Appendix A - Bike Share System Equipment Technical Specifications
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*E=Essential; *D=Desirable

Ref	Element	* Level of Importance	Type	Response
	General			
1	**Flexibility**			
1.01	Describe your ability to tailor equipment and components (bikes, kiosks, signs, software, payment structure) to address issues specific to the Bay Area.	-	**Narrative**	
1.02	Describe any "green" components to your system including "green" products and/or operations (e.g. Use of recyclable salvageable parts, minimal energy use) .	-	**Narrative**	
1.03	Provide additional information or comments relevant to this section that have not already been described.	-	**Narrative**	
2	**Power Supply**			
2.01	Describe all possibilities for powering the system as well as the additional capital and operating cost, if any (battery, solar, solar with battery back up, etc.). Typical station should be functional without hardwiring	E	**Narrative**	
2.02	Describe the possibilities for decoupling solar panel hook-ups from the bike stations and attaching them to nearby buildings or structures.	-	**Narrative**	
2.03	Describe capacity to maintain security of the system during a power failure event or loss of internet connection. Some kiosks may be installed in parking garages and other buildings where solar panels will not function.	E	**Narrative**	
2.04	Provide additional information or comments related to Power Supply that have not already been described.	-	**Narrative**	
3	**Electrical Components**			
3.01	Does your equipment comply with all state and federal environmental and safety requirements?	E	**Yes/No/NA**	
3.02	Do your electronic and electrical devices meet or exceed NEMA TS-2005, Section 5 environmental requirements?	E	**Yes/No/NA**	
3.03	Provide additional information or comments related to Electrical Components that have not already been described.	-	**Narrative**	
	Equipment			
4	**Bicycle**			
4.01	Describe proposed bicycle including: bicycle weight, materials of the frame, forks and rims, and distinct look/design/color.	-	**Narrative**	

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4.02	Describe theft and vandalism prevention features: required for seat, brakes, derailleur, wheels, basket /rack; including but not limited to special components designed to be difficult to remove / nonstandard to reduce the attractiveness to thieves	-	Narrative	
4.03	How many models of bicycles exist? Is there flexibility to add future models and bike types? Describe types and timeframe of future models.	-	Narrative	
4.04	Bicycles have a step through-frame with non-removable seats that are easily adjusted and easy to ride with business clothing	E	Yes/No	
4.05	Do bicycles have front & rear hub-generated lights? Do lights remain illuminated for at least 90 seconds when the rider is stopped?	E	Yes/No	
4.06	Describe the drivetrain. If using a chain, describe method to keep it covered and lubricated and able to withstand open air storage.	-	Narrative	
4.07	Do bicycles have multiple gears with a simple gear shifting mechanism? Include gear ratio and describe your capacity to provide bicycles with different gear options. If applicable, provide pricing information for 1000 bikes at 3 speeds; 1000 bikes at 7 speeds; and 500 bikes at 3 speeds and 500 bikes at 7 speeds.	-	Narrative	
4.08	Do bicycles have front and rear hand brakes?	E	Yes/No/NA	
4.09	Do bicycles have front and rear fenders?	E	Yes/No/NA	
4.10	Do bicycles have front or rear basket? If rear basket is offered, is basket designed to discourage carrying passengers, and if so how.	E	Yes/No/NA	
4.11	Do bicycles have a bell?	E	Yes/No/NA	
4.12	Do bicycles have a kickstand?	E	Yes/No/NA	
4.13	Do bicycles meet California and US standards for reflectors and other U.S. CPSC requirements?	E	Yes/No/NA	
4.14	Do bicycles have 1.5-2.1 inch pneumatic puncture resistant tires?	E	Yes/No	
4.15	Describe bicycle design features that promote ease of maintenance including but not limited to internal gear and brake mechanisms, cables and parts that are protected from rain, ice, dirt and enclosed in a tamper-proof guard.	-	Narrative	
4.16	Are bicycles easy to clean and are impervious to the elements? Are they scratch-resistant, graffiti-resistant, and rust proof?	E	Yes/No/NA	
4.17	Do bicycles have location for sponsorship logos and/or promotional information? If yes, provide a picture or diagram showing sponsorship placement on bicycles.	E	Yes/No/NA	

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4.18	Describe any flexible options in bike features (e.g. # gears, colors, chain alternatives, racks).	-	**Narrative**	
4.19	Describe design features which contribute to the expected useful life and ensure durability (minimum five year useful life or warranty desired).	-	**Narrative**	
4.20	Do bicycles have space to place a multi-lingual customer service telephone number with durable, weather resistant labels?	D	**Yes/No/NA**	
4.21	Do bicycles include device for tracking use, specifically distance travelled per trip?	D	**Yes/No/NA**	
4.22	Provide your perspective on how best to address the topic of helmets.	-	**Narrative**	
4.23	Provide additional information or comments related to Bicycles that have not already been described.	-	**Narrative**	
5	**Docks**			
5.01	Describe the interface between user and dock when retrieving and returning a bike.	-	**Narrative**	
5.02	Describe how users will know whether a bicycle is available for use or out-of-service.	-	**Narrative**	
5.03	Can users choose which bike they use?	D	**Yes/No/NA**	
5.04	Describe the locking mechanism for securing the bicycle to the dock. Specify any proprietary design or materials.	-	**Narrative**	
5.05	Describe the power source(s) used by dock stations including any redundant or back-up systems in case of power failure.	-	**Narrative**	
5.06	Provide additional information or comments related to Docks that have not already been described.	-	**Narrative**	
6	**Stations**			
6.01	Provide a photograph, diagram, or picture of your system and include dimensions of each station component separately (kiosk, empty dock, dock with bicycle and others as needed). Video of your system is optional.	-	**Image**	
6.02	Provide an image or diagram of your station's standard configuration and footprint as they would be configured on-street, along a sidewalk, and along a curved planter in a plaza include dimensional requirements of the smallest and biggest modular component (height, length and width) and your proposed station clearance requirements.	-	**Image**	

Ref	Element	* Level of Importance	Type	Response
6.03	Describe the station installation process, equipment used, and estimated time to install each station. Explain how stations will be secured.	-	**Narrative**	
6.04	Describe the extent to which your stations are: portable, modular, require minimal time to install/remove, and do not leave behind attachment points that could impede sweeping or trip a pedestrian?	E	**Narrative**	
6.05	Describe how a station could be aesthetically compatible with the streetscape and neighborhood context, particularly of historic districts, both when it is full of bicycles and when it is empty.	-	**Narrative**	
6.06	Describe any wayfinding signage or markings for stations included with your system.	-	**Narrative**	
6.07	Will you provide bicycle safety information and/or maps at each station and for distribution at local businesses and tourist destinations?	D	**Yes/No/NA**	
6.08	Do your station elements and parts require specialized, proprietary tools to be moved or removed?	E	**Yes/No/NA**	
6.09	Are the stations free of horizontal components that could trip a pedestrian or injure a rider approaching at night?	E	**Yes/No/NA**	
6.10	Do your stations have the capacity to add shelter or covers if requested?	D	**Yes/No/NA**	
6.11	Do stations within the network have a unified look and feel?	E	**Yes/No**	
6.12	Can your stations be removed within 60 minutes or less by City Department of Public Works crews in case it is necessary to do so? Please comment.	D	**Narrative**	
6.13	Provide additional information or comments related to Stations that have not already been described.	-	**Narrative**	
	Technology (User Interface)			
7	**Kiosk**			
7.01	Describe the purpose and features of the kiosk at each station.	-	**Narrative**	
7.02	Describe user interface at kiosk.	-	**Narrative**	
7.03	Describe any "queue-reduction" features or options to reduce delay for customers at kiosk.	-	**Narrative**	
7.04	Indicate which type of customer must use this kiosk in order to retrieve a bike (all, walkups, subscribers, etc.).	-	**Narrative**	

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7.05	Explain the sequences of steps a user would take, once at a kiosk, in order to purchase a subscription, sign a waiver, release/return a bicycle and report a bicycle as damaged. List the number of steps and provide examples of screen shots/diagrams if possible.	-	**Narrative**	
7.06	Indicate which types of passes (daily, weekly, annual etc.) can be purchased from the station kiosk and which must be purchased through some other means (e.g. website, mail, in-person, etc.).	-	**Narrative**	
7.07	Describe how the location of other nearby stations are conveyed and the availability of bikes and docks at these other locations.	-	**Narrative**	
7.08	Describe how safety information and laws affecting bicyclists will be conveyed.	-	**Narrative**	
7.09	Indicate the useful life and warranty of your station and station components. What design features on your station and station components contribute to the expected useful life (noted above) and ensure durability of the station?	-	**Narrative**	
7.1	Are the Kiosk and Dock Interfaces legible at night, in lowlight and bright light/direct sunlight conditions? Do the Kiosk and Dock Interfaces function in all weather conditions and temperatures?	E	**Yes/No/NA**	
7.11	Can the Kiosk/System limit the number of bicycles that can be checked out at the same time by one user or one credit card?	D	**Yes/No/NA**	
7.12	Can subscribers check bicycles out from the Dock Interface without interacting with the Kiosk interface. If yes, which level of subscriber (all, annual, monthly)?	D	**Yes/No/NA**	
7.13	Does the Kiosk have touch-screen display?	D	**Yes/No/NA**	
7.14	Does the Kiosk offer multiple language options? If yes, can the agency select the languages?	D	**Yes/No/NA**	
7.15	Provide additional information or comments related to your Kiosk that have not already been described.	-	**Narrative**	
8	**User Interface and Membership Options**			

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8.01	Describe what customers must have in order to use the system: a) as a subscriber, and b) as a walk-up one-time user; (e.g. credit card, cell phone, internet access). Can the system be modified to add future options [e.g. Student ID, Clipper (Bay Area transit card), etc.]? Describe options for customers to use the system/pay deposit without a credit card, if any. **Note - Re: integration with Clipper:** If the integration will require only reading of the card serial number, the reader should comply with ISO 14443. If the integration will require payment with the card, the readers should comply with 14443 Type A&B and have at least 2 SAM slots available. Please not that payment with a Clipper card would require that some infrastructure be in place to transfer data to the Clipper backend. Please discuss the advantages of preparing for integration with Clipper now vs. the cost of retrofitting the system later.	-	**Narrative**	
8.02	Describe options for becoming a subscriber (e.g. at station kiosk, at website, Smart Phone, phone call, etc.) and how subscribers check-out/return bicycles.	-	**Narrative**	
8.03	Describe how walkups/ nonsubscribers (one-time users) use the system in terms of payment; deposit and liability waiver; bike retrieval and returns.	-	**Narrative**	
8.04	Describe your flexibility in offering subscription types (e.g. Daily, weekly, monthly annually, etc.).	-	**Narrative**	
8.05	Identify any third parties involved in collecting payments in service of the System.	-	**Narrative**	
8.06	Describe the process in which a user wants to return a bike to a station that is full or check-out a bike from a station that is empty and ideally how this will be avoided?	-	**Narrative**	
8.07	Describe how late fees and penalty fees (e.g. for Bicycles not returned within 24 hours) can be assessed. Describe how fees will be collected and bikes retrieved in cases of damage or theft.	-	**Narrative**	
8.08	Describe mechanisms you offer, if any, to enable individuals who do not have a credit card to subscribe and/or register as a day-user.	-	**Narrative**	
8.09	Provide additional information or comments related to User Interface and Membership Options that have not already been described.		**Narrative**	
9	**Public Website**			
9.01	Describe the public website design layout. The description should be a high level overview detailing pages, functionality, flow of data, use case scenarios, and types of user interaction.	-	**Narrative**	
9.02	Explain the sequence of steps a user would take in order to purchase a subscription on the website. Please include sample screenshots if possible.	-	**Narrative**	
9.03	Explain the sequence of steps a user would take in order to access, renew, or replenish their account on the website. Please include sample screenshots if possible.	-	**Narrative**	

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9.04	Does the website allow current Subscribers to access and update their subscription information, re-subscribe to the System and replenish their accounts?	E	Yes/No/NA	
9.05	Can the website provide a means to easily select a city and a station where bike share information is desired?	E	Yes/No/NA	
9.06	Can the website use open source mapping technology such as Open Layers to allow administrator of the system to have control over the JavaScript library? Is the use of mapping APIs such as those from Google or Microsoft permissible?	E	Yes/No/NA	
9.07	Can the website comply with Section 508 of the Rehabilitation Act, Subpart B, §1194.22 for Web-based intranet and Internet information?	E	Yes/No/NA	
9.08	Can the website display basic bikeshare "branding" to identify it as being unique to this Bay Area Bike Share program?	E	Yes/No/NA	
9.09	Is the same Website accessible from desktop computers and hand-held wireless devices such as PDA's, Smartphones, and web-enabled cell phones using browsers? Flash should not be used on hand-held devices.	E	Yes/No/NA	
9.10	Can the website automatically detect between a Personal Computer user and a PDA/Cellphone user and connect to a fully featured site and mobile site accordingly?	E	Yes/No/NA	
9.11	Can the website allow Bikeshare Operations Staff and/or System Administrators to list system status information and alerts in a prominent location on the website's home page?	E	Yes/No/NA	
9.12	Can the Website allow users to search for Station locations through a variety of inputs (e.g. user-entered address, intersection or major place names, selecting from an interactive map etc.)? Please list options.	D	Narrative	
9.13	Will you at the request of the Program Administrator conduct ongoing improvements to the website, as needed to accommodate changes, including but not limited to, additional features and increased functionality, changes in website technology, and compatibility with new applications? Will there be costs associated with this?	E	Yes/No/NA - Narrative	
9.14	Can the Website allow users to create personalized web pages to track their use? If yes, please describe types of information available to users (e.g. miles traveled, calories burned, etc.).	D	Yes/No/NA	
9.15	Is the website available in multiple languages? If yes, please specify languages you support	D	Yes/No/NA	
9.16	Will you work with independent "app" developers and/or make available relevant System information (e.g. real time information on number of Bicycles available at Stations) for the creation of applications for PDA's, Smartphones, web-enabled cell phones, etc.? Please list any that are already available for use.	D	Yes/No/NA - Narrative	
9.17	Are users able to track bicycle availability in real time from their desktop computers and/or hand-held devices such as PDA's and smartphones?	D	Yes/No/NA	

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9.18	The website shall require only a standard commercially available web browser for system users such as Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, or Netscape Navigator.	E	**Narrative**	
9.19	The website browser shall not require any specialized "plug-ins" or Active-X controls for system access or administration, and this browser should be built upon the latest HTML language, such as HTML 5.	E	**Narrative**	
9.20	The website shall have a Graphical User Interface (GUI) for user accessible components that uses common interfaces such as a mouse, hotkey functions, user-definable toolbars, roll-over and drop-down menus.	E	**Narrative**	
9.21	The website shall also include context-sensitive help features and support alphabet, numbers, standard symbols, and keyboard characters.	D	**Narrative**	
9.22	The website shall support alphabet, numbers, standards symbols, and keyboard characters.	E	**Narrative**	
9.23	The website user interface shall be uniform and consistent in its use of menus, buttons, function keys and screen design.	E	**Narrative**	
9.24	Each website screen or window must have its own title or other visible unique identifier providing the user with a clear indication of the screen's function.	E	**Narrative**	
9.25	The website GUI shall be open architecture with no proprietary codes.	E	**Narrative**	
9.26	Provide additional information or comments related to Public Website that have not already been described.		**Narrative**	
10	**Central Computer System**			
10.01	Describe and provide a diagram of the Central Computer System including all network (internal and external), processing and data storage elements.	-	**Narrative**	
10.02	Explain how the Central Computer System can indicate if a bike is not available e.g. has been identified as needing repair.	-	**Narrative**	
10.03	Describe potential for upgrading to other payment cards and ID cards.	-	**Narrative**	
10.04	Describe how user payment options will be upgraded to remain compatible with technological developments in the (1) credit card, (2) smart phone, and (3) computer industries.	-	**Narrative**	
10.05	Describe the potential for dynamic pricing by direction, time of day or by other means.	-	**Narrative**	
10.06	Describe the potential for security upgrades.	-	**Narrative**	
10.07	The Central Computer System shall detect the presence or absence of bikes at the docks.	E	**Yes/No/NA**	

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10.08	The Central Computer System shall be capable of accommodating simultaneous inquiries for "real-time" bike share information bike and dock availability via the Internet (e.g., web and web-enabled devices) and phone (e.g., land line phones and cell phones).	E	Yes/No/NA	
10.09	The Central Computer System shall have spare capacity to accommodate communications with a minimum of 100 kiosk simultaneously. (Air District plans to initially install up to 100 kiosks in the three county area). What is the capacity of the system you are proposing for the Bay Area program?	E	Narrative	
10.1	The Central Computer System can accommodate annual growth.	E	Yes/No/NA	
10.11	The Central Computer System should able to remotely lock all Docks and disable all walk-up registrations as needed in case of emergency.	E	Yes/No/NA	
10.12	The Central Computer System should be upgraded as required and checked for any system updates as necessary.	E	Yes/No/NA	
10.13	The connections to the Central Computer System shall be provided through the use of HTTPS/SSL connections, including a username and password login.	E	Narrative	
10.14	Provide additional information or comments related to Central Computer that have not already been described.	-	Narrative	
11	**Computer Server Administration and Security**			
11.01	A password security feature shall be provided that permits only authorized Central Computer System users (local agency administrators) to access administrator functions.	E	Yes/No/NA	
11.02	A secure method shall be provided to Central Computer System users to modify their passwords.	E	Yes/No/NA	
11.03	The System Administrator shall be able to provide Central Computer System users with multiple levels of system access plus remote access (outside of Air District) permissions, depending on user needs and security concerns.	E	Yes/No/NA	
11.04	The Central Computer System shall provide System Administrator with a reporting function to view who has logged into the system and the login patterns of those users.	E	Yes/No/NA	
11.05	The Central Computer System shall have network and server security measures that meet or exceed and seamlessly integrate with Air District's existing security measures (firewalls, router configurations, DMZ, server administration, etc.).	E	Yes/No/NA	
11.06	The Central Computer System warranty and support services shall commence only after the Air District verifies and approves the software installation and configuration.	E	Yes/No/NA	

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11.07	The Central Computer System server shall have a backup and recovery process in the event of hardware failures.	E	**Yes/No/NA**	
11.08	Provide additional information or comments related to Computer Server Administration and Security that have not already been described.	-	**Narrative**	
12	**Communications System**			
12.01	Describe the information flow for real time communication between kiosks & HQ/ website/server&bikes/docks. Please describe technology and infrastructure needed (e.g. wi fi, 3G, 4G, etc.).	-	**Narrative**	
12.02	Describe speed of information transfer.	-	**Narrative**	
12.03	Describe required bandwidth and typical Bay Area cost per month.	-	**Narrative**	
12.04	Describe how often "real-time" information will be sent to and from the central computer and the 1) stations, 2) Website.	-	**Narrative**	
12.05	Explain how RFID will be used in the System (e.g. Bicycle to Station communication, maintenance tracking etc.) .	-	**Narrative**	
12.07	Please explain if and how the System will use GPS data.	E	**Narrative**	
12.06	Information is reliable and secure with encryption for financial data and passwords.	E	**Yes/No/NA**	
12.08	In case of power failures, equipment shall have the ability to retain sufficient power to allow for last data transaction to be stored in the equipment memory until power is restored.	E	**Yes/No/NA**	
12.09	Provide additional information or comments related to Communications System that have not already been described.		**Narrative**	
13	**Database and Reporting**			
13.01	Describe how you will accommodate database maintenance and database back-up without any interruptions to service. If any, describe the extent of interrutptions that are anticpated and that cannot be avoided.	E	**Narrative**	
13.02	The database is upgraded and maintained on a daily basis. If not, describe frequescy.	E	**Narrative**	
13.03	The Central Computer System receives and saves in a searchable database all records.	E	**Yes/No/NA**	
13.04	The Central Computer System's database management system, shall use Microsoft SQL Server 2005 (Standard or Enterprise Edition)	E	**Yes/No/NA**	
13.05	The Central Computer System shall receive, store, and process Bikeshare information, time and location data that can be exportable to a defined archiving format.	E	**Yes/No/NA**	

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13.06	The Central Computer System shall be capable of generating on-line and printed reports of both current status and historical data as appropriate. The Contractor shall include in their proposal sample standard reports provided with the system.	E	**Yes/No/NA**	
13.07	Describe capacity to issue usage reports and types of data that can be provided: e.g., # users and usage by station, # returns by station, which station/station pairs are the most popular, length of time of usage range, excess time fees by station, and usage by: time of day, by station; bicycle theft/damages/vandalism; percent of bicycles in operation. Can System Administrators run these reports?	E	**Narrative**	
13.08	Will you provide monthly system reports with statistics on subscribers, usage, origin/destination data; system users, system status, frequently used stations, % availability of operating vs. broken bicycles and docks, bike availability, bike repairs, etc.?	E	**Yes/No/NA**	
13.09	In addition to the information listed in 5.04, provide a description of other data or analysis that will be provided in the monthly reports.	-	**Narrative**	
13.1	Capacity to issue Maintenance reports indicating where to rebalance and where bicycles needing repair are located (Example: the system could alert maintenance crews when stations are within two bikes of being full/empty).	E	**Narrative**	
13.11	The Central Computer System shall maintain a detailed log of the actions being performed by each user on the system. Usage information such as ridership, station check out/return, financial data will be linked to the user.	E	**Narrative**	
13.12	The Central Computer System shall maintain a detailed log of each bike and dock in the system.	E	**Yes/No/NA**	
13.13	The Central Computer System's Database Management System shall support rollback, restart and recovery of the database files in the event of a network and/or server failure.	E	**Yes/No/NA**	
13.14	Must be able to use database to issue surveys to bike share participants via email.	E	**Yes/No/NA**	
13.15	The Contractor shall support the eventual exchange of data with the Bay Area's regional 511 traveler information system operated by the Metropolitan Transportation Commission (MTC).	D	**Yes/No/NA**	
13.16	The Central Computer System's Database Management System shall automatically limit the log/database size to prevent disk overflow, with user-defined parameters for maximum period size.	D	**Yes/No/NA**	
13.17	Provide additional information or comments related to Database and Reporting that have not already been described.	-	**Narrative**	

1. For items categorized as Narrative in Column "Type", proposers should provide a written response ; proposers may include, if applicable, images, diagrams etc.

2. For items categorized as YES/NO/NA in Column Type, proposers should answer either "Yes", "No," or "Not Applicable (NA)" to indicate if such proposal can provide or adhere to the particular element(s). Such answers are defined as:

a. Yes = Yes, the proposing firm can provide this feature or function;

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b. No = No, the proposing firm cannot provide this feature or function for reasons explained in the Comments/Explanation column (Column 5);				
c. NA = This feature or function is not applicable for reasons explained in the Comments/Explanation column (Column 5).				