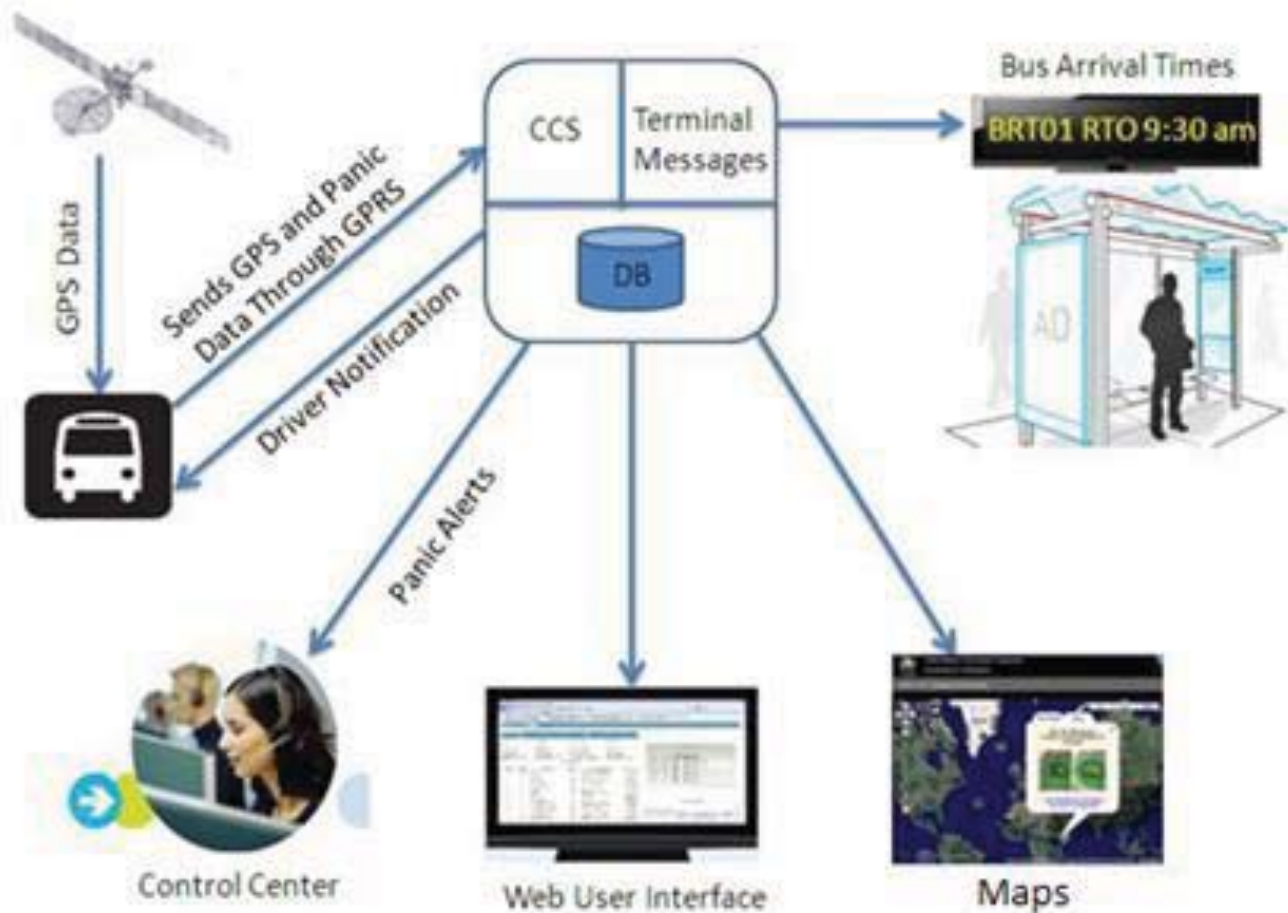




## 2018 Santa Cruz County Regional Transportation Improvement Program

# METRO ITS Equipment



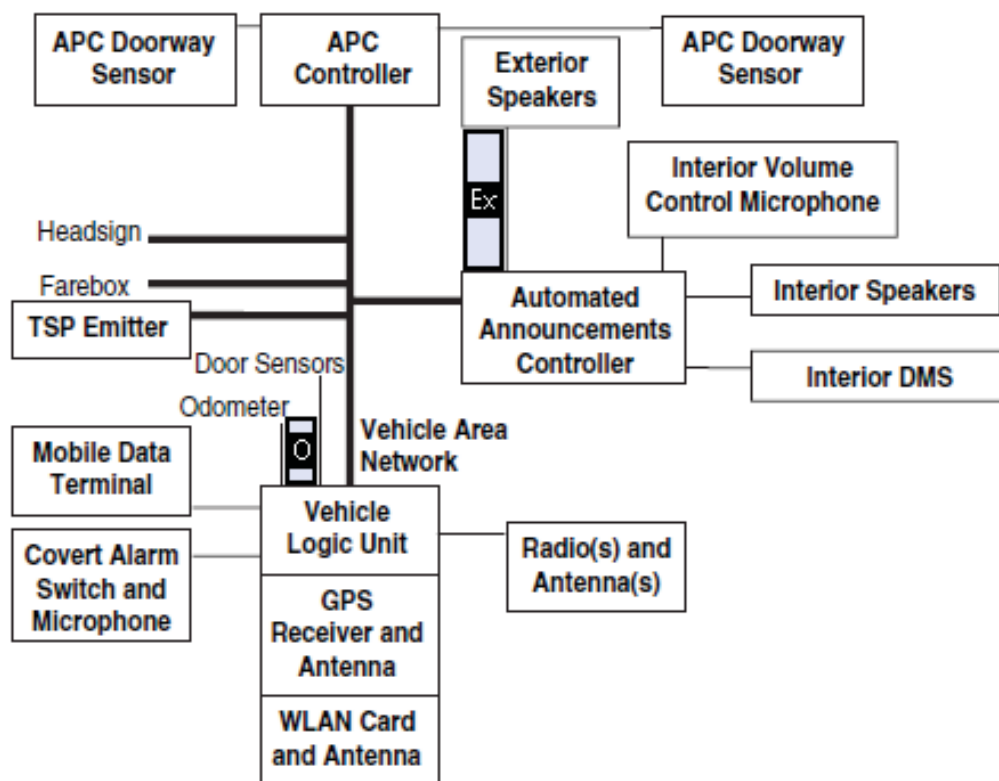
**PART I: General Project Information**

1. **Project Title/Project Name:** METRO ITS Equipment
  
2. **Project summary:** *(briefly describe the project in 1-2 sentences)* Intelligent Transportation Systems are configurations of advanced electronics, computers and communications equipment to increase transportation system productivity. This project will install Automatic Vehicle Locaters (AVL) on up to 100 METRO buses as the fundamental driver which powers ancillary functions to improve service delivery, transit information access and data collection for system operations, security, planning and maintenance.
  
3. **Describe Project Location** and Limits or Service Area: *(Under Section III attach an 8 1/2" x 11" map and/or photos if available/applicable; include street names)* ITS equipment will be installed on all METRO buses and at support facilities to enable ITS features throughout the system. METRO's Santa Cruz County transit network is shown in the attached file, **Part IV.ITS Map Graphics.pdf**.
  - **Project Length:** *(in miles or feet, if applicable)* METRO operates over 479 directional route miles in Santa Cruz County.
  
  - *For projects on local roads, Caltrans Roadway Classification – NA*
  
4. **Total Funding Requested:** \$ 1,770,600  
  
**Total Project Cost:** \$ 2,000,000
  
5. **Project Applicant:** Santa Cruz Metropolitan Transit District
  - a. **Implementing Agency:** Santa Cruz Metropolitan Transit District
  
  - b. **Sponsoring Public Agency that has Master Agreement with Caltrans:** *(if different from implementing agency)* Same
  
6. **Project Priority:** **This is priority number #3 of 3 applications submitted.** *(Agencies are encouraged to provide if requesting funds for more than one project and would like project sponsor priorities to be considered.)*
  
7. **Detailed Project Description/Scope:** *(Prior to developing scope of work, project sponsors should consider the [Complete Streets Guidebook](#) and benefits checklist in Section II of this application and consider incorporating appropriate complete streets components where feasible. Include all capital improvements, program characteristics, and improvements associated with each mode of transportation as applicable. Attach additional information if needed.)*

This project will implement an AVL system at METRO to drive ancillary ITS functions dependent upon real-time data from a bus's location. Data from the AVL will produce information for a list of internet-based applications including:

- Advanced Traveler Information Systems:
  - Mobile applications for customer access to real-time schedules;
  - Next bus information at stops and transit centers;
- An Automatic Vehicle Annunciating System upgrade to enhance transit access for hearing- and sight-impaired passengers.
- On board safety and security systems with video and audio access to evolving situations in the passenger cabin.
- Data collection from key bus components for Maintenance analysis;
- Computer Aided Dispatch system to continuously monitor bus locations, reduce radio traffic, assist real-time routing and improve network "visibility;"
- Automatic Passenger Counting to generate stop-by-stop data for system analysis, reporting, modeling and planning.

The following graphic illustrates typical data linkages amongst various applications driven by the AVL:



Source: TCRP Synthesis 73 AVL Systems for Bus Transit: Update. Figure B2, Fixed-route vehicle system components, p.93

AVL and associated systems implementation will be contracted to vendor(s) who will perform the installation and configuration on-site, test and warranty the product and train staff.

Scope of Work

Task	Deliverable
1	Develop specifications for AVL systems.
2	Solicit vendor bids to furnish and install systems.
3	Evaluate bids and award contracts.
5	Install equipment, test and train staff.
6	Operate AVL systems in daily service.

**a. Projects with pavement preservation – Attach supplemental documents (Section VI) NA**

- Rehabilitation: Attach “Local Road Rehabilitation Project Certification”
- Preventive Maintenance: Attach “Pavement Management System (PMS) Certification”

**8. What accommodations, if any, are included for bicyclists, pedestrians, and/or transit in the proposed project?**

This project in its entirety accommodates public transit and its passengers who are bicyclists, pedestrians and the mobility impaired. Advanced traveler information systems will deliver real-time bus position and arrival times to travelers’ computers, mobile devices and stationary signage at transit centers to improve access to the transit system. An on-board automatic vehicle annunciator upgrade will broadcast bus route and stop information to aid hearing- and sight-impaired individuals. On-board surveillance will improve transit security and passenger safety through remote incident management and will assist operators to avoid pedestrian and bicyclist collisions. Automatic passenger counters (APC) will collect data for planning more effective service. Bus location data and component performance data transmitted to Operations and Maintenance Departments will contribute to more effective transit system management.

**9. If the proposed project does not incorporate both bicycle and pedestrian facilities, or if the proposed project would hinder bicycle or pedestrian travel, list reasons why the project is being proposed as designed.**

- **Cost** (*What would be the cost of the bicycle and/or pedestrian facility and the proportion of the total project cost?*) NA
- **Right-of-way** (*Did an analysis lead to this conclusion?*) NA
- **Other** (*Please explain.*) NA

10. **Project Cost by Mode:** (List the approximate percentage of total project costs related to different transportation modes in the chart below. **Project description** (above) must include explanation of what will be done related to each applicable mode.)

		<b>% of Total Cost by Mode</b>
<i>While all modes real-time 100% of are for</i>	<b>Pavement Preservation (rehab, overlay, etc)</b>	%pave%
	<b>Road –Auto Serving</b>	%road%
	<b>Bicycle</b>	%bike%
	<b>Pedestrian</b>	%ped%
	<b>Transit</b>	100%
	<b>TSM*</b>	%TSM%
	<b>TDM*</b>	%TDM%
	<b>Planning</b>	%plan%
	<b>TOTAL</b>	100%

*transportation benefit from transit travel information, project costs public transit.*

11. **Regional Transportation Plan (RTP):**

- a. **Is project included in the 2014 RTP or draft 2040 RTP?** Yes
- b. **If yes, RTP Project Number (ID#):**
  - i. MTD-P50, Automatic Vehicle Locator and Automatic Passenger Counter Systems
  - ii. MTD-P06 Transit Technological Improvements (*from [RTP Project List](#)*)
- c. **Project costs are identified as:**  “Constrained” and/or  “Unconstrained” in the RTP

---

\*TSM=Transportation System Management (ex. ITS, signal synchronization);  
 \*TDM=Transportation Demand Management (ex. rideshare programs)

12. **Project Schedule** (Enter the proposed schedule or actual completion of various project milestones. Complete either section A. Capital Projects or B. Non-Capital Projects, as appropriate.)

**A. Capital Projects:**

Project Milestone – Capital Projects			Month/Year
Begin Environmental (PA&ED) Phase	Document Type (ex. EIR, Cat Ex, Neg Dec, etc)	Cat Ex	Enter estimated start (month/year)
Circulate Draft Environmental Document			NA
End Environmental Phase (PA&ED Milestone)			NA
Begin Design (PS&E) Phase			4/22/2018
End Design Phase (complete PS&E)			5/31/2018
Begin Right of Way Phase			NA
End Right of Way Phase (Right of Way Certification Milestone)			NA
Request Authorization to Proceed with Construction (completion of all prior tasks)			6/22/2018
Advertise/go out to bid			6/30/2018
Award Contract			9/28/2018
End Construction Phase (Construction Contract Acceptance Milestone)			3/31/2019
End Closeout Phase (Closeout Report)			6/30/2019

**B. Non- Infrastructure Projects/Programs:**

Activity Schedule (For non-capital projects, summarize work/activities to be completed - ex. preliminary planning, project implementation, public outreach project completion and timeline for each. Add additional lines if needed to reflect all tasks. Add additional lines if needed.	Start Activities (month/year)	End Activities (month/year)
List activity	Month/year	Month/year
List activity	Month/year	Month/year
List activity	Month/year	Month/year
List activity	Month/year	Month/year

13. **Contact Person/Project Manager Name:** Isaac Holly, IT Manager

Telephone Number: (831) 426-6080 E-mail: iholly@scmtd.com

## PART II: Project Benefits

Given the large backlog of transportation needs in the region and the extremely limited amount of funding available, it is important to ensure that funds are used cost effectively to maximize benefits to the transportation system. Additionally state and federal rules, as well as RTC policies, require consideration of how projects will contribute towards implementation of the long-range transportation plan (*Regional Transportation Plan*), the achievement of one or more transportation goals, and implementation of state and federal policies including the California Complete Streets Act of 2008, SB375, and the Federal FAST Act.

**Information in this section will be used to evaluate projects. Projects are not expected to address all of the following. Please write N/A if something is not applicable to your project.**

**1. Generally, what are the benefits of this project?** (ex. goal/purpose/benefit of project; problem to be addressed; importance to the community)

ITS equipment delivers benefits at multiple tiers of transit service delivery, all of which may foster ridership growth. The greatest impact would be for transit passengers. Enhanced traveler information delivery through mobile applications, static displays and vehicle annunciators improves access to the system, eases trip planning and reduces uncertainty about bus arrival and departure. On-board video and audio surveillance systems enable real-time access to the passenger cabin to enhance passenger safety and security. Automatic passenger counting equipment will eliminate the need for manual, on-board surveys, reducing operating costs, and the Planning Department will benefit from deeper ridership data enabling more effective route networks and deployment of transit amenities (stops, benches, shelters, and signage). With stop level data, reporting is simplified, and more accurate information can be provided more efficiently to sponsoring agencies. ITS enables the Operations Department to view real-time vehicle positions throughout the network and facilitates data-packet transmission to minimize radio communication. Transmission of data on bus component performance in the field enables the Maintenance Department to troubleshoot problems and accumulate trend data on key mechanical systems and controllers. Overall, ITS improves transit access, security and transit system management.

**2. How many people will directly use or directly be served by this project per day?**

# of direct users per day: 15,280

# of indirect users: \_\_\_\_\_

Basis for estimates: A crude estimate of average daily fixed-route riders who would be directly served by this project is based upon annual ridership divided by 360 operating days per year.

(provide information about ADT/traffic volumes, avg. number of people directly served/day; number of users of facility/day; current transit riders on facility; Non-infrastructure anticipated direct program participants; see also <http://www.ite.org/tripgeneration/otherresources.asp>)

**3. Which groups will be the primary users of this facility/project/program?**

Commuters

Youth

College Students

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Low income residents   | <input checked="" type="checkbox"/> Elementary Schools | <input checked="" type="checkbox"/> Visitors           |
| <input checked="" type="checkbox"/> Seniors  | <input checked="" type="checkbox"/> Middle Schools     | <input type="checkbox"/> Trucks (goods movement)       |
| <input checked="" type="checkbox"/> Disabled   | <input checked="" type="checkbox"/> High Schools       | <input checked="" type="checkbox"/> Recreational users |
| <input checked="" type="checkbox"/> Other: <u>Transit Planning, Operating, Maintenance and Security personnel.</u> |  |  |

a. Briefly describe any indirect or secondary beneficiaries of the project: This project enables more effective use of public funds, which diminishes the need to seek additional subsidies from local taxpayers.

**4. What are the key destinations served by this project and distance from project/facility?**

(including on a map is encouraged, but not required)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Employment centers < ½ mile                 | <input checked="" type="checkbox"/> Senior centers < ½ mile          |
| <input checked="" type="checkbox"/> Senior housing < ½ mile                     | <input checked="" type="checkbox"/> K-12 Schools < ½ mile            |
| <input checked="" type="checkbox"/> Groceries/Services < ½ mile                 | <input checked="" type="checkbox"/> Retail/Commercial cent < ½ mile  |
| <input checked="" type="checkbox"/> Transit centers <u>Final Destination</u>    | <input checked="" type="checkbox"/> Visitor destination various      |
| <input checked="" type="checkbox"/> Parks/recreational area < ½ mile            | <input checked="" type="checkbox"/> Civic/public facilities < ½ mile |
| <input checked="" type="checkbox"/> Other destinations: Various: see system map |  |

a. **Are planned (future) land use projects anticipated to increase travel through project area?**

- Yes – significant growth in travel  
 Yes – mild growth in travel  
 No – No growth in travel

List planned transportation and/or land use projects that could affect circulation in the project area in the future – if any: UCSC growth will increase transit demand, especially in Santa Cruz.

**5. Existing Roadway Conditions – Projects on Roadways only – N/A for other projects**

a. **Provide information on existing and projected conditions/context for projects on roadways**

	Existing	With project (write "N/C" if no change)
<u>Functional classification</u> of this road*		
# of automobile lanes (2, 4, 3, etc)	NB/EB:    SB/WB:	NB/EB:    SB/WB:
2-Way Center Turn Lane (Yes/No)		
Sidewalks (none, one side or both?)		
Sidewalk width (in feet)		
Landscaping (Yes/No)		
On-Street Parking (Yes/No)		
Bike lane width		
Intersections (Signalized/unsignalized)		
Pavement condition (PCI if available - or poor, fair, good)		
Posted speed limit		
Traffic Volumes		(projected, what year)
Transit Route/Stops (Yes/No)		
Truck Route (Yes/No)		

\*Note: STIP and STBG funds cannot be used on roads functionally classified as "local" or "rural minor"



collectors". See: [http://dot.ca.gov/hq/tsip/hseb/crs\\_maps/index.php](http://dot.ca.gov/hq/tsip/hseb/crs_maps/index.php) for classification information.

**6. What travel condition(s) are improved or impacted as a result of the proposed project?**

Check all that apply and describe how if the nexus is not obvious in project description. Note-several of these items are from the [Complete Streets Guidebook](#) and include treatments or facilities that make up a complete street.

Safety: Improves transportation safety

How will project improve safety? ITS equipment enables real-time monitoring of transit incidents for first responders to improve passenger safety and security. External-facing video cameras eliminate blind spots around the bus to eliminate conflict between buses, pedestrians, bicyclists and other vehicles.

- There is a history of collisions in the project area
- Number of severe injury or fatal incidents in project area in past 10 years: \_\_\_\_\_
- Reduces potential for conflict between cyclists and/or pedestrians and vehicles
- Safety improved for youth, vulnerable users (pedestrians/bicyclist), and/or transportation disadvantaged (low income, seniors, disabled, minority status)
- Provides access to/for emergency services
- There are currently perceived safety issues in the project area
- Reduces automobile speeds (e.g. traffic calming, speed limit, etc)

System Preservation: Preserves existing transportation infrastructure/facilities or services

- Improves Pavement Condition
- Extends useful life of a facility
- Maintains service
- Maintains state of good repair
- Repair/replace existing infrastructure/facility
- Other: This project replaces an outdated bus stop annunciating system required for disabled access to the system.

Why is this location/facility a priority over other facilities? (e.g. is project part of a pavement management plan?)

\_\_\_\_\_

Reduces Vehicle Miles Traveled (VMT)

Shifts automobile travel to alternative modes.

Number of **trips per day** expected to shift from automobile to alternative mode as a result of this project: \_\_\_\_\_

- Decreases the number of people traveling in single occupancy vehicles
- Improves access to alternative modes (walk, bike, bus, carpool, etc)
- Increases the percentage of people that could walk, bike, or take transit to key destinations within 30-minutes or less
- New bike or pedestrian path
- Increases ridesharing
- Increases telework options
- Expands Transportation Demand Management (TDM) Programs

- Reduces the need for travel
- Increases walking
  - There are currently lacking/insufficient pedestrian facilities
    - There are currently NO safe parallel pedestrian facilities
  - Improves connectivity, fills gap in sidewalk/pedestrian path network
    - Reduces distance to walk trip between locations by \_\_\_\_\_miles
  - Adds new sidewalks or paths on:  one or  both sides of the street
  - Widens sidewalk path of travel for current and projected pedestrian volumes
  - Adds missing curb ramps
  - Upgrades facility to meet ADA accessibility requirements, implement ADA Implementation Plan
  - Reduces pedestrian crossing distance
  - Adds pedestrian signal heads
  - Adds pedestrian-actuated traffic signals or automatic pedestrian cycles
  - Adds audible countdown at intersection
  - Adds pedestrian-level lighting
  - Adds high visibility crosswalks
  - Adds illumination at crosswalks
  - Other crosswalk enhancements
  - Adds median safety islands
  - Minimizes driveways
  - Adds wayfinding signage
  - Adds shade trees (street trees)
  - Adds planter or buffer strips
  - Adds benches or other types of seating
- Increases bicycling
  - There are currently lacking/insufficient bicycle facilities
    - There are currently NO safe parallel bicycle facilities
  - Improves connectivity, fills gap in bicycle network
    - Reduces distance to bike (on bike lane or path) between locations by **miles**
  - New Class I bicycle path
  - New Class II bicycle path
  - New Class IV bikeway (e.g. “protected bikeway” or a “cycle track”)
  - Shared-Lane Marking (Sharrow)
  - New Bicycle Boulevard
  - Widens bicycle lanes from \_\_\_\_\_ feet to \_\_\_\_\_ feet wide
  - Widens outside lanes or improve shoulders
  - Adds bicycle actuation at signals (i.e., loop detectors and stencil or other means to make signals responsive to bicycles)
  - Adds bicycle box at intersection
  - Adds color-treated bicycle lane
  - Adds floating bicycle lane
  - Adds signs, signals and pavement markings specifically related to bicycle operation on roadways or shared-use facilities
  - Adds route/wayfinding signage

- Adds long-term bicycle parking (e.g., for commuters and residents)  
 Adds short-term bicycle parking
- Increases public transit usage
  - There are currently lacking/insufficient transit facilities
  - There is currently lacking/insufficient transit service
  - Improves connectivity of transit, fills gap in transit network
  - Improves transit service  reliability,  frequency and/or  efficiency
    - ITS/signal priority
    - Priority bus lane
    - Bus bulbs/pull outs
    - Increases transit service, reduces headways
  - Increases access to transit
    - Adds sidewalks to bus stops
    - Adds bicycle racks on buses
    - Improves access for people with disabilities
  - Adds bus stop(s)
  - Improves bus stop/station (adds/upgrades seating, lighting, shade/shelter, trash can, route information/maps, etc)
  - Provides real time bus arrival information
  - Adds Wi-Fi on bus
- Reduces air pollution
  - Reduces greenhouse gas emissions (GHG)
  - Reduces fuel consumption
  - Cold in-place recycling or other lower emission paving process
  - Other: \_\_\_\_\_
- Change in travel times and travel time reliability for what modes: \_\_\_\_\_
  - Makes travel times more reliable/predictable (consistency or dependability in travel times)
  - Reduces travel times
  - Reduces total traffic congestion
    - Reduces peak period traffic congestion \_\_\_AM peak \_\_\_PM peak
    - Shifts peak travel to off-peak periods
  - Reduces freight traffic congestion
- Improves efficiency of the transportation system. Which modes? Public Transit
  - Implements Transportation System Management (TSM) programs/projects
  - Increases miles facility/service can carry  passengers and/or  freight/goods
- Reduces disparities in safety and access for people who are transportation disadvantaged due to age, income, disability, minority status, or limited English proficiency
- How does project reduce disparities?
- Provides access to low income housing  
 Improves access to jobs  
 Provides access to senior life services (e.g. hospital, doctors office, senior center, etc.)

Other: \_\_\_\_\_

Increases ecological function (such as:  increases tree canopy;  improves habitat;  
 improves water quality;  reduces storm water runoff;  enhances sensitive areas)

Other benefit(s). Please explain, if not addressed in prior questions:

:

7. **Will project result in the elimination or reduction of an existing bike path or sidewalk? Will the proposed project sever or remove all or part of an existing pedestrian or bicycle facility or block or hinder pedestrian or bicycle movement?**  Yes  No. *If yes, please explain why this condition is unavoidable and if bicycle and pedestrian accommodations are provided on an adjacent/parallel street.*

8. **Has RTC previously funded a project in this area, what project and what year?** *(e.g. facility being upgraded, removed, modified, or replaced was previously funded by RTC).*

9. **For ROADWAY Projects - Complete Streets Implementation/Design. Given the street design and existing and future conditions, please complete the following** *(for projects on roadways). (See the [Monterey Bay Area Complete Street Guidebook](#) for more information, definitions.)*

a. Describe how this project is consistent with recommendations for street type in guidebook:

b. Is the project area a candidate for the following?

- Road Diet (3 or more lanes, but ADT <20,000, history of bicycle collisions)  Yes  No
- Traffic Calming:  Yes  No
- Roundabout:  Yes  No
- Transit/Bike/Ped Prioritization at Intersection:  Yes  No
- Transit-Oriented Development/Transit Corridor (15 min. headways):  Yes  No
- Neighborhood Shared Street (e.g. "greenway" that reduces vehicle speeds, partial street closures, public spaces and amenities that encourage biking or walking):  Yes  No
- Pedestrian place/universal street (ex. roadway or alley with restricted vehicle access which often is serves as a plaza for assorted businesses):  Yes  No

c. Is the complete streets cross section/design for this type of street (as recommended in the Guidebook) supportable for this project?  Yes  No

If not, explain why:

Lack of ROW width

Insufficient Funding

Trees/environmental constraints

Existing Structures

Other: \_\_\_\_\_

d. What alternative designs were considered, if any?

---

e. What refinements of the cross section/design were needed?

- Removed/partial zones (Guidebook Ch. 5) for:  
 Pedestrians  Bicyclists  Landscaping  Vehicles  Parking
- Considered alternative routes/locations for:  
 Pedestrians  Bicyclists  Landscaping  Vehicles  Parking

f. Exemptions to Complete Streets (refer to Ch. 6 of the Guidebook)

- Is the project exempt from accommodating certain users?  Yes  No
- Is the cost excessively disproportionate to the need or probable use?  Yes  No
- There is a documented absence of current and future need?  Yes  No
- Other: \_\_\_\_\_

**10. Describe the public input plan for this project.** *Has public input been sought on this project? What is the public engagement plan for implementing this project? Is it identified in an adopted plan or other document? What has been/will be done to maximize participation for diverse members of the public in project planning and implementation?* AVL and APC are included in the RTC’s 2014 RTP and in the Monterey Bay 2035 Metropolitan Transportation Plan/Sustainable Communities Strategy, both of which have had extensive public participation processes. Santa Cruz METRO conducts a public hearing prior to adopting its annual budget each year, and unfunded capital improvement needs, including installation of AVL, APC and on-board surveillance systems have been included in each step of the planning and programming of federal and state funds. METRO participates in the annual, public Unmet Needs Process, and items number 39 and 40 in the 2015 Unmet Needs List identifies installation of AVL and APC in fixed-route buses as a high priority.

**11. Stakeholder Outreach: Which stakeholder groups have already provided input, or will be asked to provide input in future, on project scope and design?**

Group	Provided input	Will seek input	Group	Provided input	Will seek input
Neighborhood Group	No	No	Transit Agency	Yes	Yes
Business Association	No	No	Adjacent jurisdictions	No	No
School	No	No	Environmental Groups	No	No
Property Owners	No	No	Transportation Disadvantaged	Yes	Yes
Bicycle Committees	No	No	Senior Group	No	No
Pedestrian Committee	No	No	Other (define)	NA	NA

Have specific changes to the project/program been requested by stakeholders?  Yes  No  
 Please explain:

**12. Describe project readiness/deliverability and potential risks to project schedule:** *Include additional information on the project schedule and if there are potential delays to the schedule. (For example: What tasks have already been completed? What potential delays might be experienced during project development, if any? What is the status of right-of-way acquisition (if applicable)? Have the property owners been contacted? If so, are they willing to sell the property? What permits may be needed for this project? Are there any adjacent jurisdictions, agencies, property owners, etc., who would be impacted by the proposed project? Are there potential challenges to the environmental analysis? If yes, please list and describe outreach efforts, dates, participants and any results/issues that could impact the project’s schedule.)*

METRO staff have been researching AVL/APC for several years and is prepared to procure and implement ITS products as soon as funding is available. Deployment of ITS equipment is categorically exempt from environmental review (23 CFR 771.118(c)(5)). With substantial knowledge of METRO’s needs and available technology, staff are prepared to develop specifications and award a contract for ITS product implementation within 6 months of a notice to proceed from SCCRTC.

By mid-2018, METRO will have completed updates to IT systems which are currently underway and METRO staff will have the capacity to take on the new ITS projects.

AVL, APC and Advanced Traveler Information Systems are no longer cutting-edge technology. Many transit operators have already deployed 2<sup>nd</sup> and 3<sup>rd</sup> generation systems, and this project brings METRO up to date with the best practices in the industry. Given the number of ITS vendors on the market and equipment availability, vendor performance offers little risk to the project schedule.

**PART III**  
**Project Budget & Funding Plan**  
**CAPITAL PROJECTS**

Complete both sections A. "Cost/Funding Summary" and B. "Detailed Cost Estimate"

**A. Cost/Funding Summary**

Enter the amount to be expended for each project phase in each fiscal year by funding source.

Totals should calculate automatically if electronic file is used.

Project Title: METRO ITS Equipment

*Round figures to the nearest thousand dollars*

Sources (Specify fund source type - ex. STBG, RSTP, STIP, AB2766, Local, TDA, etc)	Source Total	Committed or Uncommitted?	Phase of Work			
			Environmental (PA/ED)	Design (PS&E)	Right-of-Way (ROW)	Construction
New Funds Requested from RTC:	\$1,770,600	Uncommitted	\$0	\$0	\$0	\$1,770,600
STA; Reserves	\$229,400	Uncommitted	\$0	\$0	\$0	\$229,400
Source 3:	\$0		\$0	\$0	\$0	\$0
Source 4:	\$0		\$0	\$0	\$0	\$0
Source 5:	\$0		\$0	\$0	\$0	\$0
Source 6:	\$0		\$0	\$0	\$0	\$0
Source 7:	\$0		\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$2,000,000</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,000,000</b>

**Fiscal Year each component to begin**

*(e.g. FY17/18, FY18/19, FY19/20, FY20/21, FY21/22, FY22/23)*

Environmental (PA/ED)	Design (PS&E)	Right-of-Way (ROW)	Construction

## B. "Detailed Cost Estimate"

*(Replace with categories appropriate to your project. Shown below are examples only.)*

<b>Project Title:</b>	<b>METRO ITS Equipment</b>
-----------------------	----------------------------

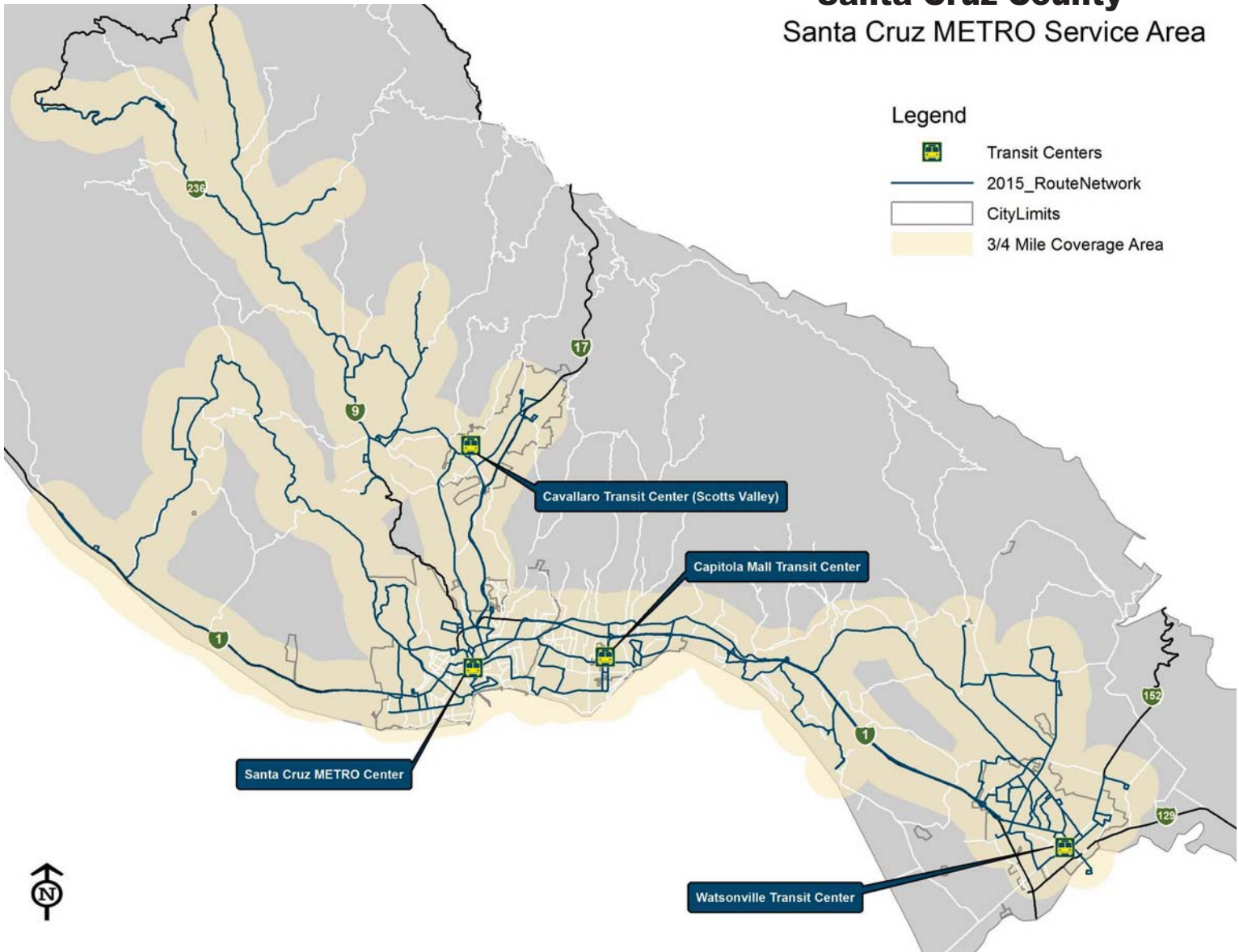
Item No.	Engineer's Estimate				
1	Environmental Studies and Permits				\$0
2	Plans, Specifications, and Estimate METRO ITS Equipment				\$0
<b><u>RIGHT OF WAY</u></b>					
3	Right of Way Acquisition				\$0
4	Right of Way Support				\$0
5	Utility Relocation (exclude if included in construction)				\$0
<b>TOTAL RIGHT OF WAY COMPONENT COST</b>					<b>\$0</b>
<b><u>CONSTRUCTION (update items to match actual items for project)</u></b>					
	<b>Item Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Unit Cost</b>	<b>Total</b>
6	Automatic Vehicle Locators	100	Each	\$10,000.00	\$1,000,000
7	Automatic Passenger Counters	100	Each	\$5,000.00	\$500,000
8	Automatic Vehicle Announcing System	100	Each	\$5,000.00	\$500,000
9					\$0
10					\$0
11					\$0
12					\$0





## METRO ITS Equipment Transit Network Map

### Santa Cruz County Santa Cruz METRO Service Area





## METRO ITS Equipment APPLICATION IMAGES

