Final Feasibility Study:
Bus Maintenance Yard and Fueling Facility

December 12, 2013

Prepared for

Napa County Transportation & Planning Agency

Prepared by

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1. Introduction

This report documents the feasibility of the proposed Bus Maintenance Yard and Fueling Facility for the Napa County Transportation and Planning Administration (NCTPA). The feasibility study was prepared to plan the required space for a new bus maintenance facility, identify potential property sites in Napa County, screen the sites based on prioritized criteria, prepare conceptual facility layouts for the top ranked sites, and finally recommend a preferred site for acquisition by the NCTPA.

This report is a synthesis of the five technical memoranda completed for this comprehensive study which includes space planning and programming, identification of potential sites, a conceptual master planning design charrette, due diligence analysis, and exploration of the potential for multi-jurisdictional facility use. The study was completed over six months and accomplished the tasks shown in **Table 1**.

Table 1: Major Components of the Study

Major Components of The Feasibility Study	Technical Memo (TM)
1. Data Collection, Needs Assessment and Space Planning	TM 1
2. Candidate Site Identification and Conceptual Facility Layout	TM 2, 3
3. Due Diligence Evaluation and Shared Use Analysis	TM 4, 5
4. Final Report and Presentation to Board	TM 6

2. Space Planning and Programming

The space plan and program forms the basis of the future design for the facility. This Basis for design is a critical step in developing the requirements and space needs for the proposed NCTPA Facility. It defines the functional and operational characteristics of NCTPA's administrative, operations and maintenance groups that will be located at and operating from the proposed NCTPA Facility. Specific details are documented in Technical Memo #1 in the appendix.

The primary driver of a space program for an operations and maintenance facility is the size of the transit fleet to be serviced and stored at the site. Based on published data and service interviews, KHA concluded that the fleet would grow at a conservative one percent per year. The existing NCTPA Bus Maintenance facility services approximately 80 vehicles (of mixed types) at present. Based on the one percent annual growth rate, the fleet is expected to grow to 97 buses over the next 20 years. The existing NCTPA Facility is designed for a much smaller fleet and will not be able to accommodate this level of growth.

The proposed space and facilities program for a 97-bus fleet at the NCTPA Facility is based on the desired building and site functions which includes all building and site areas including administration, operations, maintenance, and parking areas, and will be used by the design team to develop the master plan and the conceptual building plans of the proposed NCTPA Facility. Additionally, site circulation, setbacks, landscaping requirements, and total acres

required for the facility are included in the space and facilities program. Based on the criteria stated above, the space allocation for the proposed facility was calculated to require approximately 12 acres as shown in **Table 2** below.

Table 2: Proposed Functional Space Allocation for NCTPA Facility

Function	Employees	Area (sq. ft.)
NCTPA Administration Areas	0	907
Contractor Bus Operations Areas & Support	159	8,636
Contractor Bus Maintenance (Offices)	18	2,554
Contractor Bus Maintenance (Bays & Shops)	0	19,243
Contractor Fleet Service Areas (Fuel & Wash)	1	10,575
Subtotal	**178**	**41,916**
Exterior Parking Areas (bus and employees)		157,062
Subtotal Area (Building + Exterior)		198,978
Circulation Factor (100% of Subtotal)		198,978
Total Area (with reserve)		**12 acres**

3. Site Screening

The site screening and selection process was used to identify and recommend four preferred sites for the Bus Maintenance Facility. The project team consisting of the consultants, the commercial real estate broker, and NCTPA began the process by identifying a large number of potential properties to locate the Bus Maintenance Facility in June of 2013. Using a multiple step process, the project team began by identifying a project study area to constrain the location of potential sites as shown below.

The study area was based on NCTPA input, availability of suitable land, distance from the existing transit transfer center, and geographic location in relation to service area. Early communication with NCTPA indicated the preferred sites should be zoned for industrial uses. As a public agency, NCTPA could obtain non-industrial property and use it for the proposed bus facility, but it was noted that the County would prefer compliance with their General Plan. The NCTPA also indicated that it was their preference that the Bus Maintenance Facility be located as to minimize operational costs from excessive deadhead

bus movements. Based on this input, KHA identified all industrially-zoned properties and the major transportation corridors within the study area.

KHA then developed the set of site selection criteria shown in **Table 3**. The team then applied these criteria to a pool of sites within the study area and was able to reduce the candidates to 27 possible sites. Using these initial 27 sites the team next met with the City of Napa, County of Napa, the commercial broker, and NCTPA staff in order to gather additional input. Subsequent to the stakeholder meetings, a two-step screening process was applied to the 27 potential sites.

Table 3: Initial Criteria

These are requirements that have to be met. If not met, site to be rejected	
Minimum size	*7+ acres*
Minimum dimensions	*300 feet wide (may be refined)*
General Plan recommendation	*Industrial or public use*
Available for purchase	*Condemnation not a viable alternative*
Acceptable Covenants	*Covenants do not restrict this use*
These are requirements that are very important but not essential to meet	
Compatible adjacent uses	*Noise sensitive neighbors not desirable*
Full movement access to public roads	*Site allows left and right turns in and out*
Environmental issues	*No costly mitigation required*
Minimal deadhead length	*Minimize deadhead length*
Compatible zoning	*No rezoning or SUP required*
Price	*Reasonable and supportable by an appraisal*
These are desired but not essential or critical	
Expandable	*To accommodate growth*
Minimal site preparation costs	*Costs for demolition, mitigation, utilities*
Minimal off-site work	*No off site utility or road work required*

3.1. Screening Process for 27 Sites

The primary screening of the 27 sites consisted of gathering information on the site zoning, size, distance to major highways, dead head operating impacts, and real estate information for each site. The team then conducted site visits and toured the candidate sites and ranked them according to the initial criteria. Criteria, the sites were grouped into three classifications; Preferred, Potential, or Rejected. This resulted in six sites being classified as “preferred sites”:

- Site #1 – Southside Soscol Ferry
- Site #2 – Westside of Devlin Rd **(Nova)**
- Site #3 – 1055 Soscol Ferry Road and Adjacent Parcel
- Site #6 – Technology Way @ Morris
- Site #13 – Napa Airport Corporate Centre
- Site #20 – East of Pacific Supply **(Boca)**

Figure 1: Site #1 – South Side Soscol Ferry Rd

Site 1 Attributes	
Distance to Transit Center:	4.5 Miles
Parcel Number:	057-170-001-000
Zoning Designation:	IP-AC
Total Acreage:	22.39

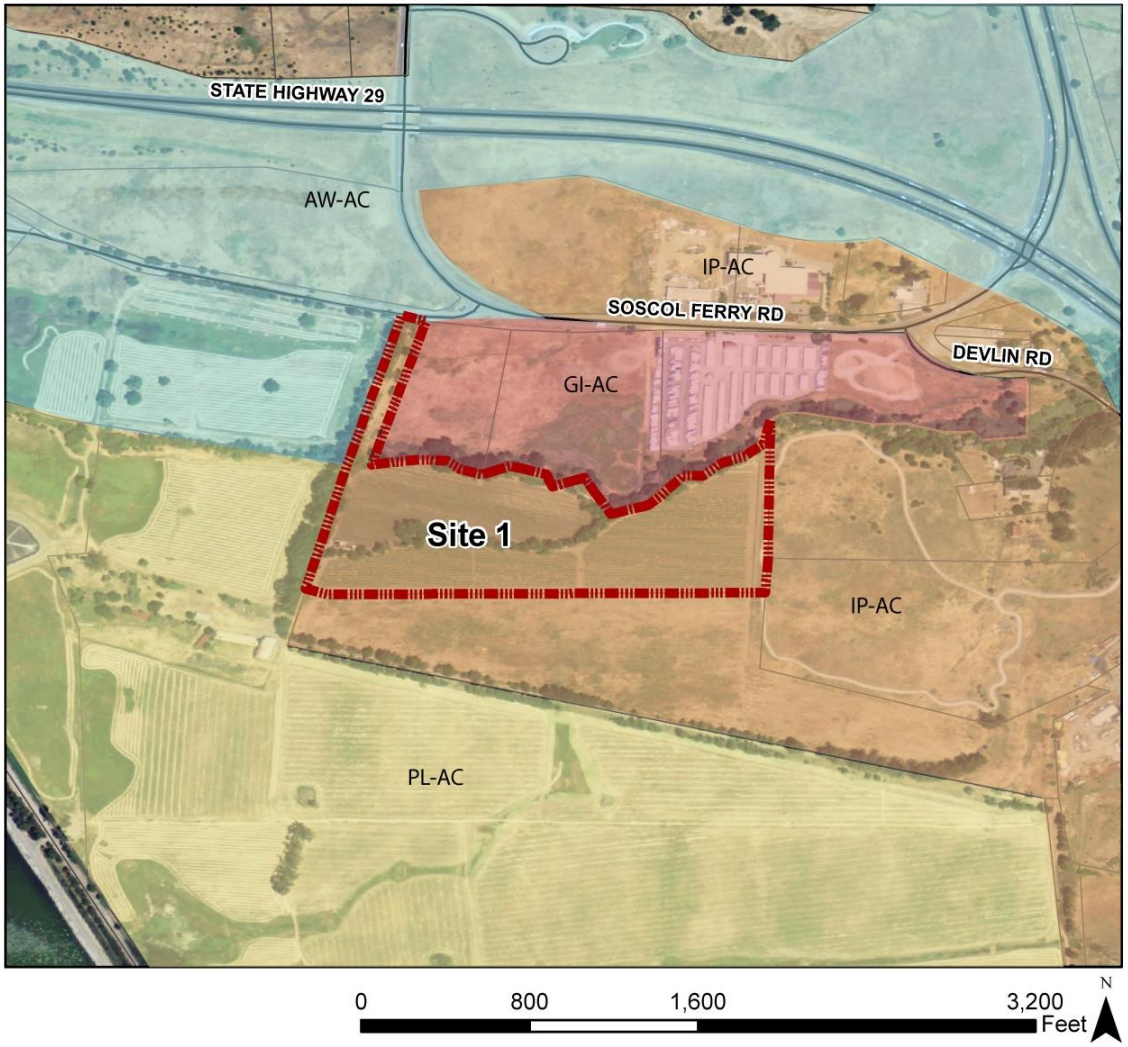


Figure 2: Site #2 – West Side of Devlin Rd (NOVA Property)

Site 2 Attributes	
Distance to Transit Center:	4.7 Miles
Parcel Number:	057-170-019-000
Zoning Designation:	IP-AC
Total Acreage:	26.93

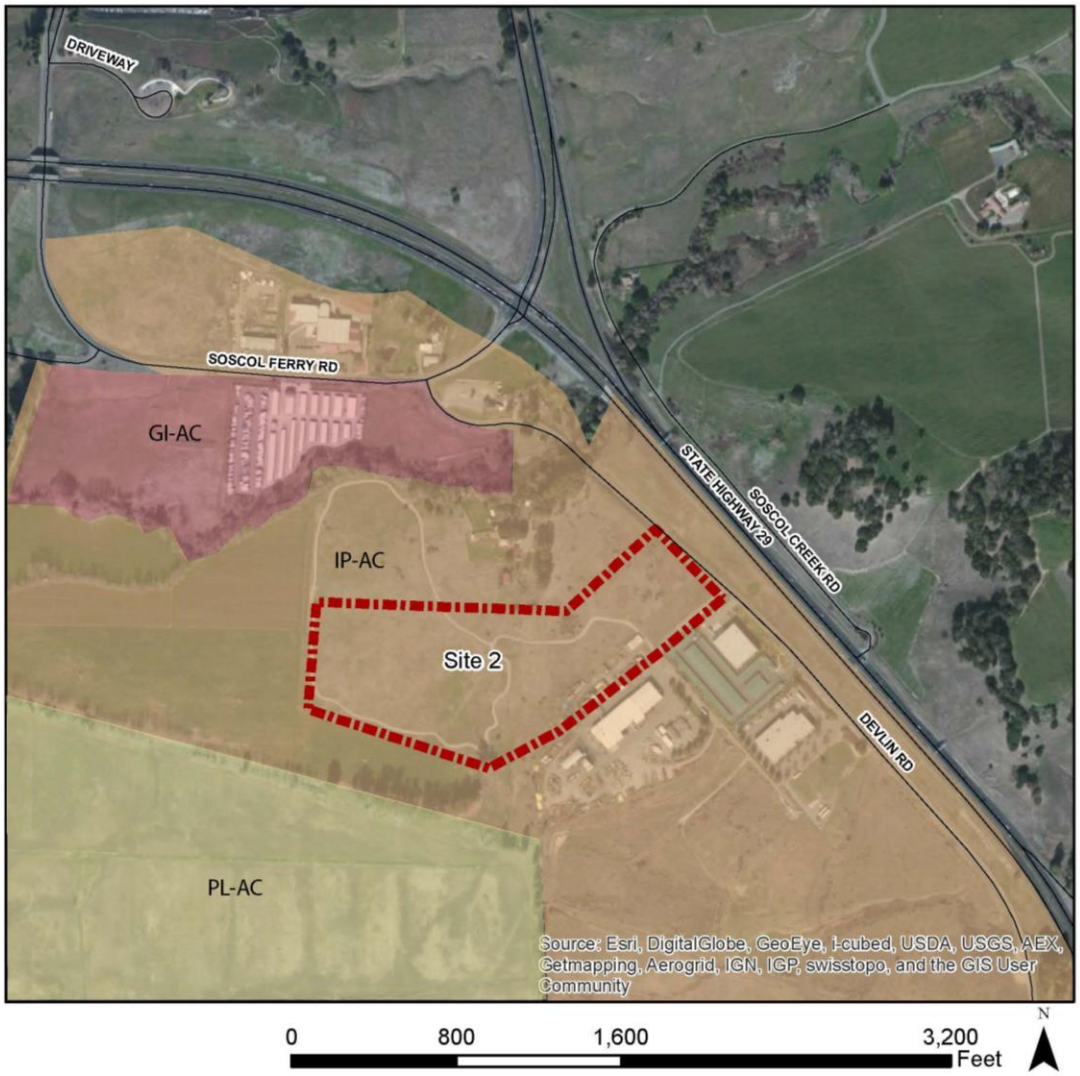


Figure 3: Site #3 Plus 1055 Soscol Ferry Rd

Site 3 Attributes	
Distance to Transit Center:	4.3 Miles
Parcel Number:	057-170-018-000 057-170-017-000
Zoning Designation:	GI-AC
Total Acreage:	15.48

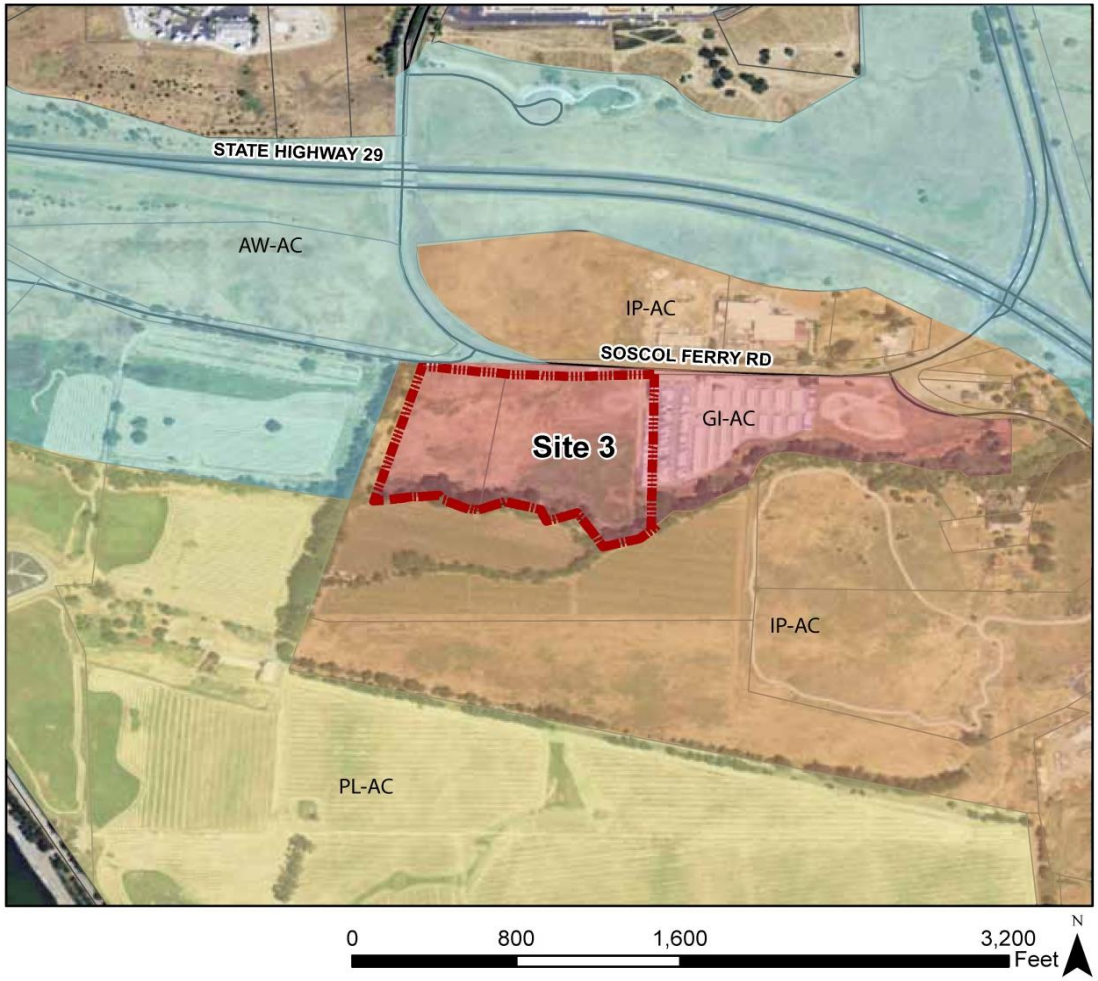


Figure 4: Site #6 – Technology Way at Morris Court

Site 6 Attributes	
Distance to Transit Center:	6.1 Miles
Parcel Number:	057-250-029-000
Zoning Designation:	IP-AC
Total Acreage:	11.06

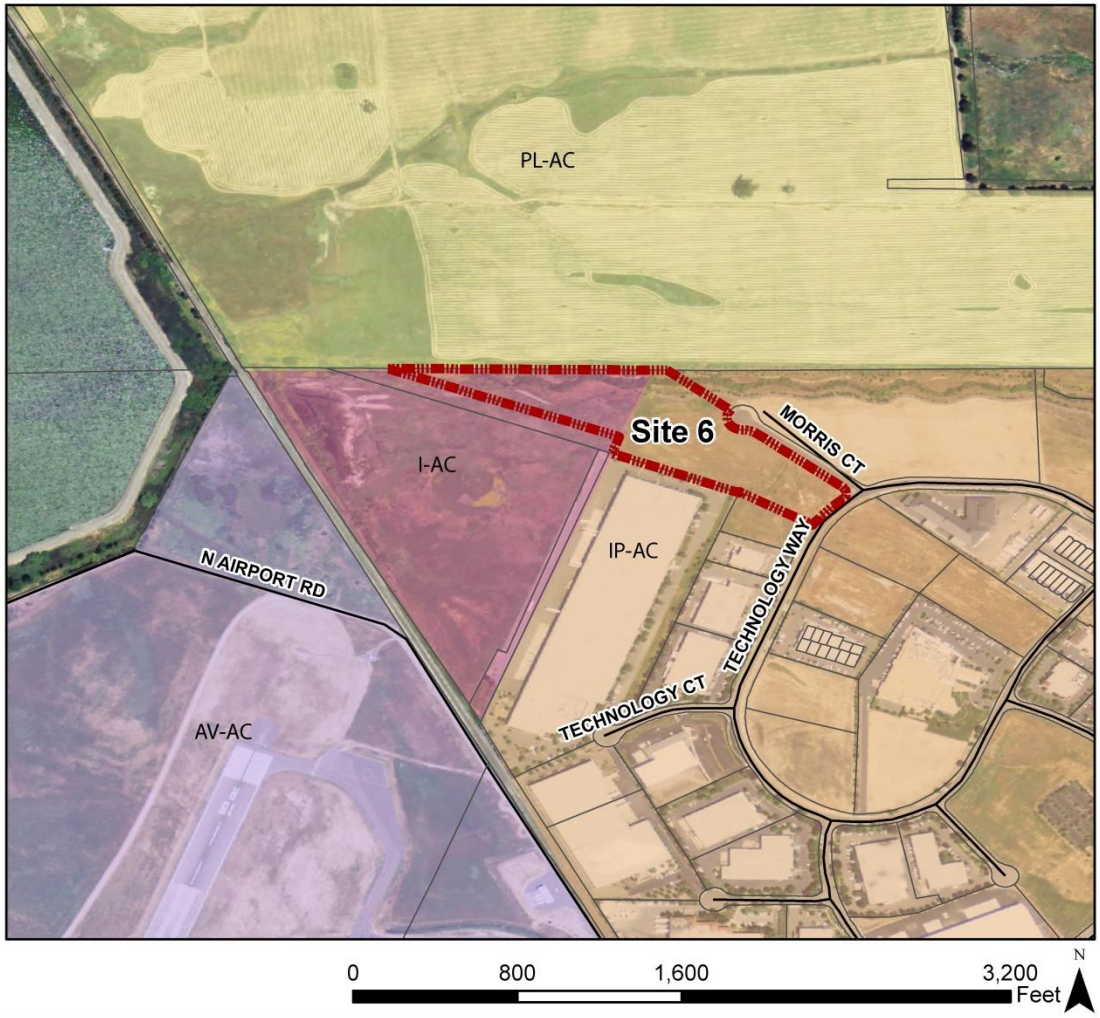


Figure 5: Site #13 – Napa Airport Corporate Centre

Site 13 Attributes

Distance to Transit Center:	6.7 Miles
Parcel Number:	057-090-080-000 057-090-079-000
Zoning Designation:	SP-2
Total Acreage:	49.17

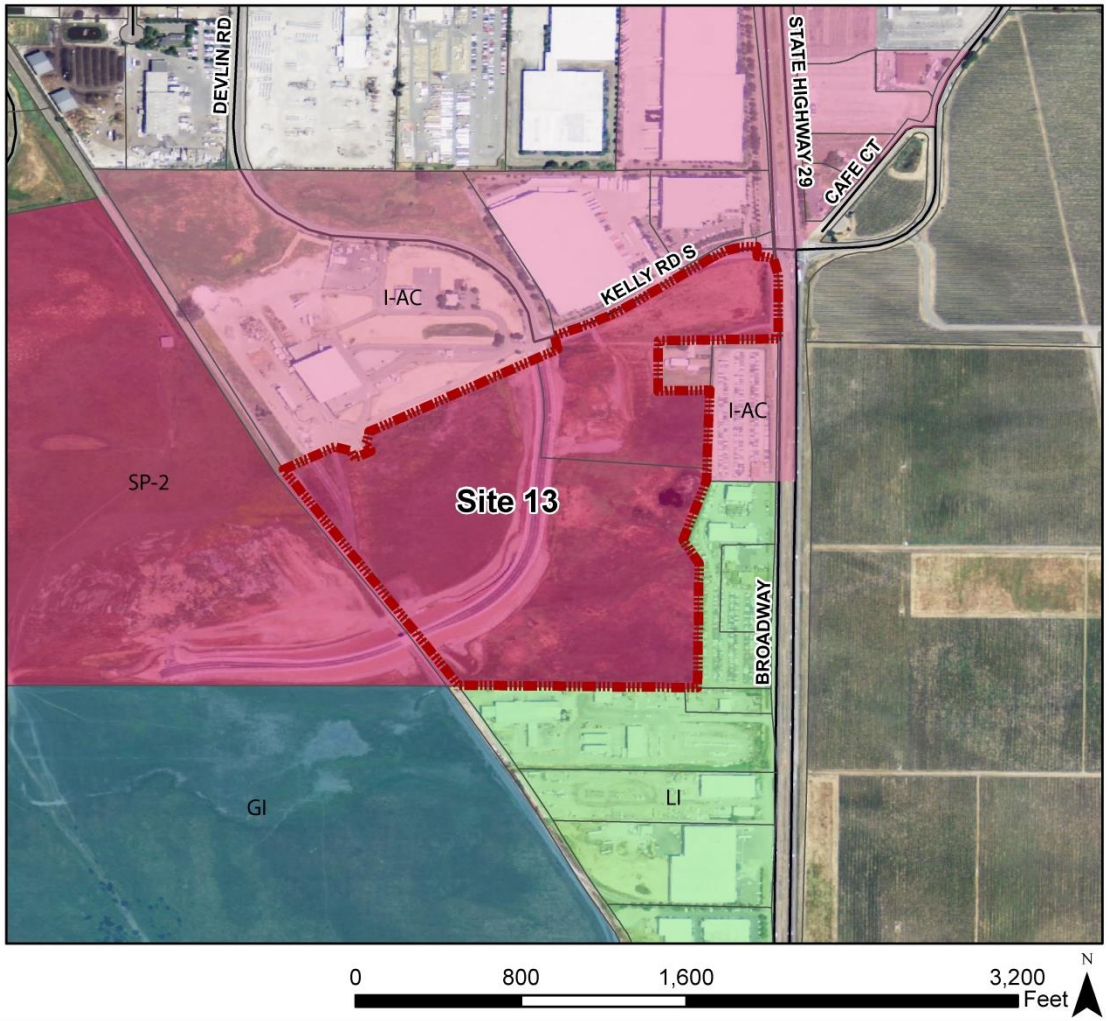


Figure 6: Site #20 – East of Pacific Supply

Site 20 Attributes

Distance to transit center:	2.6 miles
Parcel numbers:	046-370-024-000
Zoning Designation:	I
Acreage:	26 ac.

500 ft. 250 ft. 0 ft. 250 ft. 500 ft.

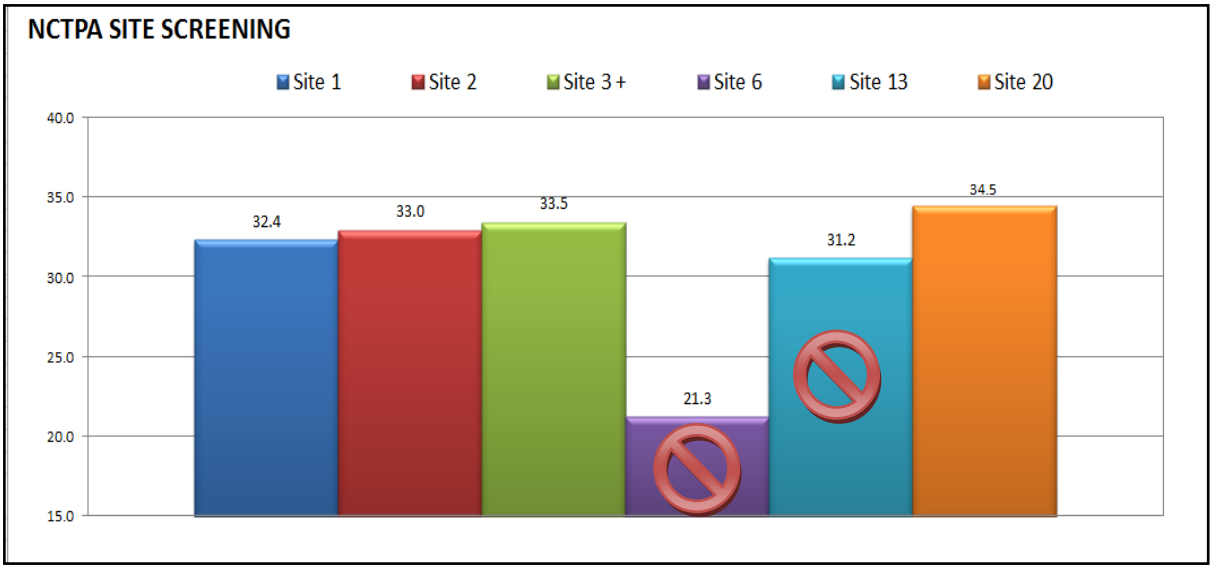
3.2. Secondary Screening for Top Six Sites

The six preferred sites were then screened using a more detailed set of criteria. This set of criteria were developed from project team input and based on project and professional experience from similar bus maintenance facility projects. The screening matrix used to analyze the six preferred sites is a spreadsheet tool that uses quantifiable values to help rank a series of alternatives. In this case the following five main groups of criteria were used:

- Location of the sites (distance from the transit center);
- The capacity of the site to handle the space program;
- Real estate issues;
- The costs of development; and
- Environmental issues.

Each general category has several sub-criteria that support the main group. Each of the sub-criteria is weighted so that they add up to 100 percent. Based on the criteria the six sites were ranked as shown in **Figure 7** below. Sites 6 and 13 were dropped from the study.

Figure 7: Site Screening Rankings



4. Design Workshop

The project design team convened in September 2013 to review the top four sites selected as part of the screening process (documented in Technical Memorandum #2). As part of this step of the project the Design team was seeking an appropriate site that will fit the needs of the proposed Bus Maintenance Facility. During this workshop the design team developed conceptual site plans utilizing the Space Needs Program (Technical Memorandum #1). Prior to the workshop, the design team set goals to meet NCTPA's project objectives and needs.

NCTPA's involvement helped to focus the efforts during the development and presentation of the different concepts and planning options. The goals were as follows:

1. Meet the needs of the Administration, Operations, and Maintenance departments that will be located at the site through maintenance spaces, administrative support, employee service areas, and vehicle parking;
2. Provide a functional flow between facilities, parking, and throughout the yard;
3. Comply with all building and design standards and regulations including ADA;
4. Provide safe and efficient circulation for vehicles on site; and
5. Provide an effective layout with opportunity for future expansion.

The space plan includes parking for 97 buses of various sizes, parking spaces allotted for the down line, parking for up to 138 employees and visitors, footprints for the operations and administration building, a large maintenance building with up to eight bays, and the daily service line. The total area required is over 10 acres and is documented in depth in Technical Memorandum #1. During the workshop the NCTPA noted that the future fleet would likely include several articulated buses for the heavily used routes. The addition of the 60-foot articulated vehicles necessitated an increase in the size of the building interior and the exterior parking spaces – the footprint was increased to 12 acres to meet these needs.

Based on input from the client and the stakeholders at the design review meeting, along with information gained from the conceptual design process Sites 1 and 3 were dropped from further consideration based on size constraints that would make it difficult to meet the project goals or accommodate the space plan. Conceptual plans for Sites 2 and 20 were prepared and are shown in the appendix and below.

Site 2 – Revised Plan

1. The design team "tightened" the layout for Site 2 by reducing the footprint of buildings, parking and circulation lanes;
2. No other major changes were made as the space program fits on this parcel; and

Site 20- Revised Plan

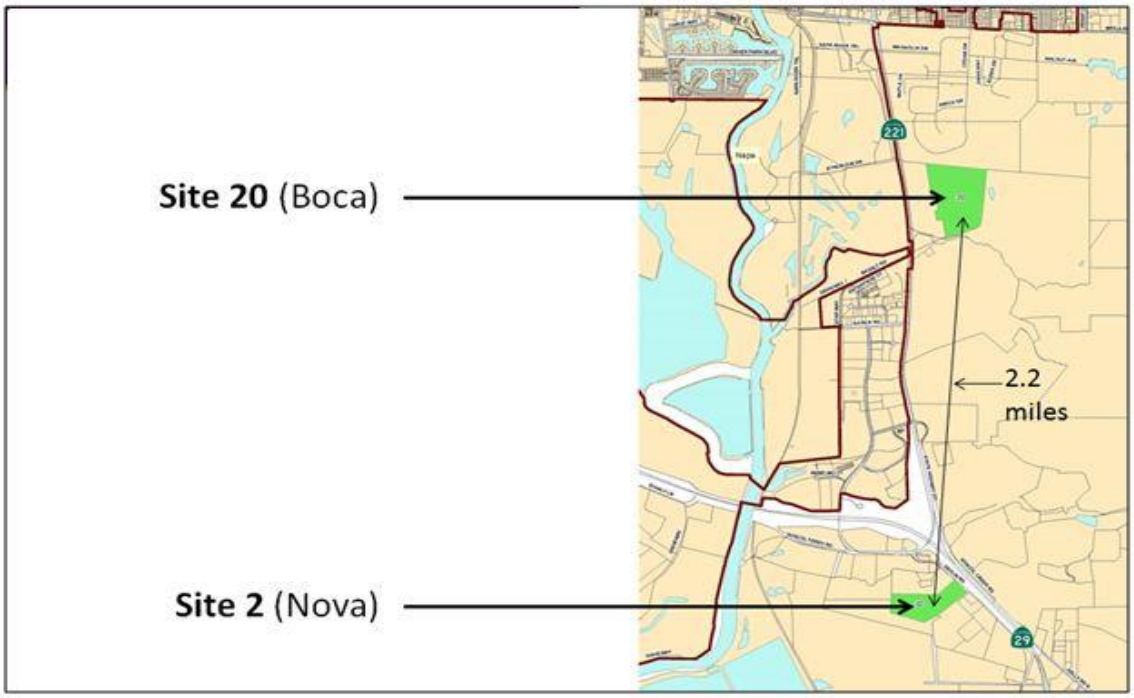
1. The design team initially opted for the site on the NW corner of the large parcel, which avoided the slope and the large industrial building to the south;
2. After meeting with the site owner the design team revised the layout for Site 20 by moving the maintenance building closer to the admin/ops building on the SE corner of the site moving it east (up the hill) to avoid the laydown area north of the industrial building.

Figure 8: Site Concept Illustrations

5. Due Diligence

A due diligence study was prepared to identify potential constraints associated with the two candidate sites, documenting site factors in support of NCTPA's decision to negotiate for the purchase of the property, and as a resource during the facility development stage of the acquired site. Site 20 (Boca) and Site 2 (Nova) along with their geographical proximity to one another can be seen in **Figure 9**.

Figure 9: Location of the Preferred Sites



The due diligence study includes a subset of the environmental factors that would be required as part of a Federal Transit Administration (FTA) required environmental analysis conforming to National Environmental Protection Act (NEPA) guidelines. A California Environmental Quality Act (CEQA) analysis would be integrated into the federal document. Factors reviewed in the due diligence study include:

- Drainage Pattern
- Flood Hazard Areas
- Natural Resources
- Cultural Resources
- Hazardous Materials
- Land Uses, Zoning, and Adjacent Property Owners
- Transportation
- Utilities

The due diligence study provides an overview of the existing conditions at the each site and identifies potential impacts associated with construction of the proposed bus maintenance facility that may affect the purchase of the site. Data and information for the study were gathered from field observations, published documents, correspondence with applicable City and utility company staff, and reports prepared for the development of the Napa County Jail Project located adjacent to Site 20.

A summary of the potential constraints associated with the Nova and Boca sites, based on the findings of the due diligence study, is shown in **Table 4**. Of the potential constraints listed in Table 4, no single constraint, evaluated in isolation, is significant enough to disqualify either site from further pursuit of acquisition.

Table 4: Constraint Comparison Matrix

Site Assessment Factor	Nova Site	Boca Site
Drainage Pattern	Minor Constraint	Minor Constraint
FEMA Floodplain	Minor Constraint	Minor Constraint
Sea Level Rise	No Constraint	No Constraint
Special-Status Plant Species	Moderate Constraint	Minor Constraint
Special-Status Animal Species	Moderate Constraint	Minor Constraint
Cultural Resources	Moderate Constraint	Minor Constraint
Hazardous Materials	Minor Constraint	Moderate Constraint
Land Use and General Plan Compatibility	No Constraint	No Constraint
Existing Zoning and Overlay Districts	No Constraint	No Constraint
Conditions, Covenants & Restrictions	No Constraint	No Constraint
Planned Adjacent Property Owners	No Constraint	High Constraint
Existing and Planned Transportation Network	No Constraint	No Constraint
Water	No Constraint	Minor Constraint
Sewer and Stormwater	Minor Constraint	Minor Constraint
Communication, Electric, and Natural Gas	No Constraint	No Constraint

5.1. Site 2 - Nova Site Constraints

For the Nova site, most of the constraints are minimal. Existing zoning and land uses are consistent with the proposed project; and the site is not located in a flood zone, or a sea level rise inundation area. Given the undeveloped nature of the site and the relative distance to the closest documented releases, no risks associated with hazardous materials are expected. The biggest constraint for the Nova site is the potential presence of special-status plant and animal species or their habitat, as identified in Napa County General Plan EIR and a USFWS and CNDDB database search. However, site-specific data is inconclusive at this time and would require further environmental assessment to determine the level of potential impact to special-status species and appropriate mitigation to comply

with federal, state, and local regulations to reduce and/or avoid impacts (leaving it a moderate constraint).

The Nova site also presents an increased risk of encountering undocumented cultural resources because of the relative elevation, topography, and undisturbed nature of the area. The risk of encountering undocumented cultural resources is commonly reduced and/or avoided through the implementation of construction monitoring and worker training plans; and as such, is considered a moderate constraint to the project. The Nova site is not currently served by City water and is located outside of the City limits and the City's sphere of influence, but within the City's water service area. Providing water to the site would require completion of the City application and approval process for providing water outside of City limits and establishing a connection to the existing nearby water main. The water main most likely to be connected to is across Devlin Road but in close proximity to the project site thus would not be considered a constraint. The Nova site is within the Napa Sanitation District's (NSD) sphere of influence, but outside the NSD's boundary. This site would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system which would result in a minor constraint. PG&E facilities currently exist on the west side of Devlin Road and connection and improvements would be required to these facilities typical of an industrial or commercial site, thus no constraint.

5.2. Site 20 - Boca Site Constraints

Similar to the Nova site, the Boca site presents minor constraints to the project with regards to floodplain development, sea level rise, or compatibility with land use or zoning designations. Because of its developed nature, the Boca site presents fewer constraints related to biological resources and potential undocumented cultural resources than the Nova site. Past and present industrial land uses on the Boca site present more risks related to hazardous materials exposure and remediation requirements, and a higher constraint when compared to the Nova site.

The proposed development of the Boca site for the Napa County Jail project presents the highest constraint between the two sites. Build-out of the jail would directly conflict with NCTPA plans for the project; thus, further coordination with county officials would be necessary in advance of selecting the preferred site. Much like the Nova site, the Boca site is not currently served by City water and is located outside of the City limits and the City's sphere of influence, but within the City's water service area. Providing water to the site would require completion of the City application and approval process for providing water outside of City limits and establishing a connection to the existing nearby water main. The proximity of the nearest potential water main connection for the Boca site is more than 0.5-miles away and would require crossing SR 221 which represents a minor constraint. Similar to the Nova site, the Boca site is located outside of the service area boundaries and the sphere of influence of the NSD. The proposed project would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system which would result in a minor constraint. PG&E facilities currently exist on the east side of

SR 221 and connection and improvements would be required to these facilities typical of an industrial or commercial site, thus no constraint.

It should be noted, however, that the factors evaluated here should not be weighted equally. For instance, certain factors are of much greater importance and impact than others. Mitigation of identified issues needs to be considered in light of costs, feasibility, and the potential for mitigation measures themselves to generate impacts that require further review.

6. Multi-Jurisdictional Fueling Facility

Evaluation of the viability and desirability of building a fueling facility at the proposed Bus Maintenance Yard (through an assessment of advantages and disadvantages) compared to continuing to contract with a private off-site provider for all fuel types needed (CNG, gasoline and diesel) was performed. Additionally, outreach to NCTPA's partner and member agencies was conducted to discern the level of interest that they have in sharing the functions and services that would be provided at the proposed facility and, presumably, a proportion of the facility's capital, operating and maintenance costs. Shared functions and services could include storage of fleet vehicles, sharing vehicle cleaning and maintenance facilities, combining operations and administration staff, and fueling fleet vehicles.

6.1. On-Site versus Off-Site Fueling

To complete the evaluation of fueling options, the project team met with NCTPA staff to understand the current fuel needs of the complete fleet. The team then compared the costs associated with each option such as the capital costs of constructing a fuel service line to the proposed facility, and the operational costs of daily travel to and from an off-site location to use a retail fuel provider's facility. The comparison indicates that over a twenty (20) year period the NCTPA would save over $20 million in net present value if they invested in a fueling facility at the Bus Maintenance Yard.

6.2. Opportunities for Sharing the Facility

Based on an NCTPA survey of its partner agencies, there is interest among the majority of possible partner agencies in utilizing the refueling facility if it is convenient to their operations, but minimal interest in sharing in the rest of the yard's functions. The City of Napa may be the one exception to this, and has several reasons for their consideration of potentially sharing the facility. The results of the survey and subsequent discussions with partner agencies indicate fueling services could be shared between the City, County and NCTPA[1], and potentially other agencies that may use the refueling facility if convenient to their operations. If such multi-jurisdictional use were to occur, the volume of dispensed fuel

[1] Initial discussions with the County indicated little interest in sharing maintenance and storage facilities because of their recent construction of a corporation yard (located on California Blvd.). Follow up discussions indicated they had not implemented a fueling program and would consider using the NCTPA fueling facility if it was located convenient to their operations.

at the facility could increase approximately 50% over the base amount that would be used solely by the NCTPA bus fleet. Such an increase in fueling at the facility would result in greater savings from lower wholesale unit costs for CNG, diesel and gasoline. Further, the sale of fuel to partner agencies may qualify as income from a shared use as required in justifying non-transit related use of facilities built with funding assistance from the FTA.

Although the City of Napa has expressed interest in a shared facility, it cannot make a commitment to sharing the functions of the proposed facility without further discussion. Discussions are required with both the City and County to understand fueling needs at the proposed facility, common functions that may be shared within the bus maintenance yard, and possible acquisition of additional land to accommodate future partner agency needs. These discussions should occur prior to the facility design phase to ensure the shared facilities are sized properly to accommodate the increased utilization.

Because of the proximity of Site #2 (Nova) to the northern city of limits of American Canyon, City staff were asked if there was any interest in utilizing the maintenance yard functions such as the vehicle wash facilities, maintenance bays and associated shops, or storage of vehicles. American Canyon responded that they did not operate a “fleet” and their limited number of vehicles and equipment were currently maintained under contract with the City of Napa at their downtown corporation yard. However, American Canyon responded with possible interest in sharing the fueling facility, particularly if, by the collective advantage of negotiating for multiple agencies, the fuel could be purchased at a substantially lower cost than the current off-site retail price at private dispensaries. American Canyon’s response was consistent with that of most of the agencies surveyed in that vehicle maintenance needs are less pressing than access to lower fuel prices.

Finally, non-transit shared use of FTA financially assisted facilities is acceptable if it is incidental, does not interfere with the original transit-related use funded by FTA, and the income generated through sharing the facility is used by NCTPA exclusively for transit use. NCTPA will need to carefully evaluate FTA’s requirements regarding incidental use of the facility before seeking commitments from partner agencies.

6.3. Consideration Related to Inter-Agency Sharing

With the exception of the City of Napa, partner agencies within the County have an interest in use of the fueling facility but not the other functions of the yard. Based on this level of interest, the following issues should be considered as the facility is planned:

- Fuel dispenser access and yard security;
- Restrictions on incidental use of shared facilities; and
- Long range collaboration with City of Napa.

7. Recommendations

Based on the findings of this study the project team recommends NCTPA advance negotiations for acquisition of both properties on a parallel track with the goal of selecting one site that both meets the needs of the agency and provides the best value in terms of acquisition price, timing, reduced operations costs and environmental mitigation efforts.

Appendix

Appendix

Technical Memorandum 1: Space Plan

Technical Memorandum 2: Sites and Screening

Technical Memorandum 3: Charrette and Concepts

Technical Memorandum 4: Due Diligence Report

Technical Memorandum 5: Multi-Jurisdictional Use

Technical Memorandum #1

TO: **NCTPA Project Team**

FROM: **David A. Cheeney, AICP**

DATE: **July 12, 2013**

SUBJECT: **NCTPA Technical Memorandum – Space Planning**

This technical memorandum is the first in a series of reports that document the study of the proposed NCTPA Transit Operations and Maintenance Facility that would serve the community of Napa, CA. This report summarizes the space plan and program, which forms the basis of the future design for the Facility.

The Study consists of the following reports:

- Technical Memorandum 1: Space Plan
- Technical Memorandum 2: Sites and Screening
- Technical Memorandum 3: Charrette and Concepts
- Technical Memorandum 4: Due Diligence Report
- Technical Memorandum 5: Multi-Jurisdictional Use
- Draft Report: Summary of all Technical Memoranda
- Final Report: Summary of Technical Memoranda Responding to Board and Staff Comments

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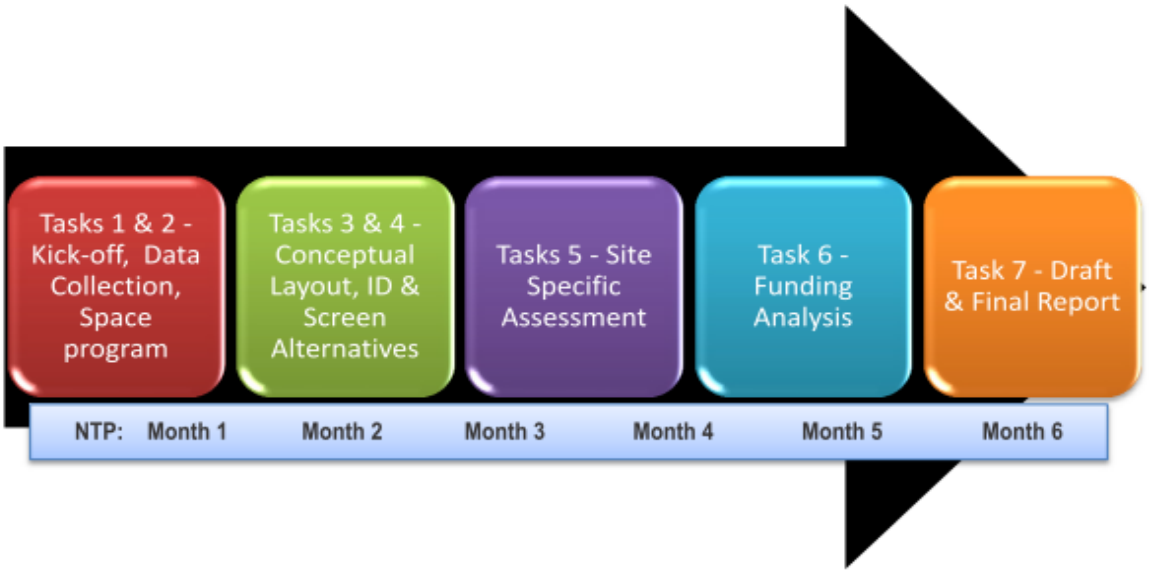
1. Background and Purpose

This technical memorandum is the first in a series of reports that document the study of the proposed transit operations and maintenance facility for the Napa County Transportation and Planning Administration (NCTPA). This report summarizes the space plan and program, which forms the basis of the future design for the facility.

1.1. Purpose

NCTPA selected Kimley-Horn and Associates (KHA) to prepare a preliminary engineering and NEPA study for the Facility. The study process will include data collection, interviews of key staff, space planning and programming, the identification of potential sites, the preparation of conceptual site plans, and screening of these sites. The study will conclude with a funding analysis and a recommendation on a preferred site.



KHA initiated the NCTPA Facility study in June 2013 by interviewing the NCTPA staff to obtain information about current agency operations and maintenance practices and space needs at an existing facility in Napa, CA. Based on these interviews, and drawing upon national bus maintenance facility space planning standards, the KHA team identified the appropriate square footage requirements for the proposed NCTPA Facility. The primary driver of a space program for an operations and maintenance facility is the size of the transit fleet to be serviced and stored at the site.

1.2. Fleet Size

The existing NCTPA Bus Maintenance facility services approximately 80 vehicles at present. Based on a one percent annual growth rate the fleet is expected to grow to 97 buses in 20 years. The existing NCTPA Facility is designed for a much smaller fleet and will not accommodate this level of growth. Table 1 summarizes the transit fleet size for the current year (2013) and a 20 year planning horizon using a one percent growth rate.

Table 1. Fleet Size for NCTPA Maintenance Facilities- Current and 20 years

Fleets at NCTPA Facilities	*Current (2013)*	*Twenty Years (2033)*
Existing Facility (Napa)	80	0
Proposed Facility	*NA*	97
TOTAL FLEET	**80**	**97**

Year	*2013*	*2020*	*2025*	*2030*	*2033*
1% Annual Growth	80	86	90	95	**97**

Table 2 summarizes the transit fleet by vehicle types for the current year and a 20 year planning horizon. Using a one percent annual growth model the fleet will expand to 97 vehicles in 20 years with a mix of vehicle types.

Table 2. Detailed Vehicle Types - Current and 20 years

Vehicle Types and Function	*Current (2013)*	*Twenty Years (2033)*
40' Fixed Route	12	15
35' Fixed Route	21	25
28' Fixed Route	8	10
Mixed Fixed Route	9	11
21'-23' Paratransit	19	23
22' Shared Vehicle Program	4	5
TBD "New" Vehicles	7	8
TOTAL FLEET	**80**	**97**

It's important to note that the proposed facility will accommodate additional growth beyond the future 97 bus fleet by incorporating flexible design standards for the structures and anticipating for expansion in the layout for fleet parking.

1.3. Space and Facilities Program

The proposed space and facilities program for a 97-bus fleet at the NCTPA Facility is included in this report. Section 4 describes all of the building and site functions including administration, operations, maintenance, and parking areas. Site circulation, setbacks, landscaping requirements, and the total acres needed for the NCTPA Facility are also defined. Approximately **9.14** acres are needed for these functions, as shown in Table 3.

Table 3. Proposed Functional Space Allocation for NCTPA Facility

Functions	*Employees*	*Area*
NCTPA Administration Areas	0	907*
Contractor Bus Operations Areas & Support	159	8,636
Contractor Bus Maintenance (Offices)	18	2,554
Contractor Bus Maintenance (Bays & Shops)	0	19,243
Contractor Fleet Service Areas (Fuel & Wash)	1	10,575
SUBTOTAL	**178**	**41,916**
Exterior Parking Areas (bus and employees)		157,062
Subtotal Area (Building + Exterior)	1	198,978
Circulation Factor (100% of Subtotal)		198,978
TOTAL AREA (SF)		**397,955**
TOTAL AREA		**9.14 ACRES**

***NOTE**: Space for administrative areas is dependent upon storage and other operations rather than employees working within the designated space

In summary, the future NCTPA facility will require a land parcel of between 9 and 10 acres with space to store a fleet that is assumed to grow to 97 revenue vehicles over the next two decades with additional room to accommodate future expansion. The following report will detail the assumptions and calculations used to arrive at this value.

1.4. Current Operations and Deficiencies at Existing Facility

On June 18, 2013 the project team toured the existing NCTPA maintenance and operations site located at Jackson Street and Soscol Avenue in downtown Napa, CA. Photos and notes were taken and are included in a project log. The scope of services for this study does not include an analysis of the existing facility; however, during the site review several major deficiencies were discovered.

The existing facility is significantly undersized for the fleet currently stored there leading to suboptimal practices. The site services a mix of bus types: 40 foot, 35 foot and 28 foot fixed route vehicles, as well as a mix of smaller paratransit vehicles. The site is small and employees must park off site using public streets or share spaces with revenue vehicles. The administrative facilities are undersized and are housed in temporary trailers. There are too few service bays for the fleet being serviced. There is no fueling on the site: the fleet is fueled at retail vendors in the community. Some major deficiencies are noted in Table 4.

Table 4. Deficiencies at the Existing NCTPA Bus Maintenance Facility

Major Deficiencies	*Issue*	*National Standards*
Fleet Parking Patterns	Buses are backed out and parked nose-to-tail	Pull-through parking
Service Bay Ratio	Over 20 buses per Bay	12 buses per Bay
Number of Bays	2.5 existing	8 service bays and 2 optional bays
Fueling Lanes	Not on site: the fleet is fueled at retail vendors	50 buses per lane

The current overcrowding, lack of sufficient number of service bays, lack of fueling structures, and the recent expansion of NCTPA transit service strongly support the need for a new operations and maintenance facility.

2. Data and Analysis

2.1. Basis for Design

The purpose of this section of the document is to define the functional and operational characteristics of NCTPA's administrative, operations and maintenance groups that will be located at and operating from the proposed NCTPA Facility. This Basis for Design is a critical step in developing the requirements and space needs for the proposed NCTPA Facility. The understanding gained by the design team during the programming interview sessions greatly influences the master plan, concept design and layout of the proposed facility. A summary of operational characteristics is included for each group below.

The programming data provided by NCTPA and the programming questionnaires completed by representatives from each group served as the basis for the programming discussions. The information NCTPA staff provided included functional characteristics, hours of operation, staffing levels, vehicle parking requirements and key planning issues for each group. Based on published data and service interviews we concluded that the fleet would grow at a conservative one percent per year, and a horizon planning year of 20 years would

be used. This then shows a future fleet of 97 vehicles in the fleet: far too large to be supported at the current facility.

Table 5. Fleet Size and Bay Needs for NCTPA Maintenance Facilities

Fleets Size and Bays	*Fleet Size*	*Service Bays*	*Optional Bays*
Existing Facility (2013)	80	2.5	0
Proposed Facility(2033)	97	7	1

For a fleet of 97 mixed vehicles the facility would need up to seven (7) service bays with a mix of various lifts and no in-ground pits. One (1) optional bay could include a separate chassis wash bay and a body shop/paint booth if NCTPA selects to conduct those services within the facility.

2.1.1. Functional and Operational Design Data

NCTPA Administration

Function: The administrative staff provides support for the operations and maintenance departments. Support functions include, but are not limited to, general administration, Human Resources, customer service, and marketing. Currently all NCTPA staff are housed at the new transit center. It is assumed that no new staff will be placed at the new operations and maintenance center, but will include storage for supplies and files.

NCTPA Staffing: The current standard hours of operation for NCTPA administrative staff are from 8:00 a.m. to 5:00 p.m., Monday through Friday. Table 6 indicates proposed storage space for the proposed Bus Maintenance Facility.

Table 6. Administration Space Needs for NCTPA Maintenance Facilities

Position	*Proposed Facility*
Off-site Storage	144
Server Room	200
IT Storage	128
File Storage Room	200
Total (sf)	**907**

Key Planning Issues for NCTPA Facility Administrative Space

The following key planning issues were conveyed to the Design Team during the Programming Interview process. These issues, where appropriate, were incorporated into the Space and Facilities Program. Other issues related to the function, adjacent uses, or features will be incorporated in the design.

Office Support Areas

a) A lobby/reception area will be provided that can be secured from the other office areas.
b) A conference room will be sized for 10 to15 people and will include a conference table and chairs.
c) The copy/fax/file/supply room will be sized to include a copier, printers, fax machine, office supplies storage, file cabinets, and a layout/work area. This work space will be accessible by all administration and operations staff, but will be sited to minimize noise and distractions.
d) A break room/kitchenette for administrative staff will include space for tables and chairs to accommodate 10 people, counter space with room for a sink, microwave and coffee pot, and a refrigerator.
e) Two sets of men's and women's restrooms should be provided. One set for use by administrative staff and the second located off of the lobby/reception area for use by visitors.
f) A janitors' room will be included that includes a sink and area for janitorial tools and supplies.

Contractor Bus Operations

Function: The bus operations department provides daily operation of the bus service and is operated by the contractor. This includes Schedulers, Operations and Road Supervisors, Dispatch, Safety/Training Officers, and Vehicle Operators.

Staffing: The Operations Department currently provides service from 5:00 a.m. to 10:30 p.m., seven days per week. This includes road supervision, scheduling, dispatching, and safety/training. The following table indicates the projected number of operations staff.

Table 7. Operations Staffing

Position	Existing Facility	Proposed Facility
General Manager	1	1
Payroll and Administration	1	1
Operations Manager	1	1
Safety and Training Manager	1	1
Road Supervisor	4	5
Yard Supervisor		1
Operations Supervisor	1	1
VINE Dispatcher	3	4
VINE GO Dispatcher	3	4
Dispatcher Supervisor		1
Operators	77	136
Transit Store	3	3
Custodial/Mechanical Tech		
Total	***95***	***159***

Vehicle Parking

Bus Parking: Table 8 provides a list of projected bus parking requirements for the proposed NCTPA Facility. These include parking stalls for conventional 40-foot transit buses (12 foot wide by 50 foot deep space), and smaller 35-foot transit buses (12 foot wide by 40 foot deep space). The NCTPA should consolidate their fixed route fleet to two vehicle sizes: 40 and 35 foot, and phase out the 28 foot vehicles.

Table 8. Bus Parking Requirements

Bus Type	Parking Stall Dimensions	Existing Facility	Proposed Facility
40 ft. Fixed Route Bus	12’ x 45’	12	15
35 ft. Fixed Route Bus	12 x 45’	21	25
28 ft. Fixed Route Bus	12’ x 35’	8	10
Mixed Fixed Route	12’ x 35’	9	11
23 ft. Paratransit Bus	12’ x 35’	19	23
22’ Shared Vehicle Program	12’ x 35’	4	5
TBD “New” Vehicles		7	8
Total Revenue Fleet (Buses)		***80***	***97***

Support Vehicle Parking: Operations staff also use several non-revenue support vehicles. Table 9 provides a list of those vehicles:

Table 9. Total Non-Revenue Parking Requirements

Non-revenue Support Vehicle	*Parking Stall Dimensions*	*Existing Facility*	*Proposed Facility*
Operations	10' x 20'	5	6
Administration	10' x 20'	0	2
Total		***5***	***8***

Key Planning Issues for the Operations Space:

The following issues will be addressed during the design of the facility.

Office Areas:

- The Road Supervisors will work in a shared office with workstations. Wall space for maps and storage for files will be provided.
- The Road Supervisors shared office will be placed adjacent to the dispatch center.
- The training room will be sized for up to 25 people with tables and chairs set up in a classroom style format. Provisions must be made for network connections for computer based training programs.
- In order to maximize the utility of the training room, it will be designed with a folding partition wall.
- A storage area for training supplies, audio/video equipment, and surplus tables and chairs will also be required.

Dispatch Center/Drivers Support Areas:

- The dispatch center will be positioned with a clear view of both the drivers' break room and the bus parking area.
- The dispatch center will include an open "window" position to allow Dispatchers to interact with the Vehicle Operators as they move from the drivers' room to the bus parking area. The "window" positions should be a large open counter area.
- A secure storage room will be located within the dispatch center.
- The dispatch vestibule area is a space where the drivers stand while interacting with dispatchers at the "window" counter position. The vestibule will include an exit to the bus parking areas. This area will be enclosed with glass walls to allow a view through the vestibule to the drivers' room.
- The mailbox area will include 9" x 12" x 4" high mailboxes, with one mailbox per driver plus adjacent additional open slots for bulk fliers.

- There will be a quiet room adjacent to the drivers' room.
- There will be a kitchenette/vending area separate, but adjacent to, the drivers' room.
- There will be men's and women's restrooms and showers in this area. Each shower area should include 6 to 10 shared open disrobing areas to use during showers.
- There will be dedicated ½ height lockers for each driver in a separate locker alcove adjacent to the drivers' room.
- There will be a shared fitness room near the drivers' room and restrooms.
- There will be a janitors' room, adjacent to the restrooms, and sized for a mop sink, mop bucket, and storage for supplies.

Contractor Bus Maintenance

Function: The contractor's bus maintenance staff is responsible for the maintenance and repair of the NCTPA revenue buses and non-revenue vehicles. Other maintenance staff (i.e. utility or service workers) perform daily servicing (fueling and fluid level checks), movement of vehicles on the site, and cleaning (both interior and exterior) of the buses.

Staffing: The bus maintenance personnel provide maintenance services during three shifts, 24 hours per day, five days per week. The first shift is 7:00 a.m. to 3:00 p.m., the second shift is 3:00 p.m. to 11:00 p.m., and the third shift is 11:00 p.m. to 7:00 a.m., Monday through Friday. There is no maintenance personnel on weekends.

Table 10 indicates the projected number of operations staff for both the existing and the proposed NCTPA Facility:

Table 10. Bus Maintenance Staffing Levels

Position	*Existing Program*	*Proposed Facility*
Maintenance Manager	1	1
Supervisor (shared)		1
Parts Manager	1	1
Administrative Clerk		1
Mechanics & Technicians	10	14
Bus Stop Maintenance	1	0
Total	**13**	**18**

Vehicle Parking: Maintenance personnel will be assigned shop trucks and other non-revenue vehicles to support the maintenance activities. These vehicles are accounted for in Table 9.

Key Planning Issues: The following issues will be considered in planning and design efforts to support the projected fleet at the NCTPA maintenance facility:

Office Areas:

- The maintenance office areas will be constructed of materials to provide suitable sound isolation from the adjacent shop areas.
- The office for the Parts Manager will be sized to include a chair, desk, lateral file, and bookcase.
- The manual/technical library will include shelving for service manuals and workstation computer terminals for access to on-line or CD manuals. Workstations will be shared by all Mechanics.
- A shared Supervisor's workstation will be located on the shop floor with a view of the repair bays and shop areas. This workstation will be a stand-up work counter layout.

Support Areas:

- The Mechanics' workstations will have computer access and will be located throughout the repair bay areas.
- The men's and women's restrooms, lockers, and shower facilities will be conveniently accessible from the repair bays.
- There will be a dedicated uniform delivery/storage area that is easily accessible for the uniform service staff.
- The lunch/break room will be conveniently accessible for bus maintenance staff. This area will include a kitchenette/vending area that will include vending machines, sink, microwave, refrigerator, stove, and counter space.

Repair Areas:

- The standard running repair bays will be sized at 20 feet wide by 60 feet long to maintain the projected fleet of 45-foot and 35-foot buses and smaller vans. Each service bay will be equipped with vehicle exhaust reels, lubrication reels, vehicle lifts, and a workbench with a vise. Lubrication reels will be shared between two bays.
- Preventive Maintenance inspection bays are designed as bays for inspection and preventive maintenance. Bays will be sized at 20 feet wide by 60 feet long to maintain the projected fleet of 45-foot, 40-foot, and 30-foot buses. These bays will include a lower level work area with rolling drain pans for easy removal of waste fluids.
- Additional men's and women's restrooms may be required in remote parts of the facility.

Specialty Bays:

- Chassis wash bays will be sized at 20 feet wide by 60 feet long with a parallelogram lift. The service bays should be designed to allow for buses to be driven through them, if possible.

- A chassis wash equipment alcove will be provided adjacent to each chassis wash bay for the high-pressure/hot water washers.

Shop Areas:

- Dedicated common work areas are required to support bench work and machine shop activities, and should be located centrally and open to all repair bays. This area will hold fixed shop equipment such as parts washers, drill presses, buffer/grinders, workbenches with a vise, abrasive blast cabinets, etc.
- The brake shop will be located centrally and open to the repair bays. This area will include equipment such as a brake lathe(s) with associated dust collector, shelving units, and monorail hoist.
- The tire shop/storage is a dedicated area for maintenance and storage of tires. This area will include equipment such as a tire balancer, tire changer, workbench, inflation cage, and tire racks. The storage will be sized to include at least one spare tire for each bus and non-revenue vehicle.
- There will be a component rebuild room that can be separately ventilated and environmentally controlled.
- The tool crib will be a secure area for the storage of NCTPA-supplied tools. Access to the tool crib will be provided through the parts storage room.
- The lube/compressor room will be sized to include bulk fluid storage tanks with air-operated pumps, duplex air compressor, and a refrigerated air dryer. This room will have exterior access with double-doors for deliveries.
- The facility will include a dedicated battery room. This area will be designed only for the storage of batteries. Large multi-cell bus batteries will not be charged in this facility. If charging is a potential requirement in the future, the battery room will be located on an exterior wall and if possible, be an outdoor alcove space with a chain-link security fence at the exterior wall.
- The tool box storage area will be sized to provide one toolbox per Mechanic. It will be located adjacent to the repair bays.
- A separate storage area for portable equipment, for each shop will be provided. Equipment in this area will include jack stands, floor jacks, battery chargers, etc., and will be located adjacent to the repair bays.
- The facility maintenance shop will include a secure area for tools and equipment. This shop will have separate outside access as well as secure access from the maintenance building.

Parts Storage: The parts storage area must be a secure area with limited access that is located central to the repair areas. This parts storage area will include the following spaces:

- There will be a dedicated work area for the parts clerk.
- There will be a parts issue window for Mechanics to access the parts storage. This will be in a recessed area off the main aisle. There will be a counter and access for a forklift to move larger, bulkier items.
- There will be a small parts storage area with drawer cabinets, door cabinets, and shelving for small parts. There will also be a bulk parts storage with bulk storage racks, and pallet racks for palletized large parts.
- There will be a mezzanine storage area for slow moving (less used) parts and an archive records storage area.
- There will be a dedicated area for shipping and receiving. This area will be accessed via an exterior, lockable overhead door.

Vehicle Service - Bus Fueling Facility:

- The fare retrieval, fueling, detail cleaning and bus wash facility will be located in-line within two separate but adjacent buildings.
- The fueling positions are to be within two covered fueling lanes.
- A lube compressor room will be sized to include bulk fluid storage tanks with air-operated pumps, a duplex air compressor, and a refrigerated air dryer. The lube compressor room will include an exterior double door for deliveries.
- A vacuum room will to be sized to accommodate the vacuum equipment and accessories selected by NCTPA.
- A cleaning supply storage room with shelving for supplies used for interior bus cleaning will be provided.
- There will be space for an above ground storage for fuel equipment and fuel tanks adjacent to or near the fueling lanes.

Fare Retrieval Facility:

- Locate the fare retrieval positions in the fuel lanes. Fares will be pulled while the bus is fueling.
- A secure fare counting room will be provided adjacent to the fare retrieval positions.

Bus Wash Facility:

- The bus wash facility will include one or more lane(s) with drive-through automated bus washers for cleaning the exteriors of buses.
- A bus wash equipment and reclamation area will be located adjacent to the wash bays.
- Where only one bus wash lane is required, there must be adequate clearance between the fueling area and the bus wash facility in order to maneuver buses from both fuel lanes into the bus wash lane or to bypass the bus wash lane.

2.1.2. General Site Requirements

Site Requirements

There are specific site requirements necessary to ensure a safe, efficient, and functional bus maintenance facility. These specific requirements include, but are not limited to, the following:

- Site Security will be provided through the use of cameras and limited access points throughout the site.
- A perimeter fence will secure the entire site.
- A second emergency access for buses to enter and exit the operations yard is recommended.
- The counter-clockwise flow of traffic (left-hand turns) will make site circulation more safe and efficient.
- There will be adequate and efficient bus parking on the site.
- There will be adequate and efficient parking for employees either on the site (recommended) or in an off-site overflow lot with appropriate shuttling of staff between the parking area and buildings. Employee parking will include sufficient spaces to account for overlaps during shift changes.
- Visitor parking will be provided and designated on the site.
- Disabled parking will be provided and designated on the site as required by code.
- Parking for support vehicles designated for operations and bus maintenance will be located near their respective buildings.
- Site lighting will provide sufficient and even light throughout the entire site.
- A patio that is accessible from the operations and bus maintenance areas and designated for employee use during breaks is recommended.
- Adequate pedestrian circulation areas will be provided in accordance with the Americans with Disabilities Act (ADA).
- Appropriate site signage will be included throughout the facility design.

3. Space Needs Program

3.1. Introduction

This section presents the Space Needs Program for the proposed facility. The space needs program for the proposed facility forms the basis of the design of the future site and structures. The current assumption is the current facility will be closed and all functions will be relocated to the new proposed facility

This program is based on a 97-bus fleet for the proposed facility. The Space Needs Program presents the space requirements necessary for facilities required to support the bus operations. It includes all building spaces, covered areas, and parking areas necessary to meet the current and future operating needs for the administration, operations, and maintenance departments to be located at these facilities.

The information is summarized in a table at the end of this section that includes projected space needs for building areas, covered areas, exterior areas, and parking areas. These projected space needs are subtotaled as net square footage and total site acreage requirements.

3.2. Staff Summary

Facility staffing levels are crucial to the design team when determining the number of parking spaces, size of support facilities, and developing occupancy levels. Table 11 is a summary of the projected staffing levels for each department. These staffing levels were taken directly from interview sessions. The Basis of Design and the Program provide a detailed breakdown of each department's employees.

Table 11. Staff Summary

Department	*Existing Facility*	*Proposed Facility*	*Notes*
NCTPA Administration	0	4	Assumes future storage space
Contractor Bus Operations	95	137	Based on 1% growth
Contractor Bus Maintenance	13	18	Based on 1% growth
Total	***100***	***159***	

3.3. Vehicle Summary

The number of buses, non-revenue vehicles, and employee vehicle quantities are essential to the design team when determining the size of the required parking facilities. Bus, non-revenue vehicle, and employee vehicle quantities were developed from interview sessions and questionnaires. Table 12 summarizes program vehicle and parking requirements for the NCTPA bus operations and maintenance facilities for both facilities. The buses and non-revenue vehicles will be stored and maintained at the facility, whereas the employee vehicles will only be stored at this site during the time the employee is on duty.

Table 12. Vehicle Parking Summary

Vehicle	*Existing Facility*	*Proposed Facility*
Bus Parking:		
40 ft. Fixed Route Buses	12	15
35 ft. Fixed Route Buses	21	25
28 ft. Fixed Route Buses	8	10
Mixed Fixed Route	9	11
Paratransit (23') Vehicles	19	23
22' Shared Vehicle Program	4	5
TBD "New" Vehicles	7	8
Down line/ready line	2	15
Total Bus Parking	**82**	**112**
Non-Revenue Parking:		
Non-Revenue Support Vehicles (Administration, Operations, Maintenance)	*5*	*8*
Employee Vehicles	*0*	*124*
Visitor Vehicles	*0*	*8*
Handicapped Parking	*0*	*7*
Maintenance Service Vehicles	*0*	*2*
Total Automobile Parking	**5**	**261**

General Planning Ratio

Methods of applying planning ratios to vehicle quantities are an effective way to calculate the number of repair bays required to maintain those vehicles. Table 13 describes the ratios that were used to calculate the space needs for the NCTPA bus maintenance facilities. These ratios were derived from data and space utilization information gathered from numerous other bus maintenance facilities analyzed throughout the country.

Table 13. General Planning Ratios

Space	*Ratio or Space Standard*	*Proposed Facility*
Bus Repair and Inspection Bays: Standard Bus (20 feet x 60 feet)	1 bay for every 15 buses to be maintained	97 buses/15 buses per bay = 7 bays
Body Shop and Paint Bay (30 feet x 60 feet)	1 bay for every 100 buses to be maintained	97 buses/100 buses per bay = 1 bay
Tire Shop/Repair	300 to 800 SF (subject to adjustment depending on level and type of operation)	300 SF based on the level and type of operation (i.e. separate contracted operation)
Tire Storage	4 SF per tire stored on single level; 2 SF per tire stored - stacked	400 SF based on the level and type of operation

***NOTE**: Other separate areas will include a common work area, component rebuild shop, parts storage, and tool box storage.

Space Standards

National transit planning space standards were applied to the NCTPA Space Needs Program and, in general, they were applied to the office and vehicle parking areas. The space requirements for the shops and storage areas were derived from functional requirements and equipment space needs. The national space standards listed in Table 14 were used to develop the facility program and overall area requirements.

Table 14. National Space Planning Standards

Office Areas	
Manager	*196 square foot office*
Supervisor	*140 square foot office*
Large Workstation	*100 square foot workstation*
Medium Workstation	*64 square foot workstation*
Small Workstation	*36 square foot workstation*
Other Office Staff	*120 square foot office*
Bay Areas	
Running Repair Bay - standard	*1,200 square feet (20' x 60')*
PM/Inspection Bay - standard	*1,200 square feet (20' x 60')*
Tire Bay - standard	*1,200 square feet (20' x 60')*
Chassis Wash Bay – standard	*1,200 square feet (20' x 60')*
Service Areas	
Fueling Position	*2,200 square feet (55' x 20')*
Interior Clean	*3,000 square feet (25' x 60')*
Wash Lane	*1,700 square feet (20' x 95')*
Vehicle Parking	
Bus – 30 ft.	*420 square feet (12' x 35')*
Bus – 40 ft.	*540 square feet (12' x 45')*
Bus – 45 ft.	*600 square feet (12' x 50')*
Support Vehicles	*200 square feet (10' x 20')*
Employee	*162 square feet (9' x 18')*
Visitor	*163 square feet (9' x 18')*
Handicapped parking	*234 square feet (13' x 18')*

Circulation Factors: The space requirements shown for each function are considered the net usable areas, so a circulation factor must be included to account for the movement of buses, cars and people throughout the facility, and the need for additional spaces interior to the buildings. By using advanced design strategies the design team hopes to minimize the amount of circulation necessary for an efficient facility. There are three circulation factors used in the Space Needs Program, and include:

1. **Interior or Building Circulation:** This factor is applied to the program as a percentage of the total building square footage. It accounts for miscellaneous building spaces used by employees and other personnel such as hallways, stairwells, janitor closets, mechanical, plumbing, and electrical rooms, wall thickness, the supporting infrastructure of the building, and access requirements. Table 15 provides the building circulation factors that were applied for this project.

Table 15. Interior/Building Circulation Factors

Area	*% of Facility Area*
Administrative Office Areas	35%
Operations Areas	20%
Maintenance Office Areas	25%
Maintenance Support Areas	25%
Shop and Bay Areas	20%
Covered Service Areas	20%

2. **Parking Circulation:** This circulation factor is included to account for the vehicle drive aisles, pedestrian walkways, islands, and other areas created by site inefficiencies. Table 16 provides the parking circulation factors that were applied for this project.

Table 16. Parking Circulation Factors

Area	*% of Facility Area*
Bus Parking Areas	100%
Automobile Parking Areas	100%

3. **Vehicular Site Circulation Factor:** This factor is also applied to the program as a percentage of the total program square footage. It accounts for areas around the buildings, site drive aisles, building access, additional exterior landscaping, and site access. For most new construction a 100 percent factor is normally applied to account for all site inefficiencies. Once a site is selected and the site conditions, access, and easements are better defined the more efficient the site layout can become.

Table 17. Vehicular Site Circulation Factors

Area	*% of Facility Area*
Planning Level Site Circulation	100%

3.4. Space Needs Program Summary

A summary of the Space Needs Program for the proposed NCTPA Facility is provided in Appendix A. This summary includes all building and site areas including administration, operations, maintenance, and parking areas, and will be used by the design team to develop the master plan and the conceptual building plans of the proposed NCTPA Facility. Site circulation, setbacks, landscaping requirements, and total acres required are also shown. Appendix A begins by identifying each space by name and a Space Standard (if applicable). The 56-Bus Program heading represents the existing conditions at the Napa facility, while the 68-Bus Program represents spaces required to accommodate a future fleet based on a 1 percent annual growth according to national design standards at the proposed facility.

Table 18. Space Needs Program Summary

Summary	Unit		Area (SF)
Building Areas			
Total Agency Administration Areas	**1**		**907**
Total CONTRACTOR Bus Operations & Support Area	**159**		**8,636**
Total CONTRACTOR Bus Maintenance Office and Support	**18**		**2,554**
Total CONTRACTOR Bus Maintenance Areas	**0**		**19,243**
Total CONTRACTOR Service Areas	**1**		**10,575**
TOTAL ALL BUILDING AREAS	**141**		**41,915**
Exterior Parking Areas			
40' Fixed route	**15**		
35' Fixed route	**25**		
28' Fixed route	**10**		
Mixed Fixed Route	**11**		
23' Paratransit	**23**		
Down line/ready line	**15**		
Employee Parking	**124**		
Visitor Parking	**8**		
Non-Revenue Parking	**8**		
Total Exterior Parking Areas	**239**		**157,062**
TOTAL ALL AREAS			**198,978**
Site Circulation Factor (includes setbacks, landscaping, etc.)	**75%**	**100%**	**78,531**
GRAND TOTAL			**397,955**
		ACRES	**9.14**

Technical Memorandum #2

TO: **NCTPA Project Team**

FROM: **David A. Cheeney, AICP, Project Manager**

DATE: **September 19, 2013**

SUBJECT: **NCTPA Bus Maintenance Facility**

Technical Memorandum #2 – Site Screening and Selection

This technical memorandum is the second in a series of reports that document the study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). This report summarizes the site screening and selection process used to identify and recommend the preferred site for the Bus Maintenance Facility.

The Study consists of the following reports:

- Technical Memorandum 1: Space Plan
- Technical Memorandum 2: Sites and Screening
- Technical Memorandum 3: Charrette and Concepts
- Technical Memorandum 4: Due Diligence Report
- Technical Memorandum 5: Multi-Jurisdictional Use
- Draft Report: Summary of all Technical Memoranda
- Final Report: Summary of Technical Memoranda Responding to Board and Staff Comments

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1. Executive Summary

This technical memorandum is the second in a series of reports that document the study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). This report summarizes the site screening and selection process used to identify and recommend the preferred site for the Bus Maintenance Facility.

The project team consisting of the consultants, the commercial real estate broker, and NCTPA was done from June to December of 2013 to identify a large number of potential properties to locate the Bus Maintenance Facility. Using a multiple step process, the project team narrowed the number of sites to an initial group of six preferred candidate sites. During August and September 2013, the team toured the top six sites and created a screening matrix that applied specific criteria to each site. The team collaboratively applied the screening tool to rank the six sites, and narrow the pool down to four top sites. Further due diligence was conducted to assist in identifying a preferred site.

1.1. Purpose

The overall project purpose is to create a space program for the new facility, to identify potential sites in Napa County, to screen those sites and recommend the preferred alternative. The study process (**Table 1**) will include data collection and conceptual facility layout, the identification and assessment of potential sites, the recommendation of the preferred site, analyzing the available funding options, and documentation of the process and preparation and presentation of the final report. The study will conclude by December 2013.

Table 1. Study Process

Steps in the Study	*Schedule (2013)*
1. Data Collection, Conceptual Facility Layout	July-August
2. Candidate Site Identification and Assessment	August-October
3. Analyze Funding Options	November-December
4. Prepare Final Report and Documentation	December

2. Sites and Screening Process

2.1. Study Area

A project study area was identified to constrain the location of potential sites. The study area was based on NCTPA input, availability of suitable land, distance from the existing transit transfer center, and geographic location in relation to major transportation corridors.

KHA prepared a base map of the study area that identified all industrially-zoned properties and the major transportation corridors. Early communication with the NCTPA indicated the preferred sites should be zoned for industrial uses. As a public agency NCTPA could obtain non-industrial property and use it for the proposed bus facility, but it was noted that the County would prefer compliance with their general plan. The NCTPA also indicated that it was their preference that the Bus Maintenance Facility be placed so as to minimize operational costs from excessive deadhead bus movements. The study area and the industrial zoned properties are shown in **Figure 1**. Then current NCTPA transit center is identified as a reference point.

2.2. Initial Candidate Sites

Process

KHA identified properties within the study area that were appropriately zoned as industrial. KHA then developed a set of site selection criteria shown in **Table 2**. These criteria were divided into three categories of importance: 1. Essential Needs; 2. Preferred Needs; and 3. Desired Needs. The team then applied these criteria to a pool of over 30 sites and was able to reduce the candidates to 27 possible sites within the study area. Using these initial 27 sites the team next met with the City of Napa, County of Napa, the commercial broker, and NCTPA staff in order to determine the appropriate zoning district for a bus maintenance facility. Research indicated a limited supply of industrially-zoned property in the Napa region. Additionally, it was noted that as a public agency NCTPA could obtain non-industrial property and use it for the proposed facility. Although this is a viable option, the County stated their preference that the property be located in an area that the General Plan recommends for industrial use.

Industrial Zoning

The industrial zoning codes for the City and County are different. The County of Napa zoning code consists of three unique industrial zoning districts:

1. Industrial District (I)
2. Industrial Park Zoning District (IP)
3. General Industrial Zoning District (GI)

It is the intent of the industrial zones to provide an environment exclusively for and conducive to the development and protection of a variety of industrial uses such as warehouses, manufacturing, wineries and food processing facilities that are industrial in character, and research and development. Based on the meeting with the County it was determined that due to the NCTPA being a public agency, the proposed use could be located within any zoning category but the County would prefer that the proposed use conform to the intent of the County General Plan. Locating the bus maintenance facility within any of the three existing industrial zoned designations listed above, in addition to any areas designated as Industrial (I) within the County General Plan would be in conformance with the General Plan.

The City of Napa Municipal Code cotains two industrial districts:

1. Industrial Park (IP)
2. Light Industrial (IL)

The specific purposes of the light industrial and industrial park districts is to retain existing businesses that contributes to meeting Napa's strategic economic goals, maximize use of Napa's limited industrial land supply for employment generating uses and attract and expand industrial, technology, and region-serving office development. Based on the meeting with the City of Napa staff it was determined that no such sites that could accommodate the space needs of the proposed bus maintenance facility are located within the City of Napa.

Applying the initial criteria and the information gathered from meetings with agencies, and from site inspections the team was able to rank the 27 sites into three groups as shown in **Table 3.**

Figure 1. Study Area

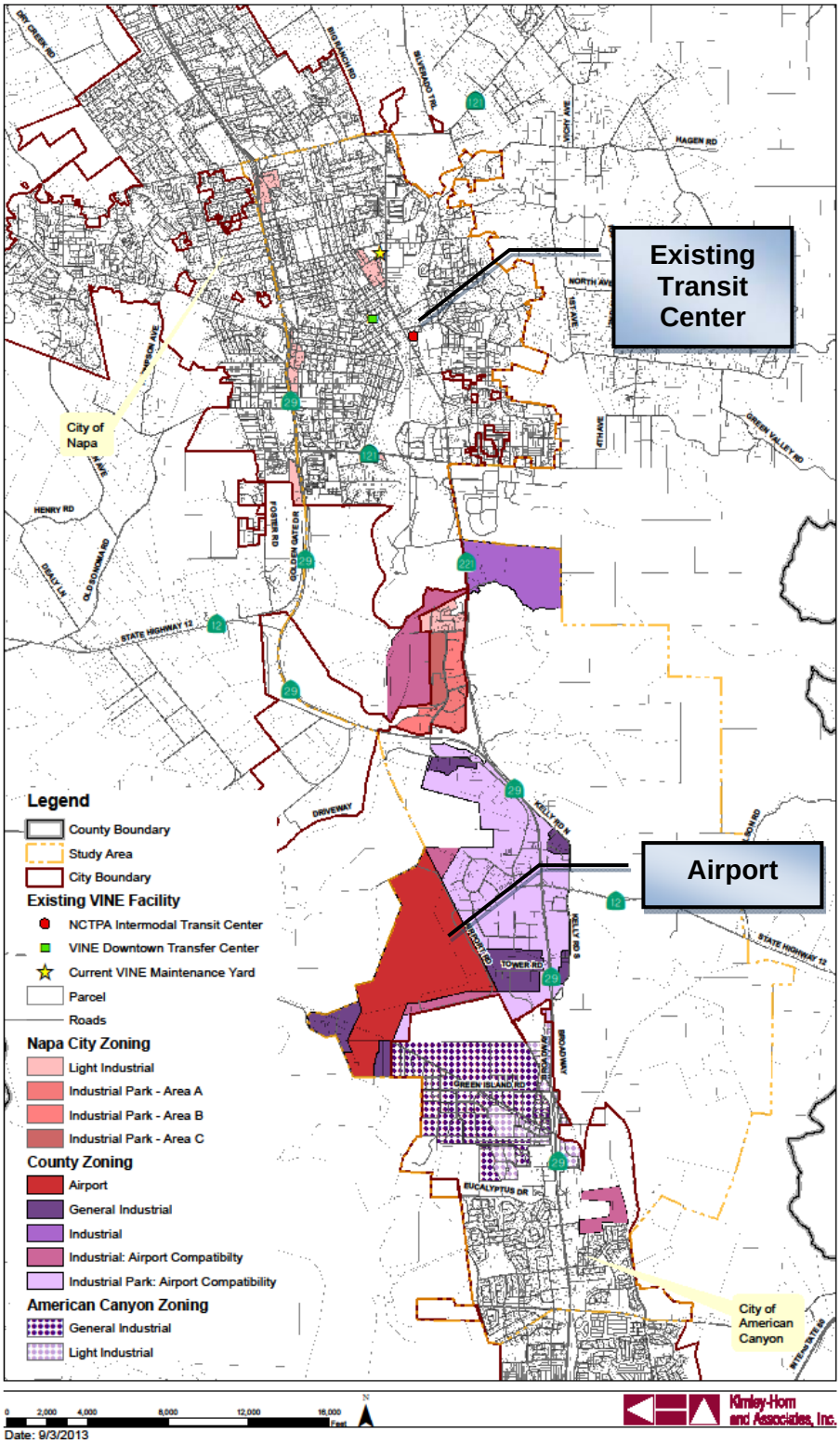


Table 2. Initial Criteria

• Essential Requirements	
These are requirements that have to be met. If not met, site to be rejected.	
Minimum size	*7 acres (may be refined)*
Minimum dimensions	*300 feet wide (may be refined)*
General Plan recommendation	*Industrial or public use*
Available for purchase	*Condemnation not a viable alternative*
Acceptable Covenants	*Covenants do not restrict this use*
• Critical Requirements	
These are requirements that are very important but not essential to meet.	
Compatible adjacent uses	*Noise sensitive neighbors not desirable*
Full movement access to public roads	*Site allows left and right turns in and out*
Environmental issues	*No costly mitigation required*
Minimal deadhead length	*Minimize deadhead length*
Compatible zoning	*No rezoning or SUP required*
Price	*Reasonable and supportable by an appraisal*
• Desired Requirements	
These are desired but not essential or critical.	
Expandable	*To accommodate growth*
Minimal site preparation costs	*Costs for demolition, mitigation, utilities*
Minimal off-site work	*No off site utility or road work required*

Table 3. Potential Sites

NCTPA Transit Maintenance Facility Site Ranking List

Map #	Location	Parcel number	Property Owner (Per Assessor's Office)	Asking Price	Land Area	Zoning	Miles to Transit Center	Deadhead Travel Times During Peak Periods		Remarks	Additional info needed
								AM Peak Inbound	PM Peak Outbound		
Preferred Sites											
1	South side of Soscol Ferry Rd	057-170-001-000	GILES, KIMBAL GRIGGS & BLODGETT-GILES, THERESE 1605 G ST, NAPA CA 94559	$3.9 M, $4/ft	22.39 acres	IP-AC	4.5			Near Napa Sanitation spray irrigation fields.	Verify access
2	West side of Delvin Rd	057-170-019-000	FEDRICK, RONALD M 3600 FEDRICK RANCH RD PETALUMA CA 94954		26.93 acres	IP:AC	4.7				Verify access
3	1055 Soscol Ferry Rd	057-170-018-000	FENNELL, MICHAEL L & ANNE E ETAL 211 JULIE PL, NAPA CA 94558		10.32 acres	GI-AC	4.3			Currently in foreclosure: Napa Wine Studios, Fennell McDervitt , broker	available?
6	Technology Way @ Morris Ct	057-250-029-000	GATEWAY WINERY LLC 1030 MAIN ST #300, SAINT HELENA CA 94574		11.06 acres	IP-AC	6.1			South west corner- Owned by Rudd. CCR's checked and use is allowed.	
13	Napa Airport Corporate Centre	057-090-080-000, 057-090-079-000	NAPA AIRPORT CORPORATE CENTER I LLC 8775 FOLSOM BLVD STE 200 SACRAMENTO CA 95826	$7-10/ft.	49.17 acres total (11.95 acres, 37.22 acres)	SP-2	6.7			Pannatoni Development site, South side of S. Kelly, west side of 29. Planned for industrial park. Bisected by Devlin extension. In American Canyon	
20	East of Pacific Supply	046-370-024-000	BOCA COMPANY 3000 DULUTH ST WEST SACRAMENTO CA 95691		55.27 acres	I	2.6			East of Pacific Supply. Owned by Carter. 27 +/- flat acres	
Potential Sites											
4	Devlin Rd North of Sheehy	057-210-002-000			31.33 acres	IP-AC				South of 129 Devlin Road. Not listed but likely to be available	
5	South of 221 Devlin Rd., allied Propane prop.	057-020-025-000			11 acres	IP:AC				Oneil-Mullin subdivision. 22 acres gross, 11 acres net due to wetlands. Net area is irregular in shape and mostly unusable for NCTPA.	
8	665 NV Highway at Devlin Rd	057-110-012-000		$1.8M	12.85 acres	GI:AC				7.9 Acres useable. Not in Gateway Business Park. Devlin Road extension bisects it. 360 foot narrow dimension. Shape is not very good.	
9	Greenwood Business Park	057-210-055-000			18.72 acres	IP:AC				Development site. For lease or build to suit only. Under contract.	
10	Technology Way	057-250-030-000		$3.6 M	13.20 acres	IP:AC				Winery production site- Rombauer owns it. Winery production plans are complete.	CCR issue
18	Kaiser @ Syar Way	046-370-004-000			10.21 acres	I:AC				Napa Pipe school site. Likely to be incompatible with planned residential, retail, hotel.	
19	Pacific Supply	046-370-021-000			27.11 acres	I				County preferred site for jail	
22	Flea market site off Kelly Rd	057-110-039-000, 057-110-004-000, 057-110-059-000, 057-110-061-000			10.03 total acres (4.00 acres, 3.61 acres, 1.03 acres, 1.39 acres)	GI:AC				East of 29, west of North Kelly.Operates as flea market	for sale?
23	Old Ranch site off Kelly Rd	057-060-010-000			45.70 acres	IP				North of flea market	
25	Sutteen	057-220-020-000			13.1 acres	IP:AC				555 Gateway Drive. Includes 40 K office building. Existing building may be a complication or if usable could be a positive factor.	
Not on Map	Napa Sanitation District 1515 Soscol Ferry Road		NAPA SANITATION DISTRICT	n/a	10+ acres	IP				Based on meeting betwwen NCTPA and SD to present their plans to develop CNG using SD waste material. SD stated they have surplus land "near their offices" that they might sell to NCTPA.	Verify if they will share fueling facility, location of land, price?
Rejected Sites											
7	Devlin @ Sheehy	057-210-039-000, 057-200-001-000			5.52 acres	IP:AC				Gateway Business Park. Too small.	
11	Technology Way	057-250-031-000			4.55 acres	IP:AC				Keegan & Coppin site. 2-3 acres adjacent could be added. Owned by Rudd. Too small	
12	450 Tower at Devlin	057-100-230-000			5 acres	GI:AC				Too small	
14	450 Green Island	057-130-003-000		$1.86M	5.69 acres	GI				Possible to combine with 520 Green Island. Too distant from transfer center.	
15	520 Green Island	057-130-002-000		$2.277M	5.1 Acres	GI				Possible to combine with 450 Green Island. Graded with improvements in place. Too distant from transfer center.	
16a	1678 Green Island	058-070-006-000			16.8 acres	GI				Auto wrecking site, possible lead contamination. Too distant from transfer center.	
16b	2484 Green Island Road	057-040-005-000		$1.5M	22.7 Acres	G1				Too distant from transfer center.	
17	Paoli Loop at Hwy 29	057-180-001-000, 057-180-002-000, 057-180-003-000		$10.25/ft	5.6 acres	LI				Narrow site	
21	AT&T corp. yard	057-190-006-000			7.23 acres	IP:AC				On Camino Oruga Road. Owned, used by AT&T. Not for sale.	
24	Next to Intelsat satellite farm	046-630-004-000			5.4	IP-B				On Anselmo court Too small.	
26	Diablo Lumber	057-090-004-000, 057-090-052-000, 057-090-051-000			9.26 total acres (3.45 acres, 2.00 acres, 3.81 acres)	LI				5747 Highway 29. No median break. Operating business	for sale?
27	South side of Soscol Ferry Rd	057-170-010-000		$4.8M, $4/foot	27.55 acres	IP				South of site #1. Long narrow site. Would need to be combined with part of site #1 or #2 to make its shape usable for bus facility.	

2.3. Screening Process

A two-step screening process was applied to the 27 potential sites. The initial screening was conducted over a two day period in August. Information on the site zoning, size, distance to major highways, dead head operating impacts, and real estate information was used to compare each site. The team then toured the candidate sites and ranked them according to the initial criteria. Sites that were too small, constrained by easements, constrained by environmental issues such as wetlands or waterways, had poor roadway access, were too distant from the current transit center, or slated for other development were placed in a lower category. Sites that passed the initial screening were ranked at the top as shown in **Table 3.** This resulted in six sites being ranked as "preferred sites".

2.4. Secondary Screening

The remaining six sites were screened using a more detailed matrix of criteria. The criteria were developed from project team input and based on project and professional experience from similar bus maintenance facility projects. **Table 4** shows the final criteria and the table matrix that was employed for the secondary screening. **Figure 2** shows the results of the scoring.

Screening Tool

The screening matrix is a spreadsheet tool that uses quantifiable values to help rank a series of alternatives. In this case five main groups of criteria were used:

- Location of the sites (distance from the transit center);
- The capacity of the site to handle the space program;
- Real estate issues;
- The costs of development; and
- Environmental issues.

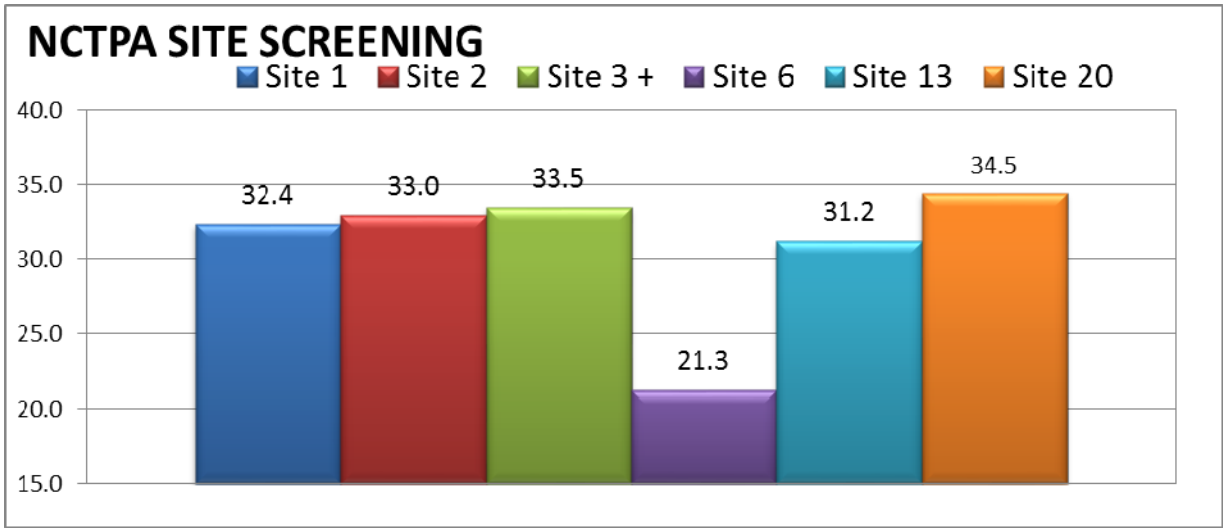
Each general category has several sub-criteria that support the main group. Each of these is weighted so that the sub-criteria add up to 100 percent. For example, under site capacity the sub criteria are:

- Acreage of the site – is the site physically large enough to handle the 10+ acre space program? This sub-criteria was weighted as 40% of the total;
- Configuration of the site – is the site square or rectangular so that it can be functional for its intended use? Sites that are too narrow or irregular in shape may be unusable for the proposed transit facility. This sub-criteria was weighted as 25% of the total;
- Limitations imposed on the site that might constrain usage – some parcels are constrained by man-made limitations such as legal easements for access or utilities. Natural features such as streams may also constrain the use of a site. This sub-criteria was weighted as 25% of the total; and
- Future expandability – does the site have room for future expansion? This sub-criteria was weighted as only 10% of the total.

Table 4. Site Screening Summary

NCTPA SITE SCREENING MATRIX									
INSTRUCTIONS: 1) place your score in the yellow boxes below for each site; 2) Score 5 for "best result" and 1 for "worst result". 0 = unknown. See "Notes" for explanation. You may put your personal comments in last column to document your scoring.									
			Site 1	Site 2	Site 3 +	Site 6	Site 13	Site 20	
Site Selection Criteria	Importance in Category	Strength	South Side Soscol Ferry Rd (22.39 ac)	West side of Delvin Rd (26.93 acres)	1055 Soscol Ferry Rd (10.32 ac) + 5.17 ac	Technology Way @ Morris Ct (11.06 ac)	Napa Airport Corporate Centre (37.22 ac)	East of Pacific Supply (55.27 ac)	**Notes**
1. LOCATION (to minimize deadhead costs)	100%	x3	**11.4**	**12.0**	**12.0**	**5.4**	**8.4**	**15.0**	
a. Minimize Deadhead Cost	50%		3	3	3	1	1	5	Shortest to transit center = 5, Farthest = 1
b. Roadway (Full movement access to site) and Rt 29/221 Access	20%		5	5	5	3	5	5	Full access to road & to north-south hwy = 5
c. Appropriate Adjacent Land Uses	20%		5	5	5	3	5	5	Industrial (non-residential, non-agricultural) area = 5, residential or sensitive adjacent LU = 1
d. Access for a multi-jurisdictional facility	10%		3	5	5	1	3	5	How visible and easy to access is the site for a multi-jurisdictional fuel or service facility? 5= very easy access; 1= hard to get to site
2. SITE CAPACITY	100%	x2	**9.0**	**9.0**	**9.0**	**5.6**	**10.0**	**10.0**	
a. Acreage >12 acres usable	40%		5	5	5	3	5	5	If total buildable area >12 ac = 5; if less than 10 ac = 1
b. Site Configuration	25%		3	3	5	1	5	5	Based on site configuration square/rectangle = 5; if site constrained = 1
c. Site Limitations	25%		5	5	3	5	5	5	Site topography, environmental features, easements allows full development = 5; if not = lower score
d. Expandability	10%		5	5	5	1	5	5	If adjacent available land for future expansion = 5; if none available = 1
3. REAL ESTATE ISSUES	100%	x1	**5.0**	**4.0**	**5.0**	**3.5**	**5.0**	**3.0**	
a. Availability & Timing (condemnation not needed)	50%		5	3	5	3	5	1	for sale and willing to meet NCTPA schedule = 5.lower if time constraints, other conditions.
b. General Plan Conformance	25%		5	5	5	5	5	5	If no entitlements needed = 5; but if required = 1
c. Community / neighborhood sensitivity Issues	25%		5	5	5	3	5	5	If industrial area, no community concerns = 5; if zoning or community concerns are going to slow process = lower score
4. DEVELOPMENT COST	100%	x1	**3.2**	**4.2**	**4.2**	**4.0**	**3.8**	**3.2**	
a. Land Cost (per SF)	40%		*3*	*3*	*3*	*3*	*3*	*3*	If expensive for industrial land=1; if inexpensive=5.
b. Site Development Cost (Roads, signals, utilities)	10%		3	5	5	5	5	3	If minimal on-site costs = 5; if costs = lower value
c. Off-site improvements (Roads, signals, utilities)	40%		3	5	5	5	4	3	If no off-site costs = 5; if costs = lower value
d. Design covenants or development guidelines that add costs?	10%		5	5	5	3	5	5	If part of larger development (PUD or office park) and adds costs = 1; if no added costs = 5
5. ENVIRONMENTAL ISSUES	100%	x1	**3.8**	**3.8**	**3.3**	**2.8**	**4.0**	**3.3**	
a. Geotechnical (Soils)	25%		3	3	3	3	3	3	Good soils = 5. unsuitable soils=1
b. Seismic Issues	25%		3	3	3	3	3	3	Not near fault line or not predisposed to issues = 5; near fault or liqifaction issues = 1
c. Wetlands and Streams (impacts, setbacks, mitigation)'	25%		4	4	2	4	5	4	No wetlands or streams present = 5; constraints or reduced site use = lower score
c. Other impacts (hazmat, noise, air, etc)	25%		5	5	5	1	5	3	No sensitive receptors for noise, air, hazmat = 5
TOTAL WEIGHTED SCORE			**32.4**	**33.0**	**33.5**	**21.3**	**31.2**	**34.5**	

Figure 2. Site Scoring Results



The project team used the screening matrix by scoring each site based on the criteria. A score of 5 indicated the highest value, while a score of 1 was the lowest value. For example, under the size criteria noted above, if the site was over 10 acres in size it was given a score of 5. A site that was less than 10 acres would be scored less. In this manner the six sites were ranked as shown in **Figure 2**.

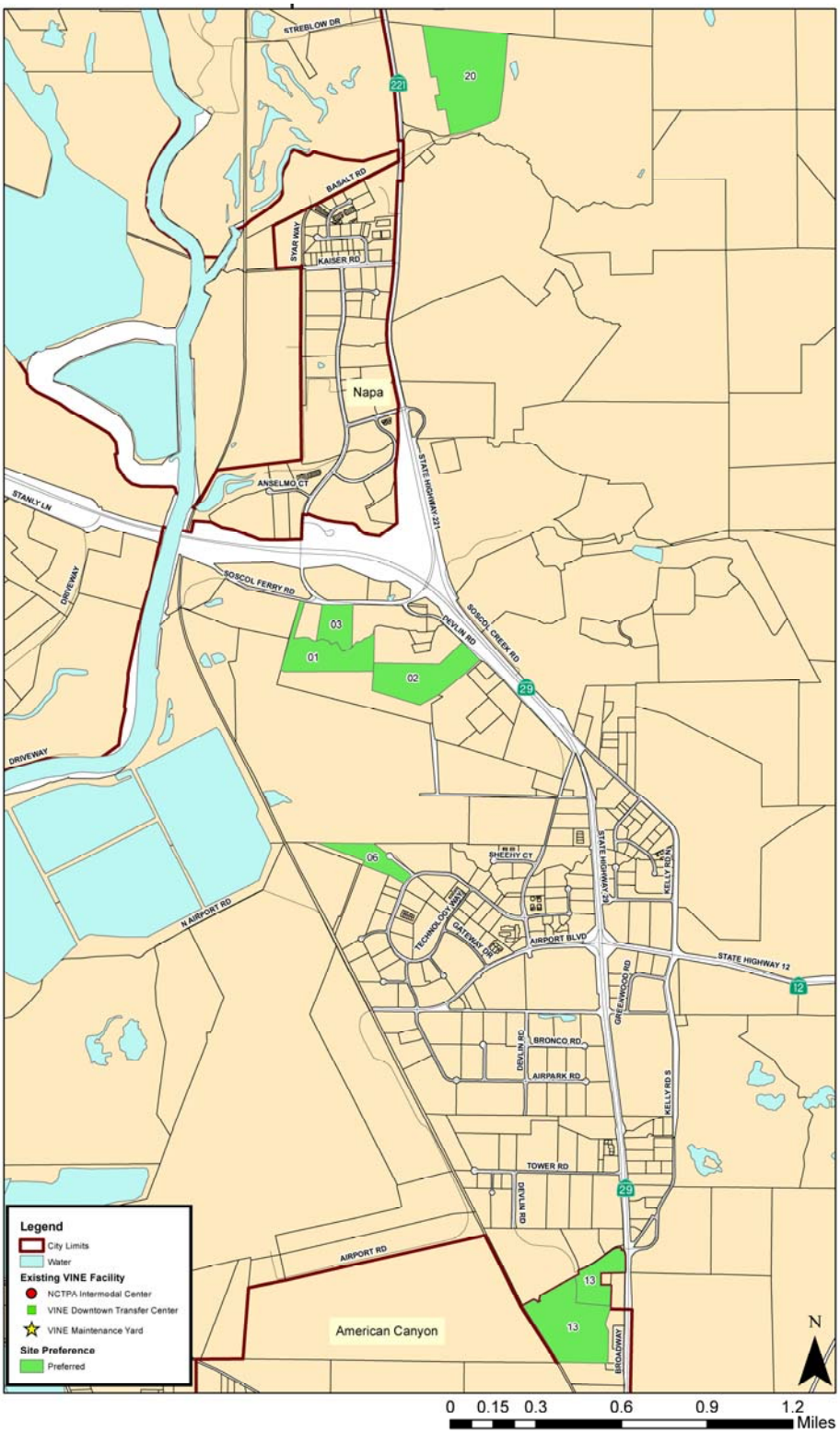
3. Screening Results

The team used the two stage screening process to identify the following top six candidate sites as shown in **Figure 3**.

- Site #1 – Southside Soscol Ferry
- Site #2 – Westside of Delvin Rd
- Site #3 – 1055 Soscol Ferry Road
- Site #6 – Technology Way @ Morris
- Site #13 – Napa Airport Corporate Centre
- Site #20 – East of Pacific Supply

The top six sites and results of the initial due diligence analysis for each individual site to date are discussed below. Following the individual site analysis based upon the due diligence findings, one preferred site will be recommended.

Figure 3. Top Sites Map



3.1. Site Location and Size

Figure 4 is an area-wide aerial map that shows the general location of the top six sites. The NCTPA Intermodal Transit Center, VINE Downtown Transit Center, and the current VINE Maintenance Yard are all located approximately 2.5 miles north of the northern most site, Site #20.

Site #1- Southside Soscol Ferry

The Southside Soscol Ferry site is located to the south of Soscol Ferry Road which provides convenient access from the site to the CA-29, CA-221 and CA-12 intersection located approximately .5 miles to the east. **Figure 5** shows an aerial map of the property complete with zoning information and associated parcel information for the site. The northern boundary of the site has a narrow frontage on Soscol Ferry Road and the majority of it is approximately 680 feet south of Soscol Ferry Road. Access to the site would be provided along the narrow portion of the parcel running along the west side of the site that is currently a dirt access road connecting to the Soscol Ferry Road.

The site is approximately 4.5 miles south of the existing Transit Center for which CA-221 would be used as the primary travel corridor between the two locations. The total site is approximately 22.39 acres in size.

Site #2 – West Side of Devlin Road

Site #2 is located on the west side of Devlin Road which runs parallel to and acts as a frontage road to CA-29. **Figure 6** shows an aerial map of the property. Access to the site would be provided along Delvin Road which directly connects with the CA-29, CA-221, and CA-12 intersection to the north. CA-221 provides direct access to the Transit Center. The site is approximately 26.93 acres and located 4.7 miles south of the existing Transit Center. Because the tract is much larger than the preferred size for the facility, subdivision into smaller tracts would be possible and recommended.

Site #3+ – 1055 Soscol Ferry Road

The parcel originally designated as Site #3 was only slightly larger than the preferred size for the facility which would necessitate acquisition of the entire tract without subdivision and not allow for future expansion. Due to this fact, the parcel directly adjacent to and west of the original Site #3 parcel was added to the proposed site area midway through site screening and selection process. The site was renamed as Site #3+ and analyzed based upon the two combined parcels. Site #3+ is located on the south side of Soscol Ferry Road and approximately 0.35 miles west of CA-29 and CA-221. **Figure 7** shows an aerial map of the property. Access to the site would be provided along Soscol Ferry Road which directly connects with the CA-29, CA-221, and CA-12 intersection to the east. CA-221 provides direct access to the Transit Center. The site is approximately 15.48 acres and located 4.3 miles south of the existing Transit Center.

Site #6 – Technology Way @ Morris Ct

The Morris Court site is located on the north side of Technology Way and approximately 0.81 miles west of the CA-12. **Figure 8** shows an aerial map of the property. The site has frontage along Technology Way to the east and Morris Court to the north from which access would be provided. At a total of 11.06 acres, the tract is only slightly larger than the preferred size for the facility, thus acquisition of the entire tract without subdivision would be expected. Located approximately 6.1 miles south of the Transit Center, CA-221 would provide the primary travel corridor between the two.

Site #13 – Napa Airport Corporate Centre

The Napa Airport Corporate Centre site lies within the City of American Canyon. The parcel abuts CA-29 to the east and Kelly Road to the north. Devlin Road at the intersection of Kelly Road would act as the primary access point to the site. **Figure 9** shows an aerial map of the property. The site is made up of two parcels that total 49.17 acres. Located approximately 6.2 miles south of the Transit Center, the proximate location of the site to CA-221 would provide direct and convenient access between the two locations.

Site #20 – East of Pacific Supply

The East of Pacific Supply site is located adjacent to and north of Basalt Road and approximately .2 miles east of CA-221. **Figure 10** shows an aerial map of the property. Of the top six sites, East of Pacific Supply is closest to the existing Transit Center, being located approximately 2.6 miles to the south. The location of the site in relation to CA-221 would provide direct and convenient access between the two locations.

The site is a total of 55.27 acres. Because the tract is much larger than the preferred size for the facility, subdivision and acquisition of a smaller tract would be expected.

3.2. General Plan Compatibility

The NCTPA's proposed use at all six of the top sites is in accordance with the applicable jurisdictions General Plans. **Table 5** below shows the General Plan recommendation for each preferred site.

Table 5. General Plan Zoning for Preferred Sites

Site Description	*Jurisdiction*	*General Plan*
Site #1	*Napa County*	*Industrial*
Site #2	*Napa County*	*Industrial*
Site #3	*Napa County*	*Industrial*
Site #6	*Napa County*	*Industrial*
Site #13	*American Canyon*	*Industrial*
Site #20	*Napa County*	*Boca/Pacific Coast Study Area*

The first four sites (Site #1, Site #2, Site #3, and Site #6) are all located within the South County Industrial Area within Napa County General Plan. This area is currently designated only for industrial use. Napa County has a long-term commitment to protecting the Napa Airport from encroachment of residential uses, which are viewed as incompatible with airport operations. The land use being proposed on the aforementioned sites is consistent with the Napa County General Plan South County Industrial Area land use designation.

Site #20 is located within the boundary of the Boca/Pacific Coast Study Area. This study area is made up of two contiguous industrial parcels comprising approximately 80 acres. The study area is located on the east side of the Napa-Vallejo Highway adjacent to the Syar Industry sand and gravel quarry and SR 221. The current land use is industrial in nature, although the property owners have expressed an interest in redeveloping the site which spurred it's designation as a study area in the 2009 Napa County General Plan. The "Study Area" designation allows industrial uses to continue pursuant to existing zoning, but signals the need for further site- or area-specific planning to assess the potential for a mix of uses in this area, including multi-family housing.

Site #13 is designated “Industrial” based on the American Canyon General Plan. This land use designations allows for the following uses:

- light manufacturing
- aviation-related
- agribusiness related
- industrial sector “clusters”
- thematic industries
- business park
- warehouses
- professional offices
- supporting retail
- restaurant
- financial
- and similar uses

Based on the nature of the proposed bus maintenance facility, the use is compatible with the zoning of Site #13.

Figure 4. Site Identification Map

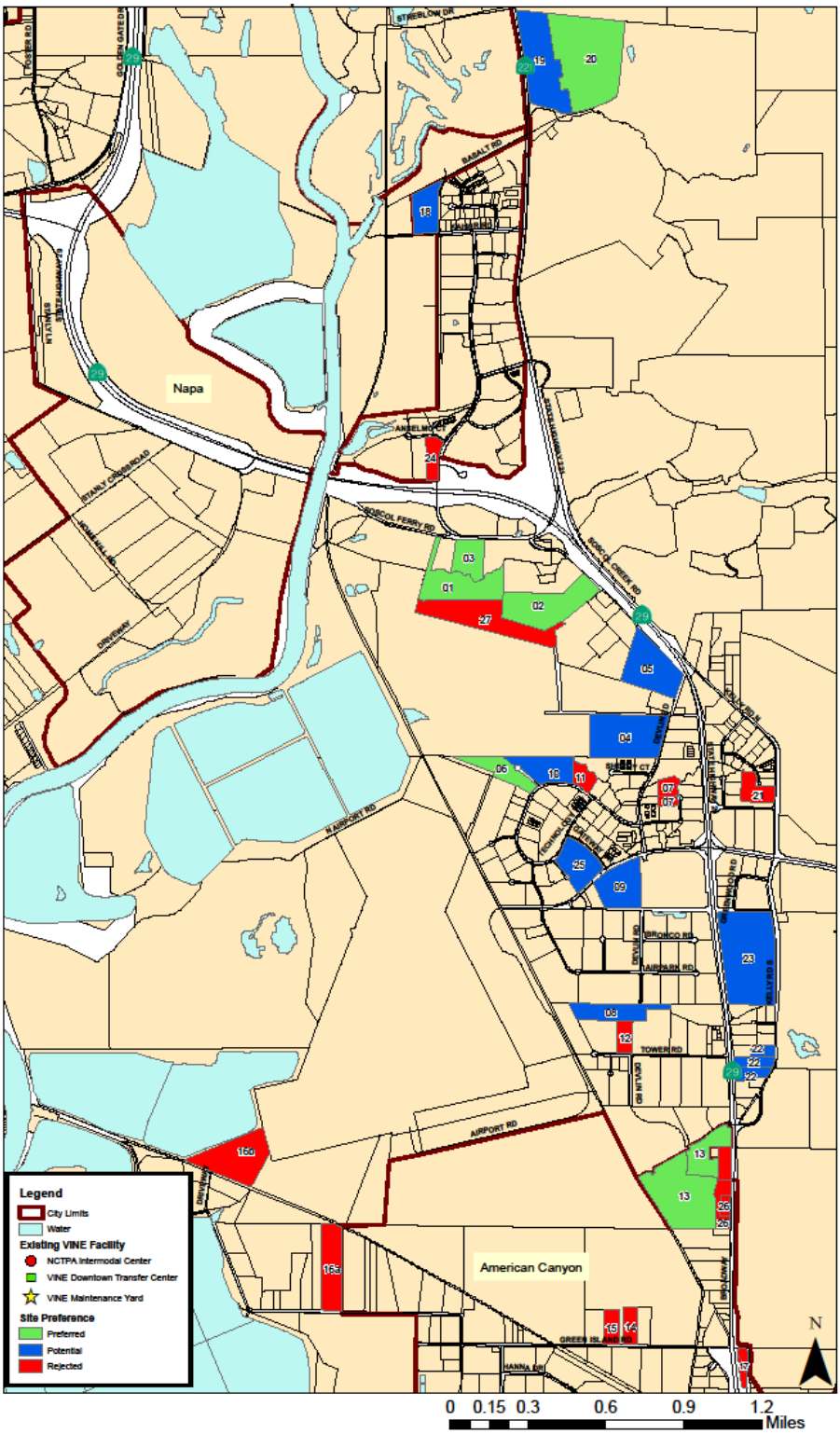


Figure 5. Site #1 – South Side Soscol Ferry Rd

Site 1 Attributes

Distance to Transit Center:	4.5 Miles
Parcel Number:	057-170-001-000
Zoning Designation:	IP-AC
Total Acreage:	22.39

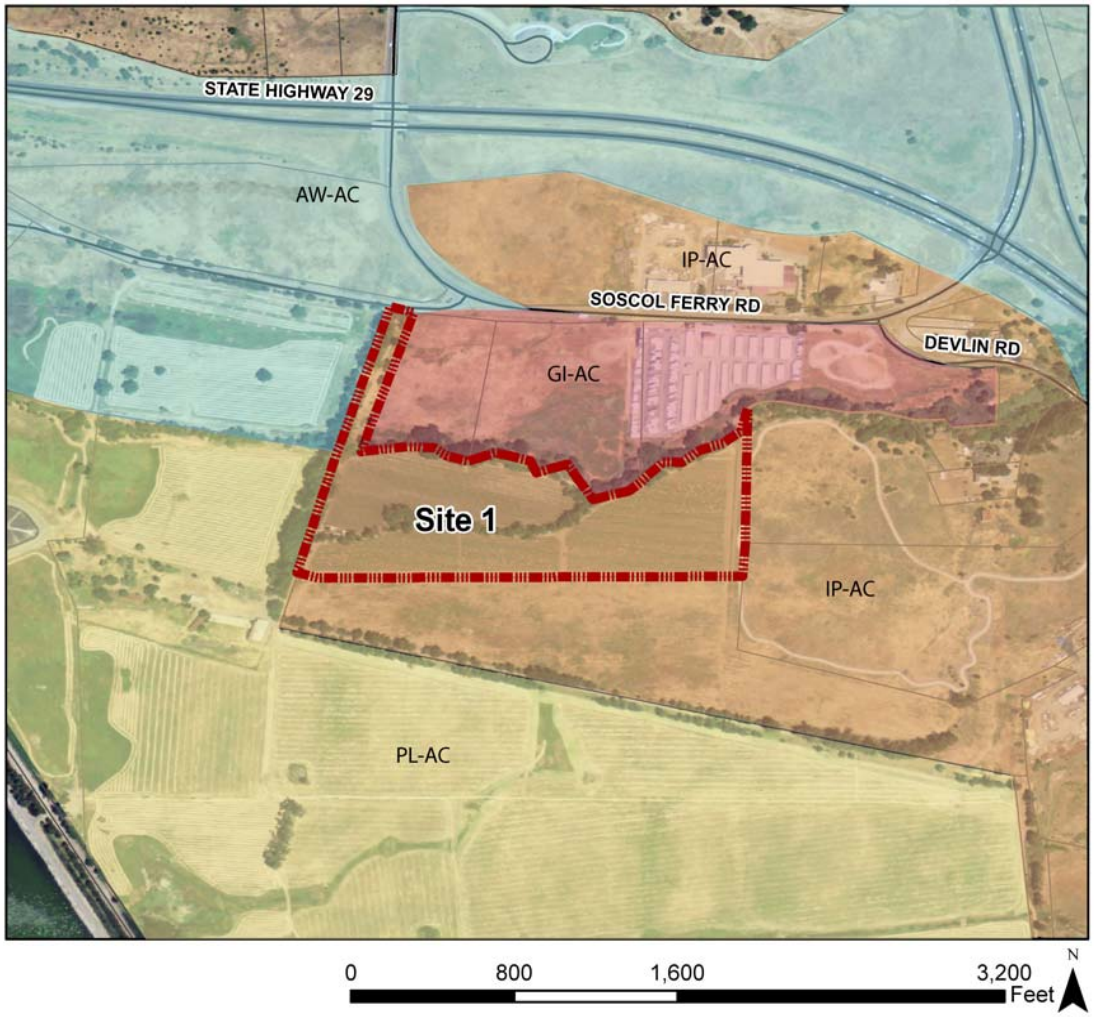


Figure 6. Site #2 – West Side of Delvin Rd

Site 2 Attributes

Distance to Transit Center:	4.7 Miles
Parcel Number:	057-170-019-000
Zoning Designation:	IP-AC
Total Acreage:	26.93

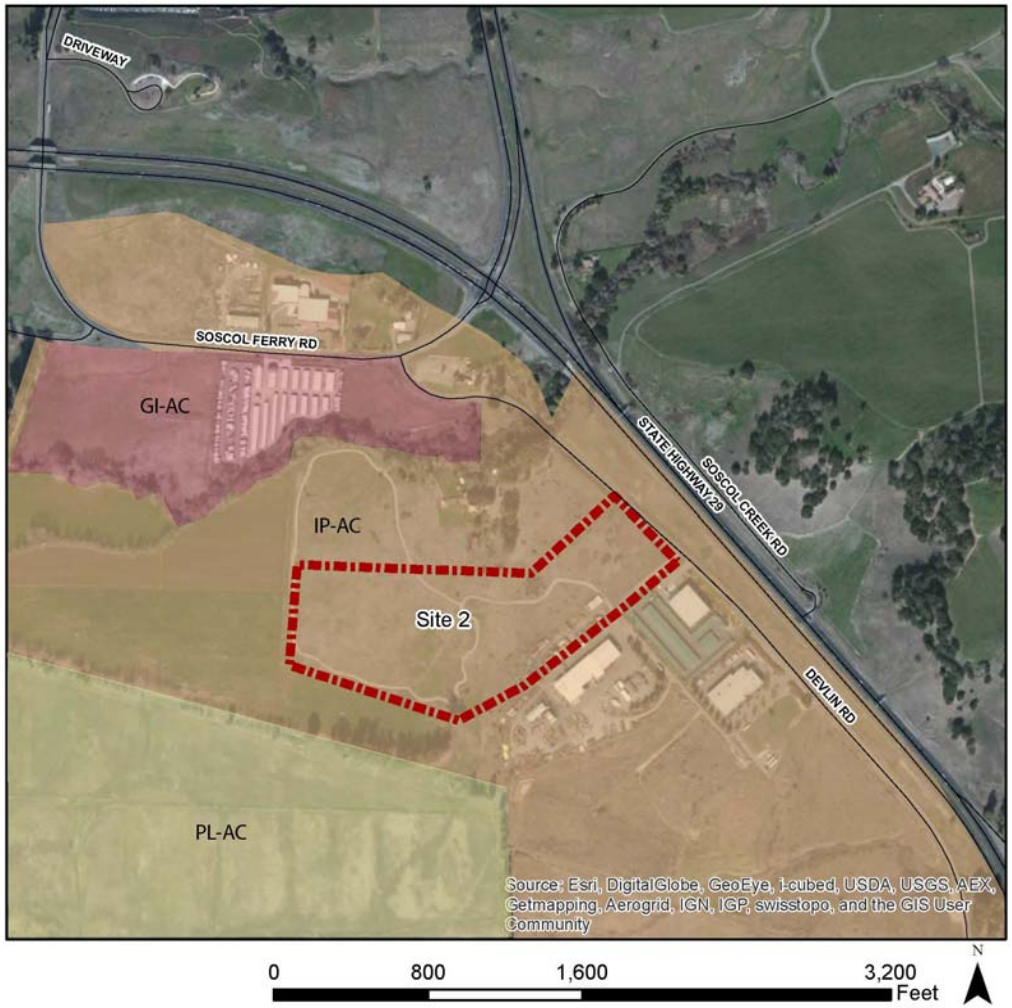


Figure 7. Site #3+ – 1055 Soscol Ferry Rd

Site 3 Attributes

Distance to Transit Center:	4.3 Miles
Parcel Number:	057-170-018-000 057-170-017-000
Zoning Designation:	GI-AC
Total Acreage:	15.48

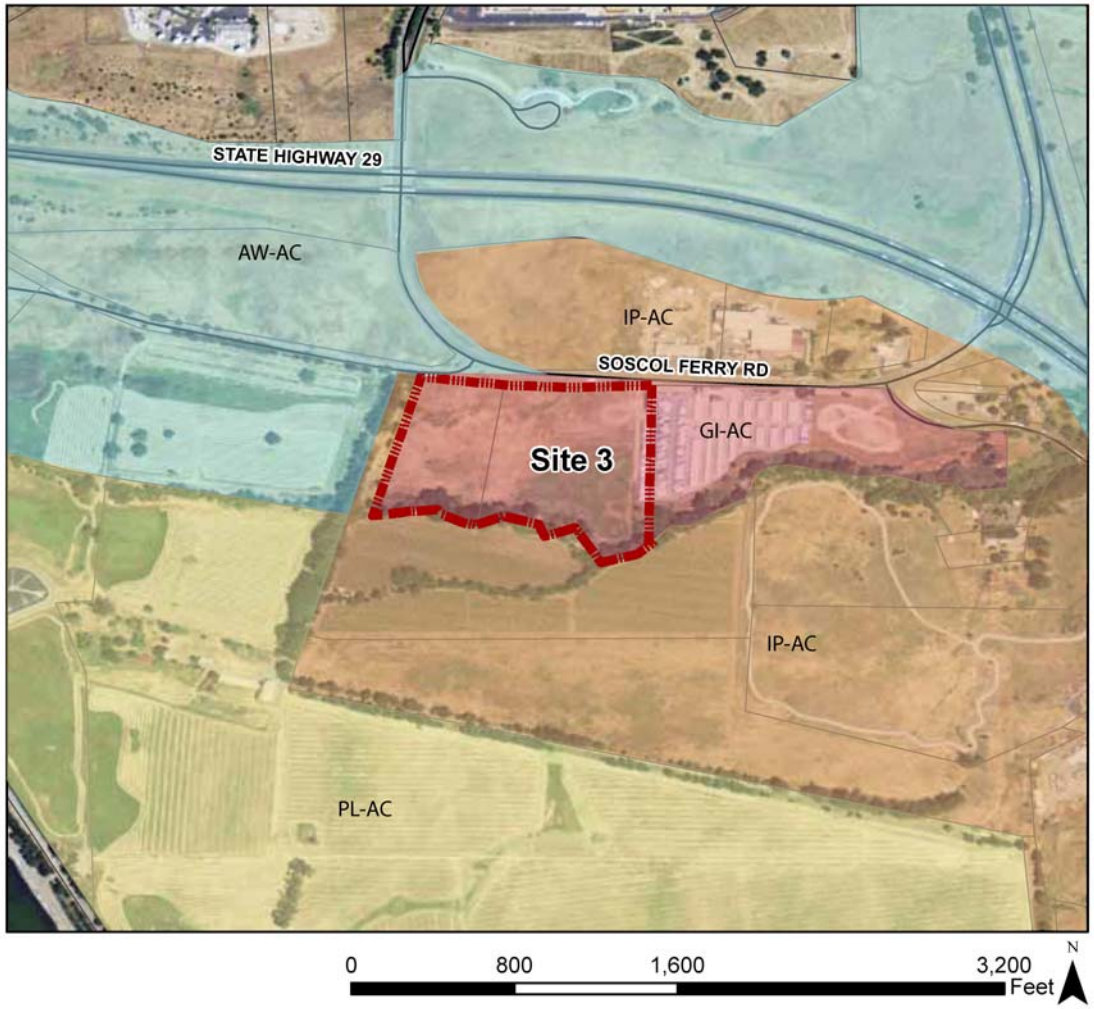


Figure 8. Site #6 – Technology Way at Morris Ct

Site 6 Attributes

Distance to Transit Center:	6.1 Miles
Parcel Number:	057-250-029-000
Zoning Designation:	IP-AC
Total Acreage:	11.06

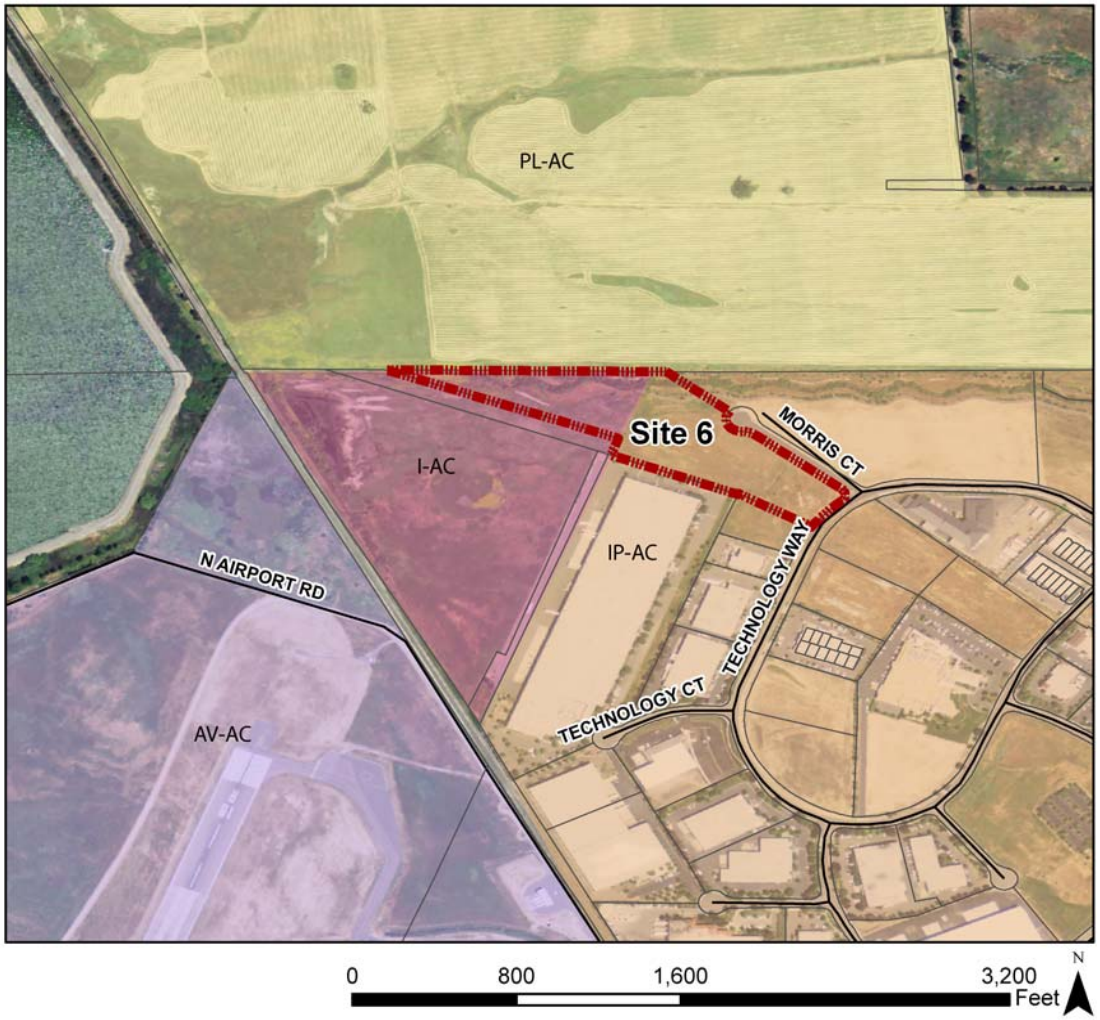


Figure 9. Site #13 – Napa Airport Corporate Centre

Site 13 Attributes

Distance to Transit Center:	6.7 Miles
Parcel Number:	057-090-080-000 057-090-079-000
Zoning Designation:	SP-2
Total Acreage:	49.17

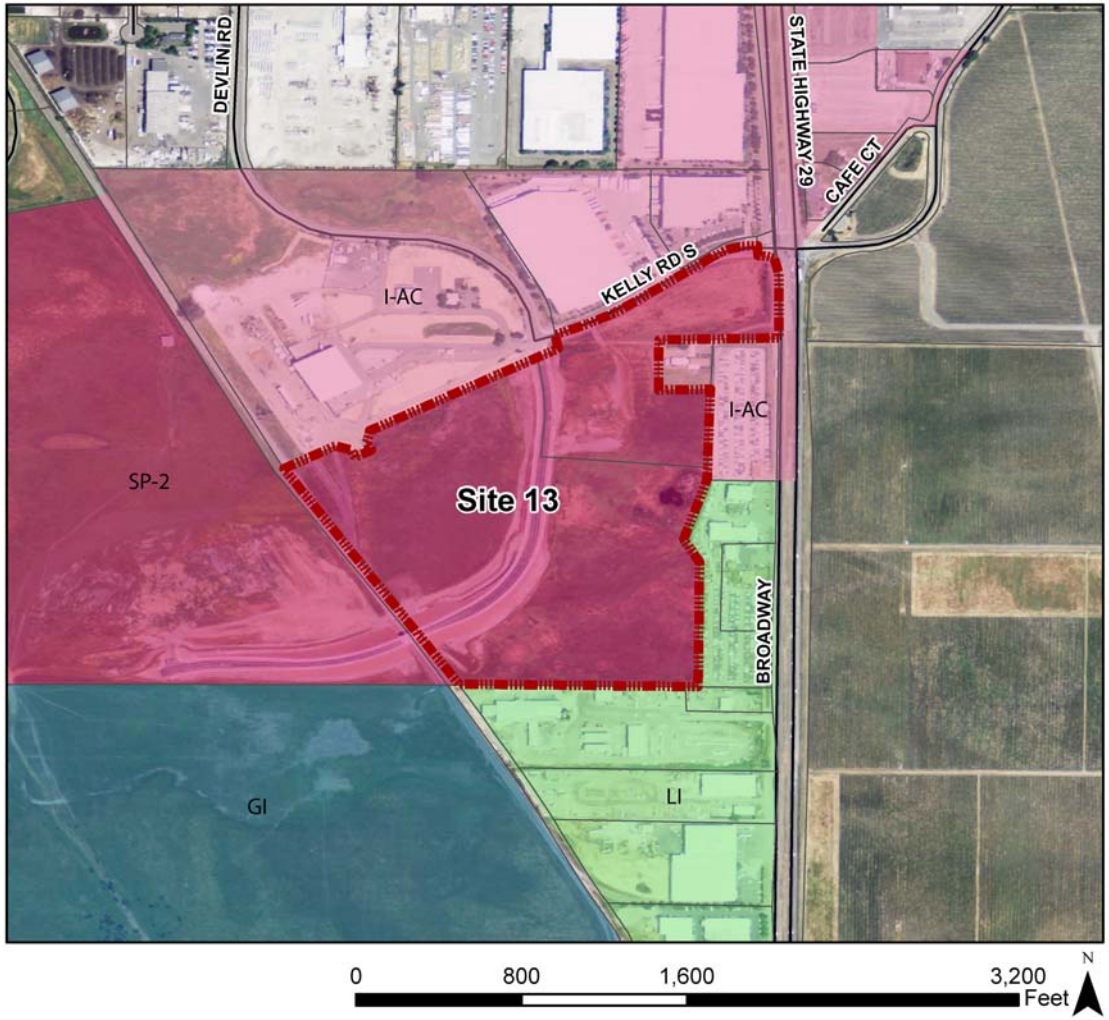
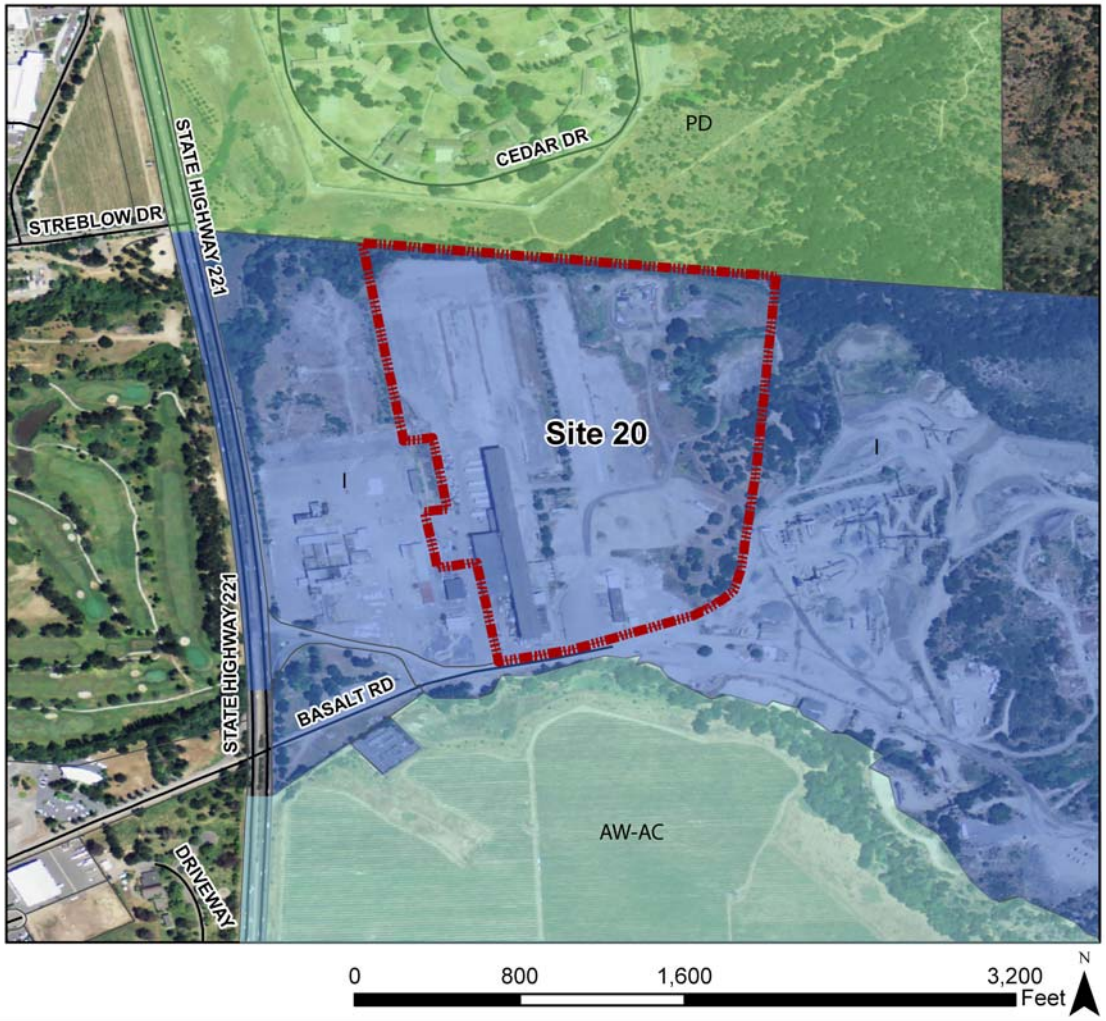


Figure 10. Site #20 – East of Pacific Supply

Site 20 Attributes	
Distance to Transit Center:	2.6 Miles
Parcel Number:	046-370-024-000
Zoning Designation:	I
Total Acreage:	55.27



3.3. Transportation Issues

All six sites have access to the local road network allowing transit vehicles to travel north and access the existing transit transfer center. The transit center was used as the logical end point for trips to and from the proposed site, as many routes use this facility.

Travel Distance, Time and Deadhead Costs

The key transportation issues focused on ease of access to/from the actual proposed site, and then travel times between the site and the transfer center. The travel times were based on public data, and were verified by field investigations in September. Distance and travel times were calculated and field verified in the morning and afternoon peak travel hours.

Annual deadhead costs are a main driver of operating costs, therefore the agency would prefer to minimize them. This annual cost data is shown in the following table. Deadhead costs were calculated based on the proposed fleet size in 2020 and 2040, and used 2013 per mile and hourly costs provided by Veolia.

Table 6. Travel Time and Deadhead Costs

Site	*One-way Distance*	*One-way Travel Time*	*Deadhead Cost per One-way Trip*	*Annual 2020 Deadhead Costs*	*Annual 2040 Deadhead Costs*
	Miles	*Minutes*	*2013 Dollars*	*2013 Dollars*	*2013 Dollars*
1	4.5	10.88	$11.54	$647,893	$719,882
2	4.7	11.36	$12.07	$677,682	$752,980
3	4.3	10.88	$11.54	$647,893	$719,882
6	6.1	13.00	$13.79	$774,493	$860,548
13	6.7	15.25	$16.18	$908,540	$1,009,489
20	2.6	7.5	$7.96	$446,823	$496,470

The sites located to the north of the study have the least travel distances and times, therefore, the lowest annual deadhead costs. For this reason site 20 shows significantly lower costs than for example, site 13. Costs are shown in current year values and have not been inflated.

3.4. Wetlands and Floodplain Issues

GIS mapping from Napa County's National Wetlands Inventory shows that five of the six sites are free of wetlands or flood plains. Site #3+ on Soscol Ferry Road has potential wetland areas on the southern portion of the parcels that make up the site. The wetlands cover approximately 5.5 acres of Site 3+ on the southern side. Additional constraints include Suscol Creek which runs along the southern border of the site, and the Milliken Dam inundation area that reaches the site on its western side. These environmental constraints require further environmental due diligence to determine the exact size and location of the wetlands and dam inundation area and the alignment of Suscol Creek. The freshwater emergent wetland impacting Site #3 is directly adjacent to and north of Site #1. If any setbacks from the wetlands were required this could affect the developable area on Site #1. Napa County Watershed Information Center and Conservancy mapping shows the Napa River watershed of Sheehy Creek running through the northeast corner of Site #1 and through the middle of Site #6. Any provision of buffers to Sheehy Creek would substantially affect the development potential of the eastern half of the site. Further environmental due diligence to determine the exact location and alignment of Sheehy Creek and its impact on the development potential of the sites is necessary.

Additionally, further environmental due diligence will be conducted on the preferred site to confirm the lack of environmental constraints.

3.5. Other Key Issues

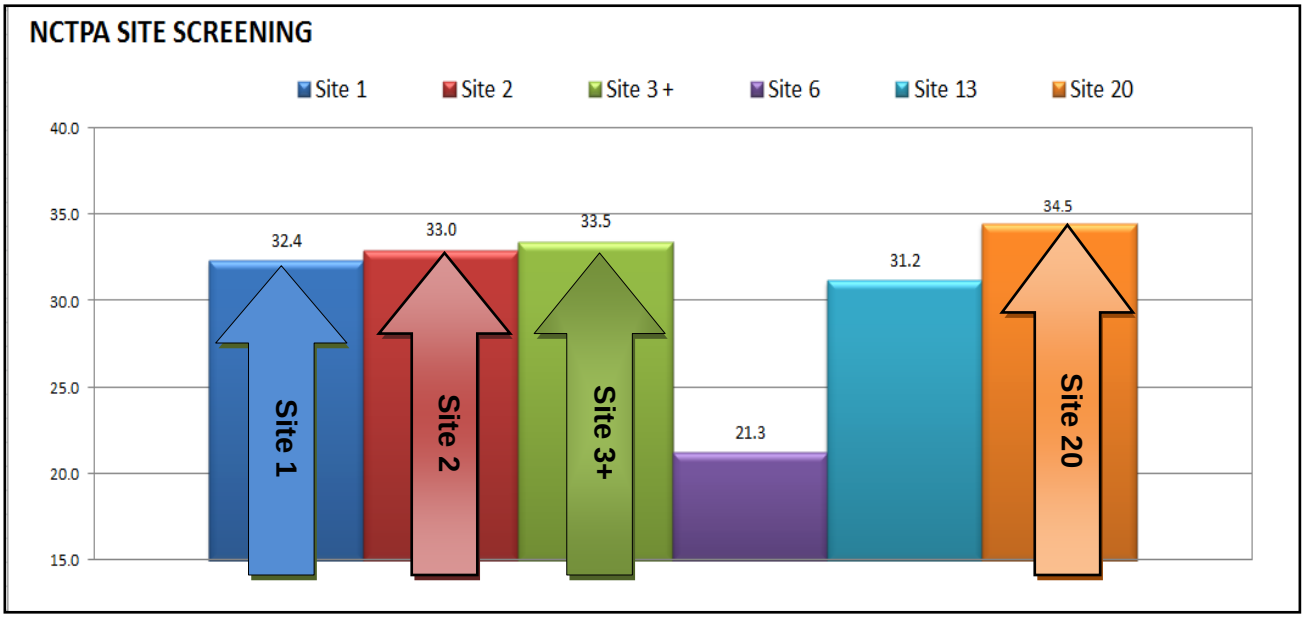
Changing Dynamics of the Real Estate Market

The Napa region has a dynamic economy, and this is reflected in a flexible, changing real estate marketplace. Sites may be available at the time of this study but could be sold to another buyer at any time. While this study reflects the best available information at one moment in time, over a period of time, many of these sites could be acquired and developed by others.

As an example, additional information was obtained as the screening process advanced which altered the scoring and ranking of several sites. Site #3, which is only 10.3 acres, was highly ranked, but concerns about future expandability reduced its score. Subsequently the property adjacent and to the west of Site #3 was found to be available for purchase. If this five acre parcel were included with Site #3 it would have substantial expansion and it would rank higher than it did. This type of change will be reflected in the final report, slated for completion in December 2013.

4. Recommendation: Top 4 Candidate Sites

Based on the scoring of the sites and the analysis of operational (deadhead) travel costs the preferred three candidate sites are in order **20, 3, 2** and **1.**



4.1. Opportunities & Constraints of Top Four Sites

Each of the top four candidate sites offers both opportunities and specific constraints.

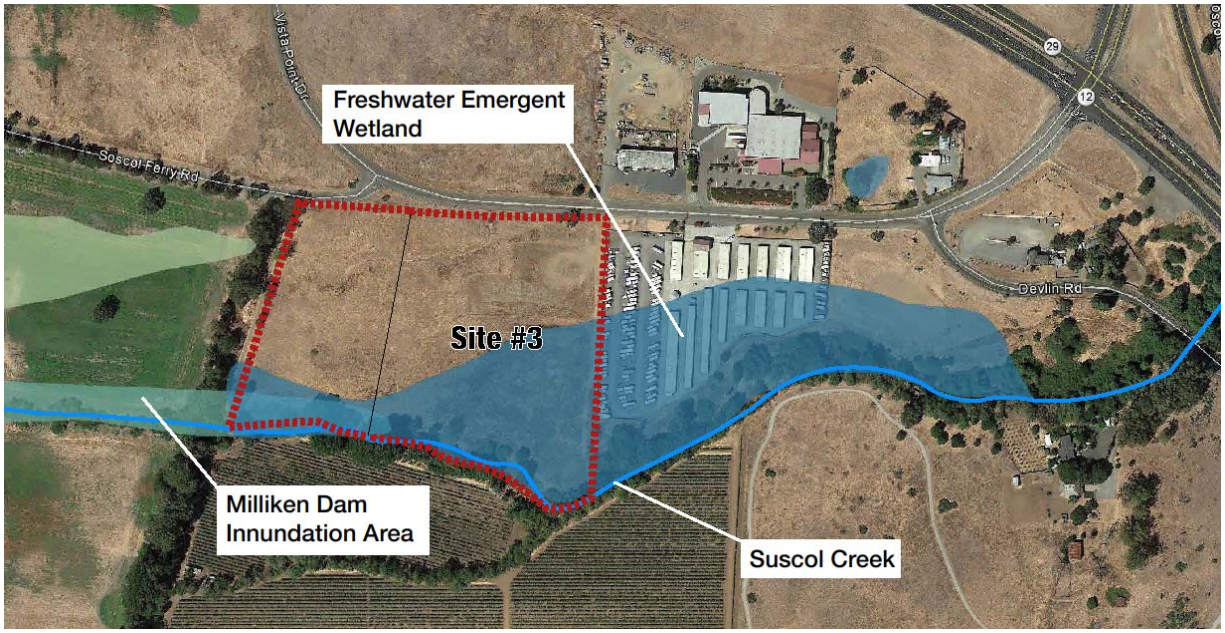
Site 20 Attributes	
Distance to Transit Center:	2.6 Miles
Parcel Number:	046-370-024-000
Zoning Designation:	I
Total Acreage:	55.27

Site 20 – This large parcel is east of Pacific Supply and is an active industrial property located adjacent to the City boundaries. It is the highest scoring site which reflects its suitability for this use, its size and capacity and the proximity to the current transit center, which minimizes annual operational costs. The constraints of this site include the size (it would have to be subdivided), and that it is not actively offered for sale. There are no existing onsite wetlands although a freshwater pond is located adjacent to and east of Site #20. As an active industrial property it may have unknown environmental constraints, topographic issues or utility easements that would have to be identified through an extensive due diligence effort.

Site 3 Attributes	
Distance to Transit Center:	4.3 Miles
Parcel Number:	057-170-018-000 057-170-017-000
Zoning Designation:	GI-AC
Total Acreage:	15.48

Site 3 – This proposed site consists of two parcels totaling 15.5 acres. The eastern-most parcel is south of Soscol Ferry Road and is vacant and adjacent to a storage locker property. Directly adjacent to west of the previously described parcel lies a 5.2 acre parcel that would allow for future expansion. This parcel was added midway through the site selection process in order to provide the flexibility for future expansion. It has the second highest score which reflects its suitability for this use, its size and capacity and proximity to similar uses. At 4.3 miles it is still a reasonable distance to the transit center; however annual operational costs are significant. The constraints of this site include the size (it would have to include the adjacent parcel to allow for future expansion), it is actively offered for sale, but is in foreclosure proceedings, and it has a section of wetlands that cover a large portion (approximately 5.5 acres) of the site on the southern side which can be seen in Figure 11. Additional constraints include Suscol Creek which runs along the southern border of Site #3 and the Milliken Dam inundation area that reaches the site on its western side.

Figure 11: Site #3 Environmental Constraints



*Data obtained from the Napa County Watershed Information Center and Conservancy http://www.napawatersheds.org/

The site may also have unknown environmental constraints, and utility easements that would have to be identified through an extensive due diligence effort.

Site 2 – This 27 acre parcel is located to the south of Site #3. It is the 3rd highest scoring site which reflects its suitability for this use, and it is for currently for sale. It is suitably sized and has sufficient capacity; however it does not have a suitable access road, which would add to development costs. The constraints of this site include the size (it would have to be subdivided), and its odd shape which could limit the site plan. As an active agricultural property it is likely a clean site, but it may have unknown environmental constraints such as the proximity of, and the need to provide buffers for streams. Additional constraints would have to be identified through an extensive due diligence effort.

Site 2 Attributes	
Distance to Transit Center:	4.7 Miles
Parcel Number:	057-170-019-000
Zoning Designation:	IP-AC
Total Acreage:	26.93

Site 1 Attributes	
Distance to Transit Center:	4.5 Miles
Parcel Number:	057-170-001-000
Zoning Designation:	IP-AC
Total Acreage:	22.39

Site 1 – This 22 acre parcel is located directly adjacent to and south of Site #3. It is the 4th highest scoring site which reflects its suitability for this use, its size and capacity and proximity to similar uses. It is suitably sized and has sufficient capacity; however it does not have a suitable access road, which would add to development costs. At 4.5 miles it is still a reasonable distance to the transit center yet the annual operational costs are significant. The constraints of this site include the size (it would have to be subdivided), and wetland and watershed constraints. The freshwater emergent wetland impacting Site #3 is directly adjacent to and south of Site #1. If any setbacks from the wetlands were required this could affect the developable area on Site #1. Additionally, according to the Napa County Watershed Information Center and Conservancy, the Napa River watershed of Sheehy Creek runs through the northeast corner of the site. Any provision of buffers to Sheehy Creek would substantially affect the development potential of the eastern half of the site. The site may also have unknown environmental constraints, and utility easements that would have to be identified through an extensive due diligence effort.

4.2. Next Steps

The next task will be to conduct a charrette workshop with the NCTPA team in September to test fit the space plan onto these top four candidate sites. The results of the charrette and the preferred site concepts will be documented in a following technical memo.

Technical Memorandum #3

TO: **NCTPA Project Team**

FROM: **David A. Cheeney, AICP, Project Manager**

DATE: **October 1, 2013**

SUBJECT: **NCTPA Bus Maintenance Facility**

Technical Memorandum #3 – Charrette Workshop and Concepts

This technical memorandum is the third in a series of reports that document the study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). This report summarizes the planning charrette exercise which was held at the NCTPA offices in September 2013. The results of this two-day effort produced a preferred site alternative layout that will form the basis of the future design for the Bus Maintenance Facility.

The Study consists of the following reports:

- Technical Memorandum 1: Space Plan
- Technical Memorandum 2: Sites and Screening
- Technical Memorandum 3: Charrette and Concepts
- Technical Memorandum 4: Due Diligence Report
- Technical Memorandum 5: Multi-Jurisdictional Use
- Draft Report: Summary of all Technical Memoranda
- Final Report: Summary of Technical Memoranda Responding to Board and Staff Comments

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Table 1. Study Process 1

1. Background and Purpose

This technical memorandum is the third in a series of reports that document the study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). This report summarizes the charrette or planning workshop that was used to identify and recommend the preferred conceptual layouts for the proposed Bus Maintenance Facility.

The project design team consisting of the consultants, NCTPA staff and Veolia (the fleet operations contractor) convened in September 2013 to review the top four sites selected as part of the screening process (documented in Tech Memo #2). The team then confirmed the space program and developed site sketch-level concepts for each of the top four sites. After lengthy review numerous changes were incorporated into each of the site layouts, which were refined into the preferred site layouts on day 2.

1.1. Purpose

The overall project purpose is to create a space program for the new bus maintenance facility, to identify potential sites in Napa County, to screen those sites, develop conceptual site layouts, and finally recommend the preferred alternative. The study process (**Table 1**) will include data collection and conceptual facility layout, the identification and assessment of potential sites, the recommendation of the preferred site, analyzing the available funding options, and documentation of the process and preparation and presentation of the final report. The study will conclude by December 2013.

Table 1. Study Process

Steps in the Study	*Schedule (2013)*
1. Data Collection, Conceptual Facility Layout	July-August
2. Candidate Site Identification and Assessment	August-October
3. Analyze Funding Options	November-December
4. Prepare Final Report and Documentation	December

2. Master Planning Charrette

2.1. Introduction

The design team convened at NCTPA from September 19-20, 2013 to conduct the on-site conceptual master planning charrette. The goal for this charrette session was to develop a prototypical conceptual site plan and to refine this for the top four (4) candidate sites for the new NCTPA Bus Maintenance Facility. This conceptual site plan will be used in the site selection process to test fit the sites. During this charrette, conceptual building plans were also generated where necessary to reach an understanding on the operational flow on the site.

Charrette: An interactive design session involving the design team and the Project Stakeholders where concepts are developed, reviewed, evaluated, discussed, and refined to arrive at a consensus concept.

The conceptual site plans developed during the charrette process were presented at a daily review meeting to NCTPA and Veolia staff. The purpose of these daily review meetings was to discuss the merits and deficiencies of each site plan and building concept in an interactive session. Concepts were compared for their ability to meet the programmatic needs for the facility and to meet NCTPA's operational, efficiency, and safety goals. All concept alternatives can be found in the appendices.

2.2. Charrette Planning Goals

Prior to the charrette, the design team set goals for the charrette workshop effort. These goals provided valuable direction as the team looked to meet NCTPA's project objectives and needs. NCTPA's involvement helped to focus the efforts during the development and presentation of the different concepts and planning options.

The goals established for the charrette were as follows:

1. Meet the needs of the Administration, Operations, and Maintenance departments that will be located at the site through maintenance spaces, administrative support, employee service areas, and vehicle parking;
2. Provide a functional flow between facilities, parking, and throughout the yard;
3. Comply with all building and design standards and regulations including ADA;
4. Provide safe and efficient circulation for vehicles on site; and
5. Provide an effective layout with opportunity for future expansion.

2.3. Site and Facility Planning Issues

As part of this project the design team is seeking an appropriate site that will fit the needs of the proposed Bus Maintenance Facility. During this charrette the design team developed conceptual site plans utilizing the Space Needs Program (Tech Memo 1). The needs were expressed in square feet and acreage of space. Following is a detailed description of each day's events at the planning charrette.

Design Team: The temporary studio allows the design team to work together to solve site and planning issues.

3. Day One

3.1. Introduction and Goals

The first morning of the charrette began with an introduction of the project goals and overall vision. The team reviewed the "Best Practices" presentation that had been prepared for an earlier meeting, and reviewed the project schedule and agenda. The presentation is included in **Appendix A**.

3.2. Changes to the Space Program

No major modifications were made to the space program except for the addition of articulated buses. The space plan includes parking for 97 buses of various sizes, parking spaces allotted for the down line, parking for up to 138 employees and visitors, footprints for the operations and administration building, a large maintenance building with up to eight bays, and the daily service line. The total area required is over 10 acres and is documented in the technical memo #1. The NCTPA noted that the fleet would likely now include several articulated buses for the heavily used routes. For planning purposes the design team assumed up to four buses, keeping the total fleet at 97 buses:

- 4 x 60' fixed route articulated buses (to be purchased)
- 19 x 40' fixed route buses (15 current vehicles + 4 to be purchased)
- 25 x 35' fixed route buses
- 10 x 28' fixed route buses
- 11 x mixed type fixed route buses
- 23 x 23' paratransit buses
- 5 x shared vehicle program
- 97 Total buses

The addition of the 60-foot articulated vehicles requires changes to the interior layout of the bus maintenance facility and the size of the exterior parking spaces including the following items:

- Interior bays for the standard 40-foot or shorter fleet would be sized at the industry standard of 20' wide x 60' long;
- To accommodate articulated buses at least one bay would be sized as 20'x70';

- Exterior parking spaces would be sized as 12' wide x 65' long for articulated vehicles; and
- Articulated buses have similar turning radii (50' r vs. 65' r for the 40-foot bus), however these vehicles cannot be backed into spaces, so pull-through movements are required for bays and parking spaces.

3.3. Site Screening Confirmation

The design team reviewed the results of the site screening process that was documented in technical memo #2. The result of that process was to recommend the top four candidate sites: 1, 2, 3 and 20. The discussion confirmed the recommendation so the project team was able to commence the development of conceptual site, service building and maintenance building options for each of the four sites. The presentation for this discussion is included in ***Appendix B.***

3.4. Initial Site Concepts for Top Four Sites

On the afternoon of the first day of the charrette, the design team held a design review meeting with the client stakeholders. Four conceptual site plans – 1, 2, 3 and 20 - were presented along with variations on the service buildings and several maintenance building options. The concepts that were developed are shown in ***Appendix C*** and are described as follows:

Site 1– Soscol Ferry Road South Parcel

Site 1 – Soscol Ferry Road South Parcel

1. This is a long and narrow site with a "flagpole" access road from Soscol Creek Road;
2. Soscol Creek is the north border and contains wetland areas that have not been flagged and measured. For planning purposes the design team created a 30-foot buffer along

the north edge of the parcel to allow for wetland impacts. This further constrained an already narrow site;

3. The Administration/Operations Building is located adjacent to the entrance road at the NW corner of the lot;
4. The Maintenance Building will have a true drive-through design with up to eight bays. It will have two Body Bays and one Paint Booth Bay. There will be room for Administration staff offices, a locker area, and parts storage. The building is separated from the Administration/Operations Building but in close proximity;
5. Bus Parking is located in in the center of the site;
6. The Service lane is located on the south edge of the site. It has two Fuel/Fare/Interior Clean Lanes and two wash lanes. In this option, the Chassis Wash is attached to the Service Building;
7. Employee and Visitor Parking are located adjacent to the Administration/Operations Building. There are 138 spaces allocated to staff parking, visitor and ADA parking; and
8. This option requires approximately 11 acres of land leaving a sizable portion of the site undeveloped.

Site 2 – The Nova Company Site

Site 2 – The Nova Company Site

1. This is a rectangular site with frontage on Devlin Road. The design team prepared a concept for the western or back portion of the site, which requires an access road or easement from Devlin Road onto the parcel;
2. The site has no water features or environmental constraints that could be seen during a site walk;

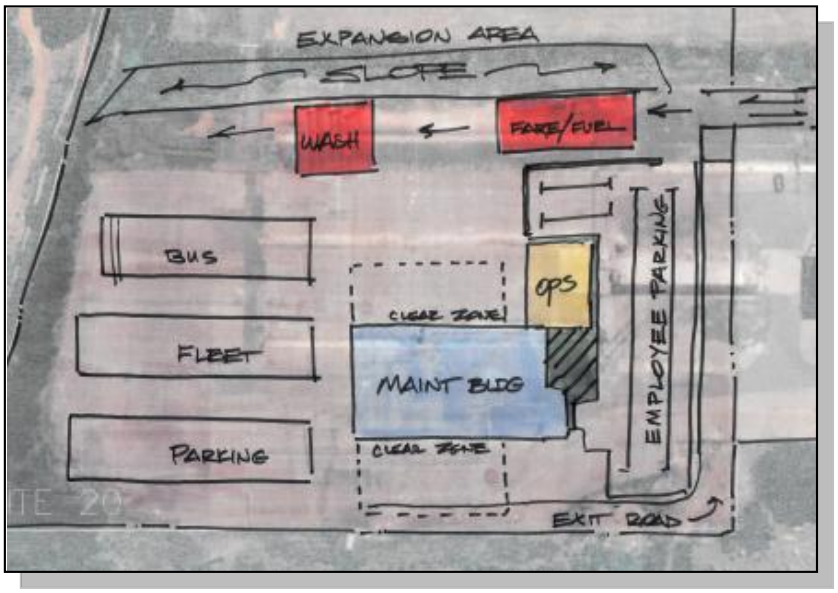
3. The Administration/Operations Building is located adjacent to the entrance road at the NE corner of the lot;
4. The Maintenance Building will have a true drive-through design with up to eight bays. It will have two Body Bays and one Paint Booth Bay. There will be room for Administration staff offices, a locker area, and parts storage. The building is separated from the Administration/Operations Building but in close proximity;
5. Bus Parking is located on the western portion of the site;
6. The Service lane is located on the north edge of the site. It has two Fuel/Fare/Interior Clean Lanes and two wash lanes. In this option, the Chassis Wash is attached to the Service Building;
7. Employee and Visitor Parking are located adjacent to the Administration/Operations Building. There are 138 spaces allocated to staff parking, visitor and ADA parking; and
8. This option requires approximately 11 acres of land leaving a sizable portion of the site undeveloped adjacent to the road frontage.

Site 3 – Soscol Ferry Road North Site

Site 3 – Soscol Ferry Road North Site

1. This is a rectangular site that includes two separate but adjacent land parcels. It has extensive frontage on Soscol Ferry Road. It is immediately north of site #1;
2. Soscol Creek is the southern border and contains wetland areas that have not been flagged and measured. Available GIS data shows emergent wetlands along the creek, but site inspections could not confirm their presence. For planning purposes the design team created a 50-foot buffer along the north edge of the parcel to allow for wetland impacts or potential flooding from the creek;

3. The Administration/Operations Building is located adjacent to the entrance road at the NW corner of the lot;
4. The Maintenance Building will have a true drive-through design with up to eight bays. It will have two Body Bays and one Paint Booth Bay. There will be room for Administration staff offices, a locker area, and parts storage. The building is attached to the Administration/Operations Building;
5. Bus Parking is located on the east portion of the site;
6. The Service lane is located on the south edge of the site. It has two Fuel/Fare/Interior Clean Lanes and two wash lanes. In this option, the Chassis Wash is attached to the Service Building;
7. Employee and Visitor Parking are located adjacent to the Administration/Operations Building. There are 138 spaces allocated to staff parking, visitor and ADA parking; and
8. This option requires approximately 10 acres of land but is highly constrained by the creek and the potential for wetlands.



Site 20 – The Boca Property (3 variations)

Site 20 – The Boca Property (3 variations)

1. This is a very large parcel that is adjacent to an active industrial property and north of an active quarry. The graphic above shows the NW portion of the property (north is to the left). The design team created three sketch plans in the attempt to avoid the land elevation to the east (shown as the "slope"), the existing industrial building that exists on the west edge of the property and to avoid proximity to the mine. This concept would require an access road from Rt. 221 and Basalt Road;

2. The County's DEIS for the proposed jail shows an alternative site plan using the same portion of this site; with a second alternative site plan using the portion to the east and facing the adjacent highway;
3. The Administration/Operations Building is located adjacent to the entrance road at the SE corner (upper right-hand corner) of the lot;
4. The Maintenance Building will have a true drive-through design with up to eight bays. It will have two Body Bays and one Paint Booth Bay. There will be room for Administration staff offices, a locker area, and parts storage. The building is adjacent to the Administration/Operations Building but could be separated, but close proximity;
5. Bus Parking is located on the north center portion of the site;
6. The Service lane is located on the eastern (upper) edge of the site. It has two Fuel/Fare/Interior Clean Lanes and two wash lanes. In this option, the Chassis Wash is attached to the Service Building;
7. Employee and Visitor Parking are located adjacent to the Administration/Operations Building. There are 138 spaces allocated to staff parking, visitor and ADA parking; and
8. This option requires approximately 11 acres of land and avoids the existing industrial building and the elevation rise to the east.

3.5. Maintenance Building Options

The design team prepared two alternative concepts for the maintenance building: options A and B.

Maintenance Building: Option A

1. The building is to be designed as a back-in and pull-out facility except for the articulated buses which will be pull-through.
2. A total of eight (8) service bays includes:
    - Six (6) Repair Bays of 60' x 20' are centrally located.
    - Two PM/Inspection Bays with lower level work area are provided.
3. Parts storage room is located off the forklift aisle with a parts counter.
4. Lubrication/Compressor room is located near parts room with exterior access for deliveries and service.
5. Maintenance administrative space for all necessary offices is provided.
6. Locker Room and Restrooms are located near administration side of building.
7. Shops are located in close proximity to the Repair and PM/Inspection Bays.
8. One Body Shop Bays is located at the end of the building.
9. A Paint Booth is located adjacent to the Body Shop Bay.
10. The Tire Bay is isolated near one end of the garage and can be enclosed to reduce noise from air hammers and equipment.

11. The Chassis Wash Bay is a full drive-through bay but is moved to the service building next to the wash lane.

Maintenance Building: Option B

1. The layout is similar except efforts were made to reduce the size of the building:
    - Only six (6) service bays instead of eight (8); and
    - Reduced office and storage spaces
2. Space is allocated at one end of the structure for future expansion

Alternative Concepts: Concepts are developed by hand, allowing Team members the ability to explore dozens of ideas and create numerous working alternatives in a matter of hours.

3.6. Day One NCTPA Review Comments

The client stakeholders reviewed the presentation materials for the four sites and provided feedback to the design team. The comments are grouped by function.

Site Plan

1. Tandem bus parking with no bus backing on site was the preferred bus parking option.
2. Keep bus circulation conflicts to a minimum and separate daily operations bus circulation from Maintenance Building as much as possible.
3. The Employee Parking Lot should be secured and separated from the bus fleet.

Administration/Operations Building

4. NCTPA expressed concern that the Administration/Operations Building and the Maintenance Building should be located close together to offer a better sight-line for the dispatchers. The area between these buildings can be used as a patio for staff.
5. Having a well-designed "front door" image was a concern with NCTPA staff.

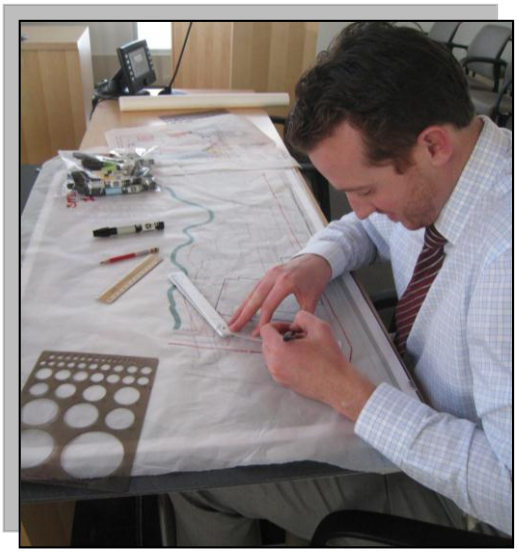
Maintenance Building

6. The concept of having back-in bays was favored, except for pull-through movements for future articulated vehicles;
7. The client requested that vendors making deliveries to this facility be kept out of the secured fleet areas.

Service Buildings (Fuel/Fare/wash)

8. There was a strong preference for the location of the Chassis Wash at the Service Building.
9. The design team is meeting with the City to determine the need for a joint-use fueling facility. This will determine the need to place a fueling dispenser at the entrance or just outside of the security perimeter.

Preferred Site Plans



10. Sites 1 and 3 were unable to adequately fit the space program:
    - Site 1 was very narrow due to the intrusion from Soscol Creek to the north and the need to allow future access easements along the south property line for the eastern portion of the parcel. The constraints of the site made it difficult to meet the project goals or the space plan;
    - Site 3 (to the north of site 1) is sufficient, but with the probability of wetlands adjacent to the creek it was also difficult to place the space program and to meet the project goals.
    - Based on these constraints both sites 1 and 3 were dropped from further consideration;

4. Day Two

On the second day the design team held its second review meeting for the charrette. Revised plans for sites 2 and 20 were prepared and are described below:

4.1. Site 2 – Revised Plan

1. The design team "tightened" the layout for site 2 by reducing the footprint of buildings, parking and circulation lanes;
2. No other major changes were made as the space program fits on this parcel; and
3. This reduced the overall property requirements to approximately 12 acres.

4.2. Site 20- Revised Plan

1. The design team opted for the site option that retained the space program on the NW corner of the site and avoided the slope and the large industrial building to the south;
2. The design team "tightened" the layout for site 20 by reducing the footprint of buildings, parking and circulation lanes, and by moving the maintenance building closer to the admin/ops building on the SE corner of the site; and
3. This reduced the overall property requirements to approximately 12.5 acres.

4.3. NCTPA Review Comments

The client stakeholders were shown the two revised site plans for sites 2 and 20. Comments and feedback are grouped by functional areas:

Site Plan

1. The client requested that the orientation of the Maintenance Building follow LEED guidelines and avoid using west-facing bay doors. This will alleviate the intense afternoon sun and reduce heat load on the maintenance bays;
2. In a similar vein the design team opted to avoid west-facing windows on the operations building except where the dispatcher needs to view the yard;
3. The Bus Parking and Service Areas placed at the back of the site in these options were preferred. Visibility to these areas from the street should be minimized through the use of landscape buffers.
4. Different types of public entrances to the facility were depicted, including a pronounced circular entry, an off-set entry, and a balanced separate entry. This entry motif will be evaluated in a future design review as no preference was noted.
5. The separation of a secured Employee Parking Area from the Visitor/ADA Parking area was preferred. Employee and visitor/ADA parking should be well lit and secure.
6. A secondary bus entrance and exit from the site for emergency purposes should be incorporated into final design.
7. Adequate space should be allotted to provide a bus operator training area.

Administration/Operations Building

1. The orientation and image of this building from the main access road can create a statement of what the NCTPA wants to present to the public. It also creates a buffer and shields the Maintenance Building and fleet parking from the public view.
2. The client prefers separate entries for staff and visitors area from the bus fleet.
3. The area between the Administration/Operations Building and Maintenance Building could be used for an employee patio and should be designed as large as possible so it can also be used to hold outdoor functions.
4. The final design of Administration/Operations Building should take into consideration flexibility for future expansion.

Maintenance Building

1. NCTPA staff prefers the building layout which minimizes the need for bus backing.

Service Building

1. Layout of offices next to Fuel/Fare Lanes needs to be adjusted in the final design so that the fare storage room can be located closer to the Fuel Lanes for ease in depositing fares.
2. The design team is evaluating the desirability of a joint-agency use for fueling and services on the site. If the City of Napa or other public agencies desires to share fueling capacity the service lane will be designed to allow for access to fuel dispensers by non-NCTPA agency fleet vehicles.
3. Lastly, NCTPA directed the design team to evaluate the costs of using an off-site fuel dispenser (similar to what they use now). The team will calculate the capital costs for installation of a CNG/diesel/gasoline dispenser and storage system on the proposed site and compare that to the annual operational costs of using an off-site fuel dispenser. Capital costs will be amortized over a 20 year period and compared to the annualized 20-year operating costs for an off-site alternative.

4.4. Summary

The two-day charrette was a successful exercise that provided the design team an effective way to translate the numerical values of the space program into a visual site plan. The team used several presentations of the sketch drawings to obtain feedback from the client stakeholders. This feedback was carefully recorded and then used to create the revised alternatives. The graphics of the sites and buildings are shown below and are contained in the appendices to this report, and will be used to create the future master site plan for the NCTPA Operations and Maintenance Facility.

Appendices

Appendix A – Agenda and Initial Presentation
Appendix B – Site Screening Presentation
Appendix C – Master Plan Charrette Concepts
Appendix D – Photographs

Appendix A – Agenda and Initial Presentation

AGENDA

Day 1 Goal: Orientation, Visioning and Develop the Initial Concepts

Time	Event	Activities	Who Attends	Led by
8:30 -9:00	Introduction, Vision and Goals	Conduct a brief discussion of project goals, and vision of the key stakeholders. Bagels	NCTPA leadership and consultant team	David Cheeney
9 – 9:45 AM	Review Site Screening (TM2)	The design team will present a summary of the site screening and selection tech memo 2	NCTPA leadership and consultant team	Jeff Saxe
10 AM to 3:00 PM	Working Session: Initial Concepts	The design team will review the space program, LEED, and the "Best Practices" presentation.	Consultant Team	David Cheeney
3 – 5 PM	Present Initial Design Concepts	The design team will present the initial design concepts to the NCTPA leadership	NCTPA leadership and consultant team	Pat Hart
5 –8 PM	Working Session: Revised Concepts	The design team will revise the site concepts based on the client's feedback. Dinner will be served to the team	Consultant Team	Pat Hart & Team

AGENDA

Day 2 Goal: Present the Revised Site Concepts, Prep for October

Time	Event	Activities	Who Attends	Led by
8 -10 AM	Working Session: Prepare to Present	The design team will refine the site concepts for 1st presentation to client	Consultant Team	Pat Hart
10:00 AM – 1 PM	Present Revised Design Concepts & Lunch	The design team will present the revised design concepts to the NCTPA leadership; and a working lunch to discuss and confirm the response to the initial design concepts	NCTPA leadership and consultant team	Pat Hart and Team

PROJECT SCHEDULE & MILESTONES

Today

Task #	Activity	Purpose of Task or Meeting	Status
1.1	Kickoff & Monthly Meeting # 1	Kickoff meeting (June 18)	Complete
	Monthly Progress Meeting #2	July 18	Complete
2.3	Peer Case Studies and "Best Practices" in Maint. Facility Design	Best Practices PowerPoint (July 18)	Complete
2.6	Consolidated Technical Memo #1 of Space Program and Fueling Options	Draft Tech Memo #1 (July 18)	Complete
3.1	Develop Baseline Prototypical Facility Layout	Finalize & agree on space program, Baseline Prototypical Layouts (July 18)	Complete
3.2	Identify Physical and Regulatory Site Criteria for the Candidate Sites	Site Criteria for Screening (July 18)	Complete
	Monthly Progress Meeting #3	August 22	
2.4	Update of Existing CNG Alternative Fuels and Site Feasibility Study		Complete
4.1	Inventory of Sites	Universe of potential sites by commercial broker (Aug 22)	Complete
4.2 & 4.3	Screen Potential Sites for Essential, Critical and Desired Requirements	Screening Process (Aug 29th)	Complete
4.4	Final Screening and Comprehensive Site and Records Review	Screening Process (Aug 29th) Draft Tech Memo #2 (9/10)	Complete
	Monthly Progress Meeting #4	**September 19**	**TODAY**
	Develop Site Concepts		
	Refine Site Concepts		
	Monthly Progress Meeting #5	October 17	
	Monthly Progress Meeting #6	November 21	
	Monthly Progress Meeting #7	December 19	

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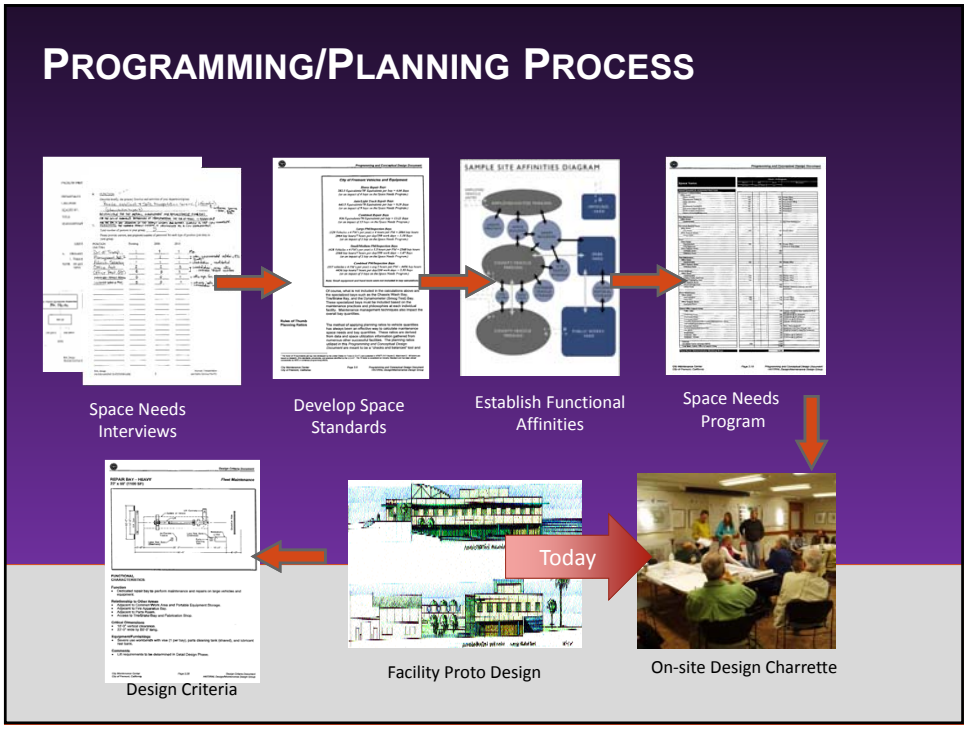

SPACE PROGRAM (TECH MEMO #1)

- All Buildings = 41,916 s.f.
  - Bus Fleet Parking = 105 vehicles
  - Down line + Non-Revenue = 17 vehicles
  - Employee + HC + visitors = 138 vehicles
- Subtotal = 260 vehicles
  78,500 s.f.
- Parking Aisles & Access = 78,500 s.f.
- Buildings + All Exterior = 198,978 s.f.
- Circulation Factor (100%) =198,978 s.f.
- Grand Total = 397,955 s.f. or 9.14 acres

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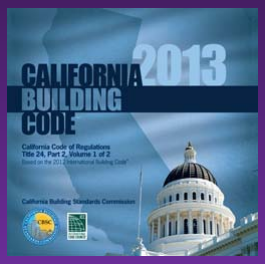
September 2013

SUMMARY						Area (SF)
Building Areas						
Total Agency Administration Areas						907
Total CONTRACTOR Bus Operations & Support Area						8636
Total CONTRACTOR Bus Maintenance Office and Support						2554
Total CONTRACTOR Bus Maintenance Areas						19243
Total CONTRACTOR Service Areas						10575
Total All Building Areas						**41,916**
Exterior Parking Areas		W		L	#	Area (SF)
40' Fixed route		12	x	45	15	7,857
35' Fixed route		12	x	45	25	13,750
28' Fixed route		12	x	35	10	4,074
Mi Fixed route		12	x	35	11	4,583
23' Paratransit		12	x	35	23	9,676
22' Shared Vehicle Program		12	x	35	5	2,037
TBI New Vehicles		12	x	35	8	3,565
Non-Revenue Parking		10	x	20	8	1,600
Down Line/Ready Line (Standard Bus)		12	x	45	15	7,857
Maintenance Service Vehicle Parking		10	x	20	2	400
Employee Parking		9	x	18	124	20,057
Visitor Parking		9	x	18	8	1,296
Handicapped Parking		15	x	18	7	1,779
SUBTOTAL - ALL PARKING						78,531
Site Circulation (including drive aisles) =	100%					78,531
Total Exterior Parking Areas					**260**	**157,062**
Total All Areas						**198,978**
Site Circulation Factor (includes setbacks, landscaping, etc.)	100%					**198,978**
GRAND TOTAL						**397,955**
					ACRES	**9.14**

Buildings Must Meet Building & Fire Codes

- USBC, IBC, NFPA, local interpretations/adaptations



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Buildings Must Meet ADA Requirements

- Parking spaces
- Building access
- Restrooms
- Doors
- Hallway width
- Signage
- Handrail extensions

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Buildings Must Meet Safety Requirements

- Pit protection
- Eye protection
- Ear protection
- Positive pressure in offices
- Clear aisles
- Clear area around electrical/ mechanical equipment

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Address Environmental Requirements

- Local requirements often exceed Federal requirements
- Adjacent property impacts
- NPDES – Phases I and II
- Seismic Issues

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Make the Work Place a Pleasant Place

- Sustainable design/ LEED
- Light/bright/hard finishes
- Full spectrum lighting
- Handwash facilities in shop
- Storage for portable equipment/ tool boxes
- Common work area
- Drainage/flat floors

September 2013

Bay Layout Best Practices Include:

- Adequate Work Area around vehicle or components
- Access to and from internal circulation aisle
- Necessary Central Systems (Lube, Air, and Ventilation)
- Necessary Vehicle Lifting Equipment
- Adequate Lighting Levels

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INTERIOR CLEARANCES

- Understanding function and materials being used

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REMOVE SHOP INEFFICIENCIES

- Removing the "Clutter"

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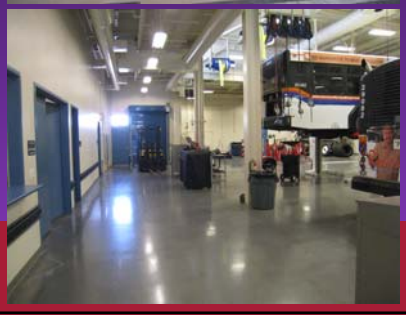
Be Flexible with Design



- Avoid load bearing walls
- Locate columns for convenience and Function
- Minimize floor obstructions
- Consider open office workstations
- Plan for expansion of your facility

September 2013

Functional Spaces to Consider

- Common Work Areas
- Portable Equipment Storage Areas
- Parts Room and Tool Cribs
- Dedicated Circulation Aisles
- Mechanic Support Areas
- Separation of Vehicle Storage Areas

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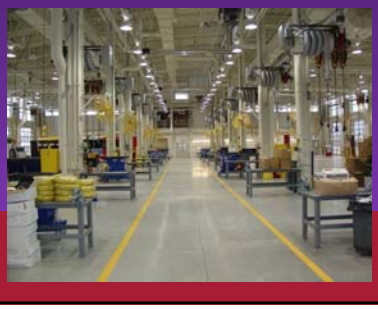
Provide Functional, not just Structural Columns



- Locate columns to support maintenance activities in bays
- Functional placement to mount / support utilities and equipment

September 2013

Bay and Shop Finishes

- Selection impacts durability, longevity and efficiency of the facility
- Bottom 4-6 feet of shop walls to be durable
- Paint walls, ceilings and structure to improve light Reflectivity
- Integral Pour Shake-Hardener on floors

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September 2013

BAY LIGHTING (HIGH BAY)

- Lighting impacts efficiency, functionality and safety
- Type: Florescent or Metal Halide
- Color: Full Spectrum
- Type: Florescent
- Color: Full Spectrum
- Foot Candles (at 3 ft.): 50 - 75

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- Compare Ducted versus Individual
  - Exhaust Systems / Ducted Systems
  - Individual Fan Systems

VEHICLE EXHAUST SYSTEMS

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Vehicle Exhaust Reels

- Type and Size
- Hose Diameter
- Hose Temp Requirements
- Coordination Issues

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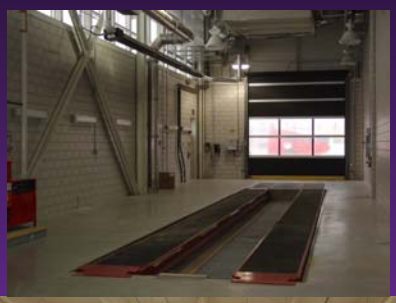
Choose a Mix of Lifts, Pits, and Flat Floors



- Lifts
  - In-ground
  - Surface mounted
  - Parallelogram
  - Portable
- Lower Level Work Area "Pits"
- Flat Floor

September 2013

Utilize Space Saving Storage Systems

- High Density & Special Storage Systems
  - Automated High Density Systems
  - Special systems for Flammables, HazMats, and other Special Applications
  - Parts Lifts to Parts Mezzanine

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Provide Centralized Fluid Distribution

- Centralized systems
- Compressed air systems
- Piping

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Provide Centralized Fluid Collection

- Provides excellent recovery access to waste recovery vendors
  - Quick Setup – Quick Disconnects
  - Simple system – no pouring
  - Used oil
  - Used antifreeze
  - Recycle

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Confirm Fueling System Requirements

- Conventional (gasoline/diesel)
- CNG or other fuel
- Above Ground Storage Tanks (AST's) or Underground Storage Tanks (UST's)
- Number of Dispensers and Types of Commodities at each
- NPDES & SPECC Issues
- Type of Canopy – Material?
- Island Design and Access

Confirm Wash & Cleaning System Needs

- Connected to Fuel Islands?
- Separate building
- Number of Wash Lanes
- Type of Canopy – Material?
- Island Design and Access
- Interior Cleaning Procedures
- Frequency and Effort

Schedule

- Sept. 19/20 – Charrette test fit to top sites
- **Oct. 17 – Recommend and tour the preferred site**
- Nov. 21 – Draft recommendations, draft financials
- Dec 19 – Present study, prepare for Board presentation

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September 2013

Questions or Comments?
Safety Is Our #1 Goal

Appendix B – Site Screening Presentation

Site Screening Process

- Determine study area
- Identify 27 sites
- Initial screening to identify 6 preferred sites
- Further screening and matrix to identify top 4 sites
- Charrette and layouts on top 4 sites: September 2013
- Consultant team recommendation of preferred site(s): October 2013

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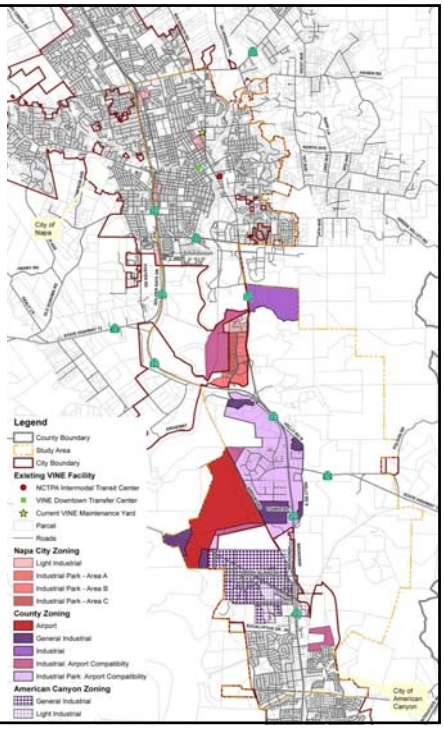
Study Area



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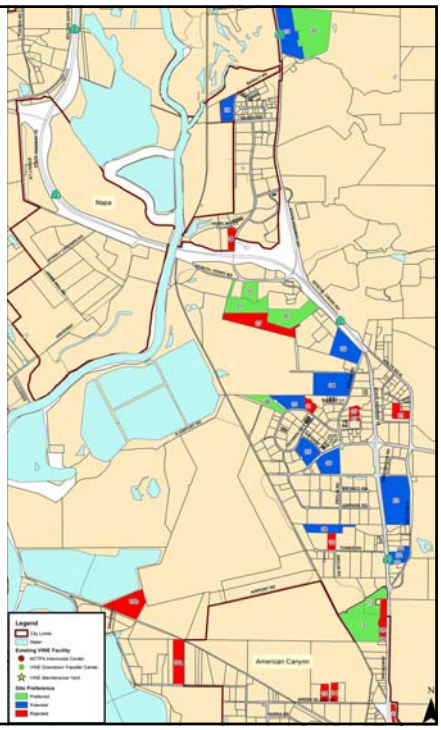
Initial Screening

- 27 sites
- 3 rankings



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Initial Site Screening Criteria

• Essential Requirements	
These are requirements that have to be met.	**If not met, site to be rejected.**
Minimum size	*7 acres (may be refined)*
Minimum dimensions	*300 feet wide (may be refined)*
General Plan recommendation	*Industrial or public use*
Available for purchase	*Condemnation not a viable alternative*
Acceptable Covenants	*Covenants do not restrict this use*
• Critical Requirements	
These are requirements that are very important but not essential to meet.	
Compatible adjacent uses	*Noise sensitive neighbors not desirable*
Full movement access to public roads	*Site allows left and right turns in and out*
Environmental issues	*No costly mitigation required*
Minimal deadhead length	*Minimize deadhead length*
Compatible zoning	*No rezoning or SUP required*
Price	*Reasonable and supportable by an appraisal*
• Desired Requirements	
These are desired but not essential or critical.	
Expandable	*To accommodate growth*
Minimal site preparation costs	*Costs for demolition, mitigation, utilities*
Minimal off-site work	*No off site utility or road work required*

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Preferred Sites

- 6 sites

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Site Screening Summary

NCTPA SITE SCREENING MATRIX

INSTRUCTIONS: 1) place your score in the yellow boxes below for each site; 2) Score 5 for "best result" and 1 for "worst result". 0 = unknown. See "Notes" for explanation. You may put your personal comments in last column to document your scoring.

Site Selection Criteria	Importance in Category	Strength	Site 1 South Side Soscol Ferry Rd (22.39 ac)	Site 2 West side of Devin Rd (26.93 acres)	Site 3 + 1055 Soscol Ferry Rd (15.32 ac) + 5.17 ac	Site 6 Technology Way @ Morris Ct (11.06 ac)	Site 13 Napa Airport Corporate Centre (37.22 ac)	Site 20 East of Pacific Supply (55.27 ac)	Notes
1. LOCATION (to minimize deadhead costs)	100%	x3	**11.4**	**12.0**	**12.0**	**5.4**	**8.4**	**15.0**	
a. Minimize Deadhead Cost	50%		3	3	3	1	1	5	Shortest to transit center = 5, Farthest = 1
b. Roadway (Full movement access to site) and Rt 29/221 Access	20%		5	5	5	3	5	5	Full access to road & to north-south hwy = 5
c. Appropriate Adjacent Land Uses	20%		5	5	5	3	5	5	Industrial (non-residential, non-agricultural) area = 5, residential or sensitive adjacent LU = 1
d. Access for a multi-jurisdictional facility	10%		3	5	5	1	3	5	How visible and easy to access is the site for a multi-jurisdictional fuel or service facility? 5= very easy access; 1= hard to get to site
2. SITE CAPACITY	100%	x2	**9.0**	**9.0**	**9.0**	**5.6**	**10.0**	**10.0**	
a. Acreage >12 acres usable	40%		5	5	5	3	5	5	If total buildable area >12 ac = 5; if less than 10 ac = 1
b. Site Configuration	25%		3	3	5	1	5	5	Based on site configuration square/rectangle = 5; if site constrained = 1
c. Site Limitations	25%		5	5	3	5	5	5	Site topography, environmental features, easements allows full development = 5; if not = lower score
d. Expandability	10%		5	5	5	1	5	5	If adjacent available land for future expansion = 5; if none available = 1
3. REAL ESTATE ISSUES	100%	x1	**5.0**	**4.0**	**5.0**	**3.5**	**5.0**	**3.0**	
a. Availability & Timing (condemnation not needed)	50%		5	3	5	3	5	1	for sale and willing to meet NCTPA schedule = 5;lower if time constraints, other conditions.
b. General Plan Conformance	25%		5	5	5	5	5	5	If no entitlements needed = 5; but if required = 1
c. Community / neighborhood sensitivity issues	25%		5	5	5	3	5	5	If industrial area, no community concerns = 5; if zoning or community concerns are going to slow process = lower score
4. DEVELOPMENT COST	100%	x1	**3.2**	**4.2**	**4.2**	**4.0**	**3.8**	**3.2**	
a. Land Cost (per SF)	40%		3	3	3	3	3	3	If expensive for industrial land=1; if inexpensive=5.
b. Site Development Cost (Roads, signals, utilities)	10%		3	5	5	5	5	3	If minimal on-site costs = 5; if costs = lower value
c. Off-site improvements (Roads, signals, utilities)	40%		3	5	5	5	4	3	If no off-site costs = 5; if costs = lower value
d. Design covenants or development guidelines that add costs?	10%		5	5	5	3	5	5	If part of larger development (PUD or office park) and adds costs = 1; if no added costs = 5
5. ENVIRONMENTAL ISSUES	100%	x1	**3.8**	**3.8**	**3.3**	**2.8**	**4.0**	**3.3**	
a. Geotechnical (Soils)	25%		3	3	3	3	3	3	Good soils = 5; unsuitable soils=1
b. Seismic Issues	25%		3	3	3	3	3	3	Not near fault line or not predisposed to issues = 5; near fault or liqifaction issues = 1
c. Wetlands and Streams (impacts, setbacks, mitigation)?	25%		4	4	2	4	5	4	No wetlands or streams present = 5; constraints or reduced site use = lower score
c. Other impacts (hazmat, noise, air, etc)	25%		5	5	5	1	5	3	No sensitive receptors for noise, air, hazmat = 5
TOTAL WEIGHTED SCORE			**32.4**	**33.0**	**33.5**	**21.3**	**31.2**	**34.5**	

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Bus Maintenance Facility: Site Screening and Selection

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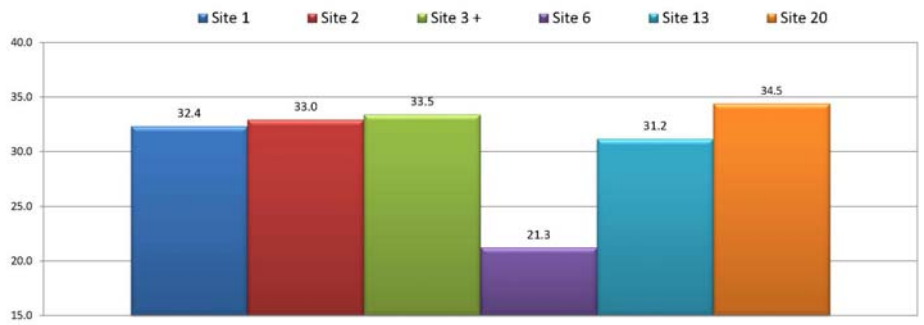
Site Scoring Results



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Bus Maintenance Facility: Site Screening and Selection

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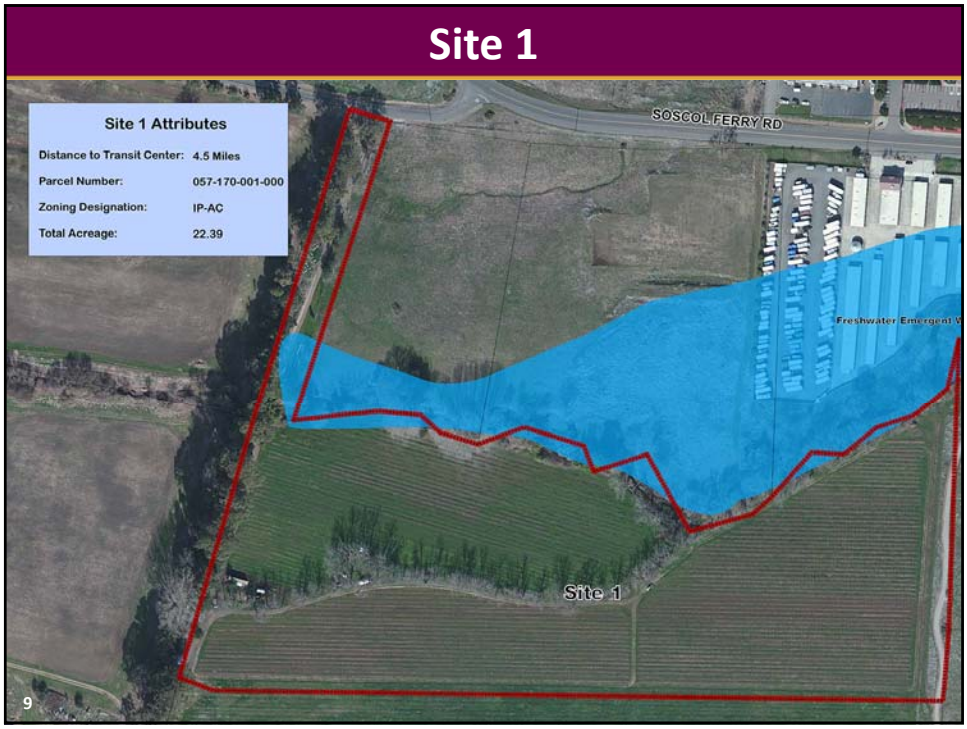
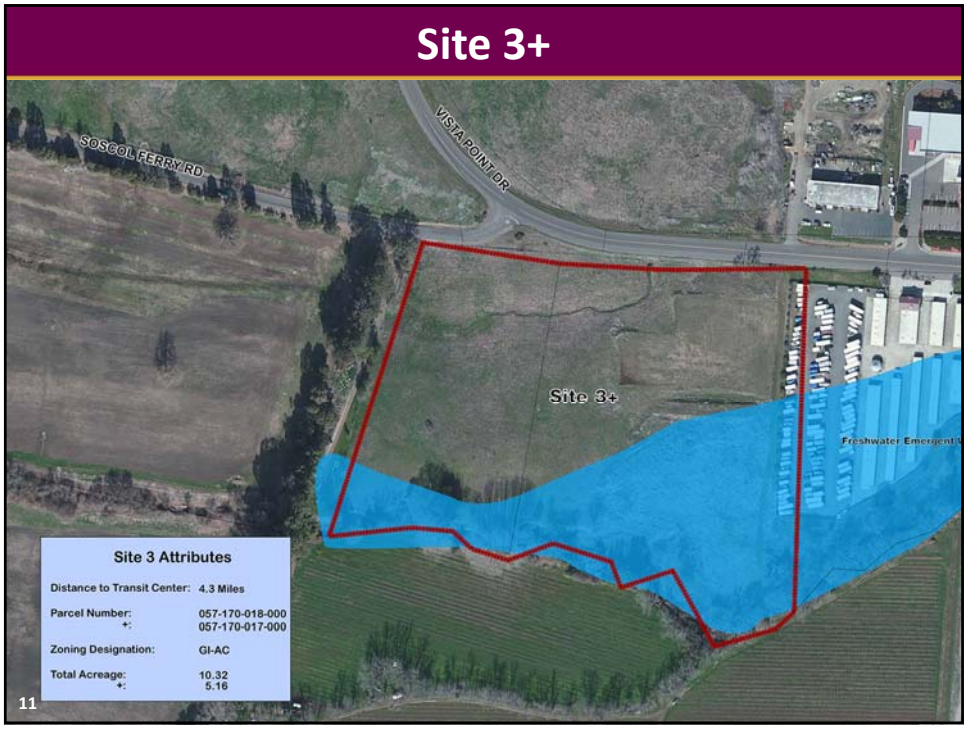
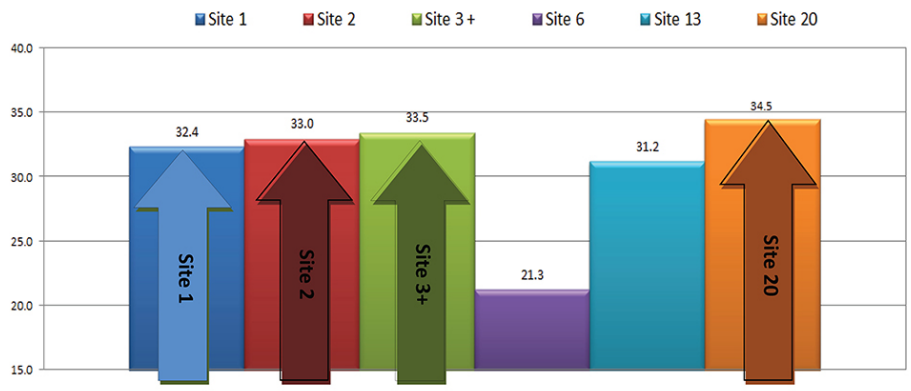

Site 1
Site 1 Attributes
Distance to Transit Center: 4.5 Miles
Parcel Number: 057-170-001-000
Zoning Designation: IP-AC
Total Acreage: 22.39
SOSCOL FERRY RD
Freshwater Emergent
Site 1
9

Site 2
Site 2 Attributes
Distance to Transit Center: 4.7 Miles
Parcel Number: 057-170-019-000
Zoning Designation: IP-AC
Total Acreage: 26.93
DEVLIN RD
Site 2
10


Site 3+
SOSCOL FERRY RD
VISTA POINT DR
Site 3+
Freshwater Emergent
Site 3 Attributes
Distance to Transit Center: 4.3 Miles
Parcel Number: 057-170-018-000
+: 057-170-017-000
Zoning Designation: GI-AC
Total Acreage: 10.32
+: 5.16
11

Site 20
STATE HIGHWAY 221
Site 20
Site 20 Attributes
Distance to Transit Center: 2.6 Miles
Parcel Number: 046-370-024-000
Zoning Designation: I
Total Acreage: 55.27
BASALT RD
12

Recommendations: Top 4 Sites



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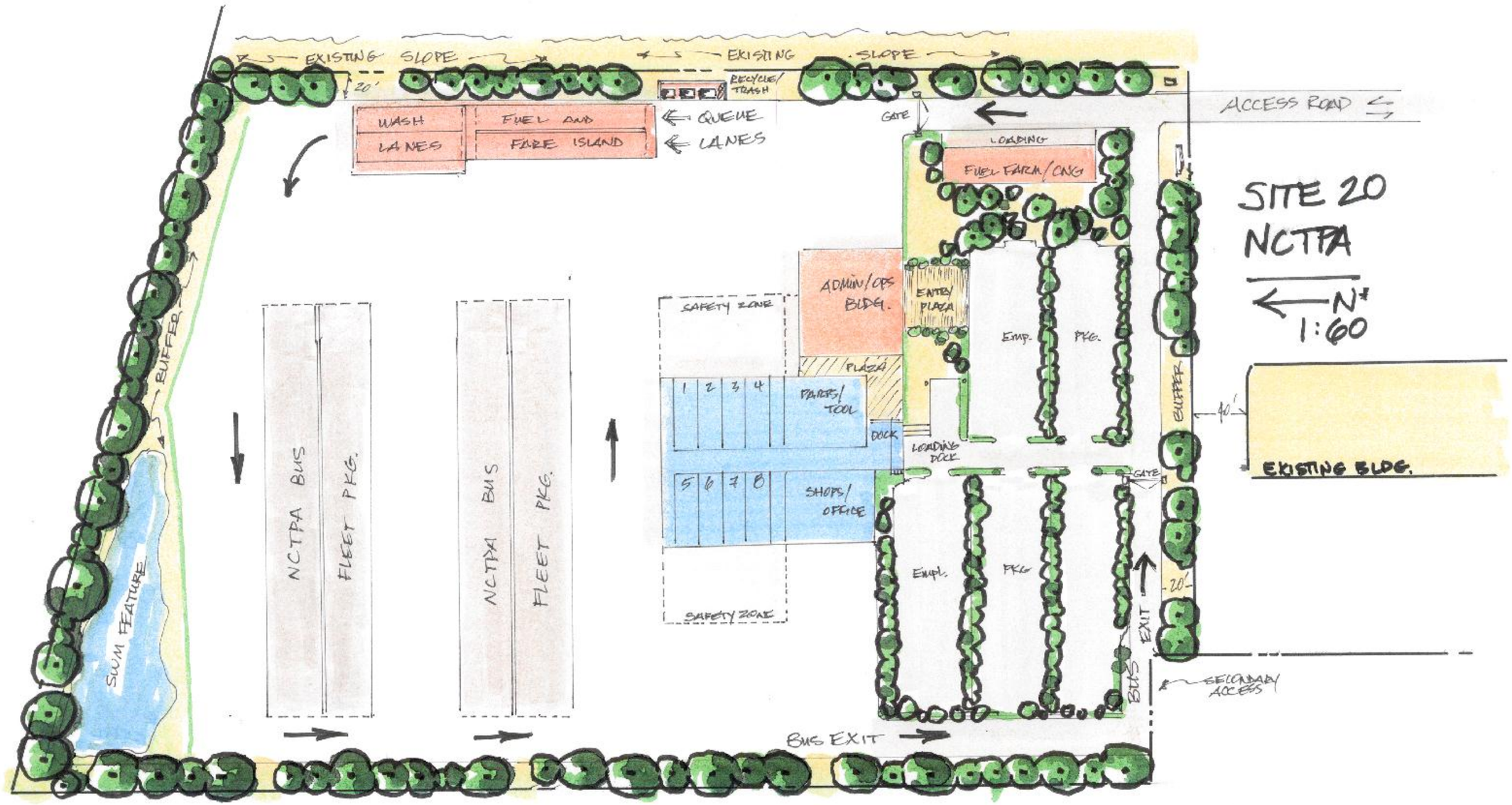
Next Steps

- Charrette
- Layouts on top 4 site
- Due diligence of top 2-4 sites after charrette
- Consultant recommendations of top sites(s)

Napa County Transportation & Planning Agency
Bus Maintenance Facility: Site Screening and Selection
Kimley-Horn and Associates, Inc.
14

Appendix C – Master Plan Charrette Concepts

TRASH/RECYCLE
20' BUFFER
WASH BAY
STEAM CLEAN
CLEAR ZONE
FUEL & FARE PULL
FUEL & FARE PULL
QUEUE LANES
GATE
ACCESS ROAD
CNG/FUEL TANKS
20'
SITE 2
NCTPA
1:60
N
OPS/ADMIN
OPS/ADMIN
ENTRY PLAZA
EMPLOYEE PKG.
70'
70'
80'
70' SAFETY ZONE
70' SAFETY ZONE
PLAZA
NCTPA (FLEET)
PARKING (100 BUSES)
PARTS/TOOL
PARTS/TOOL
DOCK
LOADING
CENTRAL AISLE
MTCE. OFFICE
OFFICE
GATE
EMP.
PKG.
70' SAFETY ZONE
REDOX LINE & OVERFLOW PK.
BUS EXIT
20'
SWM FEATURE
KHA SITE PLAN
SEPT 25, 2013
DAC
~ 12 AC.

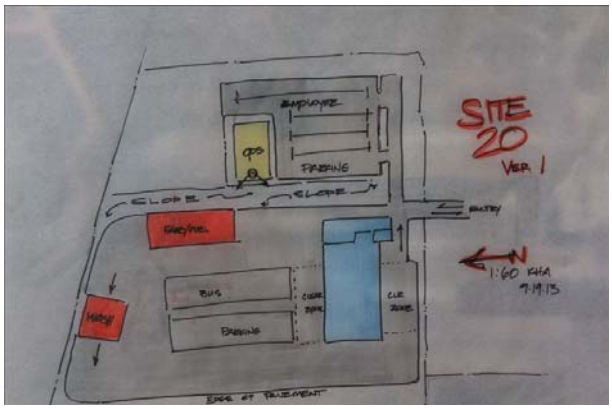


KHA SITE PLAN
SEPT 25, 2013
DAC

Appendix D – Photographs

Appendix D
Photographs

Appendix D
Photographs



Technical Memorandum #4

TO: **NCTPA Project Team**

FROM: **David A. Cheeney, AICP, Project Manager**

DATE: **December 12, 2013**

SUBJECT: **NCTPA Bus Maintenance Facility**

Technical Memorandum #4 – Due Diligence Report

This technical memorandum is the fourth in a series of reports that document the study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). This report summarizes the planning due diligence process which was performed and used to identify impacts and constraints that may affect or impact the purchase of either of the two preferred sites for the Bus Maintenance Facility.

The Study consists of the following reports:

- Technical Memorandum 1: Space Plan
- Technical Memorandum 2: Sites and Screening
- Technical Memorandum 3: Charrette and Concepts
- Technical Memorandum 4: Due Diligence Report
- Technical Memorandum 5: Multi-Jurisdictional Use
- Draft Report: Summary of all Technical Memoranda
- Final Report: Summary of Technical Memoranda Responding to Board and Staff Comments

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1. Introduction

1.1. Project Description

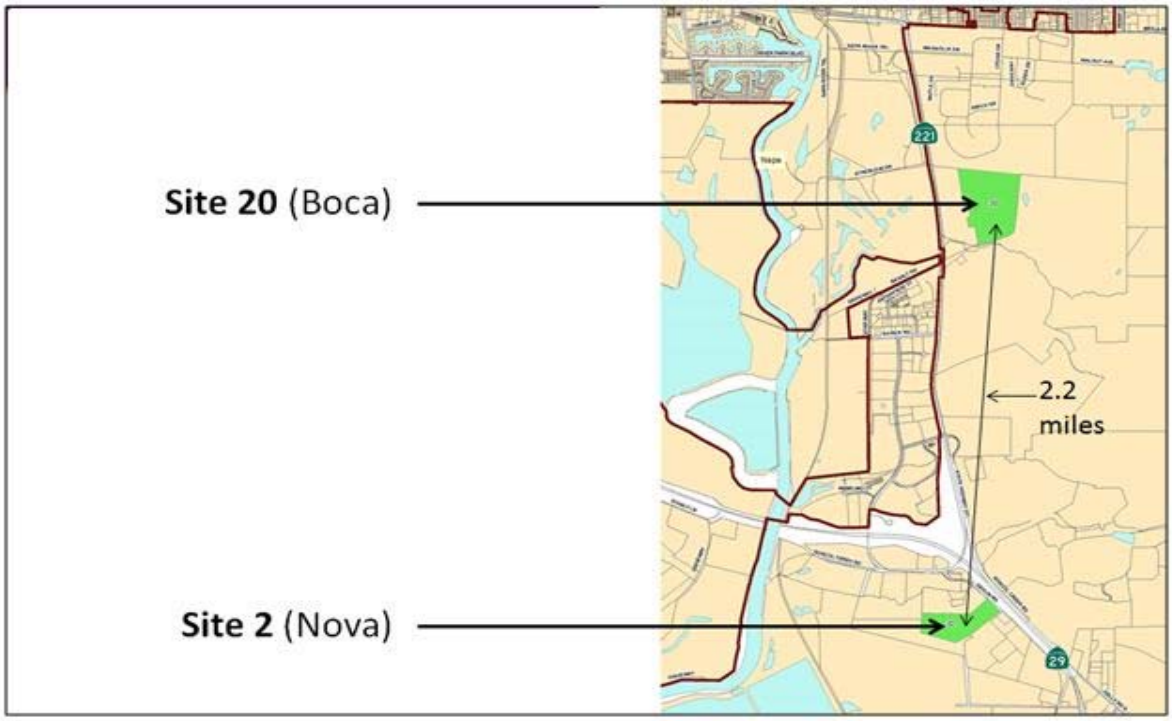
The Napa County Transportation and Planning Agency (NCTPA) is proposing to develop a Bus Operations and Maintenance Facility on one of two sites located in the County of Napa. The site eventually chosen will be master planned and include the necessary facilities for a fully functioning bus transit operations and maintenance facility. This Due Diligence Report is intended to be a project resource, detailing relevant factors to support NCTPA's decision to complete the purchase of the property and to aid in the facility development process.

This report has been prepared for the Napa County Transportation and Planning Agency (NCTPA) to analyze the potential constraints of two proposed candidate sites for a new transit operations and maintenance facility.

NCTPA desires a site sufficient to accommodate a bus fleet of 97 vehicles, with room for future expansion over the next two decades. Further, the preferred site would have adequate employee and visitor automobile parking (approximately 130 spaces). Availability of suitable land, distance from the Soscol Gateway Transit Center, and geographic location in relation to major transportation corridors are also key components in site selection.

Initially, NCTPA considered over 20 candidate sites and ruled out most based on inability to meet the objectives listed above, financial constraints, or other factors that made such sites infeasible as documented in Technical Memorandum 2: Sites and Screening. The two remaining sites (Site 2 and Site 20), which can be seen in **Figure 1**, are analyzed in more detail in this due diligence report to assist in identifying the preferred location for the new bus facility. Site 2 and Site 20, from herein referred to as the NOVA and BOCA sites, respectively, are both located within the Jameson/American Canyon-Unincorporated area in the southern portion of Napa County. NCTPA envisions that this analysis will assist in the selection of the preferred site as well as for subsequent environmental review pursuant to the requirements of the California Environmental Quality Act (CEQA) and/or the National Environmental Policy Act (NEPA).

Figure 1: Site Locations



This analysis includes a subset of the environmental factors that would be required as part of a future full CEQA/NEPA analysis. Factors considered in this analysis are:

- Drainage Pattern
- Flood Hazard Areas
- Natural Resources
- Cultural Resources
- Hazardous Materials
- Land Uses, Zoning, and Adjacent Property Owners
- Transportation
- Utilities

This report summarizes the level of constraint presented by each of the studied factors accordingly, which corresponds to the constraints comparison matrix (see **Chapter 6.0, Summary**):

- No Constraint: The factor presents no constraint. Within an environmental review, such a factor would be considered to have no impact.
- Minor Constraint: The factor presents a minor constraint. Within an environmental review, such a factor would be considered to have a less-than-significant impact; no mitigation would be necessary.
- Moderate Constraint: The factor presents a significant constraint, but one that can be avoided or minimized with appropriate and feasible mitigation measures.
- Major Constraint: The factor presents a substantial constraint for which no feasible avoidance or minimization measures are available.

1.2. Site Location

NOVA Site

The NOVA site (Site 2) is located on the west side of Devlin Road which runs parallel to and acts as a frontage road to State Route (SR) 29 within unincorporated areas of Napa County. **Figure 2** shows an aerial map of the property. The NOVA site is approximately 27 acres and is recorded as assessor's parcel number (APN) 057-170-019-000. This site is accessed via Devlin Road which in turn connects with the SR 29/SR 221/SR 12 interchange to the north. SR 221 provides direct access to NCTPA's Soscol Gateway Transit Center located approximately 4.7-miles to the north of the NOVA site. Because the property is much larger than the preferred size for the project, subdivision of the parcel and acquisition of a smaller lot may occur. The parcel is currently vacant although equipment storage from the adjacent parcel to the south, which is owned by the same individual, has spilled over onto the NOVA site.

Figure 2: NOVA Site Location

BOCA Site

The BOCA site (Site 20) is located to the west of a currently operating quarry site (Syar Napa Quarry), adjacent to and north of Basalt Road and approximately 0.2-miles east of SR 221 within unincorporated areas of Napa County. **Figure 3** shows an aerial map of the property. The site is a total of 55 acres and is recorded as APN 046-370-024-000. The BOCA site is 2.6-miles south of the Soscol Gateway Transit Center. Because the BOCA site is much larger than the preferred size for the project facility, subdivision of the parcel and acquisition of a smaller lot may occur. Portions of the parcel are currently used for equipment storage, retail and wholesale of building materials, and an impound yard for a local towing company. The majority of the site has been previously graded, graveled, and paved.

Figure 3: BOCA Site Location

1.3. Purpose

This Due Diligence Report is intended to provide an overview of the existing conditions at the project site and to identify some of the impacts associated with construction of the proposed NCTPA Bus Maintenance Facility that may affect or impact the purchase. Data and information for this report were gathered from field observations, published documents, correspondence with applicable City and utility company staff, and reports and plans previously completed for the development of the Napa County Jail Project.

2. Existing Site Conditions

This analysis of existing site conditions is organized to present information on the NOVA site and then the BOCA site. However, where existing conditions are similar between the two sites, the information is consolidated into one general summary that is applicable to both locations.

2.1. Site Drainage Pattern

Flooding can occur when a site lacks sufficient drainage infrastructure to accommodate stormwater runoff, natural flooding, etc. Natural topography and modification of slopes/surface influence drainage patterns, which may potentially increase erosion effects and changes in downstream flow.

NOVA Site

The NOVA Site is located in the Napa River watershed. According to Napa County Cuttings Wharf USGS 7.5 minute quadrangle, the NOVA site is located on a predominantly flat parcel and has an elevation of 40-60 feet above sea level. Surface and groundwater would likely flow to the northwest, towards Suscol Creek. The NOVA site is currently unimproved, primarily encompassing nonnative grasslands, and does not have any existing drainage facilities on site.

While the site is planned and zoned for industrial land uses, development of the project would directly alter the drainage pattern and groundwater recharge of the area by altering the existing land cover. The addition of impervious surfaces would in turn alter the rate or amount of surface runoff and reduce the amount of water recharging the groundwater table. However, in accordance with local stormwater regulations (see **Subsection 2.2**), the project would be required to design proposed improvements such that the post-construction stormwater run-off volumes are contained on site, and no off-site flooding occurs. Compliance with local stormwater regulations would reduce the potential for impacts related to flooding or drainage. The lack of existing improvements and drainage facilities on the NOVA site therefore represents a minor environmental constraint to the development of the project (although the cost of installing such infrastructure may represent a more substantial financial constraint). Refer to **Chapter 4, Utilities**, for a detailed discussion of the existing utility infrastructure in the area of the NOVA site.

BOCA Site

The BOCA site is located in the Napa River watershed within the Napa USGS 7.5 minute quadrangle. The Napa River traverses north to south through the City of Napa, about 0.75-miles west of the BOCA site. The Arroyo Creek, located 100 – 500 feet south of the BOCA site, flows into the Napa River. The BOCA site has an elevation between 80 to 100 feet above sea level and is relatively flat. Areas immediately east of the site slope upwards to the Syar Napa Quarry.

The BOCA site includes some non-native grassland cover that would allow for natural infiltration of stormwater runoff. The majority of the site has been previously graded and paved and does not have any existing drainage facilities on site. The closest drainage outfall is located at the northwest corner of the property adjacent to the west ("Pacific Coast"), where there is a detention basin on the west side of SR 221.[1] Because of the previously disturbed nature of the BOCA site, and the existing drainage facilities associated with the adjacent properties, development of the project at this location would have less of an effect on drainage patterns and groundwater table recharge when compared to the NOVA site. The effects on drainage patterns would present a minor constraint on development.

[1] Napa County. 2013. Napa County Jail DEIR. Page 3.6-13

2.2. Stormwater Design Guidelines

Napa County Code (Chapter 18.108, Conservation Regulations) addresses erosion control and protection of the County's streams and waterways. The intent of these regulations is to protect lands from excessive soil loss and maintain or improve water quality of watercourses by minimizing soil erosion from earthmoving, land disturbing, and grading activities. The following are key provisions of the conservation regulations.

- Section 18.108.025 – General Provisions, Intermittent/Perennial Streams
  - Establishes stream setback requirements for development projects, depending on the slope of the terrain, existing vegetation, and replanting requirements.
- Section 18.108.075 – Requirements for Structural Erosion Control Measures
  - Establishes erosion control requirements for structural development and requires the submission/incorporation of evidence of erosion control measures.
- Section 18.108.135 – Oversight and Operation Requirements
  - Requires proper maintenance and monitoring protocol of an erosion control plan.

To comply with requirements of its National Pollutant Discharge Elimination System (NPDES) Phase II General Permit, Napa County adopted the Stormwater Management and Discharge Control Ordinance on June 22, 2004 (Ordinance No. 1240; Napa County Code Chapter 16.28, Stormwater Management and Discharge Control). This ordinance applies to projects in unincorporated Napa County. The Napa County Post-Construction Runoff Management Requirements, adopted on June 3, 2008, provide information on how to comply with the Post-Construction Runoff Management Best Management Practices (BMPs) requirements established in the ordinance.

Project construction activities would likely involve extensive grading and movement of soil, which could result in erosion and sedimentation, and discharge of other nonpoint source pollutants in stormwater that could then drain off-site and degrade local water quality. To avoid or minimize the potential for adverse construction-related effects on water quality, NCTPA would be required to comply with the stormwater design guidelines in the Napa County Code that protect water quality and minimize erosion. Compliance with these regulations would represent a minor constraint for the development of the project on either the NOVA site or the BOCA site.

2.3. Flood Hazard Areas

Flood damage is most likely to occur within a Federal Emergency Management Agency (FEMA) designated flood hazard area (100-year flood zone). Additionally, future flood hazards could be worsened as a result of anticipated sea level rise related to global climate change. The potential for floods causing injury or damage to people and property increases unless appropriate flood protection measures are incorporated.

Based on a review of the FEMA floodplain insurance maps (FIRMs) for the NOVA site and BOCA site, neither property is located within a 100-year flood zone. **Figure 4** and **Figure 5** depict the flood zone designations for each site, respectively.

Figure 4: NOVA Site (Site 2) FEMA Floodplain Insurance Rate Map

FEMA designated both the NOVA site and BOCA site as "Zone X" (unshaded). Zone X is characterized as an area of minimal flood hazard, outside a special flood hazard area, and is usually within a 500-year flood level.[2,3] A 500-year flood level is a flood that has a 0.2 percent chance to occur every year. In summary, flooding represents a minor constraint to the development of the project at the NOVA site and BOCA site.

The San Francisco Bay Conservation and Development Commission (BCDC) uses data from the United States Geological Survey to produce a series of sea level rise maps showing areas vulnerable to 16 inches and 55 inches of sea level rise within the Bay Area. According to BCDC, neither of the two sites are located within an area that is vulnerable to potential sea level rise; therefore, potential sea level rise effects present no constraint to future development.[4]

Figure 5: BOCA Site (Site 20) FEMA Floodplain Insurance Rate Map

[2] Federal Emergency Management Agency, Flood Insurance Rate Map, 06055C0610E
[3] Federal Emergency Management Agency, Flood Insurance Rate Map, 06055C0519F
[4] BCDC. 2009. Shoreline Areas Potentially Exposed to Sea Level Rise: Napa River.

2.4. Natural Resources

According to the Napa County General Plan Environmental Impact Report, southern portions of Napa County closest to the potential project sites primarily consist of wetlands, grasslands, and agricultural land cover. *Wetlands* can be highly productive habitats for plants and wildlife. Biotic communities within *grasslands* typically include native and serpentine grassland that provide habitat for a number of special-status species. The biological value of *agricultural cropland* depends on the level of pesticides and herbicides used, but generally provide valuable linkages between natural habitats for larger species of mammals and birds.

Special-status species are plants and animals protected under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), or other local regulations.[5]

There is no existing landscape-level Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) within Napa County.

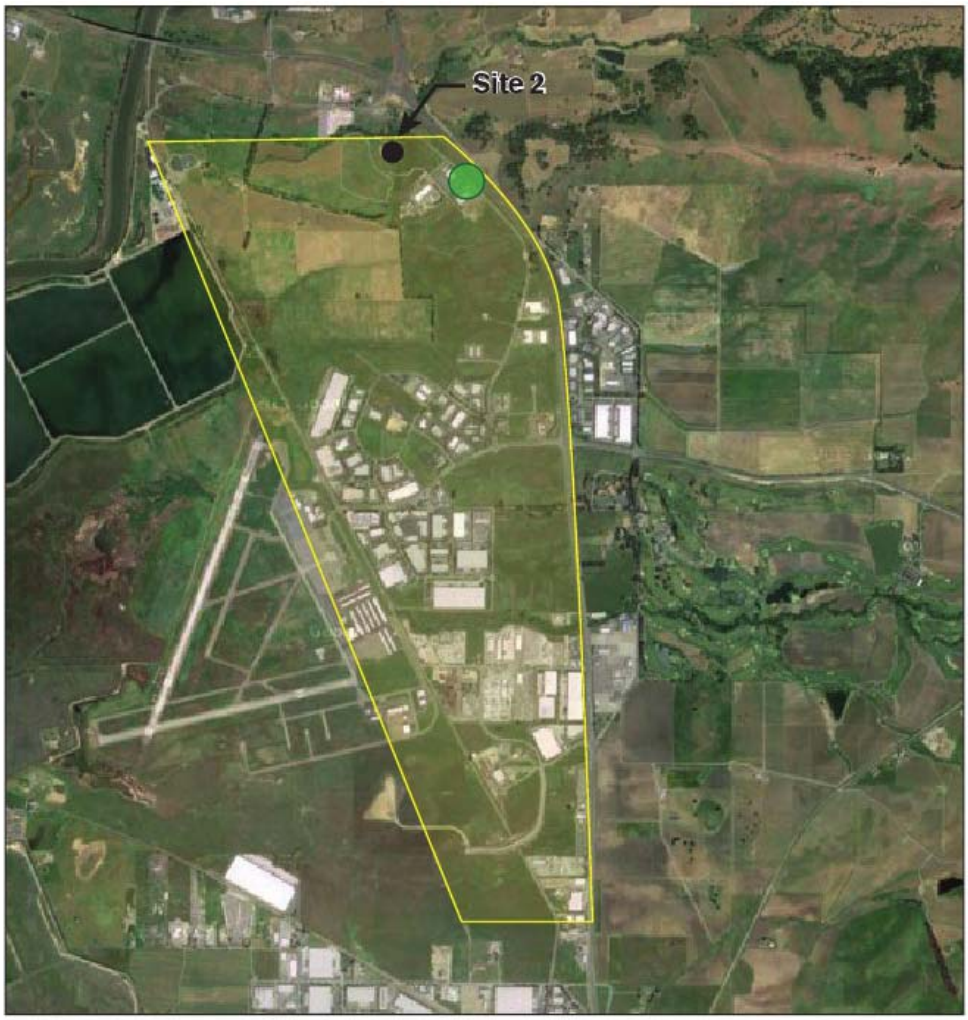
NOVA Site

The NOVA site is located within the Cuttings Wharf USGS 7.5 minute quadrangle to the east of the Napa River Marshes[6]. A recent U.S. Fish & Wildlife Service database search of special-status species identified 13 endangered-status and 9 threatened-status plant and animal species within the Cuttings Warf quadrangle.[7] The Napa County General Plan Environmental Impact Report includes figures depicting areas that could potentially contain special-status animal plant species. According to these figures, the NOVA site appears to be within or near an area potentially containing both special-status animal and plant populations. **Figure 6** depicts special-status species overlays from the Napa County General Plan EIR with respect to the site. This site does not appear to include waters or wetlands of the U.S. that would potentially trigger permitting requirements of Section 404 of the Clean Water Act.

The nearby presence of special-status species relative to the NOVA site would represent a moderate constraint to future development. If present on site or nearby, construction and operation of the NCTPA maintenance and fueling yard could adversely affect special-status species or their habitat. However, site-specific data is inconclusive at this time and would require further environmental assessment to determine the level of potential impact to special-status species and appropriate mitigation to comply with federal, state, and local policies.

[5] Napa County. 2007. Napa County General Plan EIR. Pg 4.5-1-4.5-34.
[6] A 7.5 minute quadrangle is a term used to describe the scale of USGS topographic maps. This is the only uniform map that covers the entire U.S. in detail.
[7] U.S. Fish and Wildlife Service. 2013. Federal Endangered and Threatened Species that Occur in or may be affected by projects in the Napa Quad. Accessed 10/23/2013 from http://www.fws.gov/sacramento/ES_Species/Lists/es_species-lists_quad-finder.htm

Figure 6: NOVA Site (Site 2) Special-Status Species



Note: Not to scale

Legend

Areas containing special-status animal species populations

Areas containing special-status plant species populations

BOCA Site

The BOCA site is located within the Napa USGS 7.5 minute quadrangle. A recent U.S. Fish & Wildlife Service database search of special-status species within the Napa quadrangle identified 7 endangered-status and 6 threatened-status plant and animal species within the quadrangle, but does not provide the location of these species.[8] According to the Napa County General Plan EIR, the BOCA site does not appear to be within or near an area potentially containing either special-status animal or plant species populations. The BOCA site does not include waters or wetlands of the U.S. that would potentially trigger Section 404 of the Clean Water Act. Furthermore, this site has already been developed for industrial uses, thus would be less likely to host special-status species than the NOVA site. As a result, potential impacts to natural resources would present a minor constraint to future development on the BOCA site. However, site-specific data is inconclusive at this time and will require further environmental assessment to determine the level of potential impact to special-status species and appropriate mitigation to comply with federal, state, and local policies.

2.5. Cultural Resources

The Napa County Baseline Data Report (Baseline Report)[9] provides a summary of known historical and archaeological resources in Napa County. Archaeological resources in Napa County include, but are not limited to, painted stone slabs, beads, bone tools, stone mortars, and cremations and burials associated with the Wappo, Lake Miwok, and Patwin tribal groups that historically inhabited the area. In the early 1800s, European explorers traveled through Napa County and settled in the present-day cities of Petaluma, Sonoma, and Napa. The agricultural and wine industries influenced settlement in these areas over the last century.

While site-specific cultural data would be determined during a project-level environmental review process, the Baseline Report divides Napa County into a series of study areas that provide preliminary sensitivity assumptions for the potential presence of cultural resources. Both the NOVA site and the BOCA site are within the Jamieson/American Canyon study area, which reportedly includes 27 archaeological sites. There are also three historic architectural features (i.e., buildings and structures) reported in the Jamieson/American Canyon study area.

In the Baseline Report, researchers utilized topography of the landscape, slope, elevation, soil type, and proximity to streams as an indicator of potential cultural resources in the County. **Table 1** summarizes the methodology to determine the potential for sensitive archaeological sites based on

[8] U.S. Fish and Wildlife Service. 2013. Federal Endangered and Threatened Species that Occur in or may be affected by projects in the Napa Quad. Accessed 10/23/2013 from http://www.fws.gov/sacramento/ES_Species/Lists/es_species-lists_quad-finder.htm

[9] Watershed Information Center & Conservancy. 2005. Napa County Baseline Data Report: Chapter 14 Cultural Resources. Accessed November 7, 2013 from http://www.napawatersheds.org/documents/view/2318

the landscape. For each respective category, a sensitivity ranking is provided with 1 as least sensitive, and 5 as most sensitive.

Table 1: Sensitivity Ranking for Archaeological Sites Across the Landscape

Distance to Streams (ft)	Rank	Elevation (feet)	Rank	Slope (%)	Rank	Frequency of Cultural Resource per Soil Type	Rank
0-1,320	5	0-500	5	0-15	5	>=20	5
1,320-2,640	4	500-1,000	4	15-20	4	>=15<20	4
2,640-3,960	3	1,000-1,500	3	20-30	3	>=10<15	3
3,960-5,280	2	1,500-2,000	2	30-40	2	>=5<10	2
5,280-6,746	1	2,000-2,741	1	40-575	1	<5	1

Source: Napa County Baseline Data Report, 2005

NOVA Site

Using **Table 1** as guidance, it can be estimated that the NOVA site has a high sensitivity rating for potential to encounter cultural resources. The site is near a stream, is relatively flat, and has a slope between 0-15 percent. Furthermore, although the NOVA site is zoned for industrial use, it includes mostly nonnative grassland that hasn't been disturbed with excavation or infrastructure to date. Therefore, there is a relatively high potential to uncover cultural resources. This likelihood represents a moderate constraint on the development of the project.

BOCA Site

The BOCA site is currently used for industrial practices, has previously disturbed land, and the majority of the site is paved or gravel. If archaeological resources were present on the site in near-surface soils, they were likely disturbed/destroyed in previous paving, grading, and land disturbance. The BOCA site thus has a relatively low potential to uncover cultural resources; this likelihood represents a minor constraint on the development of the project.

2.6. Hazardous Materials

An Environmental Data Resources, Inc. (EDR) record search was completed in October 2013 for the NOVA site and the BOCA site. The EDR record search provides a comprehensive summary of known historical releases of hazardous materials within the immediate vicinity of the two properties, along with the release sites' current remediation status'. Reported releases were evaluated with respect to the local hydrology, the extent and nature of the given release, and the proximity of the release to the two sites.

NOVA Site

The NOVA site is currently zoned for industrial use, but has not been developed and is covered with nonnative grassland. The EDR record search identified one leaking underground storage tank site (containing petroleum products) within a 0.25-mile radius of the NOVA site. According to the EDR, remediation efforts previously occurred and the case was closed in 1993. Furthermore, the site is located hydrologically down gradient[10] from the NOVA site and would be unlikely to affect the groundwater where project improvements would be constructed.

The record search also identified one other release site located approximate 1-mile southeast from the NOVA site, associated with NOVA Group Inc., a general engineering contractor. Recorded data for this site is inconclusive as records indicate a "not reported" and "inactive – needs evaluation" status. However, due to the distance of the release to the NOVA site, and the direction of groundwater flow, it is unlikely that this release site would affect the groundwater where project improvements would be constructed.

Although the EDR identified the occurrence of leaking underground storage tanks and other hazardous sites in the immediate vicinity of the NOVA site, it is unlikely that various solvents and hazardous materials are present in the soil. The current case status of documented release sites and their relative groundwater flow direction to the NOVA site (based on the natural topography of the landscape) makes the risk of encountering contaminated groundwater or other hazardous materials low. Furthermore, the NOVA site has never been developed, thus existing soil contamination would not likely be present. As a result, the risk of encountering hazardous material would present a minor constraint on the development of the project.

BOCA Site

As discussed subsequently in **Subsection 2.7, Existing Land Use and General Plan Compliance,** an adjacent parcel on the BOCA site is being analyzed as a potential location for the Napa County Jail. The Napa County Jail DEIR (August 2013) provides relevant information with regard to hazardous materials for the BOCA site, as well as the adjacent parcel to the west. In early 2012, a Phase I Environmental Site Assessment (ESA) was conducted for the Napa County Jail DEIR, which determined that the BOCA site and its adjacent properties are listed on several hazardous materials databases for activities associated with past quarry operations and/or other use of or generation of hazardous materials by various site owners/tenants over time. The Napa County Jail DEIR concluded that the adjacent properties included several sites identified on the "Cortese List" for leaking underground storage tanks on the Pacific Coast parcel and at the Syar Napa Quarry. The "Cortese List" is a State planning document that lists hazardous waste and substance sites. All cleanup activities of these sites were completed and closed. Monitoring efforts associated with cleanup of

[10] Groundwater flows away from Site 2.

the leaking underground storage tanks occurred between 1996 and 2001 and indicated the presence of petroleum hydrocarbons at the adjacent Pacific Coast parcel. However, monitoring efforts later concluded that environmental impacts to groundwater were decreasing, thus no additional monitoring was necessary. Onsite hazardous sources were also analyzed from historic aerial photographs of the BOCA site. Aerial photographs confirmed the potential presence of two former aboveground fuel tanks in the central portion of the BOCA parcel. The EDR records search conducted for this feasibility report did not reveal any new hazardous material listings beyond what was evaluated in the Phase I ESA conducted for the Napa County Jail DEIR.

Due to the historic presence of storage tanks on site, and the occurrence of leaking underground storage tanks and other hazardous material releases in the immediate vicinity of the BOCA site, it is likely that various solvents and hazardous materials are present in the soil and groundwater.

If the BOCA site is selected, the project would entail the excavation of soils known or suspected to contain hazardous materials. The potential to unearth hazardous materials makes such excavation pose a potential risk to construction workers and other people in the vicinity. Therefore, a Phase II Environmental Site Assessment would almost certainly be needed if the BOCA site were chosen. A Phase I ESA conducted according to pertinent standards would help shape the scope of a subsequent Phase II ESA.

The Phase II ESA typically requires sampling of soils and/or groundwater so that appropriate precautions can be incorporated into the project to ensure the safe handling and disposal of any contaminated materials. The Phase II ESA could be conducted prior to the completion of an environmental review. However, in many jurisdictions, it is acceptable for the environmental document to include a mitigation measure that requires the Phase II ESA prior to issuance of a grading permit, provided that all recommendations of the Phase II ESA become conditions of project approval.

A Phase II ESA would need to be conducted by a licensed professional. If contaminants were identified in subsurface soils and/or groundwater, the Phase II ESA would screen the identified contaminant concentrations relative to applicable environmental screening levels for the proposed use type.

If contaminant concentrations are above the applicable screening levels, the Phase II report would make recommendations for remedial actions for the protection of public health and the environment.

If the Phase II ESA recommends remedial action (which may include but not be limited to soil and/or groundwater removal or treatment, site-specific soil and groundwater management plan, site-specific health and safety plan, and a risk management plan), the project sponsor (NCTPA or its agent) would then consult with the appropriate local, state, or federal environmental regulatory agencies to ensure sufficient minimization of risk to human health and the environment, both during and after construction.

As a result, the risk of encountering hazardous materials during project construction would present a moderate constraint on the development of the project. To lessen this risk, a worker health and safety plan would be required in order to identify and implement appropriate safety measures for construction workers. The plan would outline measures that would be employed to protect workers and the public from exposure to hazardous materials during demolition and construction activities. These standards would comply with the Occupational Safety and Health Administration (OSHA) and California OSHA requirements. Additionally, the proposed operational uses at the BOCA site would not be sensitive to soil and groundwater contaminants, as these areas would not be developed for long-term residential habitation or school use; nor would groundwater be used as a potable water source.

2.7. Existing Land Use and General Plan Compliance

Regional land use patterns in Napa County include urbanized city centers, open space, and agricultural areas. Approximately 95 percent of Napa County is located within unincorporated areas, with the remaining 5 percent distributed amongst the five incorporated cities. The NOVA site and the BOCA site are both located within the Jameson/American Canyon-Unincorporated area in the southern portion of Napa County. Land uses in this area are primarily agricultural and open space, but do possess some industrial land uses.

NOVA Site

According to the Napa County General Plan EIR, the NOVA site is located within an industrial land use designation. The site is currently undeveloped and is generally covered with grasslands. A small portion of the site is unofficially used for the storage of equipment/materials associated with the property to the south, which was previously occupied by the NOVA Groups Inc. (a general engineering contractor) and is currently occupied by another general contractor (Marine Contractors JV). The NOVA site is located approximately 5,000 feet northwest of the Napa County Airport and falls under the jurisdiction of the Napa County Airport Land Use Plan (see **Subsection 2.8, Existing Zoning**).

The Napa County General Plan includes the following policy with regard to permitted activities within industrial land uses in Napa County. ***Policy AG/LU-51***[11]outlines a variety of industrial uses such as warehouses, manufacturing, wineries and food processing facilities that are industrial in character, and research and development. Administrative facilities, research institutions, limited office and commercial uses and related facilities which are ancillary to the primary industrial uses may also be accommodated.

The proposed NCTPA bus maintenance facility would be compatible with industrial land use designation, as described in the General Plan. Land use designations would therefore not present a constraint to the future development of the NOVA site.

Section 18.40.020(A) of the Napa County Code sets forth allowable (by-right) uses in the IP zoning district. These uses are: agriculture, certain telecommunications facilities, and certain antennas.

Since the proposed bus maintenance facility does not conform to any of these expressly permitted uses, we look to County Code Sections 18.40.020(B) et seq for uses that are allowable with County issuance of a use permit. The list of uses within Section 18.40.02(B) includes two uses that would appear to apply to the proposed bus facility:

- "Other industrial or commercial uses which, in the opinion of the planning commission, are non-nuisance-causing similar in character to the above-listed uses;"
- "Other uses which in the opinion of the approving officer or body are non-nuisance-causing and similar in character to the above listed uses."

Moreover, Section 18.040.020(D) requires issuance of a Use Permit for any use on a parcel with frontage on SR 29, SR 12, or Airport Boulevard, or if the project proposes more than 50 off-street parking spaces.

As the project is not an expressly permitted use and because it proposes more than 50 off-street parking spaces, development of the project at the NOVA site would require County Planning Commission issuance of a Use Permit.

The IP:AC Zoning Code also includes specific development requirements, as shown in **Table 2. Table 3** summarizes additional zoning regulations for the Industrial Park zoning districts. Approximately 9.14 acres are needed for the proposed NCTPA Bus Maintenance Facility; therefore, the NOVA site would fit within the minimum and maximum site limitations. None of these zoning requirements would conflict with the proposed project improvements.

[11] Napa County. 2009. Napa County General Plan. Page AG/LU-27

Table 2: NOVA Site General Requirements

Industrial Park and Airport Compatibility Zoning Requirements
Building Setbacks
Front Setbacks: • ***From all other streets***: 45 feet average, 25 feet minimum **Side Setbacks:** • 10 feet or the setback required by State Building Code **Rear Setbacks:** • 10 feet minimum
Parking, Drive Aisles, and Other Improvement Setbacks
• ***Side and rear property lines:*** 10 feet (minimum of 5 feet if approved by planning commission) • ***From all other streets:*** 25 feet
Watercourse Protection Setbacks
Unless specifically authorized by the applicable specific plan, no development or improvements, including storage of equipment or materials or construction of fences, shall be permitted in the setbacks established below: • Suscol Creek: 100 feet • Sheehy Creek: 35 feet
Outdoor Storage
Limited Outdoor Storage Permitted. • No articles, goods, materials, fixed machinery or equipment, vehicles, trash, animals or similar items shall be stored within any required setback area. • Only those articles, goods, materials, fixed machinery or equipment, vehicles or similar items which are used or are part of the on-site business shall be stored on-site, unless specifically authorized by permit granted by the planning commission. • Vehicles shall be stored in appropriate areas only. If vehicles are to be stored for more than seventy-two hours, they shall be in an area screened from view, pursuant to subsection (B) of this section. Screening Required: Any articles, goods, or materials authorized for storage by Section 18.40.220(H) outside of buildings shall be screened (fenced and landscaped) from view from adjacent sites, streets and/or other public use areas. Improvement Standards: All areas approved for outdoor storage shall utilize a dust-free, all weather surface, unless alternate improvement standards are approved by the commission.
Height Requirements – (Airport Compatibility Zone D)
Height limits shall be as in the underlying zoning district, or, if height limits are not specifically assigned by the underlying district, the height limit shall be 35 feet. Any project proposing heights over the applicable height limit shall require a use permit and be referred to the ALUC prior to final approval.
Density Requirements – (Airport Compatibility Zone D)
Density of use averaged over the entire site (excluding streets) should not exceed 100 persons per acre in structures, or 150 persons in and out of structures;

Source: Napa County. 2013. Municipal Code, Chapters 18.40 Industrial Park Zoning District and 18.80 Airport Compatibility. Accessed November 21, 2013 from http://library.municode.com/HTML/16513/level2/TIT18ZO_CH18.40IPINPAZODI.html

Table 3: Additional Zoning Regulations

Zoning District	Minimum Lot Area		Minimum Lot Width Feet	Minimum Yard Feet			Maximum Main Building Coverage	Maximum Building Height
	Acres	Sq Feet		Front	Side	Rear		
Site 2 (IP)	Varies	Varies	125	Varies	Varies	10	35%-50%	35
Site 20 (I)	-	20,000	100	20	20	20	40%	35

Source: Napa County. 2013. Chapter 18.104 Additional Zoning District Regulations. Accessed November 21, 2013 from http://library.municode.com/HTML/16513/level2/TIT18ZO_CH18.104ADZODIRE.html#TIT18ZO_CH18.104ADZODIRE_18.104.010SCZODIRE

Note: Site 2 must also be compatible with the Airport Land Use Compatibility Plan (:AC zoning) as discussed above

BOCA Site

According to the Napa County General Plan EIR, the BOCA site is within an industrial land use designation. Boca Company owns the parcel and currently uses the property for industrial purposes. The Syar Napa Quarry, owned by Syar Industries, is located to the east and adjacent to the BOCA site and produces rock products and paving materials. Napa Golf Course and the John F. Kennedy Memorial Park are located to the west of the site on the other side of SR 221.

According to the Napa County General Plan EIR, the BOCA site is identified as a "Study Area," associated with the Boca/Pacific Coast Study Area. The County recommended these two parcels for future utilization and redevelopment projects. One such use was evaluated in the recent Napa County Jail DEIR (2013), which proposes a new jail to be located within the Boca/Pacific Coast Study Area.[12]

The Agricultural Preservation and Land Use Element contains the following policy that applies to lands designated as "Study Area" on the Land Use map of the General Plan.

Policy AG/LU-52[13] outlines allowable land uses for "Study Area" land use designations. "Study Area" land use designations allow industrial uses to continue pursuant to existing zoning designation. Therefore, all industrial land uses are permitted within these areas. The "Study Area" land use designations may also allow some residential and mixed-use land uses, but only to the extent provided in the Housing Element (20 dwelling units per acres) until a General Plan amendment updates the permitted uses, densities, and intensities for this location.

[12] Napa County. 2009 . Napa County General Plan. Page AG/LU-53
[13] Napa County. 2009. Napa County General Plan. Page AG/LU-28

The proposed NCTPA transit operations and maintenance facility would be compatible with the industrial land use designation and does not propose non-industrial uses, as described in the General Plan policies above. Land use designations would therefore not present a constraint to the future development of the BOCA site.

A portion of the BOCA site is currently occupied and the County's plan to develop a jail at or near this site may impose some constraints. The County intends to construct the new jail on the adjacent parcel immediately to the west. Security concerns could potentially result in restricted access to the property. In summary, General Plan and land use issues present a moderate constraint to the future development of the project.

Similar to the NOVA site, County Code Section 18.36 identifies a number of expressly permitted or by-right uses in an Industrial Zoning District. None of these conform with the proposed bus facility. However, the proposed bus facility is potentially allowable with issuance of a Use Permit known as an "Industry" use per County Code Section 18.36.030. Accordingly, development of the project at the BOCA site would require a Use Permit from the Planning Commission.

County Code Sections 18.104 and 18.36 also include specific development requirements, as shown in **Table 3** and **Table 4.** Approximately 9.14 acres are needed for the proposed NCTPA Bus Maintenance Facility; therefore, the BOCA site would fit within the minimum and maximum site limitations. None of these zoning requirements would conflict with the proposed project improvements.

Table 4: BOCA Site General Requirements

Industrial Zoning Requirements
Exterior storage is allowed in rear and side yards only and must be approved by the commission. Exterior storage must be screened from public view by a fence, wall or hedge not exceeding 15 feet in height, with the stored materials to be kept at least 2 feet below the top of the fence, wall or hedge.
One parking space is required for each employee plus two square feet of parking area for each square foot used for general office and retail sales area.
Height Limit is 35 Feet.

Source: Napa County. 2013. Chapter 18.36 Industrial Zoning District. Accessed November 21, 2013 from http://library.municode.com/HTML/16513/level2/TIT18ZO_CH18.36IINDI.html

2.8. Existing Zoning and Overlay Districts

Title 18 of the Napa County Code of Ordinances includes the zoning codes for the County. The zoning codes include policies and parameters for permitted uses within each zoning district.

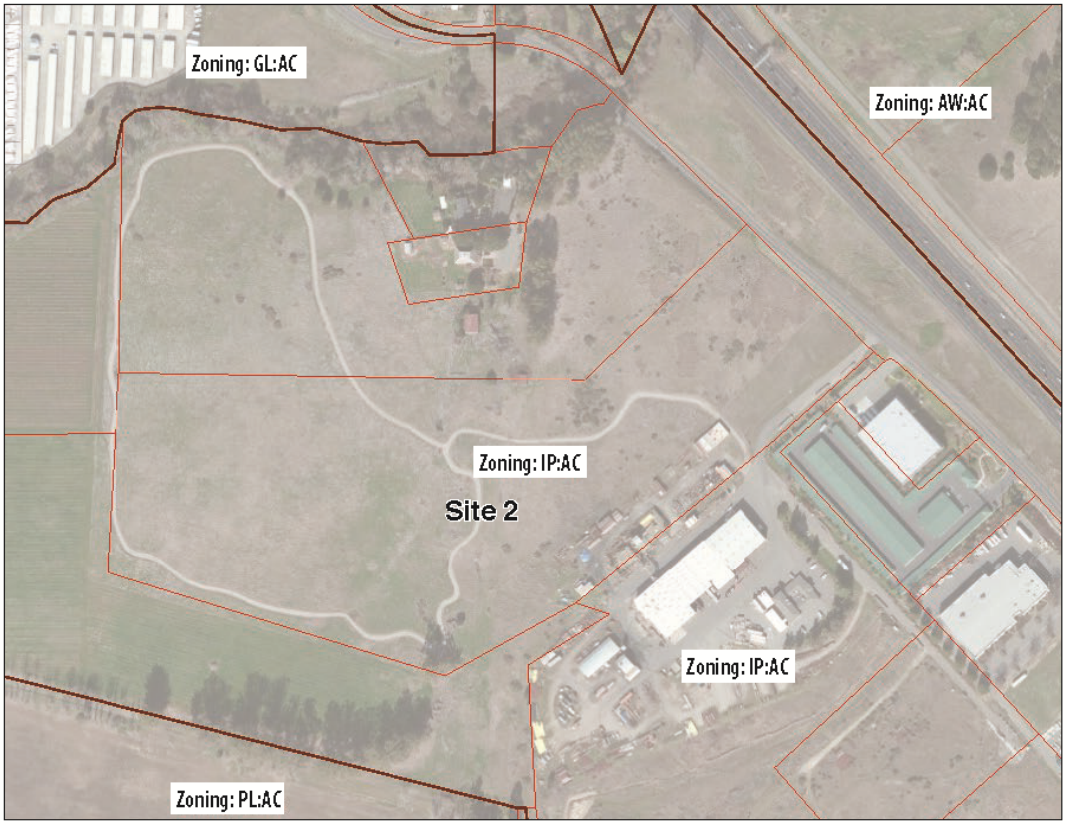
NOVA Site

The NOVA site is zoned as Industrial Park: Airport Compatibility (IP:AC), as shown in **Figure 7**. According to the Napa County Code, the Airport Compatibility district may be combined with any zoning district. When combined, the parameters for permitted uses under the Airport Compatibility designation are added to the parameters associated with the principal zoning designation (i.e., Industrial Park). In the event of a conflict between the two zoning designations, the parameters of the Airport Compatibility designation apply.

The NOVA site is located in Zone D of the Napa County Airport Land Use Plan, meaning aircrafts fly over these areas often at a relative altitude between 300 and 1,000 feet above ground.[14] Most non-residential land uses are acceptable within Zone D; all residential land uses and landfills are prohibited, as shown in **Table 5**.

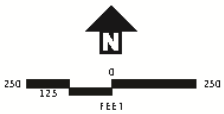
[14] Napa County Airport Land Use Commission. 2000. Airport Land Use Compatibility Plan. Pages 3.13-17.

Figure 7: NOVA Site (Site 2) Zoning Designation



Legend

IP:AC = Industrial Park / Airport Compatibility
AW:AC = Agricultural Watershed / Airport Compatibility
GI:AC = General Industrial / Airport Compatibility
PL:AC = Public Lands / Airport Compatibility



Lands within Industrial Park zoning districts, such as the NOVA site, are subject to special performance standards to ensure harmonious, unified, and cohesive development. Vacant parcels are subject to lot size restrictions to ensure that opportunities for large-site business/industrial park developments will not be lost through premature subdivision into small parcels. The Industrial Park zoning designation is intended to attract development of a higher standard with respect to building design, on-site amenities, standards of acceptable use and off-site improvement requirements. The designation is intended to accommodate light industrial uses such as office research and

development, light manufacturing, light assembly, warehousing and distribution, large administrative headquarters and other professional and administrative uses. This designation allows the implementation of special requirements for common improvements, site and building design, landscaping, signage, off-street parking, noise control, and outdoor storage.[15]

Implementation of the proposed NCTPA bus maintenance facility on the NOVA site would develop the land for industrial uses. Proposed activities within this location would include low intensity industrial uses, warehousing, and automobile parking, as outlined under "acceptable uses" in **Table 5.** Accordingly, the project is consistent with the Airport Land Uses Compatibility policies (Policy AG/LU-49 of the General Plan), the County General Plan, and the Napa County Zoning Code; and would not present any prohibited land uses. As such, existing zoning requirements present no constraint to the project.

Table 5: Airport Compatibility Combination Zoning District – Zone D

Zone	Prohibited Use	Acceptable Use	Not Normally Acceptable Uses
D	• Residential (except for agricultural land uses) • Landfills	• Pasture/Open Space • Auto Parking • Agricultural • Parks with low-intensity uses, golf courses • Nurseries • Mini-storage • Warehousing and low-intensity light industrial • Small retail uses • Outdoor recreation uses, marina, ball-park • Office uses	• Public or private schools • Day care centers • Libraries • Hospitals • Nursing homes • Large shopping malls • Retail buildings • Amphitheaters • New ponds

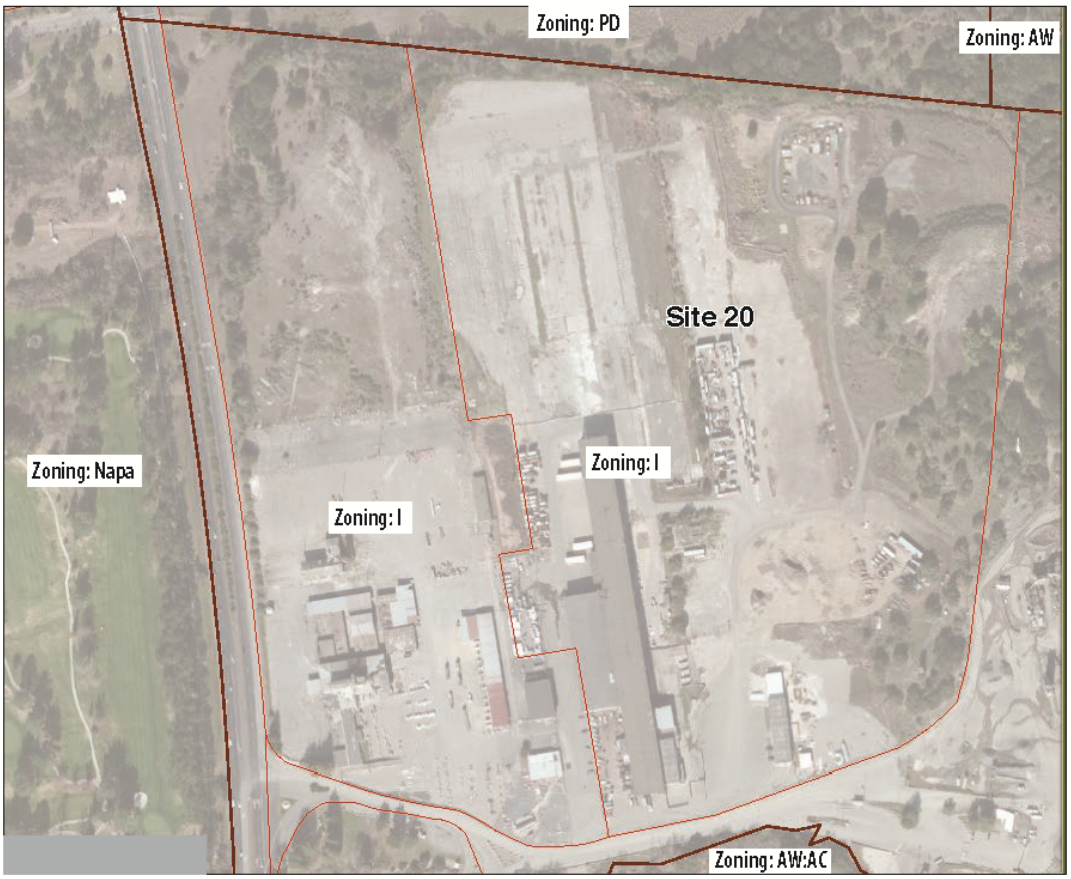
Source: Napa County Airport Land Use Commission. 2000. Airport Land Use Compatibility Plan. Table 3-2; Napa County Code of Ordinances. 2013. Chapter 18.80.

BOCA Site

Napa County zoned the BOCA site as Industrial (I), as shown in **Figure 8**. According to the Napa County Zoning Code, the industrial zoning designation is intended to provide an environment exclusively conducive for the development and protection of a variety of uses such as administrative facilities, research institutions, and specialized manufacturing organizations, as shown in **Table 6.**[16]

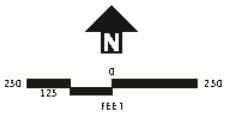
[15] Napa County. 2013. Chapter 18.40 IP Industrial Park Zoning District. Accessed November 5, 2013 from http://library.municode.com/HTML/16513/level2/TIT18ZO_CH18.40IPINPAZODI.html
[16] Napa County. 2013. Chapter 18.36 Industrial Zoning District. Accessed November 5, 2013 from http://library.municode.com/HTML/16513/level2/TIT18ZO_CH18.36IINDI.html

Figure 8: BOCA Site (Site 20) Zoning Designation



Legend

I = Industrial
PD = Planned Development
AW = Agricultural Watershed



The BOCA site includes land that has previously been developed for industrial land uses. Implementation of the proposed NCTPA bus maintenance facility on the BOCA site would maintain the industrial land uses as described under "acceptable use" in **Table 6**. Therefore, the proposed project at the BOCA site would be consistent with both the County General Plan and the Napa County Zoning Code; and would not present any prohibited land uses. As such, zoning requirements for the BOCA site present no constraint to the project.

Table 6: Industrial Zoning District

Zone	Prohibited Use Without a Use Permit	Acceptable Use Upon Grant of a Use Permit
Industrial	• Agriculture • Minor antennas (per code specifications) • Telecommunication facilities (per code specifications) • Emergency shelters	• Industry • Livestock feed lots • Noncommercial wind energy and conversion systems • Telecommunication facilities (per code specifications)

Source: Napa County. 2013. Chapter 18.36 Industrial Zoning District.

2.9. Conditions, Covenants, and Restrictions

Conditions, covenants, and restrictions (CC&Rs) are rules, limitations, and restrictions on a property that establish the individual and collective rights of property owners. In Napa County, some common CC&Rs are architectural design of new structures, responsibility for landscaping, etc. CC&Rs can restrict certain land uses in areas where such uses might be incompatible, such as car repair, dog kennels, or other potentially loud or disturbing uses within other predominantly residential areas.[17] Most states require that a copy of the CC&Rs be recorded with the county recorder and be provided to any prospective purchaser that may be subject to particular restrictions on the property.

Based on research performed by Strong & Hayden Commercial Real Estate, the Real Estate Broker on the project team, neither the NOVA site nor the BOCA site have any CC&Rs. Therefore, neither candidate site would have additional costs associated to design covenants or development guidelines per CC&R requirements and would have no constraint on development.

2.10. Adjacent Zoning and Properties

Table 7 summarizes the adjacent property zoning and owner for each respective site. Most of the properties surrounding the two sites are comprised of industrial uses. The Napa County Airport and several small vineyards are also located in the regional vicinity of the NOVA site; and Skyline Wilderness Park, Napa Golf Course, and John F. Kennedy Memorial Park are located in the vicinity of the BOCA site. The zoning designations for adjacent properties are illustrated on **Figure 7** and **Figure 8** for the NOVA site and the BOCA site, respectively. Adjacent properties are mostly designated for industrial uses and are consistent with the proposed land uses for both the NOVA site and the BOCA site. As such, adjacent zoning present no constraint to the project for both sites.

[17] Napa County. 2013. Private Restrictions on Real Property. Accessed November 5, 2013 from http://www.countyofnapa.org/Pages/DepartmentContent.aspx?id=4294969870.

Table 7: Adjacent Property Owners

NOVA Site			BOCA Site		
Parcel	**Zoning**	**Owner**	**Parcel**	**Zoning**	**Owner**
057-170-008-000	Industrial Park: Airport Compatibility	Ronald M. Frederick	046-370-021-000	Industrial	Whal Properties LP (Pacific Coast property)
057-020-049-000	Industrial Park: Airport Compatibility	Security Public Storage Napa LLC	046-450-070-000	Planned Development/ Agricultural Watershed	State of California
057-020-036-000	Industrial Park: Airport Compatibility	Ronald M. Frederick	046-370-025-000	Industrial	Syar Industries Inc. (Syar Napa Quarry)
057-170-010-000	Industrial Park: Airport Compatibility	Phillip Bruce & Anne Marie Carpenter	046-370-029-000	Agricultural Watershed: Airport Compatibility	Jonive Vista LLC

Source: Napa County, 2013

2.11. Planned Adjacent Property Owners

The Napa County Jail DEIR included a list of planned improvements within Napa County and identified several projects near the NOVA site and the BOCA site. These projects are incorporated into the discussions below.

NOVA Site

Two projects are planned for construction in the vicinity of the NOVA site; these include:[18]

1. Rocca Family winery (approximately 0.25-miles northwest of Site 2): Construct 7,110 sq. ft. building for a 20,000 gal/yr winery; construct 2,660 sq. ft. of covered outdoor work area; and convert existing 2,000 sq. ft. residence to winery use.
2. Suscol Creek winery (approximately 0.5-miles northwest of Site 2): Modify previous approval to increase production from 200,000 gallons per year (gpy) to 600,00 gpy; increase floor area of previously approved building from 61,281 sq. ft. to 66,338 sq. ft.; construct 7,500 sq. ft. of new floor area in a detached building; and increase employees from 21 to 35.

[18] Napa County. 2013. Napa County Jail DEIR. Page 4-5, 4-6.

Due to the relative distance of these winery improvements to the NOVA site, these planned improvements would not present a constraint to the project. No planned property encroachments or developments are anticipated to occur adjacent to the NOVA site. Additionally, conversion of the existing agricultural residence from the Rocca Family winery project (above) to industrial use further increases the project's compatibility with adjacent industrial land uses. As such, adjacent property owners (current and future) would not presents a constraint to the project.

BOCA Site

Napa County DEIR evaluates two alternative locations for the construction of a jail facility. The Napa County Jail DEIR evaluates possible site development layouts and indicates that further site planning and design will be needed to determine precisely where the new jail will be located on one or both of the following properties: [19]

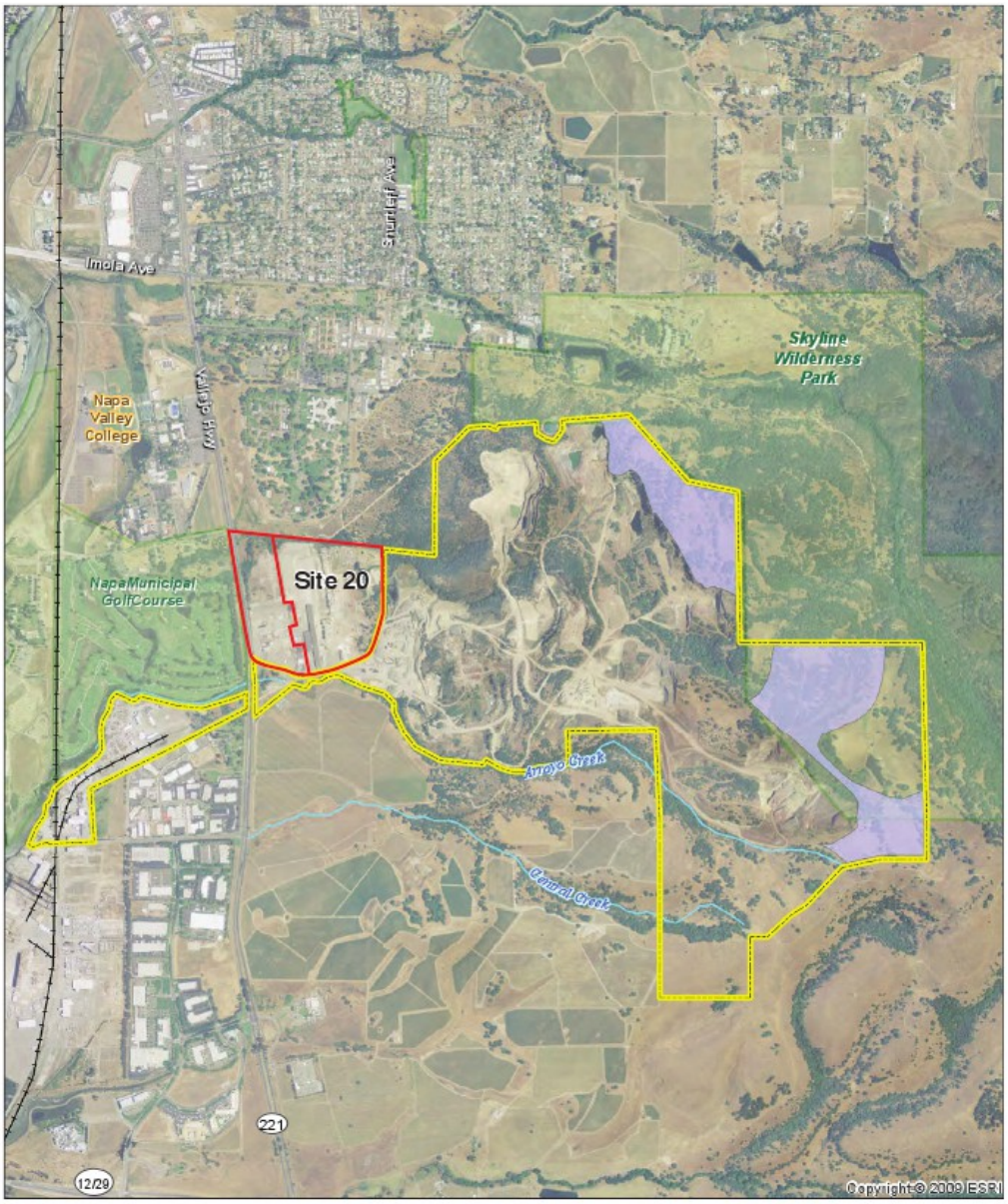
1. The BOCA site parcel, owned by Boca Industries, and/or
2. The Pacific Coast parcel located immediately adjacent and on the west side of the BOCA site.

Syar Industries, Inc., owner of the quarry located adjacent to the east of the BOCA parcel, is proposing a 124-acre quarry expansion. The County released a DEIR in August 2013 for the quarry expansion project.[20] According to the Syar Napa Quarry DEIR, the proposed quarry expansion areas would not encroach onto the BOCA site. However, Syar Industries, Inc. owns Basalt Road, which provides access to both the quarry and the BOCA site.

Figure 9 depicts the location of the planned improvements associated with the Napa County Jail project and the Syar Napa Quarry expansion. The Syar Napa Quarry expansion would not affect the intended use of the BOCA site by the project, but might result in road constraints to/from the site, particularly during a.m. peak periods. The proposed Napa County Jail development on the BOCA parcel would have directly conflicted with the project, as the land would potentially be occupied and unavailable for development by NCTPA. Since the Napa County Jail development is likely to move forward on the western parcel adjacent to the BOCA site, future development for the NCTPA maintenance and fuel yard could potentially move forward; however, certain constraints associated with adjacent land use compatibilities for jail securities may still occur. It should be noted that fFurther development of the jail project has resulted in greater interest in the Pacific Coast parcel, therefore, many of the constraints associated with development the BOCA parcel should no longer be of issue.

[19] Napa County. 2013. Napa County Jail DEIR. Page 2-4.
[20] Napa County. 2013. Syar Napa Quarry Expansion DEIR. Page 3-5

Figure 9: BOCA Site (Site 20) Planned Adjacent Property Owners



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- Syar Napa Quarry
- Expansion Areas
- Proposed Napa County Jail Sites

Source: ESRI, 2009; Napa County, 2013

N

0 500 2000 FEET

3. Transportation

3.1. Existing Transportation Network

Regional Roadways

SR-29

SR 29 is a four-lane highway running north-south that spans from Interstate 80 in Vallejo north to SR-20 in Upper Lake. Serving as the primary road through the Napa Valley, SR-29 provides direct access to Downtown Napa from the north and the south. The closest access to the NOVA site from the north and south is provided via the signalized intersection of SR 221 (Napa-Vallejo Highway), SR 29 and SR 12. Access to the BOCA site from the north is via the ramps at SR 121 (Imola Avenue), and from the south at SR 221 (Napa-Vallejo Highway) via a signalized intersection at SR 29 for travel to and from the south.

SR 221 (Napa-Vallejo Highway)

SR 221 (Napa-Vallejo Highway) is an approximately 3- mile long, four-lane, north-south expressway that extends from SR 29 to the south, and to SR 121-Imola Avenue to the north where it becomes Soscol Avenue. SR 221 serves as an alternate to the nearby Route 29 freeway into Napa from the south and has posted speed limits ranging between 40 and 55 mph.

SR 121

SR 121 begins running from the south at its intersection with SR 29 and runs northerly then continues extending to the east to SR 128 which lies east of the project sites. Between SR 29 and SR 221 (Napa-Vallejo Highway) SR 121 is named Imola Avenue with four lanes and a posted speed limit of 35 mph. Additionally, the Imola Avenue stretch of SR 121 is complete with sidewalks and Class II bicycle facilities along some of the segments. Access to the NOVA site from SR 121 (west) is via SR 29 on which you would travel south to the signalized intersection of SR 221 (Napa-Vallejo Highway), SR 29 and SR 12. Access to the BOCA site from the north is via the ramps at SR 121 (Imola Avenue) and SR 221 from which you would travel south on SR 221. From SR 121 from the east, access to both sites (NOVA and BOCA) is via traveling south on SR 221.

Local Roadways

Soscol Avenue

Soscol Avenue is a primary north-south arterial in the City of Napa and connects Trancas Street to Imola Avenue along the eastern side of downtown. Soscol Avenue is designated as SR 121/SR 221 between Imola Avenue and Silverado Trail and becomes SR 221 (Napa-Vallejo Highway) south of Imola Avenue. Soscol Avenue has a posted speed limit of 40 mph and has two travel lanes in each direction. Additionally, the road has sidewalks and Class II bicycle facilities along its entire length.

Third Street

Third Street is located on the southern side of the Downtown area, and directly serves the Soscol Gateway Transit Center. The posted speed limit along Third Street ranges between 25 and 30 mph and the geometrics vary widely. Through downtown between Randolph Street and Soscol Avenue there are two lanes in each direction. From Soscol Avenue to Silverado Trail, Third Street has a two lane, two-way configuration.

Main Street

Main Street runs north-south from Pueblo Avenue to Fifth Street with a posted speed limit of 30 mph north of the downtown area and 25 mph within the downtown area. Sidewalks exist on both sides of the roadway.

Basalt Road

Basalt Road runs east-west, and goes under SR 221 just south of the project site. Additionally, Basalt Road connects to the east side of SR 221 and provides direct access to the BOCA site.

Napa Valley Corporate Drive

Napa Valley Corporate Way is an east-west four-lane roadway with landscaped medians and left-turn lanes at intersections. There are no sidewalks on this facility and the posted speed limit is 25 mph. Napa Valley Corporate Way provides access to industrial and office uses.

Devlin Road

Devlin Road is a north-south roadway that runs between Airport Boulevard from the south and spans north to Soscol Ferry Road. The northern portion of Devlin Road from Soscol Ferry Road south to Sheehy Court is two lanes with no pedestrian facilities. From Sheehy Court to Airport Boulevard, Devlin Road is four lanes with meandering sidewalks on each side. This roadway provides direct access to the NOVA site and runs parallel to SR 12, acting as a frontage road.

Coombs Street

Coombs Street runs north-south from Imola Avenue to First Street. The posted speed limit is 30 mph for the majority of length of the roadway but 25 mph in the downtown area. There are sidewalks on either side of the roadway.

3.2. Planned Roadway Improvements

One major future traffic improvement is planned in the vicinity of the two project sites which is a flyover from SR 221 to SR 29 that would take traffic southbound on SR 221 over SR 29 to an on-ramp to southbound SR 29, and close Soscol Ferry Road at the intersection of SR 29 and SR 221. The flyover project addresses poor existing operations at that intersection, which will continue to deteriorate as traffic volumes increase over time. Funding has not been identified for this project.

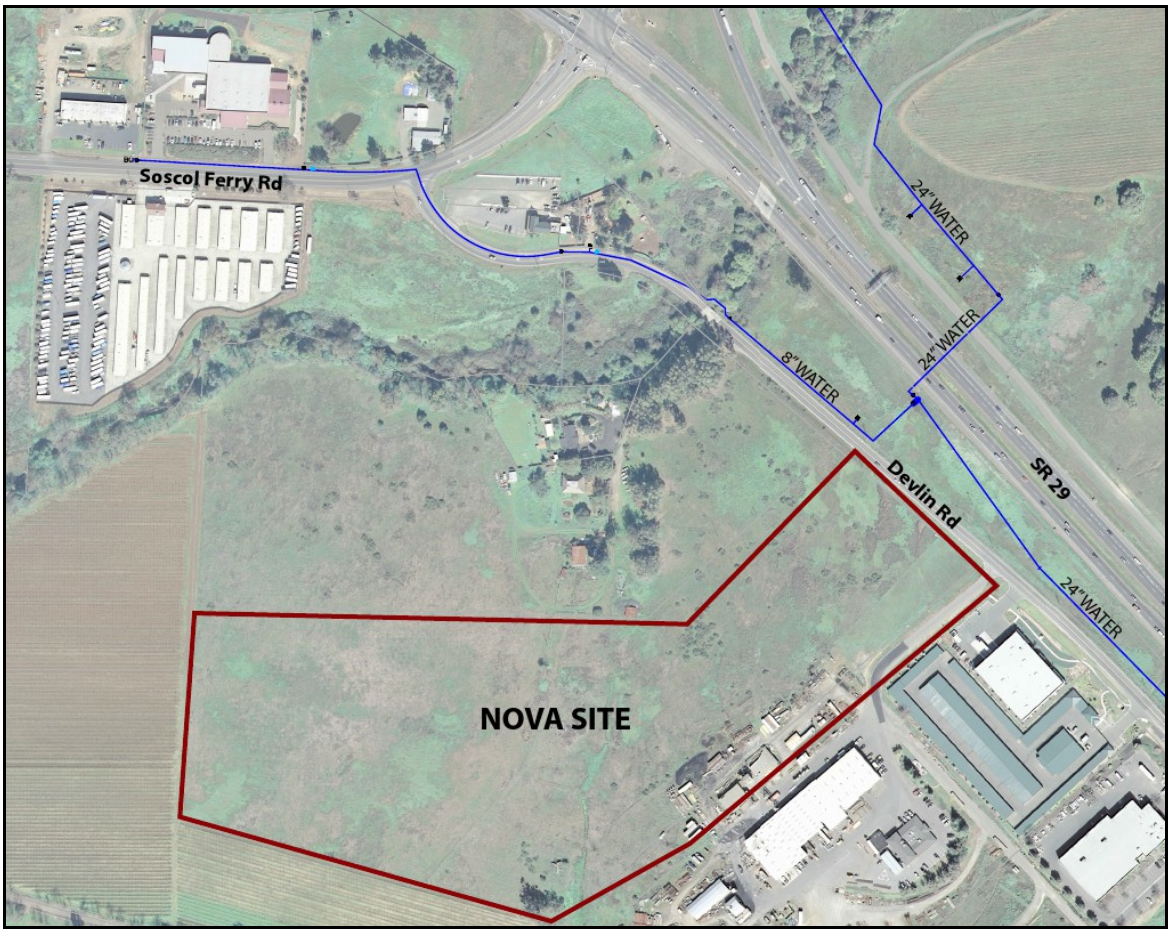
4. Utilities

4.1. Water

NOVA Site

The NOVA site is located outside of the City limits and the City's sphere of influence, but within the City's water service area. The nearest potential water connection to the project site is east of the NOVA site and across Devlin Road. The existing 8" City water main is located east of, and running parallel and adjacent to Devlin Road as shown in **Figure 10** below. Establishing a City water connection would require upgrading a portion of the existing 8" City water main due to current age (1979) and condition and would be subject to the City application and approval process for providing water outside of City limits.

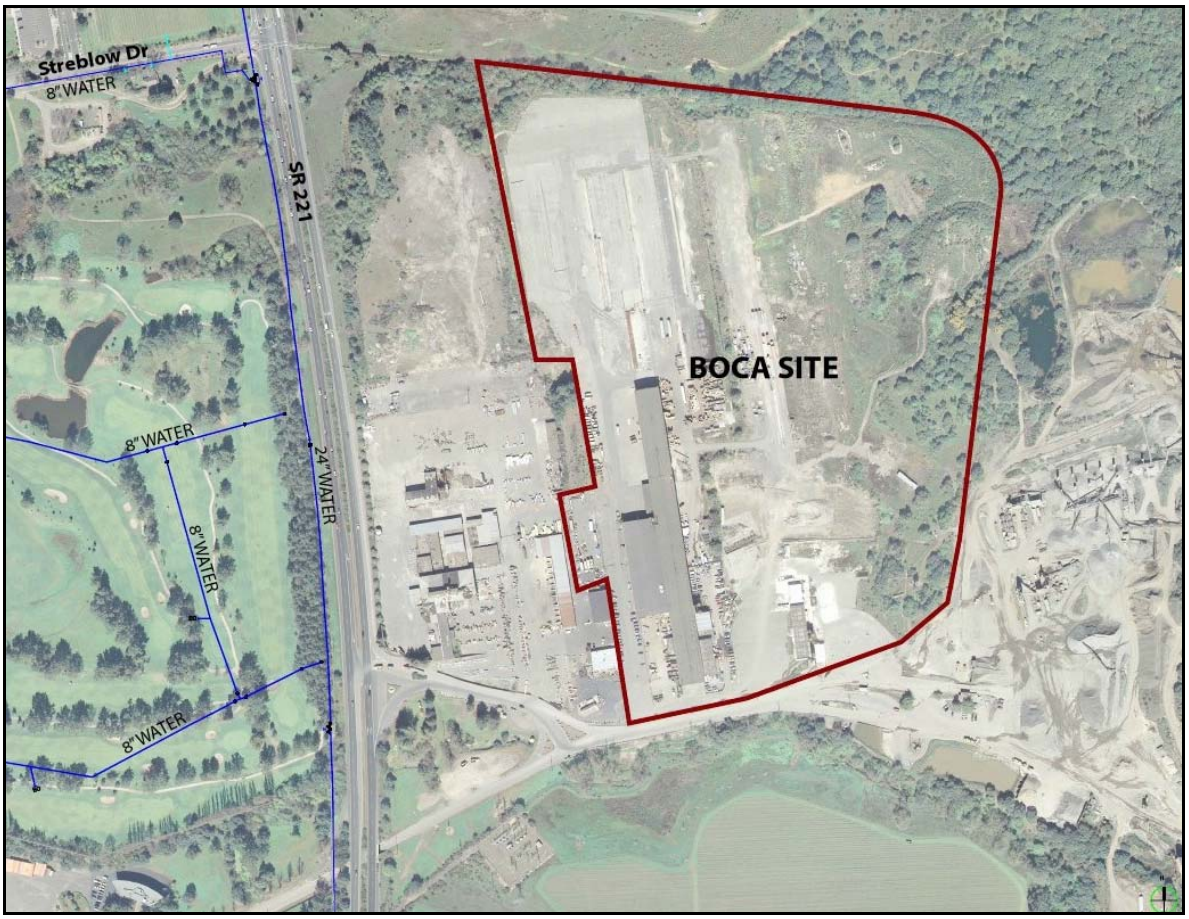
Figure 10: NOVA Site Water Service Map



BOCA Site

The BOCA site is located outside of the City limits and the City's sphere of influence, but within the City's water service area. Existing water demands are provided by on-site wells. The nearest potential water connection to the project site is west of the BOCA site and across SR 221. The connection would most likely come off of the 8" water main that runs along Streblow Drive and can be seen in **Figure 11** below. This 8" main connects to a 24" water main further west along Streblow Drive and outside of the map area shown in **Figure 11**. The 24" water main along SR 221 cannot be directly connected to, thus the need for the connection to the 8" water main as described above. Connection to an existing water transmission line would require installation of a private main crossing SR 221 and would be subject to the City application and approval process for providing water outside of City limits.

Figure 11: BOCA Site Water Service Map

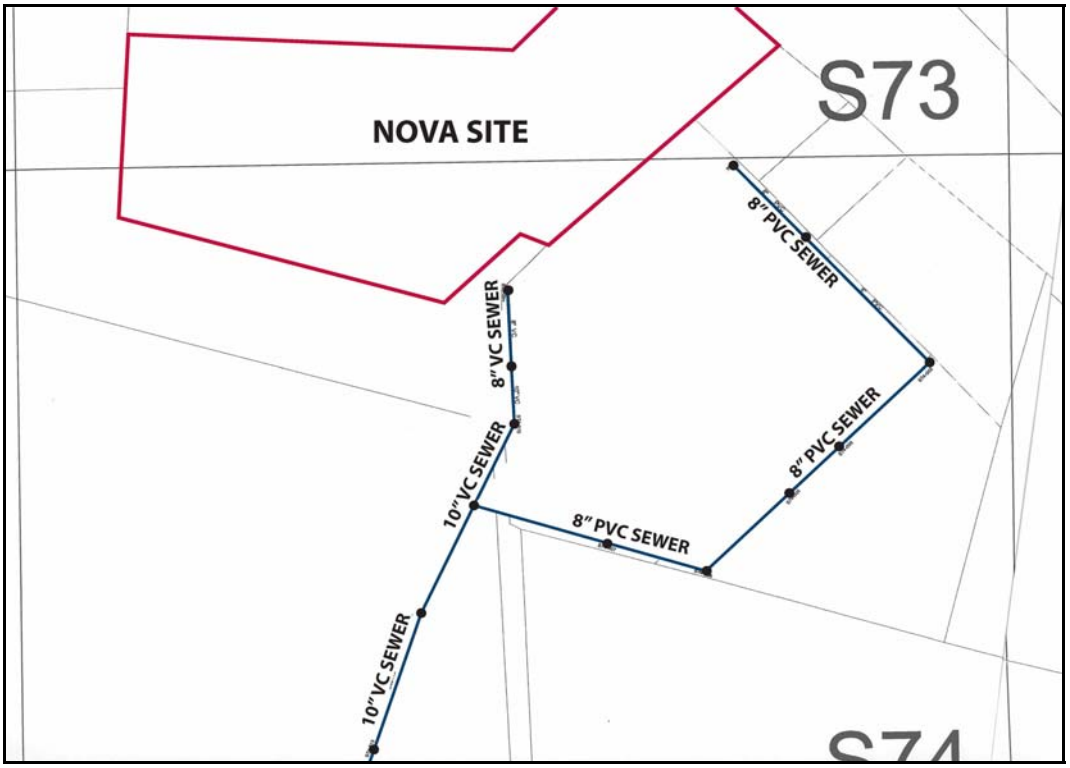


4.2. Sewer

NOVA Site

The NOVA site is within the Napa Sanitation District's (NSD) sphere of influence, but outside the NSD's boundary. Siting of the bus maintenance facility on the NOVA site would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system. The closest sewer service lines are located on parcel number 057-020-036-000, directly adjacent to and south of the NOVA site and owned by the same property owner as the NOVA parcel. The potential connection points can be seen in **Figure 12** below.

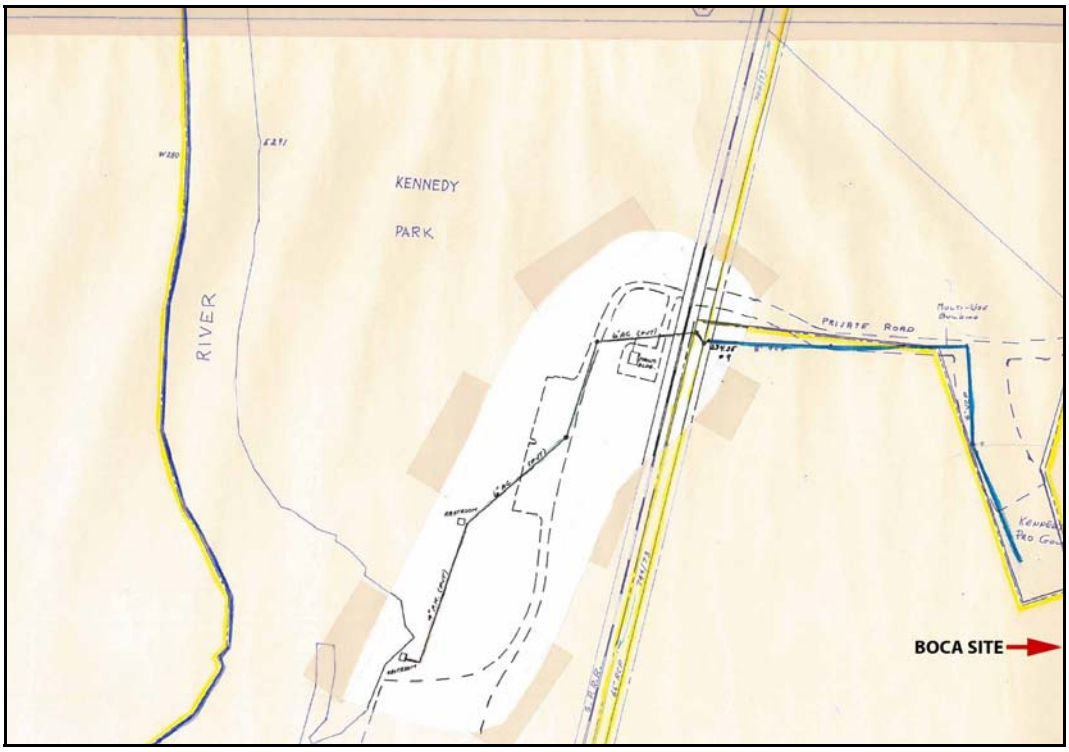
Figure 12: NOVA Site Sewer Map



BOCA Site

The BOCA site is located outside of the service area boundaries and the sphere of influence of the NSD. The proposed project would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system. The closest potential connection point is a public main on Streblow Road located east of the Napa River and west of SR 221 and just north of the Kennedy Golf Course pro-shop/clubhouse (shown in blue on **Figure 13** below). The transmission line is approximately 0.6-miles from the project site.

Figure 13: BOCA Site Sewer Map



4.3. Communications, Electric and Natural Gas Facilities

AT&T communications infrastructure is located underground on the west side of Devlin Rd at the NOVA site, and on the east side of the Napa Vallejo Hwy at the BOCA site. It would be the responsibility of the customer (NCTPA in this case) to provide either an aerial or underground path on the project site for AT&T to provide the requested service. Once that path is dedicated there are no further limitations at either site for the requested service to be provided.

NOVA Site

Due diligence was conducted to determine the PG&E provided utilities of communications, electric, and natural gas. Based on preliminary discussion with the local Service Planning Representative the exact location of facilities available at this location is difficult to determine and will require further investigation.

BOCA Site

Electrical and natural gas infrastructure operated by PG&E is currently available at the BOCA site. However, in order to accommodate the needs of the bus maintenance facility, improvements would be required to these facilities. The improvements would be typical of other commercial and industrial facilities in the County and would not require any off-site infrastructure improvements.

5. Stormwater

5.1. Existing Drainage Facilities

During construction NCTPA would comply with all federal and state requirements regarding stormwater and onsite erosion prevention and mitigation. Development of the bus maintenance facility at either of the sites (NOVA or BOCA) would involve onsite drainage improvements (drains, gutters, etc.) and potentially include construction of a stormwater detention basin. These facilities would be sized to accommodate both construction and operational facility stormwater volumes consistent with state and local requirements. These stormwater improvements would be connected to the existing storm drainage network. Based on correspondence with the County of Napa, the closest outfall for the NOVA site is most likely located to the southwest, approximately .25 away. The closest outfall to the BOCA site is located at the northwest corner of the Pacific Coast parcel, where there is an existing detention basin that outfalls on the west side of SR 221.

6. Summary

The constraint comparison matrix below summarizes the potential constraints for the NOVA site and the BOCA site. As shown on the comparison matrix, each site faces some constraints to the project. Of the constraints evaluated here, no single constraint evaluated in isolation would disqualify either site from further environmental review. It should be noted, however, that the factors evaluated here should not be weighted equally. For instance, certain factors are of much greater importance and impact than others. Mitigation of identified issues needs to be considered in light of costs, feasibility, and the potential for mitigation measures themselves to generate impacts that require further review.

For the NOVA site, most of the constraints are minimal. Existing zoning and land uses are consistent with the proposed project; and the site is not located in a flood zone, or a sea level rise inundation area. Given the undeveloped nature of the site and the relative distance to the closest documented releases, no risks associated with hazardous materials are expected. The biggest constraint for the NOVA site is the potential presence of special-status plant and animal species or their habitat, as identified in Napa County General Plan EIR and a USFWS and CNDDB database search. However, site-specific data is inconclusive at this time and would require further environmental assessment to determine the level of potential impact to special-status species and appropriate mitigation to comply with federal, state, and local regulations to reduce and/or avoid impacts (leaving it a moderate constraint). The NOVA site also presents an increased risk of encountering undocumented cultural resources because of the relative elevation, topography, and undisturbed nature of the area. The risk of encountering undocumented cultural resources is commonly reduced and/or avoided through the implementation of construction monitoring and worker training plans; and as such, is considered a moderate constraint to the project. The NOVA site is not currently served by City water and is located outside of the City limits and the City's sphere of influence, but within the City's water service area. Providing water to the site would require completion of the City application and approval process for providing water outside of City limits and establishing a connection to the existing nearby water main. The water main most likely to be connected to is across Devlin Road but in close proximity to the project site thus would not be considered a constraint. The NOVA site is within the Napa Sanitation District's (NSD) sphere of influence, but outside the NSD's boundary. This site would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system which would result in a minor constraint. PG&E facilities currently exist on the west side of Devlin Road and connection and improvements would be required to these facilities typical of an industrial or commercial site, thus no constraint.

Similar to the NOVA site, the BOCA site presents minor constraints to the project with regards to floodplain development, sea level rise, or compatibility with land use or zoning designations. Because of its developed nature, the BOCA site presents fewer constraints related to biological resources and potential undocumented cultural resources than the NOVA site. Past and present industrial land uses on the BOCA site present more risks related to hazardous materials exposure and remediation requirements, and a higher constraint when compared to the NOVA site. The proposed development of the BOCA site for the Napa County Jail project presents the highest constraint between the two sites. Build-out of the jail would directly conflict with NCTPA plans for the project; thus, further coordination with county officials would be necessary in advance of selecting the preferred site. Much like the NOVA site, the BOCA site is not currently served by City water and is located outside of the City limits and the City's sphere of influence, but within the City's water service area. Providing water to the site would require completion of the City application and approval process for providing water outside of City limits and establishing a connection to the existing nearby water main. The proximity of the nearest potential water main connection for the BOCA site is more than 0.5-miles away and would require crossing SR 221 which represents a minor constraint. Similar to the NOVA site, the BOCA site is located outside of the service area boundaries and the sphere of influence of the NSD. The proposed project would require an amendment to NSD's boundaries and connection to the NSD wastewater collection and treatment system which would result in a minor constraint. PG&E facilities currently exist on the east side of SR 221 and connection and improvements would be required to these facilities typical of an industrial or commercial site, thus no constraint.

Constraint Comparison Matrix

Site Assessment Factor	NOVA Site	BOCA Site
Drainage Pattern	Minor Constraint	Minor Constraint
FEMA Floodplain	Minor Constraint	Minor Constraint
Sea Level Rise	No Constraint	No Constraint
Special-Status Plant Species	Moderate Constraint	Minor Constraint
Special-Status Animal Species	Moderate Constraint	Minor Constraint
Cultural Resources	Moderate Constraint	Minor Constraint
Hazardous Materials	Minor Constraint	Moderate Constraint
Land Use Designation and General Plan Compatibility	No Constraint	No Constraint
Existing Zoning and Overlay Districts	No Constraint	No Constraint
Conditions, Covenants & Restrictions	No Constraint	No Constraint
Planned Adjacent Property Owners	No Constraint	High Constraint
Existing and Planned Transportation Network	No Constraint	No Constraint
Water	No Constraint	Minor Constraint
Sewer and Stormwater	Minor Constraint	Minor Constraint
Communication, Electric, and Natural Gas Facilities	No Constraint	No Constraint

Technical Memorandum #5

TO: NCTPA Project Team

FROM: David A. Cheeney, AICP, Project Manager

DATE: December 5, 2013

SUBJECT: **NCTPA Bus Maintenance Yard and Refueling Facility: Technical Memorandum #5 – Multi-jurisdictional Use of Facility**

This technical memorandum is the fifth in a series of reports that document an analysis of the feasibility of acquiring a site for constructing the proposed Bus Maintenance Yard and Refueling Facility for the Napa County Transportation and Planning Agency (NCTPA). Prior effort as outlined in Technical Memoranda 1-3 have resulted in the identification of two potential sites for the Bus Maintenance Yard and Refueling Facility. This report summarizes the meetings and conclusions regarding the multi-jurisdictional use of the proposed Bus Maintenance Facility, as well as the comparison of the pros and cons of an internal fueling facility versus using a private off-site fuel vendor.

The Study consists of the following reports:

- Technical Memorandum 1: Space Plan
- Technical Memorandum 2: Sites and Screening
- Technical Memorandum 3: Charrette and Concepts
- Technical Memorandum 4: Due Diligence Report
- Technical Memorandum 5: Multi-Jurisdictional Use
- Draft Report: Summary of all Technical Memoranda
- Final Report: Summary of Technical Memoranda Responding to Board and Staff Comments

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1. Background and Purpose

1.1 Background of the Feasibility Study

This technical memorandum is the fifth in a series of reports documenting a feasibility study of the proposed Bus Maintenance Facility for the Napa County Transportation and Planning Agency (NCTPA). The overall project purpose is to create a space program for the new facility, to identify potential sites in Napa County, to screen those sites and recommend the preferred alternative. The study process (**Table 1**) will include data collection and conceptual facility layout, the identification and assessment of potential sites, the recommendation of the preferred site, analyzing the available funding options, and documentation of the process and preparation and presentation of the final report. The study will conclude by December 2013.

Table 1 - Major Components of the Study and Schedule of Reports

Major Components of The Feasibility Study	Delivery Month (2013)
1. Data Collection, Needs Assessment and Space Planning	July-August
2. Candidate Site Identification and Conceptual Facility Layout	August-October
3. Due Diligence Evaluation and Recommendation of Preferred Site	November-December
4. Final Report and Presentation to the NCTPA Board	December

1.2 Purpose of this Memorandum

This memorandum documents an evaluation of two related elements of the proposed Bus Maintenance Yard and Refueling Facility. These elements are:

A. Evaluate the viability and desirability of building a fueling facility at the proposed Bus Maintenance Yard (through an assessment of advantages and disadvantages) compared to continuing to contract with a private off-site provider for all fuel types needed (CNG, gasoline and diesel); and

B. Discern the level of interest that NCTPA's partner and member agencies have in sharing the functions and services that would be provided at the proposed facility and, presumably, a proportion of the facility's capital, operating and maintenance costs. Shared functions and services could include storage of fleet vehicles, sharing vehicle cleaning and maintenance facilities, combining operations and administration staff, and fueling fleet vehicles.

2. Executive Summary of Key Findings

2.1 Evaluation of On-Site versus Off-Site Fueling

To complete the evaluation of fueling options, the project team met with NCTPA staff to understand the current fuel needs of the complete fleet. The team then compared the costs associated with each option such as the capital costs of constructing a fuel service line to the proposed facility, and the operational costs of daily travel to and from an off-site location to use a retail fuel provider's facility. The comparison indicates that over a twenty (20) year period the NCTPA would save over $20 million in net present value if they invested in a fueling facility at the Bus Maintenance Yard.

2.2 Opportunities for Sharing the Facility with Partner Agencies

Based on an NCTPA survey of its partner agencies, there is interest among the majority of possible partner agencies in utilizing the refueling facility if it is convenient to their operations, but minimal interest in sharing in the rest of the yard's functions. The City of Napa may be the one exception to this, and has several reasons for their consideration of potentially sharing the facility. The results of the survey and subsequent discussions with partner agencies indicate fueling services could be shared amongst the City, County and NCTPA[1], and potentially other agencies that may use the refueling facility if convenient to their operations. If such multi-jurisdictional use were to occur, the volume of dispensed fuel at the facility could increase approximately 50% over the base amount that would be used solely by the NCTPA bus fleet. Such an increase in fueling at the facility would result in greater savings from lower wholesale unit costs for CNG, diesel and gasoline. Further, the sale of fuel to partner agencies may qualify as income from a shared use as required in justifying non-transit related use of facilities built with funding assistance from the FTA.

Although the City of Napa has expressed interest in a shared facility, it cannot make a commitment to sharing the functions of the proposed facility without further discussion. Additionally, the City of American Canyon expressed some interest in using the fueling facility if fuel was offered at a lower price than the retail price they currently pay. Discussions are required with both the Cities and the County to understand fueling needs at the proposed facility, common functions that may be shared within the bus maintenance yard, and possible acquisition of additional land to accommodate future partner agency needs. These discussions should occur prior to the facility design phase to ensure the shared facilities are sized properly to accommodate the increased utilization.

Finally, non-transit shared use of FTA financially assisted facilities is acceptable if it is incidental, does not interfere with the original transit-related use funded by FTA, and the income generated through sharing the facility is used by NCTPA exclusively for transit use. NCTPA will need to carefully evaluate FTA's requirements regarding incidental use of the facility before seeking commitments from partner agencies.

2.3 Consideration Related to Inter-Agency Sharing of Bus Maintenance Yard and Fueling Facility

With the exception of the City of Napa, partner agencies within the County have an interest in use of the fueling facility but not the other functions of the yard. Based on this level of interest, the following issues should be considered as the facility is planned:

- Fuel dispenser access and yard security;
- Restrictions on incidental use of shared facilities; and
- Long range collaboration with City of Napa.

[1] Initial discussions with the County indicated no interest in sharing maintenance and storage facilities because of their recent construction of a corporation yard (located on California Blvd.). Follow up discussions indicated they had not implemented a fueling program and would consider using the NCTPA fueling facility if it was located convenient to their operations.

3. Evaluation of the Proposed Refueling Facility

3.1 Process used to Assess On-Site versus Off-Site Fueling

Evaluating the pros and cons of using an on-site fueling facility versus using a private off-site fuel provider used a multi-step process:

1. **Define the minimum parameters for evaluating the fueling facility** – transit planning guidelines suggest a twenty (20) year planning horizon and conversion of future estimates of costs into 2013 net present values. NCTPA's fleet size of 97 vehicles is from the year 2020 fleet size estimate developed for the bus maintenance yard space program (Technical Memo #1). Fuels analyzed included CNG, diesel and gasoline. Further assumptions are included in the following sections;

2. **Review of Federal guidelines** – A limited literature search failed to identify a recent example where FTA has funded a new maintenance and operations center without inclusion of an on-site fueling function. There appears to be a tacit understanding that FTA funding assumes an agency's facility plans will include an on-site fueling function, but there are no regulations making it a mandatory inclusion;

3. **Estimate capital costs for constructing an on-site fueling facility based on the established parameters** – A planning-level cost estimate of the fueling service lane assumes that high-pressure CNG, gasoline and diesel dispensers would be provided, supported by storage tanks sized to service the NCTPA fleet and other potential users;

4. **Estimate operational costs associated with labor and fuel in refueling NCTPA's fleet daily** – Operational costs include the labor and fuel used on deadhead miles (non-revenue operating time) for the entire fleet to travel to, and return from, an off-site fuel vendor, the cost of the delay incurred while waiting for fuel to be dispensed, and the probable labor to fuel the fleet using an on-site facility;

5. **Estimate the demand for each type of fuel and the cost to purchase the fuel for on-site fueling and from an off-site fuel vendor** – NCTPA's records of fuel usage and costs for all three fuels formed the baseline data for projecting demand. Fuel demand projections utilized National Renewable Energy Laboratory (NREL) data with adjustments for California to project costs to the year 2033 (20 year planning horizon); and

6. **Sum the costs that NCTPA would incur under either fueling option, convert to net present value (NPV) and compare** – Projected costs for both fueling options were converted to net present value (NPV) using a five percent (5%) discount rate.

7.

3.2 Estimation of Capital Costs

Capital costs for a new multi-fuel service lane were developed for the proposed on-site fueling facility. The costs shown in **Table 2** are based on recent California construction estimates, as

well as data provided by CNG fuel vendor Trillium for the price of CNG compressors and dispensers. A ten percent contingency was included for planning purposes.

Table 2 - Capital Costs for On-Site Fueling Facility

Item	Quantity	Unit	Unit Cost	Cost	Comments
General Construction Costs					
Mobilization (5%)	1	LS	$190,000.00	$190,000	
Erosion and Sedimentation control	1	LS	$35,000.00	$35,000	
Subtotal				**$225,000**	
Demolition					
Clearing and Grubbing	1	Allow	$25,000.00	$25,000	
Subtotal				**$25,000**	
Grading, Drainage & Utilities					
Grading/Earthwork	1,600	CY	$25.00	$40,000	Assume 2'
Miscellaneous Drainage Imp.	1	LS	$50,000.00	$50,000	
Stormwater Treatment BMPs	1	LS	$40,000.00	$40,000	
Site Lighting	4	Unit	$30,000.00	$120,000	Assume $30k @
Subtotal				**$250,000**	
Miscellaneous Site Improvements					
Fence/Gates	2,500	LF	$25.00	$93,000	Assume 3 gates $10k each
Landscaping and Irrigation	12,500	SF	$5.00	$63,000	Assume 5' LA
Subtotal				**$156,000**	
Buildings, Structures & Equipment					
Support Building	5,400	SF	$150.00	$810,000	
Cameras and Security	22,000	SF	$1.75	$39,000	
Subtotal				**$849,000**	
Site Pavement Improvements					
8" Reinforced PCC pavement	500	CY	$200.00	$100,000	
6" Aggregate base	400	CY	$50.00	$20,000	
Geogrid Fabric	22,000	SF	$0.55	$12,000	
Parking striping and signage	1	LS	$15,000.00	$15,000	
Subtotal				**$147,000**	
Fueling and Service Lanes					
Utility Upgrades (Extension of Natural Gas Line & Power)	1	Allow	$150,000.00	$150,000	Ext. of CNG line into site
CNG fuel dispensers, compressors	1	Allow	$1,617,000.00	$1,617,000	per Trillium
New Diesel fuel dispensers, tanks	1	Allow	$613,000.00	$613,000	
Subtotal				**$2,380,000**	
Total of Site Improvements				**$4,032,000**	
Construction Contingency				$403,000	Assumes 10%
Grand Total Construction				**$4,435,000**	

Site Assumptions:

1. Refueling facility land area: 21,780 square feet
2. Perimeter: 2,500 linear feet
3. Buildings/structures: 5,445 square feet

The total construction cost estimate is approximately $4.5 million for an on-site fuel service lane for dispensing three fuel types; CNG, gasoline and diesel. Using an off-site vendor would not incur these capital costs, but would be reflected in the fuel prices, which is described in a following section.

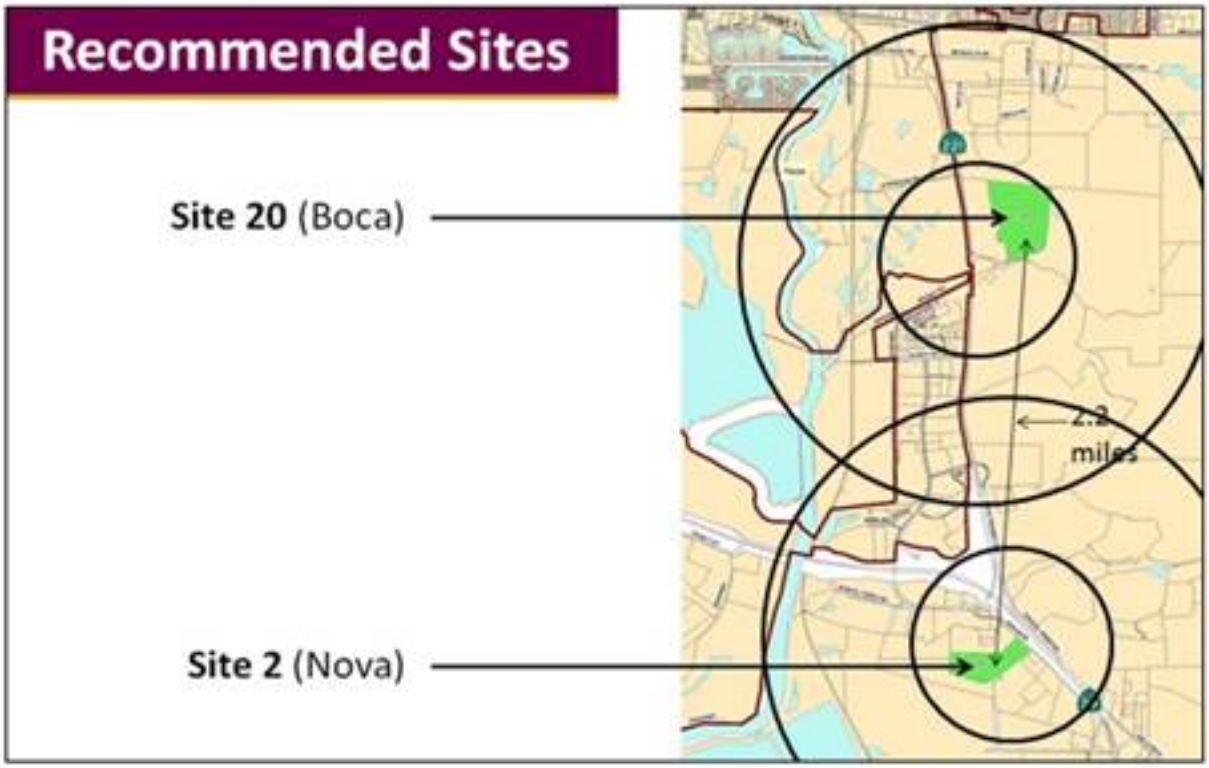
3.3 Operational Costs

Operational costs are the non-capital costs associated with each of the alternatives. For the off-site option these costs include the fleet deadhead and labor costs for traveling to and from an off-site fuel provider. The on-site option includes the labor costs to service the fuel lane.

Off-Site Operational Costs: The evaluation of the two candidate sites (Sites #2 and #20 as described in Technical Memo #3) calculated the daily and annual operational cost to use an off-site fuel provider for both candidate sites. Using a travel distance of ½-mile (the smaller circle on **Figure 1**) and 1.25-miles (the larger circle) a probable range of travel was determined for the fleet.

A fueling trip would be required for every fleet vehicle five days a week (M-F). Rather than calculating the fueling trip range using a specific vendor location that may or may not be the location of NCTPA's fuel provider in ten or twenty years, the calculation assumes a generic travel range from the front gate of the candidate sites to fuel vendors offering CNG, gas and/or diesel located within the travel radii shown in **Figure 1**.

Figure 1 - Top Two Candidate Sites and Fuel Travel Ranges



The range within the travel radii encompasses most of the Highway 221 and 29/12 commercial corridor from south of the Napa city limits to the Napa County Airport. The costs associated with

transit vehicle deadhead travel for refueling are based on data provided by Veolia Transportation, the contracted vendor operating the NCTPA fleet. Additionally, each vehicle would experience delay at the off-site fueling site based on current experiences. The annual fleet deadhead costs are documented below.

On-Site Operational Costs – an on-site fuel facility would require physical maintenance, janitorial and administrative support. These costs were estimated to equal 20% or one-fifth of a FTE staff person at a salary of $35,000/yr. and were included in the cost model.

The annual cost for using an off-site fuel provider increases the fleet deadhead operational costs over an on-site fuel service by a range of $160,000 to over $ 300,000 each year. The next section summarizes the evaluation of fuel demand and projected fuel costs.

3.4 Fuel Demand and Costs

NCTPA provided historical fuel demand and costs for their existing fleet. This data showed fuel consumption by fuel type and per vehicle. Future fuel demand is estimated by extrapolating fuel demand from the growth of the fleet over time and the proportion of the future fleet using each of the fuel types. The NCTPA fleet for the fiscal year of 2033 is estimated to consist of 120 total vehicles; or 51 diesel vehicles, 42 CNG vehicles, and 27 gas vehicles. Fuel demand for a fleet of this size is projected to be 111,461 gallons annually.

Table 3 - Operational Fleet Deadhead Costs

	Input Data		Distance (Miles)		Time (Minutes)		Total Daily Cost	Total Annual Cost
	Distance Miles	Fleet Size	Daily Distance	Unit Cost	Daily Time (@15mph)	Unit Cost		
Off-Site Fueling Costs Associated with Candidate Site #20 (Boca)								
Trip to Fueling Facility	0.50	97	48.5	$ 4.14	3.1	$ 63.65	$ 179.98	
Return Trip from Fueling Facility	0.50	97	48.5	$ 4.14	3.1	$ 63.65	$ 179.98	
Gas and Diesel Fueling Time		78			0.37	$ 12.00	$ 171.60	
CNG Fueling Time		19			0.80	$ 12.00	$ 91.20	
Subtotal							**$ 622.76**	**$161,917**
Off-Site Fueling Costs Associated with Candidate Site #2 (Nova)								
Trip to Fueling Facility	1.25	97	121.3	$ 4.14	7.8	$ 63.65	$ 449.95	
Return Trip from Fueling Facility	1.25	97	121.3	$ 4.14	7.8	$ 63.65	$ 449.95	
Gas and Diesel Fueling Time		78			0.37	$ 12.00	$ 171.60	
CNG Fueling Time		19			0.80	$ 12.00	$ 91.20	
Subtotal							**$ 162.69**	**$302,300**
Kimley-Horn and Associates, Inc.								

The fleet size of 97 vehicles (for the year 2020) was a design parameter for space planning purposes. The fuel data is projected to the year 2033 and assumes a similar fleet rate of growth as used for space planning. Future fuel costs were obtained from NREL data and adjusted to reflect the higher cost for fuel in the San Francisco Bay region.

Retail fuel costs (for the off-site fuel provider) and wholesale costs (for the on-site fuel system) were projected and applied those to the future fleet sizes. Projections were made only to 2023 – beyond that date a uniform five percent (5%) annual increase was assumed as a conservative projection. The results of the retail and wholesale fuel price projections to the year 2033 are shown in Tables A1 through A4 in Appendix A.

3.5 Conclusions of the On-Site Fueling Facility Evaluation

Based on this multi-step comparison of constructing an on-site facility versus using an off-site retail fuel vendor the results indicate a savings of $22.3 million over the 20-year span of the analysis as summarized in **Table 4**.

The savings does not include non-quantifiable costs or intangibles such as having control over the fuel supply, having back-up power to fuel the fleet in an emergency, or being able to mitigate the ups and downs of fuel costs by signing long term contracts. Based on the data provided and comparing the proposed facility with other transit facilities across the nation the consulting team strongly recommends building the on-site fuel service lane.

Table 4 - Comparison of Costs for On-Site Fuel Facility and Off-Site Vendor

Cost Item	Option 1: Build On-Site		Option 2: Off-Site Vendor	
	High	Low	High Deadhead (1.2 miles)	Low Deadhead (0.5 miles)
Site Improvements Capital Costs	$ 4,435,000	$3,941,000	NA	NA
Annual Deadhead Costs			$ 302,300	$ 161,917
Additional Labor (FTE)	$ 7,000	$ 7,000	$ 70,000	$ 35,000
Annual Operating Costs	$1,088,063	$ 1,088,063	$ 1,617,000	$ 1,442,000
Net Present Value (at 5%)	$ 77,278,173	$ 76,758,173	$ 103,510,015	$ 95,171,605
Source: Kimley-Horn and Associates, Inc.				

4. Potential Sharing of Service Functions

The NCTPA is proposing to build a new transit fleet maintenance and operations center in Napa County, CA. The current space program (Technical Memo #1) calls for a facility of 10-12 acres in size that could store the NCTPA future fleet (97 vehicles), provide maintenance facilities through multiple service bays, and offer a service function that includes fueling the fleet and washing the interior and exterior of the vehicles. An operations/administration building would provide office space for the fleet operators, dispatch staff and other support functions. Lastly, the site would include sufficient parking spaces for the employees including overlap for shift changes. Conceptual site plans were developed for several sites and are documented in Technical Memo #3.

A multi-jurisdictional facility could share one or more functions including:

- Vehicle storage
- Vehicles maintenance
- Fleet fueling and service (e.g., exterior and/or interior wash)
- Operations/administrative/training space

4.1 Shared Vehicle Storage

Service Region: The NCTPA facility could be used to store vehicles from other agencies. The primary need for shared storage is driven by the potential location of the facility relative to the operational areas of the sharing agencies. At this point in the project NCTPA is focused on two sites located south of the City (Sites #2 and #20). These two locations are south of the City's service area, but within the County's service region. Further meetings will have to be held with City and County staff to determine the overlap of their service regions by fleet type to determine the potential for sharing storage space.

Shared Storage: The other agencies could share storage space by using a common entry and exit point. This would require sharing security access (card readers or RFID chips in the vehicles). A specific parking location would be identified for both the fleet and employee vehicles. This would reduce travel costs and deadhead miles for their fleets, and could improve employee retention by reducing travel times to/from their homes and reporting duty stations.

The downside of shared vehicle storage is the potential of damage to the transit fleet caused by the other agency vehicles maneuvering throughout the site. This would have to be evaluated through a formal risk analysis, and liability procedures put in place prior to sharing the facility.

4.2 Shared Vehicle Maintenance

Public agencies in smaller communities have commonly shared maintenance functions due the high cost of building garage facilities for smaller fleets. City, County and school fleets are serviced in one larger public facility or are maintained by a private vendor at a private or community garage. FTA guidelines for the construction of transit garages often preclude combining services for other agency fleets, especially when construction funds come from a dedicated source (such as the FTA). The size of the NCTPA transit fleet warrants a further analysis of sharing vehicle maintenance services at the proposed facility.

The drawbacks of sharing the maintenance service function include:

- The need to separate FTA-funded space, tools and equipment from other areas;
- The need to closely track the use of parts, supplies and fluids (lubricants);
- The need to separate employees working under very different (public and private) labor contracts and different pay schedules; and
- The need to prioritize NCTPA services and repairs when the vehicles from other agencies may be on the lift undergoing repairs.

As with sharing storage space, the sharing of maintenance functions would have to be evaluated through a formal risk analysis, and liability procedures put in place prior to sharing the facility.

4.3 Shared Vehicle Fueling

The most common element among shared facilities is fueling. Fleet fueling is driven by similar issues—the location of the fueling facility relative to the service region, the type of fuel provided, ease of access, security and cost compared to what the agency currently pays. The NCTPA facility will provide diesel, gasoline and CNG fuel–the demand for these fuel types by the City and County is a key element that warrants further analysis.

An initial survey of their needs based on in-person interviews and by earlier NCTPA surveys shows a fuel demand of about fifty-percent (50%) of what the NCTPA would use. **Table 5** summarizes the demand under conditions with only NCTPA vehicles, and under conditions with a shared fuel facility.

The value of shared fuel services is the reduction in unit costs that result from purchases of greater volumes, and the potential ability to recover costs by charging an administration fee to the sharing entities. The fuel storage tanks and dispensers would be sized to provide additional capacity if the service is shared, thus avoiding impacts to the NCTPA fleet. Point-of-sale trackers at each dispenser can easily track what agency is using the fuel, greatly simplifying monthly invoicing. The only potential drawback relates to the concerns of liability and risk, which requires additional analysis prior to starting the design of the future facility.

Table 5 - Estimated Fuel Demand With and Without Fuel Sharing

Scenario	Diesel Fuel (Gallons)	CNG Fuel (Gal Gas Equiv)	Gasoline Fuel (Gallons)
Current 2013-14	124,272	69,045	160,998
2020 NCTPA Only	193,864	109,321	160,998
2020 With Sharing	290,796	163,981	241,498
Estimated Wholesale Cost Per Unit	$3.40	$2.13	$3.95
Source: Kimley-Horn and Associates, Inc.			

5. Opportunities for Sharing the Bus Maintenance Yard and Fueling Facility with Partner Agencies

5.1 Introduction

A survey distributed to the leadership of NCTPA's partner agencies at the initiation of the feasibility study sought a response to the question; "If a multi-jurisdictional vehicle maintenance yard and fueling facility were available to your agency, would your jurisdiction [be interested in] participating in its planning, acquisition, construction and utilization?" Sixty percent (60%) of the ten (10) partner agencies surveyed responded positively to the question. However, upon further discussion with these agencies, they either revealed that upon further consideration they determined that sharing a facility was not practical for various reasons (particularly the more distant municipalities), or their interest was limited to utilizing the refueling facility for

convenience, but not the rest of the yard's functions. For example, the City of American Canyon expressed some interest in using the fueling facility, particularly if their participation would result in a significant reduction in the retail price they currently pay for fuel. However, American Canyon expressed no interest in sharing other functions of the Bus Maintenance Yard because they possess a limited number of City vehicles and/or heavy equipment for which they contract to the City of Napa for standard maintenance and general repairs.

5.2 Summary of Possible City of Napa Interest

The exception to the above qualification was the City of Napa. According to the City's fleet manager there are several reasons why they would be interested in sharing such a facility. The most important of these reasons include:

- The City of Napa purchases gasoline and diesel fuel from the same private retail fuel provider as NCTPA, and indicated that an agency owned fueling facility could purchase fuel at wholesale prices with significant cost savings.

- None of the vehicles in the City of Napa's fleet currently operate on CNG except the vehicles operated by the Napa Recycling and Waste Services located near the Napa County Airport. However, the City could convert much of their fleet to CNG if there was a more reliable source for the fuel, as well as confidence in the provider's price stability. Napa's recycling and waste vehicles that use CNG would greatly benefit from a CNG refueling facility at Site 2 (Nova) due to its proximity to their facility, but would also benefit from a refueling facility at Site 20 (Boca) which is several miles closer than the City's current CNG fuel provider.

- The City of Napa may be interested in utilizing services other than the refueling facility including the vehicle wash facilities, and recycle and waste refuse facilities.

- The City of Napa's corporation yard is located near the center of the city less than a mile from downtown. The approximately 10-acre site is valuable property that may have a higher and better use. The site is a possible location for a new Napa Civic Center or other similar improvement. The City's fleet manager noted that it is probable the corporation yard may be displaced, and they would have to seek a comparable site close to the City.

5.3 Consideration Related to Inter-Agency Sharing of Bus Maintenance Yard and Fueling Facility

With the exception of the City of Napa, partner agencies within the County have an interest in use of the fueling facility but not the other functions of the yard. Based on this level of interest, the following issues are important considerations:

- Fuel Dispenser Access and Yard Security

  Partner agencies that only use the yard's fueling function need not enter the maintenance yard if the fuel dispensers are accessible from the exterior of the facility's secure perimeter. This would avoid concerns regarding permitting access to the interior of the yard by non-NCTPA staff, or having to build a separate secure area within the

maintenance yard for farebox handling. Addressing revenue control security is necessary if even one non-NCTPA agency is given access to the interior of the yard, such as the City of Napa. The conceptual plans prepared for the two candidate sites include external fuel dispensing areas.

- Restrictions on Incidental Use of Shared Facilities

  If the acquisition of the property, the construction of the facility, or the outfitting of equipment includes the use of Federal Transit Administration (FTA) funds (either in total or in part), then any *non-transit* related use of the facility, as a result of shared use with a partner agency, may be subject to FTA restrictions. Shared use of a transit facility is defined by FTA[2] as:

  > *Those instances in which a project partner, separate from the transit agency or grantee, occupies part of a larger facility and pays for its pro rata share of the construction, maintenance, and operation costs. Shared uses are declared at the time of grant award.*

  One of the restrictions is termed "incidental use" of the facility. Incidental use is defined by FTA[3] as:

  > *The limited authorized non-transit use of real property and equipment acquired with FTA funds for purposes of providing transit service. Such use must be compatible with the approved purposes of the project and not interfere with intended public transportation uses of project assets.*

  According to FTA's requirements shared use of the bus maintenance and/or the fueling facilities requires prior written FTA approval except when it involves "coordinated public transit human services transportation". Shared use functions should be clearly identified and with sufficient detail at the time of grant review to determine the sharing agencies' proportion of the costs related to non-transit use for construction, maintenance, and operation. In other words, at the time of the grant application, NCTPA would need to have either:

  (a) commitments (or even agreements) in place with the agencies that have an interest in sharing the functions of the facility, or

  (b) lacking commitments, a detailed plan stating an intention to share the facility; including a description of which functions would be shared and potentially by which partners; a description of how NCTPA would allocate construction costs to potential partners; an estimate of the annual revenue generated through sharing the functions; and a plan that demonstrates that functions may be shared without impacting the transit purpose of the facility.

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[2] FTA's definition of shared use is found in FTA Circular FTA C 5010.1D titled *Grant Management Requirements* dated November 1, 2008.

[3] FTA's definition of incidental use is found in FTA Circular FTA C [Reserved] titled *Federal Transit Administration Guidance on Joint Development* dated 2013.

- Possible Long Range Collaboration with City of Napa

  Because both candidate sites (Site 2 and Site 20) have more land available than NCTPA needs even considering future growth of their transit fleet, there is an opportunity to share in the acquisition of enough property to accommodate the future needs of both NCTPA and the City of Napa. However, for acquisition of additional acres for non-transit related uses would require some level of commitment from the City so that NCTPA's can describe the purpose of the acquisition in the grant application to FTA[4]. In the meantime, the City may be interested in sharing several of the maintenance yard's functions in addition to the refueling facility.

[4] This would only be required if FTA assistance was used to acquire the property.

Appendix A

Retail and Wholesale Fuel Cost Projections

Appendix A1 - Current and Future NREL Fuel Costs

Year	Diesel ($ / Gallon)	CNG ($ / Gallon)	Gas ($ / Gallon)	Change (Percent)
2013	$ 2.80	$ 1.81	$ 3.40	NA
2014	$ 2.76	$ 1.79	$ 3.36	-1.3%
2015	$ 2.78	$ 1.79	$ 3.38	0.7%
2016	$ 2.83	$ 1.84	$ 3.44	1.7%
2017	$ 2.89	$ 1.86	$ 3.51	2.1%
2018	$ 2.94	$ 1.90	$ 3.57	1.9%
2019	$ 3.00	$ 1.90	$ 3.64	1.9%
2020	$ 3.03	$ 1.92	$ 3.69	1.2%
2021	$ 3.10	$ 1.94	$ 3.76	2.0%
2022	$ 3.17	$ 1.97	$ 3.85	2.3%
2023	$ 3.21	$ 2.00	$ 3.90	1.3%

Source: Kimley-Horn and Associates, Inc.

Appendix A2 - Retail and Wholesale Diesel Fuel Prices Projected to 2023

Fiscal Year	Diesel Retail		Diesel Wholesale	
	Annual Cost ($)	Cost/Gal. ($)	Annual Cost ($)	Cost/Gal. ($)
FY 10-11	$ 464,281.03	$ 3.16	$ -	$ -
FY 11-12	$ 403,850.78	$ 3.65	$ -	$ -
FY 12-13	$ 391,502.22	$ 3.69	$ -	$ -
FY 13-14	$ 452,985.34	$ 3.65	$ 377,374	$ 3.04
FY 14-15	$ 492,747.16	$ 3.67	$ 410,499	$ 3.06
FY 15-16	$ 538,048.14	$ 3.73	$ 448,238	$ 3.11
FY 16-17	$ 587,232.68	$ 3.81	$ 489,213	$ 3.17
FY 17-18	$ 636,702.32	$ 3.88	$ 530,425	$ 3.23
FY 18-19	$ 688,298.66	$ 3.96	$ 573,409	$ 3.30
FY 19-20	$ 736,587.20	$ 4.00	$ 613,638	$ 3.34
FY 20-21	$ 792,276.66	$ 4.09	$ 660,031	$ 3.40
FY 21-22	$ 831,270.05	$ 4.18	$ 692,516	$ 3.48
FY 22-23	$ 863,344.90	$ 4.24	$ 719,237	$ 3.53

Source: Kimley-Horn and Associates, Inc.

Appendix A3 - Retail and Wholesale CNG Fuel Prices Projected to 2023

Year	CNG Retail		CNG Wholesale	
	Annual Cost ($)	Cost/Gal. ($)	Annual Cost ($)	Cost/Gal. ($)
FY 10-11	$ 118,914	$ 2.60	$ -	$ -
FY 11-12	$ 108,375	$ 2.67	$ -	$ -
FY 12-13	$ 174,218	$ 2.75	$ -	$ -
FY 13-14	$ 187,744	$ 2.72	$ 136,195	$ 1.97
FY 14-15	$ 204,854	$ 2.74	$ 147,630	$ 1.97
FY 15-16	$ 224,281	$ 2.78	$ 163,154	$ 2.03
FY 16-17	$ 245,347	$ 2.84	$ 176,944	$ 2.05
FY 17-18	$ 266,553	$ 2.90	$ 192,018	$ 2.09
FY 18-19	$ 288,668	$ 2.95	$ 203,980	$ 2.09
FY 19-20	$ 309,411	$ 2.99	$ 219,138	$ 2.12
FY 20-21	$ 333,278	$ 3.05	$ 233,267	$ 2.13
FY 21-22	$ 376,827	$ 3.12	$ 262,121	$ 2.17
FY 22-23	$ 418,186	$ 3.16	$ 291,301	$ 2.20
Source: Kimley-Horn and Associates, Inc.				

Appendix A4 - Retail and Wholesale Gasoline Fuel Prices Projected to 2023

Fiscal Year	Gas Retail		Gas Wholesale	
	Annual Cost ($)	Cost/Gal. ($)	Annual Cost ($)	Cost/Gal. ($)
FY 10-11	$ 356,776	$ 3.38	$ -	$ -
FY 11-12	$ 545,173	$ 3.75	$ -	$ -
FY 12-13	$ 657,137	$ 3.80	$ -	$ -
FY 13-14	$ 604,377	$ 3.75	$ 567,493	$ 3.52
FY 14-15	$ 608,729	$ 3.78	$ 571,580	$ 3.55
FY 15-16	$ 618,852	$ 3.84	$ 581,085	$ 3.61
FY 16-17	$ 631,848	$ 3.92	$ 593,287	$ 3.69
FY 17-18	$ 643,556	$ 4.00	$ 604,281	$ 3.75
FY 18-19	$ 655,953	$ 4.07	$ 615,922	$ 3.83
FY 19-20	$ 664,028	$ 4.12	$ 623,504	$ 3.87
FY 20-21	$ 677,604	$ 4.21	$ 636,252	$ 3.95
FY 21-22	$ 675,406	$ 4.31	$ 634,188	$ 4.04
FY 22-23	$ 666,349	$ 4.36	$ 625,683	$ 4.10
Source: Kimley-Horn and Associates, Inc.				

Appendix B

Notes from Meeting with Napa County Staff

B1: Meeting #1 – Napa County Planning and DPW

Attendees:

Hillary Gitelman, Director of Planning (707) 253-4805 hillary.gitelman@countyofnapa.org;

Sean Trippi, Senior Planner sean.trippi@countyofnapa.org

Steve Lederer, Director DPW (707) 259-8228 steven.lederer@countyofnapa.org

Jason Campbell, Deputy Director DPW (707) 253-4351 jason.campbell@countyofnapa.org

Jeff Oster, Fleet manager for the County (707) 253-4372 jeffery.oster@countyofnapa.org

NCTPA staff Kate Miller and Larry Gawell

1. **Purpose of Meeting:**
   - Introduce the project to County staff (Planning and DPW)
   - Understand the County's development requirements for a quasi-public use as proposed, and to identify the County's potential need for sharing a maintenance, fueling and ops center

2. **K. Miller gave an overview of the project, the need for a new facility, the current efforts of the study, the general timeline and the purpose of the meeting. She then discussed her preferred sites:**
   - Syar property (east of CA 29 south of the City limits) – industrial site. Brokers had indicated this is an unwilling seller so it was not on the original list
   - Draft EIR for the proposed jail site will be released in late August – therefore it will be public knowledge that the City is interested in a site on the Syar property
   - She is also interested in the Napa Pipe site – the parcel we viewed (#18 on the list) is under an agreement with the School district for a proposed school. Perhaps adjacent parcels could be obtained, however this is a high-end residential and mixed use development so bus facility would not be compatible. Kate thought that a deal here would take too long
   - County suggested we look at the flea market site off Kelly Road (added)

3. **County has no need for a new operations and maintenance yard (S. Lederer)**
   - County purchased a site on California (locate on map) and they have enough space for needs
   - They do not provide fuel services on that site. Perhaps we can cooperate with fuel needs

4. **County development process (H. Gitelman)**
   - As a public agency, the use could be located in any zoning category. A fueling facility if it were used only by public agencies also would not require zoning approval. It is required that NCTPA writes a letter to County Planning requesting if their proposed use on a specific site is in conformance with the general plan. The county's finding does not need

to be followed. So in reality the agency could proceed with or without County approval, but would prefer compliance with the intent of the general plan

- She gave as an example the development proposed by Mr. Teeterman for Allied Propane who wants to set up a retail fueling facility for diesel, gas, propane and CNG (this site is adjacent to several parcels we viewed north of the airport). At his location wholesale is allowed, but retail sales would require a specific plan amendment

5. **Action Items: Kimley-Horn**
   - Review general plan as it relates to our sites
   - Obtain County's GIS map overlays and add to our base maps
   - Add flea market site and gun ranch just north of flea market site to the site list for evaluation.

B2: Meeting #2 – City of Napa Planning Staff

Attendees:

Scott Klingbeil, Senior Planner (707) 257-9530 sklingbeil@cityofnapa.org;

Later we met with Eric Whan, PE Deputy Director DPW (707) 257-9634 ewhan@cityofnapa.org

1. **Purpose of Meeting:**
   - Review the City's development regulations for this type of facility
   - Evaluate any potential sites within the City limits
   - Set up a future meeting with the DPW to discuss joint development on their Corporation Yard and reusing the current NCTPA bus yard

2. **Development process and potential sites in the City**
   - We showed Scott the draft space program and prototype site layout
   - There are no available sites within the City boundaries that come close to our needs (as was stated by the brokers earlier in the day)
   - The NCTPA use does not have to comply with City zoning regulations

3. **He suggested we evaluate several additional sites:**
   - Flea market site (as noted above)
   - Old ranch site north of the flea market
   - PG&E corporation yard off Kelly Road (bought by AT&T so not likely)
   - Property adjacent to the Pan Am satellite site (just north of 29/12 interchange)

4. **Action Items: Kimley-Horn**
   - Get Caltrans plans for the CA 29/12 flyover interchange – when and how will it be built?
   - Add the suggested sites to our list

B3: Meeting #3 – City of American Canyon (conducted by phone December 3, 2013)

Contacts:

Dana Shigley, City Manager (707) 647-4369

Jason Holley, Public Works Director (707) 647-4366

1. **Pre-Meeting Information**
   - After being introduced to Ms. Shigley by Kate Miller, Mr. Daisa of KHA emailed Ms. Shigley select slides from the site selection Powerpoint presentation focusing on the location of the two preferred sites, and an illustration and description of the various functional areas of the proposed maintenance yards. A note was added explaining the purpose of the interview and why the attached information was being provided in advance of the interview.

2. **Purpose of Meeting:**
   - Gauge interest in sharing the Bus Maintenance Yard's functions and/or utilizing (and sharing in the cost of purchasing fuel at wholesale prices) the Fueling Facility

3. **Results of Meeting:**
   - The City of American Canyon has no transit fleet (or any group of vehicles they would term a "fleet") and do not feel that their vehicle and equipment holdings would warrant even occasional use of the maintenance facilities.
   - Currently, they have limited number of City vehicles and/or heavy equipment
   - The existing City fleet runs exclusively on gas and diesel.
   - Maintenance and general repairs are contracted out to the City of Napa.
   - The City has no interest in sharing maintenance or other functions of the facility.
   - The City pays retail price for fuel at the same facility that NCTPA purchases its fuel.
   - The City expressed some interest in using the fueling facility if it would result in a significant reduction in the cost of fuel.
   - The City also expressed some interest in occasional use of the Maintenance facility's vehicle washing unit, perhaps on a per use basis agreement with NCTPA.
   - NCTPA's selection of Site #2 (Nova) over Site #20 (Boca) would have no bearing on their level of interest as described above. A primary reason being that Highway 29 is extremely congested between American Canyon and both sites, and traveling to and from a facility would use a portion of the fuel purchased (plus the labor cost of drivers delayed in traffic).
   - When Devlin Road was raised as an alternative route to Site #2 (Devlin Road presently terminates north of American Canyon) they stated that the County has not established a timeframe to close the gap and connect Devlin Road into American Canyon, and it is anticipated to be implemented within 10 years, but too far into the future for staff to rely on it to access the site on a daily basis.