FINAL DRAFT

WORKING PAPER #1: SITE SELECTION

Yuba-Sutter Transit Next Generation Transit Facility

Marysville, California

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Yuba-Sutter Transit

wsp

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Contents

Executive Summary

Yuba-Sutter Transit Authority (Yuba-Sutter Transit) oversees six local routes, two commuter routes, three rural routes, a Yuba College Sutter County Campus shuttle, and senior and disabled Dial-A-Ride service in Yuba and Sutter Counties. Yuba-Sutter Transit has outgrown its current maintenance, operations and administration facility in Marysville, California and needs a new facility to meet its needs especially as it must start the transition to Zero Emission Buses (ZEBs) starting with buses purchased after 2026. By 2040, Yuba-Sutter Transit is projected to operate 85 agency revenue and non-revenue vehicles, compared to the 57 that are currently being operated.

WSP is contracted to help Yuba-Sutter Transit to determine the amount of space needed for current and future operations, identify potential sites, analyze and rank the potential sites, study the resiliency of potential sites and provide design criteria for the future facility complete with a funding plan. Working Paper #1 outlines the selection criteria, narrows down the parcels to the top three recommended sites, and provides a resiliency analysis for those sites.

The sites were evaluated on their planning and operations potential, including appropriate land use, impact to the efficiency of operations, access to power, traffic impacts, environmental impact, resiliency, operating costs, and environmental justice. The analysis of development costs included how much work each site will need and the effects of that work on the facility's initial construction cost. The sites were also compared with the facility programmatic requirements, to determine how compatible each site is for the necessary facilities. Finally, an analysis of fueling infrastructure was conducted to determine if each site has the necessary infrastructure requirements to support the future fleet of ZEBs. An analysis of development costs for the top three sites will be conducted in a later task to assist Yuba-Sutter Transit in budgeting and pursuing funding to construct the future maintenance and operations facility.

A total of 16 sites were initially considered before preliminary screening reduced that number to 10 sites from across Yuba and Sutter Counties. Those sites were then evaluated based on a comprehensive list of criteria to ensure that each would be suitable for the envisioned transit operation over the next 30-50 years. This process resulted in the selection of the top three recommended sites as shown below:

- Site #3 – 6035 Avondale Ave in Linda,
- Site #7 – Goldfields Parkway and North Beale Rd in Linda, and
- Site #12 – 1441 E Onstott Rd in Yuba City.

This Working Paper #1 provides information on the 10 sites that were analyzed in detail, more in-depth information on each of the top three sites and discusses the climate change risks and adaptation strategies for these three sites. While these three sites were determined to be the most advantageous and suitable for the future transit facility, other sites that were analyzed remain in consideration as higher ranked sites may ultimately prove to be either undesired or unattainable for a variety of reasons.

Table ES1: Summary Chart of the Ten Sites

Map Number	Location	Matrix Score	Site Size	Price per Acre	Fixed Route	Distance from Closest Transit Stop	Annual Deadhead Costs	Distance from Substation	Separate Bus and Vehicle Ingress/Egress?
1	1356 N Beale Rd	316	17.57	N/A	1, 3, 6	0.2 miles	$142,915	1.3 miles	Yes
2	5962 Avondale Ave	265	9	$114,583	1, 3, 6	0.3 miles	$141,558	1.3 miles	No
3	**6035 Avondale Ave**	**365**	**19.72**	**$45,634**	**1, 3, 6**	**0.4 miles**	**$145,505**	**0.9 miles**	**Yes**
3a	6062 Avondale Ave	305	11.61	N/A	1, 3, 6	0.4 miles	$145,505	1.0 mile	No
4	Chestnut Ave & Erle Rd	301	10.1	$261,386	3, 6	0.1 miles	$138,852	1.8 miles	Yes
7	**Goldfields Pkwy & N Beale Rd**	**308**	**15**	**N/A**	**1, 3, 6**	**0.2 miles**	**$157,106**	**2.3 miles**	**Yes**
9	1687 Hammonton Smartsville Rd	297	18.22	N/A	6	0.0 miles	$141,908	1.7 miles	No
11	1055 N Beale Rd	294	13.84	N/A	1, 3, 4, 6	0.2 miles	$143,978	0.8 miles	No
12	**1441 E Onstott Rd**	**303**	**17.42**	**$522,720-$609,840**	**1, 2**	**0.2 miles**	**$141,863**	**0.5 miles**	**Yes**
14	Butte House Rd and Tharp Rd	302	12	$217,800-$696,960	1, 5	0.0-0.4 miles	$155,263	Adjacent	Maybe

Note: The top three recommended sites are shown in bold type

Technical Memorandum: Site Selection

The Yuba-Sutter Transit Authority (Yuba-Sutter Transit) is a public transit agency in the Central Valley, approximately 40 miles north of Sacramento, that operates transit service in Yuba County and Sutter County. Yuba-Sutter Transit operated six local routes, two commuter routes to Sacramento, three rural routes, and a Yuba College Sutter County Campus shuttle, in addition to senior and disabled Dial-A-Ride service. All of Yuba-Sutter Transit's services are operated by a private service contractor.

1. Existing Site Conditions

1.1 Location

The current transit facility is located at 2100 B Street in Marysville, California. It is 3.18 acres and zoned as an M-1 light industrial facility. It is located across the highway from Marysville High School and is separated from commercial and residential sites by train tracks to the west. Despite being located at the north end of the City of Marysville it is centrally located in the bi-county service area for transit operations purposes. It is also adjacent to Bus Route 4, the Marysville Loop, which provides access for the transit dependent public.

1.2 Existing Facility Functions

The current facility houses 57 agency vehicles, including 13 total 45-foot over-the-road coaches, 22 total 35-foot fixed route buses, 16 total 25-foot shuttle/dial-a-ride buses, and six total non-revenue vehicles. The system is operated by approximately 107 agency and contractor staff. The facility includes 26,976 square feet of space for administration, operations and driver's areas, maintenance areas, parts storeroom and bus fueling and wash area. It also includes 111,547 square feet of open space that mainly caters to bus parking and circulation and employee/visitor parking. In addition, to provide space for employee parking, Yuba-Sutter Transit entered into a joint use agreement to share the Marysville Youth Center parking lot next door.

1.3 Site Deficiencies and Constraints

Recent adoption of the Innovative Clean Transit regulations by the California Air Resource Board requires for small transit fleet operators that 25% of all bus purchases starting in 2026 and 100% of all bus purchases starting in 2029 to be Zero Emission Buses (ZEBs).[1] Yuba-Sutter Transit projects that by 2040, the agency may operate a fleet of 85 ZEBs (Battery Electric Bus (BEB) or Fuel Cell (FC) vehicles), including revenue and non-revenue vehicles to comply with the California Air Resources Board zero-emissions bus fleet goal. This represents an increase of 28 vehicles over the current fleet. In doing so, Yuba-Sutter Transit will need more bus operators, maintenance and administrative staff to maintain and manage the vehicles, and a bigger facility to house the additional buses and their charging stations and/or hydrogen fuel stations. Based on this information, Yuba-Sutter Transit has need for additional space which is not possible due to constraints at the current location. Additionally, a potential Highway 70 widening project which includes modifications to the Binney Junction railroad overcrossing may also impact the existing Yuba-Sutter Transit facility by reducing the existing bus parking area and possibly require the demolition of the current facility.

[1] https://arb.ca.gov/msprog/ict/ict.htm

Through interviews with Administration, Operations, Maintenance, Parts Storeroom, Fuel, Wash, and Service Staff, WSP was able to develop a Preliminary Space Needs program for the new facility to determine the required space for each of the departments. The new fleet will require an estimated 142 employees and 42,736 square feet of building space which constitutes a 43% increase of employees and a 58% increase of building square feet.

In addition to the space requirements for the departments, which include Administration, Maintenance and Operations, and Fuel and Wash functions, WSP also developed outside site requirements including bus parking, bus circulation, and employee and visitor parking requirements. The additional 28 vehicles will also require more land for parking and the additional 45 employees will require more parking spaces. This will entail 182,530 square feet of open space. The new site will need to be at least 9 acres to encapsulate the necessary building, parking site circulation, landscaping, site setback, and stormwater management space.

Through conversations with Yuba-Sutter Transit, WSP developed the DRAFT Design Criteria document which includes functional requirement data that defines each area involved with specific functions, as well as graphical representations on how the spaces can be organized (see Appendix A for DRAFT Design Criteria document).

2. Preliminary Site Selection and Screening

2.1 Overview of Site Requirements

As stated above, the new site will need to be at least 9 acres to meet total capacity needs for the projected 2040 bus fleet. In addition, the new site location should minimize operating costs related to deadhead miles and hours, have access to power and utilities, increase resiliency, and refrain from negatively impacting disadvantaged communities. With respect to zoning codes, sites located in areas that allow for maintenance and industrial type uses are prioritized; however, given that variances and other re-zoning requests may be feasible, sites were still considered if they were allowable through established city or county processes. In all cases, the more defining characteristic was related to neighborhood compatibility to eliminate use conflicts, such as where an industrial use may negatively impact a residential neighborhood. The site also needs to have the appropriate characteristics for development such as available buildable area, adequate employee/public vehicle ingress/egress at the site and be potentially available for purchase.

2.2 Preliminary Site Identification and Screening

Yuba-Sutter Transit provided WSP with a preliminary list of sixteen potential sites within Yuba and Sutter Counties for the Next Generation Transit facility. WSP used the APN numbers or addresses associated with each parcel to map the sites and performed a preliminary screening based on zoning, neighboring compatibility, and size (see

Table 1). Further information on the parcels' zoning compatibility can be found in Appendix B.

Table 1: Sixteen Preliminary Sites

Map Number	Location	APN	Size Acres	Zoning
Yuba County				
1	1356 N Beale Rd	020-160-056-000 020-160-057-000 020-160-046-000	17.57	Neighborhood Mixed-Use & High Density Residential
2	5962 Avondale Ave	020-160-041-000	9.00	Neighborhood Mixed-Use
3	6035 Avondale Ave	020-030-048-000	19.72	Neighborhood Mixed-Use
4	Chestnut Ave & Erle Rd	021-428-009-000 021-428-008-000 021-428-007-000 021-428-006-000 021-428-005-000 021-428-004-000 021-428-003-000 021-428-002-000	10.10	Commercial Mixed-Use
5	School Site West of 1208 Pasado Rd	013-410-038-000	39.73	Light Industrial
6	N Beale Rd & Linda Ave	021-150-061-000	12.00	Neighborhood Mixed-Use & Single Family Residential
7	East of Yuba College on Goldfields Parkway	019-260-058-000	15.00	Neighborhood Mixed-Use
8	1886 N Beale Rd	021-150-051-000	10.28	Medium Density Residential
9	1687 Hammonton Smartsville Rd	020-080-012-000	18.22	Medium Density Residential
10	Arboga Road by Yuba County Airport	013-410-087-000	7.26	General Industrial
11	1055 N Beale Rd	020-020-094-000	13.84	Commercial Mixed-Use
Sutter County				
12	1441 E Onstott Rd	051-040-011-000 051-040-002-000	17.42	R-3, Multiple-Family Residence District
13	1823 Phillips Road	022-080-069-000	3.87	M-1, Light Industrial
14	Butte House Rd and Tharp Rd	059-010-104-000 059-010-101-000	12.00	C-M, Heavy Commercial, Light Industrial
15	428 N Walton Ave	058-120-001-000	7.47	R-2, Two-Family Residence District
16	400 N Walton Ave	058-020-001-000	8.89	R-2, Two-Family Residence District

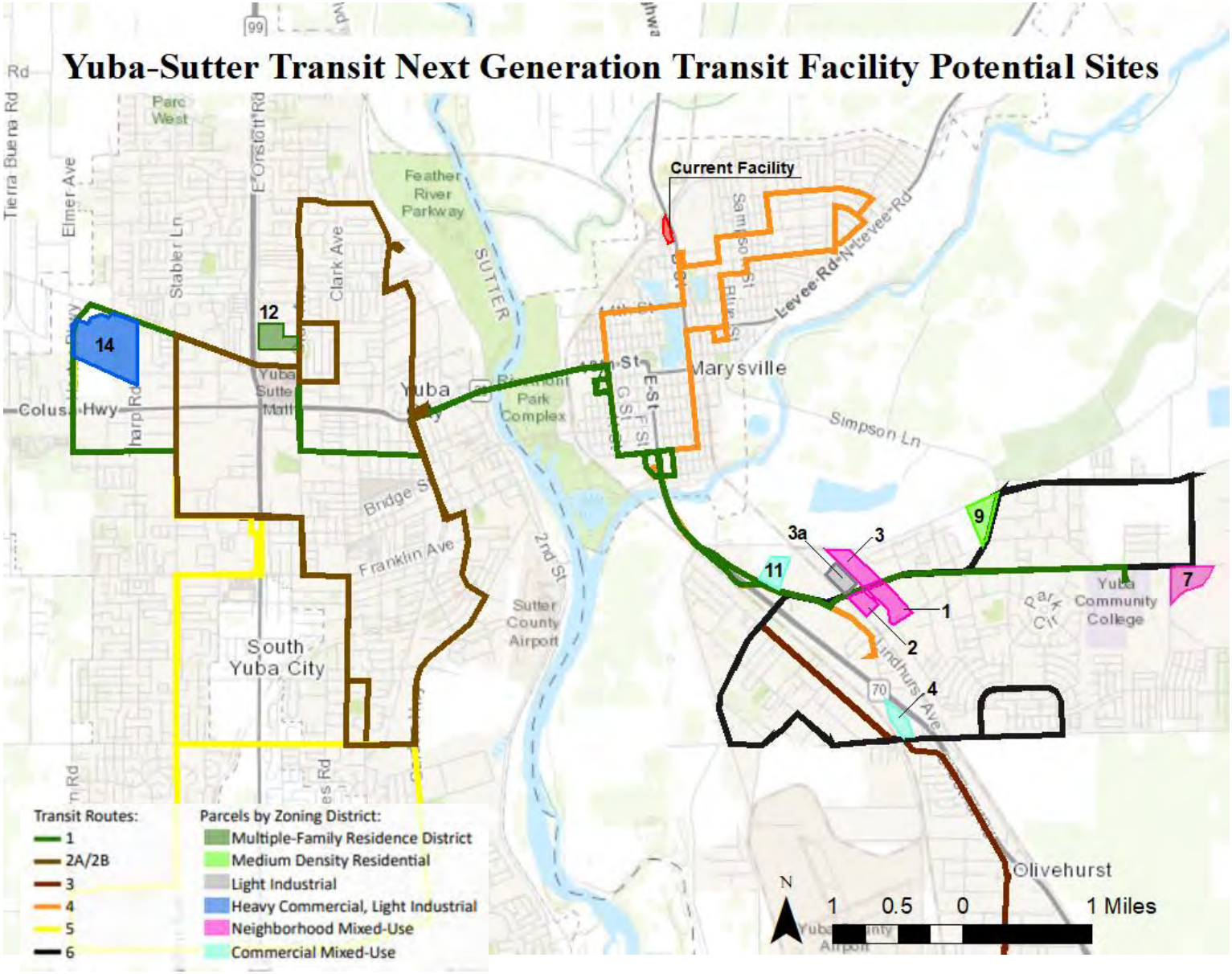
2.3 Secondary Site Screening

After several conversations with Yuba-Sutter Transit and a local real estate agent, the number of sites was adjusted and narrowed down to ten potential sites based on distance from the network, feasibility, size, and adjacent zoning (see Table 2 & Figure 1). These ten sites proceeded to the secondary screening through a matrix to find the top three sites for the Next Generation Transit Facility.

Table 2: Ten Sites Evaluated by the Matrix

Map Number	Location	APN	Size Acres	Zoning
Yuba County				
1	1356 N Beale Rd	020-160-056-000 020-160-057-000 020-160-046-000	17.57	Neighborhood Mixed-Use & High Density Residential
2	5962 Avondale Ave	020-160-041-000	9.00	Neighborhood Mixed-Use
3	6035 Avondale Ave	020-030-048-000	19.72	Neighborhood Mixed-Use
3a	6062 Avondale Ave	020-030-041-000	11.61	Light Industrial
4	Chestnut Ave & Erle Rd	021-428-009-000 021-428-008-000 021-428-007-000 021-428-006-000 021-428-005-000 021-428-004-000 021-428-003-000 021-428-002-000	10.10	Commercial Mixed-Use
7	East of Yuba College on Goldfields Parkway	019-260-058-000	15.00	Neighborhood Mixed-Use
9	1687 Hammonton Smartsville Rd	020-080-012-000	18.22	Medium Density Residential
11	1055 N Beale Rd	020-020-094-000	13.84	Commercial Mixed-Use
Sutter County				
12	1441 E Onstott Rd	051-040-011-000 051-040-002-000	17.42	R-3, Multiple-Family Residence District
14	Butte House Rd and Tharp Rd	059-010-104-000 059-010-101-000	12.00	C-M, Heavy Commercial, Light Industrial

Figure 1: Ten Potential Sites by Zoning and Proximity to Current Bus Network



2.3.1 Site Evaluation Criteria

The Site Evaluation Matrix included information such as property size, zoning, and acquisition costs. Each site was rated from 1 (poor) to 4 (excellent) and multiplied by its importance weight from 1 (least important) to 5 (most important).

For ease of understanding, the Site Evaluation Criteria are broadly classified into four different categories: Planning / Operations, Development Costs, Facilities, and Fueling Infrastructure.

The Planning/Operations category is important to reduce deadhead miles, assess access to power, indicate potential environmental impact, provide a likely indication of resiliency, and help approximate costs. Each of the ten sites is rated in the Site Evaluation Matrix by the following Planning / Operations criteria:

1. **Impacts to service and operation efficiencies –**. Represents an operation costs analysis with a major factor being proximity to current transit routes**.**
2. **Wildfire risk/resilience –** Evaluated Fire Hazard Severity Zone maps and Historic Fire Perimeters from CalFire.
3. **Emergency response to extreme events/natural disasters –** Analyzed access to emergency responders such as police stations, fire stations, and hospitals**.**
4. **Flood risk –** Utilized readily available information regarding flood risk, including FEMA 100- and 500-year floodplains, USACE 100-, 200-, and 500-year floodplains, and any regional floodplains available in the CA DWR Best Available Map (BAM) tool.
5. **Traffic and surrounding conditions –** Reviewed traffic levels and congestion through CalEnviroScreen and available Caltrans and county AADT data.
6. **Surrounding use and zoning compatibility –** Evaluated zoning and the land uses surrounding the site, as some land uses may cause conflicts or zoning designation would require re-zoning. It is reasonably expected that residential areas would not want a bus maintenance facility next to them.
7. **Public accessibility (1/4 mile from bus stop) –** Analyzed accessibility for bikers and pedestrians. Sites were ranked high if they were within ¼ mile of a bus stop and were served by multiple routes.
8. **Accommodates future system growth –** Identified the potential for joint development. Sites larger than the 9 acres needed for the Next Generation Transit Facility have the potential for energy production or joint development, such as (but not limited to) supporting commercial or office uses. In addition, sites scored higher based on their proximity to Yuba-Sutter Transit hubs and population centers, as these are the areas with the highest expected growth.
9. **Environmental impact –** Analyzed each site's impact on the surrounding environment, particularly on habitat for endangered species local to the area.
10. **Levee protection rating –** Evaluated the potential risk associated with the levee system protecting them, using data readily available in the National Levee Database (NLD). Yuba City sites are protected by Feather River right bank-Sutter Bypass east bank levee system, which has a Very High Risk according to the NLD and is a Non-Accredited Levee System in the Effective FIRM, whereas the Linda/Olivehurst sites are protected by the Plumas Lakes Basin levee system, which is a Provisionally Accredited Levee System in the Effective FIRM.
11. **Hub for mobility options (car share, bike/scooter share, commuter program, etc.) –** Evaluated each site's distance from population and activity centers (developed areas), space for shared mobility infrastructure, and surrounding active transportation infrastructure.

12. **Acquisition cost –** Considered each site's potential availability for sale and the price per acre (if formally for sale).
13. **Development cost –** Evaluated the general planning-level costs associated with development, such as permitting and other development approvals necessary.
14. **Use as an evacuation center –** Analyzed size, distance and accessibility from population centers, and how flood risks impact site accessibility to general public during an emergency.
15. **Easement required –** Considered whether there was an easement (utility or other) requirement.
16. **Geotechnical (soils condition) –** Analyzed soils condition; more contaminated soils could require costly cleanup by Yuba-Sutter Transit.
17. **Reusable existing facilities –** Analyzed the potential for existing facilities to be repurposed for the Next Generation Transit Facility.

The Development Costs category is important to assess how much work the site will need and the effects on the facility's development cost. The matrix includes ratings for each of the ten sites on the following:

18. **Construction costs –** Analyzed the approximate price per square foot construction costs to build on that specific site but does not include the price of the land.
19. **Environmental mitigation costs –** Evaluated the cost to mitigate potentially harmful environmental impacts.
20. **Roadway improvements and traffic mitigation costs –** Evaluated the impacts of the improvements that would have to be made to accommodate new bus traffic.
21. **No extraordinary site work required –** Identified whether a site would require significantly extra site work, like fill, slope correction, or additional grading, that would reasonably be considered as atypical and beyond most site development costs
22. **Utility availability –** Considered the availability of utilities on site or the need to be brought into the site. These utilities include electricity, water, gas, sewer, and broadband.

The Facilities category is important to assess how compatible the site is for the necessary facilities. The matrix includes ratings for each of the ten sites on the following:

23. **Site proportion viable with ideal facility layout –** Informed a shape analysis to determine whether they could accommodate the ideal facility layout discussed with Yuba-Sutter Transit.
24. **Available buildable area –** Assessed whether there was adequate buildable area within the property.
25. **Site allows for pull-in-drive-through, single-row bus parking**– Evaluated each parcel's size and shape to determine if each allowed for pull in and drive through single row bus parking, which would simplify the daily on-site circulation of buses.
26. **Site allows for redundant on-site microgrid and/or BEB back up charging infrastructure –** Assessed each site's ability to host microgrids or redundant BEB charging infrastructure. This would make the site and fleet more resilient in the event of grid failure.
27. **Allows for surface onsite stormwater detention –** Evaluated each site's potential for stormwater detention basins or green infrastructure to reduce stormwater runoff and meet municipal separate storm sewer system (MS4) permits. MS4 permits authorize

agencies to discharge pollutants into US waters from public stormwater system and are a requirement of the Clean Water Act.

28. **Drainage –** Informed an analysis on the site's drainage characteristics, including natural drainage patterns and capabilities. This is important as some sites are in flood-prone areas and flooding could ruin on-site fueling infrastructure, facilities, and other capital, or would require significant investment to mitigate flooding issues.
29. **Multiple points for bus entrance (in and out) –** Evaluated whether the sites have multiple points for bus entrances and exits to improve circulation and reduce time out of the lot.
30. **Site allows for single story facility –** Informed an analysis on the sites' size and potential to house a single-story facility, which is ideal for reduced construction costs.
31. **Allows for adequate solar generation –** Assessed the availability of land beyond the required 9 acres, shading, and ability to host solar power infrastructure.
32. **Employee/public vehicle ingress/egress –** Evaluated the potential to separate employee ingress/egress and parking from bus ingress/egress and parking, which would reduce on-site congestion.

Fueling infrastructure is important to assess if the site contains the necessary infrastructure requirements for BEBs or FCs. The Fueling Infrastructure Category in the matrix includes ratings for each of the ten sites on the following:

33. **Surrounding power availability –** Informed an evaluation of the surrounding power grid and power capacity available at each site. To provide enough capacity to charge BEBs, grid modifications will likely be needed, but the extent is unknown at this time.
34. **Can accommodate hydrogen fueling infrastructure –** If Yuba-Sutter Transit decides to purchase FC buses, they will need to install or construct hydrogen fueling infrastructure on-site, which has a large footprint. This criterion evaluated the potential for the site to accommodate this infrastructure.
35. **Distance to substation –** Assessed the proximity of each site to a substation. A substation with enough capacity is required to meet high-energy BEB charging needs.
36. **Location of power service entrance on site to bus parking –** Informed an access analysis, identifying an on-site power service entrance near likely locations where the buses would be parked to reduce the cost of on-site power distribution.
37. **Potential for public hydrogen/electric fueling station –** Analyzed the potential of each site to house a publicly accessible hydrogen fueling station.
38. **Availability of redundant circuits and/or substation feeds –** Evaluated the potential for redundant circuits and/or substation feeds to be located on site, as these are important components to having resilient BEB fueling infrastructure in case one circuit fails.
39. **Nearby natural gas main (used for H on-site reforming) –** Evaluated on the proximity of each site to a natural gas main, which is important for FC fueling infrastructure if Yuba-Sutter Transit decides to make Hydrogen on-site instead of getting it shipped in.
40. **Site compatible with grade-level BEB charging equipment area –** BEB charging equipment has a large footprint, particularly the charging cabinets that have to be located close to the buses. The sites were therefore evaluated on their capability to accommodate grade-level BEB charging infrastructure.

2.3.2 Preliminary Site Screening

Site Impacts on Operating Costs

WSP performed a preliminary analysis to identify potential operating cost implications of the ten Yuba-Sutter Transit sites compared to the existing transit facility, as a site that is far away from the existing service and bus network could negatively impact daily operations and consequently costs.

In order to find operating cost implications, WSP performed a preliminary analysis on the operating costs for each of the ten potential sites for the Next Generation Transit Facility. This included taking all the first and last stops on each route and calculating the distance and time to each of the ten sites. From there, General Transit Feed Specification (GTFS) data was examined for the route schedule. WSP was able to determine the number of stops per day and the weekly schedule for each of the stops. From there, the team multiplied the minutes from the stop to each facility by the daily stops and days per week to find the weekly time it would take to reach each of these stops from the ten sites. The team multiplied these using the 255/55/0 formula – i.e. weekday schedules were multiplied by 51 weeks per year, Saturday schedules were multiplied by 55 weeks to incorporate holidays, and Sundays were excluded because Yuba-Sutter Transit does not operate on Sundays. These times were added up to find the total gate to gate annual hours for each site. These hours were then multiplied by the $50 agency-provided hourly cost that is inclusive of the contractor operating cost and the cost of fuel and maintenance (fully burdened cost). The annual gate to gate costs are shown below in Table 3, Table 4, and Table 5.

Table 3: Yuba County Sites Annual Deadhead Hours Operating Cost

	Site 1	Site 2	Site 3	Site 3a	Site 4	Site 7	Site 9	Site 11
Annual Operating Cost	$142,915	$141,558	$145,505	$145,505	$138,852	$157,106	$141,908	$143,978

Table 4: Sutter County Sites Annual Deadhead Hours Operating Cost

	Site 12	Site 14
Annual Operating Cost	$141,863	$155,263

Table 5: Current Facility Annual Deadhead Hours Operating Cost

	Current Facility
Annual Operating Cost	$139,543

The following chart provides a nominal ranking that is meant to be used as a guide on the range of costs between potential sites (see Table 6). It includes the annual net savings compared to the annual operating costs of the existing facility and the percent increase or decrease of these costs.

Table 6: Annual Net Savings Ranking of the Ten Potential Sites

Ranking	Site	Annual Net Savings	Annual Savings as a % of Bus Operating Expense[2]
1	Chestnut Rd & Erle Rd *(Site 4)*	$692	0.02%
2	5962 Avondale Ave *(Site 2)*	-$2,015	-0.05%
3	1441 E Onstott Rd *(Site 12)*	-$2,320	-0.06%
4	1687 Hammonton Smartsville Rd *(Site 9)*	-$2,365	-0.06%
5	1356 N Beale Rd *(Site 1)*	-$3,372	-0.08%
6	1055 N Beale Rd *(Site 11)*	-$4,435	-0.11%
7	6035 Avondale Ave *(Site 3)*	-$5,962	-0.15%
8	6062 Avondale Ave *(Site 3a)*	-$5,962	-0.15%
9	Butte House Rd & Tharp Rd *(Site 14)*	-$15,720	-0.39%
10	East of Yuba College on Goldfields Parkway *(Site 7)*	-$17,563	-0.44%

Each of these ten sites are discussed below based on the site evaluation criteria in the matrix. See Appendix C for the completed matrix.

1356 N Beale Road (Site 1)

Size: 17.57 Acres
Zoning: Neighborhood Mixed Use & Residential

Site Analysis

- **Site Characteristics:** The site contains a parking lot and 7,500 square foot combined office and shop building. The building has offices, parts room and an insulated warehouse with 4 vehicle lifts, a 16-foot clearance height, and eight grade level roll-up doors. This structure could be repurposed for the Next Generation Transit facility or used during the transition period as a temporary maintenance facility. There is a newly signed lease on the existing building and the property owner is in negotiations with a potential buyer for the land surrounding the building.
- **Operating Costs:** There is an expected annual increase of $3,372 or 0.08% compared to the current facility. Deadhead costs are minimized due to the site's close proximity to the centroid of the service area and access to SR 70 for efficient commuter service operation.
- **Public Access:** The site is served by transit routes 1, 3, and 6. It is 0.2 miles from the closest bus stop, located at N Beale Rd and Lowe Ave. The sidewalk and bike lane on N Beale Rd allow for excellent pedestrian and bike access.
- **Vehicle Access:** A sufficient number of ingress/egress points from roadways can be constructed to minimize circulation conflicts of buses and employee/visitor vehicles.

[2] The 2018 Bus Operating Expense was $4,037,366 according to the National Transit Database, FTA. https://cms7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2018/90061.pdf

This is because the site has roadway access on each side (N Beale Rd to the north, Avondale Ave to the east, and Hammonton Smartsville Rd to the south).

- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 1.3 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet fleet charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site shares its eastern border with a residential-apartment complex, as well as a carwash and supermarket.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen[3]:** The site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- Because of the recently signed lease and ongoing negotiations to purchase the property, the property's viability for the Next Generation Transit Facility is low.
- Mitigation measures – primarily related to noise, odors, and increased traffic generation – would need to be implemented to minimize the impacts to adjacent residential properties which may increase construction costs and limit use of all areas of the site to provide a buffer.
- Potential negative environmental justice impacts identified during the analysis would have to be further explored to identify the most feasible mitigation strategies.
- Potential flood risk would need to be mitigated to the extent possible.
- Access off N Beale Rd will likely require a signal to provide adequate bus access due to a high ADT on N Beale Rd.

5962 Avondale Avenue (Site 2)

Size: 9.0 Acres
Zoning: Neighborhood Mixed Use

Site Analysis

- **Site Characteristics:** An empty lot located at the southwest corner of Avondale Ave and N Beale Rd. The original site was 9 acres, but the owner is in the process of doing a

[3] California's CalEnviroScreen is a web-based tool that assists in identifying and evaluating various environmental justice factors within communities, namely those that are most affected by pollution and where people are most vulnerable to pollution's effects. Data relating to environmental, health and socioeconomics are used to produce scores – green (lowest), yellow, orange, and red (highest). Low scoring (or green) communities are considered to have the lowest pollution burden.

lot-line adjustment to pull a permit for a mini-storage facility on one of the parcels. He is currently only willing to sell the unused parcel of 4.8-acres for $550,000.

- **Operating Costs:** There is an expected annual increase of $2,015 or 0.05% compared to the current facility. The site's close proximity to the centroid of the service area and access to SR 70 for efficient commuter service operation keeps additional deadhead costs low.
- **Public Access:** The site is served by transit routes 1, 3, and 6. It is 0.3 miles from the closest bus stop, N Beale Rd and Lowe Ave. The sidewalk and bike lane on N Beale Rd allow for pedestrian and bike access to the site, but there is a lack of active transportation infrastructure on Avondale Ave.
- **Vehicle Access:** The site has limited access for bus ingress/egress as there is a grade separation between the property and N Beale Rd.
- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 1.3 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site is bordered by railroad tracks to the west and land with two wells operated by the Olivehurst Public Utility District to the south.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** This site is located within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- Site is potentially not suitable if the owner is only willing to sell 4.8 acres, as there would be insufficient space for the Next Generation Transit Facility.
- Lack of sidewalks and bike lanes on Avondale Ave.
- Limited ingress/egress, which would increase circulation conflicts between buses and other vehicles.
- Potential negative environmental justice impacts identified in the analysis would have to be analyzed to ensure that these are not exacerbated as the result of the facility's presence.
- Potential flood risk would need to be mitigated to the extent possible.
- Avondale Ave and N Beale Rd will likely require a signal to provide adequate bus access due to a high ADT on N Beale Rd.

6035 Avondale Avenue (Site 3)

Size: 19.72 Acres

Zoning: Neighborhood Mixed Use

Site Analysis

- **Site Characteristics:** The site is a large, empty lot that has more than enough space for the facility and is currently for sale for $899,900, making it the lowest price-per-acre of all the potential sites. Due to its size, this site has sufficient space for a co-developed solar facility to meet the power needs of the facility or other co-developments.
- **Operating Costs:** There is an expected annual increase of $5,962 or 0.15% compared to the current facility. The site's close proximity to the centroid of the service area and access to SR 70 for efficient commuter service operation keeps additional deadhead costs low.
- **Public Access:** The site is served by transit routes 1, 3, and 6. It is 0.4 miles from the closest bus stop, N Beale Rd and Lowe Ave. The sidewalk and bike lane on N Beale Rd allow for pedestrian and bike access to the site, but there is a lack of active transportation infrastructure on Avondale Ave.
- **Vehicle Access:** Access to Avondale Ave, a long, public road, would accommodate for multiple driveway curb cuts, but there is no potential for direct access to N Beale Rd due to the grade separation.
- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 0.9 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** It is bordered by nine single-family residential units to the east and an empty lot to the west. However, the site has significant land area to provide a buffer or other mitigation measures to reduce the impact on adjacent land uses.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** This site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- Mitigation measures, such as noise, odors, and traffic, would need to be taken to minimize impact to nearby residential properties. This could lead to an increase in development and construction costs and inability to utilize the full land area for development of the facility.
- Lack of sidewalks and bike lanes on Avondale Ave.
- Potential negative environmental justice impacts would have to be analyzed.
- Potential flood risk would need to be mitigated to the extent possible.

- Avondale Ave and N Beale Rd will likely require a signal to provide adequate bus access due to a high ADT on N Beale Rd.

6062 Avondale Avenue (Site 3a)

Size: 11.61
Zoning: Light Industrial

Site Analysis

- **Site Characteristics:** The site is a large, empty lot that is zoned Light Industrial, which is the ideal zoning. The property is not currently for sale. It is owned by an LLC in San Francisco and the LLC has not responded to any of WSP's requests about property availability.
- **Operating Costs:** There is an expected annual increase of $5,962 or 0.15% compared to the current facility. The site's close proximity to the centroid of the service area and access to SR 70 for efficient commuter service operation keeps additional deadhead costs low.
- **Public Access:** The site is served by transit routes 1, 3, and 6. It is 0.4 miles from the closest bus stop, N Beale Rd and Lowe Ave. The sidewalk and bike lane on N Beale Rd allow for pedestrian and bike access to the site, but there is a lack of active transportation infrastructure on Avondale Ave.
- **Vehicle Access:** The site has limited access for bus entry and exit.
- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 1.0 mile from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** It is bordered by generally compatible land uses as there is an empty lot to the east (Site 3), a railroad to the west, and a cement plant to the north. However, there is one single family home on a large lot to the south of the property.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** This site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- The availability of the property is unknows as the property is not currently for sale.
- Lack of sidewalks and bike lanes on Avondale Ave.
- Limited ingress/egress, which would increase circulation conflicts between buses and other vehicles.

- Potential negative environmental justice impacts would have to be analyzed to determine whether the site would disproportionately impact surrounding communities that are at-risk, as a result of the CalEnviroScreen analysis conducted.
- Potential flood risk would need to be mitigated to the extent possible.
- Avondale Ave and N Beale Rd will likely require a signal to provide adequate bus access due to high ADT on N Beale Rd.

Chestnut Avenue & Erle Road (Site 4)

Size: 10.1 Acres
Zoning: Commercial Mixed-Use

Site Analysis

- **Site Characteristics:** The site is comprised of eight empty parcels that were once used as a drive-in theater. The site is an atypical, diamond-like shape. The property is currently being marketed for sale. The owner is interested in selling the property for $6 per square foot, which we estimate to be approximately $2,640,000, total.
- **Operating Costs:** There is an expected annual decrease of $692 or 0.02% compared to the current facility. The site's close proximity to a major highway and on-ramp is the main reason for the low deadhead hours.
- **Public Access:** The site is served by transit routes 3 and 6. It is 0.1 miles from the closest bus stop, Arboga Rd and Pasado Rd. There is a lack of active transportation infrastructure on Chestnut Ave and Erle Rd. There are no sidewalks or bicycle lanes on Chestnut Ave and no bicycle lanes on Erle Rd.
- **Vehicle Access:** The site has good road access for buses – with entry and exit options to Chestnut Ave and Erle Road and easy access to Route 70.
- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 1.8 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** It is bordered by empty lots and State Highway 70 and it is separated from a residential area to the west by train tracks, which will reduce the impact of the facility on any surrounding land uses.
- **Flood Risk:** The site is the most flood-resilient of the Yuba County Sites. It is not located in the FEMA 100-year or USACE 100-year floodplains, whereas all the other Yuba County sites were within at least one of those 100-year floodplains. The site is designated as protected by the Feather River Setback Levee.
- **CalEnviroScreen:** The site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- The site's shape does not meet the necessary 400-foot width in order to have the desired on-site circulation and ideal facility layout. In addition, a 10-acre site (with rectangular or square excess land) is required in order to accommodate hydrogen fueling infrastructure. This site does not meet that criteria and would be confined to solely BEB fueling infrastructure.
- Lack of sidewalks and bike lanes on Chestnut Ave.
- Potential negative environmental justice impacts resulting from the CalEnviroScreen analysis would need to be explored further to identify the severity of impacts and ensure existing disadvantaged communities will not be disproportionately impacted from the development of the site.
- Chestnut Ave and Erle Rd will likely require a signal to provide adequate bus access as there are high traffic volumes in the area.

Goldfields Parkway & N Beale Road (Site 7)

Size: 15 Acres
Zoning: Neighborhood Mixed-Use

Site Analysis

- **Site Characteristics:** The site is an empty lot that has ample space for the new facility. The entire parcel is 99 acres; however, Yuba-Sutter Transit is only interested in the 15 acres on the southwest corner of this intersection of N Beale Road and Goldfields Parkway. The site is also a triangle shaped, which could make design and circulation more difficult. This site has sufficient space for a co-developed solar facility to meet the power needs of the facility or other co-developments. The property is not currently listed for sale, but Yuba-Sutter Transit has contacted the owner and they indicated that they would be willing to hear offers.
- **Operating Costs:** There is an expected annual increase of $17,563 or 0.44% compared to the current facility. This is the most of the ten potential sites. However, a difference of $17,563 is not extreme, as Yuba-Sutter Transit's bus operating expense in 2018 was $4,037,366.[4] This higher cost is due to the site's distance from the centroid of the bus network as the site is on the far eastern edge of the fixed route network, which increases deadhead miles and hours.
- **Public Access:** The site is served by transit routes 1, 3, and 6. It is 0.2 miles from the closest bus stop, Alberta Ave and N Beale Rd. The sidewalk (north side only) and bike lane on N Beale Rd allow for excellent pedestrian and bike access. However, there are no sidewalks or bike lanes on Goldfields Parkway.
- **Vehicle Access:** The site now offers excellent road access for buses – with entry and exit options to N Beale Rd and Goldfields Parkway.
- **Traffic Patterns:** Goldfields Parkway is a new road, which currently has minimal traffic; however, traffic is anticipated to increase as the roadway is extended and growth occurs in the surrounding area.
- **Power Availability:** The site is 1.3 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas &Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.

[4] National Transit Database, FTA "Transit Agency Profiles: Yuba-Sutter Transit Authority", 2018.

- **Surrounding Uses:** The site is bordered by empty lots and is separated from a large multi-family area by a major arterial road (N Beale Rd), which should reduce any conflicts with surrounding land uses. The site is also located next to Yuba College – a hub for Yuba-Sutter Transit. The surrounding area is projected to experience significant growth in the near future.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** This site is one of the least impactful to disadvantaged communities, falling within the green range (36-40%) with a low pollution burden compared to other census tracts in California. The area has slightly higher Ozone levels than average in the State of California (61 percent), but lower levels of PM2.5 than average in the State of California (31 percent). Asthma rates in the area are about average, the percentage of low birth rates is below average, and the poverty rate is 10 percent above average. Putting a bus maintenance facility in a "Green" area helps so that the burden is not disproportionally placed on vulnerable communities.

Potential Deficiencies

- Triangular shape could make design and circulation more difficult.
- Increased operating costs due to location at eastern edge of service area.
- Lack of sidewalks and bike lanes on Goldfields Parkway and sidewalk on the south side of N Beale Rd.
- Potential flood risk would need to be mitigated to the extent feasible.
- The site may require a signal at either/or both N Beale Rd intersections at Alberta Ave and/or Goldfields Parkway to provide adequate bus access due to increasing traffic patterns.
- Additional time may be required during the acquisition phase in order to legally designate and record new lots should the agency purchase only a portion (15 acres) of the overall 99-acre site.

1687 Hammonton Smartsville Road (Site 9)

Size: 18.22 Acres
Zoning: Medium Density Residential

Site Analysis

- **Site Characteristics:** The site only contains a house and some old outbuildings, meaning that there will be minimal demolition/cleanup costs. The site has ample space for the new facility which provides enough space for a co-developed solar facility to meet the power needs of the facility or other co-developments. The site is triangle-shaped, which could make design and circulation more difficult. The property is not currently marketed for sale. It last sold in February 2019 for $475,000.
- **Operating Costs:** There is an expected annual increase of $2,365 or 0.06% compared to the current facility. The site's close proximity to Simpson Lane, with direct access to the heart of Marysville and Linda/Yuba College keeps deadhead hours low.
- **Public Access:** The site is only served by Route 6, but there is a bus stop directly adjacent to the property at Hammonton Smartsville Rd and Hile Ave. There is a lack of sidewalks and bike lanes on Hammonton Smartsville Rd.

- **Vehicle Access:** The site does not have good road access for bus ingress/egress, as the site only has access to Hammonton Smartsville Rd.
- **Traffic Patterns:** There is insufficient traffic data in this area to determine the impact on traffic.
- **Power Availability:** The site is 0.5 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site is located across the street from a single-family residential neighborhood.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** This site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- The property is not currently for sale.
- Triangular shape could make design and circulation more difficult.
- Site is the least accessible by transit compared to the other sites being considered.
- Lack of active transportation infrastructure in surrounding area.
- Limited ingress/egress, which would increase circulation conflicts between buses and other vehicles.
- Smart design and potential mitigation measures would need to be taken to minimize impacts (such as noise) on the nearby residential neighborhood, which could be costly.
- Potential flood risk would need to be mitigated to the extent feasible.
- Potential negative environmental justice impacts resulting from the previous analysis would have to be analyzed in more detail to determine potential strategies to ensure disadvantaged communities are not unfairly burdened by the facility and its operations.
- There is a possible need to construct a signal on Hammonton Smartsville Rd at the intersection of Hile Ave or Linda Ave for access to this busy road.

1055 N Beale Road (Site 11)

Size: 13.84 Acres
Zoning: Commercial Mixed Use

Site Analysis

- **Site Characteristics:** The site is an empty lot, however, there are potential drainage issues that may need to be addressed as the property is depressed compared to the street elevation. The property is not listed for sale. It is currently owned by a large developer in Sacramento that has not expressed interest in selling. The property was last sold in 2004.
- **Operating Costs:** There is an expected annual increase of $4,435 or 0.11% compared to the current facility. The site's close proximity to the centroid of the service area and

access to SR 70 for efficient commuter service operation keeps additional deadhead costs low.

- **Public Access** The site is served by transit routes 1, 3, 4, and 6. There is a bus stop 0.2 miles away at Feather River Blvd and N Beale Rd. The sidewalk and bike lane on N Beale Rd allow for excellent pedestrian and bike access.
- **Vehicle Access:** There are challenges with access to the site, as the only street access is onto N Beale Rd at the front of the property. It is constrained by the commercial and light-industrial properties that abut the site. The road has limited areas for new curb cuts and any new driveways would have a challenging entrance when approaching from the freeway feeder. There would be extra coordination needed with the adjacent Caltrans property, as the two sites could potentially share a driveway. There would also be off-site improvements needed at the freeway exit and feeder intersection in order to safely manage the flow of buses.
- **Traffic Patterns:** The Average Annual Daily Traffic (AADT) is among the highest in the area. Route 70 has a back AADT of 51,000 and an ahead AADT of 62,500. While this is only slightly above average compared to the State of California, it is still relatively high compared to other areas within the two counties.
- **Power Availability:** The site is 0.8 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site is bordered by a large commercial center to the east and a Caltrans corporation yard to the west. Being situated in a commercial/light-industrial area, versus a residential area, any development should have minimal impact on surrounding land uses.
- **Flood Risk:** The site is located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) and the 500-year floodplain according to the FEMA Effective flood maps. It is designated as protected by a levee – the Plumas Lakes Basin Levee System and the Goldfields Levee. These levees provide some protection from flooding.
- **CalEnviroScreen:** The site falls within the orange range (80-85%) mainly due to pesticide use and water contamination. However, the area has a slightly above average pollution burden (including Ozone), asthma rates, and low birth weights compared to the State of California. The area also has high rates of poverty compared to the State of California.

Potential Deficiencies

- Drainage issues may need to be mitigated with fill to reduce the localized flooding risk, which may increase development costs.
- The property is not currently for sale.
- Limited ingress/egress, which would increase circulation conflicts between buses and other vehicles. In addition, Yuba-Sutter Transit may have to work with the adjacent landowner (Caltrans) to construct safe ingress/egress.
- Potential flood risk would need to be mitigated to the extent feasible.
- Access off N Beale Rd will likely require a signal to provide adequate bus access due to high ADT on N Beale Rd and surrounding areas.

1441 E Onstott Road (Site 12)

Size: 17.42 Acres
Zoning: Multiple-Family Residence

Site Analysis

- **Site Characteristics:** The site is comprised of two empty lots. The site has ample space for the new facility and could provide a good co-development opportunity if Yuba-Sutter Transit purchased both parcels. While the sites are for sale, the broker gave a price guidance between $12 per square foot and $14 per square foot due to the site's prime location in Yuba City. This would cost over $6 million for the necessary 10 acres and over $9 million for the full 17.42 acres. This cost is higher than almost all the other sites analyzed.
- **Operating Costs:** There is an expected annual increase of $2,320 or 0.06% compared to the current facility. The site's ideal location in the center of Yuba City keeps deadhead hours low.
- **Public Access** The site is served by transit routes 1 and 2. It is 0.2 miles away from the closest bus stop at Washington Ave and Gray Ave. E Onstott Rd to the west is a small, local road without sidewalks or bike lanes, but Gray Ave has both sidewalks and bike lanes. If Yuba-Sutter Transit purchased both parcels or the parcel with frontage on Gray Ave, access for the public would improve. Finally, the site is located in a commercial/population center which would make access easier for the public.
- **Vehicle Access:** If Yuba-Sutter Transit purchases both parcels, then the site would have excellent ingress/egress access. The parcels are bordered by E Onstott Rd to the west, Washington Ave to the North, and Gray Ave to the east. However, Washington Ave is quite small and may not support heavy bus traffic in its current state.
- **Traffic Patterns:** Traffic patterns around the area are conducive for the Next Generation Transit Facility. The Average Annual Daily Traffic (AADT) is lower compared to other areas in the Yuba and Sutter Counties. Highway 20 has a back AADT of 29,500 and an ahead AADT of 34,500. Queens Avenue has a back AADT of 28,800 and an ahead AADT of 18,800. Yuba City shared their 48-Hour Volume Report for E Onstott Rd and Gray Ave from 2019. The 24-hour average was taken by dividing this number by two. The 24-hour volume traveling northbound on E Onstott Rd was 1,263 and the 24-hour volume traveling southbound was 1,045. The 24-hour volume traveling northbound on Gray Ave was 2,581 and the 24-hour volume traveling southbound was 2,610. This shows that these roads receive a relatively small volume of traffic compared to other roads in the area. However, these roads are also two lanes and, therefore, have a smaller capacity than other roads in the area.
- **Power Availability:** The site is 0.5 miles from the closest substation. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site is adjacent to a large commercial center and multi- and single-family residential uses. In addition, the site is located across the street from an assisted living home. In order to minimize impacts, the necessary 10 acres needed for a facility could be purchased on the western edge of the property Yuba; however, this limits the co-development and renewable energy potential of the site.

- **Flood Risk:** The site is not located in any of the U.S. Army Corps of Engineers (USAE) or by the FEMA Effective flood maps; however, it is located in the 100-year floodplain according to "Regional/Special Studies". The site is protected by the Feather River right bank-Sutter Bypass east bank levee system. This levee system is considered to be at "Very High Risk" and is considered by FEMA to be a Non-Accredited Levee System in the effective flood maps. Therefore, while the site is not located in a heavily flood-prone area, the levees that protect the area are considered risky.
- **CalEnviroScreen:** The site falls within the moderate Yellow range (55-60%) mainly due to groundwater threats and water contamination, and the area has a slightly above average Ozone concentration (61%) compared to the State of California. The area also has high rates of poverty compared to the State of California (83%). This could be due to the high proportion of seniors in the area.

Potential Deficiencies

- The high cost per square foot may be cost prohibitive, in addition to further costs and time associated with lot line adjustments or similar legal parcel actions.
- Purchasing both parcels is important for public access, vehicle access, and co-development/renewables. However, this would be very expensive and building on the north parcel may be unpopular due to the close proximity of the assisted living home. Yuba-Sutter Transit would have to include mitigation measures such as screening or landscaping, which would increase costs.
- Any potential negative environmental justice impacts resulting from the analysis would have to be further explored to ensure no additional impacts will occur and that mitigation, if necessary, is feasible.

Butte House Road & Tharp Road (Site 14)[5]

Size: 12 Acres
Zoning: Heavy Commercial, Light Industrial

Site Analysis

- **Site Characteristics:** The parcel is 60 acres, which is more than enough space for the Next Generation Transit Facility, and contains multiple businesses including a trucking facility, commercial properties, and office buildings. Although Yuba-Sutter Transit only needs 9 acres, purchasing more of the parcel would provide enough space for a co-developed solar facility to meet the power needs of the new facility. Parcels within the site are available for sale for anywhere from $5 to $16 per square foot. While it is promising that the site is for sale, the upper end of that range is quite high compared to other sites.
- **Operating Costs:** There is an expected annual increase of $15,720 or 0.39% compared to the current facility. Butte House & Tharp has the second highest annual operating cost of the ten sites due to its distance from the centroid of the transit network.
- **Public Access**: The site is served by routes 1 and 5. Depending on the site selected, it could be 0-0.4 miles from the closest bus stop at Butte House Rd and Tharp Rd or Butte House Rd and Harter Pkwy. Public access to the northwest corner of the site would be good, as there is a bus stop located nearby. Butte House Rd also has sidewalks and bike lanes, which increases public access. Tharp Rd has a sidewalk on one side of the street.

[5] No specific site has been identified on this property and lot line adjustments will be necessary. This makes it difficult to compare site costs and characteristics.

- **Vehicle Access:** Depending on the piece of the parcel purchased, the site may have good access for bus ingress/egress and employee ingress/egress. Entry and exit options to both Butte House Rd and Tharp Rd would be ideal.
- **Traffic Patterns:** Traffic patterns around the area are conducive for the Next Generation Transit Facility. The Average Annual Daily Traffic (AADT) is lower compared to other areas in the Yuba and Sutter Counties. Highway 20 has a back AADT of 29,500 and an ahead AADT of 34,500. Yuba City shared their 24- and 48-Hour Volume Report for Butte House Rd and Tharp Rd from 2016 and 2019. The 24-hour volume traveling eastbound on Butte House Rd was 8,883 and the 24-hour volume traveling westbound was 7,276. The 24-hour volume traveling northbound on Tharp Rd was 6,908 and the 24-hour volume traveling southbound was 4,705. This discrepancy in traffic makes sense, as Tharp Rd is a three-lane road – two lanes travel north and one lane travels south.
- **Power Availability:** The site is adjacent to a cluster of substations. It is anticipated that power infrastructure upgrades will be needed to supply enough power to meet future charging needs. The distance from the substation has a direct correlation on the cost of this infrastructure upgrade. This site would have lower costs compared to other sites that are further from substations. However, Pacific Gas & Electric has an EV Fleet program that can offset the costs and provide necessary power to the site if this program is available at the time of facility construction.
- **Surrounding Uses:** The site is located in a large commercial center that contains multiple businesses, including a trucking facility, commercial properties and office buildings. The trucking facility ensures that the area is accustomed to high levels of large-vehicle traffic, which means adjacent roadways are sufficiently designed to accommodate large vehicles. The site is across the street from a mobile home park. However, the area is industrial-commercial and the two would be separated by an arterial roadway.
- **Flood Risk:** The site is not located in any of the U.S. Army Corps of Engineers (USAE) or by the FEMA Effective flood maps; however, it is located in the 100-year floodplain according to "Regional/Special Studies". The site is protected by the Feather River right bank-Sutter Bypass east bank levee system. This levee system is considered to be at "Very High Risk" and is considered by FEMA to be a Non-Accredited Levee System in the effective flood maps. Therefore, while the site is not located in a heavily flood-prone area, the levees that protect the area are considered risky.
- **CalEnviroScreen:** This site is considered to have minimal environmental justice impacts and is located within the Green range (31-35%). The area has a slightly above average pollution burden (including Ozone) compared to the State of California. However, asthma rates and low birth rates are much lower than average, at 16 percent and 8 percent respectively. The area has low rates of poverty compared to the State of California. This ensures that the burden is not disproportionally placed on vulnerable communities.

Potential Deficiencies

- Uncertainty surrounding which section of the parcel Yuba-Sutter Transit would be able to purchase which could impact public and vehicle access and cost.
- Operating costs may increase.
- The site may have high development costs and complications for the ideal facility layout.
- There are future office developments planned on the northwest side and existing facilities at the southwest side which are some of the top areas for a transit facility

within the 60-acre property where existing infrastructure would need to be demolished to generate a facility site plat with 450+ feet of width for ideal bus parking circulation. A site on the southeast corner of Butte House Rd and Tharp Rd would present less challenge in this regard.

- It is also unknown how many access points Yuba City would allow onto Butte House Rd or Harter Pkwy.

3. Top Three Recommended Sites

As a result of the analysis described above, three sites are being recommended for advancement to the next stages of the study, including climate resiliency and adaptation considerations, as well as conceptual site layout and design. These include: Site 3 -- 6035 Avondale Avenue, Site 7 -- Goldfields Parkway and N Beale Road, and Site 12 -- 1441 E. Onstott Road.

3.1 Discussion

6035 Avondale Avenue (Site 3) – Rank #1

6035 Avondale Avenue is the top-ranked site with 365 points (Appendix C).

The site scored "Excellent" on the matrix in the following areas: wildfire risk, emergency response, public accessibility, low acquisition cost and it has sufficient space to accommodate future system growth, , an ideal facility layout, available building area, drive through single-row bus parking, single story facility, and space to accommodate solar and hydrogen fueling infrastructure.

6035 Avondale Ave has ample space for the Next Generation Transit Facility with 19.72 acres. This large size will accommodate future system growth and has more than enough space for the estimated 2040 build-out as well as co-development potential. The site is also located on an arterial road, N Beale Road, with direct access to Yuba-Sutter Transit Routes 1, 3, and 6. The site is located near a bus stop – N Beale and Lowe Ave – and has active transportation infrastructure, which allows for good public access.

The site is centrally located and one of the closest sites to the current facility at 2100 B Street, Marysville. 6035 N Beale Rd is currently for sale for $899,900, or $45,634 per acre, making it the cheapest per-acre option of the sites. However, Yuba-Sutter Transit will have to get the property re-zoned and include measures to mitigate the impact to the residents located adjacent to the property. Generally, this process will add marginal costs to the overall project but may require significantly more time investments for the re-zoning and community outreach efforts.

The site also provides the ideal shape and size for the facility, due to its size and rectangular shape. A minimum width of 450 feet is required to allow for proper circulation and a single-story facility, which would reduce on-site congestion and increase accessibility. It has more than enough buildable area at grade and would allow for pull in and drive through single row bus parking, which is ideal for circulation as it negates the need for backing movements. There is ample space for solar generation to offset cost of power of the facility and fleet charging.

The site also scores well for resiliency – both for zero-emission fueling infrastructure and for emergency response. The site has a low wildfire risk and is well-located near a police station, fire station and Rideout Regional Medical Center for emergency response. The site could be a good option for an emergency evacuation shelter with nearby population centers. It has ample space for public fueling infrastructure and its proximity to hubs such as Marysville and Yuba

College could make it a viable option for publicly accessible alternative fuels such as hydrogen or vehicle charging. Also due to its close proximity to the Linda central business district, it has the potential to serve as a mobility hub. Finally, the site is the best of the Yuba County sites for backup BEB charging infrastructure and solar generation, which allows for redundancy in the fueling infrastructure. The site's size would also allow it to accommodate potential hydrogen fueling infrastructure, which gives Yuba-Sutter Transit the ability to choose a desired fuel choice without facility constraints.

As previously discussed, the site is in a disadvantaged community and consequently the site does have slightly above average pollution, asthma rates, and low birth weights compared to the state, in addition to higher concentrations of low-income residents. As such, there is a need for heightened sensitivity related to disadvantaged communities with this location. While zero-emission fleets may not contribute to higher air pollution concentrations, concerns are still present with an industrial use, as noise pollution and other potential environmental factors (i.e. vehicle fluids) may impact nearby residents. However, the Yuba Sutter Next Generation Transit Facility would provide increased opportunities for nearby employment as well as improved access to transit information and fare media to residents in the area.

Goldfields Parkway & N Beale Road (Site 7) – Rank #2

Goldfields Parkway & N Beale Rd is the second-ranked site with 308 points (Appendix C).

The site scored "Excellent" on the matrix in the following areas: public accessibility, multiple points of bus ingress/egress, separate employee ingress/egress and it has sufficient space to accommodate future system growth, available buildable area, , , single story facility, and accommodates solar and hydrogen fueling infrastructure.

The site has ample space for the Next Generation Transit Facility with 15 acres. This large size will accommodate future system growth and has more than enough space for the estimated 2040 build-out. The site is located on Yuba-Sutter Transit Routes 1, 3, and 6.

In addition, the site has some of the best public access of the evaluated sites, as it is located next to Yuba College, where the Yuba College Terminal bus stop is located. This access to Yuba College is important, as much of Yuba-Sutter Transit's expected future ridership growth stems from the college. The site's ideal location next to the main passenger hub of Yuba College presents the potential for expansion to a more robust mobility hub site that expands mobility options to and beyond public transit services. However, Yuba-Sutter Transit will have to get the property re-zoned, which may add time and costs to the project if this site is chosen.

Goldfields Parkway & N Beale Rd has ample available buildable area for a one-story facility. The site is currently vacant, which reduces development costs. It is not being marketed for sale, but the owners are open to offers. In addition, the site has multiple points of bus entrance/exit onto Goldfields Pkwy and N Beale Rd and would allow for employee/public vehicle ingress and egress separate from the buses. This is crucial to improve circulation around the facility, reduce congestion, and improve efficiency for the Next Generation Transit Facility.

The site has ample space for public fueling infrastructure. While the site is far from Sutter County residents, it is located next to Yuba College which is a major activity center. Accessibility to alternative fuels at this site could greatly benefit the community of Linda by enabling them to take advantage of various programs to purchase an alternative fuel vehicle. Finally, the site has space for backup BEB charging infrastructure and solar generation, which allows for redundancy in the fueling infrastructure. The site's size allows it to accommodate potential hydrogen fueling infrastructure, which gives Yuba-Sutter Transit the ability to choose

its fueling type without facility constraints, but the triangle shape may present facility design and site circulation challenges.

While Goldfields Parkway & N Beale Rd has the highest estimated annual operating cost of the parcels evaluated, this impact is small compared to Yuba-Sutter Transit's annual bus operating cost. The site would increase operating costs by approximately $17,563. However, Yuba-Sutter Transit's bus operating expense in 2018 was $4,037,366. This increase represents only 0.44% of the bus operating budget, which is relatively insignificant compared to other cost factors.

Site 7 is in a "Yellow" area in CalEnviroScreen, with slightly higher Ozone pollution and asthma rates than the state. While PM 2.5 levels and low birth rates are much more favorable in this area compared to the State (and other sites considered in this study), the presence of higher than average poverty rates present other equity concerns. As with other sites, emission concerns may be mitigated through use of hydrogen or battery electric vehicles, however other environmental concerns associated with maintenance activities will also need to be addressed so as not to create disproportionate impacts to surrounding communities.

1441 E Onstott Road (Site 12)- Rank #3

1441 E Onstott Rd is the third-ranked site with 303 points.

The site scored "Excellent" on the matrix in the following areas: wildfire risk, emergency response, traffic conditions, and use as an evacuation center. If Yuba-Sutter Transit purchased the full 17.42 acres, then the site would also score "Excellent" on: ideal facility layout, accommodates future system growth, available building area, drive through single-row bus parking, single story facility, and accommodates solar and hydrogen fueling infrastructure.

The site has enough space for the Next Generation Transit Facility with 17.42 acres. It is adjacent to Yuba-Sutter Transit Routes 1 and 2. The site has excellent access, as it is located within a population hub (Yuba City), abuts the Target Commercial Center and is near the Yuba Sutter Mall, potentially increasing access to the facility by the general population. However, Yuba-Sutter Transit will have to get the property re-zoned and may need to make extra considerations related to emergency vehicle access related to the assisted living home across the street and single- and multi-family residential areas that abut the property. Yuba-Sutter Transit has thought about mitigating the site's presence and visual impact on the surrounding community by setting it back from the assisted living home and only purchasing the 10-acre parcel that abuts the commercial center. However, this makes it difficult to create a public fueling station, generate solar energy, and have space for redundant BEB charging or FC infrastructure. It would also be costly to purchase additional property (the adjacent 7.42-acre lot) for these uses.

This site scored high for its energy access, roadway and entrance/exit conditions, traffic conditions, and its emergency resilience. The site is close to a cluster of substations, which could be important for BEB charging infrastructure. The site also has multiple points of ingress/egress, which will allow for efficient bus and private vehicle circulation. The site is also rectangular, which makes it an easier fit for a single-story facility. 1441 E Onstott Rd also has lower traffic levels compared to the sites along N Beale Rd. Route 20 has a back and ahead AADT of 33,500 and 37,500, compared to N Beale's back and ahead AADT of 51,000 and 62,500.[6] This is important, as traffic and congestion could cause long dwell times and increasing the number of vehicles along high-traffic areas could cause low levels of service. In addition, 1441 E Onstott Rd has low wildfire risk and lower flood risk than the Linda sites. This

[6] CalTrans (2017), Annual Average Daily Traffic (AADT) Volumes Shapefile

makes it one of the most resilient sites which will be further addressed in the following section. The site could be used as an evacuation center for extreme events and natural disasters, as it is close to dense population and commercial centers (such as the Yuba Sutter Mall) and is also close to police and fire stations. Finally, the site is for sale for $12 to $14 per square foot, which is on the higher end of the sites studied.

1441 E Onstott Rd is in an "Yellow" area in CalEnviroScreen, but this is mainly due to groundwater and drinking water threats. The area's slightly high poverty rates could be due to the large elderly and disabled population across the street, however, it should not be discounted and must remain a consideration during the next stages of the project, if selected as the final site. Steps should be taken to minimize impacts resulting from vehicle maintenance activities (such as noise or chemical use), as well as increased bus traffic along the roadways.

3.2 Climate Change Risks and Adaptation Strategies

Climate-related risks pose several types of threats to the Yuba City-Marysville-Linda area and the three potential sites under consideration by Yuba-Sutter Transit. Changing frequencies and magnitudes of these hazards are important to understand and help inform cost-effective, resilient infrastructure.

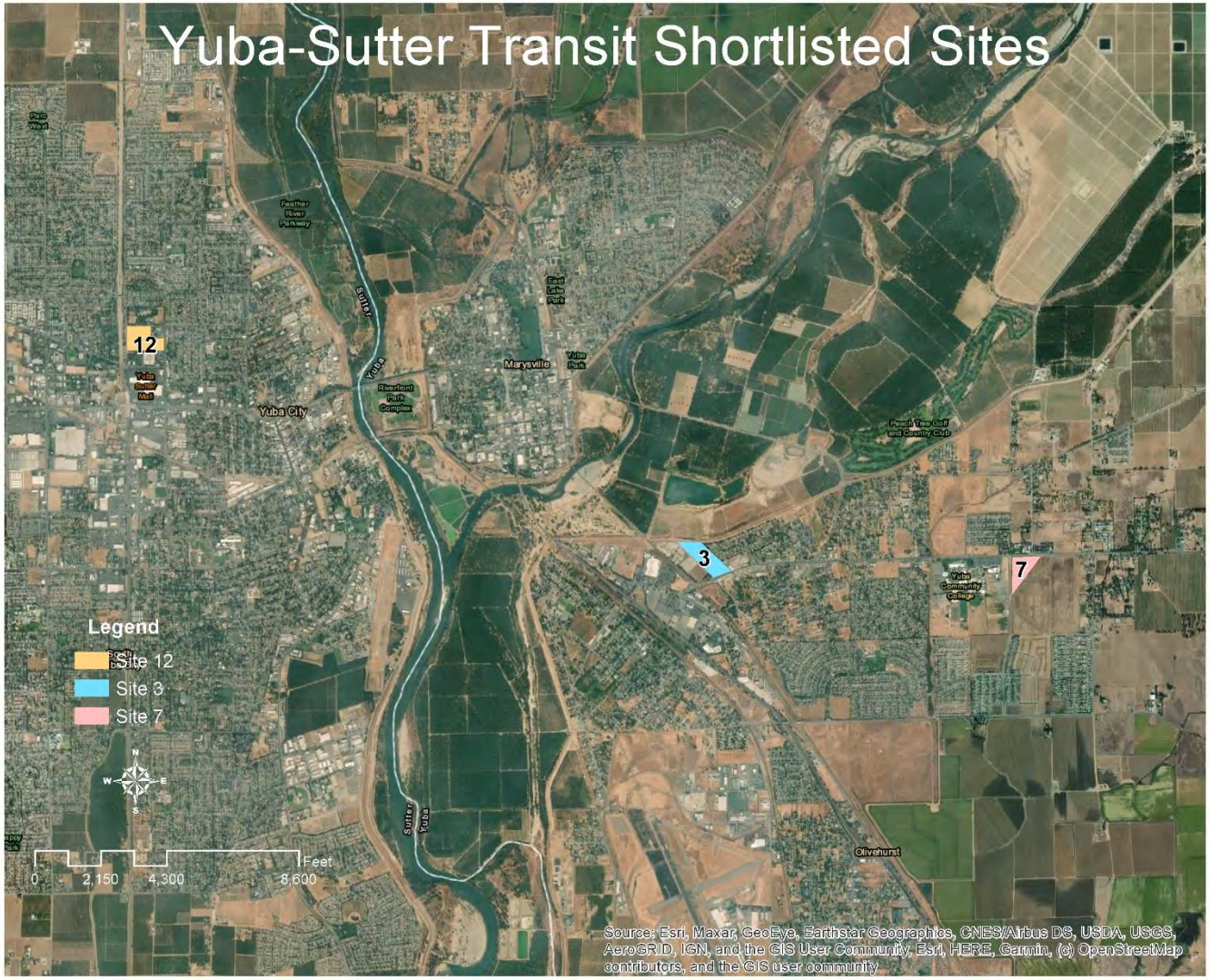
In this section we review potential hazards associated with climate changes and how they could affect the Yuba-Sutter Transit site and facilities. In particular, it focuses on flooding, heatwaves, and wildfire. After discussing each of these hazards, this section discusses potential adaptation options.

The information in this section draws on relevant State and regional information, such as the ongoing Caltrans Change Assessment Report project, the Caltrans District 3 Climate Change Vulnerability Assessment, the SACOG resiliency effort, Local County Hazard Mitigation Plans, FEMA flood maps, and other sources.

Figure 2 shows the potential site locations:

- Site 3: 6035 Avondale Avenue
- Site 7: Goldfields Parkway & N Beale Road
- Site 12: 1441 E Onstott Road

Figure 2: Potential Site Locations



Flood

The Yuba City-Marysville area is located at the confluence of the Feather River and Yuba River, two major rivers. The region faces significant flood risk and is protected by levees and downstream to multiple large dams. Disastrous floods have affected the region in recent history, resulting in fatalities and widespread property damage. Both the Sutter County and Yuba County hazard mitigation plans document these risks and past events.[7,8] As extreme precipitation patterns change over time, more extreme rainfall could occur, potentially increasing flood risk, depending on precipitation severity and duration, time of year, snowpack, soil saturation, water management practices, flood protection infrastructure status, and other factors.

Each of the three sites faces flood risk currently and in the future as weather patterns change. Fully estimating flood risk requires an understanding of the variables mentioned above, an involved and complex effort well beyond the scope of this study. This is even more true for future flood risk given uncertainty in future climate conditions, water management practices, and land use patterns. Instead, this section of the working paper briefly documents some of the available information on flood risk at the location of these sites.

All three of the sites are in at least one of the existing floodplains documented by the California Department of Water Resources' Best Available Map (BAM) tool.[9] These floodplains are developed based on historical climate data and do not typically account for future changes in climate. The following several tables summarize the existing floodplain information for the three sites. According to BAM, the two Linda sites, Sites 3 and 7, are located in the 100-year floodplain defined by the U.S. Army Corps of Engineers (USACE) Comprehensive Study from 2002. Sites 3 and 7 are also located in the 500-Year floodplain according to the FEMA Effective flood maps and are designated as protected by levee. Site 12, located in Yuba City, is not in any of the floodplains defined by the USACE or by the FEMA Effective flood maps. It is in the 100-year floodplain according to "Regional/Special Studies". These are defined as "Floodplains developed from approximate assessment procedures from local agencies", though more detailed information is not provided.

[7] https://www.suttercounty.org/assets/pdf/cs/es/Sutter%20County%20Local%20Hazard%20Mitigation%20Plan%20August%202013%20Update.pdf
[8] https://www.yuba.org/Yuba%20County/Emergency%20Services/Multi-Hazard%20Mitigation/YubaMHMP.pdf
[9] https://gis.bam.water.ca.gov/bam/

Figure 3: Site 3 (6035 Avondale Ave) Existing Floodplain Information

County:Yuba (39.12717, -121.56675)

Floodplain Layer	100-YR	200-YR	500-YR	Last Updated
FEMA Effective	N	N/A	X PROTECTED BY LEVEE	View Data
DWR Awareness	N	N/A	N/A	Sept 27, 2012
Regional/Special Studies	N	N/A	N	Jan 07, 2008
USACE Comp. Study	Y	Y	Y	Dec 20, 2002

View Data Layer Definitions

Y: The location is within the floodplain

N: The location is not within the floodplain

N/A: Data not available

Source: California Department of Water Resources, BAM

Figure 4: Site 7 (Goldfields Parkway & N Beale Road) Existing Floodplain Information

County:Yuba (39.12817, -121.52819)

Floodplain Layer	100-YR	200-YR	500-YR	Last Updated
FEMA Effective	N	N/A	X PROTECTED BY LEVEE	View Data
DWR Awareness	N	N/A	N/A	Sept 27, 2012
Regional/Special Studies	N	N/A	N	Jan 07, 2008
USACE Comp. Study	Y	Y	Y	Dec 20, 2002

View Data Layer Definitions

Y: The location is within the floodplain

N: The location is not within the floodplain

N/A: Data not available

Source: California Department of Water Resources, BAM

Figure 5: Site 12 (1441 E Onstott Rd) Existing Floodplain Information

CountySutter (39.14846, -121.63327)

Floodplain Layer	100-YR	200-YR	500-YR	Last Updated
FEMA Effective	N	N/A	N	View Data
DWR Awareness	N	N/A	N/A	Sept 27, 2012
Regional/Special Studies	Y	N/A	Y	Jan 07, 2008
USACE Comp. Study	N	N	Y	Dec 20, 2002

View Data Layer Definitions

Y: The location is within the floodplain

N: The location is not within the floodplain

N/A: Data not available

Source: California Department of Water Resources, BAM

According to the National Levee Database (NLD), the two Linda sites are protected by the RD 0784 - Plumas Lakes Basin levee system, which is part of the Sacramento River Flood Control Project.[10] NLD notes that these levees are "constructed of earthen embankments and require year-round maintenance. The Central Valley Flood Protection Board is the non-federal sponsor and is the responsible agency for operation and maintenance of the levee system." It is currently categorized by the Federal Emergency Management Agency (FEMA) as a Provisionally Accredited Levee System in the Effective flood maps.[11] The levee system is "Not Screened" according to the NLD's risk classification.

The 1986 flood in the area was caused by a breach in this levee system that put much of Linda under 15 feet of water. [12] The breach occurred just to the northwest of Site 3.[13] The levee has since undergone considerable improvements. The Three Rivers Levee Improvement Authority recently commenced construction on the Goldfields Levee in this area. The resulting improved levee will provide Linda and nearby communities with protection from the 200-year flood event.[14]

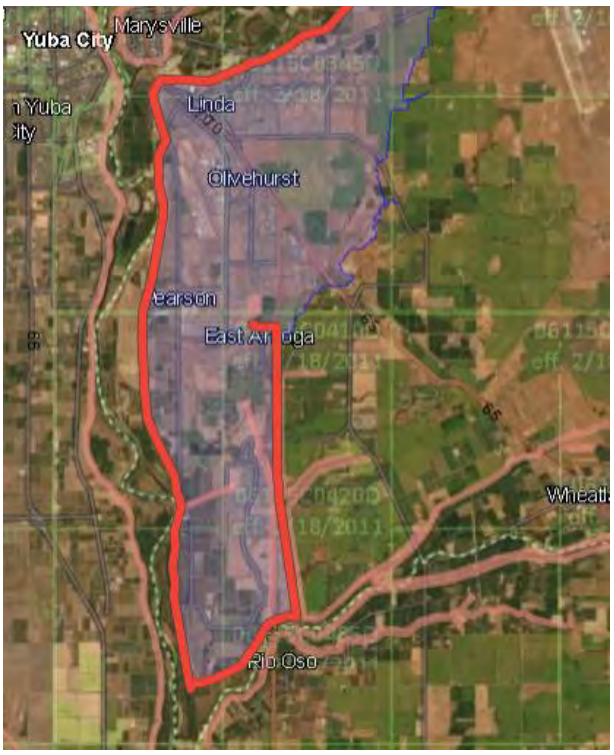
Site 12 in Yuba City is protected by the Feather River right bank-Sutter Bypass east bank levee system and is also part of the Sacramento River Flood Control Project.[15] The NLD describes the levee system as "constructed of earthen embankments and require year-round maintenance. The Central Valley Flood Protection Board is the non-federal sponsor and is the responsible agency for operation and maintenance of the levee system." According to the NLD, this system

[10] https://levees.sec.usace.army.mil/#/levees/system/5205000841/summary
[11] https://levees.sec.usace.army.mil/accreditationStatusGlossary.html
[12] https://www.yuba.org/Yuba%20County/Emergency%20Services/Multi-Hazard%20Mitigation/YubaMHMP.pdf
[13] https://www.appeal-democrat.com/yuba-flood-disaster-was-call-for-levee-renovations/article_638b501a-2065-5232-a668-1db597e59113.html
[14] http://www.trlia.org/TRLIA_YubaGoldieldsConstructionUnderway_5.11.20.pdf
[15] https://levees.sec.usace.army.mil/#/levees/system/5205000521/summary

is at “Very High Risk” and is considered by FEMA to be a Non-Accredited Levee System in the effective flood maps.

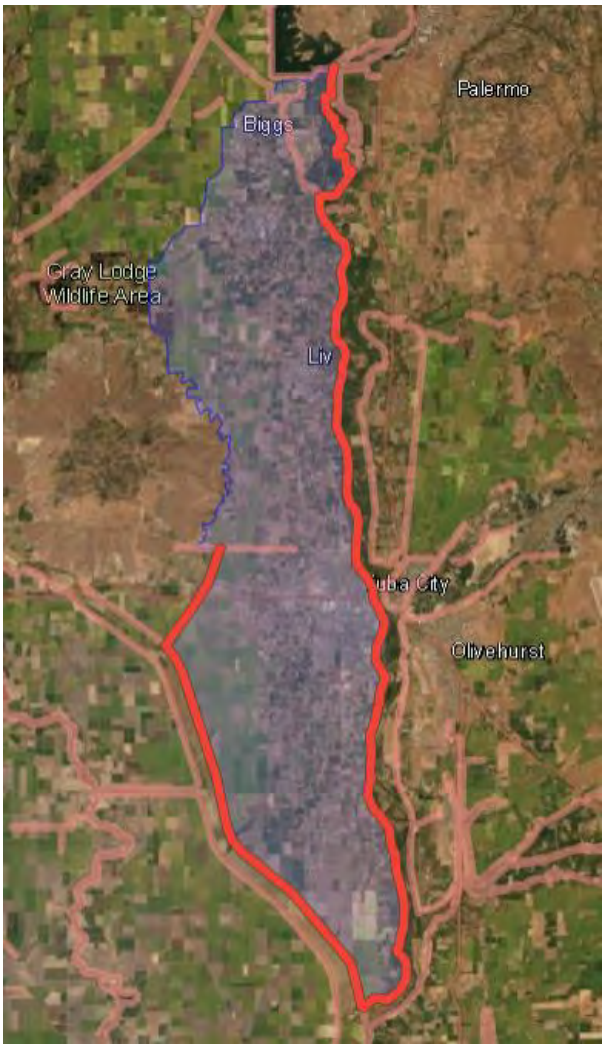
The Feather River West Levee Project has bolstered the levees protecting Yuba City where Site 12 is located. The project, which is ongoing, aims to provide 200-year flood protection for Yuba City and nearby communities.[16] The post-project 200-year floodplain mapping indicates that there may be residual risk to the area where Site 12 lies with less than 1 foot of flooding during the 200-year event, perhaps indicative of potential drainage issues.[17,18]

Figure 6: RD 0784 - Plumas Lakes Basin levee system protecting Linda sites



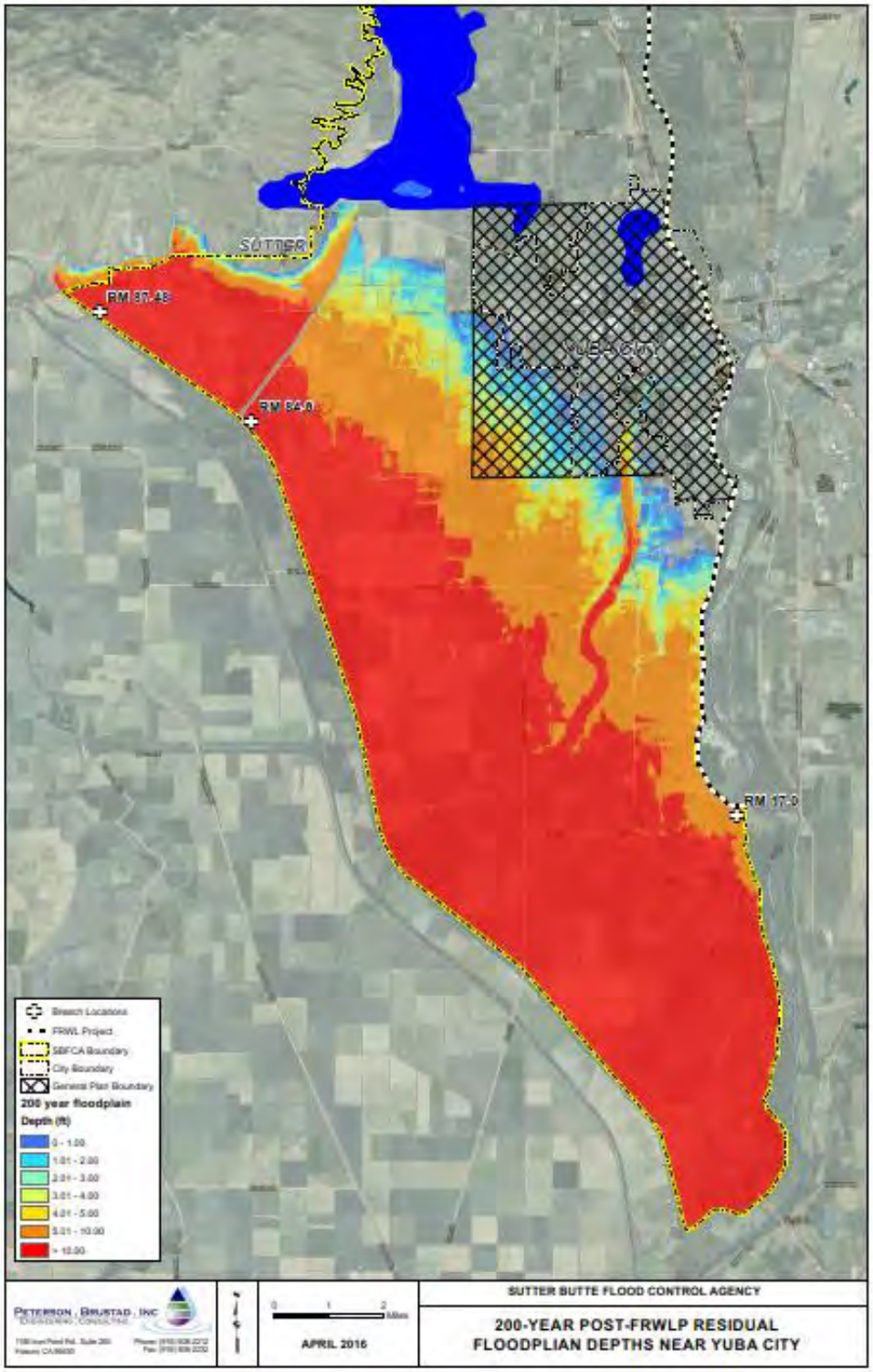
Source: National Levee Database [19]

Figure 7: Feather River right bank - Sutter Bypass east bank levee system protecting Yuba City sites



[16] http://www.sutterbutteflood.org/projects/feather-river-west-levee-project
[17] http://www.sutterbutteflood.org/admin/upload/PBI_2016-FRWLP-200yr-Post-Floodplain-Mapping_042016.pdf
[18] https://levees.sec.usace.army.mil/#/levees/system/5205000841/summary
[19] https://levees.sec.usace.army.mil/#/levees/system/5205000521/summary

Figure 6: Post-Project 200-Year Floodplain for Feather River West Levee Project



Source: Peterson, Brustad, Inc. (2016). 200-Year Post-Feather River West Levee Project Floodplain Mapping.[20]

[20] http://www.sutterbutteflood.org/admin/upload/PBI_2016-FRWLP-200yr-Post-Floodplain-Mapping_042016.pdf

A portion of flood risk to the Yuba City-Marysville-Linda region is due to low probability but very high consequence potential failure of upstream dams, particularly Oroville Dam on the Feather River. Englebright Dam is the closest upstream dam on the Yuba River, though it serves primarily as a debris control dam. New Bullards Bar is a larger flood control dam father upstream on the North Yuba River. USACE National Inventory of Dams classifies the hazard potential of Oroville, New Bullards Bar, and Englebright as "High".[21] California Department of Water Resources (DWR) classifies the Downstream Hazard potential for both Oroville and New Bullards Bar as "Extremely High".[22]

The DWR Dam Breach Inundation Map Web Publisher shows hypothetical inundation maps in the case of total dam failure. It does not measure structural integrity of the dams. According to the maps, a failure of the main dam at Oroville would inundate Site 12 with approximately 9 feet of water with an initial wave arrival at over 4.5 hours after failure. The maps do not show Site 3 or 7 in Linda being inundated, presumably due to the levees protecting the Linda area. A failure of the main dam at New Bullards Bar would potentially affect all three sites, with 5-10 feet of inundation at Sites 3 and 12 and 0-5 feet of inundation at Site 7.

As the climate changes, the region where the 3 sites are located is likely to experience higher flood risks over time. Future heavy precipitation patterns in region typically trend upward, with high variation between global climate models (GCMs). Figure 7 depicts the Feather River watershed, including the Yuba River watershed. Understanding future flood risk requires assessing future hydrologic conditions in this watershed (along with other variables, several of which were mentioned earlier in this section).

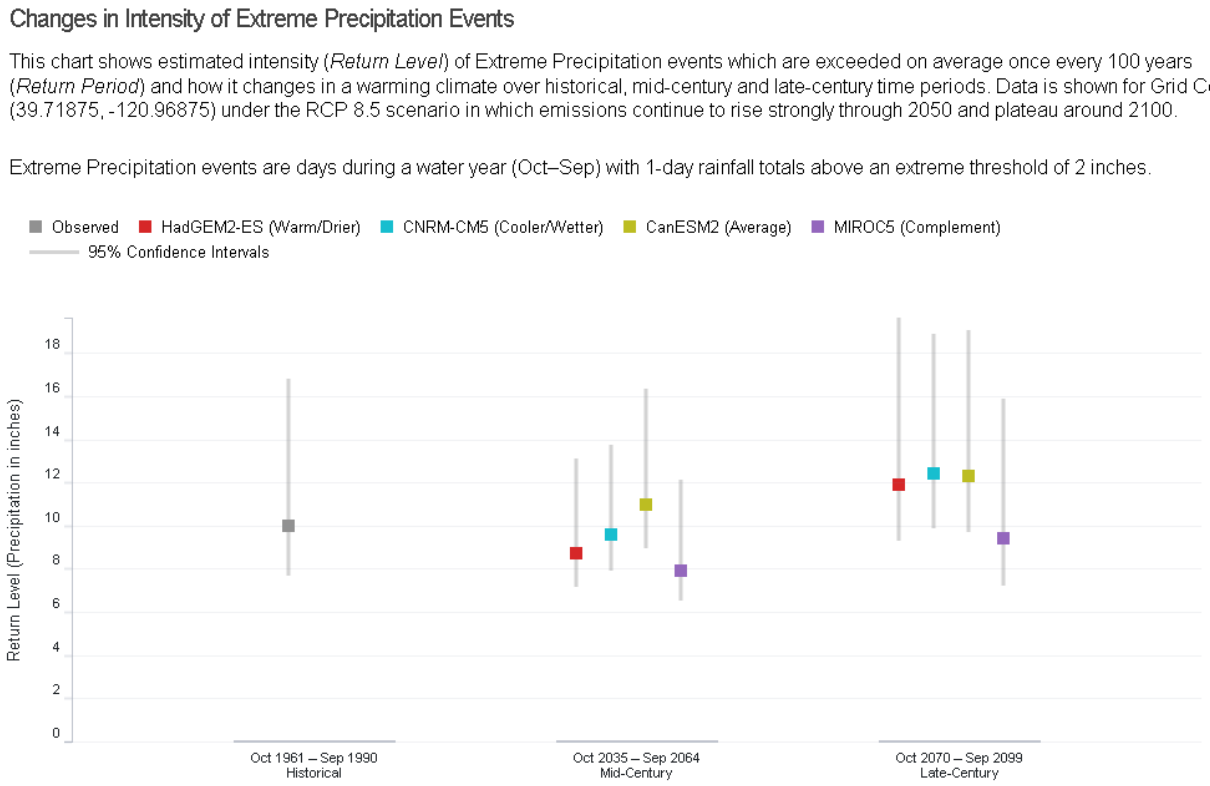
[21] https://nid.sec.usace.army.mil/ords/f?p=105:113:16579516115991::NO:::
[22] https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2

Figure 7: Feather River watershed, including Yuba River watershed

Source: American Rivers (2019). [23]

Figure 8 shows the projected 100-year rainfall event for the 24-hour duration at Little Grass Valley Reservoir, a rough approximation of the watershed's centroid. The three panels correspond with historical conditions, mid-century projections, and late-century projections. The different colored squares in the two rightmost panels correspond with the four priority GCMs used in California. The panel shows the Representative Concentration Pathway (RCP) 8.5 emissions scenario, which corresponds with a continued increase in global emissions through mid-century and plateau near the end of the century. The figure is from Cal-Adapt -- more detailed information on the models is shown on the figure.[24] Three of the four models show roughly 20% increase in the 100-year event, with one showing a slight decrease. The confidence intervals (depicted by the gray lines) are large, indicating high uncertainty about both the historical and projected 100-year events.

Figure 8: 100-year, 24-hour precipitation estimates, RCP 8.5 for select climate models, Little Grass Valley Reservoir (approximate centroid of Feather River watershed)



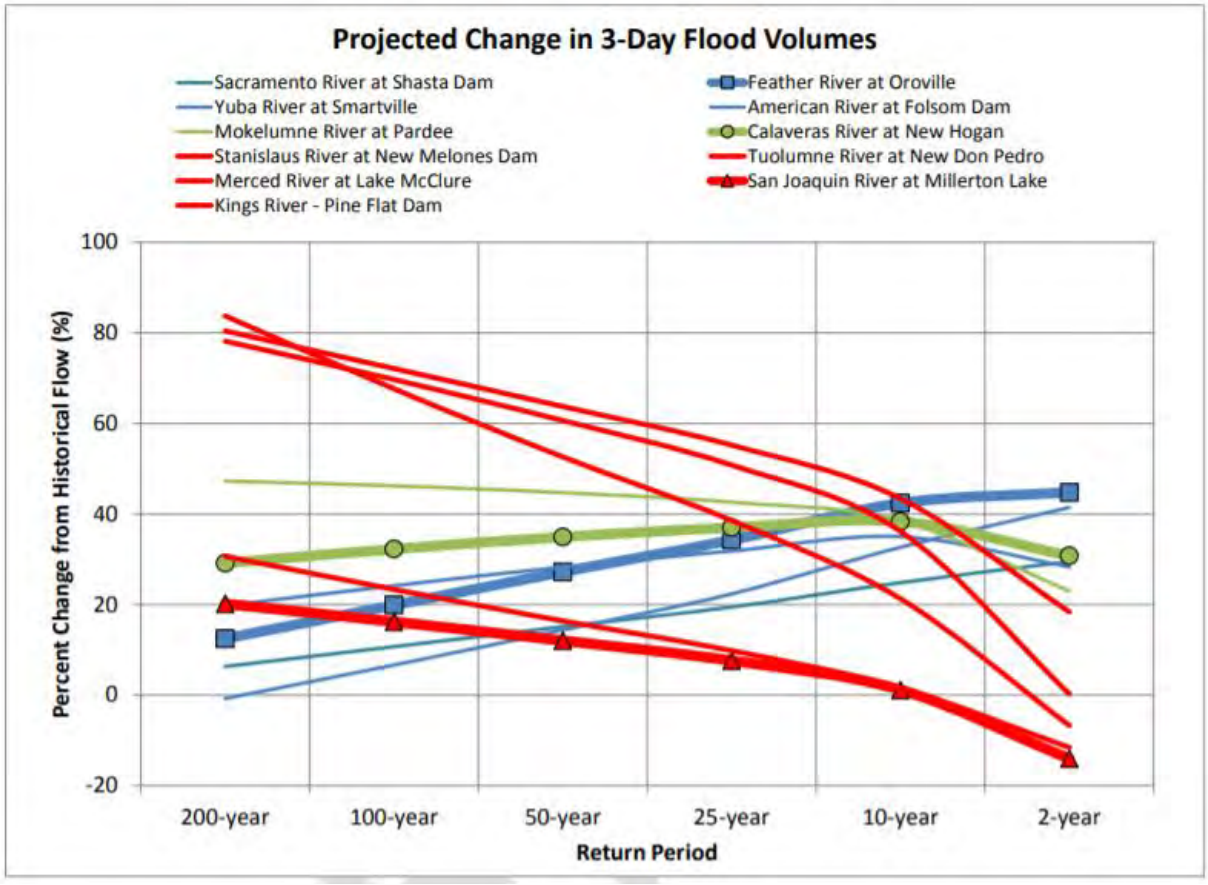
Source: CalAdapt [25]

As part of the 2017 Central Valley Flood Protection Plan (CVFPP) Update, DWR modeled projected impact of climate change on Central Valley hydrology, including the Feather River system.[26] Figure 9 shows projected changes in 3-day flood volumes for several return periods at

[23] https://www.americanrivers.org/river/feather-river/
[24] https://cal-adapt.org/tools/extreme-precipitation/
[25] Ibid
[26] http://cvfpb.ca.gov/wp-content/uploads/2018/03/Draft-Central-Valley-Flood-Protection-Plan-Climate-Change-Analysis-Technical-Memorandum.pdf

locations along major rivers, including the Feather River at Oroville. The projections show a roughly 20% increase in the 100-year flow and 40% increase in the 10-year flow in the Feather River at Oroville. The results depict a median projection created from a GCM ensemble and two emissions scenarios.

Figure 9: Projected Changes in 3-Day Flood Volumes, DWR Central Valley Flood Protection Plan Update



Source: California Department of Water Resources (2017).[27]

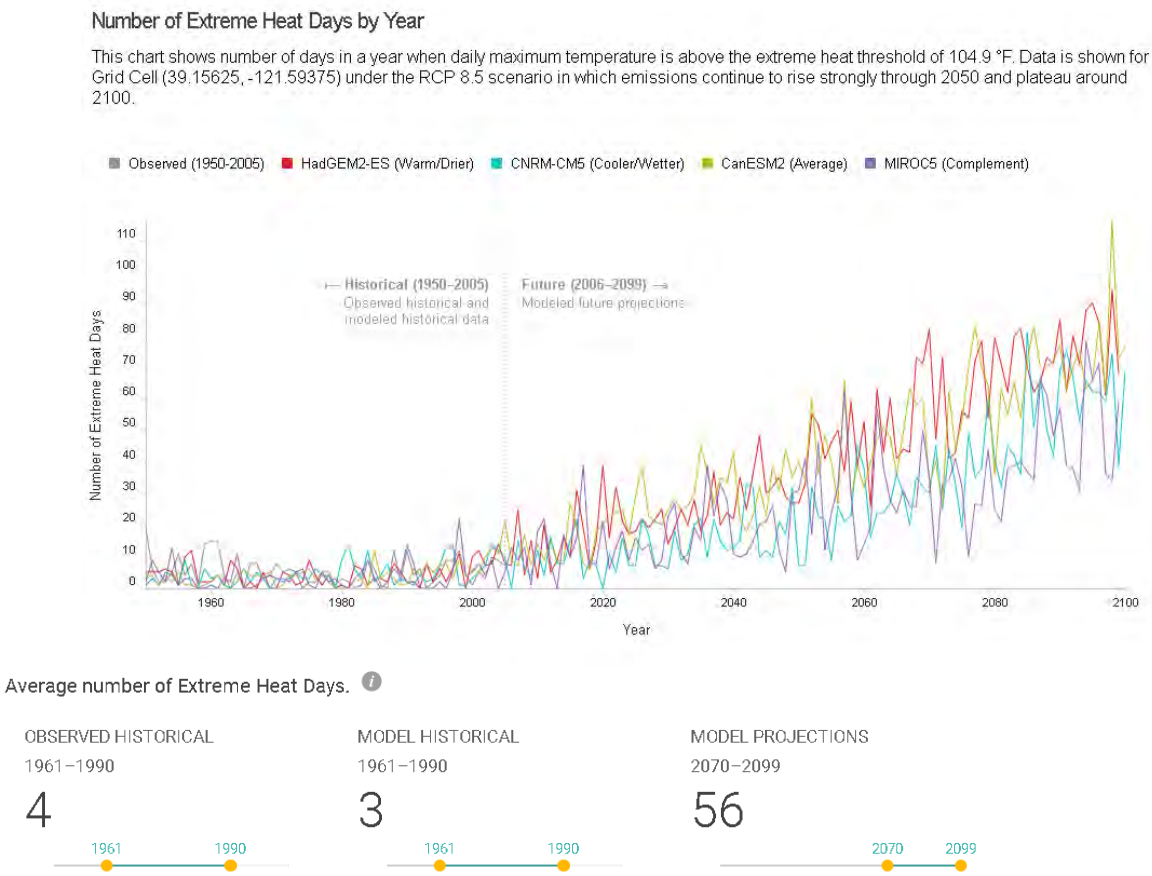
[27] Ibid

Heat

The Central Valley already faces hot summer conditions, and there is strong agreement between the climate models that temperatures will continue to increase. During heat waves, these hotter conditions could increase peak energy demand to cool buses, buildings, and other equipment at the sites; strain the energy supply; and shorten the outdoor work window. During historically cooler parts of the year, energy demand for heating may decrease due to an increase in temperatures.

Figure 10 shows the projected increase in the number of days above the historical 98th percentile daily maximum temperature (104.9 degrees Fahrenheit) in the Yuba City-Marysville-Linda area from Cal-Adapt. The colored lines depict historical data and forecasts for the four priority climate models in California. The graph shows RCP 8.5 projections. Historically, an average of 4 days above this threshold were observed for year. Toward the end of the century, the model average is 56 days above this threshold per year.

Figure 10: Projected number of days above historical 98th percentile daily maximum temperature, RCP 8.5 for select climate models, Yuba City-Marysville-Linda area



Source: CalAdapt[28]

[28] https://cal-adapt.org/tools/extreme-heat/

Wildfire

While climate change presents increasing wildfire risks to substantial portions of California, none of the sites are highly exposed to the direct impacts of wildfires. Sites in the area could be affected by wildfire-related impacts, such as preemptive or forced power shutoffs.

Figure 11 presents the California Department of Forestry and Fire Protection (Cal Fire) Fire Hazard Severity Zones for both Sutter and Yuba counties near the three potential sites.[29] Site 3 overlaps areas classified as Moderate severity and as Urban Unzoned. But the Moderate zone spans only a very limited extent right near the levee so an ignition there would presumably be easy to contain. Site 7 is in a Non-Wildland/Non-Urban zone, which is typically used for agricultural land. It is adjacent to Moderate severity area of low-density development with some vegetation. Thus, it probably has the most exposure of the three sites but is likely not at high risk. Site 12 is in a more developed area classified as Urban Unzoned.

Figure 12 shows historical fire locations from the Cal Fire and Resource Assessment Program (FRAP) Fire Perimeter database.[30] The database includes fire data compiled from several different agencies spanning from the late 1800's through 2018. The three potential sites do not coincide with or lie next to any of the historical fire locations.

For future wildfire projections, we assessed a wildfire model composite developed for previous projects. The composite comprises acreage burned projections from three wildfire models and three GCMs classified into levels of concern.[31,32] Figure 13 shows composite results for late 20th century under RCP 8.5. A portion of the area overlapping Site 3 has a "High" level of concern. However, the model outputs are relatively course (the grid cell size is fairly large), so these results need to be interpreted along with current and historical information, like the sources cited above from Cal Fire. Site 3 is likely not a particularly high-risk location. Both Sites 7 and 12 did not fall into an area of concern.

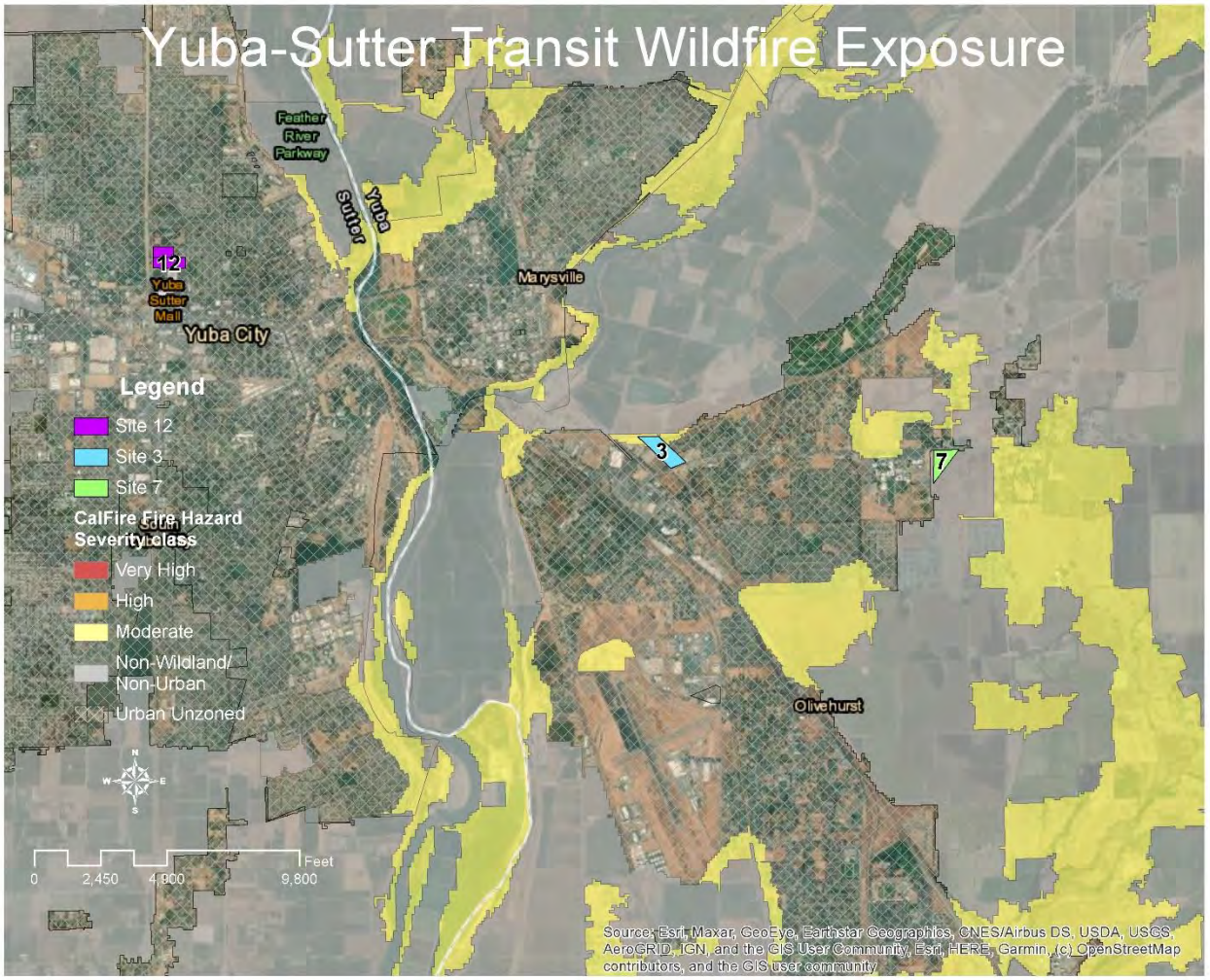
[29] https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/

[30] https://frap.fire.ca.gov/frap-projects/fire-perimeters/

[31] The fire model composite summaries are based on wildfire projections from three models: 1) MC2 – EPA Climate Impacts Risk Assessment, developed by John Kim, USFS; 2) MC2 – Applied Climate Science Lab at the University of Idaho, developed by Dominique Bachelet, University of Idaho; and 3) University of California Merced model, developed by Leroy Westerling, UC Merced. For each of these wildfire models, climate inputs were used from three Global Climate Models: 1) CAN ESM2, 2) Had_GEM2-ES, and 3) MIROC5. Data shows the multi-model maxima for each grid cell across the nine combinations of the three fire models and three GCMs. Time periods are averages of 30-year periods, where 2010 to 2039 is represented by the median year 2025, 2040 to 2069 is represented by the median year 2055, and 2070 to 2099 is represented by the median year 2085. Projected increases in wildfire are compared to a historical backcasted period from 1975 to 2004.

[32] These projections are consistent with those used in the Caltrans District 3 Climate Change Vulnerability Assessment: https://dot.ca.gov/programs/transportation-planning/2019-climate-change-vulnerability-assessments

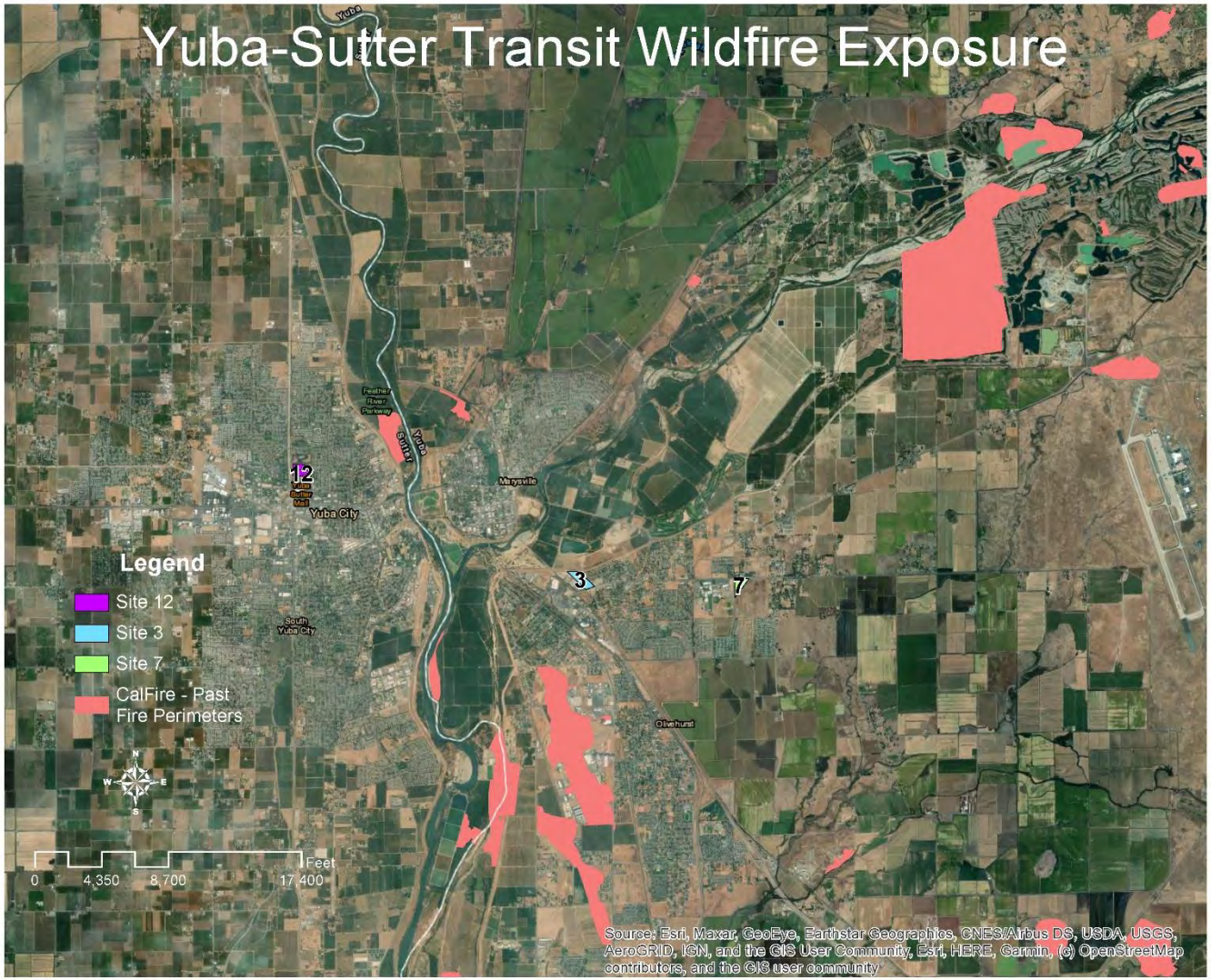
Figure 11: Fire Hazard Severity Zones Near Potential Sites



Source: Cal Fire[33]

[33] https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/

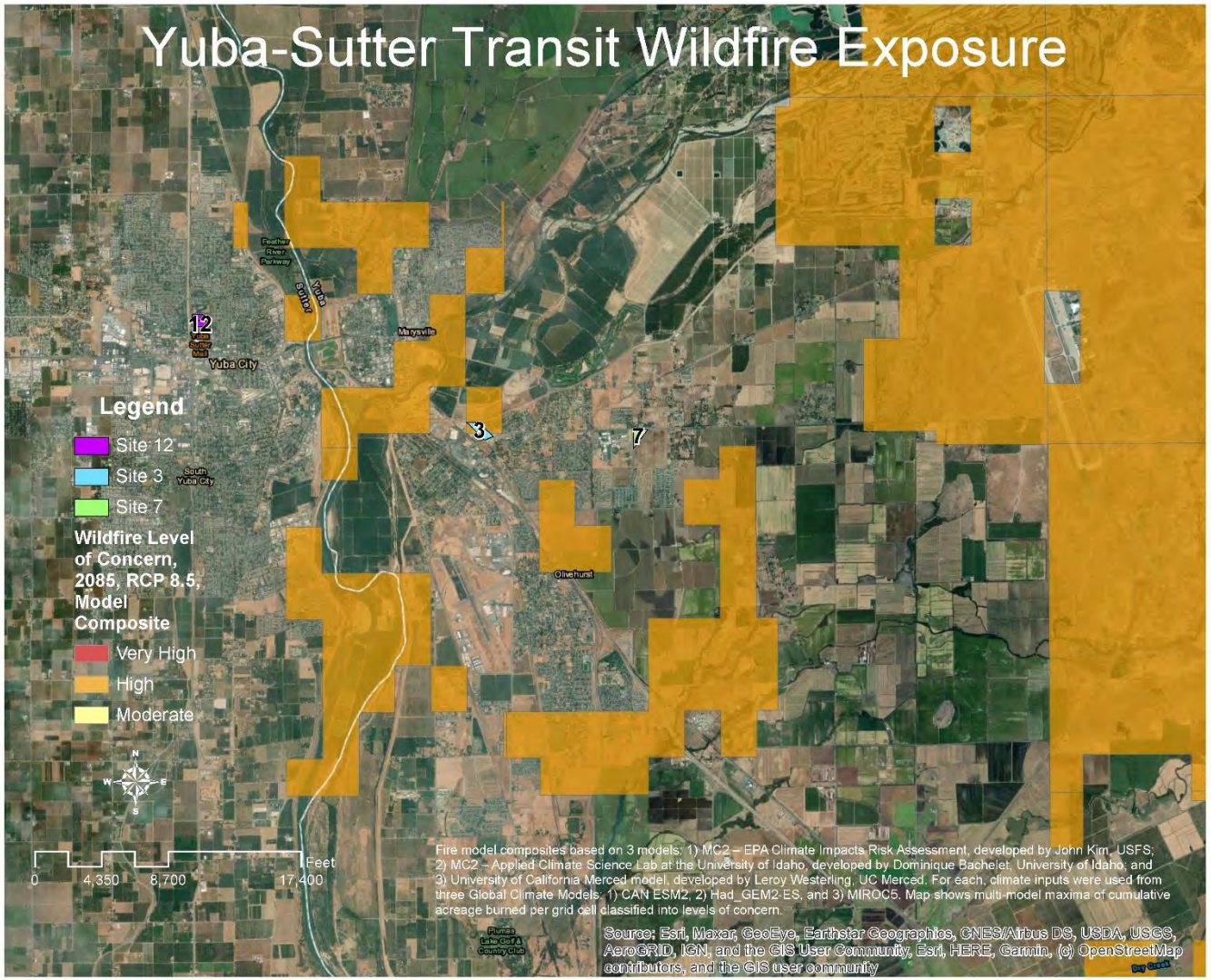
Figure 12: FRAP Historical Fire Perimeters Near Potential Sites



Source: Cal Fire[34]

[34] https://frap.fire.ca.gov/frap-projects/fire-perimeters/

Figure 13: Project Wildfire Level of Concern, Model Composite, RCP 8.5, 2085



Source: Cal Fire

Potential Site Impacts and Adaptation Strategies

The next section, Potential Adaptation Strategies, includes further discussion of how different assets could be affected by hazards and strategies for adapting to these risks.

In terms of climate-related hazards, flooding is arguably the largest risk to the proposed facility at each of the three potential sites.

One important strategy to address flood risk is to have a working disaster response plan for Yuba-Sutter Transit Authority employees and other individuals at the site. This would provide clear guidance to individuals about how to prepare for floods or fires and how to respond in the case of an event - either when early warnings are available or when disaster is imminent, such as during a flash flood or levee failure. It could provide protocols for monitoring official sources for information about upcoming floods or wildfires, on evacuation, and on communications during disasters. The plan should include drills for employees and clearly written instructions placed in different locations around the station facilities. This adaptation option had a relatively low cost to implement; it would involve time and expertise to develop the plan and some limited staff time to carry out drills, monitoring, and other routine activities. The potential benefits would be significant, as such a plan could prevent injuries or fatalities.

Aside from personnel safety risks, the most valuable set of assets at risk would be the new bus fleet. The fleet would not be particularly damaged by few inches of flooding but could be severely damaged or totaled by several feet of flooding that might occur during a catastrophic event, such as a nearby levee failure or overtopping. By the full build out of 85 zero-emission buses, and a cost of at least $800,000 per vehicle, the replacement cost would be at least $68 million. One strategy to address this flood risk is to have a viable plan for evacuating the vehicles in cases where early warnings are issued or there are major issues with an upstream dam. This could involve driving the vehicles to a safer location at higher ground. Like other emergency response plans, it should involve training and drills, so that staff members are able to carry out the plan effectively. Costs would be low (labor and expertise for development with minor routine staff time to implement), and potential benefits are high (avoided damage during catastrophic events). This strategy would apply across all three sites.

The charging infrastructure is another valuable set of assets that would also be susceptible to damage if flooded. However, there are several features of the proposed facility design that would help lower the flood risk for the charging infrastructure. The charge dispensers would be on an overhead frame above the buses. The draft design criteria specify the frame would be 17.5 feet tall, well above the ground, and therefore reducing flood risk. While the charging cabinets would be on the ground, they would be located on stands approximately 3.5 feet high, placing them out of harm's way during minor or moderate flooding events. Both the AC and DC wiring would be sealed and rated for outdoor use. These strategies are included in the proposed conceptual cost estimate and therefore would not pose additional costs. They would apply to each of the three sites.

The Administrative and Maintenance Buildings would be vulnerable during catastrophic flooding, as would other buildings in the vicinity of the three potential site locations. It would likely not be cost-effective to elevate or fully floodproof these facilities. That said, the buildings and equipment could be insured to handle some of the risk. One extra measure that Yuba-Sutter Transit could take is to fully floodproof the server room, which would house servers and other equipment that would be expensive to replace. Sealing slabs and adding floodproof doors (these would need to open outwards) would protect against inundation and hydrostatic

pressure. This would roughly double the cost of the room from around $60,000 (15 x 16 square feet at roughly $250 per square foot) to around $120,000. However, this would only provide benefit in the event of heavy flooding that could take out much of the rest of the facility and equipment. Regardless of if the room is floodproofed, it would be resilient to backup Yuba-Sutter's data remotely, using a common cloud-based solution. These strategies apply to each site.

In addition to flood protection measures, it would be advisable to set specific requirements for adequate drainage at any of the three sites. The various floodplain maps suggest that there could be drainage issues at the sites. The draft design criteria manual does provide general specifications regarding stormwater drainage. But in the design phase, it would make sense to set a requirement to provide drainage for a specific storm event. The cost of sizing drainage at the site to different storm events could vary considerably based on the design event chosen, so as more information on drainage issues and mitigation costs at the site is revealed during the design process, Yuba-Sutter Transit should decide which design event to use. One way to do this would be to require the designer to first complete the drainage analysis for a range of storm events with approximate costs. Then, based on cost and risk tolerance, Yuba-Sutter Transit could decide on a design storm requirement for the drainage systems in the latter stages of design.

In terms of high heat risk, the HVAC systems at the facility would be designed for the heatwaves of the Central Valley. Relevant HVAC design criteria include a requirement that office areas be provided with air conditioning and heating to 72 degrees Fahrenheit, 50% relative humidity with a more stringent requirement for areas housing computer equipment and other temperature-sensitive equipment. While the maintenance building would not be air conditioned, HVAC requirements include spot cooling in maintenance areas to provide for a velocity of 200 feet per minute across workers.

The current typical HVAC systems for this facility will likely provide additional capacity as heatwaves become more intense and frequent. That said, one additional option would be to explicitly require that HVAC and other cooling equipment meet the same design standards under a specific future climate scenario with warmer conditions compared to the current climate. This could apply to both active and passive cooling mechanisms. Alternatively, Yuba-Sutter Transit could require that systems be designed with enough space so that as a piece of cooling equipment (such as an air conditioning unit) reaches the end of its useful life, a higher capacity piece of equipment (that presumably would take up more space) can be easily installed. Additionally, the design criteria manual includes a subsection on Energy Conservation and Management, which sets standards for energy efficiency that will help Yuba-Sutter Transit reduce energy costs associated with heatwaves.

Figure 14: Defensible Space Graphic from Cal Fire

Direct impact from wildfire is not expected to present a particularly high risk to the potential stations. That said, one precaution that could be taken at the two sites located in Linda would be to ensure that defensible space is maintained at the sites (see Figure 16).[35] Defensible space includes providing sufficient spacing between trees, shrubs, and grass both vertically and horizontally. Cal Fire offers recommendations on defensible space.[36] Another aspect of defensible space is using fire-resistant landscaping. The draft design criteria require "low maintenance, drought resistant" species, which should overlap with this requirement. Proper spacing of vegetation and species selection may present a cost savings to Yuba-Sutter given fewer needs for planting and maintaining. The plants and other landscapes should be well maintained regularly through activities such as dead plant/branch removal, trimming, leaf/needle removal, etc.

As discussed in the previous section, a planned or forced power outage is one potential secondary effect of a wildfire or heatwave in the region. An obvious adaptation strategy is to provide emergency backup power generation at the site. This would be provided to the BEB fleet through a BEB Charging Back-Up Generator. The conceptual cost estimate includes an allowance for 2 MW diesel generators at $2.6 million total. The specific requirements for the generator(s) will be determined during conceptual design. One option to include would be to add a microgrid switch controller (approximate cost of $60,000) that would enable switching between several different power sources for charging. This could facilitate solar or other sources if they were added at the site in the future. Backup power would be provided to the buildings and other equipment (aside from the BEB charging infrastructure) through a Building Back-Up Generator, which was included in the draft design criteria manual. These strategies apply to all three potential sites.

Table 7 summarizes the potential adaptation strategies discussed in this section. For each strategy, there are columns corresponding to which sites it applies to, the climate-related risk addressed, and whether it is included in existing plans (i.e., the design criteria or conceptual cost estimate for the site). Implementing some or combinations of these strategies can help make the future site more resilient to climate-related hazards amid a changing climate.

[35] https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/defensible-space/
[36] https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/defensible-space/

Table 7: Summary List of Potential Adaptation Options

Potential Strategy	Site 3?	Site 7?	Site 12?	Climate-Related Hazard	Included in Current Plans?
Disaster response plan and practice	Yes	Yes	Yes	Increased flood risk; Increased wildfire risk	Unknown
Temporary disaster-related vehicle relocation plan and practice	Yes	Yes	Yes	Increased flood risk; increased wildfire risk	Unknown
Overhead charge dispensers	Yes	Yes	Yes	Increased flood risk	Yes
Raised charging cabinets	Yes	Yes	Yes	Increased flood risk	Yes
Flood insurance for site	Yes	Yes	Yes	Increased flood risk	Unknown
Floodproof server room	Yes	Yes	Yes	Increased flood risk	No; likely $60,000 additional cost
Remote data backup	Yes	Yes	Yes	Increased flood risk; increased wildfire risk; increased heatwaves	Unknown
Set an explicit design event for drainage at the sites	Yes	Yes	Yes	Increased flood risk	No
Require HVAC and other cooling measures to meet specific future climate scenario	Yes	Yes	Yes	Increased heatwaves	No
Provide extra space for upsizing cooling equipment when it reaches end of useful life	Yes	Yes	Yes	Increased heatwaves	No
Provide defensible space	Yes	Yes	--	Increased wildfire risk	No
Emergency backup power generator	Yes	Yes	Yes	Indirect wildfire risk; increased heatwaves	Yes
Add microgrid switch controller for switching between power sources	Yes	Yes	Yes	Indirect wildfire risk; increased heatwaves	No; likely $60,000 additional cost

Appendix A: Preliminary Space Needs

WSP drafted a preliminary space needs program for Yuba-Sutter Transit based on their growing fleet of buses and need for more space. The site requirements are below.

YUBA-SUTTER TRANSIT
PRELIMINARY SPACE NEEDS PROGRAM
Marysville, CA February, 2020

[E] = Enclosed, [O] = Open/Workstation, [A] = Alcove,
[C] = Canopy covered, [X] = Outdoors (exterior)

	Existing 2020			2030			2040		
45 ft transit commuter	13		Diesel	17		Diesel	22		BEB / FC
35 ft transit coaches	22		Diesel	24		Diesel	28		BEB / FC
24-25 ft Shuttles	16		Unleaded	20		Unleaded	20		BEB / FC
Non Revenue Vehicles	5		Diesel	8		Diesel	13		BEB / FC
Non Revenue Vehicles	1		Unleaded	2		Unleaded	2		BEB / FC
Total Agency Vehicles	57			71			85		

Space Name	Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
SUMMARY													
SUMMARY - Building spaces													
ADMINISTRATION					5		2,226	12		6,383	17		6,577
OPERATIONS / DRIVERS					79		3,463	91		7,343	98		7,343
MAINTENANCE					20		12,772	27		16,342	34		16,342
PARTS STOREROOM					1		2,400	1			1		
FUEL / WASH / SERVICE					2		6,115	2		8,024	2		8,024
SUMMARY - Building spaces TOTALS					107		26,976	133		38,091	152		38,286
SUMMARY - Outdoor spaces													
AGENCY VEHICLE PARKING						67	80,720		80	89,000		96	106,000
EMPLOYEE / VISITOR PARKING						103	25,365		129	51,800		151	60,600
OTHER SITE AREAS							5,462			15,930			15,930
SUMMARY - Outdoor spaces TOTALS							111,547			156,730			182,530
Site Circulation		75%		To be verified during detailed design						117,548			136,898
Lanscaping / Site Setback		10%		To be verified during detailed design						15,673			18,253
Stormwater Management		25%		To be verified during detailed design						39,183			45,633
TOTAL SITE REQUIREMENTS (SF)							**138,523**			**360,842**			**415,022**
TOTAL SITE REQUIREMENTS (ACRES)							**3.18**			**8.28**			**9.53**

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Non Revenue Vehicles	5	Diesel	8	Diesel	13	BEB / FC
Non Revenue Vehicles	1	Unleaded	2	Unleaded	2	BEB / FC
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Space Name		Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
ADMINISTRATION														
Entry Vestibule	E	8 X 7	56		Contain two double doors in a series sized to allow first door to shut prior to second door opening.		1			1	56		1	56
Lobby	O	15 X 20	300		Seating for up to 8 and floor space for 2 power chairs. View of Lobby from Office / Counter Assistant position.		1	150		1	300		1	300
Unisex Restroom	E	8 X 8	64		Accessible from customer Lobby.					1	64		1	64
Administration					Secure access to office suite.									
Transit Manager	E	12 X 14	168		Guest seating for up to 2.	1	1	191	1	1	168	1	1	168
Assistant Transit Manager	E	12 X 12	144				1	144		1	144	1	1	144
Planning Program Manager	E	12 X 12	144			1	1	144	1	1	144	1	1	144
Finance Program Manager	E	12 X 14	168		Guest seating for up to 2.	1	1	168	1	1	168	1	1	168
Administistrative Suite	O	42 X 40	1,680				1	395		1	1,680		1	1,680
Counter	O	12 X 6	72							1			1	
Program Analyst	O	8 X 9	72			1	1	72	3	3		4	4	
Administrative Assistant	O	8 X 9	72			1			2	2		2	2	
Office / Counter Assitant	O	8 X 9	72						2	2		2	2	
Marketing & Outreach Specialist	O	8 X 9	72				1	72	1	1		2	2	
Current Files	O	10 X 10	100		Stored in file cabinets within Administrative Suite.		1	100		1			1	
Lost & Found Cabinet	E	6 X 6	36		Secure storage for issuing to public		1	36		1			1	
Program Manager (Undefined)	E	12 X 12	144									1	1	144
IT Specialist	E	15 X 16	240						1	1	240	2	1	240
Conference Room - Small	E	10 X 18	180		Accommodate up to 10 people. Adjacent to Lobby with access to Administration suite.		1	183		1	180		1	180
Copy / Work Room	E	15 X 20	300		Multi-function copier and storage cabinets.		1	161		1	300		1	300
Storage Room	E	12 X 16	192		Administrative storage closet		1	192		1	192		1	192
Archive File Storage	E	16 X 15	240		Records stored in file boxes on shelves. 114 existing, design for 150. Floor space storage of marketing materials, bus stop signs, folding tables, pop-up canopies, etc.		1	240		1	240		1	240
Break Room	O	16 X 18	288		Sink, full fridge, microwave, coffee maker.		1	288		1	288		1	288
Quiet Room	E	8 X 12	96							1	96		1	96
Unisex Restroom	E	8 X 8	64		Serves the Administration Suite.		2	150		2	128		2	128
Custodial	E	10 X 10	100		Mop sink, shelving, storage cabinet.		1	100		1	100		1	100
Telephone / Server / AV Equip Room	E	15 X 16	240		Dedicated A/C and good air flow. Shared space by Yuba-Sutter Transit and STORER Transit Systems.		1	92		1	240		1	240
	Subtotal							2,878			4,728			4,872
	Circulation	35%						1,007			1,655			1,705
ADMINISTRATION TOTALS						5		3,885	12		6,383	17		6,577

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Non Revenue Vehicles	5	Diesel	8	Diesel	13	BEB / FC
Non Revenue Vehicles	1	Unleaded	2	Unleaded	2	BEB / FC
Total Agency Vehicles	57		71		85	

Space Name		Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
OPERATIONS / DRIVERS														
Operations														
General Manager	E	12 X 14	168		Guest seating for up to 2	1			1	1	168	1	1	168
Operations Manager	E	12 X 12	144			1		105	1	1	144	1	1	144
Office Manager	E	12 X 12	144			1			1	1	144	1	1	144
Operations Suite	E	20 X 35	700								700			700
Assistant Operations Manager	O	8 X 9	72			1			1	1		1	1	
Safety Manager	O	8 X 9	72			1			1	1		1	1	
Trainer	O	8 X 9	72						1	1		1	1	
Road Supervisor	O	8 X 9	72			2			3	2		3	2	
File Storage	O				(2) Four drawer lateral file cabinets stored within Operations Suite					2			2	
Expansion Office	E	12 X 12	144							1	144		1	144
Storage Room	E	7 X 10	70							1	70		1	70
Long Term Storage - Large	E	12 X 14	168							1	168		1	168
Coin Room	E	10 X 12	120		Secure space for coin counting		1	90		1	120		1	120
Dispatch														
Entry Vestibule	E	8 X 7	56							1	56		1	56
Lobby - Dispatch	E	10 X 10	100		Seating for 2 people. Pre-wire for potential future applications workstation.					1	100		1	100
Dispatch Suite	E	21 x 23	483		(2) Dispatchers and (2) Customer Service Representatives per shift.			286		1	483		1	483
Dispatch Window (Dispatcher)	O	6 X 6	36		Provide security glazing at window. Min 6 feet between dispatchers.	5	1		6	4		6	4	
Customer Service Representative	O	8 X 9	72			1			4	2		4	2	
Lost & Found Daily Collect	O	3 X 5	15		Shelving to hold daily containers					1			1	
Storage	O	4 X 3	12		Closet for Dispatch storage					1			1	
Copy / Work Room	E	10 X 12	120				1	18		1	120		1	120
Conference - Small	E	12 X 18	216		To accommodate up to 10 people		1	216		1	216		1	216
Training / Large Conference Room	E	12 X 18	216		Seat 8 w/ train tbl + low credenza			380		1	216		1	216
Table and Chair Storage	E	6 X 8	48							1	48		1	48
Driver Areas														
Driver Check-In	O	8 X 14	112		CPU for self check-in 2 people at a time + (1) document board		1	57		1	112		1	112
Driver Mailboxes	O	3 x 10	30		Lockable mailboxes. Fill from front.		1	32		1	30		1	30
Drivers Room	E	20 X 22	400		Tables and chairs, couches to seat 21, (2) lockable wall hung display boards, and (7) corkboards	66	1	781	72	1	400	79	1	400
Recreation Area	O	15 X 20	300		(1) Game table					1	300		1	300
Kitcheneete / Vending	A	10 X 35	350		Upper / lower cabs. Single basin sink, (4) microwaves, (2) coffee machine, (4) vending machines, (2) refrigerator, (1) oven with stovetop, ice machine, and dishwasher.					1	350		1	350

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Quiet Room	E	10 X 12	120		(4) Lounge chairs. Accoustically isolate from other areas.		1	120		1	120		1	120
Lactation / Sick Room	E	10 X 10	100		Mini fridge, (1) lounge chair.					1	100		1	100
Unisex Toilet / Shower / Drug Test Room	E	10 X 13	200		(1) Water closet, (1) shower, changing bench					1	200		1	200
Womens	E	12 X 20	240		(4) WC, (3) Lav. Confirm fixture count during detailed desging.		1	228		1	240		1	240
Mens	E	12 X 20	240		(2) WC, (2) Urinals, (3) Lav. Confirm fixture count during detailed desging.		1	228		1	240		1	240
Custodial / Storage	E	10 X 15	150		Mop sink, shelving, storage cabinet					1	150		1	150
Mechanical	E		200		Size to be verified during detail design					1	200		1	200
Electrical	E		100		Size to be verified during detail design					1	100		1	100
		Subtotal						2,541			5,439			5,439
		Circulation	35%					889			1,904			1,904
OPERATIONS / DRIVERS TOTALS						79		3,430	91		7,343	86		7,343

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Space Name		Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
MAINTENANCE														
Office Spaces														
Maintenance Manager	E	12 X 14	168		View of shop floor.	1	1	211	1	1	168	1	1	168
Mechanic Workstation	O	6 X 12	72		Seats 2 mechanics with 2 CPUs	6	2	72	8	1	72	10	1	72
Utility Supervisor (Suite)	E				To be verified	1			1			1		
Utility Technichian	O				To be verified	6			8			10		
Maintenance Breakroom	E	16 X 18	288		Seating for up to 6 at tables and chairs, refrigerator, (2) microwaves, plumb water for coffee makers, sink		1	158		1	288		1	288
Mens	E		190		2 WC, 2 Urinals, 2 Lavatories, 1 deep basin sink with gooseneck faucet+ Bradley sink.		1	64		1	190		1	190
Womens	E		140		2 WC, 2 Lavatories, 1 deep basin sink with gooseneck faucet Bradley sink.					1	140		1	140
Unisex shower	E		60		Includes changing area.		1	63		1	60		1	60
Lockers	A		100		Shared by Men and Women Maintenance personnel, bench, and (20) half height lockers		1	147		1	100		1	100
Maintenance Records	E	10 X 8	80		(105) storage boxes on shelves					1	80		1	80
Custodial	E	10 X 10	100		Mop sink, shelving, storage cabinet.					1	100		1	100
Shop Spaces														
Mechanics						6			8			10		
Lift Bay (45' Bus)	O	20 X 60	1,200		Parallelogram or verticle rise lift. Fall protection beam & hoist.			4,712		2	2,400		2	2,400
Flat Bay(45' Bus)	O	20 X 60	1,200		Portable lifts. Fall protection beam & hoist. Festoon for portable lift cables.		5	6,000		2	2,400		2	2,400
Air Conditioning Bay (45' Bus)	O	20 X 60	1,200							1	1,200		1	1,200
Tire Bay / Storage	E	20 X 60	1,200		Acoustically isolated. Storage for bus tires on stackable racks.					1	1,200		1	1,200
Common Work Area	E	25 X 30	750				1	192		1	750		1	750
Electronics Shop	E	18 X 30	540		Shop space for electric bus charging cabinet repair.					1	540		1	540
Electrician	O	4 X 15	60						1	1	60	2	1	60
Equipment Storage	O	20 X 60	1,200							1	1,200		1	1,200
Tool Box Storage	E	25 X 16	400		Enclosed secure area for storage of (10) tool boxes.					1	400		1	400
Forklift Parking	O	14 X 10	140							1	140		1	140
Floor Scrubber Parking	O	6 X 5	30		With charging and hub drain.					1	30		1	30
Portable Equipment Storage	O	20 X 60	1,200		Portable CG (2), portable differential (1).					1	1,200		1	1,200
Waste Fluid Collection	O	8 X 5	40		WO (1), WC (1).					1	40		1	40

YUBA-SUTTER TRANSIT
PRELIMINARY SPACE NEEDS PROGRAM
Marysville, CA February, 2020

[E] = Enclosed, [O] = Open/Workstation, [A] = Alcove.
[C] = Canopy covered, [X] = Outdoors (exterior)

45 ft transit commuter	13	Diesel	17	Diesel	22	BEB / FC
35 ft transit coaches	22	Diesel	24	Diesel	28	BEB / FC
24-25 ft Shuttles	16	Unleaded	20	Unleaded	20	BEB / FC
Non Revenue Vehicles	5	Diesel	8	Diesel	13	BEB / FC
Non Revenue Vehicles	1	Unleaded	2	Unleaded	2	BEB / FC
Total Agency Vehicles	57		71		85	

Space Name		Space Standard dims	sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
Battery Room	X	10 X 20	200		Exterior pre-fab haz-mat building. Cointain charging and new / used battery storage. (1) pallet each.					1	200		1	200
Lube / Compressor Room	E	18 X 20	360		Includes bulk fluid distribution for ATF, EC, EO1, and EO2. Accousically isolated.		1	245		1	360		1	360
Mechanical Room	E		200		Size to be verified during detail design					1	200		1	200
Electrical Room	E		100		Size to be verified during detail design					1	100		1	100
		Subtotal						11,864			13,618			13,618
		Circulation	20%					2373			2724			2724
PARTS STOREROOM														
Lobby	E	10 X 10	100		Seating for 2.			95		1	100		1	100
Parts Clerk	E	12 X 12	144			1	2	115	1	2	288	1	2	288
Parts Storeroom			1,800					975		1	1,800		1	1,800
Warranty Storage	O	8 X 30	240		On shelving racks within Parts Storeroom					1			1	
Tool Crib	O				(2) lockable storage cabinets within Parts Storeroom					1			1	
Shipping and Receiving	O	20 X 20	400		Within Parts Storeroom					1	400		1	400
Loading Area	C	30 X 60	1,800		Space for 2 delivery trucks					1	1,800		1	1,800
Mezzanine Storage	O		2,000		With forklift access		1	2,260		1	2,000		1	2,000
		Subtotal						1,185			3,988			3,988
		Circulation	35%					415			1,396			1,396
PARTS STOREROOM TOTALS						1		1,600	1		5,384	1		5,384
MAINTENANCE TOTALS						20		14,237	27		16,342	34		16,342

YUBA-SUTTER TRANSIT
PRELIMINARY SPACE NEEDS PROGRAM
Marysville, CA February, 2020

	Existing 2020		2030		2040	
45 ft transit commuter	13	Diesel	17	Diesel	22	BEB / FC
35 ft transit coaches	22	Diesel	24	Diesel	28	BEB / FC
24-25 ft Shuttles	16	Unleaded	20	Unleaded	20	BEB / FC
Non Revenue Vehicles	5	Diesel	8	Diesel	13	BEB / FC
Non Revenue Vehicles	1	Unleaded	2	Unleaded	2	BEB / FC
Total Agency Vehicles	57		71		85	

[E] = Enclosed, [O] = Open/Workstation, [A] = Alcove,
[C] = Canopy covered, [X] = Outdoors (exterior)

Space Name		Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
FUEL / WASH / SERVICE														
Fueling														
Fueling Position	C	20 X 65	1,300		2 diesel fueling positions	2	2	2,802	2	2	2,600	2	2	2,600
Vault Pull / Fare Collection	C				At each fueling position									
Central Vacuum	E	10 X 15	150		Sized to use 2 ports simutanously. Vacuum ports at fuel position and in Bus Wash / Detail Clean.					1	150		1	150
Restroom	E	8 X 8	64		If fueling not located near Maintenance Building					1	64		1	64
Wash														
Automatic Bus Washer / Detail Clean	E	22 X 65	1,430		Gantry style bus washer			1,497		1	1,430		1	1,430
Water Reclaim	E	10 X 20	200					286		1	200		1	200
Bus Detail Lane	C	20 X 65	1,300		At Fuel Positions & in Bus Wash									
Cleaning Storage	E	10 X 10	100							1	100		1	100
Chassis Wash	C	20 X 70	1,400		Parallelogram lift. Located outside under canopy.					1	1,400		1	1,400
Chassis Wash Equipment	E				Stored inside Water Reclaim room					1			1	
		Subtotal						4,585			5,944			5,944
		Circulation	35%					1,605			2,080			2,080
FUEL / WASH / SERVICE TOTALS						2		6,190	2		8,024	2		8,024
AGENCY VEHICLE PARKING														
Ready Line					Provide solar canopy over all Revenue parking. Provide for charging in parked position for all vehicles.									
45 ft transit commuter		14 X 50	700		Added 5ft to vehicle length for circulation around vehicle		13	9,100		17	11,900		22	15,400
35 ft transit coaches		14 X 50	700		Park in space sized for 45' bus		22	15,400		24	16,800		28	19,600
24-25 ft Shuttles		14 X 30	420		Added 5ft to vehicle length for circulation around vehicle		16	6,720		20	8,400		20	8,400
Non Revenue Vehicles		10 X 20	200				6	1,200		10	2,000		15	3,000
Downline		12 X 50	600		Sized for 45-ft coaches		10	6,000		9	5,400		11	6,600
		Subtotal						38,420			44,500			53,000
		Circulation	100%					38,420			44,500			53,000
AGENCY VEHICLE PARKING TOTALS						67		76,840	80		89,000	96		106,000

YUBA-SUTTER TRANSIT
PRELIMINARY SPACE NEEDS PROGRAM
Marysville, CA February, 2020

[E] = Enclosed, [Cj] = Open/Workstation, [A] = Alcove,
[C] = Canopy covered, [X] = Outdoors (exterior)

45 ft transit commuter	13	Diesel	17	Diesel	22	BEB / FC
35 ft transit coaches	22	Diesel	24	Diesel	28	BEB / FC
24-25 ft Shuttles	16	Unleaded	20	Unleaded	20	BEB / FC
Non Revenue Vehicles	5	Diesel	8	Diesel	13	BEB / FC
Non Revenue Vehicles	1	Unleaded	2	Unleaded	2	BEB / FC
Total Agency Vehicles	57		71		85	

Space Name		Space Standard dims	Space Standard sf	Ref.	Remarks	Existing 2020 Staffing	Existing 2020 Qty	Existing 2020 Space	2030 Staffing	2030 Qty	2030 Space	2040 Staffing	2040 Qty	2040 Space
EMPLOYEE / VISITOR PARKING														
Employee Parking					SF shown allows schematic layout of spaces to accommodate ADA and landscape / island requirements									
Administration		10 X 20	200				5	1,000		12	2,400		17	3,400
Operations / Drivers		10 X 20	200		Drivers parking space count = bus qty - spare + 5% for overlap and driver standbys + Ops staff		73	14,600		83	16,600		93	18,600
Maintenance / Parts		10 X 20	200				21	4,200		28	5,600		35	7,000
Fuel / Wash / Service		10 X 20	200				2	400		2	400		2	400
Visitor Parking		10 X 20	200				2	400		4	800		4	800
Motorcycle Parking		5 X 10	50				1	50		1	50		1	50
Bike Parking			50		Hold 7 bicycles - shared employee and visitors.		1	50		1	50		1	50
	Subtotal							20,700			25,900			30,300
	Circulation		100%					20,700			25,900			30,300
EMPLOYEE / VISITOR PARKING TOTALS								41,400			51,800			60,600
OTHER SITE AREAS														
Outdoor Break Area	C	15 X 15	225		Canopy covered area with BBQ pit and picnic tables.		1	225		1	225		1	225
Above Ground Diesel Tank	X	45 X 10	450		15,000 gallons with secondary containment, adjacent to Fuel Island with no underground fuel piping.					1	450		1	450
Future Pre-Comp. Hydrogen Modular Trailers	X	12 x 20	240							3			3	
Future Hydrogen Compressor Yard	X		3,500							1			1	
BEB Charge Equipment Yard	X		7,200							1	7,200		1	7,200
Dumpter / Waste														
Trash	C	6 X 5	30		4 CY box container		1	30		1	30		1	30
Metals	C	6 X 5	30		4 CY box container		1	30		1	30		1	30
Cardboard	C	6 X 5	30		4 CY box container		1	30		1	30		1	30
	Subtotal							315			7,965			7,965
	Circulation		100%					315			7,965			7,965
OTHER SITE AREAS TOTALS								630			15,930			15,930

Appendix B: Zoning Codes

Residential Zoning

The parcels included High Density Residential, Medium Density Residential, and Single-Family Residential in Yuba County. It includes Multiple Family Residence District and Two-Family Residence District in Yuba City.

High Density Residential, RH (Yuba County)

High Density Residential allows for a mixture of housing types in a high density setting that ensures adequate quality of life measures such as light, air privacy, and open space for each dwelling unit. It also allows for community facilities and neighborhood services that complement residential areas. The following are permitted or conditionally permitted:

- Two-unit and multi-unit dwellings (permitted)
- Mobile home parks (permitted)
- Smaller residential care and social service facilities (permitted)
- Passive recreation (permitted)
- Personal solar energy systems (permitted)
- Community assembly and cultural institutions (conditionally permitted)
- Day care and elderly care centers (conditionally permitted)
- Essential/emergency service facilities (conditionally permitted)
- Schools (conditionally permitted)
- Minor utilities (conditionally permitted)

Medium Density Residential, RM (Yuba County)

Medium Density Residential allows for a diversity of housing types in a medium density setting, provides space for community facilities and neighborhood services needed to complement residential areas. The following are permitted or conditionally permitted:

- Single family, duplex, and multi-unit dwellings (permitted)
- Limited social service facilities (permitted)
- Passive recreation (permitted)
- Mobile home parks (conditionally permitted)
- Community areas (conditionally permitted)
- Personal storage facilities (conditionally permitted)
- Essential/emergency service facilities (conditionally permitted)
- Minor utilities (conditionally permitted)

Single Family Residential, RS (Yuba County)

Single Family Residential allows for a mixture of housing types in a low density setting and predominately consists of single-unit dwellings. It also provides space for community facilities and neighborhood services that complement residential areas. The following are permitted or conditionally permitted:

- Attached or detached single-unit dwelling (permitted)
- Limited residential care and social service facilities (permitted)
- Passive recreation (permitted)
- Personal solar energy system (permitted)
- Two-unit dwelling (conditionally permitted)

- Community assembly and cultural institutions (conditionally permitted)
- Day care centers (conditionally permitted)
- Essential/emergency service facilities (conditionally permitted)
- Schools (conditionally permitted)
- Minor utilities (conditionally permitted)

Multiple-Family Residence District, R-3 (Yuba City)

Multiple-Family Residence Districts allows for denser development. The following are permitted or conditionally permitted:

- Multiple and single-family residences, condominiums, mobile homes, and group residences (permitted)
- Home daycare facilities (permitted)
- Mobile homes (permitted)
- Public parks and recreational facilities (permitted)
- Places of worship (conditionally permitted)
- Mobile home parks (conditionally permitted)
- Day care centers (conditionally permitted)
- Emergency shelters (conditionally permitted)
- Office space (conditionally permitted)
- Public spaces and utilities (conditionally permitted)

Two-Family Residence District, R-2 (Yuba City)

Two-Family Residence District allows for housing in a similar atmosphere as in Low Density Residential District that also provides for the lowest density of attached residences. The following are permitted or conditionally permitted:

- Accessory buildings (permitted)
- Home daycare facilities (permitted)
- Mobile homes (permitted)
- One- or two-family residences (permitted)
- Recreational facilities (permitted)
- Mobile home parks (conditionally permitted)
- Parking lot for an off-site use (conditionally permitted)
- Public and quasi-public buildings (conditionally permitted)
- Public utilities (conditionally permitted)

Mixed Use Zoning

The parcels included Neighborhood Mixed Use and Commercial Mixed Use in Yuba County.

Neighborhood Mixed Use, NMX (Yuba County)

Neighborhood Mixed Use allows for small, localized businesses that serve the surrounding area and seeks to develop neighborhoods that meet all of the daily needs of the residents of the community. The following are permitted or conditionally permitted:

- Single- and two-unit housing (permitted)
- Limited residential care and social service facilities (permitted)
- Community assembly areas and cultural institutions (permitted)
- Government offices (permitted)
- Banks and financial institutions (permitted)

- General grocery stores (permitted)
- Restaurants and retail sales (permitted)
- Service stations (permitted)
- Multi-use housing (conditionally permitted)
- Colleges and trade schools (conditionally permitted)
- Emergency shelters and hospitals (conditionally permitted)
- Vehicle sales and services (conditionally permitted)
- Custom manufacturing (conditionally permitted)
- Minor utilities and small solar generation facilities (conditionally permitted)

Commercial Mixed Use, CMX (Yuba County)

Commercial Mixed Use allows for a mixture of high density residential and commercial land uses to support a full range of retail, service, and office uses and to reduce reliance on automobiles. The following are permitted or conditionally permitted:

- Small family daycares, elderly care centers, and limited social service facilities (permitted)
- Community assembly areas and cultural institutions (permitted)
- Government offices (permitted)
- Banks and financial institutions (permitted)
- Health clinics (permitted)
- General grocery stores (permitted)
- Restaurants and bars (permitted)
- Hotels (permitted)
- Retail sales (permitted)
- Service stations (permitted)
- Colleges and trade schools (conditionally permitted)
- Emergency shelters and hospitals (conditionally permitted)
- Vehicle sales and services (conditionally permitted)
- Custom manufacturing (conditionally permitted)
- Major and minor utilities and small solar generation facilities (conditionally permitted)
- Light-fleet based services and transportation passenger terminals (conditionally permitted)

Industrial Zoning

The industrial zoning codes of the parcels included Light Industrial in Yuba County and Heavy Commercial, Light Industrial in Yuba City.

Light Industrial, IL (Yuba County)

Light Industrial allows for light industrial and service commercial uses with limited potential to create noise, odor, vibration, or other similar impacts in areas of close proximity to residential areas and less intense commercial areas. The following are permitted or conditionally permitted:

- Essential or emergency service facilities (permitted)
- Maintenance and repair services (permitted)
- Service stations (permitted)
- Custom manufacturing (permitted)
- Indoor warehousing (permitted)
- Personal storage (permitted)

- Light-fleet based services and transportation and passenger terminals (permitted)
- Minor utilities (permitted)
- Personal hydro, wind, and solar energy systems (permitted)
- Colleges and trade schools (conditionally permitted)
- Community assembly areas (conditionally permitted)
- Major vehicle repair areas (conditionally permitted)
- Trucks and heavy equipment sales, service, and rental (conditionally permitted)
- Airports and heliports (conditionally permitted)
- Major utilities (conditionally permitted)
- Small and large solar generation facilities (conditionally permitted)

Heavy Commercial, Light Industrial, C-M (Yuba City)

Heavy Commercial, Light Industrial allows for a transition between commercial and industrial areas. It includes certain sales and services that are considered inappropriate in primary retail areas and light industrial uses. The following are permitted or conditionally permitted:

- Auto repairs and auto, truck, boat, and mobile home sales and services (permitted)
- Contractors equipment yard (permitted)
- Heavy equipment sales and services (permitted)
- Offices, trade services, and storage services (permitted)
- Temporary commercial coach (conditionally permitted)
- Heliports (conditionally permitted)
- Indoor recreation facilities (conditionally permitted)
- Public and quasi-public buildings (conditionally permitted)

Appendix C: Completed Matrix

YUBA-SUTTER TRANSIT
SITE SELECTION MATRIX
2-Sep-20

Evaluation Criteria	Weight	Site 1		Site 2		Site 3		Site 3a		Site 4		Site 7		Site 9		Site 11		Site 12		Site 14	
		1356 N Beale Rd		6982 Avondale Ave		6035 Avondale Ave		6062 Avondale Ave		Chestnut Rd & Erle Ave		Goldfields Parkway & N Beale Rd		6687 Hammonton Smartsville Rd		1855 N Beale Rd		1441 E Onsett Rd		Butte House Rd & Tharp Rd	
		Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score
Site Size (9 useable acres required)		17.57		4.8		19.72		11.61		10.1		15		18.22		13.84		17.42		12	
Site Shape (dimensions)																					
Availability (for sale or not for sale)		Yes		Yes		Yes		TBD		Yes		TBD		No		No		Yes		Yes	
Zoning		NMX		NMX		NMX		IL		CMX		NMX		RM		CMX		R-3		C-M	
Acquisition Cost		N/A		$ 550,000		$ 899,900		N/A		$ 2,640,000		TBD		N/A		N/A		$ 9,864,598		$ 5,488,560	
		#VALUE!	per acre	$ 114,583	per acre	$ 45,634	per acre	#VALUE!	per acre	$ 261,386	per acre	#VALUE!	per acre	#VALUE!	per acre	#VALUE!	per acre	$ 566,280	per acre	$ 457,380	per acre
PLANNING / OPS																					
1 Impacts to service and operation efficiencies	5	3	15	3	15	3	15	3	15	4	20	1	5	3	15	2	10	3	15	1	5
2 Wildfire Risk / Resilience	5	4	20	4	20	4	20	4	20	4	20	3	15	3	15	4	20	4	20	4	20
3 Emergency response to extreme events/ natural disasters	5	4	20	4	20	4	20	4	20	4	20	3	15	3	15	4	20	4	20	4	20
4 Flood Risk	5	2	10	2	10	2	10	2	10	3	15	2	10	2	10	2	10	3	15	3	15
5 Traffic and surrounding roadway conditions	4	2	8	2	8	2	8	2	8	3	12	3	12	2	8	1	4	4	16	4	16
6 Surrounding Use and Zoning Compatibility	4	2	8	2	8	1	4	4	16	3	12	2	8	1	4	3	12	1	4	4	16
7 Public Accessibility (1/4 mile from bus stop)	4	4	16	4	16	4	16	3	12	2	8	4	16	2	8	4	16	3	12	2	8
8 Acommodates future system growth	4	4	16	1	4	4	16	3	12	2	8	4	16	4	16	4	16	3	12	4	16
9 Environmental Impact	3	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9
10 Levee Protection Rating	3	3	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	1	3	1	3
11 Hub for mobility options	3	2	6	1	3	2	6	2	6	1	3	3	9	2	6	3	9	2	6	3	9
12 Acquisition Cost	2	1	2	4	8	4	8	1	2	3	6	1	2	1	2	1	2	2	4	2	4
13 Development Cost	2	1	2	2	4	3	6	2	4	2	4	2	4	2	4	1	2	2	4	1	2
14 Use as evacuation center	2	3	6	2	4	3	6	3	6	3	6	2	4	2	4	3	6	4	8	4	8
15 Easement Required	1		0		0		0		0		0		0		0		0		0		0
16 Geotechnical (soils condition)	1		0		0		0		0		0		0		0		0		0		0
17 Reusable Existing Facilities	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
PLANNING / OPS Maximum Possible Score	***216***																				

DEVELOPMENT COSTS																						
18	Construction Costs	5	1	5	2	10	3	15	2	10	2	10	2	10	2	10	1	5	2	10	2	10
19	Environmental Mitigation Costs	4	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12	3	12
20	Roadway improvement & traffic mitigation costs	3	2	6	2	6	3	9	2	6	2	6	2	6	2	6	1	3	2	6	1	3
21	No extraordinary site work required (i.e. fill, slope correction, grading required, etc.)	3	3	9	2	6	3	9	3	9	2	6	1	3	1	3	1	3	3	9	3	9
22	Utility Availability (electrical, water, gas, sewer, broadband)	2	4	8	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4
DEVELOPMENT COSTS maximum possible score		**68**																				
FACILITIES																						
23	Site proportion viable with ideal facility layout	5	3	15	3	15	4	20	3	15	2	10	3	15	3	15	4	20	2	10	2	10
24	Available buildable area	5	2	10	1	5	4	20	3	15	2	10	4	20	4	20	3	15	2	10	3	15
25	Site allows for pull-in drive-through single-row bus parking	4	2	8	2	8	4	16	3	12	2	8	2	8	2	8	4	16	3	12	2	8
26	Site allows for redundant on-site microgrid and/or BEB back up charging infrastructure	4	2	8	1	4	3	12	1	4	2	8	3	12	3	12	1	4	2	8	2	8
27	Allows for surface onsite stormwater detention	3	3	9	1	3	3	9	2	6	2	6	3	9	3	9	2	6	2	6	2	6
28	Drainage	3	2	6	2	6	2	6	2	6	2	6	2	6	2	6	2	6	2	6	2	6
29	Multiple points of bus entrance (in and out)	3	2	6	2	6	2	6	1	3	3	9	4	12	3	9	1	3	3	9	1	3
30	Site allows for single story facility	2	4	8	1	2	4	8	3	6	3	6	4	8	4	8	3	6	3	6	3	6
31	Allows for adequate solar generation	2	4	8	2	4	4	8	2	4	2	4	4	8	4	8	3	6	2	4	3	6
32	Employee/public vehicle ingress/egress	1	2	2	2	2	3	3	3	3	3	3	4	4	1	1	1	1	3	3	2	2
FACILITIES Maximum Possible Score		**128**																				

FUELING INFRASTRUCTURE																						
33	Surrounding power availability	5	2	10	2	10	2	10	2	10	2	10	2	10	2	10	2	10	1	5	2	10
34	Can accommodate hydrogen fueling infrastructure	5	3	15	1	5	4	20	2	10	2	10	2	10	2	10	2	10	2	10	1	5
35	Distance to substation	4	3	12	3	12	3	12	3	12	2	8	1	4	2	8	3	12	3	12	4	16
36	Location of power service entrance on site to bus parking	4		0		0		0		0		0		0		0		0		0		0
37	Potential for public hydrogen/electric fueling station	3	2	6	1	3	3	9	2	6	3	9	3	9	3	9	1	3	3	9	2	6
38	Available redundant circuits and / or substation feeds	3		0		0		0		0		0		0		0		0		0		0
39	Nearby natural gas main (used for H on-site reforming)	2		0		0		0		0		0		0		0		0		0		0
40	Site compatible with grade level BEB charging equipment area	2	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4	2	4
FUELING INFRASTRUCTURE Max Possible Score		***112***																				
Grand Total Maximum Possible Score		***524***																				
	TOTAL SCORE			**316**		**265**		**366**		**305**		**301**		**308**		**297**		**294**		**303**		**302**
	SITE RANKING																					

Weight:
5= most important; 4 = more important;
3 = important; 2 = less important;
1 = least important

Rating:
4 = excellent; 3 = good; 2 = fair; 1 = poor

Score = Weight times Rating

Site #1 is no longer available for sale and is therefore not a viable option

Site #3a is not available for sale and therefore not a viable option

Site #4 does not have the sufficient width to build the facility, despite being 10 acres

Site #9 is not for sale and therefore is not a viable option.