Mobility on Demand Strategic Plan

Humboldt County

Potential Pilot Projects

TECHNICAL MEMORANDUM

DRAFT – For Discussion

Prepared for HCAOG
By IBI Group

April 2020

Contents

1.0 Context

The Humboldt County Association of Governments (HCAOG) is developing a *Mobility on Demand (MoD) Strategic Development Plan* with an overarching goal of "providing affordable and accessible mobility solutions for all travelers." As articulated by HCAOG, the agency "seeks to set a plan for optimizing technology-enabled mobility-on-demand transportation options in Humboldt County." In short, the Strategic Plan's overall purpose is to assist the HCAOG in determining the best courses of action to increase multimodal mobility and accessibility in Humboldt County, especially for public transportation and transit, bicycling, walking, rideshare, and other modes separate from single-occupancy vehicle travel.

Mobility on demand is an innovative, user-focused approach which leverages mobility services, integrated transit networks, and real-time data to give users an easier and smoother experience traveling from origin to destination. The Strategic Development Plan will ultimately facilitate expanding mobility options for all travelers and users of Humboldt's transportation network.

Presented herein is discussion of potential pilot projects/implementation alternatives (Section 3.0) and an evaluation of same within prescribed evaluation criteria. The evaluation criteria (and *Guiding Principles*) are presented in Section 2.0. The evaluation of potential pilot projects and a preferred approach for proceeding with potential pilot projects is presented in Section 4.0.

The development of implementation alternatives has been informed by outcomes from previously prepared Technical Memos including profiles of existing conditions (transit/mobility services), community demographic profile, identified unmet needs, survey research and stakeholder consultation, and the research of innovative MoD practices.

2.0 Guiding Principles and Evaluation Framework

From the onset, the HCAOG project management team collaboratively developed the following four *Guiding Principles* to shepherd the development and advancement of MoD strategies and potential pilot projects.

Guiding Principles: (*within context of unmet transit/mobility needs*):

1. Reduce Greenhouse Gas (GHG) Emission
    - Reduction of single-occupancy vehicles and/or vehicle miles traveled (VMTs).
2. Increase Transit Effectiveness
    - Increase of overall ridership, reduction of travel times, increase in riders per service hour or service mile.
3. Contribute to Regional Economic Development
    - Provide additional transit/mobility service offerings available for residents, visitors, (may be targeted to specific market segments including HSU students, business community, etc.).
4. Equitable Access
    - Provide reliable, convenient access to goods and services for transportation-disadvantaged population.

The evaluation of potential pilot projects and a preferred approach for proceeding with potential pilot projects is presented in Section 4.0. The Evaluation Criteria used is presented below.

Evaluation Criteria:

- Effectiveness in terms of the population/market served (including the student, indigent, elderly and disability communities together with the general public -- residents, tourists, etc.); and in terms of the number of trips generated (ridership, by trip purpose);
- Overall Cost - the total cost of providing the service; Consideration of such factors as: capital vs. operating costs, large capital outlays, and present-valued expenditures over the long-term;
- Efficiency - the cost per trip, per vehicle-hour, per vehicle mile, etc.; Costs to both user and to the funding partners;
- Reduce Vehicle Miles Traveled (VMTs) Per Capita / Single Occupancy Vehicles (SOVs);
- Level of Service - hours of service, frequency of service, trip purpose, etc.;
- Quality of Service - to the user (enhance customer experience); measured in terms of convenience, transfers, trip times, comfort, dignity, and flexibility (response time, advance booking requirement, etc.);
- Socio-economic factors - impact on employment and social well-being;
- Civil rights implications - delivery of services for persons with disabilities, integration, etc.;
- Organizational issues such as operational flexibility, control and accountability, human and labor relations;
- Ease of implementation;
- Technical risk - if new or modified equipment is required; Ability of 'the appropriate authorities' to support the equipment (e.g. scheduling systems, vehicles, etc.); and
- Political risk - the potential for changes in policy or funding directions at HCAOG, HTA, local, or State level(s).

3.0 Opportunities

Opportunities for going forward were informed by previously documented unmet need and current community input (survey research and stakeholder consultation). Key takeaways included:

- Need for mobility solutions (MoD strategies) to facilitate spontaneous and convenient travel;
- Need to provide connectivity to transit services (first-last mile);
- Need to address service availability - expanded hours of day & days of week;
- Recognize locations where trip (and population) densities may not justify fixed route transit; and
- There is an opportunity to incorporate active transportation solutions in mobility enhancements.

Further, for those surveyed who did not use transit, the primary reasons included:

- Takes too long;
- Does not go close enough;
- Infrequent service; and
- Doesn't operate hours and/or the days of week.

The following presents a summary of opportunities (locations and MoD Applications) based on identified unmet need and/or latent demand.

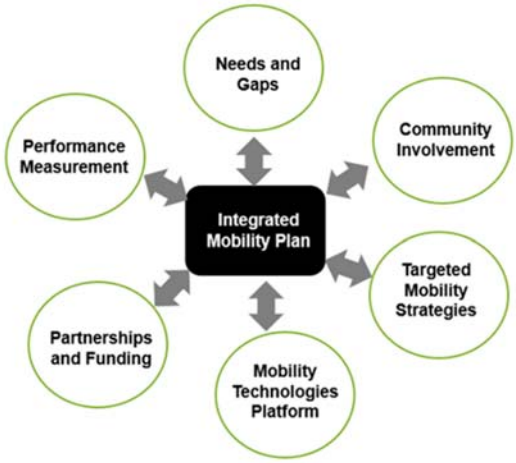
Unmet Need / Latent Demand	Locations or Services Identified (comment received)	*MoD* Application(s)
Address Unserved or Underserved Areas	Service to/from Southern Humboldt to Eureka/Arcata	HTA's updated Southern Humboldt Intercity is serving this need.
	Service to Samoa (Manila)	Low-priority need due to low density (insufficient to support regularly scheduled service). **Potential for PMoD[1] – demand-response, payment for service consumed.**
	Old Arcata Road between Eureka-Arcata: Freshwater, Bayside, Jacoby Creek	*Pilot project continues.* Prepared Evaluation Report and recommendations.
Lifeline to remote rural areas	Hoopa Valley, Orick, Weitchpec	Low-priority due to current low demand. Demand may be served by local services including Klamath Trinity Non-Emergency Transportation (KTNeT).
Address Service When It's Needed (trip densities may not justify regularly scheduled service)		
Later evening	Fixed route and dial-a-ride services in Eureka and Arcata	**Potential for PMoD – demand-response, payment for service consumed.**
Sunday (weekend service)		

[1] PMoD - *Personal Mobility on Demand*: Service description includes service provided by sedans, minivans, taxis, transportation network companies (TNCs), in an on-demand (next vehicle available) and/or advanced booked mode.

Address Service for Most Vulnerable Customers		
Enhancing trips for elderly/ disabled for health/medical appointments	Add more dial-a-ride service vehicles to reduce long wait times	**Potential for PMoD – demand-response, payment for service consumed.**
Unmet Need / Latent Demand	**Locations or Services Identified (comment received)**	***MoD* Application(s)**
Facilitate access to & use of, mainline (fixed-route) transit.	Proximity to fixed-route transit services	Service Delivery: **Potential for PMoD – provision of first/last mile/connectivity to transit. Demand-response, payment for service consumed.**
		Operations: Information dissemination (available transportation/mobility options and trip planning), travel/ mobility training (for those unfamiliar with 'how to use' transit).
Increase Ridership on Good-Performing Routes		
Streamline RTS (reduce travel times)	Reduce / minimize remote stops that have low / lowest ridership and high / highest time requirements / impact running time.	**Potential for PMoD – provision of first/last mile/connectivity to transit. Demand-response, payment for service consumed**
Increased frequency on RTS	Provide express intercity route (north-south)	Streamline RTS/shorten trunk.

4.0 *A Way Forward*

This section presents a preferred approach for proceeding with potential pilot projects to advance enhanced mobility for residents, commuters, and visitors.



A preferred approach, as discussed herein is designed to address:

- ✓ **Input from the community:**
  - More frequent bus service
  - More direct or express service
  - Expanded transit service hours and/or days of week of operation
- ✓ **Able to address multiple service types including:**
  - First/last mile feeder connections (including RTS route access)
  - Coverage-oriented transit/mobility in low-density corridors and neighborhoods
- ✓ **Able to reduce single-occupancy vehicle travel, and hence the reduction of:**
  - Vehicle miles traveled (VMTs)
  - Traffic congestion
  - Greenhouse gas emissions and other air pollutants
  - Energy consumption
  - Demand for on-street parking

Consideration of near-term pilot projects includes the following two service alternatives:

1. On-Demand Transit (Personal Mobility on Demand – PMoD); and
2. Active Transportation (facilitating expansion of bike share program)

4.1 On-Demand Transit – Connectivity to RTS

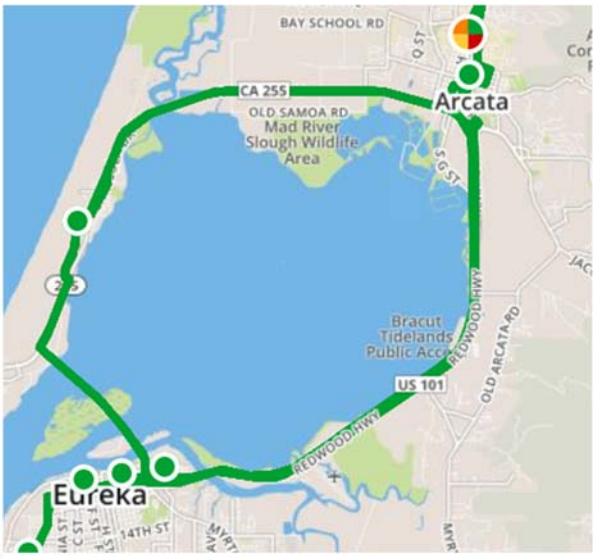
The Redwood Transit System (RTS) offers service between Scotia, Fortuna, Loleta, Fields Landing, Eureka, Arcata, McKinleyville, Westhaven, and Trinidad seven days per week. RTS provides more than 600,000 passenger-trips per year.

With an eye on streamlining the RTS route alignment, reduce the travel time (total route run time), and increase service frequency, two complementary strategies are presented: (1) Eliminate three deviations from the current route alignment; and (2) Short-turn the route at both the north and south ends of the alignment.

1. Elimination of Three Deviations: These deviations are Fortuna, Manila, and the Arcata-Eureka airport in McKinleyville.

While all three stops are not served by every RTS run, run time savings by eliminating current deviations are as follows:

- Fortuna stops, approximately 15 minutes;
- Manila (Community Center), approximately 15 minutes; and
- Airport terminal, approximately 8 minutes.

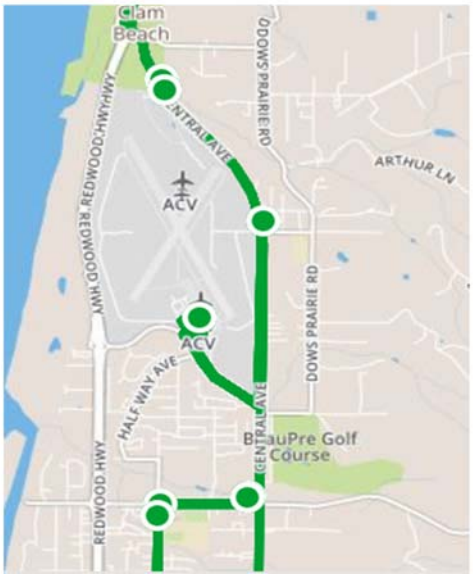


Based on boarding information provided by HTA, the Fortuna deviation generates less than 100 daily passenger trip on/offs; Manila, less than 10 daily passenger trip on/offs; and the airport terminal, approximately 35 daily passenger trip on/offs.

The above presented number of passenger trip on/off counts were based on a sampling of RTS southbound and northbound bus runs. The number of weekday and weekend RTS bus runs serving example locations in Fortuna, Manila and the airport, is presented below.

Number of North & South Bound Runs Serving Stops

Example Locations	Weekday Service	Weekend Service
Fortuna		
11th & N Streets	34	8
Redwood Village Shops	8	6
Manila		
Community Center	10	4
Arcata-Eureka Airport		
Airport Terminal	32	10



Using a model similar to that of the *Old Arcata Road Taxi-Transit Pilot*, the elimination of these RTS route deviations may be replaced by a PMoD service. An on-demand PMoD service would provide connectivity to a RTS bus stop (feeder service). This scenario will

not only enhance RTS performance and the experience for the majority of customers, but also provide an opportunity to expand the catchment area for 'new' customers who have previously not had first/last mile mobility options (access to a bus stop).

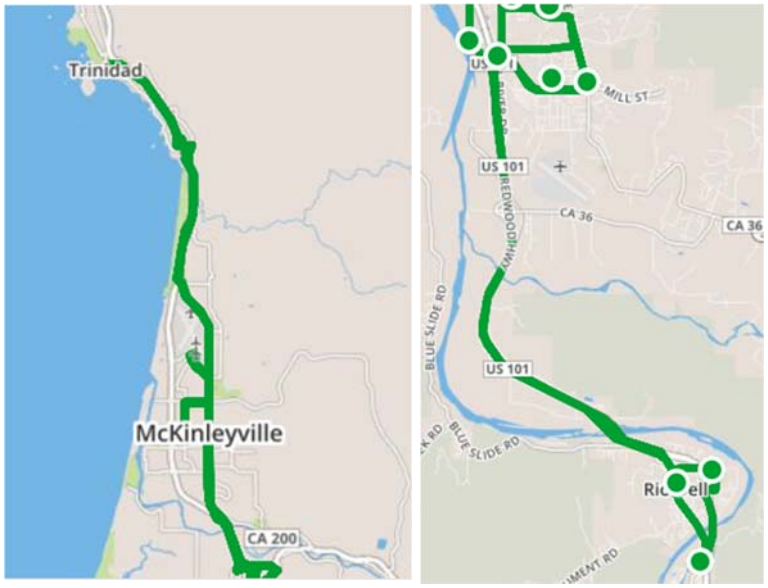
Streamlining the RTS route alignment will eliminate out of direction travel and reduce the travel time for the majority of RTS customers. However, passengers who would be using the PMoD service as a feeder would require a transfer to the RTS and hence a "two seat ride".

Collaboration with Fortuna Transit: The City of Fortuna provides demand responsive transportation for seniors over 50 or those who are disabled and unable to drive. Service is available Monday through Friday between 8:30 a.m. and 4:00 p.m. Current service productivity is 2.9 trips per hour at an average subsidy per trip of $11.67. Average distance per passenger trip is 2.6 miles.

It may be prudent to discuss with Fortuna city officials any opportunity to expand the mandate of the city's demand responsive transportation to include the general public and to provide scheduled feeder service to RTS bus stops. For example, RTS bus stops at the Fortuna Park and Ride lot in the south and 11th and N Street in the north.

2. Short-Turn at North & South Terminus of RTS Route

Again, with an eye on streamlining the RTS route alignment, reduce the total route run time, and increase service frequency, service would operate between McKinleyville and Fortuna. The McKinleyville to Trinidad and the Fortuna to Scotia route segments would be provided by an on-demand PMoD service would provide connectivity to a RTS bus stop (feeder service).



Eliminating these two route segments would translate to a 30-minute savings of route run time.

Current run times for these two route segments are:

- McKinleyville to Trinidad = 13 minutes
- Fortuna to Scotia = 16 minutes

PMoD Evaluation: Based on the evaluation criteria previously presented, the following table provides a commentary on each of the criteria presented:

EVALUATION CRITERIA	COMMENTARY ON APPLICABILITY TO ON-DEMAND / PMOD PILOT
Effectiveness in terms of the population served and in terms of the number of trips generated	Serves residents, employees, commuters and visitors. The provision of connectivity to public transit (RTS), hence increasing the use of public transport by the general population is one of the most important steps towards reducing global greenhouse gas emissions.
Overall Cost - the total cost of providing the service and consideration of factors such as: capital vs. operating costs, large capital outlays, and present-valued expenditures over the long-term	Little financial risk: no capital investment and only pay for service consumed (operating costs). Need to determine/assess any financial risk of decline in RTS ridership.
Efficiency - the estimated cost per trip, per vehicle-hour, plus costs to both the user and to the funding partners	Estimated cost per trip (pay for service consumed) typically more cost effective than the fixed hourly rate of providing regular transit service.
Reduce Vehicle Miles Traveled (VMTs) Per Capita / Single Occupancy Vehicles (SOVs)	PMoD may reduce vehicle miles traveled (VMTs) if operating in carpool/share-ride mode (2 or more unrelated/unconnected passengers). Further, provides an opportunity to expand the catchment area for 'new' customers who had previously not had first/last mile mobility options (access to a bus stop).
Level of Service – hours of service, frequency of service, etc.	Flexible and may be tailored to travel demand and/or budgetary constraints.
Quality of Service – to the user (enhance customer experience); measured in terms of convenience, transfers, trip times, comfort, dignity, and flexibility (response time, advance booking requirement, etc.)	Eliminates out of directional travel and reduces the travel time for the majority of RTS customers. Impacted customers (those boarding at current deviation bus stops) will now have a two-seat ride (PMoD serving as a feeder and hence requiring a transfer).
Civil Rights Implications - delivery of services for persons with disabilities and integration	Accessible to all providing for equitable access.
Socio-Economic Factors - impact on employment and social well-being;	Serves residents, employees, commuters and visitors. The provision of connectivity to public transit (RTS), hence increasing access to goods and services

EVALUATION CRITERIA	COMMENTARY ON APPLICABILITY TO ON-DEMAND / PMOD PILOT
	including employment, education, social, recreational, etc. trip purposes.
Organizational Issues such as operational flexibility, control and accountability, human and labor relations	Operationally flexible – pay for service consumed and ability to modify service parameters to manage demand and influence travel behavior.
Ease of Implementation	TBD. Probable need for competitive procurement for operating entity. Acceptance testing of e-hailing/ride share technology used by transit/mobility service provider.
Technical Risk - if new or modified equipment is required	None. Assumed leverage technology used by transit/mobility service provider (i.e., taxi or TNC).
Political Risk - the potential for changes in direction of local policies	Discretion of HTA and/or HCAOG Board. Ability to modify service parameters.

The HCAOG sponsor the advancement of a pilot of **Humboldt *e*-Ride**[2] service. **Humboldt *e*-Ride** will be a directly subsidized microtransit/on-demand ride hailing (e-Hailing) or shared-ride service in sedans, SUVs or vans.

Humboldt *e*-Ride would provide same day service, booked at least one-hour in advance. Service may be requested/booked through a vendor supplied App or by making request by telephone through a call center/dispatch office.

For discussion purposes, a maximum subsidy of $9.00 has been set. The $9.00 figure would translate to an approximate four to four-and-one-half mile trip given prevailing ride-share/TNC rates[3]. A comparable trip by taxi would cost approximately $15 to $16[4].

While fare policy may be used to influence travel behavior, it is assumed, for the purposes of advancing a potential MoD pilot project, the current HTA fares will apply and be collected upon boarding.

With the emerging alternate delivery models of the rideshare companies (i.e. *LyftLine*, *Uber Pool* and *Uber Express POOL*) promoting greater shared-rides, may result in additional cost savings.

[2] e-Ride or e-Hailing refers to the request of a demand-responsive mobility service via an app or call-center.
[3] Based on Uber Fare Estimator
[4] Based on published rates by Cab Louie: $2.00 gate fee plus $3.00 per mile.

Partnering with current transportation/mobility providers such as taxis or TNCs avoids direct institutional ownership of the service by the HCAOG (or HTA) and incurs costs only for services consumed.

The **Humboldt *e*-Ride** service model may also be applied to other areas where existing transit performance falls below prescribed service standards. One additional possible application may be replacing evening service in Eureka.

4.1.1 A Preferred Approach for Deployment

In advancing potential pilot projects and community partnerships for potential grant funding, the following priorities are presented for discussion:

1. Manila: Introduce PMoD service to replace the RTS route deviation.
2. Fortuna: Advance discussions with city officials for collaborative solution as discussed herein.
3. Streamline RTS Route Alignment (all five geographic locations): PMoD service to replace (a) deviations in Fortuna, Manila, and airport; and (b) Scotia to Fortuna and McKinleyville to Trinidad service.

4.2 Active Transportation (facilitating expansion of bike share program)

Humboldt County is well positioned to expand its bicycle infrastructure in cities and unincorporated areas. The Cities of Arcata and Eureka have well-established bicycle infrastructure, and are still planning new Class I, II, and III bikeways. Other cities, such as Blue Lake, Ferndale, Fortuna, and Rio Dell, have only begun implementing their bicycle networks, but have planned a system that fosters safe bicycle access (through the 2018 Humboldt Regional Bicycle Plan).

Bike Share and Micro Mobility: Bike share is a new service in which bicycles are made available for the public on a short-term basis for a nominal fee. Bike sharing systems are either docked or dockless. For docked bike sharing systems, users have to return their shared bike to a dock to end their trip. With dockless bikes, users can end their trip anywhere, by use of a smartphone app. Most bike share services have smartphone mapping to show nearby available bikes or open docks.

One of the main benefits of bike share programs is that they can significantly enhance people's access to fixed-route transit. Bike share programs can even serve as micro public transit by providing affordable, short-distance trips to get users from a bus stop closer to their destination. Because of this, they may reduce private vehicle trips, and provide an opportunity for users to access public transit easier than walking.

Bike share is beginning to appear in Humboldt County, namely Arcata and Eureka. The bike share company Zagster has launched their bike share service to serve Humboldt State University (HSU) and the greater Arcata area and downtown/Old Town Eureka. Bike share was one of the several strategies outlined in HSU's *Climate Action Plan*.

Currently, there are seven docking stations in Arcata and one in Eureka. The locations of the docking stations are:

- HSU Jolly Giant Commons Station
- HSU Harry Griffith Hall Station
- Northtown Arcata Station
- Arcata Transit Center Station
- Southeast Arcata Plaza Station
- North Coast Co-op Parking Lot Station, Arcata
- Northeast Arcata Plaza Station
- North Coast Co-op, Eureka

Unmet Bicycle and Bike Share Needs:

- Lack of bicycle parking in public places and at businesses.
- Lack of bicycle infrastructure in key locations, locally and regionally.

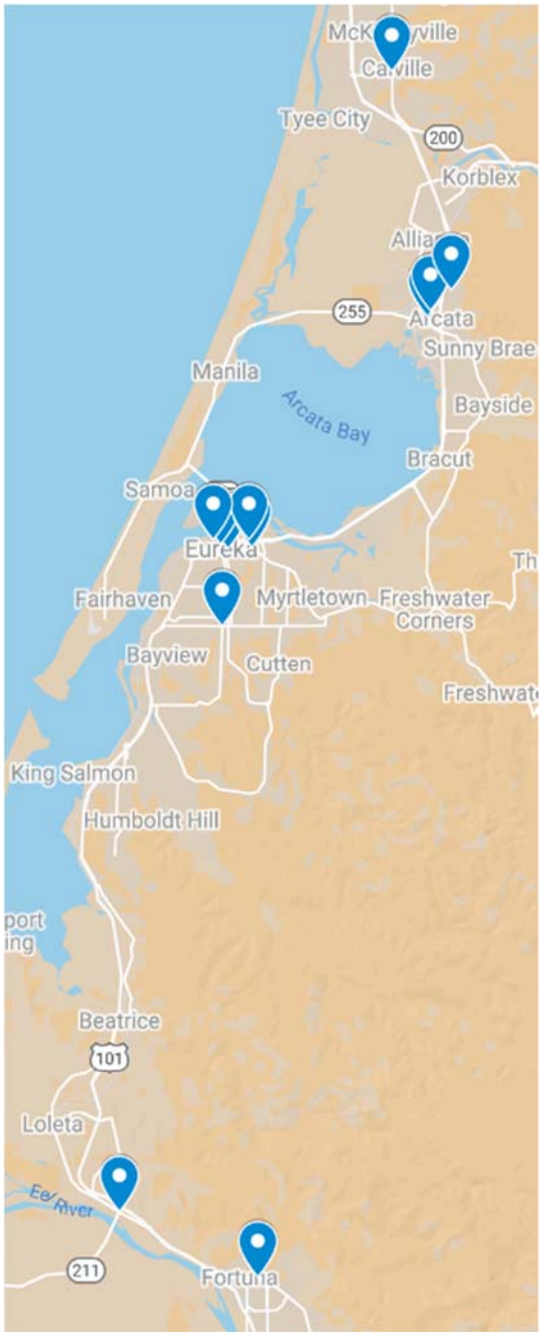
Potential solutions to meet bicycle and bike share needs:

- Facilitate expanded bicycle parking at public places. This may include incorporating bicycle parking in land use and development agreements, providing secure bicycle lockers at transit hubs, etc.
- Consider expanding upon the current bicycle network, preferably with Class I and Class IV bikeways where applicable, throughout Humboldt County.
- Consider facilitating growth for bike share opportunities. This may include a robust education/marketing/communication strategy, and enhanced integration with transit operations and service delivery (bike racks on buses, an app providing real-time availability of bike rack capacity, etc.).

Expanded Bike Share Program: For discussion purposes, the following presents a list (and map) where bike share stations may be appropriate based on connectivity to RTS, the potential to create mobility hubs where intermodal connections can be made, and surrounding land uses. HTA bus rack utilization data was also analyzed and while the bike racks were well utilized, the data did not inform on locational/geographic considerations for bike share station locations.

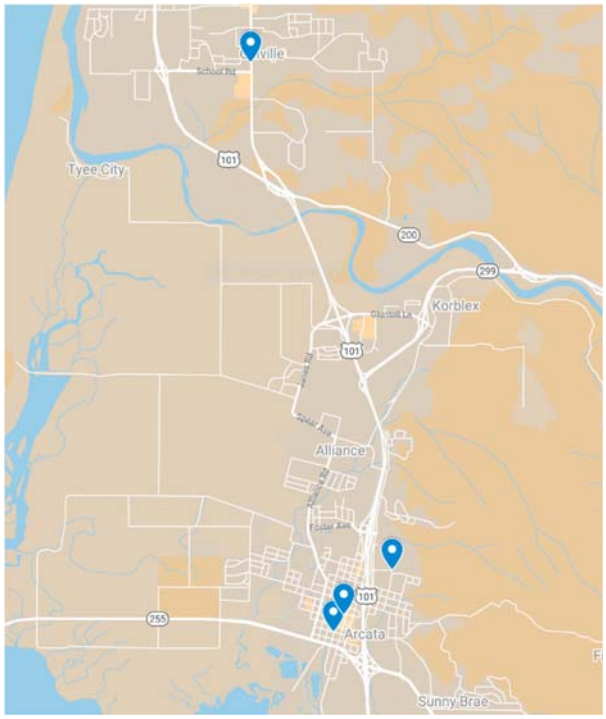
Following concurrence of a preferred approach, including governance, to advance an expanded bike share program, NACTO's guide on station siting is a beneficial resource for site selection, including curb allocation, space availability and requirements (footprint), etc.

List of Possible[5] Bike Share Station Locations:



- 6th Street & H Street, Eureka
    - significant number of bikes loading and unloading here onto RTS buses
- Alternative (to 6th & H St.) bikeshare location - 6th & J, Eureka
    - at the juncture between J & 6th street
- ETS/RTS transfer location - 4th & H Streets
    - Bike route is on 6th and 7th and J Streets. ETS transfer is 3rd and H. RTS transfer pair is 4th and 5th & H Streets.
- F & Harris - Henderson Center (ETS)
    - on ETS routes and on a bike route
- Myrtle & 7th
    - on a bike route that goes to Myrtletown, near the RTS route
- HWY 101 & R Street (Alternative to Myrtle & 7th)
- School Road, McKinleyville
- Fortuna Main Street - McKinleyville
- Fernbridge
    - provide access to Ferndale through bikeshare
- Arcata Plaza
    - Possible expansion of current docking stations
- HSU - B Street
    - access to the heart of the campus. Bikeshare likely does not need to be connected with transit on campus.
- Gazebo - Old Town Eureka

[5] Provided for further consideration/discussion.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Alliance
Arcata
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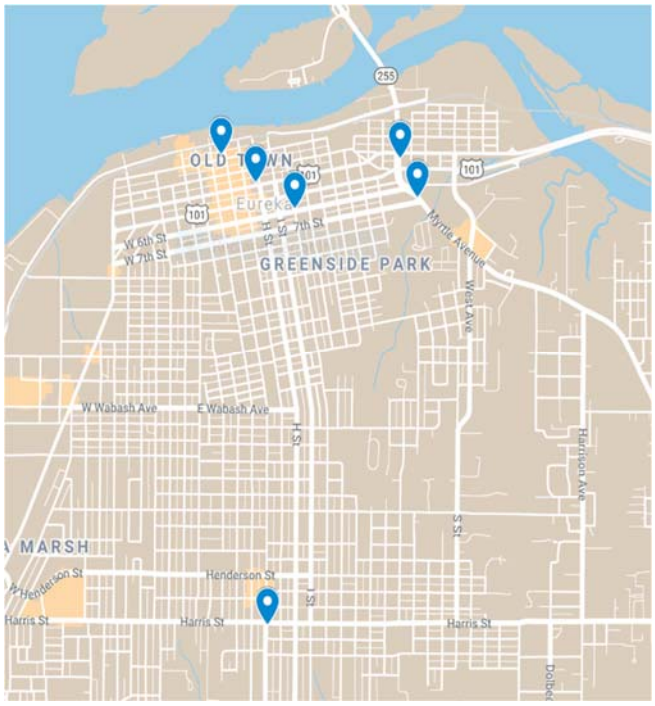
Sunny Brae


OLD TOWN
Eureka
101
GREENSIDE PARK
W 6th St
W 7th St
Myrtle Avenue
W Wabash Ave
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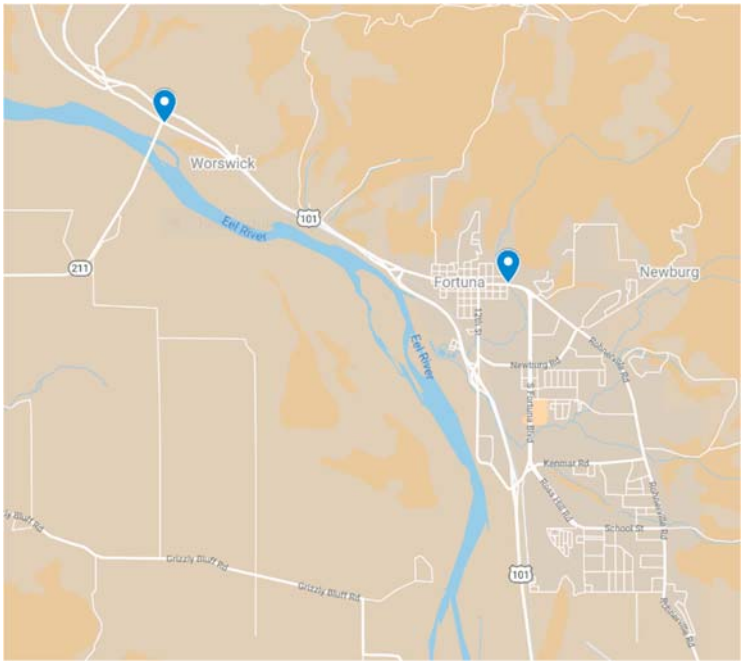
Harris St
Harrison Ave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