



Cost Estimate Memo

January 5, 2021



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1. EXECUTIVE SUMMARY

This technical memo for the Monterey Bay Area Network Integration Study presents capital cost estimates for three service timeframes: Initial (short-term), Phased (mid-term), and Vision (long-term). The cost methodology involves identifying the required capital investments under each timeframe, and then calculating a construction cost by estimating quantities and applying unit costs for each element. The elements include trackway civil work, trackwork, grade crossings, stations, train controls and communications, mainline sidings, train equipment, and a maintenance facility. Capital costs for integrated bus service are not included.

An assumed contingency and markup are then applied to derive the total costs, which are provided in 2020 dollars. As this estimate is based on preliminary concepts without actual design plans, a graded approach to contingency is used. For items that can be quantified with a higher degree of confidence at this conceptual level, a 30 percent allocated contingency is applied, while a 40 percent allocated contingency is applied to items that can only be quantified at a lower degree of confidence. A markup of 32 percent is applied to account for soft costs, and an additional unallocated contingency of 25 percent is applied for each service phase or concept.

In the short-term Initial Service timeframe, three commute-oriented round trips to and from Gilroy would be extended to Salinas, connecting Monterey County with San Jose. New stations with island platforms would be constructed at Pajaro and Castroville, with parking for 400 and 200 vehicles, respectively. The estimated total capital cost for the Initial Service improvements is \$102.4 million.

In the mid-term timeframe, the Phased Service concept proposes hourly service between Salinas and San Jose, with through service to/from San Luis Obispo every four hours, operated with bi-modal, hybrid train equipment. New stations would be constructed in Soledad and King City, each with a side platform. A new passing siding would also be constructed south of Salinas. The estimated total capital cost for the Phased Service improvements, including new train equipment, is \$402.8 million.

In the long-term, the Vision Service concept would increase intercity service to/from San Luis Obispo to bi-hourly frequency and establish an entirely new regional rail service between Monterey and Santa Cruz. The increase to bi-hourly mainline service would require two new passing sidings and an additional trainset, at an estimated total capital cost of \$79.2 million. For the regional rail service, seven new stations would be constructed between Santa Cruz and Monterey, and the station in Pajaro would be expanded to accommodate timed, cross-platform connections between intercity and regional trains. The estimated total capital cost for the regional rail service, including new train equipment and a vehicle maintenance facility, is \$767.0 million.

2. OVERVIEW

The Transportation Agency for Monterey County (TAMC) has commissioned an analysis to estimate capital costs as part of the Rail Network Integration Study for the Monterey Bay Area/Central Coast. This technical memorandum presents capital cost estimates associated with each of the three service concepts (Initial, Phased, and Vision) for the region's future rail network. These cost estimates are for rail improvements only, and do not include the costs associated with connecting bus services.

The cost methodology involves identifying the required capital investments under each service concept into discrete elements (e.g., trackwork, stations, train controls and communications, train equipment), and then calculating a construction cost by estimating quantities and applying unit costs for each element. An assumed contingency and markup are then applied to derive the total estimated cost.

Section 2 briefly summarizes the three service concepts. Section 3 provides a high-level summary of the cost methodology and key assumptions. Section 4 presents the resulting costs for the three service concepts. **Appendix A** includes detailed information on the cost estimates, including quantity takeoffs and unit costs.

3. SERVICE CONCEPTS

3.1 Initial Service

The Initial Service concept involves extending rail service from Gilroy to Salinas via Pajaro and Castroville to connect Monterey County with San Jose. Prior to the COVID-19 pandemic, Caltrain operated three commute-oriented round trips to and from Gilroy each weekday. The Initial Service concept is achieved by extending these round trips to Salinas.

New stations would be constructed at Pajaro and Castroville. Though side platforms could suffice to serve the Initial Service concept, the stations would be designed with an island platform to avoid a stranded or redundant investment when the Phased and Vision Service concepts are implemented. Facilitating train meets in the Phased Service concept requires a double-tracked station at Pajaro, and cross-platform transfers in the Vision Service concept require island platforms.

The Initial Service concept also specifies the need for overnight storage tracks for three trainsets at Salinas, similar to the current storage accommodations at Gilroy. TAMC's current Monterey County Rail Extension Phase 1: Kick Start Project includes a six-train layover facility in Salinas that would meet this need.

3.2 Phased Service

The Phased Service concept builds off of the Initial Service concept to establish regular, all-day, bi-directional service along the Coast Subdivision south of Gilroy. Trains would operate hourly between Salinas and San Jose, with through service to/from San Luis Obispo every four hours. To accommodate the increased frequency and reduce travel times, the Phased Service is assumed to be operated with bi-modal, hybrid train equipment that would be compatible with planned high-speed infrastructure between Gilroy and San Jose.

New stations would be constructed in Soledad and King City, each with a side platform. A new passing siding would also be constructed, located preliminarily between King City and Paso Robles (pending capacity analysis and negotiations with Union Pacific Railroad).

3.3 Vision Service

The Vision Service concept represents a long-term vision for rail service in the Monterey Bay Area and Central Coast. Trains would continue to operate hourly service between Salinas and San Jose, but through service to/from San Luis Obispo would be increased to bi-hourly service. Regional rail service between Monterey and Santa Cruz would also be implemented, with hourly, bi-directional service operated with multiple unit trains, providing timed, cross-platform connections to/from mainline service at the Castroville and Pajaro hub stations.

For mainline service on the Coast Subdivision, two additional sidings would be constructed—one just south of Salinas and another south of Paso Robles (pending capacity analysis and negotiations with Union Pacific Railroad)—to accommodate increased frequency to/from San Luis Obispo.

For the regional rail service, new stations would be constructed in Santa Cruz, Capitola, Aptos, Watsonville, Marina, Seaside, and Monterey. The stations in Capitola and Marina would each have an island platform to allow trains in opposing directions to meet and pass each other, while the remainder of the new stations would be served by side platforms only. In addition, the station in Monterey would be designed with storage tracks for three trains. To accommodate timed, cross-platform connections between intercity and regional trains, the station in Pajaro would also be expanded to a four-track station with the construction of a second island platform. The regional rail service would also require a vehicle maintenance facility.

4. METHODOLOGY

4.1 General Approach

Costs have been explicitly estimated for the following elements:

- Trackway civil work
- Trackwork
- Grade crossings
- Stations
- Train controls and communications
- Mainline sidings
- Train equipment
- Maintenance facility

As the Coast Subdivision is an active Union Pacific Railroad line currently used by both freight trains and Amtrak Coast Starlight passenger trains, investments on this route are assumed to be minimal outside of new stations and mainline sidings.

In contrast, the Santa Cruz Branch Line (Pajaro – Santa Cruz) is only lightly used by freight trains and is not used for passenger service, while the Monterey Branch Line (Castroville – Monterey) has not been in use in either capacity for several decades. Thus, the costs for these portions of the network include all the above elements except mainline sidings.

Only project elements directly associated with rail service under each service concept have been included in this analysis. Capital costs for integrated bus service are not included in these estimates.

All costs are estimated in 2020 dollars.

4.2 Contingency and Markups

As this estimate is based on preliminary concepts without actual design plans, a graded approach to contingency is used. For items that can be quantified with a higher degree of confidence at this conceptual level, such as trackwork, train controls and communications, a 30 percent allocated contingency is applied. For items that can only be quantified at a lower degree of confidence, such as the trackway civil work, stations, and right-of-way acquisition, a 40 percent allocated contingency is applied. Additionally, a markup of 32 percent has been applied uniformly to all construction costs to

account for the project development and implementation, including design, agency fees, program management, construction management and other miscellaneous fees. For each service phase or concept, an additional unallocated contingency of 25 percent (standard in Federal Transit Administration cost estimates) is also applied.

4.3 Element Costs

Additional details on specific cost assumptions for individual elements are provided in the following subsections.

4.3.1 Trackway Civil Work

Trackway civil work generally encompasses all civil engineering work to prepare the right-of-way (ROW) for subsequent trackwork, including the following elements:

- Earthwork (e.g., erosion control, grading, imported fill)
- Drainage
- Trackbed (sub-ballast and ballast)
- Walkway (e.g., sidewalk, shared-use public path or trail)

For segments where a shared-use public path or trail (e.g., Monterey Peninsula Coastal Trail) is currently present within or adjacent to the right-of-way, additional cost has been assumed for trail preservation, reconstruction and fencing.

A unit cost per route-foot was then developed for three typical segments:

- Replacement of existing track (no shared-use public path or trail)
- Replacement of existing track (with shared-use public path or trail)
- New siding track

Where applicable, a structural allowance (lump-sum construction cost of \$10 million, plus contingency) has also been included to account for potential costs to upgrade or replace existing bridges. A more precise estimate of the actual cost would require a detailed structural analysis.

Additional details on trackway civil work costs can be found in Appendix A.1.

4.3.2 Trackwork

Trackwork encompasses outfitting the right-of-way with the basic rail infrastructure to allow for train operation. Unit costs were developed for each of the following elements:

- Removal of existing track
- Construction of new track (rail, ties, and ballast)
- Special trackwork and signals (turnouts, turnout signals, and signal houses)

4.3.3 Grade Crossings

Existing grade crossings along routes proposed for new rail service would need to be upgraded or replaced. Separate unit costs were assumed for public grade crossings and for private grade crossings, with additional cost variation depending on the level of investment required (upgrade vs. replacement).

4.3.4 Stations

Costs for individual stations were estimated as the aggregate of unit costs for the following elements:

- Platforms
- Platform access
- Parking

Platforms

Cost estimates for platforms include the platform structure and amenities, as well as lump-sum allowances for lighting, electrical, and communications and for civil work. Unit costs for these items were developed for four different station typologies, reflecting the four possible permutations of train type (multiple unit vs. intercity) and platform configuration (side vs. island).

Platform Access

Platform access considers any grade-separated access required to serve stations, such as pedestrian bridges (and associated touchdown structures) and elevators.

Parking

Cost estimates for parking facilities include civil site work as well as allowances for the following elements:

- Striping, marking, and signage
- Lighting, electrical, and communications
- Street modifications
- Civil work
- Landscaping

- Right-of-way acquisition

Three different station typologies are assumed for parking costs, with the approximate number of parking spaces and individual allowances varying by type:

- No parking
- Small (200 parking spaces)
- Large (400 parking spaces)

Additional details on station costs can be found in Appendix A.2.

4.3.5 Train Controls and Communications

Train controls and communications include costs for the following elements:

- Communications backbone
- Train control and signals
- Station systems
- Other equipment

The costs for communications backbone (fiber-optic) and for train controls and signals (e.g., wayside signals, cab signals, grade crossing warning devices, etc.) are based on unit costs per route mile.

The costs for station systems are unit costs per station, and include separate line-item costs for variable message signs (VMS), ticket vending machines (TVMs), public address (PA) systems, closed-circuit television (CCTV) systems, supervisory control and data acquisition (SCADA) equipment, and very high frequency (VHF) voice and data radio equipment.

The costs for other equipment include separate line-item costs for master clock, telephone, and primary control center (PCC) / backup control center (BCC) equipment.

4.3.6 Mainline Sidings

The costs for a typical mainline siding have also been estimated based on unit costs for trackway civil work (see Section 3.3.1) and trackwork (see Section 3.3.2) and reflect a 15,000-foot (2.84-mile) siding with a No. 20 turnout, signals, and a signal house at each end. The 15,000-foot length is currently the Union Pacific Railroad's standard specification for passenger service.

Additional details on the cost of a typical mainline siding can be found in Appendix A.3.

4.3.7 Train Equipment

Bi-modal, hybrid train equipment for the mainline intercity service has been estimated at a unit cost of approximately \$31.5 million per five-car train (approximately 450 passengers). Multiple unit equipment for the regional service between Monterey and Santa Cruz has been estimated at a unit cost of approximately \$12 million per three-car train (approximately 150 passengers).

4.3.8 Maintenance Facility

A cost estimate has also been developed for a new maintenance facility for the regional rail service between Monterey and Santa Cruz. This cost includes the following elements:

- Yard trackwork
- Facilities / shop
- Civil work
- Right-of-way acquisition
- Train controls and communications

Yard Trackwork

Cost estimates for yard trackwork includes storage tracks, shop tracks, and associated turnouts and signals.

Facilities / Shop

Cost estimates for the facilities / shop assume 40,000 square feet of building area for maintenance shops, storage, and related facilities.

Civil Work

Cost estimates for civil work for the maintenance facility include vegetation clearing and grubbing, earthwork / grading, parking, lighting, security (fencing and gates), access roads, drainage, and utilities.

Right-of-Way

Cost estimates of right-of-way acquisition assume a required site area of 215,000 square feet (5 acres).

Train Controls and Communications

Cost estimates for train controls and communications include fiber optic backbone switches and wide area network (WAN) access points, as well as a CCTV system. Additional allowances are assumed for a train control room and a yard train control system.

5. ESTIMATED COSTS

Estimated costs by service phase are summarized in the following subsections.

5.1 Initial Service

The estimated total capital cost for the Initial Service concept of three trains extended from Gilroy to Salinas with two new island platform stations in Pajaro and Castroville, assuming 400 parking spaces at Pajaro and 200 parking spaces at Castroville, is \$102.4 million, as summarized in **Table 1**. Additional cost details are provided in Appendix A.4.

Table 1 – Initial Service Capital Costs

Project Component	Cost (millions, rounded to nearest 100,000)			
	Construction	Allocated Contingency	Markup	Total
Pajaro Station (Initial)	\$30.0	\$11.5	\$13.3	\$54.8
Castroville Station	\$15.0	\$5.6	\$6.6	\$27.2
<i>Subtotal</i>	<i>\$44.9</i>	<i>\$17.1</i>	<i>\$19.9</i>	\$81.9
Unallocated contingency (25%)				\$20.5
Total				\$102.4

5.2 Phased Service

The estimated total capital cost for the Phased Service concept is \$402.8 million, as summarized in **Table 2**. Additional cost details are provided in Appendix A.5.

Table 2 – Phased Service Capital Costs

Project Component	Cost (millions, rounded to nearest 100,000)			
	Construction	Allocated Contingency	Markup	Total
One (1) mainline siding	\$9.1	\$2.9	\$3.9	\$15.9
Soledad Station	\$15.0	\$5.6	\$6.6	\$27.2
King City Station	\$15.0	\$5.6	\$6.6	\$27.2
<i>Subtotal</i>	<i>\$39.0</i>	<i>\$14.2</i>	<i>\$17.0</i>	\$70.2
Train equipment (8 sets @ \$31.5 million each)				\$252.0
Unallocated contingency (25%)				\$80.6
Total				\$402.8

5.3 Vision Service

The estimated total capital cost for the Vision Service concept is \$79.2 million for intercity service and \$767.0 million for regional service, as summarized in **Table 3** and **Table 4**, respectively. Additional cost details are provided in Appendix A.6 (for intercity service) and Appendix A.7 (for regional service).

Table 3 – Vision Service Capital Costs – Intercity

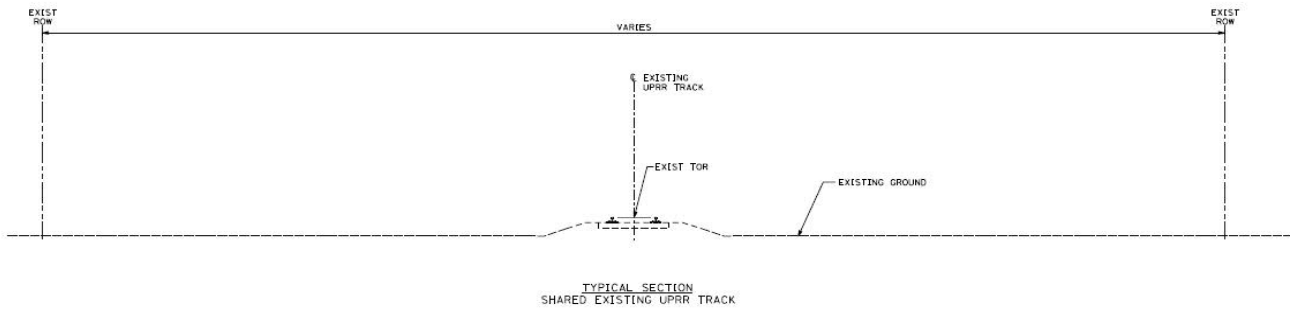
Project Component	Cost (millions, rounded to nearest 100,000)			
	Construction	Allocated Contingency	Markup	Total
Two (2) mainline sidings	\$18.2	\$5.9	\$7.7	\$31.8
Train equipment (1 set @ \$31.5 million each)				\$31.5
Unallocated contingency (25%)				\$15.8
Total				\$79.2

Table 4 – Vision Service Capital Costs – Regional

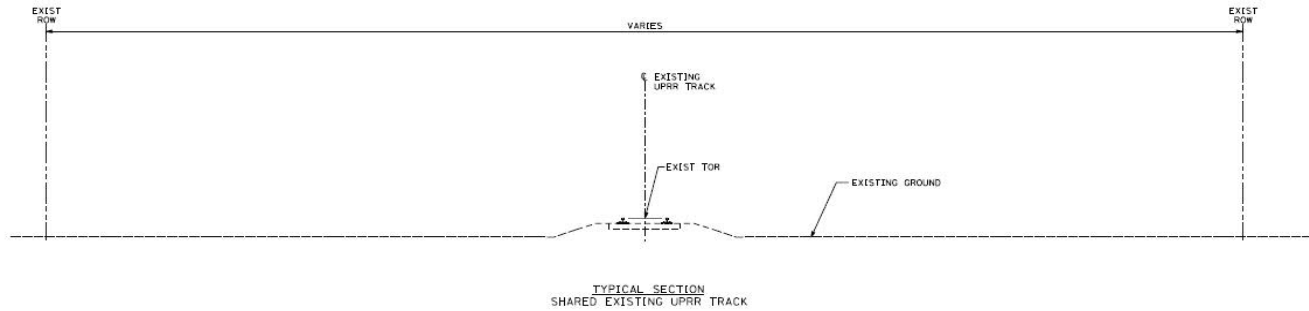
Project Component	Cost (millions, rounded to nearest 100,000)			
	Construction	Allocated Contingency	Markup	Total
Santa Cruz – Pajaro segment	\$147.2	\$48.1	\$62.5	\$257.7
Castroville – Monterey segment	\$127.2	\$41.5	\$54.0	\$222.7
Pajaro Station (Vision)	\$16.6	\$6.1	\$7.3	\$29.9
Maintenance Facility	\$23.6	\$9.1	\$10.5	\$43.3
<i>Subtotal</i>	<i>\$314.6</i>	<i>\$104.8</i>	<i>\$134.2</i>	<i>\$553.6</i>
Train equipment (5 sets @ \$12 million each)				\$60.0
Unallocated contingency (25%)				\$153.4
Total				\$767.0

APPENDIX A – COST ESTIMATION WORKSHEETS

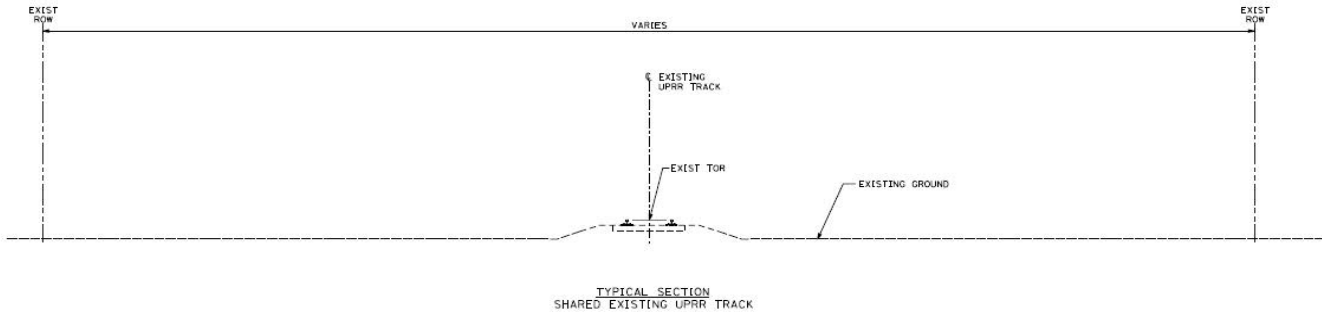
A.1 Unit Costs for Trackway Typical Sections



Code	Description	Quantity	Unit Cost	Total
Section A	Typical Section - Replace Existing Track (Trackbed Civil)	1,000 RF		
0156510	Erosion Control	2,000 rf	\$19.00	\$38,000
3131009	Grading	1,100 sy	\$10.00	\$11,000
3484119	Subballast	100 cy	\$37.00	\$3,700
3484123	Ballast	200 cy	\$48.00	\$9,600
3341130	Drainage	1,000 lf	\$19.00	\$19,000
0384101	Walkway	1,000 lf	\$31.00	\$31,000
Total Cost per Route Feet		1,000 RF	\$112	\$112,300
			USE \$112 / RF	



Code	Description	Quantity	Unit Cost	Total
Section B	Typical Section - Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	1,000 RF		
0156510	Erosion Control	2,000 rf	\$19.00	\$38,000
3131009	Grading	2,200 sy	\$10.00	\$22,000
3484119	Subballast	100 cy	\$37.00	\$3,700
3484123	Ballast	200 cy	\$48.00	\$9,600
3341130	Drainage	1,000 lf	\$19.00	\$19,000
0384101	Walkway	1,000 lf	\$31.00	\$31,000
0231007	Pavement Demolition	1,300 sy	\$14.00	\$18,200
3131038	Aggregate Base	2,500 cy	\$31.00	\$77,500
3211234	4" AC Pavement	1,300 sy	\$39.00	\$50,700
3284114	Fencing	1,000 lf	\$43.00	\$43,000
Total Cost per Route Feet		1,000 RF	\$313	\$312,700
			USE	\$313 / RF



Code	Description	Quantity	Unit Cost	Total
Section C	Typical Section - New Siding Track (Trackbed Civil)	1,000 RF		
0156510	Erosion Control	2,000 rf	\$19.00	\$38,000
3131009	Grading	1,100 sy	\$10.00	\$11,000
3131017	Imported Fill	750 cy	\$55.00	\$41,250
3484119	Subballast	100 cy	\$37.00	\$3,700
3484123	Ballast	200 cy	\$48.00	\$9,600
3341130	Drainage	0 lf	\$19.00	\$0
0384101	Walkway	1,000 lf	\$31.00	\$31,000
Total Cost per Route Feet		1,000 RF	\$135	\$134,550
		USE	\$135 / RF	

A.2 Typical Station Costs



TAMC

Monterey Bay Area Network Integration Study
Future Service Vision
Stations Breakdown

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	BASED AMOUNT	COMMENT
1.00	Typical Side DMU Platform (Platform A)				
1.01	Platform Structure DMU 15'x300'	4,500 SF	\$300	\$1,350,000	
1.02	Platform Amenities	4,500 SF	\$120	\$540,000	
1.03	Lighting, Electrical & Communication Allowance	1 LS	\$300,000	\$300,000	
1.04	Civilwork Allowance	1 LS	\$300,000	\$300,000	
	TOTAL			\$2,490,000	
2.00	Typical Center DMU Platform (Platform B)				
2.01	Platform Structure DMU 20'x300'	6,000 SF	\$300	\$1,800,000	
2.02	Platform Amenities	6,000 SF	\$120	\$720,000	
2.03	Lighting, Electrical & Communication Allowance	1 LS	\$400,000	\$400,000	
2.04	Civilwork Allowance	1 LS	\$400,000	\$400,000	
	TOTAL			\$3,320,000	
3.00	Typical Side Intercity Platform (Platform C)				
3.01	Platform Structure Intercity 15'x600'	9,000 SF	\$300	\$2,700,000	
3.02	Platform Amenities	9,000 SF	\$120	\$1,080,000	
3.03	Lighting, Electrical & Communication Allowance	1 LS	\$500,000	\$500,000	
3.04	Civilwork Allowance	1 LS	\$500,000	\$500,000	
	TOTAL			\$4,780,000	
4.00	Typical Center Intercity Platform (Platform D)				
4.01	Platform Structure Intercity 30'x600'	18,000 SF	\$300	\$5,400,000	
4.02	Platform Amenities	18,000 SF	\$120	\$2,160,000	
4.03	Lighting, Electrical & Communication Allowance	1 LS	\$800,000	\$800,000	
4.04	Civilwork Allowance	1 LS	\$800,000	\$800,000	
	TOTAL			\$9,160,000	
5.00	Grade-Separated Platform Access				
	<i>FUTURE</i>				
5.01	Pedestrian Bridge Structure	100 LF	\$7,000	700,000	
5.02	Pedestrian Bridge - Touchdown Structure	2 EA	\$850,000	1,700,000	
5.03	Elevator	2 EA	\$500,000	1,000,000	
	TOTAL			\$3,400,000	
6.00	Station Parking (Small Station)				
6.01	Parking Lot Civil Site Work	200 SPACE	\$3,500	700,000	
6.02	Striping, Marking and Signage Allowance	1 LS	\$200,000	200,000	
6.03	Lighting, Electrical & Communication Allowance	1 LS	\$350,000	350,000	
6.04	Street Modifications	1 LS	\$300,000	300,000	
6.05	Civilwork Allowance	1 LS	\$500,000	500,000	
6.06	Landscape Allowance	1 LS	\$350,000	350,000	
6.07	ROW	1 LS	\$4,000,000	4,000,000	
	TOTAL			\$6,400,000	
6.00	Station Parking (Large Station)				
6.01	Parking Lot Civil Site Work	400 SPACE	\$3,500	1,400,000	
6.02	Striping, Marking and Signage Allowance	1 LS	\$300,000	300,000	
6.03	Lighting, Electrical & Communication Allowance	1 LS	\$500,000	500,000	
6.04	Street Modifications	1 LS	\$400,000	400,000	
6.05	Civilwork Allowance	1 LS	\$650,000	650,000	
6.06	Landscape Allowance	1 LS	\$500,000	500,000	
6.07	ROW	1 LS	\$8,000,000	8,000,000	
	TOTAL			\$11,750,000	

A.3 Typical Mainline Siding Costs



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Segment: Typical Mainline Siding

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)	LF	\$112	\$0	40%	\$0	\$0	
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	- LF	\$313	\$0	40%	\$0	\$0	
1.03	Section C: New Siding Track (Trackbed Civil)	15,000 LF	\$135	\$2,018,250	40%	\$807,300	\$2,825,550	
1.04	Structures							
1.05	Structural Allowance	- LS	\$10,000,000	\$0	40%	\$0	\$0	
	SUBTOTAL	15,000 LF		\$2,018,250		\$807,300	\$2,825,550	
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	15,000 TF	\$350	\$5,250,000	30%	\$1,575,000	\$6,825,000	
2.02	Remove Existing Track	TF	\$40	\$0	30%	\$0	\$0	
2.03	Turnout No. 11	EA	\$300,000	\$0	30%	\$0	\$0	
2.04	Turnout No. 15	EA	\$350,000	\$0	30%	\$0	\$0	
2.05	Turnout No. 20	2 EA	\$400,000	\$800,000	30%	\$240,000	\$1,040,000	
2.06	Turnout Signals	2 EA	\$325,000	\$650,000	30%	\$195,000	\$845,000	
2.07	Signal House	2 EA	\$200,000	\$400,000	30%	\$120,000	\$520,000	
	SUBTOTAL			\$7,100,000		\$2,130,000	\$9,230,000	
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing	EA	\$950,000	\$0	30%	\$0	\$0	
3.02	Upgrade Public Grade Crossing	EA	\$350,000	\$0	30%	\$0	\$0	
3.03	Replace Private Grade Crossing	EA	\$230,000	\$0	30%	\$0	\$0	
	SUBTOTAL			\$0		\$0	\$0	
4.00	Stations							For details see station estimate worksheet
4.01	Station	- LS	\$0	\$0	40%	\$0	\$0	
	SUBTOTAL			\$0		\$0	\$0	
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	- MILE	\$200,000	\$0	30%	\$0	\$0	2 FO Cables 48str, 4 conduit 2x2 ductbank
5.02	Station Enclosures	- EA	\$162,500	\$0	30%	\$0	\$0	NEMAS Cabinets, UPS & Batteries
5.03	VMS (2 per station)	- EA	\$44,741	\$0	30%	\$0	\$0	Headend Controls and Station Signs, Labor
5.04	TVM (2 per station)	- EA	\$67,857	\$0	30%	\$0	\$0	Station TVM & Headend Servers
5.05	PA System	- EA	\$186,414	\$0	30%	\$0	\$0	PCC & BCC PA Headends, Station Equipment, Interfaces with VMS & Signals AVL, Labor
5.06	SCADA - Station	- EA	\$35,630	\$0	30%	\$0	\$0	PCC & BCC PA Headends, SCADA shelves at Stations
5.07	SCADA - Radio Site	- EA	\$35,630	\$0	30%	\$0	\$0	PCC & BCC PA Headends, SCADA shelves Radio Sites
5.08	VNF V&D Radio	- EA	\$97,500	\$0	30%	\$0	\$0	8 channel VHF Radio, Tower, Antennas Cabinet, UPS, Batteries, DAS
5.09	CCTV	- EA	\$93,111	\$0	30%	\$0	\$0	PCC, BCC, Radio Sites, Yard Cameras NVR, Video Management and Wall Displays
5.10	Master Clock	- EA	\$80,000	\$0	30%	\$0	\$0	GPS Satellite Radio & Antenna
5.11	Telephone	- LS	\$169,479	\$0	30%	\$0	\$0	2 Headend IP PBXs, Help Pole IP Phones
5.12	PCC & BCC	- LS	\$265,000	\$0	30%	\$0	\$0	
5.13	Train Control & Signals	- MILE	\$2,050,000	\$0	30%	\$0	\$0	Wayside signals, cab signal / speed, grade crossing warning, etc.
	SUBTOTAL			\$0		\$0	\$0	
SUBTOTAL				\$9,118,250		\$2,937,300	\$12,055,550	
8.00	Markups		32.00%				\$3,857,776	
TOTAL FOR Segment: Typical Mainline Siding							\$15,913,326	2020 Dollars

A.4 Initial Service Costs



TAMC

Monterey Bay Area Network Integration Study

Future Service Vision

Summary Cost Estimate - Intercity Initial Service

DATE: Dec 2020

PREP. BY: DSH

DESCRIPTION	CONSTRUCTION (\$)	ALLOCATED CONTINGENCY (\$)	MARKUP (\$)	TOTAL (\$)
Station: Pajaro (Initial)	\$29,992,371.29	\$11,496,091.39	\$13,276,308.06	\$54,764,770.73
Station: Castroville	\$14,955,031.29	\$5,620,655.39	\$6,584,219.74	\$27,159,906.41
SUBTOTAL CONSTRUCTION & ROW COST	\$44,947,402.58	\$17,116,746.77	\$19,860,527.79	\$81,924,677.15
Train Equipment				\$0.00
UNALLOCATED CONTINGENCY (25%)				\$20,481,169
TOTAL COST INTERCITY INITIAL SERVICE				\$102,405,846

2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Station: Pajaro (Initial)

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)	6,000	LF	\$112	\$673,800	40%	\$269,520	\$943,320
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)		LF	\$135	\$0	40%	\$0	\$0
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	6,000	LF		\$673,800		\$269,520	\$943,320
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	6,000	TF	\$350	\$2,100,000	30%	\$630,000	\$2,730,000
2.02	Remove Existing Track	6,000	TF	\$40	\$240,000	30%	\$72,000	\$312,000
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15	1	EA	\$350,000	\$350,000	30%	\$105,000	\$455,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	1	EA	\$325,000	\$325,000	30%	\$97,500	\$422,500
2.07	Signal House	1	EA	\$200,000	\$200,000	30%	\$60,000	\$260,000
	SUBTOTAL				\$3,215,000		\$964,500	\$4,179,500
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing	1	EA	\$350,000	\$350,000	30%	\$105,000	\$455,000
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$350,000		\$105,000	\$455,000
4.00	Stations							For details see station estimate worksheet
4.01	Pajaro Station (Platform D + Large Parking + Grade-Separated Access Structure)	1	LS	\$24,310,000	\$24,310,000	40%	\$9,724,000	\$34,034,000
	SUBTOTAL				\$24,310,000		\$9,724,000	\$34,034,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	1	EA	\$162,500	\$162,500	30%	\$48,750	\$211,250
5.03	VMS (2 per station)	2	EA	\$44,741	\$89,483	30%	\$26,845	\$116,328
5.04	TVM (2 per station)	2	EA	\$67,857	\$135,714	30%	\$40,714	\$176,429
5.05	PA System	1	EA	\$186,414	\$186,414	30%	\$55,924	\$242,338
5.06	SCADA - Station	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.07	SCADA - Radio Site	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.08	VNF V&D Radio	1	EA	\$97,500	\$97,500	30%	\$29,250	\$126,750
5.09	CCTV	2	EA	\$93,111	\$186,222	30%	\$55,867	\$242,089
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$1,443,571		\$433,071	\$1,876,643
SUBTOTAL					\$29,992,371		\$11,496,091	\$41,488,463
8.00	Markups			32.00%				\$13,276,308
TOTAL FOR Station: Pajaro (Initial)								\$54,764,771

2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Station: Castroville

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)		LF	\$112	\$0	40%	\$0	\$0
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)	1,200	LF	\$135	\$161,460	40%	\$64,584	\$226,044
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	1,200	LF		\$161,460		\$64,584	\$226,044
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	1,200	TF	\$350	\$420,000	30%	\$126,000	\$546,000
2.02	Remove Existing Track		TF	\$40	\$0	30%	\$0	\$0
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15	2	EA	\$350,000	\$700,000	30%	\$210,000	\$910,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	2	EA	\$325,000	\$650,000	30%	\$195,000	\$845,000
2.07	Signal House	2	EA	\$200,000	\$400,000	30%	\$120,000	\$520,000
	SUBTOTAL				\$2,170,000		\$651,000	\$2,821,000
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing		EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
4.00	Stations							For details see station estimate worksheet
4.01	Castroville Station (Platform D + Small Parking + Grade-Separated Access Structure)	1	LS	\$18,960,000	\$11,180,000	40%	\$4,472,000	\$15,652,000
	SUBTOTAL				\$11,180,000		\$4,472,000	\$15,652,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	1	EA	\$162,500	\$162,500	30%	\$48,750	\$211,250
5.03	VMS (2 per station)	2	EA	\$44,741	\$89,483	30%	\$26,845	\$116,328
5.04	TVM (2 per station)	2	EA	\$67,857	\$135,714	30%	\$40,714	\$176,429
5.05	PA System	1	EA	\$186,414	\$186,414	30%	\$55,924	\$242,338
5.06	SCADA - Station	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.07	SCADA - Radio Site	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.08	VNF V&D Radio	1	EA	\$97,500	\$97,500	30%	\$29,250	\$126,750
5.09	CCTV	2	EA	\$93,111	\$186,222	30%	\$55,867	\$242,089
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$1,443,571		\$433,071	\$1,876,643
SUBTOTAL					\$14,955,031		\$5,620,655	\$20,575,687
8.00	Markups			32.00%				\$6,584,220
TOTAL FOR Station: Castroville								\$27,159,906

2020 Dollars

A.5 Phased Service Costs



TAMC

Monterey Bay Area Network Integration Study

Future Service Vision

Summary Cost Estimate - Intercity Phased Service

DATE: Dec 2020

PREP. BY: DSH

DESCRIPTION		CONSTRUCTION (\$)	ALLOCATED CONTINGENCY (\$)	MARKUP (\$)	TOTAL (\$)
Segment: Typical Mainline Siding	2.84 Miles	\$9,118,250	\$2,937,300	\$3,857,776	\$15,913,326
Station: Soledad		\$14,955,031	\$5,620,655	\$6,584,220	\$27,159,906
Station: King City		\$14,955,031	\$5,620,655	\$6,584,220	\$27,159,906
SUBTOTAL CONSTRUCTION & ROW COST	2.84 Miles	\$39,028,313	\$14,178,611	\$17,026,215	\$70,233,139
Train Equipment (8 sets @ \$31.5M each)					\$252,000,000
UNALLOCATED CONTINGENCY (25%)					\$80,558,285
TOTAL COST INTERCITY PHASED SERVICE	2020 Dollars				\$402,791,424



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Segment: Typical Mainline Siding

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)		LF \$112	\$0	40%	\$0	\$0	
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)		LF \$313	\$0	40%	\$0	\$0	
1.03	Section C: New Siding Track (Trackbed Civil)	15,000	LF \$135	\$2,018,250	40%	\$807,300	\$2,825,550	
1.04	Structures							
1.05	Structural Allowance	-	LS \$10,000,000	\$0	40%	\$0	\$0	
	SUBTOTAL	15,000	LF	\$2,018,250		\$807,300	\$2,825,550	
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	15,000	TF \$350	\$5,250,000	30%	\$1,575,000	\$6,825,000	
2.02	Remove Existing Track		TF \$40	\$0	30%	\$0	\$0	
2.03	Turnout No. 11		EA \$300,000	\$0	30%	\$0	\$0	
2.04	Turnout No. 15		EA \$350,000	\$0	30%	\$0	\$0	
2.05	Turnout No. 20	2	EA \$400,000	\$800,000	30%	\$240,000	\$1,040,000	
2.06	Turnout Signals	2	EA \$325,000	\$650,000	30%	\$195,000	\$845,000	
2.07	Signal House	2	EA \$200,000	\$400,000	30%	\$120,000	\$520,000	
	SUBTOTAL			\$7,100,000		\$2,130,000	\$9,230,000	
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA \$950,000	\$0	30%	\$0	\$0	
3.02	Upgrade Public Grade Crossing		EA \$350,000	\$0	30%	\$0	\$0	
3.03	Replace Private Grade Crossing		EA \$230,000	\$0	30%	\$0	\$0	
	SUBTOTAL			\$0		\$0	\$0	
4.00	Stations							For details see station estimate worksheet
4.01	Station	-	LS \$0	\$0	40%	\$0	\$0	
	SUBTOTAL			\$0		\$0	\$0	
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE \$200,000	\$0	30%	\$0	\$0	2 FO Cables 48str, 4 conduit 2x2 ductbank
5.02	Station Enclosures	-	EA \$162,500	\$0	30%	\$0	\$0	NEMAS Cabinets, UPS & Batteries
5.03	VMS (2 per station)	-	EA \$44,741	\$0	30%	\$0	\$0	Headend Controls and Station Signs, Labor
5.04	TVM (2 per station)	-	EA \$67,857	\$0	30%	\$0	\$0	Station TVM & Headend Servers
5.05	PA System	-	EA \$186,414	\$0	30%	\$0	\$0	PCC & BCC PA Headends, Station Equipment, Interfaces with VMS & Signals AVL, Labor
5.06	SCADA - Station	-	EA \$35,630	\$0	30%	\$0	\$0	PCC & BCC PA Headends, SCADA shelves at Stations
5.07	SCADA - Radio Site	-	EA \$35,630	\$0	30%	\$0	\$0	PCC & BCC PA Headends, SCADA shelves Radio Sites
5.08	VNF V&D Radio	-	EA \$97,500	\$0	30%	\$0	\$0	8 channel VHF Radio, Tower, Antennas Cabinet, UPS, Batteries, DAS
5.09	CCTV	-	EA \$93,111	\$0	30%	\$0	\$0	PCC, BCC, Radio Sites, Yard Cameras NVR, Video Management and Wall Displays
5.10	Master Clock	-	EA \$80,000	\$0	30%	\$0	\$0	GPS Satellite Radio & Antenna
5.11	Telephone	-	LS \$169,479	\$0	30%	\$0	\$0	2 Headend IP PBXs, Help Pole IP Phones
5.12	PCC & BCC	-	LS \$265,000	\$0	30%	\$0	\$0	
5.13	Train Control & Signals	-	MILE \$2,050,000	\$0	30%	\$0	\$0	Wayside signals, cab signal / speed, grade crossing warning, etc.
	SUBTOTAL			\$0		\$0	\$0	
SUBTOTAL				\$9,118,250		\$2,937,300	\$12,055,550	
8.00	Markups		32.00%				\$3,857,776	
TOTAL FOR Segment: Typical Mainline Siding							\$15,913,326	2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Station: Soledad

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)		LF	\$112	\$0	40%	\$0	\$0
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)	1,200	LF	\$135	\$161,460	40%	\$64,584	\$226,044
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	1,200	LF		\$161,460		\$64,584	\$226,044
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	1,200	TF	\$350	\$420,000	30%	\$126,000	\$546,000
2.02	Remove Existing Track		TF	\$40	\$0	30%	\$0	\$0
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15	2	EA	\$350,000	\$700,000	30%	\$210,000	\$910,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	2	EA	\$325,000	\$650,000	30%	\$195,000	\$845,000
2.07	Signal House	2	EA	\$200,000	\$400,000	30%	\$120,000	\$520,000
	SUBTOTAL				\$2,170,000		\$651,000	\$2,821,000
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing		EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
4.00	Stations							For details see station estimate worksheet
4.01	Soledad Station (Platform C + Small Parking)	1	LS	\$9,160,000	\$11,180,000	40%	\$4,472,000	\$15,652,000
	SUBTOTAL				\$11,180,000		\$4,472,000	\$15,652,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	1	EA	\$162,500	\$162,500	30%	\$48,750	\$211,250
5.03	VMS (2 per station)	2	EA	\$44,741	\$89,483	30%	\$26,845	\$116,328
5.04	TVM (2 per station)	2	EA	\$67,857	\$135,714	30%	\$40,714	\$176,429
5.05	PA System	1	EA	\$186,414	\$186,414	30%	\$55,924	\$242,338
5.06	SCADA - Station	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.07	SCADA - Radio Site	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.08	VNF V&D Radio	1	EA	\$97,500	\$97,500	30%	\$29,250	\$126,750
5.09	CCTV	2	EA	\$93,111	\$186,222	30%	\$55,867	\$242,089
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$1,443,571		\$433,071	\$1,876,643
SUBTOTAL					\$14,955,031		\$5,620,655	\$20,575,687
8.00	Markups			32.00%				\$6,584,220
TOTAL FOR Station: Soledad								\$27,159,906
								2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Station: King City

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)		LF	\$112	\$0	40%	\$0	\$0
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)	1,200	LF	\$135	\$161,460	40%	\$64,584	\$226,044
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	1,200	LF		\$161,460		\$64,584	\$226,044
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	1,200	TF	\$350	\$420,000	30%	\$126,000	\$546,000
2.02	Remove Existing Track		TF	\$40	\$0	30%	\$0	\$0
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15	2	EA	\$350,000	\$700,000	30%	\$210,000	\$910,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	2	EA	\$325,000	\$650,000	30%	\$195,000	\$845,000
2.07	Signal House	2	EA	\$200,000	\$400,000	30%	\$120,000	\$520,000
	SUBTOTAL				\$2,170,000		\$651,000	\$2,821,000
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing		EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
4.00	Stations							For details see station estimate worksheet
4.01	King City Station (Platform C + Small Parking)	1	LS	\$9,160,000	\$11,180,000	40%	\$4,472,000	\$15,652,000
	SUBTOTAL				\$11,180,000		\$4,472,000	\$15,652,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	1	EA	\$162,500	\$162,500	30%	\$48,750	\$211,250
5.03	VMS (2 per station)	2	EA	\$44,741	\$89,483	30%	\$26,845	\$116,328
5.04	TVM (2 per station)	2	EA	\$67,857	\$135,714	30%	\$40,714	\$176,429
5.05	PA System	1	EA	\$186,414	\$186,414	30%	\$55,924	\$242,338
5.06	SCADA - Station	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.07	SCADA - Radio Site	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.08	VNF V&D Radio	1	EA	\$97,500	\$97,500	30%	\$29,250	\$126,750
5.09	CCTV	2	EA	\$93,111	\$186,222	30%	\$55,867	\$242,089
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	40%	\$0	\$0
	SUBTOTAL				\$1,443,571		\$433,071	\$1,876,643
SUBTOTAL					\$14,955,031		\$5,620,655	\$20,575,687
8.00	Markups			32.00%				\$6,584,220
TOTAL FOR Station: King City								\$27,159,906
								2020 Dollars

A.6 Vision Service Costs – Intercity



TAMC

Monterey Bay Area Network Integration Study

Future Service Vision

Summary Cost Estimate - Intercity Vision Service

DATE: Dec 2020

PREP. BY: DSH

DESCRIPTION		CONSTRUCTION (\$)	ALLOCATED CONTINGENCY (\$)	MARKUP (\$)	TOTAL (\$)
Segment: Typical Mainline Siding	2.84 Miles	\$9,118,250	\$2,937,300	\$3,857,776	\$15,913,326
Segment: Typical Mainline Siding	2.84 Miles	\$9,118,250	\$2,937,300	\$3,857,776	\$15,913,326
SUBTOTAL CONSTRUCTION & ROW COST	5.68 Miles	\$18,236,500	\$5,874,600	\$7,715,552	\$31,826,652
Train Equipment (1 set @ \$31.5M each)					\$31,500,000
UNALLOCATED CONTINGENCY (25%)					\$15,831,663
TOTAL COST INTERCITY VISION SERVICE	2020 Dollars				\$79,158,315



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Segment: Typical Mainline Siding

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)		LF	\$112	\$0	40%	\$0	\$0
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)	15,000	LF	\$135	\$2,018,250	40%	\$807,300	\$2,825,550
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	15,000	LF		\$2,018,250		\$807,300	\$2,825,550
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	15,000	TF	\$350	\$5,250,000	30%	\$1,575,000	\$6,825,000
2.02	Remove Existing Track		TF	\$40	\$0	30%	\$0	\$0
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15		EA	\$350,000	\$0	30%	\$0	\$0
2.05	Turnout No. 20	2	EA	\$400,000	\$800,000	30%	\$240,000	\$1,040,000
2.06	Turnout Signals	2	EA	\$325,000	\$650,000	30%	\$195,000	\$845,000
2.07	Signal House	2	EA	\$200,000	\$400,000	30%	\$120,000	\$520,000
	SUBTOTAL				\$7,100,000		\$2,130,000	\$9,230,000
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing		EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
4.00	Stations							For details see station estimate worksheet
4.01	Station	-	LS	\$0	\$0	40%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	-	EA	\$162,500	\$0	30%	\$0	\$0
5.03	VMS (2 per station)	-	EA	\$44,741	\$0	30%	\$0	\$0
5.04	TVM (2 per station)	-	EA	\$67,857	\$0	30%	\$0	\$0
5.05	PA System	-	EA	\$186,414	\$0	30%	\$0	\$0
5.06	SCADA - Station	-	EA	\$35,630	\$0	30%	\$0	\$0
5.07	SCADA - Radio Site	-	EA	\$35,630	\$0	30%	\$0	\$0
5.08	VNF V&D Radio	-	EA	\$97,500	\$0	30%	\$0	\$0
5.09	CCTV	-	EA	\$93,111	\$0	30%	\$0	\$0
5.10	Master Clock	-	EA	\$80,000	\$0	30%	\$0	\$0
5.11	Telephone	-	LS	\$169,479	\$0	30%	\$0	\$0
5.12	PCC & BCC	-	LS	\$265,000	\$0	30%	\$0	\$0
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
SUBTOTAL					\$9,118,250		\$2,937,300	\$12,055,550
8.00	Markups			32.00%				\$3,857,776
TOTAL FOR Segment: Typical Mainline Siding								\$15,913,326
								<i>2020 Dollars</i>

A.7 Vision Service Costs – Regional



TAMC

Monterey Bay Area Network Integration Study

Future Service Vision

Summary Cost Estimate - Regional Vision Service

DATE: Dec 2020

PREP. BY: DSH

DESCRIPTION		CONSTRUCTION (\$)	ALLOCATED CONTINGENCY (\$)	MARKUP (\$)	TOTAL (\$)
Segment: Santa Cruz to Pajaro	19.70 Miles	\$147,179,689	\$48,056,973	\$62,475,732	\$257,712,394
Segment: Castroville to Monterey	14.94 Miles	\$127,178,575	\$41,533,838	\$53,987,972	\$222,700,385
Station: Pajaro (Vision)		\$16,587,771	\$6,072,251	\$7,251,207	\$29,911,230
Regional Service Maintenance Facility		\$23,638,777	\$9,143,633	\$10,490,371	\$43,272,782
SUBTOTAL CONSTRUCTION & ROW COST	34.64 Miles	\$314,584,813	\$104,806,696	\$134,205,283	\$553,596,791
Train Equipment (5 sets @ \$12M each)					\$60,000,000
UNALLOCATED CONTINGENCY (25%)					\$153,399,198
TOTAL COST REGIONAL VISION SERVICE	2020 Dollars				\$766,995,989

Note: Assumes no other project upgrades to existing track from Santa Cruz to Pajaro.



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Segment: Santa Cruz to Pajaro

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT	
					%	AMOUNT			
1.00	Trackway Civilwork								
1.01	Section A: Replace Existing Track (Trackbed Civil)	104,000	LF	\$112	\$11,679,200	40%	\$4,671,680	\$16,350,880	
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0	
1.03	Section C: New Siding Track (Trackbed Civil)	1,200	LF	\$135	\$161,460	40%	\$64,584	\$226,044	
1.04	Structures								
1.05	Structural Allowance	1	LS	\$10,000,000	\$10,000,000	40%	\$4,000,000	\$14,000,000	
	SUBTOTAL	105,200	LF		\$21,840,660		\$8,736,264	\$30,576,924	
2.00	Trackwork - Ballast / Ties / Rail / T.O.								
2.01	Track (Rail-Ties-Ballast)	105,200	TF	\$350	\$36,820,000	30%	\$11,046,000	\$47,866,000	
2.02	Remove Existing Track	104,000	TF	\$40	\$4,160,000	30%	\$1,248,000	\$5,408,000	
2.03	Turnout No. 11	2	EA	\$300,000	\$600,000	30%	\$180,000	\$780,000	
2.04	Turnout No. 15	2	EA	\$350,000	\$700,000	30%	\$210,000	\$910,000	
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0	
2.06	Turnout Signals	4	EA	\$325,000	\$1,300,000	30%	\$390,000	\$1,690,000	
2.07	Signal House	4	EA	\$200,000	\$800,000	30%	\$240,000	\$1,040,000	
	SUBTOTAL				\$44,380,000		\$13,314,000	\$57,694,000	
3.00	Grade Crossings								
3.01	Replace Public Grade Crossing	12	EA	\$950,000	\$11,400,000	30%	\$3,420,000	\$14,820,000	
3.02	Upgrade Public Grade Crossing	5	EA	\$350,000	\$1,750,000	30%	\$525,000	\$2,275,000	
3.03	Replace Private Grade Crossing	9	EA	\$230,000	\$2,070,000	30%	\$621,000	\$2,691,000	
	SUBTOTAL				\$15,220,000		\$4,566,000	\$19,786,000	
4.00	Stations							For details see station estimate worksheet	
4.01	Santa Cruz Station (Platform A + No Parking)	1	LS	\$2,490,000	\$2,490,000	40%	\$996,000	\$3,486,000	
4.02	Capitola Station (Platform B + No Parking)	1	LS	\$3,320,000	\$3,320,000	40%	\$1,328,000	\$4,648,000	
4.03	Aptos Station (Platform A + No Parking)	1	LS	\$2,490,000	\$2,490,000	40%	\$996,000	\$3,486,000	
4.04	Downtown Watsonville (Platform A + Small Parking)	1	LS	\$8,890,000	\$8,890,000	40%	\$3,556,000	\$12,446,000	
	SUBTOTAL				\$17,190,000		\$6,876,000	\$24,066,000	
5.00	Train Controls & Communications								
5.01	Communications - FO Backbone	19.70	MILE	\$200,000	\$3,939,394	30%	\$1,181,818	\$5,121,212	
5.02	Station Enclosures	4	EA	\$162,500	\$650,000	30%	\$195,000	\$845,000	
5.03	VMS (2 per station)	8	EA	\$44,741	\$357,931	30%	\$107,379	\$465,311	
5.04	TVM (2 per station)	8	EA	\$67,857	\$542,857	30%	\$162,857	\$705,714	
5.05	PA System	4	EA	\$186,414	\$745,654	30%	\$223,696	\$969,351	
5.06	SCADA - Station	4	EA	\$35,630	\$142,519	30%	\$42,756	\$185,274	
5.07	SCADA - Radio Site	4	EA	\$35,630	\$142,519	30%	\$42,756	\$185,274	
5.08	VNF V&D Radio	4	EA	\$97,500	\$390,000	30%	\$117,000	\$507,000	
5.09	CCTV	8	EA	\$93,111	\$744,888	30%	\$223,466	\$968,354	
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000	
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323	
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500	
5.13	Train Control & Signals	19.70	MILE	\$2,050,000	\$40,378,788	30%	\$12,113,636	\$52,492,424	
	SUBTOTAL				\$48,549,029		\$14,564,709	\$63,113,738	
SUBTOTAL					\$147,179,689		\$48,056,973	\$195,236,662	
8.00	Markups			32.00%				\$62,475,732	
TOTAL FOR Segment: Santa Cruz to Pajaro								\$257,712,394	2020 Dollars

Note: Assumes no other project upgrades to existing track.



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Segment: Castroville to Monterey

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)	78,900	LF	\$112	\$8,860,470	40%	\$3,544,188	\$12,404,658
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)	1,800	LF	\$135	\$242,190	40%	\$96,876	\$339,066
1.04	Structures							
1.05	Structural Allowance	1	LS	\$10,000,000	\$10,000,000	40%	\$4,000,000	\$14,000,000
	SUBTOTAL	80,700	LF		\$19,102,660		\$7,641,064	\$26,743,724
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	80,700	TF	\$350	\$28,245,000	30%	\$8,473,500	\$36,718,500
2.02	Remove Existing Track	64,300	TF	\$40	\$2,572,000	30%	\$771,600	\$3,343,600
2.03	Turnout No. 11	2	EA	\$300,000	\$600,000	30%	\$180,000	\$780,000
2.04	Turnout No. 15	3	EA	\$350,000	\$1,050,000	30%	\$315,000	\$1,365,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	5	EA	\$325,000	\$1,625,000	30%	\$487,500	\$2,112,500
2.07	Signal House	5	EA	\$200,000	\$1,000,000	30%	\$300,000	\$1,300,000
	SUBTOTAL				\$35,092,000		\$10,527,600	\$45,619,600
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing	22	EA	\$950,000	\$20,900,000	30%	\$6,270,000	\$27,170,000
3.02	Upgrade Public Grade Crossing	-	EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing	2	EA	\$230,000	\$460,000	30%	\$138,000	\$598,000
	SUBTOTAL				\$21,360,000		\$6,408,000	\$27,768,000
4.00	Stations							For details see station estimate worksheet
4.01	Marina Station (Platform B + No Parking)	1	LS	\$3,320,000	\$3,320,000	40%	\$1,328,000	\$4,648,000
4.02	Seaside Station (Platform A + No Parking)	1	LS	\$2,490,000	\$2,490,000	40%	\$996,000	\$3,486,000
4.03	Monterey (Platform A + Small Parking)	1	LS	\$8,890,000	\$8,890,000	40%	\$3,556,000	\$12,446,000
	SUBTOTAL				\$14,700,000		\$5,880,000	\$20,580,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	14.94	MILE	\$200,000	\$2,988,636	30%	\$896,591	\$3,885,227
5.02	Station Enclosures	3	EA	\$162,500	\$487,500	30%	\$146,250	\$633,750
5.03	VMS (2 per station)	6	EA	\$44,741	\$268,449	30%	\$80,535	\$348,983
5.04	TVM (2 per station)	6	EA	\$67,857	\$407,143	30%	\$122,143	\$529,286
5.05	PA System	3	EA	\$186,414	\$559,241	30%	\$167,772	\$727,013
5.06	SCADA - Station	3	EA	\$35,630	\$106,889	30%	\$32,067	\$138,956
5.07	SCADA - Radio Site	3	EA	\$35,630	\$106,889	30%	\$32,067	\$138,956
5.08	VNF V&D Radio	3	EA	\$97,500	\$292,500	30%	\$87,750	\$380,250
5.09	CCTV	6	EA	\$93,111	\$558,666	30%	\$167,600	\$726,266
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	14.94	MILE	\$2,050,000	\$30,633,523	30%	\$9,190,057	\$39,823,580
	SUBTOTAL				\$36,923,915		\$11,077,174	\$48,001,089
SUBTOTAL					\$127,178,575		\$41,533,838	\$168,712,413
8.00	Markups			32.00%				\$53,987,972
TOTAL FOR Segment: Castroville to Monterey								\$222,700,385
								2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Station: Pajaro (Vision)

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT
					%	AMOUNT		
1.00	Trackway Civilwork							
1.01	Section A: Replace Existing Track (Trackbed Civil)	4,000	LF	\$112	\$449,200	40%	\$179,680	\$628,880
1.02	Section B: Replace Existing Track (Trackbed Civil with Bike-Ped Trail)	-	LF	\$313	\$0	40%	\$0	\$0
1.03	Section C: New Siding Track (Trackbed Civil)		LF	\$135	\$0	40%	\$0	\$0
1.04	Structures							
1.05	Structural Allowance	-	LS	\$10,000,000	\$0	40%	\$0	\$0
	SUBTOTAL	4,000	LF		\$449,200		\$179,680	\$628,880
2.00	Trackwork - Ballast / Ties / Rail / T.O.							
2.01	Track (Rail-Ties-Ballast)	4,000	TF	\$350	\$1,400,000	30%	\$420,000	\$1,820,000
2.02	Remove Existing Track	4,000	TF	\$40	\$160,000	30%	\$48,000	\$208,000
2.03	Turnout No. 11		EA	\$300,000	\$0	30%	\$0	\$0
2.04	Turnout No. 15	3	EA	\$350,000	\$1,050,000	30%	\$315,000	\$1,365,000
2.05	Turnout No. 20	-	EA	\$400,000	\$0	30%	\$0	\$0
2.06	Turnout Signals	3	EA	\$325,000	\$975,000	30%	\$292,500	\$1,267,500
2.07	Signal House	3	EA	\$200,000	\$600,000	30%	\$180,000	\$780,000
	SUBTOTAL				\$4,185,000		\$1,255,500	\$5,440,500
3.00	Grade Crossings							
3.01	Replace Public Grade Crossing		EA	\$950,000	\$0	30%	\$0	\$0
3.02	Upgrade Public Grade Crossing		EA	\$350,000	\$0	30%	\$0	\$0
3.03	Replace Private Grade Crossing		EA	\$230,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$0		\$0	\$0
4.00	Stations							For details see station estimate worksheet
4.01	Pajaro Station (Added Platform D + Added Access Structure)	1	LS	\$10,510,000	\$10,510,000	40%	\$4,204,000	\$14,714,000
	SUBTOTAL				\$10,510,000		\$4,204,000	\$14,714,000
5.00	Train Controls & Communications							
5.01	Communications - FO Backbone	-	MILE	\$200,000	\$0	30%	\$0	\$0
5.02	Station Enclosures	1	EA	\$162,500	\$162,500	30%	\$48,750	\$211,250
5.03	VMS (2 per station)	2	EA	\$44,741	\$89,483	30%	\$26,845	\$116,328
5.04	TVM (2 per station)	2	EA	\$67,857	\$135,714	30%	\$40,714	\$176,429
5.05	PA System	1	EA	\$186,414	\$186,414	30%	\$55,924	\$242,338
5.06	SCADA - Station	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.07	SCADA - Radio Site	1	EA	\$35,630	\$35,630	30%	\$10,689	\$46,319
5.08	VNF V&D Radio	1	EA	\$97,500	\$97,500	30%	\$29,250	\$126,750
5.09	CCTV	2	EA	\$93,111	\$186,222	30%	\$55,867	\$242,089
5.10	Master Clock	1	EA	\$80,000	\$80,000	30%	\$24,000	\$104,000
5.11	Telephone	1	LS	\$169,479	\$169,479	30%	\$50,844	\$220,323
5.12	PCC & BCC	1	LS	\$265,000	\$265,000	30%	\$79,500	\$344,500
5.13	Train Control & Signals	-	MILE	\$2,050,000	\$0	30%	\$0	\$0
	SUBTOTAL				\$1,443,571		\$433,071	\$1,876,643
SUBTOTAL					\$16,587,771		\$6,072,251	\$22,660,023
8.00	Markups			32.00%				\$7,251,207
TOTAL FOR Station: Pajaro (Vision)								\$29,911,230

2020 Dollars



TAMC
Monterey Bay Area Network Integration Study
Future Service Vision
Regional Service Maintenance Facility

DATE: Dec 2020

PREP. BY: DSH

ITEM NO.	DESCRIPTION	QUANTITY	UNIT COST	CONSTRUCTION AMOUNT	CONTINGENCY		TOTAL AMOUNT	COMMENT	
					%	AMOUNT			
1.00	Yard Trackwork								
1.01	Storage Track (Rail-Ties-Ballast)	2,400	TF	\$300	\$720,000	40%	\$288,000	\$1,008,000	
1.02	Shop Track	1,000	TF	\$400	\$400,000	40%	\$160,000	\$560,000	
1.03	# 15 Turnouts	3	EA	\$350,000	\$1,050,000	40%	\$420,000	\$1,470,000	
1.04	Turnout Yard Signals	3	EA	\$325,000	\$975,000	40%	\$390,000	\$1,365,000	
	SUBTOTAL	3,403	LF		\$3,145,000		\$1,258,000	\$4,403,000	
2.00	Facilities / Shop								
2.01	Operation / Maintenance Shop / Storage / Workshops	40,000	SF	\$300	\$12,000,000	40%	\$4,800,000	\$16,800,000	
	SUBTOTAL				\$12,000,000		\$4,800,000	\$16,800,000	
3.00	Civilwork								
3.01	Clearing & Grub Area	5	ACRE	\$5,000	\$22,957	30%	\$6,887	\$29,844	
3.02	Earthwork / Grading	25,000	SY	\$10	\$250,000	30%	\$75,000	\$325,000	
3.03	Parking Lot	30	SPACE	\$3,500	\$105,000	30%	\$31,500	\$136,500	
3.04	Yard Lighting	1	LS	\$500,000	\$500,000	30%	\$150,000	\$650,000	
3.05	Fencing	4,000	LF	\$65	\$260,000	30%	\$78,000	\$338,000	
3.06	Gates	3	EA	\$5,000	\$15,000	30%	\$4,500	\$19,500	
3.07	Access Roads	60,600	SF	\$8	\$484,800	30%	\$145,440	\$630,240	
3.08	Drainage	1,637,757	\$	5%	\$81,888	30%	\$24,566	\$106,454	
3.09	Utilities	1,637,757	\$	3%	\$49,133	30%	\$14,740	\$63,873	
	SUBTOTAL				\$1,768,777		\$530,633	\$2,299,411	
4.00	Right-of-Way								
4.01	ROW	215,000	SF	\$25	\$5,375,000	40%	\$2,150,000	\$7,525,000	
	SUBTOTAL				\$5,375,000		\$2,150,000	\$7,525,000	
5.00	Train Controls & Communications								
5.01	FO Backbone Switches and WAN Access Pts	1	LS	\$500,000	\$500,000	30%	\$150,000	\$650,000	
5.02	CCTV	1	EA	\$100,000	\$100,000	30%	\$30,000	\$130,000	
5.03	Train Control Room Allowance	1	EA	\$500,000	\$500,000	30%	\$150,000	\$650,000	
5.04	Yard Train Control System Allowance	1	LS	\$250,000	\$250,000	30%	\$75,000	\$325,000	
	SUBTOTAL				\$1,350,000		\$405,000	\$1,755,000	
SUBTOTAL					\$23,638,777		\$9,143,633	\$32,782,411	
8.00	Markups			32.00%				\$10,490,371	
TOTAL FOR Regional Service Maintenance Facility								\$43,272,782	2020 Dollars