Arterial & Right-of-Way Bus Rapid Transit (BRT)

A fixed-route bus system that could operate primarily on the Santa Cruz Branch Line as a dedicated right-of-way, as well as on Highway 1 bus on shoulders/auxiliary lanes and the local roadway network. BRT systems typically provide an urban or interurban service. These systems typically have defined passenger stations, short headway bidirectional services for a substantial part of weekdays and weekend days, off-board fare collection to reduce travel times, and separate branding of the service. BRT operations on the Santa Cruz Branch Line could be a combination of two-way and one-way with reverse direction on parallel local streets.

Typical Characteristics:

- Vehicle speeds up to 65 mph maximum
- BRT is incompatible with freight on the same corridor, but BRT could be moved off corridor to preserve freight in Watsonville
- Transit signal priority at roadway crossings
- Frequency of peak period service
  - 8 to 20 minute headways
- Level-platform boarding and non-level boarding at on-street stops
- Propulsion type
  - Electric–hydrogen fuel cell, battery

Benefits:

- Capital costs relatively lower than other modes
- Level boarding allows independent accessibility for mobility devices and space for bicycles
- Integrates easily with overall transportation system
- Greater ability to adapt to new technologies
- Depending on permanence of design, could support Transit Oriented Development

Autonomous Road "Train" (on pavement with rubber tires)

An emerging transit mode that combines the benefits of bus rapid transit and light rail with advanced autonomous driving features, providing an urban or interurban service. The system uses rubber tires running on pavement within a dedicated running way. The vehicles resemble light rail vehicles with a similar passenger capacity. The system would use similar infrastructure to a BRT system, including permanent stations, transit signal priority, and offering frequent service. The autonomous road "train" will run solely on the Santa Cruz Branch Line. Operation on a single lane with sidings allows for two-way travel. An autonomous road "train" system has recently been deployed in the city of Yibin, China.

Typical Characteristics:

- Vehicle speeds capable of 40 to 45 mph maximum
- System runs on pavement and thus is incompatible with freight on the same corridor
- Transit signal priority at roadway crossings
- Frequency of peak period service
  - 10 to 30 minute headways
- Level or non-level platform boarding
- Propulsion type
  - Electric–Overhead, hydrogen fuel cell, battery

Benefits:

- Strong transit ridership potential
- Level boarding allows independent accessibility for mobility devices and space for bicycles
- Supports greenhouse gas emission reduction goals
- Greater ability to adapt to new technologies
- Travel time will likely be more reliable
- Supports Transit Oriented Development

Electric Light Rail

Passenger rail service operating on fixed rails typically providing an urban or interurban service with a lighter volume ridership capacity compared to commuter rail. Operations on a single track with sidings that allow for two-way travel.

Typical Characteristics:

- Vehicle speeds capable of 30 to 60 mph maximum
- Vehicle can operate with freight in shared-use corridors only if temporally separated
- Centralized Traffic Control (CTC) or similar signal system only, as light rail is temporally separated from freight operations
- Frequency of peak period service
  - 10 to 30 minute headways
- Level or non-level platform boarding
- Propulsion type
  - Electric–Overhead, hydrogen fuel cell, battery

Benefits:

- Strong transit ridership potential
- Corridor has least risk of losing continuity from loss of easements
- Level boarding allows independent accessibility for mobility devices and bicycles
- Supportive of greenhouse gas emission reduction goals
- Supports Transit Oriented Development

Electric Commuter Rail

Passenger rail service operating on fixed rails typically providing an interurban or regional service. Commuter rail typically has a higher volume ridership capacity and relatively longer distance between stops compared to light rail. Operations on a single track with sidings allows for two-way travel.

Typical Characteristics:

- Vehicle speeds capable of 30 to 60 mph maximum
- Vehicles can comingle with freight in shared-use corridors
- Centralized Traffic Control (CTC) and Positive Train Control (PTC) is required
- Frequency of peak period service
  - 20 to 30 minute headways
- Level or non-level platform boarding
- Propulsion type
  - Electric – Overhead, hydrogen fuel cell, battery

Benefits:

- Faster travel times and strong transit ridership potential
- Compatible with freight rail
- Corridor has least risk of losing continuity from loss of easements
- Level boarding allows independent accessibility for mobility devices and space for bicycles
- Supportive of greenhouse gas emission reduction goals and Transit Oriented Development