annual operating cost of providing police services to Area 1, Area 2a, and Area 2b is based on providing the same level of service provided within the City limits to the Northeast Antioch annexation area. The data used to make this estimate were obtained by a review of the Budget and information provided by an interview with a representative of the police department about the demands induced by the annexation of Area 1, Area 2a, and Area 2b. As shown on Table IV-3, to estimate the cost of providing police services to the households and businesses of the proposed annexation area, we use the fiscal year 2008-2009 police budget of $27,718,600 as a baseline.

TABLE IV-3

Estimated Annual Operating Cost of Providing Police Services Initially to the Northeast Antioch Annexation Area and At Its Full Build-out[1]

2008-2009 Police Department Budget	$27,718,600					
2008-2009 Police Costs Adjusted by 10% to Reflect Fixed Costs	$24,946,740					
2008 Antioch Population	100,361					
2008 Antioch Employment	21,270					
2008 Resident Equivalent Population[2]	110,996					
2008-2009 Cost per Equivalent Resident	$224.75					
	Initial Base Case Annexation			At Build-out Annexation		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Estimated Equivalent Residents	88	62	272	927	774	272
Total Annual Police Services Cost by Area	$19,752	$13,859	$61,121	$208,432	$173,893	$61,121
Total Police Services Cost for Area 1, Area 2a, Area 2b	$94,733			$443,447		

[1]Figures are rounded.
[2] The demand for municipal services reflects the assumption that the demand for municipal services from two residents is equivalent to one job in Antioch.

Sources: City of Antioch; California Department of Finance; Gruen Gruen + Associates.

We further assume that 10 percent of the Police Department's budget is fixed and does not vary with changes in population. Accordingly, we adjusted the 2008-2009 Budget of $25,005,985 by 10 percent to account for a fixed cost component of police services. This results in estimated police service costs affected by additional households and businesses of $24,946,740. Dividing this estimated total cost by the estimated 100,361 population of Antioch and Antioch employment of 21,270 results in a per capita resident equivalent police services cost estimate of $224.75. Multiplying the estimate per equivalent resident cost of $224.75 by the estimated number of equivalent residents or service units produces an estimate of total police services costs following the annexation of $94,700. Area 2b is estimated to account for $61,100 or 65 percent of the initial police services costs. Area 1 is estimate to induce police services costs of nearly $19,800 or 21 percent of the total costs resulting from the completion of the annexation, while Area 2a is estimated to induce police services costs of nearly $13,900 or 15 percent of total police services costs.

At full build-out of the annexation area, the police services costs attributable to the annexation is estimated to induce $443,400 in additional police services costs. Area 1 is estimated to induce $208,400 in police services costs or 47 percent of the total costs. Area 2a is estimated to induce $173,900 or 39 percent of total police services costs at build-out. The police services costs in Area 2b are assumed to remain the same due to the assumption of no change in the population and employment levels in Area 2b.

PUBLIC WORKS

The Public Works Department provides a variety of services, including street maintenance signal lighting, stripping and signing, facilities maintenance, and park maintenance. Table IV-4 shows the estimated annual operating costs of providing public works services attributable to Area 1, Area 2a, and Area 2b.

TABLE IV-4

Estimated Annual Operating Cost of Providing Public Works Services Initially to the Northeast Antioch Annexation Area and At Its Full Build-out[1]

2008-2009 Public Works Department Budget[2]	4,854,187					
2008 Antioch Population	100,361					
2008 Antioch Employment	21,270					
2008 Resident Equivalent Population[3]	110,996					
2008-2009 Cost per Equivalent Resident	$43.73					
	Initial Base Case Annexation			At Build-out Annexation		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Estimated Equivalent Residents	88	62	272	927	774	272
Annual Public Works Services Cost by Area	$3,849	$2,711	$11,895	$40,538	$33,847	$11,895
2008-2009 Street-Related Budget	$1,745,401					
Number of Antioch Street Miles	309.1					
2008-2009 Cost per Street Mile	$5,647					
Estimated Additional Street Miles	0.85	0.70	1.85	0.85	0.70	1.85
Annual Street-Related Cost by Area	$4,800	$3,953	$10,447	$4,800	$3,953	$10,447
Annual Public Works Services Cost by Area	$8,649	$6,664	$22,342	$45,338	$37,800	$22,342
Total Public Works Services Cost for Area 1, Area 2a, Area 2b	$37,655			$105,480		

[1]Figures are rounded.
[2] Excludes street maintenance expenditures of $1,745,401 budgeted in 2008-2009.
[3]The demand for municipal services reflects the assumption that the demand for municipal services from two residents is equivalent to one job in Antioch.

Sources: City of Antioch; California Department of Finance; Gruen Gruen + Associates.

The 2008-2009 General Fund Budget for providing public works is approximately $6,599,588, after including costs funded from other sources. The impact of the proposed annexation on street-related expenditures is best estimated in terms of the average cost per street mile. The City contains a total of 309.1 street miles. Street-related expenditures are budgeted at $1,745,401. This results in an average per street mile expenditure estimate of $5,647. Area 1 will add 0.85 street miles upon annexation. This will induce additional street related maintenance expenditures of $4,800. Area 2a will add 0.70 street miles upon

annexation. This will induce additional street related expenditures of $3,953. Area 2b will add 1.85 street miles upon annexation. This will induce additional street related maintenance expenditures of $10,447. Additional street-related maintenance expenditures following annexation will total $19,200.

Public works expenditures of $4,854,187 for other non-street related expenditures including administration, signal lighting, striping and signing, facilities maintenance, and subsidies to other programs are calculated on a per resident equivalent basis. Because the interviews suggest significant deficiencies in the current infrastructure serving the potential annexation area and that operating costs will be higher because of the deficient conditions and that public works budget is already strained, we assume no fixed costs apply to the provision of public works services. Dividing this estimated total budget of $4,854,187 by the estimated 100,361 population of Antioch and Antioch employment of 21,270 results in a per capita resident equivalent public works services cost estimate of $43.73. Multiplying the estimate per equivalent resident cost of $43.73 by the estimated number of equivalent residents or service units produces an estimate of non-street related public works services costs following the completion of the proposed annexation of $18,500. Adding street related expenditures of $19,200 results in estimated total public works service costs of $37,700. Area 2b is estimated to account for $22,300 or 59 percent of the total base case public works services costs. Area 1 is estimated to induce public works services costs following annexation of over $8,600 or 23 percent of the total costs of the annexation, while Area 2a is estimated to induce public works services costs of nearly $6,700 or 18 percent of total public works services costs.

At full build-out of the Northeast Antioch Annexation Area, the annual public works services costs are estimated to $105,500. Area 1 is estimated to induce $45,300 in public works services costs or 43 percent of the total costs. Area 2a is estimated to induce $37,800 or 36 percent of total public works costs at build-out. Area 2b is estimated to induce $22,300 or 21 percent of total public works costs at build-out.

COMMUNITY DEVELOPMENT

Table IV-5 shows the estimated annual Community Development Department costs estimated to apply following completion of the proposed annexation and at the full build-out of Area 1, Area 2a, and Area 2b. Community development functions include planning and zoning, engineering, land development and housing activities, and building inspection services.

TABLE IV-5

Estimated Annual Operating Cost of Providing Community Development Services Initially to the Northeast Antioch Annexation Area and At Its Full Build-out[1]

2008-2009 Community Development Budget	$1,760,013					
2008-2009 Community Development Costs Adjusted by 10% Fixed Costs	$1,584,012					
2008 Antioch Population	100,361					
2008 Antioch Employment	21,270					
2008 Resident Equivalent Population	110,996					
2008-2009 Cost per Equivalent Resident	$14.27					
	Initial Base Case Annexation			At Build-out Annexation		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Estimated Equivalent Residents	88	62	272	927	774	272
Total Annual Community Development Services Cost by Area	$1,254	$880	$3,881	$13,235	$11,041	$3,881
Total Community Development Services Cost for Area 1, Area 2a, Area 2b	$6,015			$28,157		

[1]Figures are rounded.
[2] The demand for municipal services reflects the assumption that the demand for municipal services from two residents is equivalent to one job in Antioch.

Sources: City of Antioch; California Department of Finance; Gruen Gruen + Associates.

To estimate the Community Development Department costs likely to be attributable to serving the Northeast Antioch Annexation Area following completion of the annexation and at the future condition of full build-out Area 1, area 2a, and Area 2b, we estimated the net costs of community development services by offsetting revenues from user charges or service fees for the provision of community development services. We adjusted the resulting estimate of net costs of approximately $1,760,013 by 10 percent to account for fixed costs. This results in estimated community development department service costs affected by additional households and businesses of $1,584,012. Dividing this estimated total cost by the estimated 100,361 population of Antioch and Antioch employment of 21,270 results in a per capita resident equivalent or service unit Community Development Department cost estimate of $14.27. Multiplying the estimate per equivalent resident cost of $14.27 by the estimated number of equivalent residents or service units produces an estimate of total community development services costs following completion of the proposed annexation of about $6,000. Area 2b is estimated to account for $3,900 or 65 percent of the total community development services costs resulting from the completion of the annexation.

At full build-out of the Northeast Antioch Annexation Area, the community development services costs are estimated to total $28,200. Area 1 is estimated to induce $13,200 in community development services costs or 47 percent of the total costs. Area 2a is estimated to induce $11,000 or 39 percent of total community development services costs at build-out.

The community development services costs in Area 2b are assumed to remain the same due to the assumption of no change in the population and employment levels in Area 2b.

NON-DEPARTMENTAL COSTS

Other services potentially impacted by the annexation of Area 1, Area 2a, and Area 2b include non-departmental costs. Non-departmental costs (not included in administrative and legislative and finance service costs) include budget items allocated over more than one department, and consist primarily of finance and information services and liability claim expenses, and property tax administration fees.

Table IV-6 presents estimates of the total induced operating costs for non-departmental services.

TABLE IV-6

Estimated Annual Operating Cost of Providing Non-Departmental Services Initially to the Northeast Antioch Annexation Area and At Its Full Build-out[1]

2008-2009 Non-Departmental Budget	$1,552,555					
2008-2009 Non-Departmental Costs Adjusted by 80% to Reflect Fixed Costs	$310,511					
2008 Antioch Population	100,361					
2008 Antioch Employment	21,270					
2008 Resident Equivalent Population	110,996					
2008-2009 Cost per Equivalent Resident	2.80					
	Initial Base Case Annexation			At Build-out Annexation		
	Area 1	Area 2a	Area 2b	Area 1	Area 2a	Area 2b
Estimated Equivalent Residents	88	62	272	927	774	272
Total Annual Non-Departmental Services Cost by Area	$246	$174	$762	$2,594	$2,164	$761
Total Non-Departmental Services Cost for Area 1, Area 2a, Area 2b	$1,182			$5,520		

[1]Figures are rounded.

Sources: City of Antioch; California Department of Finance; Gruen Gruen + Associates.

The interviews suggest a high fixed cost component would apply to non-departmental costs. We assume an 80 percent adjustment to account for fixed costs. Based on a 2008-2009 budget allocated of $1,552,555, and adjusted for a fixed cost component of 80 percent, non-departmental costs average $2.80 per Antioch equivalent resident. Multiplying the per resident equivalent estimate of $2.80 by the anticipated number of equivalent residents by Area 1, Area 2a, and Area 2b results in an estimate of the non-departmental costs induced by the completion of the proposed annexation of about $1,200 and $5,500 at build-out.

LEISURE AND COMMUNITY SERVICES

Based on our interviews and given the limited number of residents, we do not believe that leisure and community service costs will be affected significantly by the potential annexation of Area 1, Area 21, and Area 2b. The interviews suggest that any services provided will be paid for based on user fees and that the costs of administering the leisure and community services department are essentially fixed.

CHAPTER V

NET ANNUAL FISCAL IMPACTS

INTRODUCTION

This chapter presents a comparison of the estimated General Fund revenues and General Fund service operating costs associated with the completion of the Northeast Antioch annexation area and at build-out of Area 1, Area 2a, and Area 2b. The range of General Fund revenues reflect the use of alternative allocations of property taxes, sales tax, and franchise fee revenue. The effect of the addition of the proposed Mirant Plant is included in the forecasts for the at build-out condition, while the effect of the PG&E Generation station is included in the forecasts for the first year after completion of the proposed annexation.

RELATIONSHIP BETWEEN ANNUAL REVENUES AND ANNUAL OPERATING COSTS FOLLOWING COMPLETION OF THE ANNEXATION OF THE NORTHEAST ANTIOCH AREA ASSUMING ANTIOCH RECEIVES ALL OF THE SALES AND FRANCHISE FEE TAX REVENUE

Table V-1 presents a comparison of forecast annual General Fund revenues and annual service costs likely to be induced by the completion of the annexation of the Northeast Antioch annexation area.

TABLE V-1

Relationship Between Annual Revenues and Annual Operating Costs Following Completion of The Annexation of the Northeast Antioch Area[1]

	Following Annexation $			
	Area 1	Area 2a	Area 2b	Total
Annual Revenues	235,920-496,679	20,265-27,485	17,414-29,940	273,326-554,104
Annual Operating Costs	35,286	25,354	104,769	165,409
Estimated Balance	200,634-461,393	(5,089)-2,131	(87,355)-(74,829)	107,917-388,695

[1] Figures are rounded. Assuming City of Antioch receives all of sales and franchise fee tax revenues.

Source: Gruen Gruen + Associates

Based on the estimates presented in the preceding chapters, following the annexation of Area 1, Area 2a, and Area 2b, the City of Antioch is estimated to collect $273,000 to $554,000 of potential total annual revenue. To provide public services is estimated to induce General Fund costs of $165,400 for a positive net operating balance of $108,000 to $390,000. Area 1 is estimated to produce a positive operating balance of approximately

$201,000 to $461,000. Area 2a is estimated to produce a small deficit of -$5,000 or very small positive balance of $2,000, while Area 2b is estimated to produce $75,000 to $87,000 more operating costs than operating revenues.

Table V-2 presents a comparison of forecast annual General Fund revenues and annual service costs likely to be induced from the annexation of Area 1, Area 2a, and Area 2b at the full build-out condition, assuming the City of Antioch receives all of the sales tax and franchisee fee revenue.

TABLE V-2

Relationship Between Annual Revenues and Annual Operating Costs at the Full Build-out of The Annexation of the Northeast Antioch Area[1] [1]

	Annexation at Build-out $			
	Area 1	Area 2a	Area 2b	Total
Annual Revenues	1,536,264-2,056,337	273,325-321,638	17,414-29,940	1,827,003-2,407,915
Annual Operating Costs	326,426	272,308	104,769	703,503
Estimated Balance	1,209,838-1,729,911	1,017-49,330	(87,355)-(74,829)	1,123,500-1,704,412

[1] Figures are rounded. Assuming City of Antioch receives all of sales tax and franchise fee revenues.

Source: Gruen Gruen + Associates

Based on the estimates presented in the preceding chapters, at the full built-out condition of the Northeast Antioch area, the City of Antioch is estimated to collect $1.8 million to $2.4 million of potential total annual revenue, assuming the City of Antioch receives all of the sales tax and franchise fee revenues resulting from the proposed annexation. To provide public services is estimated to induce annual General Fund costs of approximately $703,500 for a positive a net operating balance of $1.1 million to $1.3 million. Area 1 is estimated to produce a positive balance of $1.2 million to $1.7 million, while Area 2a is estimated to produce a very small positive balance of $1,000 to $49,000. Area 2b is estimated to produce a negative balance of $75,000 to $87,000 in more operating costs than revenues.

Assuming that the City of Antioch receives all of the sales tax and franchise fee revenues, taxes and fees associated with the proposed Mirant Plant and PG&E Generating Station are estimated to generate a total of $725,000 to $1.1 million. The Mirant Plant and PG&E Generating Station are estimated to account for between 40 percent and 46 percent of the total revenues available to offset costs of providing operating services and capital facilities to the annexation area. The revenue from these sources alone would offset all operating costs for the entire annexation area. As reviewed below, however, the net revenue would not be sufficient to support the costs of financing all of the capital facilities improvements for Area 1, Area 2a, and Area 2b.

RELATIONSHIP BETWEEN ANNUAL REVENUES AND ANNUAL OPERATING COSTS FOLLOWING COMPLETION OF THE ANNEXATION OF THE NORTHEAST ANTIOCH AREA ASSUMING ANTIOCH RECEIVES ONE HALF OF THE SALES TAX REVENUE AND NO FRANCHISE FEE TAX REVENUE

Table V-3 summarizes the relationship between forecast annual revenues and annual operating costs following completion of the annexation of the Northeast Antioch area assuming the City of Antioch receives one half of the sales tax revenue but none of the franchise fee tax revenue.

TABLE V-3

Relationship Between Annual Revenues and Annual Operating Costs Following Completion of The Annexation of the Northeast Antioch Area[1]

	Following Annexation $			
	Area 1	Area 2a	Area 2b	Total
Annual Revenues	172,597-433,356	5,075-12,295	11,876-24,402	189,548-470,053
Annual Operating Costs	35,286	25,354	104,769	165,409
Estimated Balance	137,311-398,070	(13,059) –(20,279)	(80,367) -(92,893)	24,139-304,644

[1] Figures are rounded. Assuming City of Antioch receives one half of sales tax revenue and no franchise fee tax revenues.

Source: Gruen Gruen + Associates

Based on the estimates presented in the preceding chapters, following completion of the proposed annexation of the Northeast Antioch area, the City of Antioch is estimated to collect approximately $190,000 million to $470,000 of potential total annual revenue, assuming the City of Antioch receives one half of the sales tax and none of the franchise fee revenue resulting from the proposed annexation. To provide public services is estimated to induce annual General Fund costs of approximately $165,000 for a positive a net operating balance of approximately $24,000 to $305,000. Area 1 is estimated to produce a positive balance of approximately $137,000 to $398,000, while Area 2a is estimated to produce a negative balance of approximately -$13,000 to -$20,000. Area 2b is estimated to produce a negative balance of approximately $80,000 to $93,000 in more operating costs than revenues.

Table V-4 presents a comparison of forecast annual General Fund revenues and annual service costs likely to be induced by the annexation of Area 1, Area 2a, and Area 2b at the full build-out condition, assuming the City of Antioch received one half of the sales tax and none of the franchise fee revenue.

TABLE V-4

Relationship Between Annual Revenues and Annual Operating Costs At the Full Build-out of The Annexation of the Northeast Antioch Area[1] [1]

	Annexation at Build-out $			
	Area 1	Area 2a	Area 2b	Total
Annual Revenues	928,887-1,448,960	139,118-187,485	11,876-24,402	1,079,881-1,660,847
Annual Operating Costs	326,426	272,308	104,769	703,503
Estimated Balance	602,461-1,122,534	(84,823)-(133,190)	(89,367)-(92,893)	376,378-957,344

[1] Figures are rounded. Assuming City of Antioch receives one-half of sales tax revenue and no franchise fee tax revenues.

Source: Gruen Gruen + Associates

Based on the estimates presented in the preceding chapters, at the full built-out condition of the Northeast Antioch area, the City of Antioch is estimated to collect approximately $1.1 million to nearly $1.7 million of potential total annual revenue, assuming the City of Antioch receives one half of the sales tax and none of the franchise fee revenues resulting from the proposed annexation. To provide public services is estimated to induce annual General Fund costs of approximately $703,500 for a positive a net operating balance of approximately $376,000 to $957,000. Area 1 is estimated to produce a positive balance of approximately $602,500 to $1.1 million, while Area 2a is estimated to produce a negative balance of about $85,000 to $133,000 more in operating costs than in revenues. Area 2b is estimated to produce a negative balance of approximately $89,000 to $93,000 more in operating costs than in revenues.

Assuming that Antioch is not allocated any franchise fee revenue and only one-half of the sales tax revenue, taxes and fees associated with the proposed Mirant Plant and PG&E Generating Station are estimated to generate a total of $721,000 to $1.1 million or 67 percent of total revenue resulting from the annexation. The revenues from the PG&E Generating Plant and proposed Mirant plant are estimated to be sufficient to offset all of the operating costs induced by the proposed annexation. The positive balance, however, will not be sufficient to support all of the costs of financing the needed capital facilities.

CHAPTER VI

REQUIRED CAPITAL FACILITY IMPROVEMENTS AND ESTIMATES OF COSTS TO PROVIDE CAPITAL FACILITIES

Carlson, Barbee & Gibson, Inc. has prepared the following summary of the infrastructure improvements needed to cure the deficiencies described above and has estimated the costs of the needed improvements. The existing infrastructure in the Northeast Antioch annexation area would need considerable improvements to be brought up to the standards of the City of Antioch. The total estimated cost for these improvements is $67,621,000, which includes construction costs as well as costs for professional services. The total estimated construction cost for the entire Northeast Antioch annexation area is $51,035,000. A 25 percent contingency is incorporated to account for additional construction costs that may occur when more detailed plans are available. The 25 percent contingency amount is consistent with preliminary roadway estimates prepared elsewhere within the City. A detailed cost estimate for each area is included in Appendix B. Table VI-1 below provides a summary of the estimated total construction costs for Area 1, Area 2a, and Area 2b.

TABLE VI-1

Infrastructure Cost Estimate
Summary at the Full Build-out of
The Annexation of the Northeast Antioch Area

	Annexation at Build-out $			
	Area 1	Area 2a	Area 2b	Totals[2]
Infrastructure Construction Cost	21,623,000	7,912,000	11,293,000	40,828,000
25% Contingency[1]	5,405,750	1,978,000	2,823,250	10,207,000
Total Construction Costs[2]	**27,029,000**	**9,890,000**	**14,116,000**	**51,035,000**

[1] 25 percent contingency is added to this estimate to account for additions to the construction cost when more detailed designs become available.

[2] Figures are rounded to the nearest thousand.

Source: Carlson, Barbee & Gibson, Inc.

The estimated construction cost for Area 1 is $21,623,000. The majority of this cost is in reconstructing 10,000 feet of Wilbur Avenue, which is estimated to cost $20,624,900. The following is a summary of improvements for this road:

- Right of way acquisition for road widening;
- Street Improvements – additional travel lanes and median lane, new street section, curb, gutter, sidewalk, and landscaping;
- Construct storm drain improvements and water quality devices;
- Extend 15" sanitary sewer and provide service to each parcel;
- Connect water service to each parcel by tapping into the existing water line and replacing existing fire hydrants;
- Install recycled water line and lateral services to each parcel; and
- Underground existing 21 Kv power line and relocate existing 60 Kv power line.

Approximately five percent of the construction costs for Area 1 are for improving portions of Minnaker Avenue and Viera Avenue (see Appendix B for details).

Area 2A is estimated to cost $7,912,000 which includes Fleming Avenue connecting to Bridgehead Road. The estimated improvements to this street are as follows:

- Right of way acquisition for road widening;
- Street improvements – new street section, curb, gutter, sidewalk, and landscaping;
- Storm drain improvements, new outfall to San Joaquin River, and replacement of existing storm drain regional trunk line;
- Sanitary sewer construction and laterals to each parcel;
- Water line construction and laterals to each parcel; and
- Relocate existing power lines.

Area 2B is estimated to cost $11,293,000 which includes construction of 1.6 miles of residential roads. The estimate is comprised of the following roads: Viera Avenue, Santa Fe Avenue, Walnut Avenue, Bown Lane, Vine Lane, Stewart Lane, St. Claire Drive, Trembath Lane, and Mike Yorba Way. Each of these roads will be improved to city standard. Costs with improving East 18th Street and Wymore Way are not included in this estimate. The following costs are included:

- Right of way acquisition for road widening;
- Street improvements – new street section, curb, gutter, sidewalk, and landscaping;
- Storm drain improvements and two new trunk storm drain lines to existing regional detention basins;
- Sanitary sewer construction and laterals to each parcel;
- Water line construction and laterals to each parcel; and
- Relocate existing power lines.

In addition to the estimated total construction cost, costs for various professional services will be incurred with the capital improvement project. These costs are detailed below and are summarized in Table VI-2:

- Environmental and Biological Mitigation at two percent of the total construction cost which includes identifying, permitting, and mitigating any impacts from the proposed infrastructure improvements;
- Archaeological Mitigation at 0.5 percent of the total construction cost which includes costs associated with possible archaeological issues;
- Design Services at nine percent of the total construction cost which includes civil, geotechnical, transportation, and hydrological engineering plans and services;
- Construction Services at six percent of the total construction cost which includes site staking, testing, and various special inspections;
- City Plan Check and Inspection Fees at six percent of the total construction cost;
- Bonding and Insurance costs at 2.5 percent of the estimated total construction cost;
- Contract Administration at two percent of the total construction cost; and
- Construction Management services at four percent of the total construction cost.

TABLE VI-2

Estimate of Professional Services As a Percentage of Construction Cost at the Full Build-out of The Annexation of the Northeast Antioch Area

	Annexation at Build-out $			
	Area 1	Area 2a	Area 2b	Totals[1]
Environmental / Biological Mitigation – 2.0%	540,580	197,800	282,325	1,021,000
Archaeological Mitigation – 0.5%	135,140	49,450	70,580	255,000
Design Services – 9.0%	2,432,590	890,100	1,270,460	4,593,000
Construction Services – 6.0%	1,621,730	593,400	846,980	3,062,000
City Plan Check & Inspection – 6.5%	1,756,870	642,850	917,560	3,317,000
Bonding & Insurance – 2.5%	675,720	247,250	352,910	1,276,000
Contract Administration – 2.0%	540,580	197,800	282,325	1,021,000
Construction Management – 4.0%	1,081,150	395,600	564,650	2,041,000
Total Estimate of Professional Services[1]	**8,784,000**	**3,214,000**	**4,588,000**	**16,586,000**

[1] Figures are rounded to the nearest thousand.

Source: Carlson, Barbee & Gibson, Inc.

The estimate of total construction costs and professional services is shown in Table VI-3.

TABLE VI-3

Estimate of Total Construction Cost and Professional Services at the Full Build-out of The Annexation of the Northeast Antioch Area

	Annexation at Build-out $[1]			
	Area 1	Area 2a	Area 2b	Totals
Total Construction Costs	27,029,000	9,890,000	14,116,000	51,035,000
Total Estimate of Professional Services	8,784,000	3,214,000	4,588,000	16,586,000
Total Estimate of Construction Cost & Professional Services	**35,813,000**	**13,104,000**	**18,204,000**	**67,721,000**

[1] Figures are rounded to the nearest thousand.

Source: Carlson, Barbee & Gibson, Inc.

CHAPTER VII

ESTIMATED CAPACITY TO FINANCE REQUIRED CAPITAL FACILITIES

The tables below present estimates of the amounts of capital facilities debt financing the estimated net annual fiscal balance between annual operating revenues and operating expenditures could support. That is, we draw on the estimates of the balance between annual revenues and operating expenditures estimated to be associated with the annexation to identify how many dollars of needed capital facilities could the net fiscal operating balance support assuming that the balance could be used to secure and fund capital costs associated with bringing the annexation area up to City standards. Table VII-3 is perhaps the most interesting because it reflects the assumption that the only additional build-out beyond the PG&E Generating Station is the proposed Mirant power plant.

Table VII-1 shows the estimated debt capacity of the annual revenues of the Northeast Antioch Annexation Area in the first year following annexation.

TABLE VII-1

Debt Capacity of Northeast Antioch Annexation Area Following Annexation Under Two Differing Assumptions Regarding Amount of Property Tax Received by City of Antioch[1]

	$
Net Annual Fiscal Balance to City of Antioch (Revenues Less Operating Expenses)[2]	
Assuming City Tax Rate of 9.8%	388,695
Assuming Master Tax Agreement of 3.6%	107,917
Net Annual Fiscal Balance Less Required Coverage @ 1.25x	
Assuming City Tax Rate of 9.8%	310,956
Assuming Master Tax Agreement of 3.6%	86,334
Gross Debt Capacity[3]	
Assuming City Tax Rate of 9.8%	3,986,800
Assuming Master Tax Agreement of 3.6%	1,106,900
Net Debt Capacity[4]	
Assuming City Tax Rate of 9.8%	3,468,500
Assuming Master Tax Agreement of 3.6%	963,000

[1] PG&E Generating Station is included in annexation area. Assumes City of Antioch receives all of the sales tax and franchise fee revenue.
[2] Figures drawn from Table V-1.
[3] Present value of net income stream over 20-year period discounted at five percent. Figures are rounded
[4] Assumes cost of debt issuance of three percent and reserve fund of 10 percent. Figures are rounded

Source: Gruen Gruen + Associates

Following annexation, the annual fiscal operating balance (i.e., net available revenues or the difference between estimated revenues from property taxes and other sources and operating expenditures from providing municipal services as shown on Table V-1) to the City of Antioch is estimated to range from approximately $107,900 to $388,700. The lower end of the range reflects the assumption that the Master Tax Agreement applies and the higher end of the range reflects the assumption that the City obtains property tax as if the property was already within the City's jurisdiction.

To make an estimate of the amount of net annual revenues that could be used to fund and secure future debt payments, we assumed a debt coverage ratio of 1.25 times. The net annual fiscal balance to finance debt ranges from $86,300 to $311,000. Discounting this range of net annual revenues over a 20 year period at five percent results in total debt capacity of approximately $1.1 million to $4.0 million. We assume debt issuance costs of three percent and a reserve fund of 10 percent will need to be paid from the gross debt

proceeds. These assumptions result in estimated net debt capacity of nearly $1.0 million to $3.5 million generated following annexation of the Northeast Antioch Area.

Table VII-2 shows the estimated debt capacity of the Northeast Antioch Annexation Area at full build-out of the annexed area as described in Chapter II.

TABLE VII-2

Debt Capacity of Northeast Antioch Annexation Area
At Full Build-out Under Two Differing Assumptions
Regarding Amount of Property Tax Received by City of Antioch[1]

	$
Net Annual Fiscal Balance to City of Antioch (Revenues Less Operating Expenses)[2]	
Assuming City Tax Rate of 9.8%	1,704,412
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	1,123,500
Net Annual Fiscal Balance Less Required Coverage @ 1.25x	
Assuming City Tax Rate of 9.8%	1,363,530
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	898,800
Gross Debt Capacity[3]	
Assuming City Tax Rate of 9.8%	17,482,000
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	11,523,700
Net Debt Capacity[4]	
Assuming City Tax Rate of 9.8%	15,209,400
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	10,025,600

[1] PG&E Generating Station and Mirant Marsh Landing is included in annexation area. Assumes City of Antioch receives all of the sales tax and franchise fee revenue.
[2] Figures drawn from Table V-2.
[3] Present value of net income stream over 20-year period discounted at five percent. Figures are rounded
[4] Assumes cost of debt issuance of three percent and reserve fund of 10 percent. Figures are rounded.

Source: Gruen Gruen + Associates

At build-out, the annual fiscal balance (i.e., net available revenues as shown on Table V-2) to the City of Antioch is estimated to range from approximately $1.1 million to $1.7 million depending upon whether the Master Tax Agreement or City's current average property tax rate is assumed to apply. Assuming a required debt coverage ratio of 1.25, the net annual fiscal balance to fund debt ranges from nearly $900,000 to over $1.3 million. Discounting

this range of net annual revenues over a 20 year period at five percent results in estimated total debt capacity of approximately $11.5 million to $17.5 million. We assume debt issuance costs of three percent and a reserve fund of 10 percent will need to be paid from the gross debt proceeds. These assumptions result in estimated net debt capacity of nearly $10.0 million to $15.2 million generated from the build-out of the annexation of the Northeast Antioch Area.

Table 3 shows the estimated debt capacity of the Northeast Antioch Annexation Area under the assumption that following annexation, the only future development that occurs is the development of Mirant Marsh Landing. It also reflects the development and operation of the PG&E Gateway Generating Station.

TABLE 3

Debt Capacity of Northeast Antioch Annexation Area
Assuming Only Mirant Marsh Landing is Built Under Two Differing
Assumptions Regarding Amount of Property Tax Received by City of Antioch[1]

	$
Net Annual Fiscal Balance to City of Antioch (Revenues Less Operating Expenses)[2]	
Assuming City Tax Rate of 9.8%	1,168,338
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	679,832
Net Annual Fiscal Balance Less Required Coverage @ 1.25x	
Assuming City Tax Rate of 9.8%	934,671
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	543,866
Gross Debt Capacity[2]	
Assuming City Tax Rate of 9.8%	11,983,600
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	6,973,000
Net Debt Capacity[3]	
Assuming City Tax Rate of 9.8%	10,425,700
Assuming Master Tax Agreement of 3.6% in Base Yr. and 7.2% on Tax Increment	6,066,500

[1] PG&E Generating Station and Mirant Marsh Landing is included in annexation area. Assumes City of Antioch receives all of the sales tax and franchise fee revenue.
[2] Present value of net income stream over 20-year period discounted at five percent. Figures are rounded
[3] Assumes cost of debt issuance of three percent and reserve fund of 10 percent. Figures are rounded.

Source: Gruen Gruen + Associates

If only Mirant Marsh Landing is developed in the Northeast Antioch Annexation Area and including the PG&E Gateway Generating Station but no other future development, the annual fiscal balance (i.e., net available revenues after deducting for operating expenditures induced by service demands to the Annexation Area) to the City of Antioch is estimated to range from approximately $679,800 to nearly $1.2 million. From the net annual revenues, we assumed a debt coverage ratio of 1.25 times. The net annual fiscal balance to fund debt ranges from approximately $544,000 to over $934,000. Discounting this range of net annual revenues over a 20 year period at five percent results in estimated total debt capacity of approximately $7.0 million to $12.0 million. We assume debt issuance costs of three percent and a reserve fund of 10 percent will need to be paid from the gross debt proceeds. This results in estimated net debt capacity of nearly $6.1 million to $10.4 million generated

following annexation of the Northeast Antioch Area.

Lengthening the period over which revenues accrue to the City of Antioch and/or the amount of property tax shared between the County and City would result in higher annual net revenues and therefore larger debt funding capacity.

But based on the current estimate of $67 million in needed capital facilities upgrades, the initial financial analysis suggests a much more favorable arrangement will need to be made with the County than was made under the Pittsburg agreement.

APPENDIX A

TABLE A-1

Land Use, Demographic, and Employment Characteristics and Assessed Value For Area 1 in Northeast Antioch Annexation Area in Future Build-out Year

Built Space	Acreage #	Building Space Square Feet #	Number of Employees or Residents #	Assessed Valuation in Build-out Year $
Georgia Pacific	36.5	196,000	97	22,965,078
PG&E Gateway Generating Station	21.44		21.5	350,000,000
Mirant Contra Costa	147.26	N/A	40	34,135,351
Mirant Marsh Landing	N/A[2]	N/A	20	800,000,000
Other Industrial	15.11	17,269	17	2,701,225
Residential	0.35		N/A	47,193
Total Built	220.66	213,269	176	1,209,848,847
Vacant Land (taxable)				
Land north of Wilbur Avenue[1]	138.25	1,505,543[3]	753[3]	120,443,400[3]
Land south of Wilbur Avenue[1]	29.72	453,111[4]	906[4]	88,356,668[4]
Other industrial land	0.30	0	0	6,699
Total Vacant	168.27	1,958,645	1,659	208,806,767
TOTAL	388.93	2,171,923	1,855	1,418,655,614

[1] PG&E land included in acreage is assessed by State of California Board of Equalization and is not included in total 2008 assessed valuation.
[2] Land area included in total land area for Mirant Contra Costa.
[3] Assumes floor-area ratio of 0.25; employment density of 0.5 employees per 1,000 square feet of built space; and building cost of $80 per square foot built space (including land value).
[4] Assumes floor-area ratio of 0.35; employment density of 2 employees per 1,000 square feet of built space and building cost of $195 per square foot of built space (including land value).

Sources: Contra Costa County Assessor; Colliers International.;2000 Census; Gruen Gruen + Associates.

Table A-2

Land Use, Demographic, and Employment Characteristics and Assessed Value for Area 2a in Northeast Antioch Annexation Area in Future Build-out Year

Built Space	Acreage #	Building Space Square Feet #	Number of Employees or Residents #	Assessed Valuation in Build-out Year $
Light Industrial[1]	56.06	767,452	1,529	153,746,977
Commercial Boat Harbors	34.43	5,145	10	4,051,248
Residential	3.06	0	9	442,656
TOTAL	93.55	772,597	1,529 employees 9 residents	158,240,881

[1] Assumes 46.3 acres are redeveloped more intensively at a floor-area ratio of 0.35; employment density of two employees per 1,000 square feet of built space; and building cost of $195 per square foot of built space (including land value).

Sources: Contra Costa County Assessor; City of Antioch; 2000 Census; Colliers International; Gruen Gruen + Associates.

Carlson, Barbee & Gibson, Inc.
CIVIL ENGINEERS • SURVEYORS • PLANNERS

ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
(~715 ACRES) (~4 MILES)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000

Description			Amount
SUMMARY			
INFRASTRUCTURE AREA 1		$	21,623,000.00
INFRASTRUCTURE AREA 2A		$	7,912,000.00
INFRASTRUCTURE AREA 2B		$	11,293,000.00
SUBTOTAL CONSTRUCTION COST		$	40,828,000.00
25% CONTINGENCY		$	10,207,000.00
TOTAL ESTIMATE OF CONSTRUCTION COST		**$**	**51,035,000.00**
ESTIMATE OF PROFESSIONAL SERVICES AS A PERCENTAGE OF CONSTRUCTION COST			
ENVIRONMENTAL / BIOLOGICAL MITIGATION	2.0%	$	1,021,000.00
ARCHAEOLOGICAL MITIGATION	0.5%	$	255,000.00
DESIGN SERVICES	9.0%	$	4,593,000.00
CONSTRUCTION SERVICES	6.0%	$	3,062,000.00
CITY PLAN CHECK & INSPECTION	6.5%	$	3,317,000.00
BONDING & INSURANCE	2.5%	$	1,276,000.00
CONTRACT ADMINISTRATION	2.0%	$	1,021,000.00
CONSTRUCTION MANAGEMENT	4.0%	$	2,041,000.00
TOTAL ESTIMATE OF CONSTRUCTION COST & PROFESSIONAL SERVICES		**$**	**67,621,000.00**

ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
ASSUMPTIONS
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000

Item	Description

General Assumptions

1 The following streets are included in this estimate per the direction of the City of Antioch:
- Wilbur Avenue (~10,000 LF) - from the West Side of the Highway 160 Overpass to the East Side of the Santa Fe Railroad Overpass
- Viera Avenue (~2640 LF) - from the North Side of the 18th Street Intersection to the Wilbur Avenue Intersection
- Minnaker Avenue (~240 LF) - from the South Side of the Santa Fe Railroad right of way to the end of Cul-de-sac
- Fleming Road (~2430 LF) - from the Wilbur Avenue intersection to the West Side of the Highway 160 Overpass at Bridgehead Road
- Santa Fe Avenue (~600 LF)
- Walnut Avenue (~800 LF)
- Bown Avenue (~600 LF)
- Vine Lane (~890 LF)
- Stewart Lane (~350 LF)
- St. Claire Drive (~1,200 LF)
- Trembath Lane (~980 LF)
- Mike Yorba Way (~250 LF)

2 This following resources were used to prepare this estimate:
- Site Visits/Photographs
- Existing Utility Maps provided by the City of Antioch
- 10' Contour Maps of Contra Costa County
- Contra Costa County Basemaps
- FEMA Flood Insurance Rate Maps
- Contra Costa County Flood Control Drainage Area Maps
- PGE Gateway Sewer Plans dated August 2008
- Initial Study and Negative Declaration - Northeast Antioch Reorganization dated March 2008
- Northeast Antioch Annexation Feasibility Study dated January 2005

3 Environmental remediation and mitigation costs are included as a percentage of the construction cost.

4 Archaeological mitigation costs are included as a percentage of the construction cost.

5 $500,000 per building structure is included for the acquisition and demolition of existing structures within the proposed right of way.

6 The following items are not included:
- A fee credit analysis
- Any "Public Financing"
- Any Reimbursements

Item	Description

Grading Assumptions

7 Costs associated with remedial grading and unsuitable material removal are included at 25% of the rough grading volumes.

8 Detailed grading or earthwork studies were not prepared.

Street Improvement Assumptions

9 Infrastructure and backbone roads street sections are as follows:

- Wilbur Avenue (102' ROW) - (4) 12' Lanes, 16' Median Turn Lane, 8' Shoulders, 6' Landscape, 5' Detached Sidewalks
- Viera Avenue (60' ROW) - (2) 12' Lanes, 8' Shoulders, 5' Landscape, 5' Detached Sidewalks
- Minnaker Avenue (60' ROW) - (2) 12' Lanes, 8' Shoulders, 10' Sidewalks
- Residential Street (56' ROW) - (2) 12' Lanes, 8' Shoulders, 5' Monolithic Sidewalks, 5' Landscape

10 All existing street sections and pavements will be removed and replaced with new street sections and pavements.

11 Bridge improvements at the railroad overpass on Wilbur Ave. are not included.

12 The existing Santa Fe railroad crossings on Viera and Minnaker are considered to be active and are included to be repaired. The 5 existing crossings on Wilbur are considered inactive and are included to be removed.

13 Right of Way and Easement Acquisition areas were determined using the Contra Costa County Base maps; actual areas will vary.

14 Additional Traffic Signals are not included.

15 Improvements to Wymore Way are not included.

16 Improvements to E. 18th Street are not included.

Storm Drain Assumptions

17 Existing facilities that would serve these roads are adequately sized. Increasing the capacity of the existing infrastructure is not required.

18 Proposed storm drain lines can gravity flow to the existing facilities.

19 Mechanical water quality systems for the proposed streets are included to comply with water quality standards.

20 Detailed hydrological studies were not prepared. Portions of the site are within Contra Costa County Flood Control Drainage Areas 29G and 29J.

Sanitary Sewer Assumptions

21 Existing facilities that would serve these roads are adequately sized. Increasing the capacity of the existing infrastructure is not required.

22 The proposed sewer lines can gravity flow to the existing facilities.

23 Detailed sewer studies were not prepared.

Item	Description

Water Supply Assumptions

24 Existing facilities that would serve these roads are adequately sized. Increasing the capacity of the existing infrastructure is not required.

25 Detailed water studies were not prepared.

Dry Utility Assumptions

26 The existing 12/21 Kv portion of the overhead lines on Wilbur Ave. will be relocated underground. The existing 60 Kv portion of the overhead lines on Wilbur Ave. will be relocated outside of the proposed right of way.

27 The existing 12/21/60 Kv overhead lines on the remaining streets will be relocated.

28 Overhead service lines to serve existing residences will not be relocated underground as this may change the service point to the building, require additional easements, and/or require modifications to the existing building.

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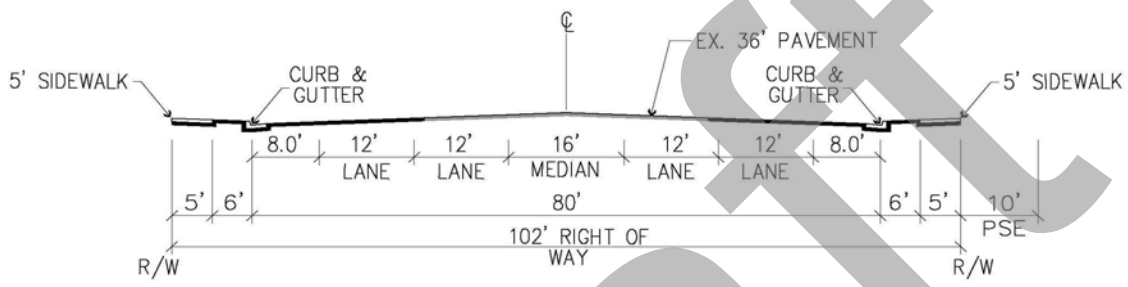
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 1
WILBUR AVENUE (~10,000 LF)[1]
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	250,000	SF	$	5.00	$	1,250,000.00
2	Public Service Easement Acquisition *(10' PSE one side)*	100,000	SF	$	2.50	$	250,000.00
3	Temporary Construction Easements *(10' each side)*	200,000	SF	$	1.00	$	200,000.00
	Subtotal Land Acquisition					$	1,700,000.00
	STREET IMPROVEMENTS						
4	Demo Existing Pavement & Section *(~36' Wide Existing)*	360,000	SF	$	1.00	$	360,000.00
5	Rough Grade Street Section *(80' Wide) (3.0' Cut)*[2]	88,900	CY	$	20.00	$	1,778,000.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	22,225	CY	$	20.00	$	444,500.00
7	Street Fine Grading *(Full RW Width)*	1,000,000	SF	$	0.40	$	400,000.00
8	5" AC Pavement *(77' Wide Section Proposed)*	770,000	SF	$	2.00	$	1,540,000.00
9	25" Aggregate Base *(77' Wide Section Proposed)*	770,000	SF	$	3.75	$	2,887,500.00
10	Curb & Gutter *(Includes Cushion)*	20,000	LF	$	18.00	$	360,000.00
11	5' Detached Sidewalk *(Includes Cushion)*	100,000	SF	$	4.00	$	400,000.00
12	5.5' Parkway Landscape & Irrigation	110,000	SF	$	5.00	$	550,000.00
13	Geotextile Fabric	800,000	SF	$	0.20	$	160,000.00
14	Street Monuments *(Assumed @ 1,000')*	10	EA	$	300.00	$	3,000.00
15	Signing & Striping	10,000	LF	$	10.00	$	100,000.00
16	Traffic Control	10,000	LF	$	50.00	$	500,000.00
17	Driveway Approaches	40	EA	$	750.00	$	30,000.00
18	Remove & Replace Existing Fencing	20,000	LF	$	15.00	$	300,000.00
19	Remove Existing Railroad Arms	2	EA	$	3,000.00	$	6,000.00
20	Remove Existing Railroad Tracks	5	EA	$	2,000.00	$	10,000.00
21	Protect Existing Waterline	10,000	LF	$	10.00	$	100,000.00
22	Protect Existing Fiber Optic	10,000	LF	$	10.00	$	100,000.00
23	Protect Existing Gas Line	10,000	LF	$	10.00	$	100,000.00
	Subtotal Street Improvements					$	10,129,000.00

Item	Description	Quantity	Unit	Unit Price	Amount
	STORM DRAIN				
24	Remove Existing 42"and 36" SD Pipes on Wilbur	2,750	LF	$ 20.00	$ 55,000.00
25	24" Storm Drain Pipe	5,000	LF	$ 72.00	$ 360,000.00
26	36" Storm Drain Pipe	5,000	LF	$ 108.00	$ 540,000.00
27	18" Storm Drain Crossings *(80' each @ 300')*	2,700	LF	$ 54.00	$ 145,800.00
28	Catch Basins *(Assumed 2 @ 300')*	67	EA	$ 3,000.00	$ 200,000.00
29	Manholes *(Assumed @ 500')*	20	EA	$ 3,500.00	$ 70,000.00
30	Water Quality Filters *(Assumed @ 1,000')*	10	EA	$ 35,000.00	$ 350,000.00
	Subtotal Storm Drain				$ 1,720,800.00
	SANITARY SEWER				
31	15" VCP Sanitary Sewer Pipe	7,580	LF	$ 120.00	$ 909,600.00
32	Manholes (*Assumed @ 400'*)	20	EA	$ 3,500.00	$ 70,000.00
33	Connect to Existing Sewer Pipe	1	EA	$ 1,500.00	$ 1,500.00
34	Sewer Laterals	40	EA	$ 1,000.00	$ 40,000.00
	Subtotal Sanitary Sewer				$ 1,021,100.00
	WATER SUPPLY				
35	Connect Water Laterals to Existing Main *(Includes trench and hot tap)*	40	EA	$ 2,500.00	$ 100,000.00
36	Connect Fire Service to Existing Main *(Includes trench and hot tap)*	40	EA	$ 2,500.00	$ 100,000.00
37	Fire Hydrant *(Assumed @ 400')* [3]	25	EA	$ 4,000.00	$ 100,000.00
38	Irrigation Controller *(Assumed @ 2,000')*	5	EA	$ 25,000.00	$ 125,000.00
	Subtotal Water Supply				$ 425,000.00
	RECYCLED WATER SUPPLY				
39	Recycled Water Line 8" PVC	10,000	LF	$ 60.00	$ 600,000.00
40	Recycled Water Laterals	40	EA	$ 1,000.00	$ 40,000.00
	Subtotal Recycled Water Supply				$ 640,000.00
	ELECTRICAL IMPROVEMENTS				
41	21 Kv Underground Conversion	10,000	LF	$ 275.00	$ 2,750,000.00
42	Relocate Existing 60 Kv Overhead Pole Line	60	EA	$ 25,000.00	$ 1,500,000.00
43	Streetlights *(1 @ 120') (Cobrahead Type)*	83	EA	$ 3,000.00	$ 249,000.00
44	Relocate Existing High Voltage Tower at Wilbur Ave., 200' West of Viera [4]	1	EA	$ 500,000.00	$ 500,000.00
	Subtotal Electrical Improvements				$ 4,999,000.00
	TOTAL WILBUR AVENUE IMPROVEMENT COST				**$ 20,634,900.00**
	(To the nearest hundred)				

Notes:

1. *Improvements are included from the eastern limit of the Santa Fe railroad overpass to the western edge of the Southbound Highway 160 on-ramp.*
2. *Includes Haul from Cut to Fill areas and Offsite Disposal as necessary.*
3. *Existing Hydrants will be replaced with new hydrants.*
4. *The existing high voltage tower is within the proposed right of way on the North side of the street. The alignment of the road can not be moved south to avoid this obstacle because there is an existing water tower on the South side of the street.*

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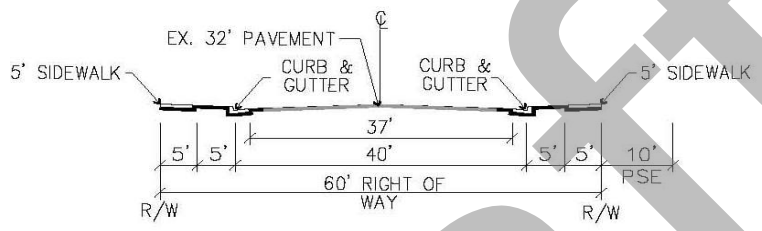
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 1
VIERA AVENUE (~340 LF)
FROM WILBUR TO NORTH SIDE OF SANTA FE RAILROAD RIGHT OF WAY
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	150	SF	$	5.00	$	750.00
2	Public Service Easement Acquisition *(10' PSE one side)*	3,400	SF	$	2.50	$	8,500.00
3	Temporary Construction Easements *(10' each side)*	6,800	SF	$	1.00	$	6,800.00
	Subtotal Land Acquisition					$	16,050.00
	STREET IMPROVEMENTS						
4	Demo Existing Pavement & Section *(32' Wide Existing)*	10,880	SF	$	1.00	$	10,880.00
5	Rough Grade Street Section *(Includes Offhaul) (2.5' Cut)*	1,260	CY	$	20.00	$	25,200.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	315	CY	$	20.00	$	6,300.00
7	Street Fine Grading *(Full RW Width)*	20,400	SF	$	0.40	$	8,160.00
8	4" AC Pavement *(37' Wide Section Proposed)*	12,580	SF	$	1.60	$	20,128.00
9	20" Aggregate Base *(37' Wide Section Proposed)*	12,580	SF	$	3.00	$	37,740.00
10	Curb & Gutter *(Includes Cushion)*	680	LF	$	18.00	$	12,240.00
11	5' Detached Sidewalk *(Includes Cushion)*	3,400	SF	$	4.00	$	13,600.00
12	Parkway Landscape & Irrigation	3,060	SF	$	5.00	$	15,300.00
13	Geotextile Fabric	12,580	SF	$	0.20	$	2,516.00
14	Street Monuments (*Assumed)*	2	EA	$	300.00	$	600.00
15	Signing & Striping	340	LF	$	10.00	$	3,400.00
16	Traffic Control	340	LF	$	25.00	$	8,500.00
17	Protect Existing Waterline	340	LF	$	10.00	$	3,400.00
	Subtotal Street Improvements					$	167,964.00
	STORM DRAIN						
18	24" Storm Drain Pipe	340	LF	$	72.00	$	24,480.00
19	18" Storm Drain Crossings *(40' each @ 300')*	40	LF	$	54.00	$	2,160.00
20	Catch Basins *(Assumed 2 @ 300')*	2	EA	$	3,000.00	$	6,000.00
21	Manholes *(Assumed @ 500')*	1	EA	$	3,500.00	$	3,500.00
22	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	71,140.00

Item	Description	Quantity	Unit		Unit Price		Amount
	SANITARY SEWER						
23	8" Sanitary Sewer Pipe *(10 - 15' Deep)*	370	LF	$	75.00	$	27,750.00
24	Manholes (*Assumed @ 400'*) *(Deep)*	1	EA	$	5,000.00	$	5,000.00
	Subtotal Sanitary Sewer					$	32,750.00
	WATER SUPPLY						
25	Fire Hydrant	1	EA	$	4,000.00	$	4,000.00
	Subtotal Water Supply					$	4,000.00
	RECYCLED WATER SUPPLY						
26	Recycled Water Line 8" PVC	340	LF	$	60.00	$	20,400.00
	Subtotal Recycled Water Supply					$	20,400.00
	ELECTRICAL IMPROVEMENTS						
27	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	3	EA	$	25,000.00	$	75,000.00
28	Streetlights *(1 @ 120') (Residential Type)*	3	EA	$	5,000.00	$	15,000.00
	Subtotal Electrical Improvements					$	90,000.00
	TOTAL VIERA AVENUE IMPROVEMENT COST *(To the nearest hundred)*					**$**	**402,300.00**

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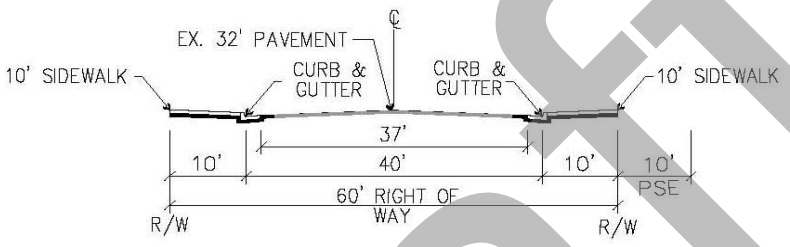
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 1
MINNAKER AVENUE (~240 LF)
SOUTH SIDE OF SANTA FE RAILROAD RIGHT OF WAY TO CUL-DE-SAC
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	1,600	SF	$	5.00	$	8,000.00
2	Public Service Easement Acquisition *(10' PSE one side)*	2,400	SF	$	2.50	$	6,000.00
3	Temporary Construction Easements *(10' each side)*	4,800	SF	$	1.00	$	4,800.00
	Subtotal Land Acquisition					$	18,800.00
	STREET IMPROVEMENTS						
4	Demo Existing Pavement & Section *(~32' Wide Existing)*	15,000	SF	$	1.00	$	15,000.00
5	Rough Grade Street Section *(Includes Offhaul) (2.5' Cut)*	890	CY	$	20.00	$	17,800.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	220	CY	$	20.00	$	4,400.00
7	Street Fine Grading *(Full RW Width)*	18,650	SF	$	0.40	$	7,460.00
8	4" AC Pavement *(37' Wide Section Proposed)*	13,150	SF	$	1.60	$	21,040.00
9	20" Aggregate Base *(37' Wide Section Proposed)*	13,150	SF	$	3.00	$	39,450.00
10	Curb & Gutter *(Includes Cushion)*	530	LF	$	18.00	$	9,540.00
11	9.5' Monolithic Sidewalk *(Includes Cushion)*	5,500	SF	$	4.00	$	22,000.00
12	Geotextile Fabric	13,150	SF	$	0.20	$	2,630.00
13	Street Monuments *(Assumed)*	1	EA	$	300.00	$	300.00
14	Signing & Striping	240	LF	$	10.00	$	2,400.00
15	Traffic Control	240	LF	$	10.00	$	2,400.00
16	Driveway Approaches	3	EA	$	750.00	$	2,250.00
17	Relocate Existing Railroad Arms	1	EA	$	50,000.00	$	50,000.00
18	Repair Existing Railroad Crossings	1	EA	$	25,000.00	$	25,000.00
	Subtotal Street Improvements					$	221,670.00

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
19	24" Storm Drain Pipe	240	LF	$	72.00	$	17,280.00
20	18" Storm Drain Crossings *(40' each @ 300')*	40	LF	$	54.00	$	2,160.00
21	Catch Basins *(Assumed 2 @ 300')*	2	EA	$	3,000.00	$	6,000.00
22	Manholes *(Assumed @ 500')*	1	EA	$	3,500.00	$	3,500.00
23	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
24	Bore & Jack *(Under Railroad Right of Way)*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	98,940.00
	SANITARY SEWER						
25	8" Sanitary Sewer Pipe *(Includes Trench and Backfill existing to Wilbur Ave.)*	420	LF	$	70.00	$	29,400.00
26	Manholes *(Assumed every 400')*	2	EA	$	3,500.00	$	7,000.00
27	Bore & Jack *(Under Railroad Right of Way)*	1	EA	$	35,000.00	$	35,000.00
28	Sewer Laterals	3	EA	$	750.00	$	2,250.00
	Subtotal Sanitary Sewer					$	73,650.00
	WATER SUPPLY						
29	8" PVC Water Line *(Includes Trench and Backfill to Wilbur Ave.)*	420	LF	$	80.00	$	33,600.00
30	Fire Hydrant	1	EA	$	4,000.00	$	4,000.00
31	Water Laterals	3	EA	$	1,000.00	$	3,000.00
32	Bore & Jack *(Under Railroad Right of Way)*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Water Supply					$	75,600.00
	ELECTRICAL IMPROVEMENTS						
33	21 Kv Underground Conversion	240	LF	$	275.00	$	66,000.00
34	Relocate Existing 60 Kv Overhead Pole Line	1	EA	$	25,000.00	$	25,000.00
35	Streetlights *(1 @ 120') (Cobrahead Type)*	2	EA	$	3,000.00	$	6,000.00
	Subtotal Electrical Improvements					$	97,000.00
	TOTAL MINNAKER DRIVE IMPROVEMENT COST					**$**	**585,700.00**
	(To the nearest hundred)						

Carlson, Barbee & Gibson, Inc.
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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 1
SUMMARY
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000

Description		Amount
SUMMARY - BY IMPROVEMENT		
TOTAL LAND ACQUISITION	$	1,734,900.00
TOTAL STREET IMPROVEMENTS COST	$	10,518,600.00
TOTAL STORM DRAIN COST	$	1,890,900.00
TOTAL SANITARY SEWER COST	$	1,127,500.00
TOTAL WATER SUPPLY COST	$	504,600.00
TOTAL RECYCLED WATER SUPPLY COST	$	660,400.00
TOTAL ELECTRICAL IMPROVEMENTS COST	$	5,186,000.00
TOTAL AREA 1 IMPROVEMENT COST *(To the nearest thousand)*	**$**	**21,623,000.00**
SUMMARY - BY STREET		
TOTAL WILBUR AVENUE IMPROVEMENT COST	$	20,634,900.00
TOTAL AREA 1 VIERA AVENUE IMPROVEMENT COST	$	402,300.00
TOTAL MINNAKER DRIVE IMPROVEMENT COST	$	585,700.00
TOTAL AREA 1 IMPROVEMENT COST *(To the nearest thousand)*	**$**	**21,623,000.00**

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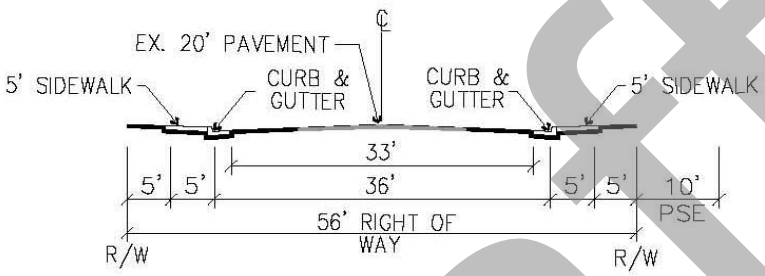
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2A
FLEMING LANE & BRIDGEHEAD ROAD (~2,430 LF)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	72,700	SF	$	5.00	$	363,500.00
2	Public Service Easement Acquisition *(10' PSE one side)*	24,300	SF	$	2.50	$	60,750.00
3	Temporary Construction Easements *(10' each side)*	48,600	SF	$	1.00	$	48,600.00
4	Acquire & Demolish Ex. Structures *(Within proposed Right of Way)*	9	EA	$	500,000.00	$	4,500,000.00
	Subtotal Land Acquisition					$	4,972,850.00
	STREET IMPROVEMENTS						
5	Demo Existing Pavement & Section	48,600	SF	$	1.00	$	48,600.00
6	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	6,480	CY	$	20.00	$	129,600.00
7	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	1,620	CY	$	20.00	$	32,400.00
8	Street Fine Grading *(Full RW Width)*	136,080	SF	$	0.40	$	54,432.00
9	3" AC Pavement *(33' Wide Section Proposed)*	80,190	SF	$	1.20	$	96,228.00
10	13" Aggregate Base *(33' Wide Section Proposed)*	80,190	SF	$	1.95	$	156,370.50
11	Curb & Gutter *(Includes Cushion)*	4,860	LF	$	18.00	$	87,480.00
12	5' Monolithic Sidewalk *(Includes Cushion)*	24,300	SF	$	4.00	$	97,200.00
13	Landscape & Irrigation	24,300	SF	$	5.00	$	121,500.00
14	Geotextile Fabric	80,190	SF	$	0.20	$	16,038.00
15	Street Monuments *(Assumed)*	4	EA	$	300.00	$	1,200.00
16	Signing & Striping	2,430	LF	$	10.00	$	24,300.00
17	Traffic Control	2,430	LF	$	10.00	$	24,300.00
18	Driveway Approaches	5	EA	$	750.00	$	3,750.00
19	Remove & Replace Existing Fencing *(Assumes all Parcels Fenced)*	4,860	LF	$	15.00	$	72,900.00
	Subtotal Street Improvements					$	966,298.50

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
20	24" Storm Drain Pipe	3,420	LF	$	72.00	$	246,240.00
21	18" Storm Drain Crossings *(36' each @ 300')*	410	LF	$	54.00	$	22,140.00
22	Catch Basins *(Assumed 2 @ 300')*	23	EA	$	3,000.00	$	69,000.00
23	Manholes *(Assumed @ 500')*	7	EA	$	3,500.00	$	24,500.00
24	Water Quality Filters *(Assumed @ 1,000')*	3	EA	$	35,000.00	$	105,000.00
25	Outfall to San Joaquin River	1	EA	$	25,000.00	$	25,000.00
26	Environmental Permitting for New Outfall	1	LS	$	50,000.00	$	50,000.00
	Subtotal Storm Drain					$	541,880.00
	STORM DRAIN TRUNK REPLACEMENTS						
27	Remove Existing 48" SD Pipe Between Detention Basin & River	4,400	LF	$	20.00	$	88,000.00
28	Replace Existing 48" SD Pipe Between Detention Basin & River	4,400	LF	$	144.00	$	633,600.00
29	Manholes *(Assumed @ 500')*	9	EA	$	3,500.00	$	31,500.00
30	Replace Existing 48" SD Culverts	2	EA	$	10,000.00	$	20,000.00
	Subtotal Storm Drain					$	773,100.00
	SANITARY SEWER						
31	8" Sanitary Sewer Pipe	2,400	LF	$	50.00	$	120,000.00
32	Manholes *(Assumed @ 400')*	6	EA	$	3,500.00	$	21,000.00
33	Connect to Existing Sewer Pipe	1	EA	$	1,500.00	$	1,500.00
34	Sewer Laterals	5	EA	$	750.00	$	3,750.00
	Subtotal Sanitary Sewer					$	146,250.00
	WATER SUPPLY						
35	8" PVC Water Line	1,650	LF	$	60.00	$	99,000.00
36	Fire Hydrant *(Assumed @ 400')*	5	EA	$	4,000.00	$	20,000.00
37	Water Laterals	5	EA	$	750.00	$	3,750.00
38	Fire Service Laterals	5	EA	$	750.00	$	3,750.00
39	Irrigation Controller *(Assumed @ 2,000')*	1	EA	$	25,000.00	$	25,000.00
	Subtotal Water Supply					$	151,500.00
	ELECTRICAL IMPROVEMENTS						
40	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	12	EA	$	25,000.00	$	300,000.00
41	Streetlights *(1 @ 120') (Cobrahead Type)*	20	EA	$	3,000.00	$	60,000.00
	Subtotal Electrical Improvements					$	360,000.00
	TOTAL FLEMING LANE AND BRIDGEHEAD ROAD IMPROVEMENT COST					**$**	**7,911,900.00**
	(To the nearest hundred)						
	TOTAL AREA 2A IMPROVEMENT COST					**$**	**7,912,000.00**
	(To the nearest thousand)						

Carlson, Barbee & Gibson, Inc.
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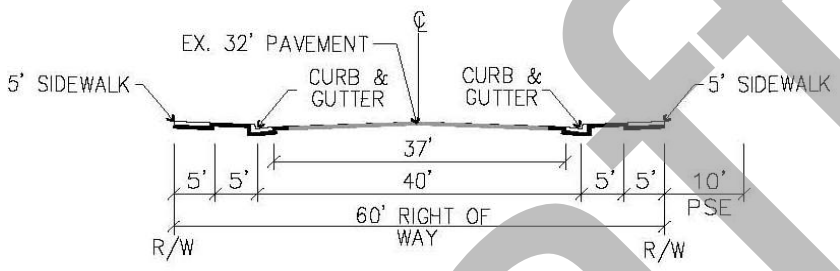
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
VIERA AVE (~2,300 LF)
FROM NORTH SIDE OF SANTE FE RAILROAD TRACKS TO 18TH STREET INTERSECTION
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	19,000	SF	$	5.00	$	95,000.00
2	Public Service Easement Acquisition *(10' PSE one side)*	23,000	SF	$	2.50	$	57,500.00
3	Temporary Construction Easements *(10' each side)*	46,000	SF	$	1.00	$	46,000.00
	Subtotal Land Acquisition					$	198,500.00
	STREET IMPROVEMENTS						
4	Demo Existing Pavement & Section *(~32' Wide Existing)*	73,600	SF	$	1.00	$	73,600.00
5	Rough Grade Street Section *(Includes Offhaul)(2.5' Cut)*	8,520	CY	$	20.00	$	170,400.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	2,130	CY	$	20.00	$	42,600.00
7	Street Fine Grading *(Full RW Width)*	138,000	SF	$	0.40	$	55,200.00
8	4" AC Pavement *(37' Wide Section Proposed)*	85,100	SF	$	1.60	$	136,160.00
9	20" Aggregate Base *(37' Wide Section Proposed)*	85,100	SF	$	3.00	$	255,300.00
10	Curb & Gutter *(Includes Cushion)*	4,600	LF	$	18.00	$	82,800.00
11	5' Detached Sidewalk *(Includes Cushion)*	23,000	SF	$	4.00	$	92,000.00
12	Landscape & Irrigation	20,700	SF	$	5.00	$	103,500.00
13	Geotextile Fabric	85,100	SF	$	0.20	$	17,020.00
14	Street Monuments *(Assumed @ Street Intersections)*	5	EA	$	300.00	$	1,500.00
15	Signing & Striping	2,300	LF	$	10.00	$	23,000.00
16	Traffic Control	2,300	LF	$	25.00	$	57,500.00
17	Driveway Approaches	31	EA	$	750.00	$	23,250.00
18	Relocate Existing Railroad Arms	1	EA	$	50,000.00	$	50,000.00
19	Repair Existing Railroad Crossing	1	EA	$	25,000.00	$	25,000.00
20	Protect Existing Waterline	2,300	LF	$	10.00	$	23,000.00
	Subtotal Street Improvements					$	1,231,830.00

Item	Description	Quantity	Unit	Unit Price	Amount
	STORM DRAIN				
21	24" Storm Drain Pipe	1,800	LF	$ 72.00	$ 129,600.00
22	18" Storm Drain Crossings *(40' each @ 300')*	240	LF	$ 54.00	$ 12,960.00
23	Catch Basins *(Assumed 2 @ 300')*	12	EA	$ 3,000.00	$ 36,000.00
24	Manholes (*Assumed @ 500')*	4	EA	$ 3,500.00	$ 14,000.00
25	Water Quality Filters *(Assumed @ 1,000')*	3	EA	$ 35,000.00	$ 105,000.00
	Subtotal Storm Drain				$ 297,560.00
	SANITARY SEWER				
26	8" Sanitary Sewer Pipe	1,060	LF	$ 50.00	$ 53,000.00
27	8" Sanitary Sewer Pipe *(10 - 15' Deep)*	640	LF	$ 75.00	$ 48,000.00
28	8" Sanitary Sewer Pipe *(15 - 20' Deep)*	510	LF	$ 120.00	$ 61,200.00
29	Manholes *(Assumed every 400') (Deep)*	6	EA	$ 5,000.00	$ 30,000.00
30	Sewer Laterals	31	EA	$ 1,000.00	$ 31,000.00
31	Bore & Jack *(Under Railroad Right of Way)*	1	EA	$ 35,000.00	$ 35,000.00
	Subtotal Sanitary Sewer				$ 258,200.00
	WATER SUPPLY				
32	Water Laterals *(Hot Tap Existing 16" Main)*	31	EA	$ 2,500.00	$ 77,500.00
33	Fire Hydrant *(Assumed @ 400')*	6	EA	$ 4,000.00	$ 24,000.00
34	Irrigation Controller *(Assumed @ 2,000')*	2	EA	$ 25,000.00	$ 50,000.00
	Subtotal Water Supply				$ 151,500.00
	RECYCLED WATER SUPPLY				
35	Recycled Water Line 8" PVC	2,300	LF	$ 60.00	$ 138,000.00
36	Bore & Jack Recycled Water *(Under Railroad Right of Way)*	1	EA	$ 35,000.00	$ 35,000.00
	Subtotal Recycled Water Supply				$ 173,000.00
	ELECTRICAL IMPROVEMENTS				
37	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	15	EA	$ 25,000.00	$ 375,000.00
38	Streetlights *(1 @ 120') (Residential Type)*	19	EA	$ 5,000.00	$ 95,000.00
	Subtotal Electrical Improvements				$ 470,000.00
	TOTAL VIERA AVENUE IMPROVEMENT COST				**$ 2,780,600.00**
	(To the nearest hundred)				

Carlson, Barbee & Gibson, Inc.
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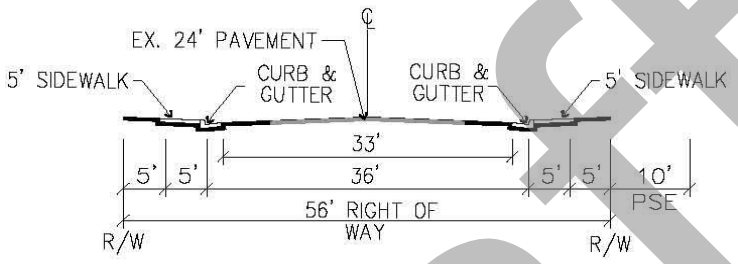
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
SANTA FE AVENUE (~600 LF)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	3,030	SF	$	5.00	$	15,150.00
2	Public Service Easement Acquisition *(10' PSE one side)*	6,000	SF	$	2.50	$	15,000.00
3	Temporary Construction Easements *(10' each side)*	12,000	SF	$	1.00	$	12,000.00
4	Easement for Storm Drain Pipe *(Assumed 20' Wide)*	27,200	SF	$	2.50	$	68,000.00
	Subtotal Land Acquisition					$	110,150.00
	STREET IMPROVEMENTS						
5	Demo Existing Pavement & Section *(~24' Wide Existing)*	14,400	SF	$	1.00	$	14,400.00
6	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	1,600	CY	$	20.00	$	32,000.00
7	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	400	CY	$	20.00	$	8,000.00
8	Street Fine Grading *(Full RW Width)*	33,600	SF	$	0.40	$	13,440.00
9	3" AC Pavement *(33' Wide Section Proposed)*	19,800	SF	$	1.20	$	23,760.00
10	13" Aggregate Base *(33' Wide Section Proposed)*	19,800	SF	$	1.95	$	38,610.00
11	Curb & Gutter *(Includes Cushion)*	1,200	LF	$	18.00	$	21,600.00
12	4.5' Monolithic Sidewalk *(Includes Cushion)*	5,400	SF	$	4.00	$	21,600.00
13	Landscape & Irrigation	6,000	SF	$	5.00	$	30,000.00
14	Geotextile Fabric	19,800	SF	$	0.20	$	3,960.00
15	Street Monuments *(Assumed)*	2	EA	$	300.00	$	600.00
16	Signing & Striping	600	LF	$	10.00	$	6,000.00
17	Traffic Control	600	LF	$	10.00	$	6,000.00
18	Driveway Approaches	12	EA	$	750.00	$	9,000.00
	Subtotal Street Improvements					$	228,970.00

Item	Description	Quantity	Unit	Unit Price	Amount
	STORM DRAIN[1-2]				
19	36" Storm Drain Pipe	630	LF	$ 108.00	$ 68,040.00
20	Catch Basins *(Assumed 2 @ 300')*	5	EA	$ 3,000.00	$ 15,000.00
21	18" Storm Drain Crossings *(36' each @ 300')*	80	LF	$ 54.00	$ 4,320.00
22	Manholes (*Assumed @ 500')*	2	EA	$ 3,500.00	$ 7,000.00
23	Offsite 36" Storm Drain Pipe	1,360	LF	$ 108.00	$ 146,880.00
24	Offsite Storm Drain Manhole	3	EA	$ 3,500.00	$ 10,500.00
25	Basin Outfall	1	LS	$ 10,000.00	$ 10,000.00
26	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$ 35,000.00	$ 35,000.00
	Subtotal Storm Drain				$ 296,740.00
	SANITARY SEWER				
27	8" Sanitary Sewer Pipe	850	LF	$ 50.00	$ 42,500.00
28	Manholes *(Assumed @ 400')*	2	EA	$ 3,500.00	$ 7,000.00
29	Sewer Laterals	12	EA	$ 750.00	$ 9,000.00
	Subtotal Sanitary Sewer				$ 58,500.00
	WATER SUPPLY				
30	8" PVC Water Line	850	LF	$ 60.00	$ 51,000.00
31	Water Lateral	12	EA	$ 750.00	$ 9,000.00
32	Fire Hydrant *(Assumed @ 400')*	2	EA	$ 4,000.00	$ 8,000.00
	Subtotal Water Supply				$ 68,000.00
	ELECTRICAL IMPROVEMENTS				
33	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	5	EA	$ 25,000.00	$ 125,000.00
34	Streetlights *(1 @ 120') (Residential Type)*	5	EA	$ 5,000.00	$ 25,000.00
	Subtotal Electrical Improvements				$ 150,000.00
	TOTAL SANTA FE AVENUE IMPROVEMENT COST				**$ 912,400.00**
	(To the nearest hundred)				

Notes:

1. *Includes storm drain line across APN 051-052-530 to existing basin.*
2. *Detention basin is assumed to have enough capacity for additional watershed.*

Carlson, Barbee & Gibson, Inc.
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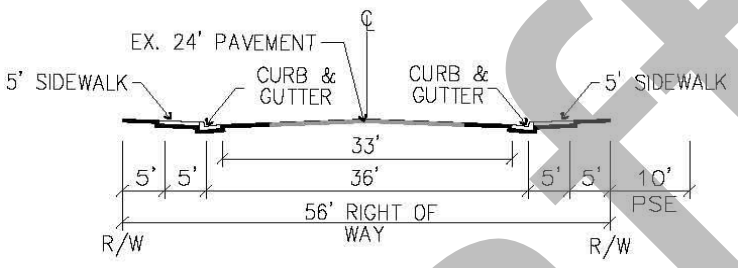
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
WALNUT AVENUE (~800 LF)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	4,500	SF	$	5.00	$	22,500.00
2	Public Service Easement Acquisition *(10' PSE one side)*	8,000	SF	$	2.50	$	20,000.00
3	Temporary Construction Easements *(10' each side)*	16,000	SF	$	1.00	$	16,000.00
	Subtotal Land Acquisition					$	58,500.00
	STREET IMPROVEMENTS						
4	Demo Existing Pavement & Section *(~24' Wide Existing)*	19,200	SF	$	1.00	$	19,200.00
5	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	2,130	CY	$	20.00	$	42,600.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	533	CY	$	20.00	$	10,650.00
7	Street Fine Grading *(Full RW Width)*	44,800	SF	$	0.40	$	17,920.00
8	3" AC Pavement *(33' Wide Section Proposed)*	26,400	SF	$	1.20	$	31,680.00
9	13" Aggregate Base *(33' Wide Section Proposed)*	26,400	SF	$	1.95	$	51,480.00
10	Curb & Gutter *(Includes Cushion)*	1,600	LF	$	18.00	$	28,800.00
11	4.5' Monolithic Sidewalk *(Includes Cushion)*	7,200	SF	$	4.00	$	28,800.00
12	Landscape & Irrigation	8,000	SF	$	5.00	$	40,000.00
13	Geotextile Fabric	26,400	SF	$	0.20	$	5,280.00
14	Street Monuments *(Assumed)*	2	EA	$	300.00	$	600.00
15	Signing & Striping	800	LF	$	10.00	$	8,000.00
16	Traffic Control	800	LF	$	10.00	$	8,000.00
17	Driveway Approaches	18	EA	$	750.00	$	13,500.00
	Subtotal Street Improvements					$	306,510.00

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
18	24" Storm Drain Pipe *(Assumed)*	800	LF	$	72.00	$	57,600.00
19	18" Storm Drain Crossings *(36' each @ 300')*	100	LF	$	54.00	$	5,400.00
20	Catch Basins *(Assumed 2 @ 300')*	6	EA	$	3,000.00	$	18,000.00
21	Manholes (*Assumed @ 500')*	2	EA	$	3,500.00	$	7,000.00
22	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	123,000.00
	SANITARY SEWER						
23	8" Sanitary Sewer Pipe	800	LF	$	50.00	$	40,000.00
24	Manholes *(Assumed @ 400')*	2	EA	$	3,500.00	$	7,000.00
25	Sewer Laterals	18	EA	$	750.00	$	13,500.00
	Subtotal Sanitary Sewer					$	60,500.00
	WATER SUPPLY						
26	8" PVC Water Line	800	LF	$	60.00	$	48,000.00
27	Water Lateral	18	EA	$	750.00	$	13,500.00
28	Fire Hydrant *(Assumed @ 400')*	2	EA	$	4,000.00	$	8,000.00
	Subtotal Water Supply					$	69,500.00
	ELECTRICAL IMPROVEMENTS						
29	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	6	EA	$	25,000.00	$	150,000.00
30	Streetlights *(1 @ 120') (Residential Type)*	7	EA	$	5,000.00	$	35,000.00
	Subtotal Electrical Improvements					$	185,000.00
	TOTAL WALNUT AVENUE IMPROVEMENT COST					**$**	**803,000.00**
	(To the nearest hundred)						

Carlson, Barbee & Gibson, Inc.
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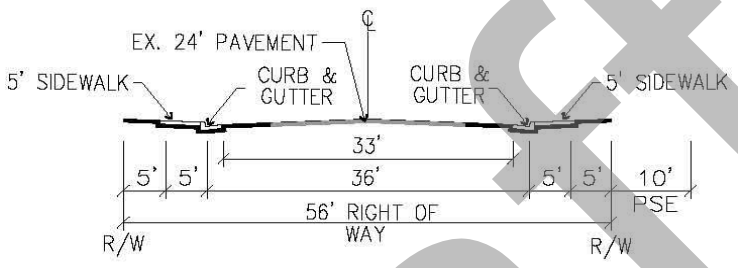
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
BOWN LANE (~600 LF)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	3,310	SF	$	5.00	$	16,550.00
2	Public Service Easement Acquisition *(10' PSE one side)*	6,000	SF	$	2.50	$	15,000.00
3	Temporary Construction Easements *(10' each side)*	12,000	SF	$	1.00	$	12,000.00
4	Acquire & Demolish Existing Structure *(Within proposed Right of Way)*	2	EA	$	500,000.00	$	1,000,000.00
	Subtotal Land Acquisition					$	1,043,550.00
	STREET IMPROVEMENTS						
5	Demo Existing Pavement & Section *(~24' Wide Existing)*	14,400	SF	$	1.00	$	14,400.00
6	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	1,600	CY	$	20.00	$	32,000.00
7	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	400	CY	$	20.00	$	8,000.00
8	Street Fine Grading *(Full RW Width)*	33,600	SF	$	0.40	$	13,440.00
9	3" AC Pavement *(33' Wide Section Proposed)*	19,800	SF	$	1.20	$	23,760.00
10	13" Aggregate Base *(33' Wide Section Proposed)*	19,800	SF	$	1.95	$	38,610.00
11	Curb & Gutter *(Includes Cushion)*	1,200	LF	$	18.00	$	21,600.00
12	4.5' Monolithic Sidewalk *(Includes Cushion)*	5,400	SF	$	4.00	$	21,600.00
13	Landscape & Irrigation	6,000	SF	$	5.00	$	30,000.00
14	Geotextile Fabric	19,800	SF	$	0.20	$	3,960.00
15	Street Monuments *(Assumed)*	2	EA	$	300.00	$	600.00
16	Signing & Striping	600	LF	$	10.00	$	6,000.00
17	Traffic Control	600	LF	$	10.00	$	6,000.00
18	Driveway Approaches	2	EA	$	750.00	$	1,500.00
	Subtotal Street Improvements					$	221,470.00

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
19	24" Storm Drain Pipe *(Assumed)*	575	LF	$	72.00	$	41,400.00
20	18" Storm Drain Crossings *(36' each @ 300')*	70	LF	$	54.00	$	3,780.00
21	Catch Basins *(Assumed 2 @ 300')*	4	EA	$	3,000.00	$	12,000.00
22	Manholes (*Assumed @ 500')*	2	EA	$	3,500.00	$	7,000.00
23	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	99,180.00
	SANITARY SEWER						
24	8" Sanitary Sewer Pipe	300	LF	$	50.00	$	15,000.00
25	Manholes *(Assumed @ 400')*	1	EA	$	3,500.00	$	3,500.00
26	Sewer Laterals	2	EA	$	750.00	$	1,500.00
	Subtotal Sanitary Sewer					$	20,000.00
	WATER SUPPLY						
27	8" PVC Water Line	600	LF	$	60.00	$	36,000.00
28	Water Lateral	2	EA	$	750.00	$	1,500.00
29	Fire Hydrant *(Assumed @ 400')*	2	EA	$	4,000.00	$	8,000.00
	Subtotal Water Supply					$	45,500.00
	ELECTRICAL IMPROVEMENTS						
30	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	3	EA	$	25,000.00	$	75,000.00
31	Streetlights *(1 @ 120') (Residential Type)*	5	EA	$	5,000.00	$	25,000.00
	Subtotal Electrical Improvements					$	100,000.00
	TOTAL BOWN LANE IMPROVEMENT COST					**$**	**1,529,700.00**
	(To the nearest hundred)						

Carlson, Barbee & Gibson, Inc.
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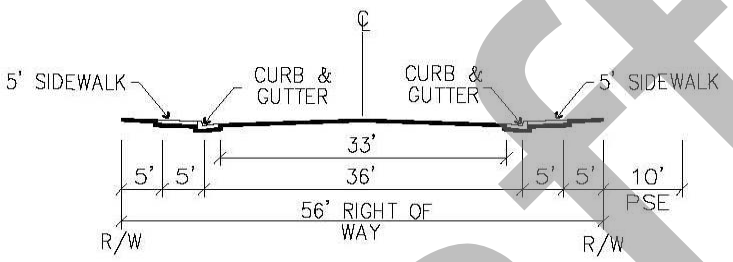
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
VINE LANE (~890 LF) (DIRT ROAD)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	13,800	SF	$	5.00	$	69,000.00
2	Public Service Easement Acquisition *(10' PSE one side)*	8,900	SF	$	2.50	$	22,250.00
3	Temporary Construction Easements *(10' each side)*	17,800	SF	$	1.00	$	17,800.00
4	Easement for Storm Drain Pipe *(Assumed 20' Wide)*	27,000	SF	$	2.50	$	67,500.00
	Subtotal Land Acquisition					$	176,550.00
	STREET IMPROVEMENTS						
5	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	2,370	CY	$	20.00	$	47,400.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	593	CY	$	20.00	$	11,850.00
7	Street Fine Grading	49,840	SF	$	0.40	$	19,936.00
8	3" AC Pavement *(33' Wide Section Proposed)*	29,370	SF	$	1.20	$	35,244.00
9	13" Aggregate Base *(33' Wide Section Proposed)*	29,370	SF	$	1.95	$	57,271.50
10	Curb & Gutter *(Includes Cushion)*	1,780	LF	$	18.00	$	32,040.00
11	4.5' Monolithic Sidewalk *(Includes Cushion)*	8,010	LF	$	4.00	$	32,040.00
12	Landscape & Irrigation	8,900	SF	$	5.00	$	44,500.00
13	Geotextile Fabric	29,370	SF	$	0.20	$	5,874.00
14	Street Monuments *(Assumed)*	2	EA	$	300.00	$	600.00
15	Signing & Striping	890	LF	$	10.00	$	8,900.00
16	Traffic Control	890	LF	$	10.00	$	8,900.00
17	Driveway Approaches	2	EA	$	750.00	$	1,500.00
	Subtotal Street Improvements					$	306,055.50

Item	Description	Quantity	Unit	Unit Price	Amount
	STORM DRAIN				
18	24" Storm Drain Pipe *(Assumed)*	890	LF	$ 72.00	$ 64,080.00
19	18" Storm Drain Crossings *(36' each @ 300')*	110	LF	$ 54.00	$ 5,940.00
20	Catch Basins *(Assumed 2 @ 300')*	6	EA	$ 3,000.00	$ 18,000.00
21	Manholes (*Assumed @ 500')*	2	EA	$ 3,500.00	$ 7,000.00
22	Offsite 36" Storm Drain Pipe	1,350	LF	$ 108.00	$ 145,800.00
23	Offsite Storm Drain Manhole	3	EA	$ 3,500.00	$ 10,500.00
24	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$ 35,000.00	$ 35,000.00
	Subtotal Storm Drain				$ 286,320.00
	SANITARY SEWER				
25	8" Sanitary Sewer Pipe	890	LF	$ 50.00	$ 44,500.00
26	Manholes *(Assumed @ 400')*	2	EA	$ 3,500.00	$ 7,000.00
27	Sewer Laterals	22	EA	$ 750.00	$ 16,500.00
	Subtotal Sanitary Sewer				$ 68,000.00
	WATER SUPPLY				
28	8" PVC Water Line	890	LF	$ 60.00	$ 53,400.00
29	Water Lateral	22	EA	$ 750.00	$ 16,500.00
30	Fire Hydrant *(Assumed @ 400')*	2	EA	$ 4,000.00	$ 8,000.00
	Subtotal Water Supply				$ 77,900.00
	ELECTRICAL IMPROVEMENTS				
31	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	6	EA	$ 25,000.00	$ 150,000.00
32	Streetlights *(1 @ 120') (Residential Type)*	7	EA	$ 5,000.00	$ 35,000.00
	Subtotal Electrical Improvements				$ 185,000.00
	TOTAL VINE LANE IMPROVEMENT COST				**$ 1,099,800.00**
	(To the nearest hundred)				

Carlson, Barbee & Gibson, Inc.
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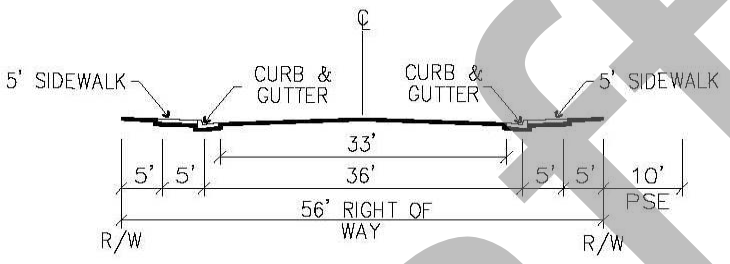
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
STEWART LANE (~350 LF) (DIRT ROAD)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	5,900	SF	$	5.00	$	29,500.00
2	Public Service Easement Acquisition *(10' PSE one side)*	3,500	SF	$	2.50	$	8,750.00
3	Temporary Construction Easements *(10' each side)*	7,000	SF	$	1.00	$	7,000.00
	Subtotal Land Acquisition					$	45,250.00
	STREET IMPROVEMENTS						
4	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	930	CY	$	20.00	$	18,600.00
5	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	233	CY	$	20.00	$	4,650.00
6	Street Fine Grading	19,600	SF	$	0.40	$	7,840.00
7	3" AC Pavement *(33' Wide Section Proposed)*	11,550	SF	$	1.20	$	13,860.00
8	13" Aggregate Base *(33' Wide Section Proposed)*	11,550	SF	$	1.95	$	22,522.50
9	Curb & Gutter *(Includes Cushion)*	700	LF	$	18.00	$	12,600.00
10	4.5' Monolithic Sidewalk *(Includes Cushion)*	3,150	SF	$	4.00	$	12,600.00
11	Landscape & Irrigation	3,500	SF	$	5.00	$	17,500.00
12	Geotextile Fabric	11,550	SF	$	0.20	$	2,310.00
13	Street Monuments *(Assumed)*	1	EA	$	300.00	$	300.00
14	Signing & Striping	350	LF	$	10.00	$	3,500.00
15	Traffic Control	350	LF	$	10.00	$	3,500.00
16	Driveway Approaches	4	EA	$	750.00	$	3,000.00
	Subtotal Street Improvements					$	122,782.50

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
17	24" Storm Drain Pipe *(Assumed)*	350	LF	$	64.00	$	22,400.00
18	18" Storm Drain Crossings *(36' each @ 300')*	40	LF	$	54.00	$	2,160.00
19	Catch Basins *(Assumed 2 @ 300')*	3	EA	$	3,000.00	$	9,000.00
20	Manholes (*Assumed @ 500')*	1	EA	$	3,500.00	$	3,500.00
21	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	72,060.00
	SANITARY SEWER						
22	8" Sanitary Sewer Pipe	350	LF	$	50.00	$	17,500.00
23	Manholes *(Assumed @ 400')*	1	EA	$	3,500.00	$	3,500.00
24	Sewer Laterals	4	EA	$	750.00	$	3,000.00
	Subtotal Sanitary Sewer					$	24,000.00
	WATER SUPPLY						
25	8" PVC Water Line	350	LF	$	60.00	$	21,000.00
26	Water Lateral	4	EA	$	750.00	$	3,000.00
27	Fire Hydrant *(Assumed @ 400')*	1	EA	$	4,000.00	$	4,000.00
	Subtotal Water Supply					$	28,000.00
	ELECTRICAL IMPROVEMENTS						
28	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	2	EA	$	25,000.00	$	50,000.00
29	Streetlights *(1 @ 120') (Residential Type)*	3	EA	$	5,000.00	$	15,000.00
	Subtotal Electrical Improvements					$	65,000.00
	TOTAL STEWART LANE IMPROVEMENT COST					**$**	**357,100.00**
	(To the nearest hundred)						

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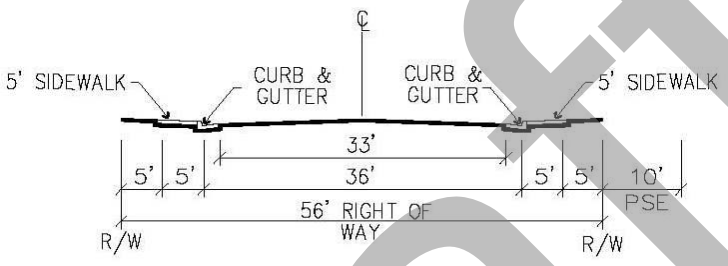
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
ST. CLAIRE DRIVE (~1,200 LF) (DIRT ROAD)
EXTENSION TO LIPTON STREET
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	23,300	SF	$	5.00	$	116,500.00
2	Public Service Easement Acquisition *(10' PSE one side)*	8,000	SF	$	2.50	$	20,000.00
3	Temporary Construction Easements *(10' each side)*	16,000	SF	$	1.00	$	16,000.00
4	Acquire & Demolish Existing Structure *(Within proposed Right of Way)*	1	EA	$	500,000.00	$	500,000.00
	Subtotal Land Acquisition					$	652,500.00
	STREET IMPROVEMENTS						
5	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	3,200	CY	$	20.00	$	64,000.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	800	CY	$	20.00	$	16,000.00
7	Street Fine Grading	67,200	SF	$	0.40	$	26,880.00
8	3" AC Pavement *(33' Wide Section Proposed)*	39,600	SF	$	1.20	$	47,520.00
9	13" Aggregate Base *(33' Wide Section Proposed)*	39,600	SF	$	1.95	$	77,220.00
10	Curb & Gutter *(Includes Cushion)*	2,400	LF	$	18.00	$	43,200.00
11	4.5' Monolithic Sidewalk *(Includes Cushion)*	10,800	SF	$	4.00	$	43,200.00
12	Landscape & Irrigation	12,000	SF	$	5.00	$	60,000.00
13	Geotextile Fabric	39,600	SF	$	0.20	$	7,920.00
14	Street Monuments *(Assumed)*	3	EA	$	300.00	$	900.00
15	Signing & Striping	1,200	LF	$	10.00	$	12,000.00
16	Traffic Control	1,200	LF	$	10.00	$	12,000.00
17	Driveway Approaches	10	EA	$	750.00	$	7,500.00
	Subtotal Street Improvements					$	418,340.00

Item	Description	Quantity	Unit	Unit Price	Amount
	STORM DRAIN[1]				
18	24" Storm Drain Pipe *(Assumed)*	1,100	LF	$ 72.00	$ 79,200.00
19	24" Storm Drain Pipe *(Trench and Repair 18th Street)*	250	LF	$ 144.00	$ 36,000.00
20	18" Storm Drain Crossings *(36' each @ 300')*	130	LF	$ 54.00	$ 7,020.00
21	Catch Basins *(Assumed 2 @ 300')*	8	EA	$ 3,000.00	$ 24,000.00
22	Manholes (*Assumed @ 500')*	3	EA	$ 3,500.00	$ 10,500.00
23	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$ 35,000.00	$ 35,000.00
	Subtotal Storm Drain				$ 191,720.00
	SANITARY SEWER[2]				
24	8" Sanitary Sewer Pipe	890	LF	$ 50.00	$ 44,500.00
25	8" Sanitary Sewer Pipe *(Trench and Repair 18th Street)*	290	LF	$ 100.00	$ 29,000.00
26	Manholes *(Assumed @ 400')*	3	EA	$ 3,500.00	$ 10,500.00
27	Sewer Laterals	10	EA	$ 750.00	$ 7,500.00
	Subtotal Sanitary Sewer				$ 91,500.00
	WATER SUPPLY				
28	8" PVC Water Line	1,200	LF	$ 60.00	$ 72,000.00
29	Water Lateral	10	EA	$ 750.00	$ 7,500.00
30	Fire Hydrant *(Assumed @ 400')*	3	EA	$ 4,000.00	$ 12,000.00
	Subtotal Water Supply				$ 91,500.00
	ELECTRICAL IMPROVEMENTS				
31	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	6	EA	$ 25,000.00	$ 150,000.00
32	Streetlights *(1 @ 120') (Residential Type)*	10	EA	$ 5,000.00	$ 50,000.00
	Subtotal Electrical Improvements				$ 200,000.00
	TOTAL ST. CLAIRE DRIVE IMPROVEMENT COST				**$ 1,645,600.00**
	(To the nearest hundred)				

Notes:

1. *Connects to storm drain on 18th Street.*
2. *Connects to sanitary sewer on 18th Street.*

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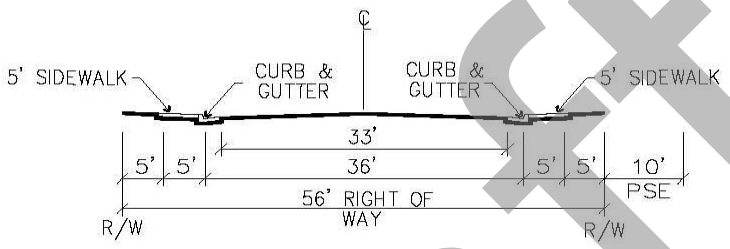
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
TREMBATH LANE (~980 LF) (DIRT ROAD)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit		Unit Price		Amount
	LAND ACQUISITION						
1	Right of Way Acquisition	14,150	SF	$	5.00	$	70,750.00
2	Public Service Easement Acquisition *(10' PSE one side)*	9,800	SF	$	2.50	$	24,500.00
3	Temporary Construction Easements *(10' each side)*	19,110	SF	$	1.00	$	19,110.00
4	Acquire & Demolish Existing Structure *(Within proposed Right of Way)*	1	EA	$	500,000.00	$	500,000.00
	Subtotal Land Acquisition					$	614,360.00
	STREET IMPROVEMENTS						
5	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	2,610	CY	$	20.00	$	52,200.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	653	CY	$	20.00	$	13,050.00
7	Street Fine Grading	54,880	SF	$	0.40	$	21,952.00
8	3" AC Pavement *(33' Wide Section Proposed)*	32,340	SF	$	1.20	$	38,808.00
9	13" Aggregate Base *(33' Wide Section Proposed)*	32,340	SF	$	1.95	$	63,063.00
10	Curb & Gutter *(Includes Cushion)*	1,960	LF	$	18.00	$	35,280.00
11	4.5' Monolithic Sidewalk *(Includes Cushion)*	8,820	SF	$	4.00	$	35,280.00
12	Landscape & Irrigation	9,800	SF	$	5.00	$	49,000.00
13	Geotextile Fabric	32,340	SF	$	0.20	$	6,468.00
14	Street Monuments *(Assumed)*	2	EA	$	300.00	$	600.00
15	Signing & Striping	980	LF	$	10.00	$	9,800.00
16	Traffic Control	980	LF	$	10.00	$	9,800.00
17	Driveway Approaches	8	EA	$	750.00	$	6,000.00
	Subtotal Street Improvements					$	341,301.00
	STORM DRAIN						
18	18" Storm Drain Crossings *(36' each @ 300') (Main existing)*	120	LF	$	54.00	$	6,480.00
19	Catch Basins *(Assumed 2 @ 300')*	7	EA	$	3,000.00	$	21,000.00
20	Manholes (*Assumed @ 500')*	2	EA	$	3,500.00	$	7,000.00
21	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	69,480.00

Item	Description	Quantity	Unit		Unit Price		Amount
	SANITARY SEWER[1]						
22	8" Sanitary Sewer Pipe	750	LF	$	50.00	$	37,500.00
23	8" Sanitary Sewer Pipe *(Trench and Repair 18th Street)*	50	LF	$	100.00	$	5,000.00
24	Manholes *(Assumed @ 400')*	2	EA	$	3,500.00	$	7,000.00
25	Sewer Laterals	8	EA	$	750.00	$	6,000.00
	Subtotal Sanitary Sewer					$	55,500.00
	WATER SUPPLY						
26	8" PVC Water Line	980	LF	$	60.00	$	58,800.00
27	Water Lateral	8	EA	$	750.00	$	6,000.00
28	Fire Hydrant *(Assumed @ 400')*	2	EA	$	4,000.00	$	8,000.00
	Subtotal Water Supply					$	72,800.00
	ELECTRICAL IMPROVEMENTS						
29	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	6	EA	$	25,000.00	$	150,000.00
30	Streetlights *(1 @ 120') (Residential Type)*	8	EA	$	5,000.00	$	40,000.00
	Subtotal Electrical Improvements					$	190,000.00
	TOTAL TREMBATH LANE IMPROVEMENT COST					**$**	**1,343,400.00**
	(To the nearest hundred)						

Notes:

1. *Connects to sewer on Trembath Street across 18th Street.*

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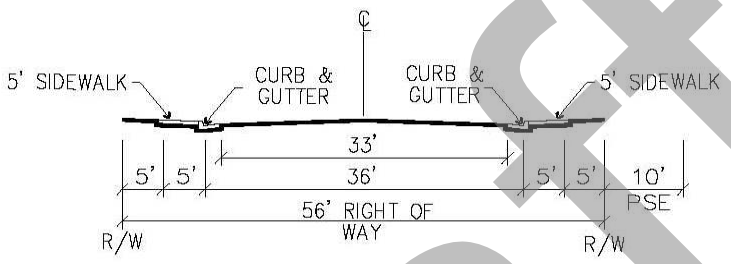
ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
MIKE YORBA WAY (~250 LF) (DIRT ROAD)
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000



Item	Description	Quantity	Unit	Unit Price	Amount
	LAND ACQUISITION				
1	Right of Way Acquisition	12,800	SF	$ 5.00	$ 64,000.00
2	Public Service Easement Acquisition *(10' PSE one side)*	2,500	SF	$ 2.50	$ 6,250.00
3	Temporary Construction Easements *(10' each side)*	5,000	SF	$ 1.00	$ 5,000.00
4	Acquire & Demolish Existing Structure *(Within proposed Right of Way)*	1	EA	$ 500,000.00	$ 500,000.00
	Subtotal Land Acquisition				$ 575,250.00
	STREET IMPROVEMENTS				
5	Rough Grade Street Section *(Includes Offhaul) (2' Cut)*	670	CY	$ 20.00	$ 13,400.00
6	Remedial Grading/Unsuitable Materials *(25% of Rough Grade Volume)*	168	CY	$ 20.00	$ 3,350.00
7	Street Fine Grading	14,000	SF	$ 0.40	$ 5,600.00
8	3" AC Pavement *(33' Wide Section Proposed)*	8,250	SF	$ 1.20	$ 9,900.00
9	13" Aggregate Base *(33' Wide Section Proposed)*	8,250	SF	$ 1.95	$ 16,087.50
10	Curb & Gutter *(Includes Cushion)*	500	LF	$ 18.00	$ 9,000.00
11	4.5' Monolithic Sidewalk *(Includes Cushion)*	2,250	SF	$ 4.00	$ 9,000.00
12	Parkway Landscape & Irrigation	2,500	SF	$ 5.00	$ 12,500.00
13	Geotextile Fabric	8,250	SF	$ 0.20	$ 1,650.00
14	Street Monuments *(Assumed)*	1	EA	$ 300.00	$ 300.00
15	Signing & Striping	500	LF	$ 10.00	$ 5,000.00
16	Traffic Control	500	LF	$ 10.00	$ 5,000.00
17	Driveway Approaches	4	EA	$ 750.00	$ 3,000.00
	Subtotal Street Improvements				$ 93,787.50

Item	Description	Quantity	Unit		Unit Price		Amount
	STORM DRAIN						
18	18" Storm Drain Crossings	100	LF	$	64.00	$	6,400.00
19	Catch Basins	2	EA	$	3,000.00	$	6,000.00
20	Manholes (*Assumed @ 500')*	1	EA	$	3,500.00	$	3,500.00
21	Water Quality Filters *(Assumed @ 1,000')*	1	EA	$	35,000.00	$	35,000.00
	Subtotal Storm Drain					$	50,900.00
	SANITARY SEWER						
22	8" Sanitary Sewer Pipe	250	LF	$	50.00	$	12,500.00
23	Manholes *(Assumed @ 400')*	1	EA	$	3,500.00	$	3,500.00
24	Sewer Laterals	4	EA	$	750.00	$	3,000.00
	Subtotal Sanitary Sewer					$	19,000.00
	WATER SUPPLY						
25	8" PVC Water Line	250	LF	$	60.00	$	15,000.00
26	Water Lateral	4	EA	$	750.00	$	3,000.00
27	Fire Hydrant *(Assumed @ 400')*	1	EA	$	4,000.00	$	4,000.00
	Subtotal Water Supply					$	22,000.00
	ELECTRICAL IMPROVEMENTS						
28	Relocate Existing 21 Kv/60 Kv Overhead Pole Line	2	EA	$	25,000.00	$	50,000.00
29	Streetlights *(1 @ 120') (Residential Type)*	2	EA	$	5,000.00	$	10,000.00
	Subtotal Electrical Improvements					$	60,000.00
	TOTAL MIKE YORBA WAY IMPROVEMENT COST					**$**	**820,900.00**
	(To the nearest hundred)						

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ENGINEER'S PRELIMINARY INFRASTRUCTURE COST ESTIMATE
NORTHEAST ANTIOCH REORGANIZATION
AREA 2B
SUMMARY
ANTIOCH, CALIFORNIA

January 9, 2009
Job No.: 1622-000

Description		Amount
SUMMARY - BY IMPROVEMENT		
TOTAL LAND ACQUISITION COST	$	3,474,600.00
TOTAL STREET IMPROVEMENTS COST	$	3,271,000.00
TOTAL STORM DRAIN COST	$	1,487,000.00
TOTAL SANITARY SEWER COST	$	655,200.00
TOTAL WATER SUPPLY COST	$	626,700.00
TOTAL RECYCLED WATER SUPPLY COST	$	173,000.00
TOTAL ELECTRICAL IMPROVEMENTS COST	$	1,605,000.00
TOTAL AREA 2B IMPROVEMENT COST	**$**	**11,293,000.00**
SUMMARY - BY STREET		
TOTAL VIERA AVENUE IMPROVEMENT COST	$	2,780,600.00
TOTAL SANTA FE AVENUE IMPROVEMENT COST	$	912,400.00
TOTAL WALNUT AVENUE IMPROVEMENT COST	$	803,000.00
TOTAL BOWN LANE IMPROVEMENT COST	$	1,529,700.00
TOTAL VINE LANE IMPROVEMENT COST	$	1,099,800.00
TOTAL STEWART LANE IMPROVEMENT COST	$	357,100.00
TOTAL ST. CLAIRE DRIVE IMPROVEMENT COST	$	1,645,600.00
TOTAL TREMBATH LANE IMPROVEMENT COST	$	1,343,400.00
TOTAL MIKE YORBA WAY IMPROVEMENT COST	$	820,900.00
TOTAL AREA 2B IMPROVEMENT COST	**$**	**11,293,000.00**

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APPLYING KNOWLEDGE, CREATING RESULTS, ADDING VALUE

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APPENDIX E

AIR QUALITY AND GREENHOUSE GAS EMISSIONS ASSESSMENT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
505 Petaluma Boulevard South
Petaluma, California 94952
Tel: 707-766-7700 *Fax: 707-766-7790*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

November 20, 2012

Caitlin Chase
Assistant Environmental Planner
Circlepoint
1814 Franklin Street, Suite 1000
Oakland, CA 94612

VIA email: Caitlin Chase c.chase@circlepoint.com

Subject: Northeast Antioch Annexation Project, Antioch, CA
Construction Air Quality and Greenhouse Gas Emissions

Dear Caitlin:

As requested, Illingworth & Rodkin, Inc. computed construction emission that might be part of the Northeast Antioch Annexation Project. As part of the Tax Transfer/Infrastructure Agreement resulting from the project, the City would accept the obligation to construct and operate municipal water, wastewater, and storm drain systems/services that would require construction. The City proposes to construct 8-inch diameter water lines along several streets, including Trembath Lane, St. Clare Drive, Wymore Way, Stewart Lane, Vine Lane, Bown Lane, Walnut Avenue, and Santa Fe Avenue. These new lines would be connected to and thus receive potable water from existing City water mains that run beneath Viera Avenue, East 18th Street, and Lipton Street. The project would involve constructing a new 15-inch sewer line along Wilbur Avenue from Viera Avenue to the existing terminus at the Gateway driveway. In addition, new storm drainage lines are proposed for St. Clare Drive, Viera Avenue, Santa Fe Avenue, Bown Lane, Walnut Avenue, Vine Lane, and Stewart Lane.

Timing of the construction of infrastructure extensions is subject to funding availability. Given that specific funding sources are unknown, the timing of construction cannot be predicted with certainty. To address air quality impacts, this study assumes that there would be 14,040 linear feet of new sewer line, 10,245 feet of new storm drain and 6,820 feet of water lines. A total construction period of 121 work days is based on an installation rate of 200 linear feet/day for the sewer, 300 linear feet /day for the storm drain, and 400 linear feet /day for the water line. Another 2 months may be required for

connections or repairs. Thus, a total of 8 months or 160 construction days was assumed for construction. Because impacts concentrated in shorter time periods would be more intense in terms of air quality and greenhouse gas emissions, a "worst-case scenario" was analyzed for this report. The actual length of construction would be over a longer timeframe, thus lessening the concentration of impacts.

Estimated Construction Emissions

There are several models available for predicting emissions from construction projects that are linear (e.g., roadways and sewer or water lines). The BAAQMD CEQA Air Quality Guidelines recommend use of either URBEMIS2007 or the Roadway Construction Model. Air pollutant emissions from Project construction activities were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Model Version 6.3.2 (RoadMod) using the anticipated equipment and construction activity data for the Project. The RoadMod model uses CARB's OFFROAD model to compute emissions from construction equipment. RoadMod takes into account hours of operation, load factor, and emission factors for each piece of equipment. Input and output data from the Project RoadMod runs are provided as Attachment 1.

Emissions from the Project would mainly result from on-site off-road equipment and from trucks hauling soil or materials. Construction activities were based on the following:

Equipment:	a Front-End Loader and a Excavator working 6 hours per day
Truck Traffic:	15 roundtrips (30-one way trips) per day
Worker Traffic:	8 workers at 2.5 trips per day = 20 auto trips

Number of Workdays: 160 days

Construction equipment, number of daily truck trips and auto trips were manually entered into the model. Otherwise, the model default assumptions were used. Exhaust emissions from on-highway trucks (e.g., pickup trucks, dump trucks) are accounted for in the model through the input of soil material to be hauled. A 10-cubic yard truck capacity was assumed. To reflect the project number of truck trips in the model, an assumption of 150 cubic yards per day of imported or exported soil were assumed. In addition, the model computed emissions from worker trips based on default values. The model defaults were overridden to assume 8 workers per day, making a total of 20 trips per day at 20 miles per trip.

Average daily and total emissions for the entire construction period were computed. Average daily emissions are then compared against BAAQMD thresholds. Emissions of all pollutants are below the

BAAQMD significance thresholds that are also shown in Table 1.

TABLE 1 Daily and Annual Emissions from Construction

Scenario	Emissions - total tons per component				
	ROG	**NO_X**	**PM_{10} [a]**	**$PM_{2.5}$ [a]**	**CO_2**
Project Construction (lbs./day)	0.8	5.9	0.3	0.3	--
BAAQMD Threshold (lbs./day)	*54*	*54*	-	-	--
Exceed Threshold?	***No***	***No***	***No***	***No***	--
Project Construction (tons/year)	0.1	0.5	<0.1	<0.1	60 metric tons
Federal Conformity Threshold	*100*	*100*	-	-	*1,100***
Exceed Threshold?	***No***	***No***	***No***	***No***	***No***

[a] Exhaust emissions
** Applies to Operational

* * *

This concludes our assessment of potential air quality and GHG construction emissions from this project. If you have any questions or comments, please feel free to contact me at (707) 766-7700 x24. We appreciate the opportunity to assist you.

Sincerely,
James A. Reyff
Digitally signed by James A. Reyff
DN: cn=James A. Reyff, o=Illingworth & Rodkin, Inc., ou, email=jreyff@illingworthrodkin.com, c=US
Date: 2012.11.20 17:37:15 -08'00'
James A. Reyff
Illingworth & Rodkin

Attachment 1: RoadMod Output

12-169

Attachment 1

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> NE Antioch Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	0.8	4.5	5.9	2.3	0.3	2.0	0.7	0.3	0.4	754.7
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (pounds/day)	0.8	4.5	5.9	2.3	0.3	2.0	0.7	0.3	0.4	754.7
Total (tons/construction project)	0.1	0.4	0.5	0.1	0.0	0.1	0.0	0.0	0.0	66.4

Notes:

Project Start Year ->	2014
Project Length (months) ->	8
Total Project Area (acres) ->	1
Maximum Area Disturbed/Day (acres) ->	0
Total Soil Imported/Exported (yd^3/day)->	150

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> NE Antioch Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	-	-	-	-	-	-	-	-	-	-
Grading/Excavation	-	-	-	-	-	-	-	-	-	-
Drainage/Utilities/Sub-Grade	0.4	2.0	2.7	1.1	0.1	0.9	0.3	0.1	0.2	343.0
Paving	-	-	-	-	-	-	-	-	-	-
Maximum (kilograms/day)	0.4	2.0	2.7	1.1	0.1	0.9	0.3	0.1	0.2	343.0
Total (megagrams/construction project)	0.1	0.4	0.5	0.1	0.0	0.1	0.0	0.0	0.0	60.2

Notes:

Project Start Year ->	2014
Project Length (months) ->	8
Total Project Area (hectares) ->	0
Maximum Area Disturbed/Day (hectares) ->	0
Total Soil Imported/Exported ($meters^3$/day)->	115

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

APPENDIX F

BIOLOGICAL RESOURCES ASSESSMENT

RCL Ecology

BIOLOGICAL RESOURCES ASSESSMENT
NORTHEAST ANTIOCH REORGANIZATION: AREAS 1, 2A and 2B

UNICORPORATED, CONTRA COSTA COUNTY, CALIFORNIA

AUGUST 2012

Prepared for:

CirclePoint

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1. INTRODUCTION

This report is a biological resources assessment for the proposed annexation of Areas 1, 2A, and 2B into the City of Antioch, California. The report presents the results of reconnaissance-level surveys for special-status wildlife and plant species and other biological resources on the area as well as any biological issues and recommends mitigation for these issues in order to reduce project effects to 'less than significant.

1.1 Location

Area 1 is bound by the San Joaquin River on the north, Wilbur Avenue on the south, Fulton Shipyard Road on the west, and Fleming Lane on the east. Area 2A is bound by the San Joaquin River on the north, Wilbur Avenue on the south, Bridgehead Road on the east and Fleming Lane on the west. Area 2B is generally bound by East 18th Street on the south, the Burlington Northern-Santa Fe Railroad (BNSF) and industrial uses on the north, Hargrove Street on the west and the Antioch corporate boundary on the east (Figure 1 – Site & Vicinity

1.2 Project description

Nearly all of the properties within these areas obtain water from individual wells or private water supplies and dispose of wastewater through individual private septic tanks or other waste water systems. Annexation would provide the opportunity for these properties to connect to City-supplied potable water, sanitary sewer and storm water drainage systems as well as standard street lighting. Therefore, the 'project' analyzed in this report is the potential effect on biological issues during installation of these amenities. The installation process is expected to involve trenching through existing roads and other open areas for installation of main lines and then additional trenching across properties for individual residential and commercial connections. These main line routes are shown in Figure 2.

2.0 STUDY METHODS

2.1 Review of background information

The following studies and information sources were reviewed in preparation of this document.

California Department of Fish and Game, July 2010. Natural Diversity Database, Brentwood, Oakley, Antioch North and Antioch South quads. California Department of Fish and Game Natural Heritage Division. Sacramento, California.

California Department of Fish and Game. 1995. Staff Report on burrowing Owl Mitigation. The Resources Agency, October 17, 1995.

CirclePoint | NORTHEAST ANTIOCH REORGANIZATION

Project Location

FIGURE

City of Antioch, April 2009. Hillcrest Area Specific Plan, Antioch, California.

East Contra Costa County Habitat Conservancy, East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan. 2007.

Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. May 31.

U.S. Fish and Wildlife Service. 2003. Interim Guidance on site Assessment and field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. October.

U.S. Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. August.

U.S. Fish and Wildlife Service. 2002. Antioch Dunes National Wildlife Refuge Comprehensive Conservation Plan. August

2.2 Field reconnaissance

Randall Long of RCL Ecology performed reconnaissance planning surveys of the project area on June 19 and 21, 2012. This was done using a combination of driving the roads within the project area then stopping to walk through open areas to survey the proposed utility line routes for the presence of habitat for special-status plants and wildlife. Aerial photo analysis (Google Earth 2012) was used to determine habitat types when lack of access across private or commercial properties limited ground survey.

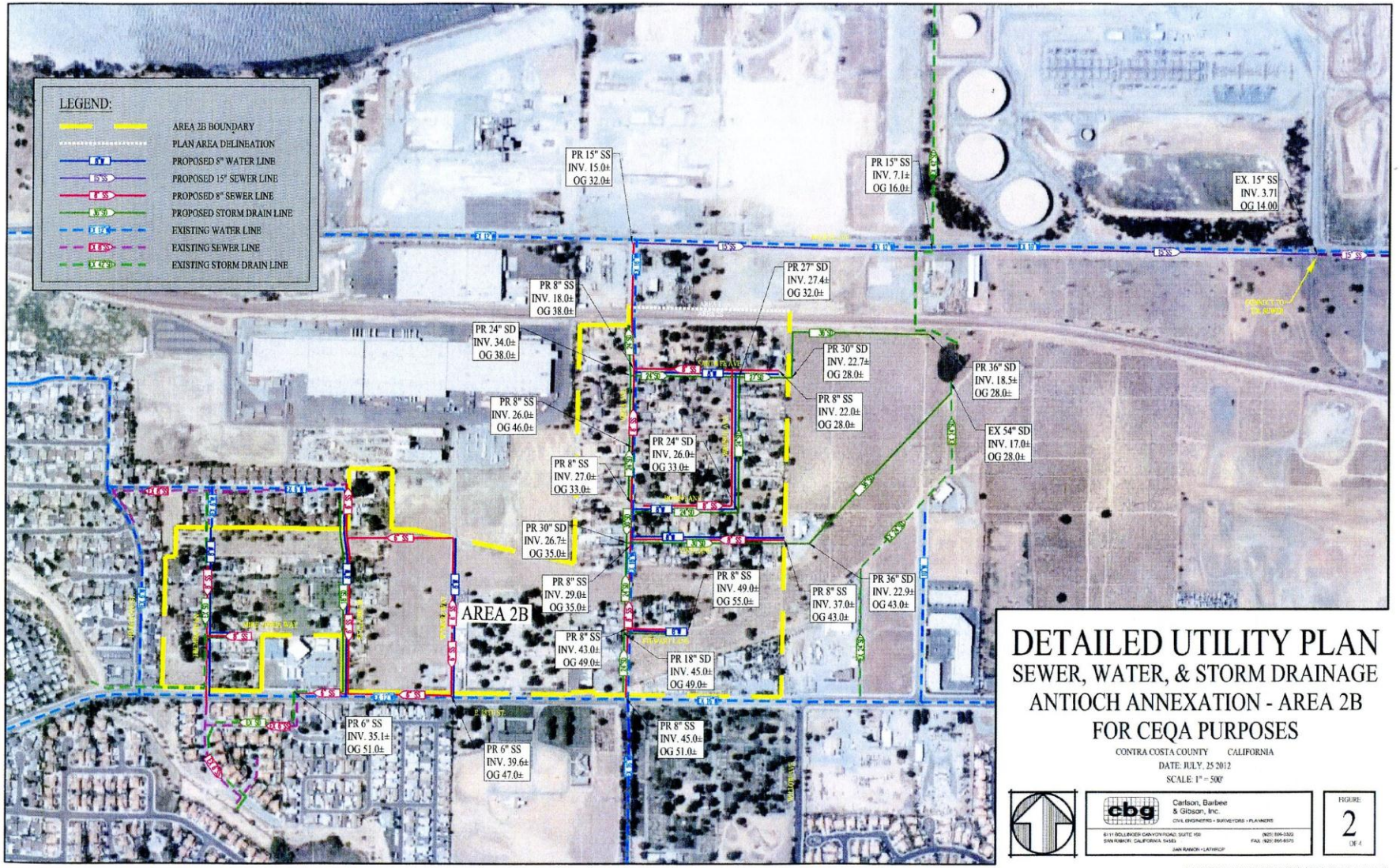
3.0 ENVIRONMENTAL SETTING

3.1 Setting

The setting within Area 1 and 2A is composed of dense industrial and commercial development except for the approximately 55 acre Antioch Dunes National Wildlife Refuge (ADNWR) on the western edge of Area 1. Area 2B is largely a rural community with a variety of residential properties on deep lots and a combination of paved and unpaved streets. Other properties on the periphery consist of a cemetery, and a few other commercial/industrial suppliers. Vineyards occur within all of the PG&E electrical easements as well as occasionally on smaller plots within or adjacent to the residences

History

The general project area, once a sand dune ecosystem with dunes as high as 100 feet within what is now the ADNWR (USWS 2002), has had a long history of disturbance from commercial and agricultural use dating back to the start of sand pit mining for the brick


LEGEND:
AREA 2B BOUNDARY
PLAN AREA DELINEATION
PROPOSED 8" WATER LINE
PROPOSED 15" SEWER LINE
PROPOSED 8" SEWER LINE
PROPOSED STORM DRAIN LINE
EXISTING WATER LINE
EXISTING SEWER LINE
EXISTING STORM DRAIN LINE
AREA 2B
PR 15" SS INV. 15.0± OG 32.0±
PR 15" SS INV. 7.1± OG 16.0±
EX. 15" SS INV. 3.71 OG 14.00
PR 27" SD INV. 27.4± OG 32.0±
PR 8" SS INV. 18.0± OG 38.0±
PR 24" SD INV. 34.0± OG 38.0±
PR 30" SD INV. 22.7± OG 28.0±
PR 36" SD INV. 18.5± OG 28.0±
PR 8" SS INV. 22.0± OG 28.0±
PR 8" SS INV. 26.0± OG 46.0±
EX 54" SD INV. 17.0± OG 28.0±
PR 24" SD INV. 26.0± OG 33.0±
PR 8" SS INV. 27.0± OG 33.0±
PR 30" SD INV. 26.7± OG 35.0±
PR 8" SS INV. 29.0± OG 35.0±
PR 8" SS INV. 49.0± OG 55.0±
PR 8" SS INV. 37.0± OG 43.0±
PR 36" SD INV. 22.9± OG 43.0±
PR 8" SS INV. 43.0± OG 49.0±
PR 18" SD INV. 45.0± OG 49.0±
PR 6" SS INV. 35.1± OG 51.0±
PR 6" SS INV. 39.6± OG 47.0±
PR 8" SS INV. 45.0± OG 51.0±
DETAILED UTILITY PLAN
SEWER, WATER, & STORM DRAINAGE
ANTIOCH ANNEXATION - AREA 2B
FOR CEQA PURPOSES
CONTRA COSTA COUNTY CALIFORNIA
DATE: JULY, 25 2012
SCALE: 1" = 500'
cbg
Carlson, Barbee & Gibson, Inc.
CIVIL ENGINEERS • SURVEYORS • PLANNERS
FIGURE 2
G:\1622\ACAD\EXHIBITS\XB-008-AREA 2B_PR_UT.DWG

factory industry in 1852. This use spread over most of the area when the easily accessible sand was used to provide bricks needed for the rebuilding of San Francisco following the 1906 earthquake. Agricultural use, consisting of vineyards and nut orchards followed resulting in further fragmenting the dune habitat and providing an opportunity for invasion by non-native annual grasses and ruderal (weedy) species. Heavy industry followed along the shore area north of Wilbur Avenue. The only hold outs in this large scale vegetation change occur in portions of the Refuge where enough dune habitat remains to provide for several endemic plants and an endemic butterfly to survive. (USFWS 2002).

3.2 Topography, soils and hydrology

Topography of the area is gently rolling averaging approximately 45-50 feet above mean sea level. Soils are of the Delhi sand series, 2 to 9 percent slopes. These sandy, deep (to 60 inches) excessively drained soils are the remnants of windblown river deposits. There are no wetlands or waters within the project area and drainage is toward the Joaquin River.

3.3 Plant communities

With the exception of the wildlife refuge, there are no natural plant communities present within the study area. However, even the Refuge is dominated by non-native species. With a few small exceptions, of ruderal vegetation and vineyard, the remainder of Area 1 as well as 2A, are predominately paved urban settings with landscape plantings of trees and shrubs. Dominant grasses and forbs in this community consist of wild oats (*Avena fatua*), Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), common vetch (*Vicia sativa*), rose clover (*Trifolium hirtum*) soft chess (*Bromus hordeaceus*), hoary mustard (*Hirschfeldia incana*), and yellow star thistle (*Centaurea solstitialis*). Within Area 2B several mature native Coast live oak trees, scattered orchard remnants such as almond (*Prunus dulcis*) and California black walnut (*Juglans californica*), and a variety of introduced landscape trees comprise the overstory vegetation. Ground cover in this area is dominated by lawns, shrubs and interspersed vineyards. The vineyards are intensely managed and maintained in cultivated condition. A list of all plant species observed is attached at Appendix C.

3.4 Wildlife habitats

The ruderal and landscape vegetative types while providing no habitat for specialized special-status wildlife, do provide habitat for other common ‘generalist’-type species adapted to urban conditions. Typically, these types attract reptiles, such as southern alligator lizard (*Gerrhonotus multicarinatus*) and western fence lizard (*Sceloporus occidentalis*), seed-eating and insect-eating birds, as well as small mammals.. Birds that would nest and forage in the area include California quail (*Callipepla californica*), mourning dove (*Zenaidura macroura*), meadowlark (*Sturnella neglecta*) loggerhead shrike (*Lanius ludovicianus*), white-crowned sparrow (*Zonotrichia leucophrys*), western scrub jay (*Aphelocoma coerulescens*), northern mockingbird (*Mimus polyglottus*), and western kingbird (*Tyrannus verticalis*). Mammals such as California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), Botta’s pocket gopher (*Thomomys bottae*),

California ground squirrel (*Ostspermophilus beecheyi*) and black-tailed jackrabbit (*Lepus californicus*) are also known to forage and nest within these types. These small rodents in turn attract raptors (birds of prey) such as the great horned owl and red-tailed hawk to the area.

3.5 Wildlife movement corridors

Wildlife movement corridors are those areas that are vital pathways for migratory wildlife travel or routes between favored feeding and breeding habitats. The project areas do not serve as a wildlife movement corridor.

4.0 SPECIAL-STATUS SPECIES

Special-status species include those listed as endangered, threatened or candidates for listing by the U.S. Fish and Wildlife Service, the California Department of Fish & Game (CDFG) or in the case of plants by the California Native Plant Society (CNPS). The CNPS listing is sanctioned by the CDFG and serves essentially as their list of "candidate" plant species.

Figure 3 shows the location of special-status plant and wildlife species that have been documented by the CNDDB to occur within or surrounding the project area. The potential for occurrence of these and other special-status species is discussed below.

4.1 Special-status plants

Three special-status plants, the federally listed endangered Antioch Dunes evening primrose (*Oenothera deltoides* ssp. *howellii*), the federally listed Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*), and the CNPS listed 1B.1 Antioch Dunes buckwheat (*Eriogonum nudum* var.*psychicola.*) the host plant required for the life cycle of the endangered Lange's metalmark butterfly (*Apodemia mormo langei*) are endemic to the ADNWR. Mr. Long had previously visited the ADNWR to observe and photograph these species in order to be able to identify them should they occur in the project area. None of the plants were found during the field visits. As no utility lines are planned within the ADNWR the project will have no effect on the above endemic species. The remaining special-status plants only occur along the River banks that will not be affected by project activity. Therefore, the project work is not anticipated to have any effect on these species.

4.2 Special-status wildlife

The CNDDB lists one (1) special-status insect, the Lange's metalmark butterfly; one bird the Western burrowing owl; and one (1) special–status reptile the silvery legless lizard as occurring within the general area. In addition to these, several raptors are known to have nested within one mile south of the area and could nest within the project area. The status and potential for concurrence for each of the above species is shown in Table 1 and discussed below.

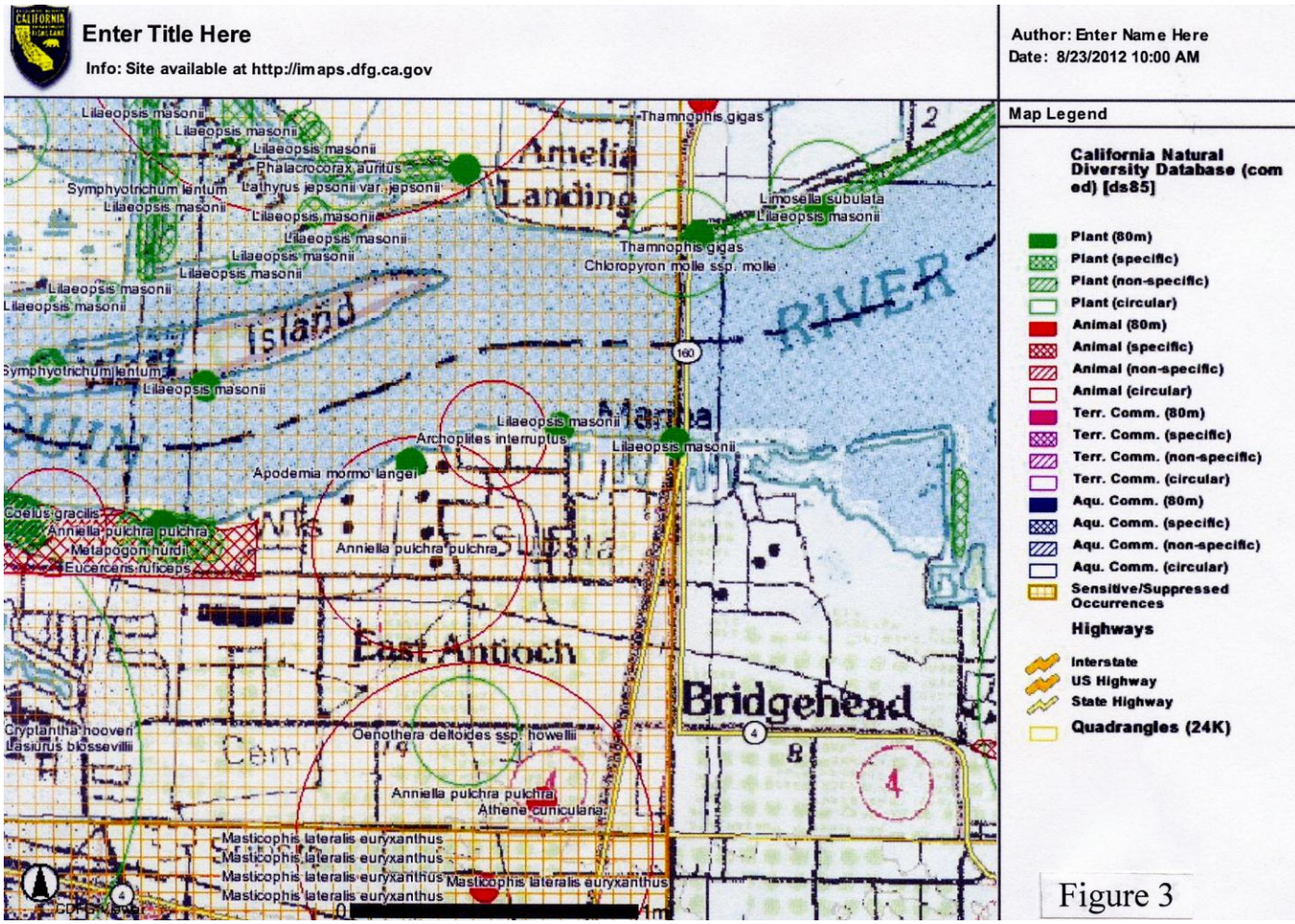


Table 1 – Special-Status Wildlife with Potential to Occur in the Project Area

SPECIES	LISTING STATUS	POTENTIAL FOR OCCURRENCE
INSECTS		
Apodemia mormo-langei Lange's metalmark butterfly	Fed: FE CA: SA	Antioch Dunes buckwheat) absent from the project area.
BIRDS		
Accipiter cooperii Cooper's hawk	Fed: MB CA: WL	Potential nesting habitat
Athene cunicularia Western burrowing owl	Fed: MB CA: SSC	Potential nesting habitat
Buteo jamaicensis Red-tailed hawk	Fed: MB CA: FP	Potential nesting habitat
Buteo Swainsoni Swainson's hawk	Fed: MB CA:ST	Potential nesting habitat
Elanus leucurus White-tailed kite	Fed: MB CA: FP	Potential nesting habitat
REPTILES		
Anniella pulchra pulchra Silvery legless lizard	Fed: None CA: SSC	Unlikely due to degree of disturbance.

Index to Codes:

MB – Protected under the federal Migratory Bird Treaty Act
FT - Federally listed Threatened
SSC - State special concern
FP - State fully protected
FE – Federally listed Endangered
ST – State listed Threatened
WL - State watch list
SA-State special animal list

Lange's metalmark butterfly

The federally listed Endangered Lange's metalmark butterfly is dependent on the presence of its host plan the Antioch Dunes buckwheat for reproduction and the other endemic plants that furnish nectar. As none of these plants were found during the reconnaissance surveys, the Lange's metalmark butterfly was deemed absent from the project area.

Silvery legless lizard

The silvery legless lizard is a subspecies of the California legless lizard, a California Species of Special Concern. It occurs primarily in areas with sandy or loose loamy soils such as under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, cottonwoods, or oaks that grow on stream terraces. Antioch is the northern limit of this species' range. The species is highly sensitive to disturbance such as sand mining and agricultural disking. Due to the level of disturbance in the project area and the fact that no silvery legless lizards were seen during the reconnaissance surveys, the species was presumed to be absent from the site.

5.0 IMPACT ANALYSIS

The proposed project would have a significant adverse impact on biological resources if it would:

Have a substantial adverse effect, either directly or through habitat modifications, on any Species identified as a candidate, sensitive, or special–status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or

Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or

Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, costal, etc.) through direct removal, filling, hydrological interruption, or other means; or

Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native nursery sites; or

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

5.1 Summary of impacts

Species effects

The proposed trenching for installation of utilities would affect already disturbed areas consisting of road shoulders, pavement, urban residential and commercial properties, vineyards and ruderal, non-native annual grassland, habitats without any wetland features. While most trees will be avoided, some trees will need to be removed to accommodate installation of utilities. Some of these will likely be 'established trees' requiring a tree removal permit in compliance with the City of Antioch tree ordinance. Any such removal of regulated trees will be compensated by native plantings for screening of utility line-related features. Trenching during the nesting period could cause the adults to abandon the nest or cause the loss of nestlings. Avoidance measures such as removal of trees prior to the start of nesting season or preconstruction surveys if work must be performed within the nesting season will reduce this effect to less than significant level under CEQA.

East Contra Costa County Habitat Conservation Plan/Natural Communities Conservation Plan (HCP)

Although the proposed annexation area is within the HCP inventory area, it consists largely of urban development with a few small scattered agricultural parcels. (Figure 4). The HCP defines urban sites as those areas where the native vegetation has been cleared for residential, commercial, industrial, transportation, or recreational structures; and does not consider them as habitat for 'covered' (special-status species covered under the HCP) species (HCP 2007). In addition, the isolated agricultural parcels contribute little due to their fragmented occurrence and lack of connectivity to occupied habitats. For these reasons annexation to the City will have no effect on implementation of the HCP.

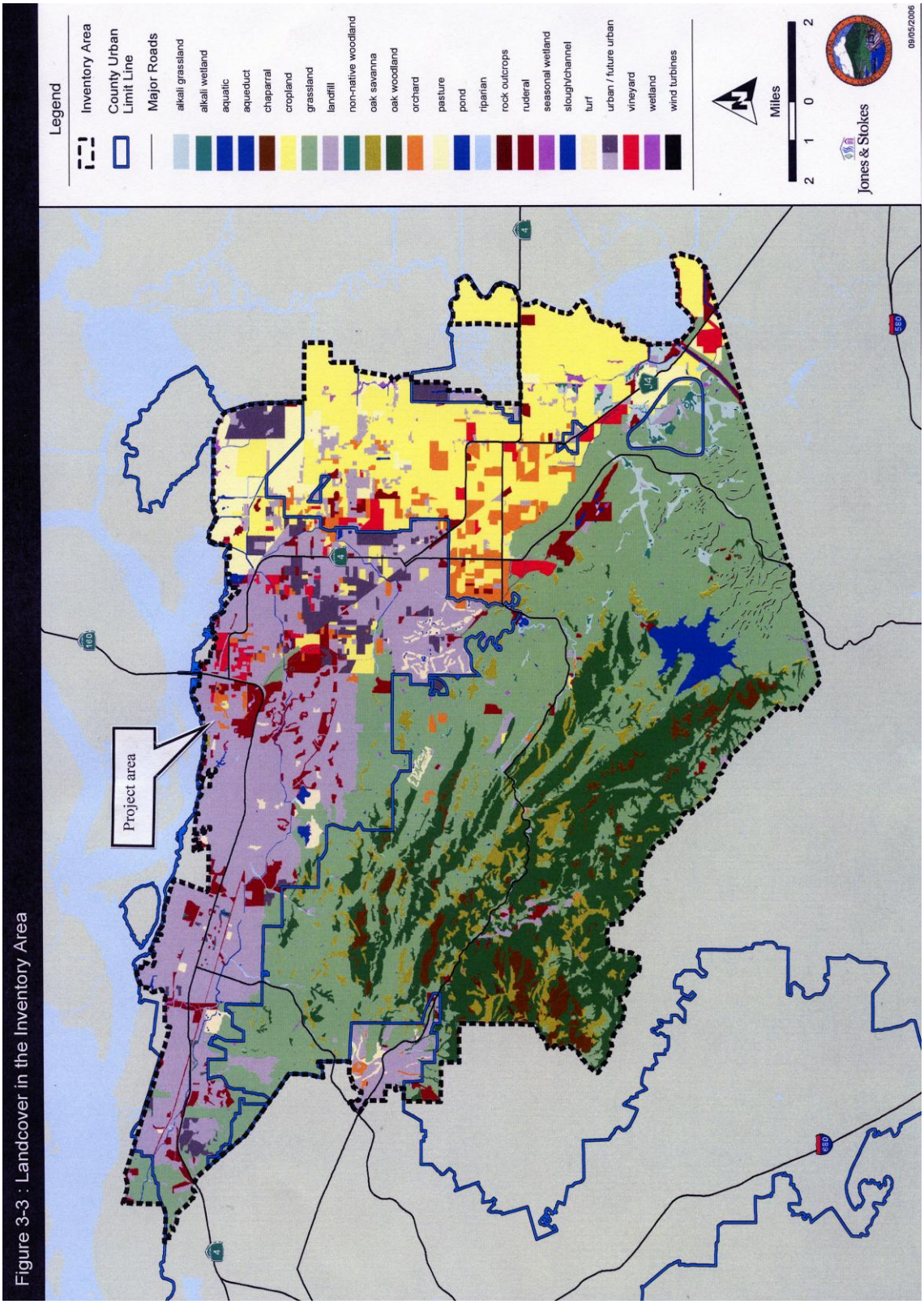


Figure 4-HCP inventory area in relation to the project area

5.2 Avoidance and minimization measures

BIO-1A: Swainson's Hawk

The Swainson's hawk is a State listed Threatened migratory bird known to have nested approximately one (1) mile south of the area. Some of the larger trees along the proposed utility line routes are of suitable-size for nesting for the species. The Swainson's hawk one of the longest traveling migrant birds wintering as far south as Argentina and nesting in the western U.S. In California, most nesting occurs in the Central Valley from Fresno to Redding. The few number of nests in Contra Costa County are the furthest west extension of that population.

During the nesting season (March 1-September 15), a qualified biologist shall conduct a preconstruction survey no more than 14 days prior to ground disturbance, to establish whether Swainson's hawk nests within 0.25-mile of the project area are occupied. If potentially occupied nests exist within 0.25 mile of the project area, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project area. If active Swainson's hawk nests are identified during these pre-construction surveys, no construction activities shall occur during the nesting season within 0.25-mile of occupied nests or nests under construction, unless CDFG/USFWS agree to a smaller buffer based on environmental conditions such as steep topography or dense vegetation. If the biologist determines that the young have fledged prior to September 15, construction activities can proceed normally.

BIO-1B: Western Burrowing Owl

Prior to the start of the breeding season (February 1), a USFWS/CDFG-approved biologist will conduct preconstruction surveys of the project area to determine the presence of burrowing owls. If present, the birds will be evicted from the site using passive relocation techniques. The site will then be continuously monitored until the start of construction in order to ensure that owls do not reoccupy the area. All surveys and passive relocation will be carried out in accordance with CDFG survey guidelines (California Department of Fish and Game 1993). Passive relocation procedures include installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure will be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

BIO 1C: Other protected raptors

If project construction is scheduled to begin during the breeding season (February 1-August 31), preconstruction surveys will be conducted within the project area and a 300-foot buffer, by a qualified biologist no more than two weeks prior to equipment or material staging, or surface-disturbing activities. If no active nests are found within the project footprint and a 300-foot buffer, no further mitigation is necessary.

If active nests (i.e. nests in the egg laying, incubating, nestling or fledgling stages) are found within 300 feet of the project footprint, non-disturbance buffers should be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the nesting pair's tolerance to disturbance and duration of potential disturbance. No work should occur within the non-disturbance buffers until the young have fledged as determined by a qualified biologist, Buffer size should be determined in cooperation with the California Department of Fish and Game and the U. S. Fish and Wildlife Service. If buffers are established and it is determined that project activities are resulting in nest disturbance, work should cease immediately and the California Department of Fish and Game and the U.S. Fish and Wildlife Service should be contacted for further guidance.

BIO 2A: Regulated Trees

After staking of the utility alignment an International Society of Arboriculture (ISA) Certified Arborist shall conduct a tree survey to determine which, if any of the trees to be removed are subject to the City tree ordinance. If regulated trees are found they will be marked with round numbered aluminum tags and tallied as to their species, diameter at breast height (DBH) and condition.

6.0 PERMITTING

As the project will have no affect on waters and wetlands, permits from the USACE 404 (fill of waters and wetlands); RWQCB 401 (Water Quality Certification), and CDFG 1603 (Streambed Alteration Agreement) will not be required.

6.1 State water resources control board (SWRCB)

The project will need to comply with the National Pollution Discharge Elimination System (NPDES) permit requirements of the California State Water Resources Control Board and the requirement for preparation of a Storm Water Pollution Prevention Plan (SWPPP) as required by the RWQCB under the Contra Costa County Storm water Management Plan (CCCSWMP) Section C-3.

6.2 Local permitting

The project will likely require a City of Antioch tree removal permit and compensation for trees removed in the following regulated groups as stated in the City of Antioch tree ordinance at Title 9, Chapter 5, Article 12, City of Antioch, 2008. A permit must be obtained to remove any: "established tree" (any tree at least ten inches in diameter at breast height [dbh]), any "mature tree" (any tree at least 26 inches dbh), or any "landmark tree" (any tree at least 48 inches dbh or in excess of 40 feet in height).

7.0 APPENDICES

APPENDIX A

Special-Status Plants Potential for Occurrence at the Project Site

APPENDIX A

SPECIAL-STATUS PLANTS CONSIDERED FOR POTENTIAL OCCURRENCE AT THE PROJECT SITE

Family **Scientific Name** **Common Name**	**Status**[1]	**Habitat Affinities and Reported Localities in the Project Area**	**Blooming Period/ Life Form**	**Habitat** **Present/Absent**
Apiaceae				
Lilaeopsis masonii Mason's lilaeopsis	Federal SC State CR CNPS 1B:2-2-3	Intertidal brackish and freshwater marshes along stream banks. Recorded in the San Joaquin and Sacramento River Delta and lower Napa River channel.	April-Oct Perennial herb	Absent
Asteraceae				
Aster lentus Suisun Marsh aster	Federal SC State CEQA CNPS 1B:2-2-3	Freshwater and brackish marshes. Known from the Napa River and San Joaquin/Sacramento River Delta.	May-Nov Perennial herb	Absent
Balsamorhiza macrolepis var. *macrolepis* big-scale balsamroot	Federal none State CEQA CNPS 1B:2-2-3	Cismontane woodland, Valley/foothill grassland, sometimes on serpentinite. Occurs from the Bay Area to the northern Sacramento Valley and Sierra foothills.	March-June Perennial herb	Absent, would have been detectable

Blepharizonia plumosa ssp. *plumosa* big tarplant	Federal State CNPS	none CEQA 1B:3-3-3	Valley/foothill grasslands, on dry sites. Extant in Alameda and Contra Costa counties. Believed extirpated in San Joaquin, Stanislaus and Solano counties.	July-Oct Annual herb	Absent,would have been detectable
Helianthella castanea Diablo helianthella	Federal State CNPS	SC CEQA 1B:3-2-3	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and Valley/foothill grassland. Occurs in Alameda, Contra Costa and San Mateo counties; presumed extirpated in Marin and San Francisco counties.	April-June Perennial herb	Absent
Isocoma arguta Carquinez goldenbush	Federal State CNPS	SC CEQA 1B:3-3-3	Valley/foothill grasslands, on alkaline sites. Restricted to Contra Costa and Solano counties in the vicinity of the Carquinez Straits.	Aug-Dec Perennial shrub	Absent
Lasthenia conjugens Contra Costa goldfields	Federal State CNPS	FE CEQA 1B:3-3-3	Mesic sites in Valley/foothill grassland, vernal pools. Restricted to Napa and Solano counties; presumed extirpated in Alameda, Contra Costa, Mendocino, Santa Barbara and Santa Clara counties.	Mar-June Annual herb	Absent, would have been detectable
Madia radiata showy madia	Federal State CNPS	none CEQA 1B:2-3-3	Valley/foothill grasslands below 250 feet, and cismontane woodland. Occurs throughout the Central Coast and Central Valley. Presumed extirpated in Contra Costa County.	March-May Annual herb	Absent, would have been detectable
Senecio aphanactis rayless ragwort	Federal State CNPS	none CEQA 2:3-2-1	Coastal scrub and cismontane woodland on alkaline soils. Known from the South Coast, Central Coast, Central Valley and San Francisco Bay.	Jan-April Annual herb	Absent, would have been detectable

Boraginaceae

Amsinckia grandiflora large-flowered fiddleneck	Federal State CNPS	FE CE 1B:3-3-3	Cismontane woodland, Valley/foothill grassland. Known from only three natural occurrences in Alameda, Contra Costa and San Joaquin counties.	April-May Annual herb	Absent, would have been detectable
Plagiobothrys hystriculus bearded popcorn-flower	Federal State CNPS	none CEQA 1A	Vernal pools and mesic Valley/foothill grassland. Presumed extinct. Endemic to Solano County.	April-May Annual herb	Absent,would have been detectable
Brassicaceae					
Erysimum capitatum ssp. *angustatum* Contra Costa wallflower	Federal State CNPS	FE CE 1B:3-3-3	Stabilized interior dunes. Known from only two occurrences on the dunes east of Antioch, along the San Joaquin River.	Mar-July Perennial herb	Absent. would have been detectable
Tropidocarpum capparideum caper-fruited tropidocarpum	Federal State CNPS	SC CEQA 1A	Valley/foothill grasslands (alkaline hills). Known historically from Alameda, Contra Costa, Glenn, Monterey, Santa Clara and San Joaquin counties; presumed extinct. Last seen in 1957.	Mar-April Annual herb	Absent
Campanulaceae					
Downingia pusilla dwarf downingia	Federal State CNPS	none CEQA 2:1-2-1	Mesic sites in Valley/foothill grassland and vernal pools. Occurs from Sonoma and Napa counties through the Sacramento Valley and Sierra foothills.	Mar-May Annual herb	Absent
Chenopodiaceae					
Atriplex joaquiniana San Joaquin spearscale	Federal State CNPS	SC CEQA 1B:2-2-3	Chenopod scrub, Valley/foothill grassland and alkali meadows. Occurs from Solano County throughout the Sacramento and San Joaquin valleys. Presumed extirpated in Santa Clara, San Joaquin and Tulare counties.	April-Sept. Annual herb	Absent,would have been detectable
Ericaceae					
Arctostaphylos auriculata Mt. Diablo manzanita	Federal State CNPS	none CEQA 1B:3-1-3	Chaparral, in canyons and on slopes, on sandstone. Known only from Mt. Diablo area in Contra Costa County.	Jan-March Evergreen shrub	Absent
Fabaceae					

Lathyrus jepsonii var. *jepsonii* Delta tule pea	Federal State CNPS	SC CEQA 1B:2-2-3	Freshwater and brackish marshes. Occurs throughout the Sacramento San Joaquin River delta, San Francisco Bay and Central Valley.	May-Sept Perennial herb	Absent
Geraniaceae					
Erodium macrophyllum Round-leaved filaree	Federal State CNPS	none none 2	Cismontane woodland; valley and foothill grassland	Mar-June Annual herb	Absent, would have been detectable
Lamiaceae					
Scutellaria lateriflora blue skullcap	Federal State CNPS	none CEQA 2:3-2-1	Mesic meadows, marshes and swamps. Reported from Inyo and San Joaquin counties, to New Mexico and Oregon. Known from only two occurrences in California.	July-Sept perennial herb (rhizomatous)	Absent
Liliaceae					
Calochortus pulchellus Mt. Diablo fairy-lantern	Federal State CNPS	none CEQA 1B:2-2-3	Chaparral, cismontane woodland, Valley/foothill grassland. Known from Contra Costa and possibly Solano counties.	April-June Perennial herb (bulbiferous)	Absent
Fritillaria liliacea fragrant fritillary	Federal State CNPS	SC CEQA 1B:1-2-3	Coastal prairie, coastal scrub, Valley/foothill grassland near the coast, on clay or serpentinite. Known from throughout the Central Coast from Sonoma to Monterey counties and the San Francisco Bay Area.	Feb-April Perennial herb (bulbiferous)	Absent
Linaceae					
Hesperolinon breweri Brewer's western flax	Federal State CNPS	SC CEQA 1B:2-2-3	Chaparral, cismontane woodlands, Valley/foothill grassland, mostly on serpentinite. Found in Napa, Solano, and Contra Costa counties.	May-July Annual herb	Absent
Malvaceae					
Hibiscus lasiocarpus rose-mallow	Federal State CNPS	none CEQA 2:2-2-1	Freshwater marshes. Restricted to the Sacramento-San Joaquin River Delta.	June-Sept Perennial herb (rhizomatous)	Absent

	Federal	FE	Remnant river bluffs and interior sand dunes.	Mar-Sept	Absent, would have
Oenothera deltoides ssp howellii	State	CE	Known from seven occurrences among the dunes	Perennial herb	been detectable
Antioch Dunes evening-primrose	CNPS	1B:3-3-3	east of Antioch.		
Papaveraceae					
Eschscholzia rhombipetala	Federal	SC	Valley/foothill grassland on clay soils. Presumed	Mar-April	Absent, would have
diamond-petaled California poppy	State	CEQA	extinct. Known historically from Alameda, Contra	Annual herb	been detectable
	CNPS	1A	Costa, Colusa, San Luis Obispo and Stanislaus counties. Last seen in 1950.		
Polygonaceae					
Eriogonum truncatum	Federal	none	Chaparral, coastal scrub, Valley/foothill grassland	April-Sept	Absent
Mt. Diablo buckwheat	State	CEQA	on sandy soils. Presumed extinct, but found in	Annual herb	
	CNPS	1A	2005 on Mt. Diablo, Contra County.		
Potamogetonaceae					
Potamogeton zosteriformis	Federal	none	Assorted freshwater marshes and swamps. Known	June-July	Absent, would have
eel-grass pondweed	State	CEQA	from Contra Costa, Lake counties, Modoc, Lassen,	Annual herb	been detectable
	CNPS	2:2-2-1	and Shasta counties and Washington and Oregon.	(aquatic)	
Scrophulariaceae					
Cordylanthus mollis ssp. *mollis*	Federal	FE	Coastal saltmarsh. Known from fewer than 10	July-Sept	Absent
soft bird's-beak	State	CR	locations in Contra Costa, Napa, and Solano	Annual herb	
	CNPS	1B:3-2-3	counties. Extirpated in Marin and Sonoma counties.	(hemiparasite)	
Limosella subulata	Federal	none	Marshes and swamps, muddy or sandy intertidal	May-Aug	Absent
Delta mudwort	State	CEQA	flats in the Sacramento and San Joaquin river	Perennial herb	
	CNPS	2:2-3-1	deltas.	(stoloniferous)	

[1]Explanation of sensitivity status codes provided in Appendix B.

APPENDIX B

WILDLIFE SPECIES CONSIDERED FOR POTENTIAL OCCURRENCE AT THE PROJECT SITE

Scientific Name Common Name	Status[1]		Habitat Affinities and Reported Localities in the Project Area	Potential for Occurrence On Site
Amphibians				
Ambystoma californiense California tiger salamander	Federal State	FT CSC	Breeds in temporary or semi-permanent pools. Seeks cover in rodent burrows in grasslands and oak woodlands. Inhabits the Coast Ranges from Santa Barbara to Sonoma counties along the coast and inland to Colusa, Yolo and Tulare counties.	No breeding habitat
Rana draytonii California red-legged frog	Federal State	FT CSC	Prefers semi-permanent and permanent stream pools, ponds and creeks with emergent and/or riparian vegetation. Occupies upland areas especially during the wet winter months.	No breeding habitat
Reptiles				
Anniella pulchra pulchra silvery legless lizard	Federal State	none CSC	Inhabits sparsely vegetated areas on beaches and in chaparral, oak woodlands and riparian. Needs loose soils for burrowing (sand, loam or humus), moisture, warmth and plant cover. Burrows in washes, dune sand and loose soils at the base of slopes or in intermittent streams. Forages in leaf litter during the day, but may emerge on the surface at dusk or night.	Unlikely, no suitable habitat and previous records are all north of the site in dune-type habitat
Clemmys marmorata marmorata north western pond turtle	Federal State	none CSC	Prefers permanent, slow-moving creeks, streams, ponds, rivers, marshes and irrigation ditches with basking sites and a vegetated shoreline. Requires sandy soils for egg-laying. Occurs from the Oregon border to the San Francisco Bay, inland throughout the Sacramento Valley and south along the coastal zone to San Diego County.	No breeding habitat

Masticophis flagellum ruddocki San Joaquin whipsnake	Federal State	none CSC	Inhabits a variety of habitats, with sparse vegetation. Uses rodent burrows, rocks or bushes for refugia.	Unlikely. No records from the vicinity
Masticophis lateralis euryxanthus Alameda whipsnake	Federal State	FT ST	Restricted to chaparral and coastal scrub of the Coast Ranges, inhabits appropriate habitat on south, southwest- and southeast-facing slopes and ravines where the shrubs form a vegetative mosaic with grasses. Requires rodent burrows and large population of *Sceloporus occidentalis*.	Unlikely, no suitable habitat
Thamnophis gigas giant garter snake	Federal State	FT CT	Inhabits sloughs, canals and small water courses with grassy banks and emergent vegetation. Requires high ground for basking and escape during winter flooding. Known from the Central Valley from Fresno north to the Sutter Buttes.	Unlikely, closest sightings are only from habitats directly connected with the San Joaquin River.

Birds

Agelaius tricolor tricolored blackbird	Federal State Audubon	MB CSC none	Nests primarily in dense freshwater marshes with cattail or tules. Forages in grasslands. Largely endemic to California. Permanent resident in the Central Valley and along the coast from Marin to San Diego counties. Also known from Lake, Sonoma and Solano counties. Grasslands provide suitable foraging habitat only.	Unlikely, would have been detectable during surveys
Athene cunicularia burrowing owl	Federal State Audubon	MB CSC Blue list	Open, dry grasslands, deserts, prairies, farmland and scrublands with abundant active and abandoned mammal burrows. Occurs in lowlands throughout California.	Present
Bubo virginianus great horned owl	Federal State Audubon	MB none none	Nests in large trees using twigs and branches for nesting material. Forages on small mammals, reptiles and birds.	Potential to nest in the larger trees
Buteo jamaicensis red-tailed hawk	Federal State Audubon	MB none none	Nests in trees in stick nests. Forages on small mammals.	Foraging potential only. No suitable nesting habitat.
Buteo swainsoni Swainson's hawk	Federal State Audubon	MB CT none	Nests in oaks or cottonwoods in or near riparian habitat. Forages in grasslands and agricultural fields. Highest nesting densities are in Yolo County. Relatively common throughout the lower Sacramento and San Joaquin valleys.	Unlikely, prefers taller trees for nesting

Circus cyaneus northern harrier	Federal State Audubon	MB CSC none	Nests and forages in grasslands. Nests on ground in shrubby vegetation or dense grass, usually at the edge of marshes.	Unlikely, No habitat present
Elanus leucurus white-tailed kite (nesting sites only)	Federal State Audubon	MB CFP none	Inhabits low rolling foothills and valley margins with scattered oaks and river bottom- lands or marshes adjacent to deciduous woodlands. Prefers open grasslands, meadows and marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Potential nester.
Riparia riparia bank swallow (nesting colonies only)	Federal State Audubon	none CT none	Nests in colonies on sandy cliffs near water, marshes, lakes and streams. Forages in fields. Largest remaining populations occur along the Sacramento River from Tehama to Sacramento counties.	No habitat present
Mammals				
Antrozous pallidus pallid bat	Federal State	none CSC	This colonial species roosts in small colonies of 20 or more individuals in caves, mines, rock piles, tree cavities and occasionally buildings. Night roosts may be in more open sights, such as porches and open buildings. They forage mostly in open habitats.	No reproductive habitat present.
Lasiurus borealis *Red bat*	Federal State:	None CSC	A riparian obligate roosting in dense forest and foraging along the forest edge.	No repoductive habitat present.
Perognathus inornatus inornatus San Joaquin pocket mouse	Federal State	none none	Inhabits grassland and scrub habitats in Central and San Joaquin Valleys.	No habitat present.
Vulpes macrotis mutica San Joaquin kit fox	Federal State	FE CT	Range includes annual grassland, saltbush scrub and oak savanna at the valley/mountain interface.	Possible although den sites appear too small.

[1] Explanation of sensitivity status codes:

Absent means habitat not present. Unlikely means that the species would have been detectable, or habitat conditions appear to be unsuitable. Present [P] means general habitat is present and species may be present. Status: Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT); Federal Candidate (FC); State Endangered (SE); State Threatened (ST); Fully Protected ((FP); State Rare (SR); State Species of Special Concern (SSC); California Native Plant Society (CNPS 1B) (Plants rare, threatened, or endangered in California and elsewhere).

APPENDIX C – PLANTS OBSERVED ON THE PROJECT SITE

* = non-native taxa

FAMILY NAME	SCIENTIFIC NAME	COMMON NAME
Asteraceae	*Baccharis pilularis*	coyote brush
	**Carduus pycnocephalus*	Italian thistle
	**Centaurea solstitialis*	yellow star-thistle
	**Cirsium vulgare*	bull thistle
	**Chamomilla suaveolens*	pineapple weed
	**Lactuca serriola*	prickly lettuce
	Heterotheca grandiflora	telegraph weed
	**Picris echioides*	bristly ox-tongue
	**Sonchus asper ssp. asper*	sow thistle
Boraginaceae	*Amsinckia menziesii var. intermida*	fiddleneck
Brassicaceae	**Brassica nigra*	black mustard
	**Raphanus sativus*	wild radish
Chenopodiaceae	**Salsola tragus*	Russian-thistle
Convolvulaceae	**Convolvulus arvensis*	field bindweed
Fabaceae	*Lotus purshianus var. purshianus*	Spanish-clover
	**Medicago polymorpha*	burclover
	**Melilotus indica*	sourclover
	Trifolium hirtum	rose clover
	Vicia villosa ssp. villosa	hairy vetch
Geraniaceae	**Erodium botrys*	long-beaked filaree
	**Erodium cicutarium*	filaree
	**Geranium dissectum*	cut-leaved geranium
Malvaceae	**Malva parviflora*	cheeseweed
Myrtaceae	*Eucalyptus* sp.	eucalytus
Poaceae	**Avena fatua*	wild oats
	**Bromus diandrus*	rip gut brome
	**Bromus hordeaceus*	soft chess
	**Lolium multiflorum*	Italian rye grass

APPENDIX D

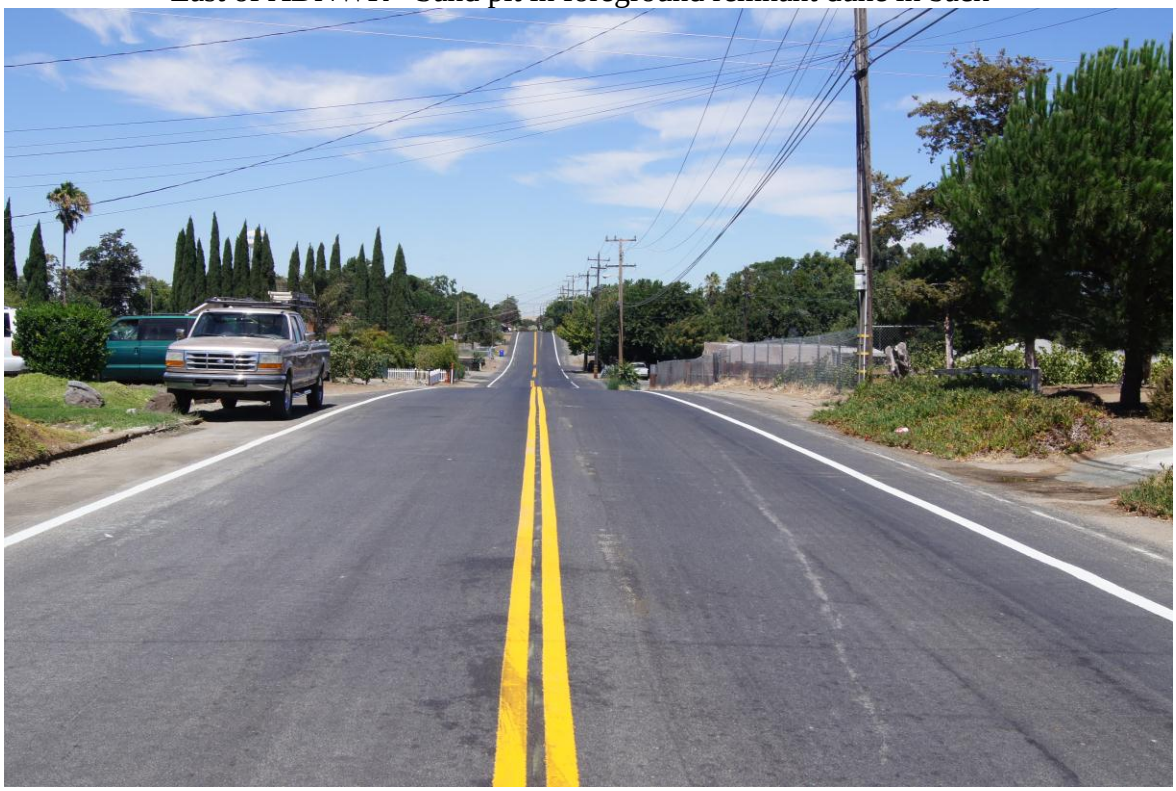
ANIMALS OCCURRING IN THE PROJECT AREA

SCIENTIFIC NAME	COMMON NAME
BIRDS	
Aphelocoma coerulescens	Western scrub jay
Callipepla californica	California quail
Cathartes aura	Turkey vulture
Corvus brachyrhynchos	American crow
Petrochelidon pyrrhonota	Cliff swallow
Zenaidura macroura	Mourning dove
MAMMALS	
Lepus californicus	Black-tailed jackrabbit
Microtus californicus	California vole
Otospermophilus beecheyi	California ground squirrel
Thomomys bottae	Botta's pocket gopher
REPTILES	
Sceloporus occidentalis	Western fence lizard

APPENDIX E

Photograph of the Project Area

East of ADNWR - Sand pit in foreground remnant dune in back



Looking north along Vierra Avenue

Vineyards in the PG&E easement

Ruderal (weedy) vegetation typical of disturbed ground

APPENDIX G

CULTURAL RESOURCES ASSESSMENT REPORT

CULTURAL RESOURCES ASSESSMENT REPORT

Northeast Antioch Reorganization

Antioch, Contra Costa County, California

PREPARED FOR:

CirclePoint
1814 Franklin Street, Suite 1000
Oakland, CA 94612

PREPARED BY:

William Self Associates, Inc.
PO Box 2192
Orinda, CA 94563

WSA

July 2012

CULTURAL RESOURCES ASSESSMENT REPORT

Northeast Antioch Reorganization

Antioch, Contra Costa County, California

PREPARED BY:

Matthew A. Russell, Ph.D., RPA and Nazih Fino, M.A.

SUBMITTED BY:

James M. Allan, Ph.D., RPA, Principal Investigator

WSA PROJECT NO. 2012-44
WSA REPORT NO. 2012-26

July 2012

Cover Photo: Richard Trembath headstone, Oak View Memorial Park (California Find A Grave Index 2011)

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Management Summary

William Self Associates, Inc. (WSA) has been contracted by CirclePoint to perform a cultural resource assessment of the proposed Northeast Antioch Reorganization Project (project). The proposed project will improve utilities infrastructure by installing water lines, sewer lines and storm drains within existing public rights-of-way in the area designated as Area 2B of the Northeast Antioch Reorganization Project, Antioch, Contra Costa County, California. The project must comply with the cultural resources provisions of the California Environmental Quality Act (CEQA), and WSA prepared this report pursuant to those requirements.

WSA implemented a records search, conducted by the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California, of a ¼-mile radius surrounding the proposed project area. Results indicate that one historical archaeological site and one historic structure have been previously recorded within the project area, and two additional historic structures have been previously recorded within ¼-mile of the project area. WSA recommends avoiding recorded cultural resources within the project area to reduce potential impacts.

WSA contacted the Native American Heritage Commission (NAHC) in Sacramento with a description of the proposed project and a request to review the Sacred Lands file for information on traditional or cultural lands within the project area, and for a listing of local, interested Native American representatives. WSA contacted the individuals or tribal members on the contact list via letter to solicit input and comment regarding individual knowledge about sacred sites or traditional lands within the project area. Follow-up phone calls were made, as necessary.

To evaluate potential impacts to archaeological resources in the project area, WSA created an archaeological sensitivity model to assess the potential for buried archeological deposits. Archaeological sensitivity within the project area was found to be mostly low or moderate, with a small area of high sensitivity in the southwestern corner of the project area. Although these results indicate the majority of the project area has a low to moderate potential to contain archaeological remains, WSA recommends monitoring of ground-disturbing activities within the area of high sensitivity.

This Cultural Resources Assessment Report (CRAR) presents the results of the records search and Native American consultation, describes the results of the archaeological sensitivity analysis of the project area, and proposes recommendations for avoiding potential impacts to cultural resources. As planned, the proposed project will not have a substantial adverse change in the significance of any recorded historic properties, historical resources, or unique archaeological resources. Should any previously unknown cultural resources be discovered during construction, their significance would have to be determined in relation to the criteria for eligibility for the California Register of Historic Places (CRHP).

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1.0 Introduction

William Self Associates, Inc. (WSA) has been contracted by CirclePoint to perform a cultural resource assessment of the proposed Northeast Antioch Reorganization Project (project). The proposed project will improve utilities infrastructure by installing water lines, sewer lines and storm drains within existing public rights-of-way in the area designated as Area 2B of the Northeast Antioch Reorganization Project, Antioch, Contra Costa County, California. The City of Antioch is the lead agency for the project.

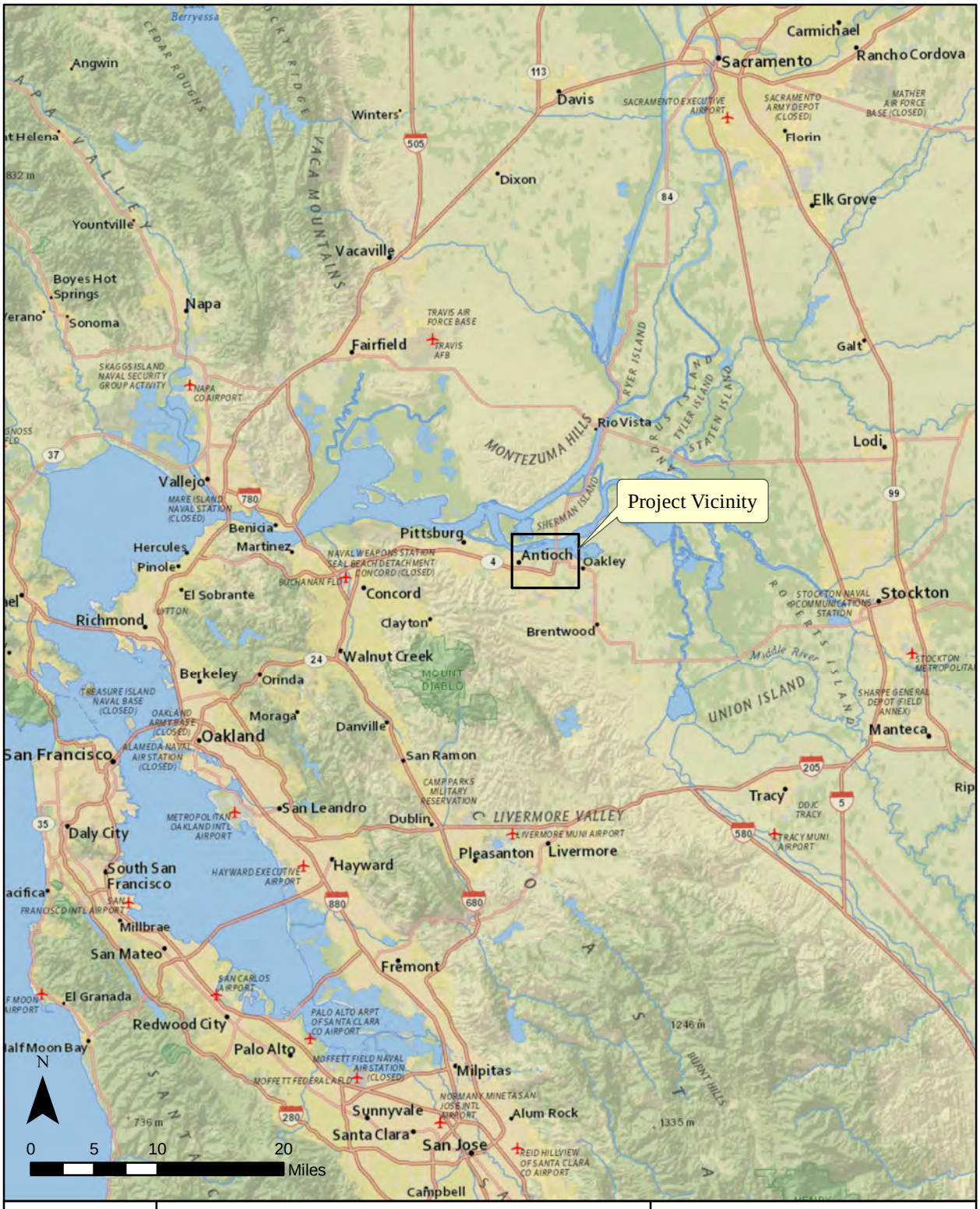
WSA implemented a records search, conducted by the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park, California, of a ¼-mile radius surrounding the proposed project area. Results indicate that one historical archaeological site and one historic structure have been previously recorded within the project area, and two additional historic structures have been previously recorded within ¼-mile of the project area. No sites or buildings located within ¼-mile of the project area are listed in the Office of Historic Preservation (OHP) Historic Properties Directory.

As required under the CEQA guidelines, WSA contacted the Native American Heritage Commission (NAHC) in Sacramento with a description of the proposed project and a request to have the Commission review their Sacred Lands file for information on traditional or cultural lands within the project area, and for a listing of local, interested Native American representatives. WSA contacted the individuals or tribal members on the contact list via letter, provided a description of the project and project area maps, and solicited input and comment regarding individual knowledge about sacred sites or traditional lands within the project area. Follow-up phone calls were also made.

To evaluate impacts to archaeological resources that might occur through project implementation, WSA created an archaeological sensitivity model of the project area to assess the potential for buried archeological deposits. This Cultural Resources Assessment Report (CRAR) presents the results of the records search and Native American consultation, describes the results of the archaeological sensitivity analysis of the project area, and proposes recommendations for reducing potential impacts to cultural resources.

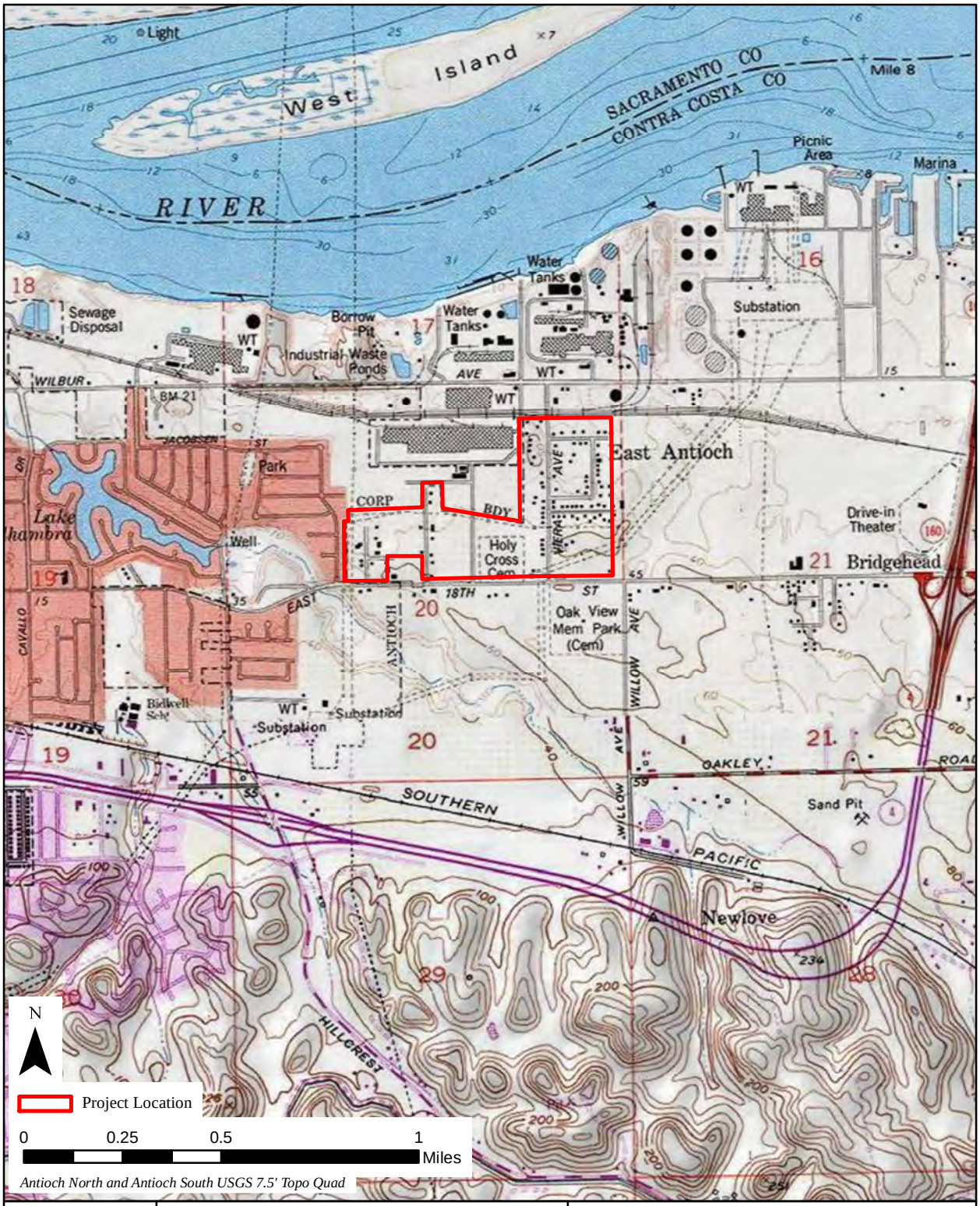
1.1 Project Location and Description

The proposed project is located on a 108-acre parcel of unincorporated land designated as Area 2B of the Northeast Antioch Reorganization in the City of Antioch, Contra Costa County, California. The proposed project area is situated in Township 2 North, Range 2 East in Section 20, as depicted on the 1978 Antioch North, California 7.5-minute USGS topographic quadrangle (Figures 1-3). The project parcel is a mixture of residential properties, agricultural land, and a



WSA	Project Vicinity Map	Figure 1 Northeast Antioch Reorganization CirclePoint Antioch, CA

WSA	Project Area Map	Figure 2 Northeast Antioch Reorganization CirclePoint Antioch, CA



WSA

Project Location Map

Figure 3
Northeast Antioch Reorganization - Area 2B
CirclePoint
Antioch, CA

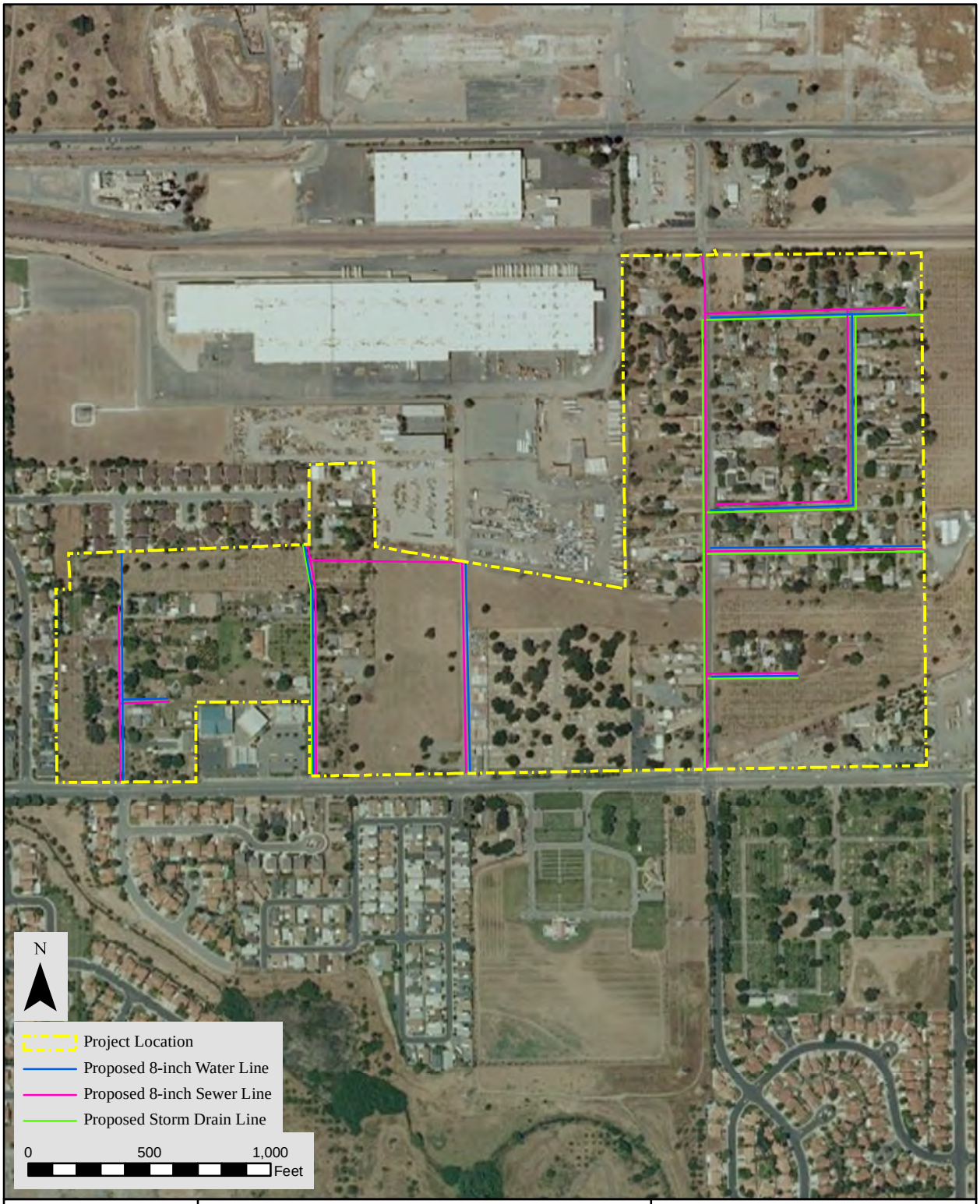
cemetery established in the late 19th century. The City of Antioch plans to annex the unincorporated parcel of land. The proposed project will improve utilities infrastructure within existing public rights-of-way by installing water lines, sewer lines, and storm drains in a number of locations within the project area (Figure 4). Ground disturbance from the project will be limited to subsurface installation of utilities within public rights-of-way. No existing structures or standing architecture will be impacted.

2.0 State Regulatory Context

This section describes the state regulatory setting for cultural resources within the project area. CEQA details appropriate measures for the evaluation and protection of cultural resources in §15064.5 of the CEQA Guidelines. For the purposes of CEQA, "historical resources" are those cultural resources that are: (1) listed in or eligible for listing in the California Register of Historical Resources; (2) listed in a local register of historical resources (as defined in Public Resources Code [PRC] 5020.1(k)); (3) identified as significant in a historical resource survey meeting the requirements of §5024.1(g) of the PRC; or (4) determined to be a historical resource by a project's lead agency (§15064.5(a)). The subsection further states that "A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (§15064.5(b)).

CEQA applies to effects on archaeological sites (§15064.5(c)). CEQA requires a lead agency to determine if an archaeological resource fits into one of three legal categories (14 CCR §15064.5(c)(1-3)). A lead agency, in this case the City of Antioch, applies a two-step screening process to determine if an archaeological site meets the definition of a historical resource, a unique archaeological resource, or neither. Prior to considering potential impacts, the lead agency must determine whether a cultural resource meets the definition of a historical resource in §15064.5(a). If the cultural resource meets the definition of a historical resource, then it is treated like any other type of historical resource in accordance with §15126.4. If the cultural resource does not meet the definition of a historical resource, then the lead agency applies the second criterion to determine if the resource meets the definition of a unique archaeological resource as defined in §21083.2(g). Should the archaeological site meet the definition of a unique archaeological resource, it then must be treated in accordance with §21083.2. If the archaeological site does not meet the definition of a historical resource or a unique archaeological resource, then effects to the site are not considered significant effects on the environment (§15064.5(c)(4)).

In addition to CEQA, PRC §5097.5 also provides for the protection of cultural resources. PRC §5097.5 prohibits the removal, destruction, injury, or defacement of cultural features on any lands under the jurisdiction of State or local authorities.



WSA

Proposed Utilities Installation
in the Project Area

Figure 4
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

3.0 Project Setting

3.1 Environmental Setting

The project area is situated on the western margin of California's Central Valley, one of two principal grassland communities that exist in California (the second being the coastal grassland, covering the middle-elevation hillsides from San Francisco to southern Oregon). Together these are known as the Pacific Prairie (Brown 1985:84).

The project area lies within the Sacramento-San Joaquin River Delta region in Contra Costa County. This area is characterized by low elevations (the project area elevation ranges from 25 to 50 feet above sea level) and alluvial soils. Although the area once contained Valley Grassland, Freshwater Marsh, and Riparian Woodland plant and animal communities, massive alteration by human activity has significantly impacted or destroyed the majority of these habitats (Schoenherr 1995).

Annual precipitation in the region varies from 6 to 29 inches with precipitation concentrated in the fall, winter, and spring months. The average annual precipitation is less than 20 inches (Schoenherr 1995). This climate is much like that found in the Mediterranean: mild, rainy winters, and hot, dry summers. After the first rain at the end of October or early November, the vegetation becomes green and remains green, but not growing, until late February, when the grasses begin to grow rapidly. By early May, the area has usually changed to dry golden-colored grasses, and stays that way until fall.

Temperatures in the summer are high, often reaching over 38° C (100° F) (Brown 1985: 87). The combination of this climate and arable soils has proven bountiful to farmers; the extensive agricultural use of the area has resulted in the disappearance of much of the original grassland community. Grasslands persist, but the dominant species are much different from those found in the early 1800s by Anglo-European settlers (Brown 1985: 84). Vegetation includes perennial bunchgrasses, wildflowers, tules and reedlike plants, willows (*Salix*), Western Sycamore (*Platanus racemosa*), Box Elder (*Acer negundo*), Fremont Cottonwood (*Populus fremontii*), and Valley Oak (*Quercus lobata*).

A variety of animals also thrive in the various habitats in the vicinity, although some of the species that once inhabited the area are endangered or are no longer found here. Various species of birds, rodents, reptiles, amphibians, and fish, as well as mammals such as coyotes, foxes, Mule deer (*Odocoileus hemionus hemionus*) and mountain lions still inhabit the valley area. Pronghorn (*Antilocapra Americana*), Tule Elk (*Cervis slaphus nannodes*), Grizzly Bears, and Gray Wolves (*Canis lupus*) once thrived in the region, but no longer inhabit the area due to human influence (Schoenherr 1995).

In prehistory, the abundance of natural resources in the Delta supported large groups of native peoples. Extensive wetlands such as lakes, rivers, marshes, and sloughs sustained a variety of plants and animals that the native people depended on for food, medicine, and raw materials.

Beginning with the Spanish missionaries in the 1700s, the influx of European and other immigrants into the area resulted in drastic changes to the natural environment. Overgrazing by domesticated livestock, introduction of non-native species, large-scale farming, and water diversions have contributed to the degradation of the area, which has resulted in pollution of water and soils and the decline of native plant and animal species.

3.2 Paleoenvironment

3.2.1 Development of the Bay and Delta System

During the last glacial maximum, the San Francisco Bay was a broad inland valley, referred to as the "Franciscan Valley." The runoff from the Sacramento and San Joaquin Rivers converged to form the "California River" that flowed through the Carquinez Strait, into the Franciscan Valley. Runoff from smaller streams and rivers draining this valley merged into the river, and emptied into the Pacific Ocean near the current location of the Farallon Islands. The melting of the ice sheets and concurrent sea level rise pushed the California coastline eastward. Between 11,000 and 8,000 years ago, rising sea levels inundated the lower areas of the Franciscan Valley and California River. Sediments carried by the California River were deposited on the floor of the valley. Continued sea level rise resulted in the development of freshwater marshes (Praetzellis 2004:9).

Between 7,000 and 6,000 years ago there was a decline in the rate of sea level rise worldwide, and flooding of the Franciscan Valley continued more gradually. This more gradual rise permitted the development of extensive tidal-marsh deposits during the middle Holocene. It was during this period that the extensive saltwater/freshwater tidal marshland of the Sacramento-San Joaquin Delta began to develop. Large alluvial floodplains were also formed at this time as a result of accumulated materials spilling from the lower reaches of streams and river channels onto existing fans and floodplains. As a result of these changes, bay and marsh deposits grew to cover several previously stable Holocene-age land surfaces. Throughout the late Holocene, the San Francisco Bay grew in size, marshlands expanded, and large tidal mudflats and peat marshes were formed. This promoted the continued deposition of sediment around the Bay margins (Praetzellis 2004:11; Ziesing 2000:29).

Studies within the Bay region confirm that several late Pleistocene and early Holocene land surfaces were covered by alluvium that was generally deposited within the last 6,000 years. These deposits average 2 to 3 m in thickness but can exceed 10 m thick in a few areas. They often exhibit well-developed buried soil profiles (paleosols) that show a marked stratigraphic

boundary. Archaeological deposits older than 6,000 years would likely have been inundated by sea level rise and/or buried by sediment deposition (Praetzellis 2004:11).

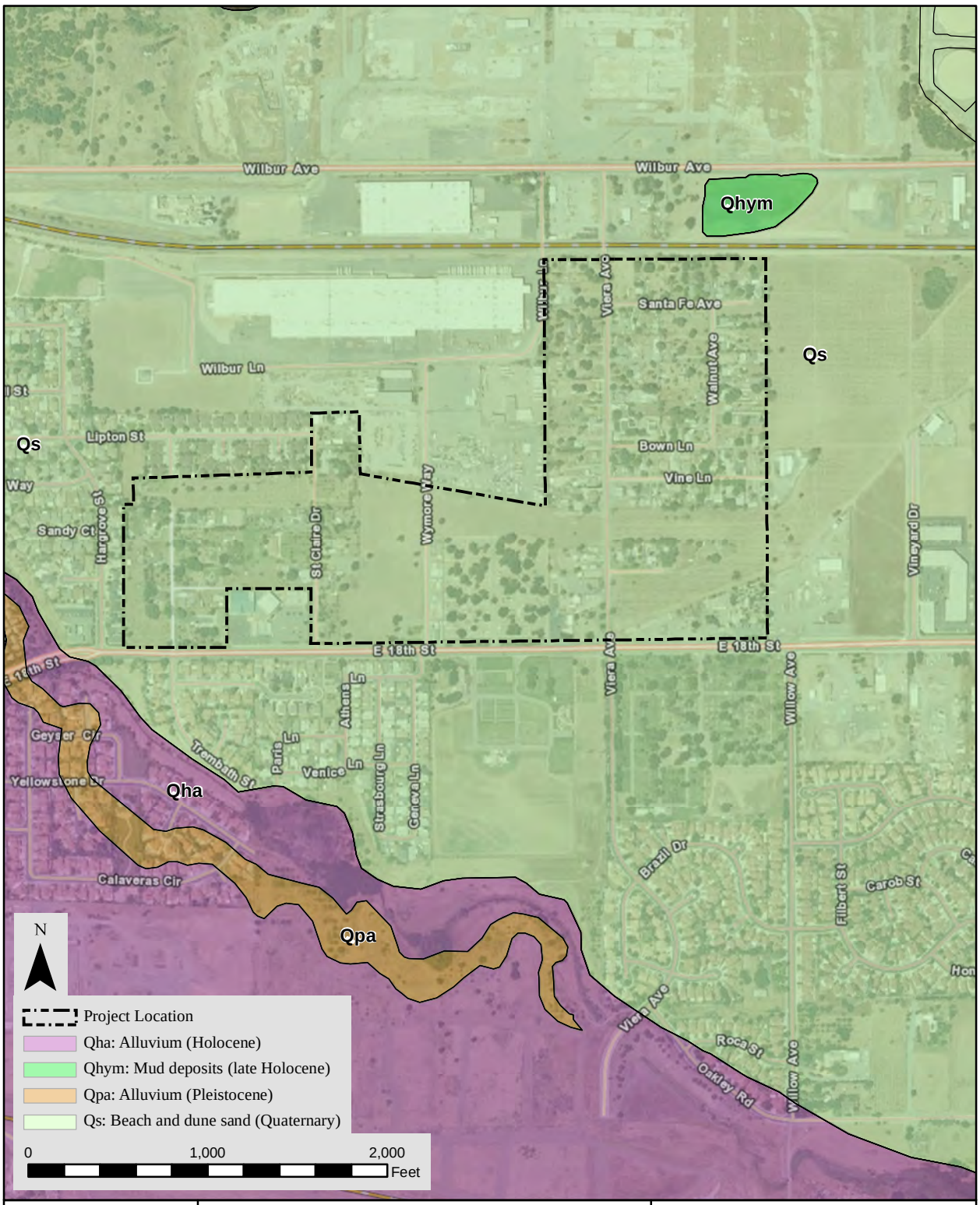
Although the timing of lowlands development surrounding the Sacramento-San Joaquin Delta is not well dated, it is thought to have followed the same basic pattern as the San Francisco Bay Area. Water, sediment, and marsh plants began to be deposited on the lowlands following a period of non-deposition during the late Pleistocene and early Holocene. This raised the base level of streams and rivers flowing into the Delta during the mid-Holocene, causing active channels to change alignments and depositing a large amount of sediment onto older land surfaces. These active channels caused the formation of large alluvial fans and levee deposits. These Holocene deposits range in thickness from an estimated 3 m near the Delta and Bay margins to approximately 15 m near the heads of alluvial fans (Meyer and Rosenthal 1997:II.7).

3.3 Geomorphology

The project area is located adjacent to the San Joaquin River as it approaches Broad Slough, New York Slough, and Suisun Bay. Suisun Bay is a shallow tidal estuary located at the confluence of the Sacramento and San Joaquin rivers that forms the entrance to the Sacramento Delta. On its western end, Suisun Bay is drained by the Carquinez Strait, which connects to San Pablo Bay, a northern extension of San Francisco Bay. The paths of the river channels may have varied in prehistory, but since historic times they have been stabilized.

A geological map of Quaternary deposits in Contra Costa County indicates the project vicinity is underlain by Pleistocene to Holocene dune sand (Qs) (Figure 5). These deposits are fine-grained, very well sorted, well-drained, eolian deposits typical of northeastern Contra Costa County. They occur mainly in two large northwest-southeast trending sheets, as well as many small hills (Helley and Graymer 1997). The Oakley-Antioch dune field, in which the project area is located, is composed of materials originating from both Sacramento and San Joaquin Rivers. Atwater (1982) suggests these dunes are likely 10,000 to 14,000 years old. Within the project vicinity, Holocene sand may discontinuously overlie late Pleistocene sand, both of which may form a mantle of varying thickness over older materials (Knudsen 2000).

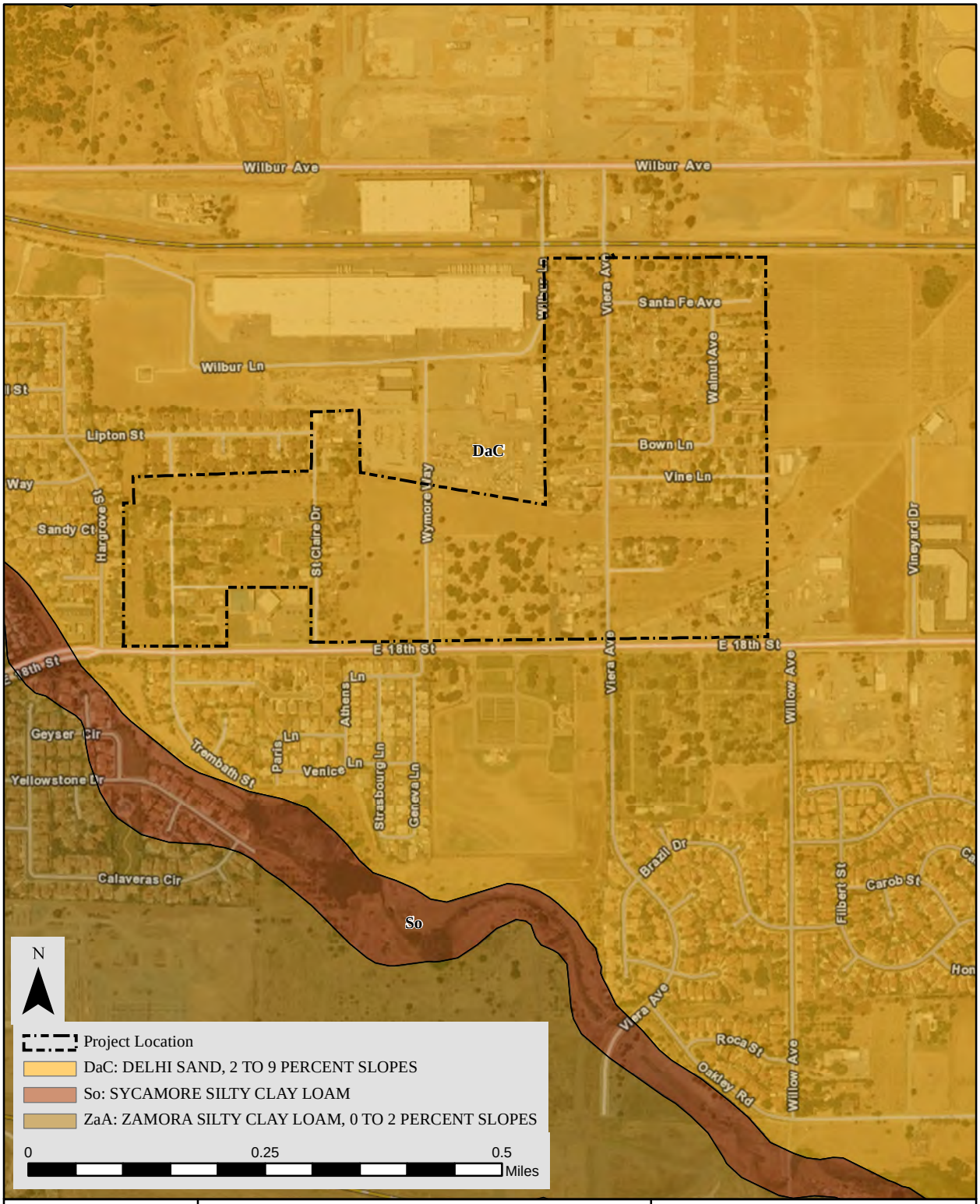
In addition to geological background, standard soil map units (phases) were also identified within the project area by the U.S. Department of Agriculture (USDA 2011) (Figure 6). In general, the USDA's soil survey map for Contra Costa County indicates that the geomorphology of the project area has been heavily influenced by the formation of the river and tidal configurations, and river flooding has deposited alluvial sands in the area that are superincumbent to the Quaternary deposits described above. According to Meyers (1996:10), paleosols (buried stable land surfaces that were potentially available for human occupation) are more likely to be found in landforms where alluvial processes are predominant, and therefore alluvial deposits have a higher sensitivity for archaeological remains than colluvial landforms.



WSA

Quaternary Deposits in the Project Area

Figure 5
Northeast Antioch Reorganization
CirclePoint
Antioch, CA



WSA

Soil Map Units in the Project Area

Figure 6
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

The archaeological sensitivity of different soil map units forms the basis for WSA's model of prehistoric archaeological sensitivity within the project area (see Section 6.0 below).

The soil survey map for Contra Costa County indicates the project area consists primarily of soils in the Delhi series (DaC), which are sandy, well drained soils (Welch 1977). These soils formed in wind-modified stream deposits of mixed origin (igneous and sedimentary rock), and are generally found on flood plains, terraces, alluvial fans. Dehli sand (2 to 9 percent slopes) is the dominant soil in the project area and its vicinity. Depth to a root restrictive layer is greater than 60 inches. Dehli sands usually show very thin A horizons with no B horizon development.[1] The sandy context is probably most responsible for the lack of B horizon development. In a representative profile, the surface layer (A horizon) is slightly acidic, brown sand or sometimes loamy sand about 5 inches thick. The C horizon substratum is yellowish-brown, slightly acidic to mildly alkaline sand or sometimes loamy sand that extends to a depth of 60 inches or more. Permeability is rapid. Runoff is slow or very slow, and the hazards of soil blowing and water erosion are slight where the soil is tilled and exposed.

Soils to the south of the project area are types of poorly drained soils that formed in alluvium from sedimentary rock. The Sycamore (So) series (0 to 2 percent slopes) is typical of alluvium on flood plains. It is made up of darker silty loam and silty clay loam deposits with well-developed A, B and C horizons. Organic matter in the surface A horizon is about 2 percent. The calcium carbonate equivalent within 40 inches, typically, does not exceed 5 percent, but may be indicative of greater age. The Zamora (ZaA) series (0 to 2 percent slopes) consists of well-drained soils found on alluvial fans and low terraces. The parent material consists of alluvium derived from sedimentary rock. It is made up of darker silty loam and silty clay loam deposits with well-developed A, B and C horizons. Organic matter content in the surface A horizon is about 3 percent.

The alluvial context of project area soils indicates a potential for buried landforms that have the possibility for archaeological deposits (Rapp and Hill 1998). Archaeological potential is significantly reduced in the immediate project area, however, due to its location adjacent to the active river channel—erosional processes related to stream cutting are detrimental to the survival of buried archaeological deposits. The sandy nature and mixed origin of sediments of the Delhi series indicates a higher degree of impact by erosion. Archaeological sites have been encountered in the Delhi series soils, but these are generally younger deposits, close to the surface and closer to the river channel. The Sycamore and Zamora soil series south of the project

[1] A well developed soil profile is commonly characterized by three main horizons (designated A, B and C from top to bottom). The A horizon is the surface soil that has undergone the greatest amount of soil formation and the C horizon is the layer of unconsolidated sediments from the parent rock that has been unaltered by soil formation. The B horizon is a mineral horizon that forms from concentrations of clay, iron, organic material, etc., that filter down from a more developed upper soil horizon, such as an A horizon. In less developed soil, an A horizon may directly overlie a C horizon with no intermediate B horizon (Waters1992).

area appear to be less impacted by erosion, and therefore they have a higher sensitivity for buried archaeological deposits (see Section 6.0 below).

3.4 Cultural Setting

3.4.1 Prehistoric Background

Research into local prehistoric cultures began in the early 1900s with the work of N. C. Nelson of the University of California at Berkeley. Nelson documented 425 shellmounds along the bay shore and adjacent coast when the bay was still ringed by salt marshes three to five miles wide (Nelson 1909:322-331). He maintained that the intensive use of shellfish, a subsistence strategy reflected in both coastal and bay shoreline middens, indicated a general economic unity in the region during prehistoric times, and he introduced the idea of a distinct San Francisco Bay archaeological region (Moratto 1984:227). Three sites, in particular, provided the basis for the first model of cultural succession in Central California, the Emeryville Shellmound (CA-ALA-309), the Ellis Landing Site (CA-CCO-295), and the Fernandez Site (CA-CCO-259) (Moratto 1984:227).

Investigations into the prehistory of California's Central Valley, presaged by early amateur excavations in the 1890s, began in earnest in the 1920s. In the early 20th century, Stockton-area amateur archaeologists J. A. Barr and E. J. Dawson separately excavated a number of sites in the Central Valley and made substantial collections. On the basis of artifact comparisons, Barr identified what he believed were two distinct cultural traditions, an early and a late. Dawson later refined his work and classified the Central Valley sites into three "age-groups" (Schenck and Dawson 1929:402).

Professional or academic-sponsored archaeological investigations in central California began in the 1930s, when J. Lillard and W. Purves of Sacramento Junior College formed a field school and conducted excavations throughout the Sacramento Delta area. By seriating artifacts and mortuary traditions, they identified a three-phase sequence similar to Dawson's, including Early, Intermediate, and Recent cultures (Lillard and Purves 1936). This scheme went through several permutations (see Lillard et al. 1939; Heizer and Fenenga 1939). In 1948 and again in 1954, Richard Beardsley refined this system and extended it to include the region of San Francisco Bay (Beardsley 1948, 1954). The resulting scheme came to be known as the Central California Taxonomic System (CCTS) (Fredrickson 1973; Hughes 1994:1). Subsequently, the CCTS system of Early, Middle, and Late Horizons was applied widely to site dating and taxonomy throughout central California.

As more data were acquired through continued fieldwork, local exceptions to the CCTS were discovered. The accumulation of these exceptions, coupled with the development of radiocarbon dating in the 1950s and obsidian hydration analysis in the 1970s, opened up the possibility of

dating deposits more accurately. Much of the subsequent archaeological investigation in central California focused on the creation and refinement of local versions of the CCTS.

In the 1960s and 1970s, archaeologists including Ragir (1972) and Fredrickson (1973) revised existing classificatory schemes and suggested alternative ways of classifying the prehistory of California. Fredrickson (1973:113-114) proposed four "major chronological periods" in prehistoric California: the Early Lithic Period (described as hypothetical), a Paleoindian Period, an Archaic Period, and an Emergent Period. The Archaic and Emergent Periods were further divided into Upper and Lower periods. Subsequently, Fredrickson (1974, 1994) subdivided the Archaic into Lower, Middle, and Upper. Milliken et al. (2007) have recently updated and further refined this scheme.

Various modifications of the CCTS (e.g., Bennyhoff and Hughes 1987; Fredrickson 1973, 1974; Milliken and Bennyhoff 1993) sustain and extend the system's usefulness for organizing our understanding of local and regional prehistory in terms of time and space. A series of "patterns," emphasizing culture rather than temporal periods, can be identified throughout California prehistory. Following Ragir, Fredrickson (1973:123) proposed that the nomenclature for each pattern relate to the location at which it was first identified, such as the Windmiller, Berkeley, and Augustine Patterns. The cultural patterns identified in the Bay Area that in a general way correspond to the CCTS scheme are the Berkeley and Augustine patterns (for information on the Berkeley and Augustine Patterns see Fredrickson 1973, Milliken et al. 2007, Moratto 1984 and Wiberg 1997). Dating techniques such as obsidian hydration analysis or radiometric measurements can further increase the accuracy of these assignments.

The chronological sequence for the greater Sacramento River Valley region begins with the Windmiller Pattern (encompassing what was referred to earlier as the Early and Middle Horizons). Sites from this period date from about 4,500 to 2,500 years ago. Although earlier sites no doubt exist, sites from the "Paleoindian Period" and dating from about 10,000 to 4,500 years ago are thought to be buried under Holocene alluvial deposits and are not well documented in this part of California (Ragir 1972). Various scholars have suggested Windmiller Pattern sites are associated with an influx of peoples from outside of California who brought with them an adaptation to river-wetland environments (Moratto 1984:207).

Windmiller Pattern sites are often situated in riverine, marshland, and valley floor settings, and atop small knolls above prehistoric seasonal floodplains. The variety of plant and animal resources within the immediate area would have attracted populations who were intent on making efficient use of such resources. Most Windmiller Pattern sites have contained burials in what may be cemeteries. Typically, the remains are extended ventrally, oriented to the west, and contain copious amounts of grave goods. Grave artifacts often include large projectile points (spear or dart points) and a variety of fishing paraphernalia such as net weights, bone hooks, and spear points, as well as the faunal remains of large and small mammals. Seed-grinding implements at the sites show that

gathering and processing of seed resources was also common, and other artifacts (e.g. charmstones, quartz crystals, abalone and Haliotis shell beads) suggest trade and a degree of ceremonialism were practiced.

The subsequent Berkeley Pattern (previously the Middle Horizon) covers a period from about 2,500 to 1,500 years ago. This pattern overlaps somewhat with Windmiller Pattern attributes at the beginning and late prehistoric artifacts at the end. Berkeley Pattern sites are much more common and well documented, and therefore better understood, than Windmiller Pattern sites. The sites are distributed in more diverse environmental settings, although a riparian focus is common.

Deeply stratified midden deposits (resulting from generations of occupation) are common to Berkeley Pattern sites, as are an abundance of milling and grinding stones for the processing of vegetal resources. Projectile points are progressively smaller and lighter over time, culminating in the introduction of the bow and arrow during the late prehistoric period. As mentioned above, although there are shared traits with Windmiller Pattern manifestations, artifacts unique to Berkeley Pattern sites include slate pendants, steatite beads, stone tubes and ear ornaments, and, most importantly, burial techniques utilizing variable directional orientation, flexed body positioning, and a general reduction of mortuary goods (Fredrickson 1973; Moratto 1984).

Characterized as the Augustine Pattern (Fredrickson 1973), the late prehistoric period (formerly the Late Horizon) ranges from about 1,500 to 150 years ago. This pattern is typified by intensive fishing, hunting and gathering, the latter focusing on acorns, a large population increase, increased trade and exchange networks, increases in ceremonial and social attributes, and the practice of cremation (in addition to flexed burials). Certain artifact types also typify the pattern: bone awls for use in basketry manufacture, small notched and serrated projectile points indicative of introduction of the bow and arrow, occasional pottery, clay effigies, bone whistles, and stone pipes. The presence of certain types of artifacts suggests a southward-moving influx of Wintuan populations into the Sacramento Valley, providing an important stimulus to this pattern (Moratto 1984). Evidence from several sites (e.g., mutilation of skeletons and Wintuan-type barbed points embedded in human remains) suggests the expansion was not altogether friendly (Moratto 1984; Ragir 1972). The Augustine Pattern and the late prehistoric period can be characterized as the apex of Native American cultural development in this part of California.

Most recently, Milliken et al. (2007:99-123) developed what they term a “hybrid system” for the San Francisco Bay Area, combining the Early-Middle-Late Period temporal sequence with the pattern-aspect-phase cultural sequence. Dating of the cultural patterns, aspects, and phases was based on Dating Scheme D of the CCTS, developed by Groza (2002). Groza directly dated more than 100 Olivella shell beads, obtaining a series of AMS radiocarbon dates representing shell bead horizons. The new chronology she developed has moved several shell bead horizons as much as 200 years forward in time.

Milliken et al.'s (2007) San Francisco Bay Area Cultural Sequence includes:

Early Holocene (Lower Archaic) from 8000 to 3500 B.C.
Early Period (Middle Archaic) from 3500 to 500 B.C.
Lower Middle Period (Initial Upper Archaic) from 500 B.C. to A.D. 430
Upper Middle Period (Late Upper Archaic) from A.D. 430 to 1050
Initial Late Period (Lower Emergent) from A.D. 1050 to 1550
Terminal Late Period, post-A.D. 1550

No archaeological evidence dating to pre-8000 B.C. has been located in the Bay Area. Milliken et al. (2007) posit that this dearth of archaeological material may be related to subsequent environmental changes that submerged sites, buried sites beneath alluvial deposits, or destroyed sites through stream erosion. A brief summary of the sequence presented by Milliken et al. (2007) follows.

A "generalized mobile forager" pattern marked by the use of milling slabs and handstones and the manufacture of large, wide-stemmed and leaf-shaped projectile points emerged around the periphery of the Bay Area during the Early Holocene Period (8000 to 3500 B.C.). Beginning around 3500 B.C., evidence of sedentism, interpreted to signify a regional symbolic integration of peoples, and increased regional trade emerged. This Early Period lasted until ca. 500 B.C. (Milliken et al. 2007:114, 115).

Milliken et al. (2007:115) identify "a major disruption in symbolic integration systems" circa 500 B.C., marking the beginning of the Lower Middle Period (500 B.C. to A.D. 430). Bead Horizon M1, dating from 200 B.C. to A.D. 430, is described by Milliken et al. (2007:115) as marking a "cultural climax" within the San Francisco Bay Area.

The Upper Middle Period (A.D. 430 to 1050) is marked by the collapse of the Olivella saucer bead trade in central California, abandonment of many Bead Horizon M1 sites, an increase in the occurrence of sea otter bones in those sites that were not abandoned, and the spread of the extended burial mortuary pattern characteristic of the Meganos complex into the interior East Bay. Bead Horizons M2 (A.D. 430 to 600), M3 (A.D. 600 to 800), and M4 (A.D. 800 to 1050) were identified within this period (Milliken et al. 2007:116).

The Initial Late Period, dating from A.D. 1050 to 1550, is characterized by increased manufacture of status objects. In lowland central California during this period, Fredrickson (1973, 1994) noted evidence for increased sedentism, the development of ceremonial integration, and status ascription. The beginning of the Late Period (ca. A.D. 1000) is marked by the Middle/Late Transition bead horizon. The Terminal Late Period began circa A.D. 1550 and continued until European settlement of the area.

3.4.2 Ethnographic Background

At the time of historic contact with the Spanish missionaries and explorers, the Bay Miwok group of Native Americans occupied the project area. The Bay Miwok spoke a language now considered one of the major subdivisions of the Miwok-Costanoan, which belonged to the Utian family within the Penutian language stock (Shipley 1978: 82-84). For further ethnographic information on the Bay Miwok, refer to Levy (1978), Bennyhoff (1977), and Milliken (1983).

Levy (1978:399) places the Bay Miwok territory from Suisun Bay to just south of Mount Diablo and from there eastward to the Sacramento-San Joaquin Delta. The village community associated with the Antioch area was known as the Chupcan. Levy (1978:401) states that on April 3, 1776, members of the Anza-Font Spanish exploring expedition visited a village near Antioch. Anza (1930:144) estimated the population of the settlement at 400 inhabitants. The settlement Anza visited probably belonged to the village community referred to in the mission books as Chupcan.

The time at which the Bay Miwok migrated into the area is disputed. Beeler (1959), who has studied the Saclan (Bay Miwok) language, claims it was originally spoken to the east along the lower courses of the Tuolumne, Stanislaus, and the Mokelumne rivers. He surmises that these people were displaced west by a northerly push of the Yokuts, which may have been completed as recently as 300 years ago. This implies the Chupcan were in their historical territory only a century or less before the Spaniards arrived in the region (Beeler 1959:68)

The Bay Miwok comprised a group of people united by language but broken into village communities (independent political entities), or tribelets, each occupying defined territories over which they controlled access to natural resources, although each village community had one or more permanent villages. Bay Miwok territory contained numerous smaller camp sites used as needed during a seasonal round of resource exploitation. Extended families lived in domed, conical structures built of thatched grass. Semi-subterranean men's houses were built at the larger village sites, also using grass and earth cover (Kroeber 1970). Tule or balsa canoes were used to navigate to and from islands and for hunting and gathering forays into the Delta.

Given an abundant and continuous subsistence base, ceremony in Bay Miwok life was fairly extensive, and scholars have written much about it based on early ethnographic accounts (Bennyhoff 1977:11; Kroeber 1970; Levy 1978). Rituals associated with death were of great importance. Two forms of interment were practiced and mortuary goods were often placed into the grave at the time of burial. Cremation was also occasionally practiced.

The project vicinity would have provided an excellent location for seasonal resource procurement camps. The nearby, wide, flat expanse of Lone Tree Valley to the south and the resources associated with the slough immediately to the west of the project area, along with scattered oaks, were favorable to this type of occupation, as has been well documented within the region. Scholars have

suggested the early California environment offered a large assortment of resources for use by native people, although acorns, fish, and game mammals formed the staples of their diet (Baumhoff 1963). Researchers have stressed that acorns, with various seeds, grasses, nuts, berries, and roots were of utmost importance, as plant food collection and preparation formed the center of Bay Miwok technology (Bennyhoff 1977:10; Kroeber 1970:814-815; Gifford 1916:139-194).

The arrival of the Spanish explorers in 1772 threatened the cultural and political organization of these native groups. The Franciscan priests were intent upon changing the native people of California into Catholic agriculturists, which led to a rapid and major reduction in native Californian populations. The native peoples living in the Mount Diablo region (including the present-day project area) suffered a complete Spanish takeover of their lands by the end of the eighteenth century. The Spaniards founded Mission San Francisco de Asis (now called Mission Dolores) in 1776, Mission Santa Clara the following year, and Mission San Jose in 1797. While some natives were drawn to the mission life by their interest in Spanish technology and religion, others were opposed to the Spanish settlement and most were eventually forced to join the missions, retreat into the hinterlands, or were killed (Milliken 1995). Brought into the missions, the surviving Bay Miwok, along with the Esselen, Yokuts, and Ohlone, were transformed from hunters and gatherers into agricultural laborers (Levy 1978; Shoup et al. 1995).

Under Spanish missionization of the San Francisco Bay Area, native populations decreased dramatically in numbers. Higher mortality rates from introduced diseases, social strain from disrupted trading networks, and environmental pressures resulting from encroachment of livestock on what were formally Native American lands served to largely eradicate aboriginal life ways (Milliken 1997a:88). By 1832, the Native population had decreased to less than one-fifth of its number at the time of initial contact with the Spanish (Levy 1978). Many of the surviving "converted" natives worked as vaqueros for the missions and spent much time grazing cattle.

Beginning in the mid-1830s, the missions became secularized, resulting in more than 800 land patents that comprised more than 12 million acres that were issued to individuals by the Mexican government in what is now California (Ziesing 1997). After missionization, Native Americans dispersed and were often lost to historical record keeping. Native Americans had few choices, and limited or no legal rights, once the mission system broke down. Under Spanish, and later Mexican law, mission lands and stock were to be allocated to the mission Indians following disbandment of the mission. This almost never happened and much of the mission lands, including those areas previously used for cattle grazing, were quickly divided up among elite Mexican families, leaving the remaining Indian population with nothing. As a result, many native peoples migrated back to their homelands and began working as vaqueros or servants for the new owners of the land. Others did not join the system and lived apart from the ranchers, occasionally stealing livestock, especially horses (Milliken 1997b:137, 138).

Beginning in the early 1900s, academic interest in the fast-disappearing cultures of the Californian Native Americans resulted in a number of ethnographic and linguistic studies, primarily by staff and students of the Anthropology Department at the University of California, Berkeley. However, their research focused on the reconstruction of pre-contact lifeways, rather than on what was happening contemporaneously (Davis, Hitchcock and Mertz 1997:156-157).

3.4.3 Historical Background

The history of Northern California, Contra Costa County, and the project area, can be divided into several periods of influence. To establish a historic context from which to assess the potential significance of historic sites in the project area, various periods, some of which overlap, are defined below. These include:

Spanish Period 1772 - 1822
Mexican Period 1822 - 1848
American Period 1848 - present

SPANISH PERIOD (1772-1822)

The Spanish period in the Mount Diablo region began with the Fages expedition of 1772. The expedition traveled from Monterey along the eastern shore of San Francisco Bay through what are now Milpitas, San Lorenzo, Oakland, and Berkeley, and finally reached Pinole on March 28, 1772 (Cook 1957:131). From there they traveled through the locations of today's Rodeo and Crockett to Martinez, made a brief foray into the Delta region of the Central Valley, and then camped somewhere near Pittsburg or Antioch. On March 31, the Fages party began the return journey to Monterey. In 1776, Juan Bautista de Anza journeyed northward from Monterey and located the sites of the Presidio of San Francisco and Mission San Francisco de Asis in present day San Francisco, California. He then travelled along the East Bay shoreline, closely following Fages' earlier route but travelling farther east along the Delta towards the project area (Beck and Haase 1974:17). Other Spanish expeditions in the ensuing years also passed near the project area, including the 1811 expedition of Ramon Abella, the 1813 expedition of Jose Arguello, and the 1817 expedition of Narciso Duran and Luis Arguello (Beck and Haase 1974:21). The most significant impact of the European presence on the local California Indians, however, was not felt until the Spanish missions were established in the region (Cook 1957:132).

The first Spanish mission in the region was established in 1776 with the completion of Mission San Francisco de Asis (Mission Dolores) in San Francisco. Mission Santa Clara followed in 1777, and the founding of Mission San Jose in 1797 marked the start of European influence in the area of today's Contra Costa County (Praetzellis et al. 1997:15). Settlements were established inland for maintenance of the Mission system's expanding grazing lands, and these settlements extended into present-day Contra Costa County. At that time, the control of the Missions was

focused around the more accessible San Francisco Bay. It was not until after Mexico's secession from Spain in 1821 that land was granted to private citizens, a practice that increased significantly after the 1833 act of the Mexican legislature that established the secularization of the missions.

The Mission era lasted approximately 60 years and proved to be detrimental to the native inhabitants of the region, who were brought to the missions to be assimilated into a new culture as well as to provide labor for the missionaries. Diseases introduced by the early explorers and missionaries, and the contagions associated with the forced communal life at the missions, killed a large number of local peoples, while changes in land use made traditional hunting and gathering practices increasingly difficult.

MEXICAN PERIOD (1822-1848)

The Mexican War of Independence, from 1810 to 1821, resulted in Mexico separating from Spain. During the Mexican Period, rapid secularization of the Spanish mission system occurred. Between 1835 and 1836 the Mexican government began offering grants of Mission grazing land primarily to Californios (both Spanish speaking descendants of European settlers, and Mestizo and Europeanized Natives) and Mexican colonists. In 1836, Mission San Jose shut down, freeing the Indian neophytes to return to their villages, or take up work on the newly granted ranches. The secularization of the Missions was intended to be the final step of the process to make the Indians Spanish (Rawls and Bean 1998:26-27), after which the neophytes living in the communities surrounding Mission San Jose were to be granted half of the Mission land (Rawls and Bean 1998:59). However, this policy was never properly implemented and many neophytes were reduced to raiding horses from the local ranches, which resulted in violence and Mexican reprisals against them, as well as a general opposition to them settling near the San Joaquin Valley (Stewart 1994:57-59).

By 1845, the last of the mission land holdings had been relinquished, opening the way for the large ranchos common to California in the mid-1800s. The dominant land-use of the ranchos was livestock grazing for the hide and tallow trade, as well as some farming. Although there were no Mexican Ranchos on the lands encompassed by the project area, two large ranchos, Los Meganos and Los Medanos were situated southeast and northwest of the project area. American explorers, mostly traders and beaver trappers, were also flocking to the west during this time, and their "trails" helped lead to the settlement of the territory.

Deterioration of relations between the United States and Mexico resulted in the Mexican-American War, which ended with Mexico relinquishing California to the United States under the Treaty of Guadalupe Hidalgo of 1848. With the formation of the new State of California in 1850, and the onset of the American Period, rapid changes were in store for the region.

AMERICAN PERIOD (1848-present)

The discovery of gold in the Sierra Nevada in 1848 produced a major population increase in the northern half of California as gold miners poured into the region. The population explosion led to land use changes as livestock grazed native grasses to extinction, woodlands were cut for lumber, railroad ties and mining timbers, and vast parcels of arable land were tilled for agricultural development. Following the U.S. takeover of Alta California from Mexico in 1848, rancho lands began to be divided up and generally overrun by Anglo immigration to the area that was coincident with the land boom following the Gold Rush of 1849.

Twin brothers William and Joseph Smith moved their families from Massachusetts to California in 1849. Accounts vary somewhat, but it seems clear that shortly after their arrival in today's Contra Costa County the brothers quickly acquired land, either from John Marsh's vast holdings or from an unknown party (Emanuels 1993:216; Slocum & Co. and Munro-Fraser 2000:671; Kyle 1990:64). Two quarter-sections of land obtained by the Smith brothers are located where the City of Antioch now stands. The brothers were both carpenters and ordained ministers and they quickly found jobs in the "New York of the Pacific," today known as Pittsburg, constructing housing for the flood of migrants coming to California in search of gold. Joseph died of malaria that first winter.

The following summer, William received news that a ship docking in San Francisco was carrying passengers from Maine wanting to settle permanently in California (Kyle 1990:64). He immediately went to greet them and offered each family a lot at Smith's Landing (in present-day Antioch) on which to build a home. Approximately half of the families accepted his offer, and the settlement they created was named Antioch at their 1851 Fourth of July picnic (Slocum & Co. and Munro-Fraser 2000:672-3).

The project region historically comprised good grazing and agricultural lands, orchards, and nearby coal mines. While coal in California is found over a wide expanse of the coastal range, it is generally of poor quality, found in small quantities or is situated in locations where transportation costs exceed the value of the coal (Goodyear 1877:6). As a result, the accessible, good quality coalfields of California were quickly played-out in the mid-to-late-19th century. The most important of California's coalfields were found near Mount Diablo in Contra Costa County. The discovery of coal on the northern slopes of Mount Diablo in 1848 drew settlers to the region; however, by the mid-1880s when the coal boom was over, the mining "boom towns" were abandoned. Much of the early coal mining was not done by coal miners but by disillusioned gold seekers. Many of the coal miners who worked in the Mount Diablo coal district came from the coalfields of Wales and Cornwall.

On December 22, 1859, Francis Somers and James T. Cruikshank discovered the Black Diamond vein about five miles southwest of the project area, in the foothills south of Pittsburg and east of Kirker Pass Road (Silva 1969:12). Two railroads were built in the early 1860s to accommodate the transportation needs of the Black Diamond area mines and their associated communities: the Pittsburg Coal Railroad provided service from the Somersville mines to Pittsburg Landing, and the Black Diamond Coal Company Railroad connected the Nortonville mines to New York Landing near Port Chicago (Ballard 1931:21).

Although production at the Black Diamond Mines in Nortonville slowed as early as 1885, they apparently did not completely close until 1907, when the last of the local pits was sealed, and the company's equipment was dismantled and removed. This was the last mine in the area to close (Praetzellis 1991). Over a 42-year period (1860 to 1902), mining at Black Diamond produced coal valued at more than $20 million (Radin 1988). Nearly 3.6 million metric tons of coal had been mined and more than 200 miles of underground workings were associated with the mining district when production ceased in 1907 (unpublished manuscript of John Waters quoted in Higgins 1989:229, Waters 1978:147).

When the mines closed at the turn of the century, the towns of Nortonville, Somersville, Stewartville, West Hartley and Judsonville became ghost towns almost overnight. Although attempts at mining took place in 1923, 1926, 1932 and 1940, they were all unsuccessful and short lived (Jerabek, 1957:29). The mining towns were salvaged for scrap lumber and equipment, largely disappearing from all but the memories of local residents. After the mines closed, the population centers of Pittsburg, Antioch and Brentwood survived because of their agricultural economic base, including olive and almond orchards. Remnants of the coal-mining era are still visible, and in 1972 the East Bay Regional Park District acquired 2,763 acres of land, including the Black Diamond Mine, now open to the public (Kyle 1990).

Over time, the landscape in the project vicinity transformed from a mostly agricultural area to a more industrial setting, such as the coal mining operations from 1855-1907, and later industrial ventures lasting into the modern era. The region has recently experienced rapid urban residential development. The mild climate, vast network of waterways within the Delta region, and availability of a broad transportation network has been one of the major factors in the region's economic and population growth.

3.4.4 Site Specific Historical Background of Project Area

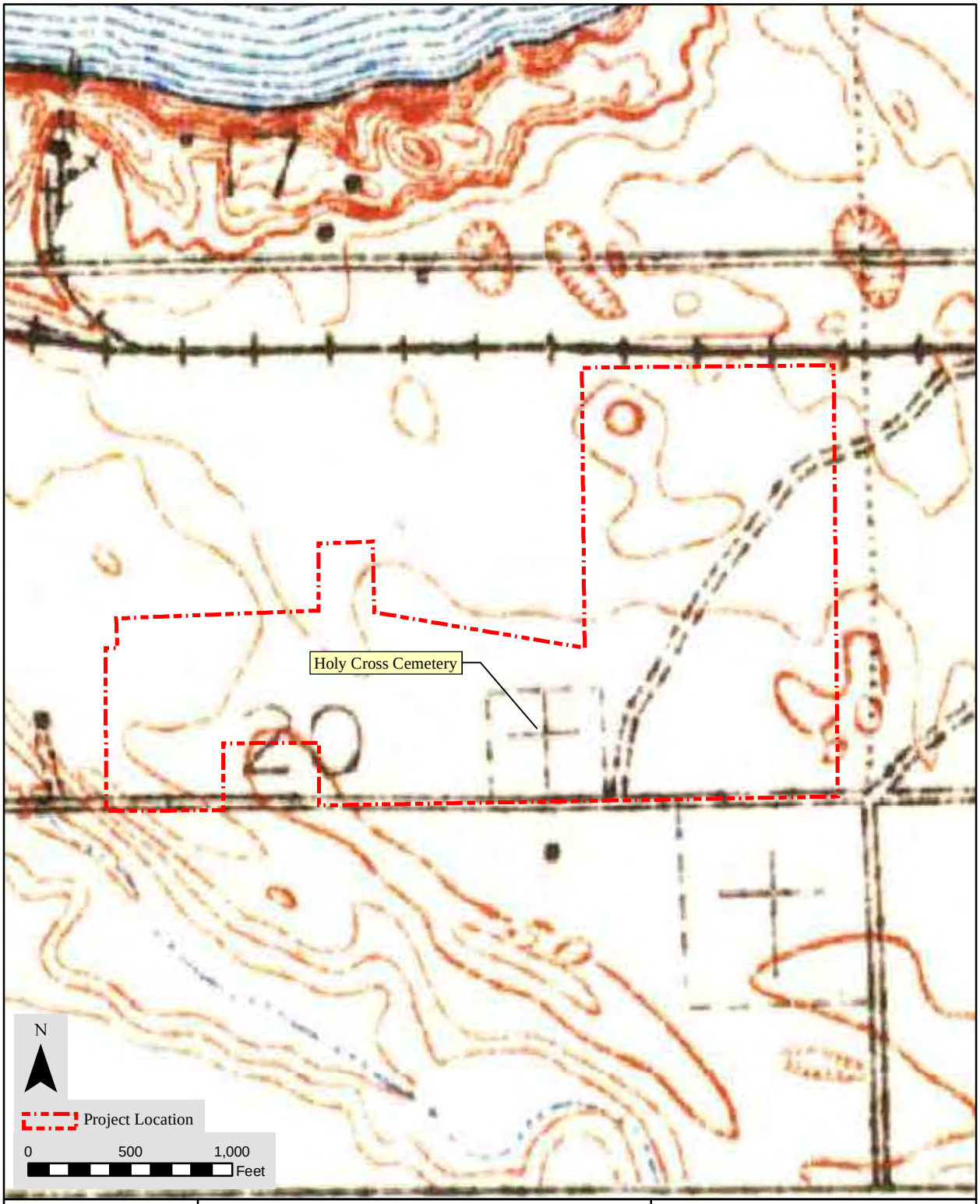
As noted above, the project area is situated in Township 2 North, Range 2 East in Section 20, as depicted on the 1978 Antioch, California 7.5-minute USGS topographic quadrangle (refer to Figure 3). Specifically, the project area is located within the NE¼ and the S½NW¼ of Section 20 (the legal land description of the parcels that include the project area). When public lands were sold, land "patents" were issued—deeds transferring land ownership from a sovereign state

(the U.S. Government) to a buyer. Land patent records indicate that the E½NE¼ of Township 2N, Range 2E Section 20 (80 acres) was purchased by Christopher Thon on October 25, 1871, while the W½NE¼ and S½NW¼ of Township 2N, Range 2E Section 20 (160 acres) were purchased by Richard Trembath on April 1, 1874—these are the parcels that include the present project area (Bureau of Land Management n.d.).

While little information is known about Christopher Thon, historical records indicate that Richard Trembath was born in Cornwall, England on June 26, 1831 (National Archives of the U.K. 1841). He immigrated to the United States during the 1840s and settled in Houghton, Michigan where he worked as a miner (U.S. Census Bureau 1850). Sometime after 1850, Trembath moved to Contra Costa County where he likely worked as a coal miner in the newly discovered coal district around Mount Diablo. He later became a farmer and settled in Antioch with his wife, Mary, and their children (U.S. Census Bureau 1870). Trembath, along with his sons, continued to work as a farmer in the Antioch area until his death on December 28, 1898 (California State Library 1896). He is buried in Oak View Memorial Park, located adjacent to the southeastern corner of the project area (California Find A Grave Index 2011).

Trembath Lane transects the southwestern part of the project area, and it is likely this street is named after Richard Trembath. The property located on corner of Trembath Lane and E. 18th St. includes a house that was originally built in 1850, and although it is not listed on any historical registers, it is probable that this house was occupied by Richard Trembath and his family when he acquired the land in 1874, and likely until his death in 1898 (Contra Costa County Mapping Information Center n.d.). Trembath sold or donated a portion of his holdings to the Catholic Church, and the Dominican fathers established the Holy Cross Cemetery, which is located within the project area, in the 1870s (Catholic Funeral and Cemetery Services n.d.).

Topographic maps of the project area from the early-20th century indicate that, with the exception of the Holy Cross Cemetery, the property remained largely undeveloped into the mid-20th century. The earliest U.S. Geological Survey (USGS) map, the 1908 Antioch 15-minute topographic quadrangle, does not indicate any structures or development in the project area, except for the Holy Cross Cemetery (Figure 7) (USGS 1908). By the time the USGS 1953 Antioch North 7.5-minute topographic quadrangle was published, there was scattered development throughout the project area, but the land was still mostly agricultural (USGS 1953) (Figure 8).



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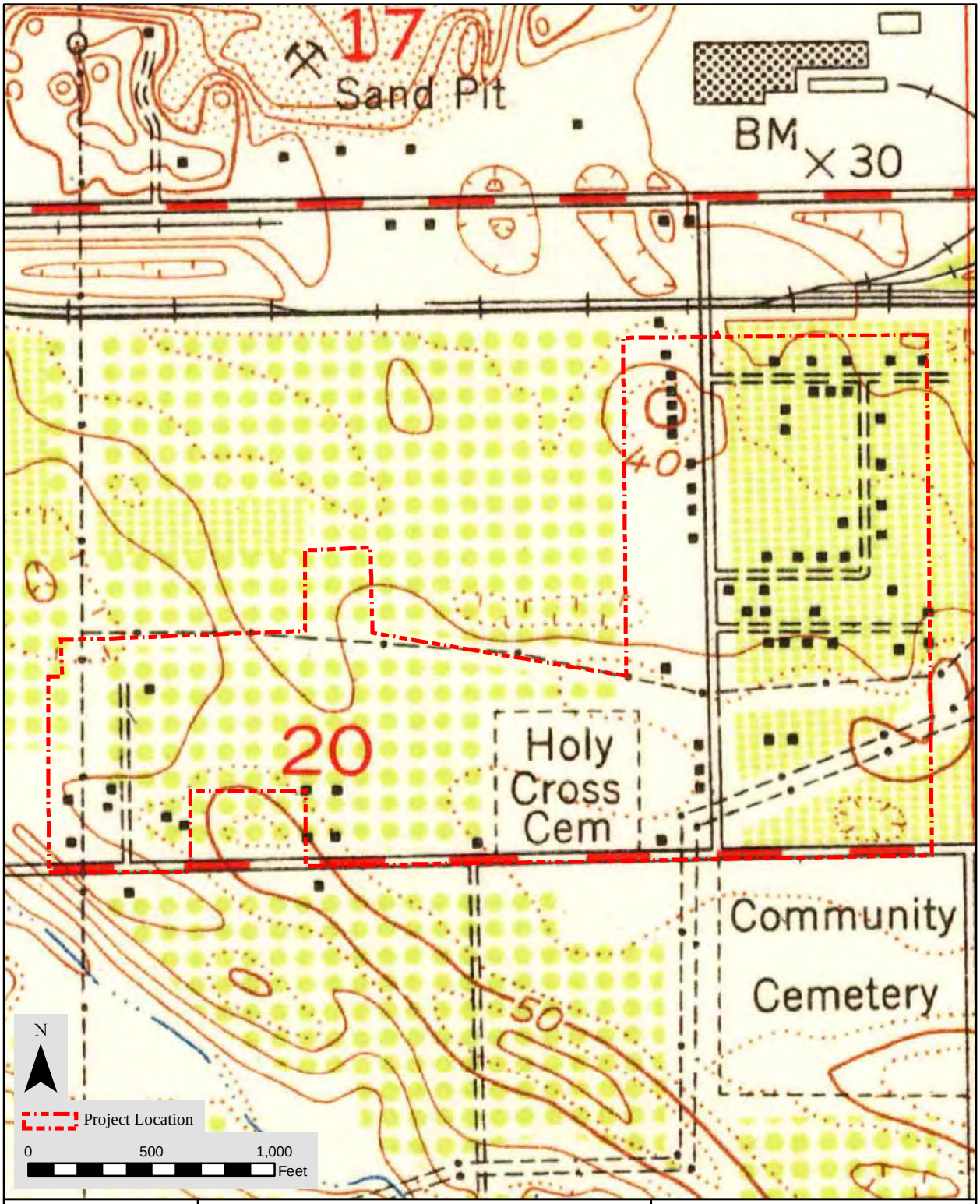
Project location on
1908 Antioch 15-minute Topo Quad

Figure 7
Northeast Antioch Reorganization
CirclePoint
Antioch, CA



WSA

Project location on
1953 Antioch North 7.5-minute Topo Quad

Figure 8
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

4.0 Results of the Literature and Records Search

On behalf of WSA, staff at the California Historical Resources Information System, Northwest Information Center (NWIC) at Sonoma State University conducted a records search of the project vicinity on June 13, 2012 (File No. 11-1340). The records search involved a review of records and maps on file at the NWIC. Results of the records search indicate there are two recorded sites within the project area and two additional recorded sites within a ¼-mile radius of the project area (see Section 4.3). Information on previous archaeological studies within a ¼-mile radius of the Project area was also provided, and these studies are summarized below (see Section 4.2). Relevant pages from the Office of Historic Preservation (OHP) Historic Properties Directory, which includes information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys, were included with the search results, and no properties within ¼-mile of the project area are listed. There were no listings on the California Inventory of Historical Resources, the OHP Archaeological Determinations of Eligibility, or the Contra Costa County Historic Resources Inventory within ¼-mile of the project area. Copies of the appropriate sections of the 1862 GLO Plat Map, 1908 Antioch 15-minute and the 1918 Antioch North 7.5-minute USGS topographic maps were also included in the results.

4.1 Previous Cultural Resource Studies

Six cultural resource studies have been undertaken within portions of the project area, 11 studies have been conducted within ¼-mile of the project area, and 16 studies classified as "other reports" include the project area (Tables 1-3).

Table 1. Previous Cultural Resource Studies Within the Project Area

Study	Authors	Date	Study Type	Title
S-022464	Jones & Stokes Associates, Inc.	1999	Archaeological Survey	Cultural Resource Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Pittsburg to Sacramento, California
S-034412	Wohlgemuth, Eric	2005	Archaeological Survey	Archaeological Reconnaissance of the Pacific Gas and Electric Company 230 kV Delta Transmission Line Reconductoring Project, Solano, Sacramento, and Contra Costa Counties, California
S-035641	Siskin, Barbara	2007	Archaeological Survey; Architectural Survey; Archaeological Evaluation	Cultural Resources Investigation and Architectural Evaluation for the Contra Costa to Las Positas Reconductoring of the 230KV Transmission Line, Contra Costa County and Alameda County, California

Study	Authors	Date	Study Type	Title
S-036622	Siskin, Barbara, Cassidy DeBaker, Jennifer Lang	2008	Archaeological Survey; Architectural Survey; Archaeological Evaluation	Cultural Resources Investigation and Architectural Evalution for the Contra Costa to Las Positas Reconditioning of the 230 kV Transmission Line, Contra Costa County and Alameda County, California
S-038392	Whitaker, Adrian	2010	Archaeological Survey	PG&E Contra-Costa to Moraga Reconductoring Project (letter report)
S-038884	Leach-Palm, Laura	2011	Archaeological Survey	PG&E proposed natural gas pipeline integrity excavation for Line 191 and 191A (letter report)

Table 2. Previous Cultural Resource Studies Within ¼-mile of the Project Area

Study	Authors	Date	Study Type	Title
S-001485	Amaroli, Paul E.	1979	Archaeological survey	An Archaeological Reconnaissance of 11.82 Acres Near Antioch, Contra Costa County, California.
S-013256	Bramlette, Allan G., Mary Praetzellis, Adrian Praetzellis, Katherine M. Dowdall, Patrick Brunmeier, David A. Fredrickson	1991	Archaeological survey	Archaeological Resources Inventory for Los Vaqueros Water Conveyance Alignments, Contra Costa County, California
S-013797	Holman, Miley Paul	1991	Archaeological survey	Archaeological Field Inspection of the APC Project Area, Antioch, Contra Costa County, California (letter report)
S-018440	West, G. James Patrick Welch	1996	Archaeological survey	Class II Archaeological Survey of the Contra Costa Canal, Contra Costa County, California
S-027049	St. Clair, Michelle John Holson	2003	Archaeological survey	Archaeological Survey Report for the Delta Diablo Sanitation District Bridgehead Improvements Project, City of Antioch, Contra Costa County
S-029311	Dalldorf, Graham	2004	Archaeological survey	Letter Report of Archaeological Consultation for the Black Liquor Pond, East Mill Site, Gaylord Container Company, 2603 Wilbur Avenue, Antioch, California (letter report)
S-030387	Tang, Bai "Tom", Michael Hogan, Josh Smallwood, Terri Jacquemain	2005	Archaeological Survey; Historic Study	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapon
S-030579	Busby, Colin I.	2004	Archaeological survey	Cultural Resources Report, Delta Energy Center Site (DEC) and Associated Linears, Cities of Pittsburg and Antioch, Contra Costa County, California, California Energy Commission (CEC) Project 98-AFC-3C

Study	Authors	Date	Study Type	Title
S-031171	Carper, Mark A. Kim Tremaine	2005	Archaeological survey	Cultural Resources Inventory Report: Trembath and Oakley Floodwater Control Basins, Antioch, California.
S-033821	Jones & Stokes	2007	Archaeological survey	Cultural Resources Inventory Report for the Ironhouse Sanitary District Wastewater Treatment Plant Expansion, Contra Costa and Sacramento Counties, California
S-035861	Tang, Bai "Tom", Michael Hogan, Josh Smallwood, Terri Jacquemain	2009	Archaeological Survey; Architectural Survey	Historic Property and Archaeological Survey Report, proposed undertaking to upgrade the capacity of the Burlington Northern Santa Fe (BNSF) Railway mainline from Mile Post 1146.1 to MP 1164.4, between the City of Oakley and the Port Chicago Naval

Table 3. "Other" Cultural Resource Studies within ¼-mile of the project area

Study	Authors	Date	Study Type	Title
S-000595	King, Ronald F.	1974	Records/literature search	A Report on the Status of Generally Available Data Regarding Archaeological, Ethnographic, and Historical Resources Within a Five Mile Wide Corridor Through Portions of Colusa, Yolo, Solano, and Contra Costa Counties, California
S-000848	Fredrickson, David A.	1977	Management plan; Records/literature search; Regional overview	A Summary of Knowledge of the Central and Northern California Coastal Zone and Offshore Areas, Vol. III, Socioeconomic Conditions, Chapter 7: Historical & Archaeological Resources
S-001978	Mayfield, David W.	1978	Regional overview	Ecology of the Pre-Spanish San Francisco Bay Area
S-002458	Ramiller, Suzanne Marie, Neil Ramiller, Roger Werner, Suzanne Stewart	1981	Regional overview	Overview of Prehistoric Archaeology for the Northwest Region, California Archaeological Sites Survey.
S-005208	Greenway, Gregory, William E. Soule	1977	Records/literature search; Site specific	Sacramento-San Joaquin Delta Investigations: Cultural Resources Reconnaissance
S-009462	Miller, Teresa Ann	1977	Regional overview	Identification and Recording of Prehistoric Petroglyphs in Marin and Related Bay Area Counties
S-009583	Mayfield, David W.	1978	Regional overview	Ecology of the Pre-Spanish San Francisco Bay Area
S-009795	Jackson, Thomas Lynn	1986	Regional overview	Late Prehistoric Obsidian Exchange in Central California

Study	Authors	Date	Study Type	Title
S-011826	Theodoratus, Dorothea J.; Mary Pyle Peters, Clinton M. Blount, Pamela J. McGuire, Richard D. Ambro, Michael Crist, Billy J. Peck Myrna Saxe	1980	Archaeological survey; Monitoring report; Regional overview; Testing	Montezuma I and II Cultural Resources
S-012790	Owens, Kenneth N.	1991	Historic study, Records/literature search, Regional overview	Sacramento-San Joaquin Delta, California: Historical Resources Overview
S-016660	Fentress, Jeffrey B.	1992	Regional overview; Site specific	Prehistoric Rock Art of Alameda and Contra Costa Counties, California
S-018217	Gmoser, Glenn	1996	Regional overview	Cultural Resource Evaluations for the Caltrans District 04 Phase 2 Seismic Retrofit Program, Status Report: April 1996
S-020395	Gillette, Donna L.	1998	Regional overview, Site specific, Thesis	PCNs of the Coast Ranges of California: Religious Expression or the Result of Quarrying?
S-032596	Milliken, Randall, Jerome King, Patricia Mikkelsen	2006	Ethnographic study, Regional overview	The Central California Ethnographic Community Distribution Model, Version 2.0, with Special Attention to the San Francisco Bay Area, Cultural Resources Inventory of Caltrans District 4 Rural Conventional Highways
S-033545	National Park Service	1994	Management plan, Regional overview	Draft Comprehensive Management and Use Plan and Environmental Impact Statement, Juan Bautista de Anza National Historic Trail, Arizona and California
S-033600	Meyer, Jack, Jeff Rosenthal	2007	Geoarchaeology, Regional overview	Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4

Jones & Stokes Associates, Inc. (1999) previously surveyed a 150-foot wide PG&E transmission line right-of-way within the project area that transects the eastern portion of the project area from north to south, and that diagonally transects the southeastern corner of the project area (Figure 9). They did not observe any cultural resources within the project area. Garcia and Associates resurveyed the portion of the PG&E transmission line right-of-way that diagonally transects the southeastern corner of the project area in 2008, and they recorded a historic artifact scatter located in an abandoned gravel lot directly beneath PG&E transmission Tower Number 0/6 on the northwest corner of the intersection of Viera Avenue and East 18th Street (see Section 4.3 below) (Siskin et al. 2008). Far Western Anthropological Research Group, Inc. again resurveyed the same portion of the PG&E transmission line right-of-way that diagonally transects the

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Previously Surveyed Locations within Project Area

Figure 9
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

southeastern corner of the project area in 2010, and they did not observe any cultural resources within the project area (Whitaker 2010). In 2011, Far Western surveyed a 50 m buffer around a backhoe excavation to expose a PG&E natural gas pipeline located within the same portion of the PG&E transmission line right-of-way that diagonally transects the southeastern corner of the project area, and they did not observe any cultural resources (Leach-Palm 2011).

In addition to the PG&E transmission line right-of-way in the southeastern corner of the project area, Far Western also conducted an intensive pedestrian survey in a 90 m corridor centered on existing transmission lines that bisects the project area from east to west (refer to Figure 9) (Wohlgemuth 2005). They did not observe any cultural resources in the project area.

4.2 Previously Recorded Cultural Resources

There is one previously recorded historical archaeological site and one previously recorded historic structure within the project area (Table 4).

Table 4. Cultural Resources Within the Project Area

Primary No.	Resource Type	Age	Name	Recorded By	Affiliation	Date Recorded	CRHR Eligibility
07-002951	Engineering Structure	Historic –1920s-1970s	Contra Costa Las Positas Transmission Line	Jennifer Lang	Garcia and Associates	2008	Not Eligible
07-002952	Historic Artifact Scatter	Historic – 1900s	GANDA Site 02	Cassidy DeBaker & Kruger Frank	Garcia and Associates	2008	Not Evaluated

The Contra Costa Las Positas Transmission Line (P-07-002951) transects the southeastern portion of the project area. Previous researchers from Garcia and Associates recorded the transmission line as a historical resource in 2008 during their survey of the PG&E transmission line right-of-way, and they recommended it as not eligible for listing on the CRHR (Siskin et al. 2008) (Figure 10). At the same time, Garcia and Associates recorded a scatter of historic artifacts beneath PG&E transmission Tower Number 0/6 on the northwest corner of the intersection of Viera Avenue and East 18th Street (P-07-002952) (refer to Figure 10). The site consists of a diffuse scatter of glass and red brick fragments, as well as other artifacts such as a baby's white leather shoe, pocket magnifying glass, nails, and a metal hinge (Siskin et al. 2008:29). The previous investigators suggest the site was once a residential property, which has been significantly impacted by previous construction. They did not formally evaluate the site for its potential eligibility to the CRHR.

In addition to the previously recorded cultural resources within the project area, there are also two previously recorded historic structures within ¼-mile of the project area (Table 5).

WSA	Previously Recorded Resources within Project Area	Figure 10 Northeast Antioch Reorganization CirclePoint Antioch, CA

Table 5. Cultural Resources Within ¼-mile of the Project Area

Primary No.	Resource Type	Age	Name	Recorded By	Affiliation	Date Recorded	CRHR Eligibility
07-000806	Engineering Structure	Historic - 1940s	Atchinson, Topeka, and Santa Fe Railroad	S. Ashkar	Jones & Stokes Assoicates	1998	Not Eligible
07-000853	Public Utility Building	Historic – 1950	Contra Costa Powerplant Substation	Jennifer Lang	Garcia and Associates	2008	Not Eligible

5.0 Native American Consultation

On June 13, 2012, WSA contacted the Native American Heritage Commission (NAHC) by letter to request information on known Native American sacred lands within the project area and to request a listing of individuals or groups with a cultural affiliation to the project area. A response was received from the NAHC on June 21, 2012 noting, "A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area." The letter also provided a list of Native American individuals that may have knowledge of cultural resources in the project area. WSA contacted the three individuals on the list via letter sent on June 21, 2012 and provided a description of the project and project area maps. Input and comment was solicited regarding individual knowledge about sacred sites or traditional lands within the project areas. One response to the letter solicitations was received: Mr. Andrew Galvan recommended the presence of a Bay Miwok Native American monitor if an archaeological monitor is present during project excavation. WSA placed follow-up telephone calls to the other two individuals on the contact list on July 5, 2012 and July 12, 2012. Copies of this correspondence are provided, and the results of the follow-up telephone calls are summarized, in Appendix A.

6.0 Results of the Archaeological Sensitivity Modeling

Archaeological sensitivity modeling is a technique used to predict the potential for finding archaeological sites based on known site locations, assumptions about human behavior, and historical data (e.g., Dalla Bonna 1994; Ebert and Singer 2004; Kamermans and Wansleeben 1999; Kohler and Parker 1986). The advent of GIS has greatly enhanced the analysis of spatial relationships and increased the power of predictive models of archaeological sensitivity (e.g., Kvamme 1990; Savage 1989; Warren 1990). For this project, WSA developed both prehistoric and historical archaeological sensitivity models of the project area (Figures 11 and 12).

Prehistoric archaeological sensitivity models are primarily inductive, or descriptive, and commonly employ topographic and hydrologic variables such as elevation, slope, aspect, and

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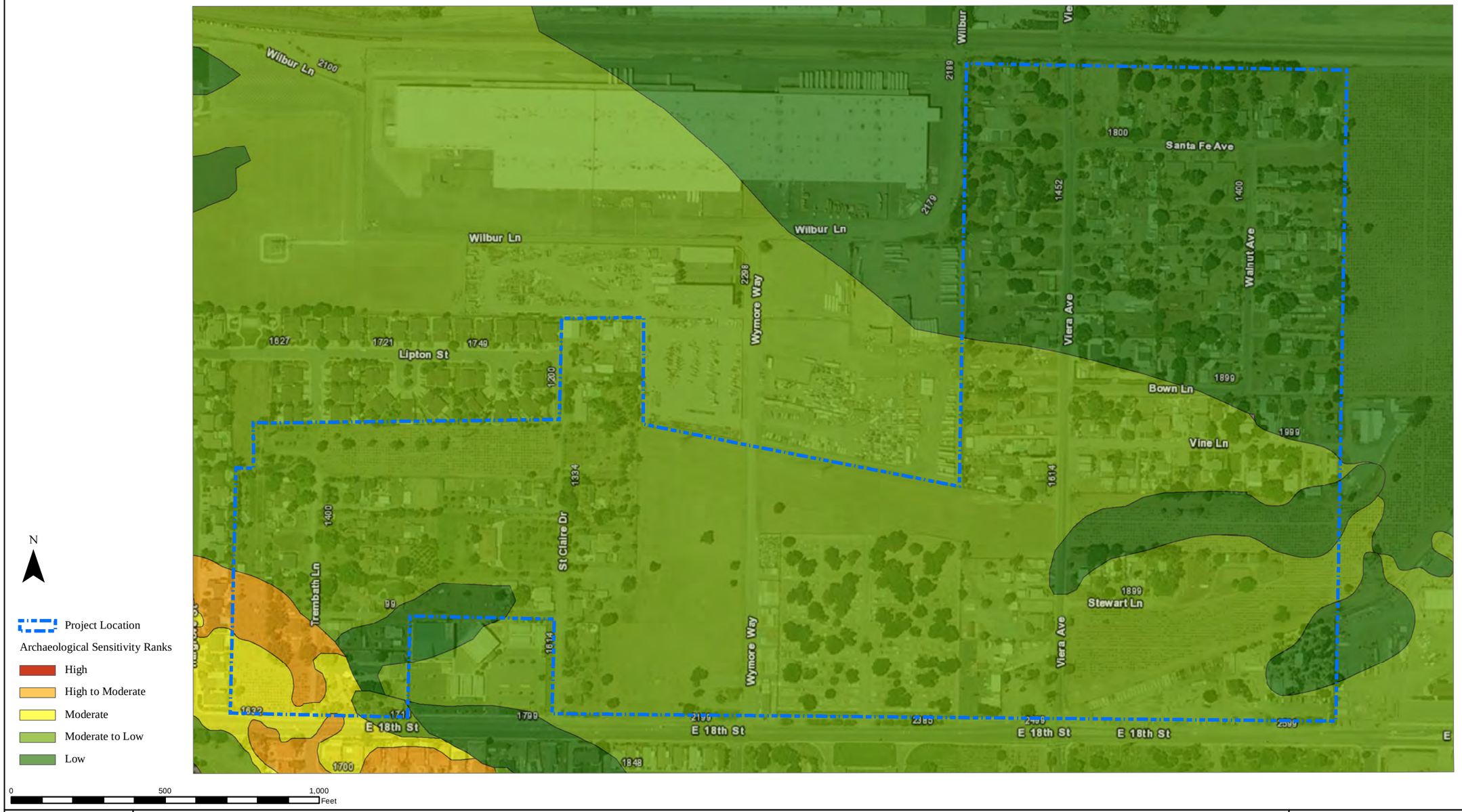
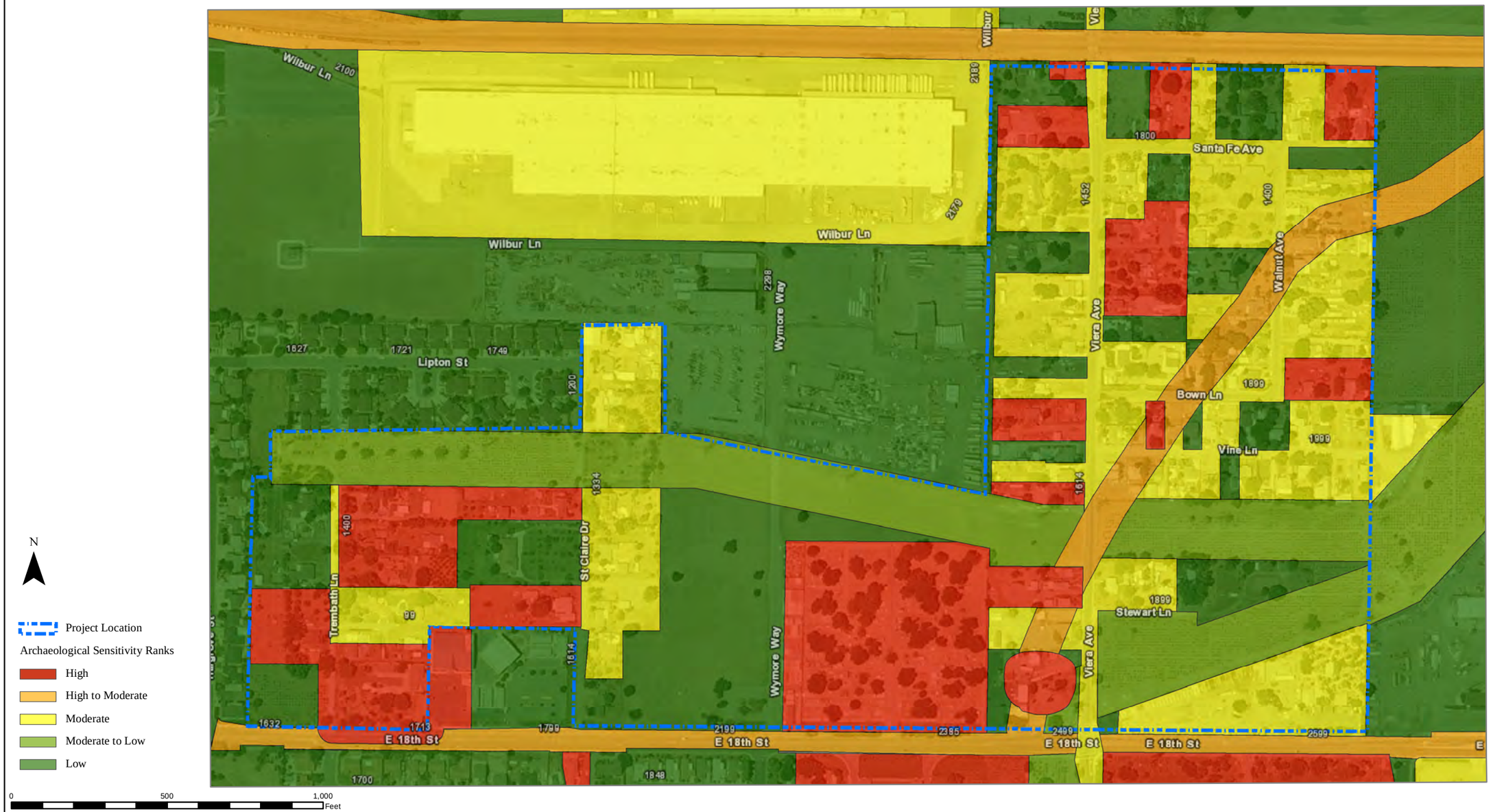


WSA

Prehistoric Archaeological Sensitivity Model of the Project Area

Figure 11
Northeast Antioch Reorganization
CirclePoint
Antioch, CA



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Historical Archaeological Sensitivity Model of the Project Area

Figure 12
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

distance to nearest water. Archaeologists disagree as to the utility of simple versus complex models, the number and nature of variables, and the goal of the models. Most archaeologists prefer a simpler model, which uses three (e.g., Dean 1983:11; Altschul 1990:229-30) to four (e.g., Kvamme 1985; Parker 1985; Carmichael 1990) variables that describe the modern setting of archaeological sites. The prehistoric archaeological sensitivity model presented here relies on soil type, slope, distance to nearest water, and distance to other recorded sites as the basis for calculating areas of high, moderate and low archaeological sensitivity within the project area. Developing the predictive model involved a series of analytical steps, each of which utilized statistical tools found within the ArcGIS 10.0 software package.

The GIS analysis performed in ArcGIS resulted in a predictive surface, or layer of prehistoric archaeological sensitivity, calculated pixel by pixel combining all four variables. The prehistoric archaeological sensitivity model shows the distribution of low, moderate, and high prehistoric archaeological sensitivity within the project vicinity (refer to Figure 11). Prehistoric archaeological sensitivity within the project area was found to be mostly low or moderate to low, with a small area of moderate or high to moderate sensitivity in the southwestern corner of the project area closest to the drainage that enters present-day Lake Alhambra. This seasonal drainage may have been an important source of water for prehistoric inhabitants in the area.

The historical archaeological sensitivity model of the project area combines multiple lines of historical evidence to establish sensitivity rankings. These include cartographic and graphic sources (historical topographic quads and historic aerial images), recorded historical resources, as well as data from Contra Costa County Assessor Parcel Maps that indicate development dates of individual parcels. Because no existing structures or standing architecture will be impacted by project activities, the historical archaeological sensitivity model is focused on the probability that potentially significant subsurface archaeological resources will be encountered during project construction. The most common and informative subsurface archaeological resources are refuse features that result from the domestic or economic uses of an area. These are typically found as either hollow features or sheet refuse. The former includes pits, privies, and wells that were created specifically for functional use and, upon abandonment, became common receptacles for trash. The latter are broad artifact scatters that accumulate on habitation surfaces over a period of time as people discard refuse in their living or working areas, a common 19th century and early-20th century practice. The refuse provides a discrete picture of the day-to-day behaviors of the people who used the area. Within the project area, refuse deposits are more likely to be associated with residential structures than with linear features, such as roads and transmission lines.

For the historical archaeological sensitivity model, historical data sources were used to create a series of polygons representing different historical resource types that cover the project area. The 1908 Antioch 15-minute USGS topographic quadrangle indicates that no structures or developments were present in the project area in the early 20th century, with the exception of the

Holy Cross Cemetery, but it depicts a road that traverses the eastern portion of the project area. The Costa County Assessor Parcel Maps indicate that a single structure built in 1850 was present in the southwestern portion of the project area, although this structure does not appear on any historical registers or inventories. Other individual parcels within the project area began to be developed in the late 1920s, and development in the project area progressed steadily throughout the 20th century. The Contra Costa Las Positas Transmission Line (P-07-002951) and other transmission lines transected the project area as early as the 1920s. Other than the Contra Costa Las Positas Transmission Line, the only recorded resource identified during the records search is the historical artifact scatter located at the intersection of Viera Avenue and East 18th Street (P-07-002952). Each element of the sensitivity model was ranked according to age, resource type, and likelihood of associated subsurface deposits.

Although a 45-year threshold for historical significance is standard for most CEQA evaluations, based on our experience there is a greater likelihood that significant subsurface deposits will be associated with pre-World War Two activities than with more recent developments. The historical archaeological sensitivity model therefore assigned a higher sensitivity ranking to those parcels that were developed or used before 1945, and a lower sensitivity ranking to parcels that were developed or used between 1945 and 1967 (the 45 year threshold). The lowest sensitivity ranking was assigned to those parcels that were developed or used after 1967 or for which no data were available (refer to Figure 12).

Elements with known subsurface deposits or a high likelihood for subsurface deposits, including the cemetery, the recorded historical resource (P-07-002952), and the residential parcels, were ranked higher than elements with low likelihood of subsurface deposits, such as transmission line rights-of-way and roads. Finally, because of a greater possibility of subsurface deposits associated with the 1850 structure and occupation in the southwestern corner of the project area, which existed before the project area was subdivided into individual parcels, a buffer was extended around that property to incorporate the surrounding area.

The results of the historical archaeological sensitivity model of the project area indicate a landscape divided into low, moderate, and high sensitivity areas (refer to Figure 12). The Holy Cross Cemetery, the historical artifact scatter located at the intersection of Viera Avenue and East 18th Street (P-07-002952), and the individual parcels developed before 1945 have a high historical archaeological sensitivity, while all other areas have a high to moderate, moderate, moderate to low, or low sensitivity for historical archaeological resources.

7.0 Evaluation Under CEQA

7.1 CEQA Evaluation Criteria

CEQA defines significant historical resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (PRC Section 5024.1). A resource may be considered historically significant if it meets the following criteria for listing on the CRHR:

1. it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or
2. it is associated with the lives of persons important to California's past; or
3. it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. it has yielded or is likely to yield information important in prehistory or history (PRC Section 5024.1).

In order to meet one or more of the criteria listed above, a cultural resource must possess integrity to qualify for listing in the CRHR. Integrity is generally evaluated with reference to qualities including location, design, materials, workmanship, setting, feeling, and association. A potentially eligible site must retain the integrity of the values that would make it significant. Typically, integrity is indicated by evidence of the preservation of the contextual association of artifacts, ecofacts, and features within the archaeological matrix (Criterion 4) or the retention of the features that maintain contextual association with historical developments or personages that render them significant (Criteria 1, 2, or 3). Evidence of the preservation of this context is typically determined by stratigraphic analysis and analysis of diagnostic artifacts and other temporal data (e.g., obsidian hydration, radiocarbon assay) to ascertain depositional integrity or by the level of preservation of historic and architectural features that associate a property with significant events, personages, or styles. Integrity refers both to the authenticity of a property's historic identity, as shown by the survival of physical characteristics that existed during its historic period, and to the ability of the property to convey its significance. This is often not an all-or-nothing scenario (determinations can be subjective); however, the final judgment must be based on the relationship between a property's features and its significance.

Section 15064.5 of the CEQA Guidelines indicates a project may have a significant environmental effect if it causes "substantial adverse change" in the significance of an "historical resource" or a "unique archaeological resource" as defined or referenced in CEQA Guidelines Section 15064.5[b, c] (revised October 26, 1998). Such changes include "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines 1998 Section 15064.5[b]).

No prehistoric archaeological resources are recorded within the project area. A historic artifact scatter and debris dating to the twentieth-century recorded beneath PG&E transmission Tower Number 0/6 on the northwest corner of the intersection of Viera Avenue and East 18th Street has not been evaluated relative to CRHR eligibility. No other historical resources or unique archaeological resources as defined by CEQA have been recorded within the project area.

8.0 Recommendations

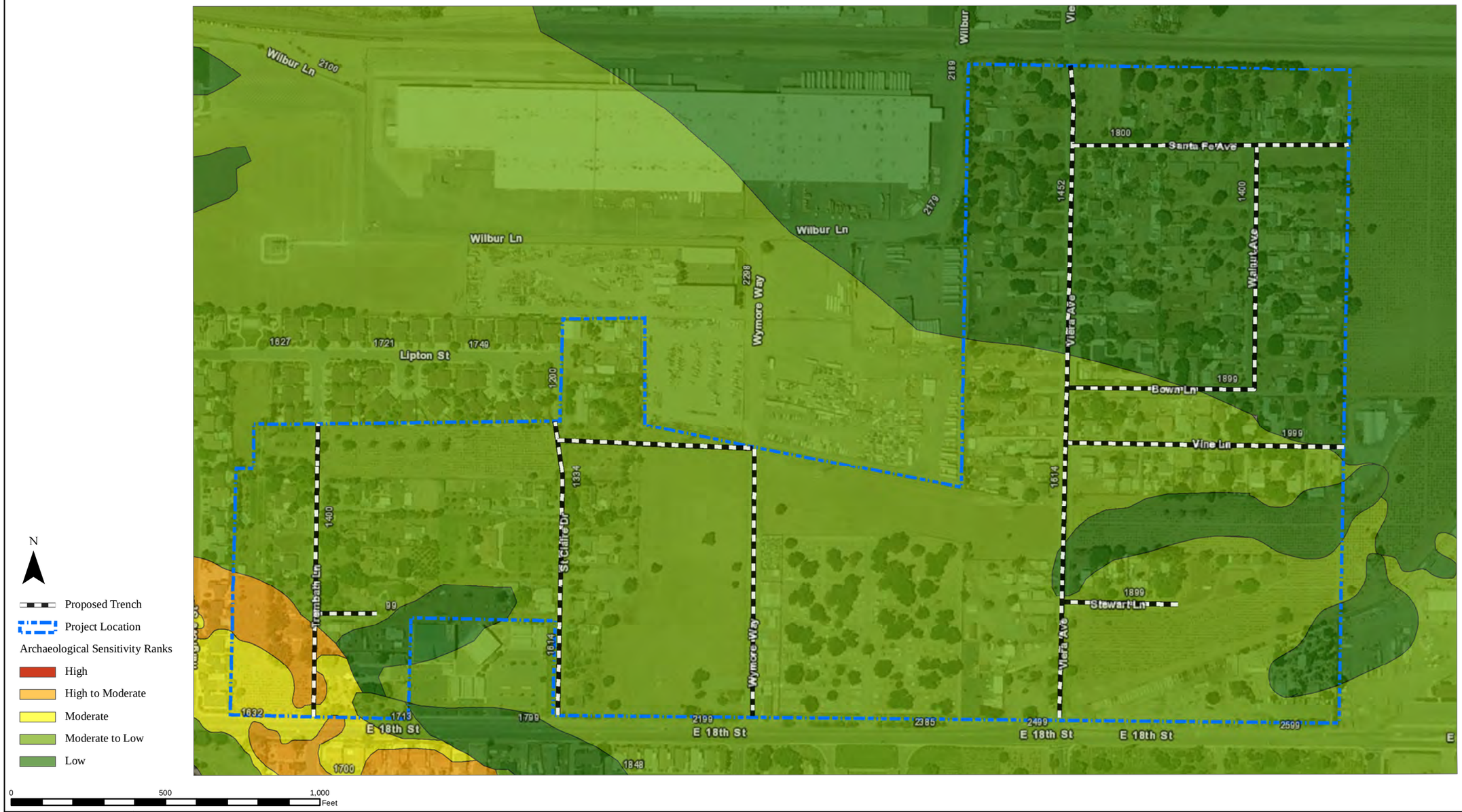
8.1 Previously Recorded Archaeological Resources

One previously recorded historical archaeological site (P-07-002952) and one previously recorded historic structure (P-07-002951) are located within the project area (see Section 4.3 above and refer to Figure 10). The Contra Costa Las Positas Transmission Line (P-07-002951) transects the southeastern portion of the project area. Previous researchers from Garcia and Associates recommended the transmission line as not eligible for listing on the CRHR, and it is therefore not considered a "historical resource" under CEQA (Siskin et al. 2008).

Previous researchers from Garcia and Associates also recorded an historic artifact scatter beneath PG&E transmission Tower Number 0/6 on the northwest corner of the intersection of Viera Avenue and East 18th Street (P-07-002952) (refer to Figure 10). The site has not been formally evaluated for its potential eligibility to the CRHR and its potential significance is unknown. To avoid potential impact to this resource from project-related construction activities, WSA recommends that the site be located and flagged prior to the beginning of work so that it may be avoided during construction. However, if ground-disturbing activities must be conducted within this area, to minimize impacts to this resource WSA recommends conducting a formal site evaluation to assess whether the site is potentially eligible for listing in the CRHR.

8.2 Previously Undiscovered Archaeological Resources

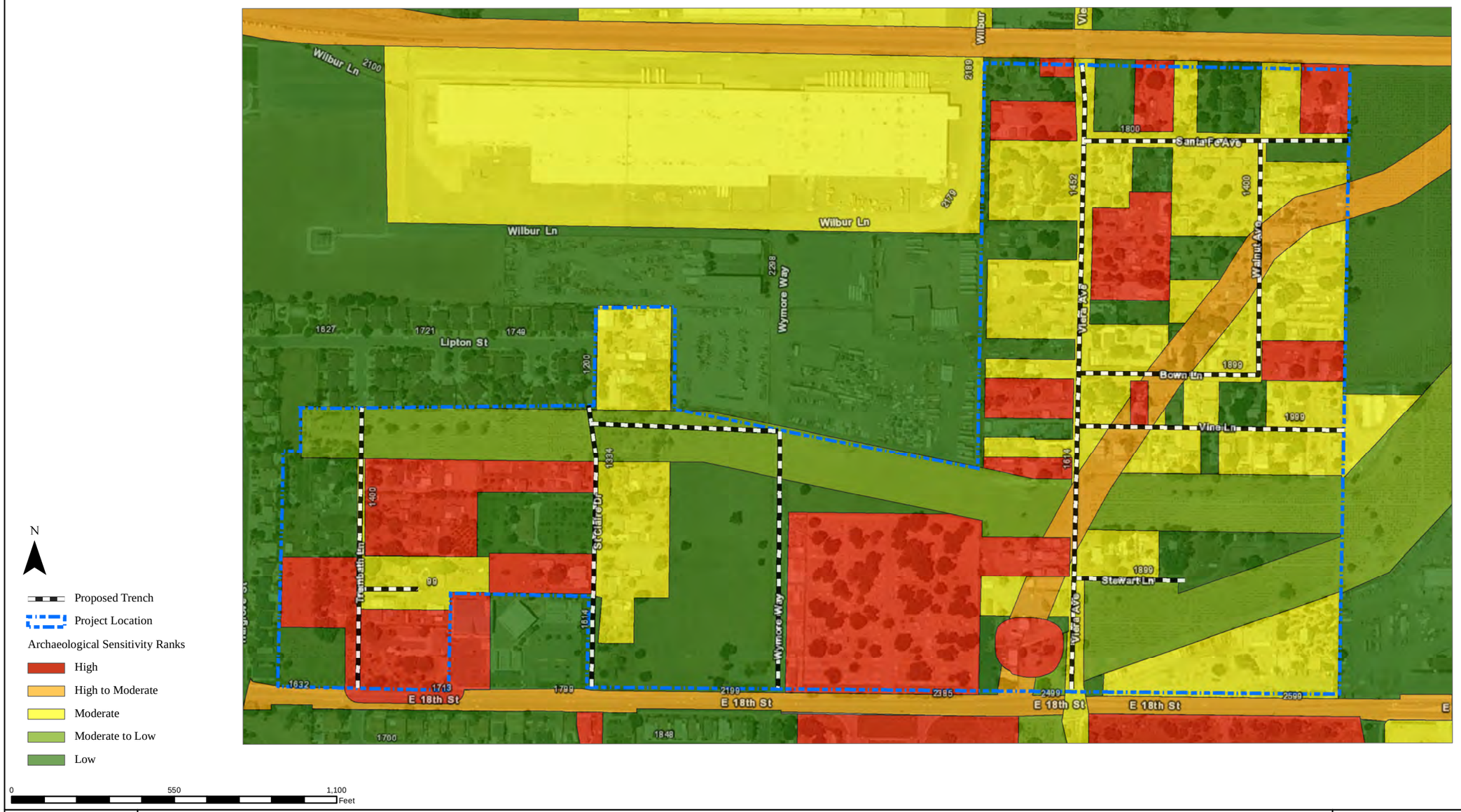
In the southwestern corner of the project area, the 8-inch water line and 8-inch sewer line along Trembath Lane will be placed within an area that has high to moderate prehistoric and high historical archaeological sensitivity (Figures 13 and 14). If present, prehistoric archaeological deposits may extend below the level of disturbance from previous road building, which could result in intact archaeological deposits being impacted by project-related ground-disturbing activities. In addition to the prehistoric sensitivity, Trembath Lane is located adjacent to the earliest historical settlement in the project area, which may have been occupied as early as 1850 (see Section 3.4.4 above). There is the potential that hollow or sheet refuse features associated with the historical occupation of the area may be present below the level of disturbance from previous road building and may be encountered during project-related ground-disturbing activities. Because of the high to moderate sensitivity for prehistoric archaeological remains and



WSA

Prehistoric Archaeological Sensitivity Model and Proposed Utilities in the Project Area

Figure 13
Northeast Antioch Reorganization
CirclePoint
Antioch, CA



WSA

Historical Archaeological Sensitivity Model and Proposed Utilities in the Project Area

Figure 14
Northeast Antioch Reorganization
CirclePoint
Antioch, CA

the high sensitivity for historical archaeological remains in this area, WSA recommends that an archaeological monitor observe project-related excavation along Trembath Lane, between East 18th Street and Mike Yorba Way. Based on the results of Native American consultation, WSA also recommends that a Bay Miwok Native American monitor also be present when an archaeological monitor is present.

If an intact archaeological deposit is encountered in this area, all soils- disturbing activities in the vicinity of the deposit must cease. The archaeological monitor shall be empowered to temporarily redirect excavation activities and equipment until such time that the resource can be evaluated for its eligibility to the CRHR by a qualified archaeologist and appropriate action taken as determined necessary by the lead agency. If the resource is recommended to be non-significant, avoidance is not necessary. If the resource is recommended as potentially significant or eligible to the CRHR, it will be avoided. If avoidance is not feasible, project impacts will be mitigated in accordance with the recommendations of the Principal Investigator and CEQA Guidelines §15126.4 (b)(3)(C), which require development and implementation of a data recovery plan that would include recommendations for the treatment of the discovered archaeological materials. The data recovery plan would be submitted to the City of Antioch for review and approval. Upon approval and completion of the data recovery program, project construction activity within the area of the find may resume, and the archaeologist will prepare a report documenting the methods and findings. The report will be submitted to the City of Antioch. Once the report is reviewed and approved by the City of Antioch, a copy of the report will be submitted to the NWIC.

Whether or not significant archaeological resources are encountered during archaeological monitoring, the archaeological consultant will submit a written report of the results of the monitoring program to CirclePoint and the City of Antioch.

With the exception of the southwestern corner of the project area discussed above, the archaeological sensitivity models WSA created for the project indicate there is a moderate to low potential for encountering buried archaeological resources during project-related construction. Due to previous road building disturbance in the areas of proposed ground disturbance, and the moderate to low of potential of encountering archaeological resources, no further archaeological work is recommended in those areas indicated as moderate to low and low sensitivity on the prehistoric archaeological sensitivity model, and high to moderate, moderate, moderate to low or low archaeological sensitivity on the historical archaeological sensitivity model (refer to Figures 13 and 14). If, however, an archaeological resource is encountered during construction activities, work in the area should immediately stop until such time that the resource can be evaluated for its eligibility to the CRHR by a qualified archaeologist and appropriate action taken as determined necessary by the lead agency.

8.3 Previously Undiscovered Human Remains

Although not anticipated, ground disturbing activities associated with construction activities could disturb human remains, including those interred outside of formal cemeteries. The potential to uncover Native American human remains exists in locations throughout California. In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code states:

> In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning invest igation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction."

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August 2, 2012

Mr. John Cook
CirclePoint
1814 Franklin Street, Suite 1000
Oakland, CA 94612

RE: Addendum to Cultural Resources Assessment Report, Northeast Antioch Reorganization, Antioch, Contra Costa County, California

Dear Mr. Cook:

In response to the refined infrastructure plans sent to WSA on July 26, 2012 for the area designated as Area 2B of the Northeast Antioch Reorganization Project, Antioch, Contra Costa County, California, WSA has examined the records search results and archaeological sensitivity models completed for the original Area 2B project area to assess potential impacts to archaeological resources outside the original project area in the location of the refined infrastructure plans.

Refined infrastructure plans indicate that proposed storm drain lines will extend approximately 300 meters east of the original project area and a proposed sewer line will extend approximately 120 meters north of the original project area. The records search of the original Area 2B project area and a ¼ mile radius adjacent thereto (File No. 11-1340) indicated there were two recorded resources within the project area and two additional recorded resources within a ¼-mile radius of the project area. Two of the four resources identified during the records search overlap with the refined infrastructure plans located outside the original Area 2B boundary.

The first recorded resource is the Contra Costa Las Positas Transmission Line (P-07-002951). This resource transects the proposed storm drain located east of the original Area 2B boundary. Previous researchers from Garcia and Associates recorded the transmission line as a historical resource in 2008 during their survey of the PG&E transmission line right-of-way, and they recommended it as not eligible for listing on the California Register of Historical Resources (CRHR) (Siskin et al. 2008). The second recorded resource is the Atchinson, Topeka, and Santa Fe Railroad, which runs parallel to the northern boundary of the original Area 2B project area. Previous researchers also recommended it as not eligible for listing on the CRHR (Jones & Stokes Associates, Inc. 1998). The extension of the proposed sewer line along Viera Avenue north to Wilbur Avenue will cross the railroad right-of-way. Although neither resource has been recommended as eligible for listing on the

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CRHR, there has not been formal concurrence by the California State Office of Historic Preservation. WSA therefore recommends that both resources be avoided during project-related construction activities.

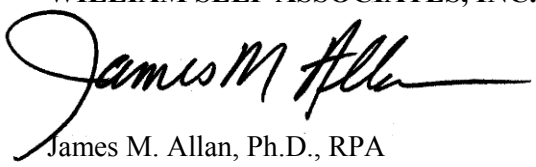
In addition to the records search results, WSA reviewed GIS data in the vicinity of the refined infrastructure plans. Because soil type, slope, distance to nearest water, and distance to other recorded sites remains the same as the northeast portion of the original Area 2B project area, prehistoric archaeological sensitivity in the refined project area remains low in the area north and east of the original Area 2B boundary. In addition, a review of available historical data indicate that, with the exception of the resources described above and a road depicted on the 1908 Antioch 15-minute USGS topographic quadrangle, which has a low likelihood of having associated subsurface deposits, no additional historical resources are likely to be encountered in the area of refined infrastructure plans.

Although not anticipated, ground disturbing activities associated with construction activities could disturb previously undiscovered archaeological resources. If an archaeological resource is encountered during construction activities, work in the area should immediately stop until such time that the resource can be evaluated for its eligibility to the CRHR by a qualified archaeologist and appropriate action taken as determined necessary by the lead agency.

Thank you for the opportunity to provide our services to you on behalf of the project. Please don't hesitate to give me a call if we can be of further assistance or answer any questions you may have on the work.

Best regards,

WILLIAM SELF ASSOCIATES, INC.



James M. Allan, Ph.D., RPA
Principal

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Appendix A

Native American Consultation

June 13, 2012

Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814
(916) 653-4082; Fax (916) 657-5390

RE: Northeast Antioch Reorganization, Antioch, Contra Costa County, CA

Dear Native American Heritage Commission:

William Self Associates, Inc. (WSA) has been contracted to assess potential impacts to cultural resources as part of the Northeast Antioch Reorganization, in the City of Antioch, Contra Costa County, California. The project area is within Section 20 in Township 2 North, Range 2 East as depicted on the Antioch North US Geological Survey 7.5 minute topographic quadrangle (1997) (see attached map). The proposed project will place new infrastructure within public rights of ways in anticipation of future development.

We bring this project to the attention of the Native American Heritage Commission with the desire to obtain, from your office, pertinent information regarding prehistoric, historic and/or ethnographic land use and sites of Native American traditional or cultural value that might be known to exist within the project vicinity, as depicted in the Sacred Lands database or other files. We would also appreciate obtaining a list of interested Native American tribal entities or individuals for the project area.

We would appreciate a response, at your earliest convenience, should you have information relative to this request. Should you have any questions, I can be reached at (925) 253-9070.

Thank you again for your assistance.

Sincerely,

WILLIAM SELF ASSOCIATES

James M. Allan, Ph.D., RPA
Vice-President

Attachment

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390

June 21, 2012

Matthew A. Russell
William Self Associates, Inc.
61-D Avenida de Orinda
P.O. Box 2192
Orinda, CA 94563

Sent by Fax: 925-254-3553
Number of Pages: 2

Re: Northeast Antioch Reorganization Project, Contra Costa County.

Dear Mr. Russell:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Contra Costa County
June 20, 2012

Katherine Erolinda Perez
PO Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

The Ohlone Indian Tribe
Andrew Galvan
PO Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 - Cell
(510) 687-9393 - Fax

Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Trina Marine Ruano Family
Ramona Garibay, Representative
30940 Watkins Street
Union City , CA 94587
soaprootmo@msn.com
510-972-0645-home

Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Northeast Antioch Reorganization Project, Contra Costa County

June 21, 2012

Ms. Katherine Erolinda Perez
P.O. Box 717
Linden, CA 95236

RE: Northeast Antioch Reorganization, Antioch, Contra Costa County, CA

Dear Ms. Perez:

William Self Associates, Inc. (WSA) has been contracted to assess potential impacts to cultural resources as part of the Northeast Antioch Reorganization Project, in Antioch, Contra Costa County, California. The project area is within Section 20 in Township 2 North, Range 2 East as depicted on the Antioch North US Geological Survey 7.5 minute topographic quadrangle (1978) (see attached map). The City of Antioch is proposing to annex a previously unincorporated parcel in northeastern Antioch, and proposed construction will place new public utilities infrastructure within public rights of way as part of the annexation process. A records search indicated a number of previous archaeological surveys have been conducted within the project area, and that no previously recorded prehistoric archaeological resources have been identified within or within ¼-mile of the project area.

We would appreciate receiving any comments you may have regarding cultural resources or sacred sites issues within the immediate project area. If you could provide your comments in writing to the address below, or call me, we will make sure the comments are provided to our client as part of this project. We would appreciate a response, at your earliest convenience, should you have information relative to this request. Should you have any questions, I can be reached at (925) 253-9070.

Sincerely,

James Allan, Ph.D., RPA
Principal

June 21, 2012

Mr. Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3152
Fremont, CA 94539

RE: Northeast Antioch Reorganization, Antioch, Contra Costa County, CA

Dear Mr. Galvan:

William Self Associates, Inc. (WSA) has been contracted to assess potential impacts to cultural resources as part of the Northeast Antioch Reorganization Project, in Antioch, Contra Costa County, California. The project area is within Section 20 in Township 2 North, Range 2 East as depicted on the Antioch North US Geological Survey 7.5 minute topographic quadrangle (1978) (see attached map). The City of Antioch is proposing to annex a previously unincorporated parcel in northeastern Antioch, and proposed construction will place new public utilities infrastructure within public rights of way as part of the annexation process. A records search indicated a number of previous archaeological surveys have been conducted within the project area, and that no previously recorded prehistoric archaeological resources have been identified within or within ¼-mile of the project area.

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Sincerely,

James Allan, Ph.D., RPA
Principal

June 21, 2012

Ms Ramona Garibay, Representative
Trina Marine Ruano Family
30940 Watkins Street
Union City, CA 94587

RE: Northeast Antioch Reorganization, Antioch, Contra Costa County, CA

Dear Ms Garibay:

William Self Associates, Inc. (WSA) has been contracted to assess potential impacts to cultural resources as part of the Northeast Antioch Reorganization Project, in Antioch, Contra Costa County, California. The project area is within Section 20 in Township 2 North, Range 2 East as depicted on the Antioch North US Geological Survey 7.5 minute topographic quadrangle (1978) (see attached map). The City of Antioch is proposing to annex a previously unincorporated parcel in northeastern Antioch, and proposed construction will place new public utilities infrastructure within public rights of way as part of the annexation process. A records search indicated a number of previous archaeological surveys have been conducted within the project area, and that no previously recorded prehistoric archaeological resources have been identified within or within ¼-mile of the project area.

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Sincerely,

James Allan, Ph.D., RPA
Principal

Matt Russell <mrussell@williamself.com>

Andrew Galvan & Northeast Antioch Reorganization

6 messages

Andy Galvan <chochenyo@aol.com> Thu, Jun 21, 2012 at 11:20 PM
To: mrussell@williamself.com
Cc: dpt_nahc@pacbell.net

Hi there,

can you tell me if a Foot Survey has been under taken for this project?

Also, may I have a copy of the Phase I Literature Search?

I'm wanting to know what are your professional recommendations for the project area?

My paternal grandfather and maternal grandmother, as well as numerous other family members are buried within Holy Cross Cemetery, Antioch.

Thank you,

Andrew Galvan
An Ohlone/Bay Miwok Man

-----Original Message-----
From: Matt Russell <mrussell@williamself.com>
To: chochenyo <chochenyo@aol.com>
Sent: Thu, Jun 21, 2012 3:31 pm
Subject: Northeast Antioch Reorganization

Dear Mr. Galvan,

As you requested last winter, I'm contacting you via email rather than certified letter to solicit your input and comments regarding the proposed Northeast Antioch Reorganization Project. Project details and a location map are attached for your review. If you could acknowledge receipt of this message and pass along at your convenience any comments you have, it would be most appreciated. If you have any questions, please don't hesitate to let me know.

Thanks, and best regards,

Matt Russell

Matthew A. Russell, Ph.D., RPA
William Self Associates, Inc.
61-D Avenida de Orinda
PO Box 2192
Orinda, CA 94563

(925) 253-9070
www.williamself.com

Matt Russell <mrussell@williamself.com> Mon, Jun 25, 2012 at 9:29 AM
To: Andy Galvan <chochenyo@aol.com>

Dear Mr. Galvan,

Thank you for your note. To address your questions, portions of the project parcel along transmission line rights of way have been subjected to pedestrian survey -- the majority of the project area is private, residential lots that have not been surveyed. The project impacts, however, consist of installation of water and sewer lines within public rights of way, along existing streets.

The literature search indicates that no precontact sites are recorded within 1/4 mile of the project area. Two historic sites are recorded within the project area -- a historic artifact scatter under one of the transmission towers and the transmission line itself (portions date to 1920s) is recorded as a historical site. The literature search includes reports of the surveys along the transmission lines.

In addition to a historical context, we also developed an archaeological sensitivity model of the project area in GIS, examining such factors as soil type, slope, distance to water, and distance to recorded sites. The underlying soil type (dune sand in the river flood plain) has a low sensitivity due to ongoing erosion. In the southwestern corner of the project area, however, there is a moderate to high sensitivity area near a small, seasonal drainage. We have recommended archaeological monitoring of the water and sewer line installation in that portion of the project area.

If you have any other questions or need additional information, please let me know.

Best regards,

Matt

Matthew A. Russell, Ph.D., RPA
William Self Associates, Inc.
61-D Avenida de Orinda
PO Box 2192
Orinda, CA 94563
(925) 253-9070
www.williamself.com

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Andy Galvan <chochenyo@aol.com> Mon, Jun 25, 2012 at 6:43 PM
To: mrussell@williamself.com

Hi there,

your recommendation for archaeological monitoring is that because of the possibility of encountering pre-contact sites?

Andy Galvan
An Ohlone/Bay Miwok Man

-----Original Message-----
From: Matt Russell <mrussell@williamself.com>
[Quoted text hidden]

Matt Russell <mrussell@williamself.com> Tue, Jun 26, 2012 at 9:41 AM
To: Andy Galvan <chochenyo@aol.com>

Dear Mr. Galvan,

Our recommendation for monitoring ground-disturbing activities in the southwest corner of the project area is based on both the results of our GIS-based archaeological sensitivity model, which indicates moderate to high sensitivity for pre-contact sites in that location, as well as its proximity to the earliest historical settlement in the area (possibly dating as early as 1850), which may have had associated privies, garbage pits, or other subsurface deposits. We are recommending archaeological monitoring of sewer and water line trenching along Trembath Lane, from E. 18th Street to Mike Yorba Way.

If you have any other questions, or need additional information, please feel free to let me know.

Best regards,

Matt

Matthew A. Russell, Ph.D., RPA
William Self Associates, Inc.
61-D Avenida de Orinda
PO Box 2192
Orinda, CA 94563
(925) 253-9070
www.williamself.com

[Quoted text hidden]

Andy Galvan <chochenyo@aol.com> Wed, Jun 27, 2012 at 8:38 AM
To: mrussell@williamself.com
Cc: dpt_nahc@pacbell.net

Hi there,

then I would recommend the presence of a BAY MIWOK Native American Indian Monitor when an archaeological monitor is present in those areas with "moderate to high sensitivity for pre-contact sites in that location."

Thank you,

Andrew Galvan
An Ohlone/Bay Miwok Man

-----Original Message-----
From: Matt Russell <mrussell@williamself.com>
[Quoted text hidden]

Matt Russell <mrussell@williamself.com> Wed, Jun 27, 2012 at 9:49 AM
To: Andy Galvan <chochenyo@aol.com>

Dear Mr. Galvan,

Thank you for your message. We will include your recommendation in our report for the presence of a Bay Miwok Native American Indian monitor when an archaeological monitor is present during project-related ground-disturbing activities in the areas of moderate to high archaeological sensitivity within the project area.

Thank you and best regards,

Matt

Matthew A. Russell, Ph.D., RPA
William Self Associates, Inc.
61-D Avenida de Orinda
PO Box 2192
Orinda, CA 94563
(925) 253-9070
www.williamself.com

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Table 1. Record of Native American Contacts and Comments

Native American Contact	Date of Notification Letter	Response to Letter (Date)	Date of Phone Contact	Date of Follow-Up Phone Contact	Comments
Mr Andrew Galvan The Ohlone Indian Tribe P.O. Box 3152 Fremont, CA 94539 510-882-0527	06/21/12	06/27/12	n/a	n/a	Recommends Bay Miwok Native American monitor when archaeological monitor is present in areas sensitive for prehistoric archaeological sites.
Ms. Katherine Erolinda Perez P.O. Box 717 Linden, CA 95236 209-887-3415	06/21/12	No response	07/05/12	07/12/12	Left voicemail
Ms Ramona Garibay, Representative Trina Marine Ruano Family 30940 Watkins Street Union City, CA 94587 510-972-0645	06/21/12	No response	07/05/12	07/12/12	Left voicemail

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