- **TO:** Regional Transportation Commission (RTC)
- **FROM:** Sarah Christensen, P.E.
- **RE:** Contract Award for Professional Engineering and Environmental Services and Amendment to the Measure D-Rail Category 5-Year Program of Projects – Electric Passenger Rail Transit & Trail Project between Pajaro Junction and Santa Cruz along the Santa Cruz Branch Rail Line

### RECOMMENDATIONS

Staff recommends that the Regional Transportation Commission (RTC) adopt a resolution (<u>Attachment 1</u>):

- 1. Authorizing the Executive Director to negotiate and execute a professional engineering and environmental services contract for the electric passenger rail transit & trail project between the Pajaro Junction and Santa Cruz along the Santa Cruz Branch Rail Line with HDR Engineering, Inc. for a total amount not to exceed \$3 million to begin preparing the project concept report;
- 2. Amending the Measure D-Rail Category Program of Projects to add funding in FY23 through FY24 to partially fund the consultant contract through Task 1;
- 3. Amending the RTC FY23 budget accordingly; and
- 4. Authorizing inter-program loans from other Measure D fund categories to the Measure D Rail category, if needed.

### BACKGROUND

In 2012, the RTC acquired from Union Pacific Railroad 31 miles of the 32-mile Santa Cruz Branch Rail Line (SCBRL), which provides a unique opportunity for Santa Cruz County to have a dedicated transit facility that connects the county's two largest cities. The SCBRL is a single-track active short line freight railroad that traverses Santa Cruz County along a right-of-way of varying width between Pajaro and Davenport.

A passenger rail transit feasibility study was completed in 2015 which analyzed a range of rail transit service scenarios on the SCBRL. The Monterey Bay Sanctuary Scenic Trail Network Master Plan was completed in 2013, which identified the Coastal Rail Trail in the SCBRL corridor as the spine of the bicycle and pedestrian trail network. The RTC completed the Unified Corridor Investment Study (UCS) in 2019 which evaluated a set of multimodal improvements along the 3 parallel routes Highway 1, Soquel Avenue/Soquel Drive/Freedom Boulevard and the SCBRL. The UCS serves as the County's comprehensive multimodal corridor plan. With completion of the UCS the RTC selected a preferred scenario for the branch line that included both high-capacity public transit and a multi-use bicycle and pedestrian trail along the SCBRL.

The Transit Corridor Alternatives Analysis and Rail Network Integration Study (TCAA/RNIS) was completed in 2021 which evaluated public transit investment options for an integrated transit network for Santa Cruz County utilizing all or part of the length of the branch line right-of-way, between the future Pajaro Station and Shaffer Road in Santa Cruz as a dedicated transit facility, adjacent to the proposed Coastal Rail Trail. The TCAA/RNIS identified electric passenger rail as the locally preferred alternative.

The Monterey Bay Sanctuary Scenic Trail Network (MBSST) is the RTC's proposed 50-mile bicycle and pedestrian trail network. The spine of the trail network is the 32-mile Coastal Rail Trail from Davenport to Watsonville/ Pajaro, to be constructed largely within the RTC-owned rail right-of-way. The MBSST Master Plan organized the trail alignment into 20 Segments with logical beginning and end points. There are 17 miles of Coastal Rail Trail projects complete or under development. The remaining segments of Coastal Rail Trail have not yet been developed beyond master planning level.

The RTC directed staff to release a request for proposals (RFP) at the August 2022 meeting with a scope of work that included preparation of the project concept report and project definition, preliminary engineering, initial right-of-way support services, and draft & final environmental documentation for the Electric Passenger Rail project, which includes the remaining segments of the Coastal Rail Trail.

## DISCUSSION

On August 8, 2022, RTC Staff released an RFP soliciting proposals from qualified and experienced professional consultants to perform preliminary engineering and environmental documentation for a proposed electric passenger rail transit and coastal rail trail project along the RTC-owned SCBRL right of way. The proposed project would upgrade the existing single track freight facility to an electric passenger rail transit facility along the SCBRL and to construct the remaining segments of continuous multi-use trail adjacent to the rail transit facility. Two proposals were received, from HDR Engineering, Inc. and Rail Surveyors & Engineers (RSE) Corporation. The selection panel was made up of staff from RTC, Caltrans Division of Rail and Mass Transportation, and Santa Cruz METRO. On October 5, 2022, the selection panel conducted interviews with each of the consultant teams. A second interview was conducted the following week with each consultant team to address items not completely covered during the first interviews. Staff performed reference checks for each consultant team. The selection panel ranked HDR Engineering, Inc. as the most qualified consultant team for the project.

Although the RFP scope of work included full service professional engineering and environmental services through project development, staff recommends awarding the contract to begin the initial task of preparing the project concept report component and subsequently amending the contract to complete the project concept report and for the future tasks once additional funding is secured. The coastal rail trail projects currently under development would continue as separate contracts, including Segments 5, Segment 7 Phase 2, and Segments 8-12.

The development of the project concept report will involve extensive community outreach and early engineering to provide a stable project definition moving into subsequent tasks. The work will involve refinement of the locally preferred alternative from the TCAA, including further development of the project definition and purpose & need statement, analysis of rail transit vehicle technology and performance requirements, ridership and revenue forecasts, evaluation of existing infrastructure, environmental screening, geotechnical review, safety assessment, development of the rail and trail alignment, station/layover/maintenance facilities, operations modeling and equipment plan, cost estimates for both capital and operations/maintenance, and risk analysis for the project. The technical work will be summarized into a draft and final project concept report and is anticipated to be complete within 24 months. The scope of work to prepare the project concept report, included as <u>Attachment 2</u>, includes extensive community outreach every step of the way. Staff anticipates bringing information to the Commission, to present technical information and gain valuable feedback for subsequent steps.

Staff's goal at the end of task 1 is to have a stable project definition and a single build alternative to carry forward through the CEQA process. Analyzing one build alternative will be more efficient than carrying multiple alternatives forward, from a cost and schedule perspective.

The cost to complete the Project Concept Report (Task 1) exceeds the available pay-go capacity in the Measure D Rail Category for the duration of the 24-month schedule. Staff is pursuing competitive grants to fully fund the entire scope of the work through environmental clearance, estimated to be

\$20 million including consultant support, community outreach, and project management costs. Applications for the 2023 Transit and Intercity Rail Capital Program (TIRCP) are due in February of 2023 and program adoption is scheduled for April of 2023. This TIRCP grant cycle includes up to \$150 million for project development from FY23 through FY27. The proposed Measure D programming for this project will allow the project to get started to show progress on development of the project as part of our anticipated application. Staff will request that it serve as the local match for this and other potential competitive grants.

The scope of work and cost proposal are included as <u>Attachment 2</u>. The cost proposal for the scope of work through Task 4 including the project concept report, initial right of say services, preliminary engineering, and environmental documentation was \$16,089,594. Through negotiations, the scope of work for Task 1 was refined to include early engineering to develop the alignment between Pacific Avenue in Santa Cruz and Rio del Mar where Coastal Rail Trail segments 8 through 12 are currently under development. The right of way boundary survey was added to Task 1. The negotiated cost proposal for Task 1 is \$7,759,711 which reflects work needed for the first 24 months of the project development. As noted earlier, this amount exceeds available pay-go capacity in the Measure D Rail Category through FY24.

Staff proposes entering into a cost-plus-fixed-fee contract with HDR Engineering, Inc. to fund the first 12 months of the contract that includes ridership and operating model development, environmental existing conditions, development of the project's purpose and need, structures and infrastructure assessment, conceptual alignment development, investigation of crossings focusing on the west side of Santa Cruz, right of way investigation, and community outreach. Staff intends to return to the commission to amend the contract to complete the remainder of Task 1 and subsequent tasks, upon securing additional grant funding. Therefore, **staff** recommends that the Regional Transportation Commission (RTC) adopt a resolution (Attachment 1) authorizing the Executive Director to negotiate and enter into an agreement for a Professional Engineering Services contract (TP 2153) with HDR Engineering, Inc. in the amount not to exceed \$3 million, with a term through December 31, 2027 and recommends that the RTC amend the Measure D-Rail 5-year plan to program and budget additional funds for the consultant contract, community outreach, and project management.

## FISCAL IMPACT

This project is funded by a combination of Measure D-Rail Category and Measure D-Active Transportation (AT) Category funds. The 5-year program of projects for the Rail category of Measure D adopted in November of 2022 by the Commission included a placeholder of \$2.85 million(M) (\$350,000 in Measure D-AT and \$2.5M in Measure D-Rail) in FYs 23 through 24 for this project, which is not sufficient to fund the first year of professional services and project management for the project. RTC Staff recommends amending the Measure D-Rail 5-year plan to include a total of \$3 million (\$2.65 million in Rail Category and \$350,000 in Active Transportation Category) to fund consultant and staff work under Task 1 through the first 12 months of work.

RTC has \$4.7 Million in submitted and outstanding invoices for disaster relief funds to the California Office of Emergency Services (CalOES) and the Federal Emergency Management Agency (FEMA) for work completed to repair the SCBRL due to storm damage sustained in 2017. These expenditures were paid for with an authorized Regional Surface Transportation Program-Exchange (RSTPX) loan to the rail program, since Measure D had insufficient capacity. Due to uncertainties as to when and how much CalOES/FEMA will reimburse the RTC disaster relief funds, the Measure D-Rail Category may need to pay back the loan from RSTPX and at this point would not have sufficient funds to pay for Task 1 of the electric rail transit and trail project on a cash basis. Staff recommends that the RTC authorize inter-program loans from other Measure D categories to cover these expenses, in accordance with Policy 4.4 of the Measure **D** Strategic Plan. Since the RTC is planning on financing for other Regional Project expenditures, a new inter-program loan to the Measure D-Rail Category could impact financing strategies to fully cover all of the programming commitments. Staff will continue to monitor cash flow. Currently, additional financing, beyond inter-program loans, is projected in 2024 and dependent on other grant awards and project schedules.

Staff will continue pursuing competitive grants to fully fund the preconstruction phases of the project, including the remaining project concept report work, initial right of way services, preliminary engineering, and environmental documentation. Staff intends to use the programmed Measure D funds to leverage and serve as a match to the competitive grants. If grants are unsuccessful, the commission could consider including this work in future financing decisions, beyond the potential inter-program loan, as an option to complete both Task 1 and the remainder of the scope of work. Financing would have significant impacts to future funding available for rail preservation work on the branch line.

## SUMMARY

Staff released an RFP to solicit proposals from qualified professional engineering and environmental consultants to develop the electric passenger rail transit & trail project. Two proposals were received from HDR Engineering, Inc. and RSE Corporation with HDR Engineering, Inc. being the most qualified for the work. Staff recommends the Regional Transportation Commission adopt a resolution authorizing the Executive Director to enter into a professional engineering services contract with HDR, program and budget additional Measure D funds to begin Task 1, and utilize Measure D inter-program loans, if needed.

Attachments:

- 1. Resolution
  - a. Measure D Rail Category 5-year Program of Projects
- 2. Draft Task 1 Scope of Work and Cost Proposal

#### **RESOLUTION NO.**

Adopted by the Santa Cruz County Regional Transportation Commission on the date of December 1, 2022 on the motion of Commissioner duly seconded by Commissioner

A RESOLUTION AUTHORIZING THE EXECUTIVE DIRECTOR TO NEGOTIATE AND ENTER INTO AN AGREEMENT FOR A PROFESSIONAL ENGINEERING SERVICES CONTRACT WITH HDR ENGINEERING, INC. FOR PRELIMINARY ENGINEERING AND ENVIRONMENTAL DOCUMENTATION FOR AN ELECTRIC RAIL TRANSIT & COASTAL RAIL TRAIL PROJECT, AMEND THE MEASURE D 5-YEAR PLAN FOR THE RAIL CATEGORY AND RTC BUDGET ACCORDINGLY, AND IMPLEMENT INTER-PROGRAM LOANS FROM MEASURE D, IF NEEDED

WHEREAS, the Santa Cruz County Regional Transportation Commission (SCCRTC) purchased the Santa Cruz Branch Rail Line in 2012 to preserve and expand transportation uses of the corridor;

WHEREAS, following extensive community input, the RTC prepared a Passenger Rail Transit Feasibility Study in 2015, the Unified Corridor Investment Study (UCS) in 2019, and the Transit Corridor Alternatives Analysis and Rail Network Integration Study (TCAA/RNIS) in 2021, which evaluated public transit investment options for an integrated transit network for Santa Cruz County utilizing all or part of the length of the branch line right-of-way. The TCAA/RNIS identified electric passenger rail as the locally preferred alternative;

WHEREAS, at its August 2022 meeting, the Commission directed staff to release a request for proposals (RFP) from qualified consultants to prepare an operating concept, project definition, right of way services, preliminary engineering, and environmental documentation with optional services for full engineering through construction of the Electric Passenger Rail and Coastal Rail Trail project;

WHEREAS, on August 8, 2022, staff released an RFP soliciting proposals from qualified and experienced professional engineering consultants to perform preliminary engineering and environmental documentation for a proposed electric rail transit and trail project along the RTC-owned Santa Cruz Branch Rail Line (SCBRL) right of way;

WHEREAS, the scope of services for the solicitation included full service environmental and engineering for the electric passenger rail facility that included optional services through construction; WHEREAS, two proposals where received from HDR Engineering, Inc. and RSE Corporation, with HDR Engineering, Inc. was found to be the most qualified firm;

WHEREAS, due to financial constraints RTC desires to initial fund the first 12 months of preparing the project concept report and project definition and amended to add scope and fee for subsequent tasks through the development of the project; and

WHEREAS, due to uncertainties as to when and how much the California Office of Emergency Services (CalOES) and the Federal Emergency Management Agency (FEMA) will reimburse the RTC disaster relief funds for the completed repairs following the 2017 storms, the Measure D-Rail Category may need to pay back the loan from RSTPX;

## THEREFORE, BE IT RESOLVED BY THE SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION THAT:

- 1. The Executive Director is authorized to negotiate and execute a professional engineering and environmental services contract for the electric passenger rail transit & trail project between the Pajaro Junction and Santa Cruz along the Santa Cruz Branch Rail Line with HDR Engineering, Inc. for a total amount not to exceed \$3 million to fund the first 12 months of preparing the Project Concept Report;
- 2. The Executive Director is authorized to negotiate and enter into a contract with the second highest ranked consultant team, in the event that negotiations with the highest rank consultant are unsuccessful;
- 3. The Measure D-Rail Category Program of Projects (<u>Exhibit A</u>) is hereby amended to add funding in FY23 and FY24 to fund the first 12 months of the consultant contract, community outreach, and project management; and
- 4. The FY23 RTC Budget and Work Program are hereby amended to incorporate funding programmed, and
- 5. Inter-program loans from other Measure D categories to the Measure D Rail category are hereby authorized, if needed.

AYES: COMMISSIONERS

## NOES: COMMISSIONERS

ABSTAIN: COMMISSIONERS

ATTEST:

Sandy Brown, Chair

Guy Preston, Secretary

Distribution: RTC Fiscal, Consultant Project Manager

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#### Measure D: 5-Year Program of Projects (FY22/23-FY26/27)

PROPOSED - 12/1/22

Previously updated 6/6/19, 6/27/19, 10/3/19, 5/7/20, 9/3/20 and 6/6/21, 10/7/21, 6/16/22, 11/3/22.

#### Category: Rail Corridor (8% of Measure D Revenues)

							Planned <sup>1</sup>				
	Project	Description	Est. Schedule	Prior Years	FY22/23	FY23/24	FY24/25	FY25/26	FY26/27	Total Measure D	Proposed Updates 12/1/22
1	Rail Infrastructure Preservation	Railroad bridge inspections and analysis, railroad bridge rehabilitation (including Pajaro River Bridge grant match), and ongoing maintenance and repair of railroad track infrastructure and signage.	Ongoing	\$3,745,119	\$1,475,000	\$1,327,000	\$740,000	\$920,000	\$1,675,000	\$9,882,119	
2	Rail Transit -Preliminary Engineering and Environmental Analysis	Preparation of operating concept, preliminary engineering, and environmental document for electric rail transit and trail project on the branch line	Concept Report - 2023-2025	\$0	\$1,825,000	\$1,975,000	TBD	TBD	TBD	\$3,800,000	Add \$1.3 million for consultant contract and project management to begin development of the Project Concept Report, including and community outreach. (previously \$2.5 million)
3	Santa Cruz County Regional Conservation Investment Strategy	Match to Wildlife Conservation Board grant for early mitigation planning for transportation projects.	FY19/20-Fall 2022	\$7,344	\$816					\$8,160	
Cor	npleted Projects										
4	Completed: Unified Corridor Investment Study (UCS), past lawsuits, and Transit Corridor Alternatives Analysis (TCAA)	Completed UCS, TCAA and lawsuit	2018-2019	\$1,906,983						\$1,906,983	
5	2017 Storm Damage Repair & Cleanup	Repair and cleanup of damage resulting from the 2017 winter storms including one washout, minor slides and various downed or compromised trees.	Spring 2020- 2022	\$1,398,144						\$1,398,144	If additional reimbursements are not received from FEMA, an additional \$4.7 million would need to be paid by Measure D-Rail
5a	FEMA reimbursement for storm damage repairs	This is an estimate. Final reconciliation of storm damage costs paid by Measure D and FEMA reimbursements still pending.		(\$493,278)	(\$1,185,590)					-\$1,678,868	Difference from Storm Damage Repairs represents expenditures inlcuded in other categories and later billed to FEMA. Additional \$4.7M has been requested (to repay Measure D and RSTPX short-term loan). Funds shown in FY22/23 have not yet been received.
		Total Measure D Expenditures		\$6.564.311	\$2.115.227	\$3.302.000	\$740.000	\$920.000	\$1.675.000	\$15.316.538	

1- Funds may be shifted between years based on actual expenditures/use rates when sufficient cash capacity exists.

2- Actuals and carryover to be adjusted based on audited actuals. Shown here are preliminary estimates.

## **ATTACHMENT 2**

## Task 0 – Project Management and Coordination for SCCRTC Electric Passenger Rail Transit and Trail Project

HDR will report to the SCCRTC Project Manager and will work with SCCRTC to accomplish project-related activities, including administrative functions such as monthly invoicing, progress reporting and meeting notes. Invoices will be submitted monthly. HDR will develop and maintain a Project Management Plan (PMP) that will include HDR Quality Assurance/Quality Control procedures to be followed for the project under this task. As part of the project management task, HDR will develop and maintain a Critical Path Method (CPM) schedule for the project that will be updated monthly along with a project risk register.

Project coordination meetings and conference calls include:

- a. In-person Kick Off meeting in Santa Cruz with HDR, SCCRTC, and other members of the Project Development Team, Up to eight (8) HDR staff will participate.
- b. Routine internal HDR in-person and virtual coordination meetings.
- c. Routine in-person and virtual coordination calls with SCCRTC and HDR.
- d. Project Development Team (PDT) Meetings with SCCRTC and Project Development Team, (e.g., Santa Cruz METRO, Transportation Agency for Monterey County [TAMC]). Fifteen (15) monthly meetings assumed.
- In-person or virtual HDR participation in SCCRTC Board, Commission, and Committee meetings, including the SCCRTC Interagency Technical Advisory Committee, Elderly and Disabled Transportation Advisory Committee, and Bicycle Committee, as requested. Participation in twelve (12) meetings assumed.
- f. In-person and virtual HDR participation in technical workshop meetings, and community workshops, as required. Twelve (12) meetings assumed.

#### Key Understandings

- HDR will prepare a Project Management Plan to document project procedures, document control, project contacts, deliverables and include a Quality Management Plan that outlines processes, procedures, and documentation for delivering quality products to the SCCRTC.
- HDR will provide the SCCRTC with a Microsoft Project CPM schedule based on sequential milestones and track progress for the milestone activities and critical path activities.
- HDR will prepare meeting agendas, record notes of the meeting, keep an action item list, and prepare presentation materials in advance to facilitate discussion and decision making.

#### Deliverables

- g. Project Management Plan.
- h. Critical Path Method Project Schedule.
- i. Meeting agendas, meeting notes, action item lists and presentation materials.
- j. Monthly progress reports and invoices.

# Task 1 - Develop Project Concept Report and Project Definition for SCCRTC Electric Passenger Rail Transit and Trail Project

HDR will develop a Project Concept Report for the SCCRTC Electric Rail Transit and Trail Project, as described in Task 1.7, through inputs from SCCRTC, the Project Development Team, public agency partners, other Project Development Team, as well as the local community. This project concept report will state the project definition and will include a conceptual alternatives analysis to identify multiple concepts, refine those concepts into one (1) preferred rail transit and trail build concept to be advanced into subsequent contract tasks. The build alternative is assumed to be either one (1) light rail transit build alternative or one (1) commuter rail transit alternative to match the recommendations for a potential passenger rail service between Pajaro and Santa Cruz (Natural Bridges Drive) presented in the previous SCCRTC TCAA Business Plan.

Task 1 activities, which are iterative and interdependent, will culminate in a Project Concept Report which are identified and described below. The outcome from the development of Task 1 is to define, evaluate, and develop a project definition for one (1) rail transit build alternative that can be advanced into subsequent tasks. *The build alternative is assumed to be either one (1) light rail transit build alternative or one (1) commuter rail transit alternative to match the recommendations for a potential passenger rail service between Pajaro and Santa Cruz (Natural Bridges Drive) presented in the previous SCCRTC TCAA Business Plan.* 

#### **Review and Comment Process:**

HDR will maintain a comment tracking matrix for each design deliverable. We assume that SCCRTC will resolve conflicting comments prior to forwarding comments to HDR. When a document will be reviewed by multiple parties, we assume that all parties will review the document and SCCRTC will consolidate all comments into one comment matrix prior to HDR responding to comments from any individual party. In general, we assume comments will be in the form of clear direction to HDR; while some questions are anticipated, once a question is addressed, we assume it will not be re-visited.

## Task 1.1 - Rail Corridor and Project Description

HDR will develop an overview of the general characteristics for the approximately 22 miles of the Santa Cruz Branch Rail Line (SCBRL) rail corridor between Pajaro and Santa Cruz (Shaffer Road) and a high-level summary of outcomes from past studies done by SCCRTC and its public agency partners that contemplated the development of a passenger rail transit service and trail within or adjacent to the SCBRL right-of-way (i.e., Passenger Rail Transit Feasibility Study [2015], Unified Corridor Investment Study [2019], Transit Corridor Alternatives Analysis, Rail Network Integration Study, and TCAA Business Plan [2019-2021], etc.). A description, goals, and primary activities of the SCCRTC Electric Passenger Rail Transit and Trail Project will also be identified and described.

HDR will develop a formatted document template to be used in Technical Memoranda and Draft / Final Reports developed for Task 1 of the project, through collaboration with SCCRTC.

#### Deliverable

• Draft Rail Corridor and Project Description will be included in the Draft Rail Corridor and Project Description and Need Technical Memorandum (capturing all work in Tasks 1.1 and 1.2) for review by SCCRTC and Project Development Team

## Task 1.2 – Rail Transit and Trail Project Preliminary Draft Purpose and Need

HDR through coordination and input from SCCRTC, and in consideration of past SCCRTC planning efforts, will identify and document the needs and constraints that drive the development of transportation improvements in the study area. Through this coordination HDR will summarize the priorities in the development of alternatives, such as, but not limited to equity, sustainability, and development timelines and the concerns of stakeholders. From the needs identified, HDR will draft the purpose of the project that will guide the development of the conceptual alternatives analysis to identify multiple concepts, and then refine those options through the planning, conceptual/preliminary design, and environmental phases of the project. The project "need" will identify mobility, accessibility, community issues and concerns based on traffic, land use and development, rail operations, socioeconomic, and other available data. The project "purpose" will present the opportunities for transportation improvements to address these needs and benefit the communities along the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road). HDR will develop a preliminary draft Purpose and Need statement for review by SCCRTC. The preliminary draft Purpose and Need will provide the foundation for the development of a formal final Purpose and Need statement for the project during the development of environmental work in Task 4.

#### Key Understandings

• One (1) in-person or virtual workshop with SCCRTC, other stakeholders, and up to four (4) HDR staff will be held to gather inputs to develop the preliminary draft Purpose and Need.

#### Deliverable

• Draft Rail Transit and Trail Project Needs, Benefits, and Opportunities will be included in the Draft Rail Corridor and Project Description and Need Technical Memorandum (capturing all work in Tasks 1.1 and 1.2) for review by SCCRTC. Final version will be incorporated into Draft Project Concept Report.

## Task 1.3 – Analysis of Conceptual Rail Transit Vehicle Technology and Performance Requirements

In the TCAA, SCCRTC previously identified electric passenger rail as the locally preferred alternative for implementation of a rail transit service on the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road) but did not make a decision as to whether the rail option would be light rail transit (LRT) or commuter rail transit (CRT). The TCAA Business Plan identified one proposed LRT option operating from 6 a.m. to 9 p.m. on weekdays with 30-minute headways all day that serves 15 stations, and one proposed CRT option operating from 6 a.m. to 9 p.m. on weekdays on 30-minute headways (peak periods) and 60-minute headways (off-peak periods) that serves 11 stations. The Business Plan also

identified LRT and CRT vehicles powered by electricity, battery, or hydrogen fuel cell under development worldwide to illustrate a potential universe of options that were operational, as of 2020.

HDR will identify current types and clean energy technologies for electric, battery, or hybrid electric light rail and commuter rail transit vehicle types that could potentially be considered for future implementation of electric passenger rail transit on the SCBRL corridor in this task. Many of these vehicle types have had only limited applications in the U.S., many are still undergoing development and testing (including Zero Emissions Vehicles or ZEMs), and the technology is not yet time tested and documented like traditional overhead catenary and third-rail electric and diesel-fuel powered locomotives and trainsets. The Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) have not yet approved many of these new vehicles and technologies for use on the U.S. transportation network. However, these new technologies typically avoid the expense, visual impact, and stray current protection issues associated with overhead contact systems (OCS).

To better understand emerging electric rail transit vehicle characteristics, operational specifications, and information related to operation on a shared-use passenger and freight rail corridor (including whether the vehicles will be FRA compliant or non-FRA compliant) to develop performance requirements, HDR will coordinate with up to six (6) rail transit vehicle developers and manufacturers and obtain information and assumptions that can be used to develop this task.

Vehicle types will be assessed for ability to provide a reliable scheduled speed and running time over the corridor, to maintain desired service frequency and headways, the feasibility of use of regenerative braking energy, the capacity of onboard batteries to supply power for operating the trains before they have to be recharged, for applicability to operation on the conceptual vertical and horizontal profile and varied operating territory of the SCBRL, potential conceptual capital cost for procurement (including support facilities for alternative energy source fueling / charging options), and for potential compatibility with regional passenger rail service between Santa Cruz, Watsonville, and Monterey envisioned by California Department of Transportation (Caltrans) in the California State Rail Plan.

#### Deliverable

• Draft Analysis of Conceptual Rail Vehicle Technology and Performance Requirements Technical Memorandum for review by SCCRTC . Final version will be incorporated into Draft Project Concept Report

## Task 1.4 – Conceptual Rail Transit Ridership and Revenue Forecast

The HDR team will develop conceptual forecasts that consider ridership and revenue potential for two (2) build alternatives for rail transit implementation on the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road). Forecasts will be based on two operational scenarios based on past studies for passenger rail implementation on the SCBRL; travel times of potential rail transit vehicle types, service frequencies, and conceptual rail transit alignment and conceptual station locations.

The Federal Transit Authority (FTA) Simplified Trips-on-Project (STOPS) software model will be used to develop the initial ridership forecast. STOPS applies a set of travel modes to predict detailed travel patterns on fixed guideway systems and uses a modified four-step (trip generation, trip distribution,

mode choice, and trip assignment) model structure to quantify total transit ridership by trip type, mode of access, and auto ownership. STOPS ridership forecasts are required to support FTA and other federal grant programs.

The forecasts will be summarized to identify the potential market for the service and will include total rail system ridership, rail passenger activity (boardings and disembarkments) and mode of access by station, rail passenger station-to-station volumes, and travel demand impacts by market, including quantifying trips diverted from existing transportation modes, for the anticipated project Opening Year. While long term future year forecasts may not be required as part of the initial STOPS forecasts, these can be developed as an optional task.

STOPS employs a conventional mode-choice model to predict zone-to-zone transit travel based on travel characteristics of the transit and roadway networks. It then assigns the trips predicted to use fixed guideways onto various rail and bus facilities (including the proposed project) in the transit network. It has a series of fixed inputs that require current system route and ridership data as well as land use and travel data from the Santa Cruz County Travel Demand model. From our experience applying the STOPS model, we understand the limited number of areas in the model where adjustments may be made to reflect local conditions that affect project ridership and VMT benefit outputs. This includes adjustments to reflect higher ridership rates in station areas where growth is anticipated that will affect transit ridership propensity. Fehr & Peers will also explore whether there are any special generators along the corridor alignment. From our experience, the FTA STOPS model may not capture riders from certain types of special generators. We identified this issue for a project that received small starts funding in Sacramento, and FTA agreed to a post-model adjustment to reflect added special generator trips. Key Understandings

- HDR will leverage available U.S. Census and other publicly available data to the maximum extent possible. SCCRTC and Santa Cruz METRO will provide HDR with additional inputs necessary to inform the STOPS model, if available (e.g., GTFS routes, bus boarding data by stop, results of onboard transit surveys, past ridership and revenue forecasts for existing and potential future transit services, etc.).
- HDR will consider up to four (4) peer agencies during development of the conceptual fare revenue forecast. Publicly available sources will be used and up to two (2) interviews may be conducted.
- Innovative strategies for generating revenue beyond fare recovery will be identified (e.g., advertising on rail vehicles and stations, leases of station facilities or right-of-way, renewable power generation, etc.).
- STOPS model forecasts for up to 2 build alternatives (SCCRTC to provide METRO GTFS and feeder bus route ridership data by stop for STOPS model inputs).
- STOPS model development for project Opening Year.

#### Deliverable

• Draft Conceptual Ridership and Revenue Forecast Technical Memorandum for review by SCCRTC Final version will be incorporated into Draft Project Concept Report.

**Optional Services** 

- Development of ridership and revenue forecasts for additional scenarios and alternatives (Design Year forecasts can be developed as an Optional Task).
- New data collection, and or use of Big Data sources such as Streetlight Data to provide additional information on regional travel patterns and trip origins/destinations can be accommodated as an optional task.

## Task 1.5 - Infrastructure Evaluation for SCCRTC Electric Passenger Rail Transit and Trail Project

#### Task 1.5.1 - Approach for Evaluating Bridge Infrastructure and Proposed New Bridges

HDR proposes to develop replacement concepts for existing timber structures and several existing steel structures, and to inspect and rate the remaining structures if ratings have not recently been completed. A summary of the proposed structure effort is included, below.

#### **Railroad Structure Rating Inspections**

The structures shown in Table 1 will have a rating inspection that verifies member sizes and the general condition of the spans to be used in the rating process, as applicable.

Milepost	Feature Crossed	Exist. Structure Type
4.01	Drainage	2 - 6' CMP
8.64a	San Andreas Road UX	PT concrete BD
9.30	N/A	Retaining Wall, in cut
12.34	Valencia Creek	Steel DPG OD
12.39	Soquel Drive UX	60' DPG-OD
12.71a	Aptos Creek	Steel DPG OD
12.71b	Soquel Drive UX	Steel TPG OD
13.84	Drainage	Concrete Arch 8x6
14.85	New Brighton Beach UX	2 span concrete
15.89a	Capitola Avenue	3 span concrete
15.89e	Wharf Road	1 span concrete
17.30	Rodeo Gulch	8 span concrete
18.30	Drainage	Concrete arch 10x8
18.84	Woods Lagoon	7 span concrete

#### Table 1 - Railroad Structures to be Inspected

Timber bridges, truss span bridges (BR 15.89c and BR 19.43a), and steel deck plate girder BR 1.06b over Pajaro River will each have a cursory inspection completed, including basic access from the deck and ground levels, with the intent of verifying condition from previous inspection reports.

The steel bridges found in Table 1 above will have a rating inspection. The rating inspection is not a detailed bridge inspection. It is visual in nature, but will note the information necessary to rate the spans as described in Task 4.0. The following items will be inspected and documented, if appropriate:

- Actual sections and details conform to the as-built drawings. The inspection should verify that repairs, strengthening, or other modifications have not occurred; if they have, dimensions should be recorded to determine accurate section properties and dead loads.
- Type of Bridge Deck (open or ballast deck).
- An estimate of additional dead load that has been added to the structure.
- Position of the track relative to the centerline of the structure.
- Superelevation of the track across the bridge.
- Degree of curvature of the track across the bridge.
- Horizontal and vertical alignment of the track over the bridge.
- Uneven settlement of piers.
- Supplementing SCCRTC's inspection notes, a brief general visual review of the structural condition of bridge members, noting deficiencies, defects, or deterioration that may exist that affect the load rating of the member or cause the rating of other members to be required. At a minimum, the following structural conditions should be noted if time is available to do so:
  - Concrete condition (spalls, cracking, lost concrete, rust-colored efflorescence)
  - Reduction in steel reinforcement area
  - Steel member corrosion or section loss
  - o Loose rivets, bolts, hardware or connections in steel or timber members
  - Crooked or damaged members
  - Cracked welds or other connections.

Concrete and drainage structures found in Table 1 above will be visually inspected. The visual inspection is not a detailed inspection and will note the general condition of the structure. The following items will be inspected and documented as appropriate.

- Visible cracks
- Visible reinforcement
- Concrete spalling
- Concrete deterioration
- Presence of efflorescence and build up
- Rust staining
- Crooked or damaged members
- Steel member corrosion or section loss, as applicable

Prior to completing the rating inspections, HDR will develop a draft Railroad Bridge Inspection Plan for steel railroad bridges crossing over public roadways, for SCCRTC's use, as listed in Table 2.

Table 2 – Steel Railroad Bridges over Roadways included in Inspection Plan

Milepost	Feature Crossed	Exist. Structure Type
12.39	Soquel Drive UX	60' DPG-OD
12.71b	Soquel Drive UX	Steel TPG OD

The draft Railroad Bridge Inspection Plan will identify, at a minimum, the following items:

- Process for gathering and reviewing existing bridge plans and data.
- Description of federal, state, local, and industry procedures followed during the inspections.
- Traffic control plans.
- Safety and lighting features for nighttime inspections.
- Procedures for rating inspections, including traffic control needs and access equipment.

#### Deliverables:

- Draft Railroad Bridge Inspection Plan for steel railroad bridges listed in Table 2, for use by SCCRTC.
- Traffic Control Plans 2 crossings.
- Draft summary rating inspection data for railroad structures listed in Table 1, for review by SCCRTC, which will be included in the Span Load Rating Memos provided below, if the railroad bridge is load rated.
  - Included in an appendix, field-completed structure inspection forms (handwritten) for each structure with a listing of deficiencies found, section properties, and other information determined for the rating process.
  - Included in an appendix, select digital photos documenting conditions noted.
- Draft summary memos of cursory inspections for railroad structures noted above. A comparison will be made between the cursory inspection results and past inspection records.

#### Assumptions:

- Inspection records for timber bridges (count of 18) will be reviewed and a cursory inspection will be conducted of each timber-bridge. Measurements and members sizes will not be taken or recorded.
- Inspection records for the steel/wrought iron bridges at Pajaro River, Soquel Creek and San Lorenzo River will be reviewed and a cursory inspection will be conducted. Measurements and members sizes will not be taken or recorded.
- Inspections will not result in detailed notes as to the location of rivets, bolts, gusset plates, etc.
- Roadway traffic control and equipment access is needed for the steel bridges over roadways shown in Table 2.
- Inspection of steel bridges over roadways will likely require nighttime lane closures and permits. HDR will coordinate nighttime lane closures and permits with the public agencies, as needed for the inspections.
- HDR will obtain a right-of-entry (assumed at one \$1500 processing fee) and flagger (assumed at \$500/day) from Progressive Rail. We assume railroad flagging will only be required for field work on structures between MP 0 and MP 3.0 for a total of 2 full working days.

- HDR will arrange for, and provide, equipment or subcontractors to provide access to the structure to facilitate the inspection. This may include man-lifts, Under Bridge Inspection Vehicles (UBIT), scaffolding, and/or rope access. Estimated costs are included in the fee estimate.
- It is assumed that during each day of the inspection work, an eight-hour train free window will be available to HDR inspectors.
- HDR's fee estimate assumes the hours for inspection and travel time as they are shown in the Detailed Fee Estimate.
- Detailed inspections and underwater inspections are not included.
- HDR will verify previously made repairs noted in plans (if available) during the inspection.
- Inspection methodology will conform to SCCRTC's Bridge Safety Management Policy (if available), the AREMA Bridge Inspection Handbook, 2008 Edition, and AREMA Chapter 8, Part 21 - Inspection of Concrete and Masonry Structures, and Chapter 15, Part 7.2 - Existing Bridges, Inspection. However, detailed inspections will not be performed. Only select key components and key critical areas that impact the safe bridge load carrying capacity determination will be reviewed and condition noted as time allows.
- HDR will use an industry-typical condition rating system based on its site observations. The system is described below:

Condition 4 – EXCELLENT/GOOD CONDITION – no problems noted.

Condition 3 – SATISFACTORY/FAIR CONDITION – minor deficiencies, primarily sound. Structural members may have minor section loss, cracking, spalling, or scour. Timber members may show minor distress with splits and checks.

Condition 2 – POOR/SERIOUS CONDITION – local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present. Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Timber members may exhibit localized decay, crushing, and splits.

Condition 1 – CRITICAL CONDITION – advanced deterioration. Fatigue cracks in steel or shear or shear cracks in concrete may be present or scour may have removed substructure support. Timber components may have advance decay. For <u>primary</u> structural elements, unless closely monitored, it may be necessary to close the bridge until corrective action is taken.

Condition 0 – FAILED CONDITION – failure has occurred. Massive section loss of obvious vertical or horizontal movement affecting structure stability is present. For <u>principal</u> structural members, this condition will require closure of bridge.

- N NOT APPLICABLE
- U UNABLE TO INSPECT

If defects with Condition 0 are found, the HDR inspector will immediately notify SCCRTC's contact and arrange for a joint inspection and agreement on either stopping or slowing rail traffic, as applicable. HDR will include, in cases of Condition 1 through 3 a recommendation for frequency of increased monitoring, if necessary. Recommendations and priorities are based on conditions present at the time of our inspection, utilizing industry standards and information made available to HDR by SCCRTC. Our recommendations from the inspection are based on defects found that may limit the original capacity of the structure.

• The purpose of the rating inspections are to verify the structural sizes and layout of the bridge and confirm that SCCRTC's inspection notes and records accurately describe the condition of the

bridge as they may impact the rating process. HDR is not conducting a detailed inspection of each structure. If, on a case-by-case basis, the conditions of the structure are not found to match SCCRTC's inspection records, additional time and fee will be required to perform a detailed inspection to verify the rating of the bridge is accurate.

Railroad Span Ratings and Recommendations

The structures shown in Table 3 will have a steel span load rating for unique superstructure configurations and conditions.

Milepost	Feature Crossed	Exist. Structure Type
12.34	Valencia Creek	Steel DPG OD
12.39	Soquel Drive UX	60' DPG-OD
12.71a	Aptos Creek	Steel DPG OD
12.71b	Soquel Drive UX	Steel TPG OD

Table 3 – Steel Railroad Bridge Spans to be Load Rated.

Other steel railroad bridge spans on the project are already rated or will be replaced as a part of this project.

In general, the following items will be rated and documented, if appropriate:

<u>Steel Bridges</u>: Normal and maximum steel bridge ratings will be performed in accordance with AREMA Chapter 15, Part 7.3 for Rating Existing Steel Bridges. Additional fatigue ratings for each critical steel member may be necessary should inspections show fatigue related issues or annual mixed train traffic exceeds 5 million gross tons per AREMA 15-7.3.3.2b. The following structural steel bridge members and connections will be rated:

Steel Plate Girders: Allowable flexure at mid-span and cover plate terminations along span.

Allowable shear near girder support.

Web splice rating according to bolt/rivet capacity and splice plate properties.

Flange splice, rating if applicable.

Floorbeams: Allowable flexure at highest demand location along floorbeam.

Allowable shear at highest demand location along floorbeam.

Web splice rating according to bolt/rivet capacity and splice plate properties, if applicable.

Flange splice rating according to bolt/rivet capacity and splice plate properties, if applicable.

Stringers: Allowable flexure at mid-span.

Allowable shear near stringer support.

Stringer to floorbeam connection rating of riveted/bolted connection checking bearing/shear on the rivets/bolts.

Substructure/Foundation/Bearings/Minor Elements: not to be rated.

Due to possible stability concerns of pony bent supports, each of the following bridges will have a lateral analysis completed:

- BR 12.34 over Valencia Creek
- BR 12.71a over Aptos Creek

HDR will analyze the pony bent supports at each of these structures for lateral and longitudinal stability for the intended passenger and freight consist loads with associated speeds, in accordance with loads and recommendations from the AREMA manual.

#### Deliverables:

- Brief memo-style rating report for each steel railroad bridge identified in Table 3, documenting a summary of the conditions found during the inspection, rating assumptions used, and rating results for the items rated as detailed above.
  - Reports will have appendices that include copies of the field notes taken during the inspection, select photos taken during the inspection, and as-built plans (if available).
  - Lateral analysis results of the pony bents (if applicable) will be included in an appendix and summarized in the rating memo.

#### Assumptions:

- Timber bridges will be fully replaced and need not be rated.
- Steel truss bridges will be fully replaced and need not be rated.
- Existing steel structures identified in this task will be checked for capacity to support the anticipated freight and passenger traffic. SCCRTC will provide details for the anticipated freight and passenger live load consists.
- For concrete superstructures, it is assumed that plans are not available to provide reinforcing or prestressing steel information. As a result, only the condition of concrete spans will be investigated, as noted in Task 3.0. If as-built plans for concrete bridges are found and a load rating is desired, additional effort will be needed to load rate those concrete bridges.
- Ratings will be conducted as described herein and in conformance with AREMA Chapter 15 Part 7.3 as appropriate.
- We assume that SCCRTC will adopt the exception in AREMA 15-7.3.3.2b and that fatigue ratings on lines where annual mixed train traffic does not exceed 5 million gross tons per year do not need to be performed. If a fatigue related defect is found, however, we will estimate the additional fee and obtain written approval for performing a fatigue rating on the structure.
- Assume 60 mph speed for ratings.

- Steel substructure (bearings and below) will not be rated.
- Ratings will be completed using software, such as Mathcad, Visual Analysis, Shapebuilder, CAD and others as necessary. Reports will be generated in Microsoft Word and final report/deliverable will be provided in pdf form for each bridge listed in Table 2.
- The span E-rating capacity will be compared to the passenger E-load demand, which will be provided by SCCRTC.
- Steel spans from Table 2 will be rated for Group I loads (Dead Load, Live Load, Impact, and Centrifugal Force) only. The requirements for rating per the AREMA Manual allow for increases in allowable stress that typically add more capacity than the demand caused by lateral forces (longitudinal force, wind, wind on train, nosing, etc.) when these other loads are considered.
- It is assumed that the steel spans will not require repairs, unless noted otherwise in Task 5.0.
- For the two bridges identified for lateral analysis, assumptions about support conditions and anchorage of the steel pony bents will need to be made to conduct the analyses, as well as lateral soil properties at backwall locations. Abutments and piers will each be assumed to be fixed at groundline given the unknown foundation configuration and stiffness. Span bearings will be assumed as functional for fixed and expansion configurations. Reasonable assumptions regarding bearing friction will be made, consistent with the AREMA manual. Longitudinal force will be scaled from the Cooper E-80 basis in the AREMA manual down to the lighter passenger and freight consists on the project. Longitudinal force will either be allocated based on tributary span length per pony bent or based on stiffness considerations of the substructure system, depending on support conditions of the spans. Structural modeling software may be used to assist with this analysis. However, soil and subsurface conditions will not be investigated, and modeling of below-ground foundation elements will not be performed. It is assumed that these bridges will be found to be stable under the anticipated loads. We assume that, if needed, concept plans for revisions, strengthening, or modifications would be addressed in a subsequent phase of work..
- The fee estimate included with this scope of work documents the expected elements that are assumed to exist at each bridge that will be rated. If as-built plans are found and a load rating is desired, additional time and fee will be required to complete the ratings.
- For the fee development, unless otherwise shown, it was assumed that the steel DPG spans and steel TPG spans contain only one web splice each, one flange splice each, and 3 cover plate terminations each. If additional web/flange splices or cover plate terminations are found in the field, additional hours will be needed to rate these elements.

#### Task 5.0 – Railroad Structures Concept Design

The railroad structures shown in Table 4 will have conceptual design completed for replacement structures, structure extensions, or known structural repair work.

Milepost	Feature Crossed	Exist. Structure Type		Struct	ure Concep	t Approach
			Replace	Modify	Repair	Structure Concept Type
0.86	Drainage	14 panel OD trestle	Х			New concrete bridge
1.06a	Pajaro River	13 panel OD trestle	х			New concrete bridge

Table 4 – Railroad Structure Concepts

1.06b	Pajaro River	5 - 60' TPG-OD	x			New steel deck plate bridge
1.06c	Pajaro River	6 panel OD trestle	x			New concrete bridge
4.01	Drainage	2 - 6' CMP		x		Extend existing culverts
4.45	Watsonville Slough	4 panel OD trestle	x			New concrete bridge
4.45	N/A	Retaining Wall	Х			New retaining wall
4.87	Harkins Slough	13 panel BD trestle	Х			New concrete bridge
5.42	Drainage	1 panel BD trestle	Х			New concrete bridge
5.54	Drainage	9 panel BD trestle	Х			New concrete bridge
6.01	Drainage	6 panel BD trestle	Х			New concrete bridge
6.14	Drainage	2 panel BD trestle	х			New concrete bridge
6.20	Drainage	BD trestle	Х			New concrete bridge
6.25	Drainage	8 panel BD trestle	Х			New concrete bridge
8.32	Drainage	1 panel BD trestle	х			New concrete bridge
8.64	N/A	Retaining Wall	x			Replace fill wall, new cut wall
8.64b	Drainage	8 panel OD trestle	Х			New concrete bridge
9.30	N/A	Retaining Wall	х			New fill wall
10.45	Drainage (Bush Gulch?)	16 panel BD trestle	x			New concrete bridge
11.16	Drainage (Dry Creek?)	16 panel BD trestle	x			New concrete bridge
12.34	Valencia Creek	Steel DPG OD		x		Raise and modify supports
12.39	Soquel Drive UX	60' DPG-OD		х		Raise and modify supports
13.70	N/A	Retaining Wall	x			New fill wall, replace cut wall
13.84	Drainage	Conc. Arch Culvert			Х	Repair culvert
15.89a	Capitola Avenue	3 span concrete			Х	Repair bridge wingwalls
15.89b	Soquel Creek	15 panel OD trestle	x			New steel deck plate bridge
15.89c	Soquel Creek	148'-6" DTP-OD	x			New steel deck truss bridge
15.89d	Soquel Creek	OD trestle	х			New concrete bridge
18.30	Drainage	Concrete arch 10x8		X		Extend existing arch
19.43a	San Lorenzo River	2 - 120' TTR-OD	x			New steel through truss bridge
19.43b	San Lorenzo River	60'-3" DPG-OD	х			New steel beam bridge

	22.29	Drainage	22 panel OD trestle	х			New concrete bridge
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Each of the replacement structures in Table 4 will have the following completed:

- Brief memo-style concept report for each railroad structure
- Conceptual draft design criteria.
- Conceptual estimate of probable construction cost.
- Conceptual drawing with plan, elevation and section view.

HDR will summarize the conceptual replacement structure type in the concept memo reports. Various criteria will be considered when selected and sizing a conceptual structure type, including maintenance and inspection, span type, foundation type, constructability, general hydraulic characteristics, and conceptual costs. Conceptual foundation type will be based on a desktop review of the past geotechnical report completed by Parikh and Associates.

For bridges that are being modified or repaired, as identified in Table 4, a similar concept memo report and appendices will be produced, but will be abbreviated given the relatively minor nature of the work.

For concept design, coordination effort with the environmental team is included in order to address footprint, impacts, and constructability.

The following concept reviews are anticipated:

- One (1) review by SCCRTC.
- Two (2) reviews by the California Coastal Commission.

Deliverables:

- Thirty two (32) concept memo reports, with concept drawing(s), conceptual design criteria, and conceptual estimate of probable construction cost.
- Electronic/PDF only.

Assumptions:

- New structures shall be conceptually sized per the current AREMA Manual and industry standards using Cooper E80 live loading with diesel impact and alternative 100-kip axle load when applicable on steel spans
- New structures shall generally follow Metrolink or other commuter railroad structure standards, as publicly available. New structures shall include ballast deck track. New structures shall generally consist of the following span types, in order of most preferred to least preferred:
  - Concrete bridges:
    - Precast prestressed concrete slab beams, up to 24" deep, up to 24' long
    - Precast prestressed double cell box beams, 30" deep, up to 35' long

- Precast prestressed double cell box beams, 42" deep, up to 50' long
- Precast prestressed single cell box beams, up to 80" deep, up to 80' long
- Steel bridges:
  - Rolled steel beams with steel pan deck, 5 beams per track, up to 69' long
  - Welded steel deck plate girders with steel pan deck, 4 girders per track, up to 150' long
  - Welded steel through plate girders with steel pan deck, up to 150' long
  - Bolted steel deck or through trusses with steel pan deck, up to 180' long
- Existing steel structures that remain and/or will be modified will be rated for comparison of capacity to support the anticipated freight traffic.
- Minor refinements to concept designs, such as architectural treatments, and major changes to the concepts (if desired), would be addressed in a later phase of work.
- Assume the existing bridge inspection records are not available for bridges remaining in service and conceptual repairs or modifications will only in this task will only identify the general needs. A full bridge survey will be needed after this conceptual design phase to capture the necessary existing information to fully detail the repairs or modifications at bridges.
- If an existing structure is not listed in Table 4, it is assumed to be adequate to support the anticipated loading and no track horizontal or vertical changes will occur as a result of the project.
- Scope includes concepts for timber bridge replacement.
- Scope includes concepts for replacement of steel and wrought iron truss bridges. .
- Concept drawings will be developed in AutoCAD per Client standards, including the version of the program.
- No survey will be completed during concept design. Existing DTM will be used for existing ground surface in profiles.
- Utilities will not be identified for concept design.
- Hydraulics and hydrology will not be completed for concept design.
- Geotechnical data and recommendations will not be incorporated for concept design.
- A type, size and length analysis will not be completed for concept design. Only a single concept will be considered during concept design for the locations identified in Table 4. A brief description will be included on why a structure type was selected.
- Structure concepts assume single track only.
- Structure concepts will support track loading only and will not include platforms or pedestrian considerations.
- Driven steel H-pile will be assumed for bridge foundations, unless specific consideration needs to be made for aesthetics, loading, corrosion, or installation noise/vibration that may result in a pipe piling or drilled shaft foundations.
- For bridges in a sea water environment, concrete components will be utilized to the extent practical and steel components will be avoided.
- For existing concrete bridges, no drawings will be completed unless identified in Table 4. This assumes there are no as-built drawings available and no changes to the loading or track geometry will occur as a result of the project.
- No design calculations or structural analysis will be completed or submitted during this phase. Seismic design will not be completed during this phase either, but seismic detailing and stiffness considerations may be made.

- Coordination with the Client is included in the railroad structures concept design effort. Coordination with the public, utility owners, other agencies, and other stakeholders is not included.
- Concept review comments from SCCRTC and the California Coastal Commission will be minor in nature and will not result in substantial changes to the railroad structure concepts.
- This scope was based on the bridge list in the 2012 report and track charts; note that the two documents disagree on the number of bridges. Google Earth has been used to supplement this information for the purposes of developing this scope ad budget.
- A total of \$73,000 in roadway flagging costs have been included as Other Direct Costs. We have allowed 200 hours for traffic control plans. We also assume that the railroad is considered "out of service" and that no roadway worker protection is required, and that the SCCRTC (or its rail operators) will make the track inaccessible during bridge inspections.
- We have included railroad safety training for twenty (20) consultant staff at \$50/staff member.

#### Pathway Structures

HDR assumes that new pathway/trail bridges will be constructed adjacent to each railroad bridge, beginning at Pajaro River (Br. 1.06) and ending at the San Lorenzo River (Br. 19.43) will have an adjacent, but separate pathway bridge. HDR will prepare concept plans, elevations, and typical sections for these pathway structures. Where existing railway bridges are assumed to remain, we assume the pathway bridges will be separate from the railway bridges. Where possible, a consistent pathway bridge type will be employed at each location, which could result in decreased construction costs.

#### Task 1.5.2 - Approach for Evaluating Grade Crossings and Roadways

The corridor has several potentially complex grade crossings as well as two locations where the railroad is located in the middle of a roadway. The treatments at these crossings, and community acceptance of these proposed treatments, may determine viability of frequent passenger service in West Santa Cruz. This Task will develop concepts for these crossings and engage regulatory staff, as well as develop concepts for the areas where track is in roadways.

Grade Crossing Review:

- Review all crossings on the line and identify crossings likely to require new or upgraded warning devices and traffic signal preemption to facilitate higher-speed operation.
- Develop matrix of proposed improvements at each crossing.

Grade crossing concept plans:

- Develop preliminary concept plans for up to 30 (thirty) grade crossings, including crossings at:
  - California Street
  - Bay Street
  - o Lennox Street
  - o Bellevue Street
  - Younglove Avenue
  - o Rankin Street
- Contact California Public Utilities Commission (CPUC), the regulatory agency in charge of grade crossings, to request an informal field meeting to review at least the crossings in West Santa Cruz.

• Incorporate comments from CPUC into updated concept plans.

Beach Street and Walker Street:

• Develop concepts for track, warning devices, and channelization/striping plans for Beach Street in Santa Cruz and Walker Street in Watsonville and identify a track configuration that preserves a station for Big Trees & Pacific Railroad.

Deliverables:

- Preliminary concept plans for West Santa Cruz grade crossings
- Updated concept plans based on aerial imagery, identifying channelization and striping and approximate limits of roadway reconstruction at each crossing and proposed locations of active warning devices. Roadway profiles and cross sections are excluded.

#### Task 1.5.3 - Boundary Survey

HDR will conduct a boundary survey from approximately Rio Del Mar overpass to Pajaro. This survey will be based upon field survey, valuation maps, and title reports, but will not include any topographic survey.

Deliverables:

• CAD file of SCCRTC ownership boundary along the rail corridor

Assumptions:

- Up to 200 title reports
- SCCRTC will provide valuation maps for the corridor
- Effort is based on resolving the rail corridor boundary; other SCCRTC properties are excluded.

## Task 1.6 Environmental Screening for SCCRTC Electric Passenger Rail Transit and Trail Project

The HDR team, led by ICF, will prepare an environmental screening analysis identifying preliminary environmental effects for alternatives being considered. This analysis will rely on readily/publicly available desktop sources of information and does not include technical analysis, modelling, or field surveys. The focus of the environmental screening work will focus on three things: (1) identifying any critical resources that need to be avoided and therefore, may require a change in design; (2) providing preliminary comparison of different alternatives under consideration; and, (3) identify potential sea level rise, coastal erosion, and flooding vulnerability on the alternatives using existing studies and data (the California Coastal Commission will require resolution of such coastal issues in order to ultimately permit the project). The report will quantify effects based on the information noted below. The report will include brief narratives of effects with the primary results presented in tabular format and mapping appendices.

The approach to environmental screening for different resources is as follows:

• Transportation (Fehr & Peers) – Identification of potential ridership for alternatives, if there are substantial differences in ridership potential and thus differences in VMT reduction.

- Noise and Vibration (CSA) Preliminary analysis of generic noise levels along alignment and generic potential for noise walls overall (not site-specific soundwall analysis). Analysis of typical section only. Does not include ambient monitoring or site-specific analysis. Identification of length of alignment adjacent to residential, commercial, institutional and park uses (using aerial photography).
- Public Utilities and Services (ICF) Identification of major utilities and any public service facilities within potential footprints.
- Biological and Aquatic Resources (ICF) Desktop mapping of land covers, potential habitat for special-status species, wetland/waters, unique vegetative communities and conservation areas. Preliminary identification of potential need for wildlife crossings. The HDR Team will use the RTCprovided GIS-database for biological resources and supplement where needed to provide recent desktop information on resources.
- Hydrology and Water Resources (HDR) Mapping of FEMA floodplains and zones. Mapping of Sea Level Rise (SLR) vulnerability by confirming tidal datum and predicted SLR elevations (low, medium, or high) per the 2018 California Natural Resources Agency's Sea-Level Rise Guidance and NOAA's guidelines. SLR Vulnerability will be based on the estimated design life/timeframe of the Project.
- Geology, Soils, Seismicity (Parikh) –Identification of critical constraints including fault crossings; fault zones, and areas of high landslide susceptibility.
- Hazardous Materials and Wastes (Parikh) –Assumes RTC will provide Phase I and Phase II site assessment reports completed for ROW purchase, and any additional sampling data collected.
- Safety/Security (ICF) Identify at-grade crossings and potential need for crossing safety improvements (in collaboration with HDR).
- Socioeconomics and Communities (TAHA) –Mapping of EJ communities adjacent to alignments and surrounding stations and maintenance facilities. Identification of key community facilities. Preliminary identification of displacements (using aerial photography).
- Land Use (ICF) Mapping of general plan designations and coastal zone. Preliminary assessment of TOD potential adjacent to the stations.
- Agricultural Farmlands (ICF) Mapping of important farmland
- Parks, Recreation, and Open Space (ICF) Mapping of lands/facilities within study area
- Cultural Resources: This assessment will use existing information including recent work on historic resources for the SCCRTC
  - Archeology (Albion) Records search for eligible/potentially eligible sites
  - Built Environment (Brunzell) Records search for eligible/potentially eligible sites
  - Tribal Cultural Resources (RAC) Sacred lands search and NAHC list
- Mineral Resources (ICF) Identification of any critical mineral resource areas
- The following resources are not proposed for study as part of the environmental screening because these effects are not likely to substantially vary by alternatives and/or will not drive design. All these subjects will be analyzed in detail in the NEPA/CEQA phase.
- Aesthetics and Visual Quality Given this is an existing railroad ROW, aesthetics are not likely toi substantially differentiate between alternatives.
- Air Quality, Greenhouse Gases Won't vary substantially by alternative.
- Energy/Public Services Won't vary substantially by alternative
- Paleontological Resources Won't drive design.
- Safety/Security (Wildfire) Won't vary substantially by alternative
- Population and Housing Formal analysis during NEPA/CEQA phase.

• Section 4(f) and 6(f) – Covered by parks analysis for screening. Formal analysis during NEPA phase.

#### Deliverables

- Administrative Draft Environmental Screening Report in Microsoft Word Format
- Draft Environmental Screening Report in Microsoft Word format and PDF (for public circulation)
- Administrative Final Environmental Screening Report in Microsoft Word Format
- Final Environmental Screening Report in Microsoft Word format and PDF

#### Assumptions

- HDR to provide alternative descriptions for screening
- HDR to provide alternative footprints in GIS or georeferenced CADD for alignments, ROW, stations, and maintenance facilities
- One round of review by SCCRTC prior to public draft.
- If publicly circulated, scope includes revision of document in light of comments and direction from SCRTC but does not presume preparation of written responses to comments.
- The Final Report will be presented at an RTC/TPW meeting

## Task 1.7 Strategic Communications and Public Involvement Approach

HDR designs meaningful and focused public and stakeholder outreach with the integration of traditional, social media, and online meeting tools to expand coverage and engage under-served populations in the process. Our tiered approach to engaging the diverse partners, agency and public stakeholders allow us to test our information and messaging, learn concerns and adjust at each level before we get to the general public to minimize political and social risk to the project.

For the Santa Cruz Branch Rail Line, we recommend creating four tiers of audiences that will be engaged at each technical milestone such that RTC can collaborate educate, listen, and gather data to aid in development of the project, minimize surprises and drive decisions.

The four suggested tiers include:

- **Tier 1 Executive Team (Key Decision Makers):** RTC, Caltrans, Union Pacific Railroad, Transportation Agency for Monterey County
- **Tier 2 Project Development Team (Technical Advisors/Jurisdictions):** RTC, Rail Contractors, County of Santa Cruz, City of Santa Cruz, City of Capitola, City of Watsonville, Tribal Governments, Association of Monterey Bay Area Governments, Santa Cruz Metro
- Tier 3 Community Stakeholders (Information Liaisons): Elected Officials, Business and Residential Associations, Advocacy Groups, Community Leaders, Disadvantaged Communities
- Tier 4 General Public

Guided by RTC leadership, this team will develop a strategic Communications and Public Involvement Program (PIP) aimed to effectively engage and work with this region to ultimately build awareness, appreciation and support for this vital project.

Risk Assessment & Public Involvement Plan (PIP):

Because we know that an effective communications and engagement program starts with understanding our target audiences, an important first step at the project's onset will be to complete a social and political risk analysis on current and historical social, political and regulatory risks in the study area and past major development projects (positive or negative) as well as identification of key influencers/decision makers, and addressing potential unique socioeconomic issues. This analysis allows us to gauge existing audience awareness and sentiment as well as any social and/or political drivers that may stand to impact the project. Findings from this assessment will be used to develop a tailored and comprehensive Strategic Communications Plan. Our assessment will also identify elected allies on the city council and county board of supervisors. Early engagement with elected officials will help strengthen relationships, support and build coalitions within their existing constituencies.

Based on the results of the assessment, HDR will build in collaboration with RTC, a targeted Public Involvement Plan (PIP) that highlights internal interagency communication as well as external communication. This roadmap will include who will be engaged, how they will be engaged, key messages, desired outcomes, strategies by audience, tools and materials, tactical action steps, schedules, and success measurement methodology. The PIP will incorporate targeted activities towards environmental justice populations and work with key community and civic organizations to reach those audiences.

Deliverable:

• Risk Analysis & Public Involvement Plan (PIP)

Contact Database / Comments Tracking:

The HDR/AIM Team have direct experience working within the project area and relationships with many of the key groups and leaders that will be critical in engaging during planning of the Santa Cruz Branch Rail Line. We have already begun identifying contacts and will maintain a database that contains the diverse group of stakeholders, organizations and property owners who may be interested, impacted and influential.

Deliverable:

• Contact Database and Comment Tracking (Monthly)

Project-Specific Website Content:

Development of project-specific website content to be posted on the RTC website that serves as the main source of information and provide a means of distributing key project information, such as progress reports, meeting notices, schedule updates, etc.

Deliverable:

• Project Specific Website Content (Monthly Updates)

Stakeholder Coordination and Engagement:

Proactive outreach to targeted and diverse stakeholders and partner agencies will be conducted through a variety of activities to inform, share information and build ambassadors.

- RTC Commission or Committee Outreach Conduct presentations about the project at regularly scheduled Commission or Committee meetings including the RTC's Interagency Technical Advisory Committee, Elderly and Disabled Transportation Advisory Committee and Bicycle Committee.
- Stakeholder Meetings/Briefings: Facilitating community stakeholder meetings, including two
  with representatives from disadvantaged communities. Other meetings could be held with key
  stakeholders including partner agencies, non-profit organizations, environmental and social
  justice groups (i.e. Land Trust of Santa Cruz County, Friends of the Rail and Trail, Ecology Action
  and Bike Santa Cruz County).
- Key Leader Outreach Ensures elected officials as well as other key partner agencies or community stakeholder influencers are in the loop, updated and prepared in early project stages for potential public inquiries. Aims to educate about the project and communications plan, garner input, understand concerns and continue sharing information throughout the project.
- Speakers Bureau Coordination Taking the show on the road allows us to bring the project directly to community organizations, present information and seek input; groups that welcome speakers on community topics include municipalities, chambers of commerce, civic organizations, residential associations, senior centers, churches, educational facilities, and advocacy groups. Participating in various special community events (i.e. flea markets, farmers markets, downtown or other local festivals, churches, sponsored events, etc.) within the project area helps engage hard to reach audiences, show community support and distribute multi-lingual information.

#### Deliverables:

- Up to 6 RTC Commission Briefings
- UP to 6 RTC Committee Briefings
- Up to 12 Stakeholder/Community Working Groups/Focus Groups Briefings
- Up to 8 Policy/Elected Official Briefings
- Up to 12 Regulatory Agencies/Jurisdictional Partners Briefings
- Up to 16 Speakers Bureau (Municipalities, Civic/Community Orgs, Residential and Advocacy Assoc.) Briefings/Presentations

#### Community Public Workshops:

Hosting in-person and virtual community workshops to educate and provide information to residents and the general public of the project, address questions and concerns, and share results at key project milestones. Community workshops will be promoted through multiple channels including newspaper advertisements, social media and electronically. All meetings, in-person or virtual will offering Spanish interpretation and held during reasonable hours to maximize participation.

The following outlines a proposed schedule and high-level topics for consideration. The goal is to keep the public informed via a variety of methods so there is constant communications and engagement.

These topics and timing will be adjusted to reflect the advancement of technical work and project milestones that are subject to change.

Milestone 1: Spring 2023 – Education and Information Gathering

- Seek input on project description, purpose and need, service-based assumptions
- Two In Person Community Workshops (Santa Cruz/Watsonville)
- One Virtual Offering

Milestone 2: Fall 2023 - Confirm What We Heard and Initial Draft Alignment

- Seek input on initial draft alignment
- Two In Person Community Workshops (Santa Cruz/Watsonville)
- One Virtual Offering

Milestone 3: Early 2024 – Confirm What We Heard and Refined Alignment and Stations

- Seek input on refined alignment and stations
- Two In Person Community Workshops (Santa Cruz/Watsonville)
- One Virtual Offering

Milestone 4: Spring 2024 – Confirm What We Heard and Draft Concept Report

- Seek input on draft concept report
- Two In Person Community Workshops (Santa Cruz/Watsonville)
- One Virtual Offering

Deliverable:

- Up to 8 in-person Community Meetings
- Up to 4 Virtual Online Meetings
- Up to 4 Public Input Surveys

Information Toolkit and Project Materials:

Creation of various materials in print and digital formats to clearly communicate the project and its benefits to the community; includes a fact sheet with infographics, an FAQ Document, display boards and PowerPoint presentations; translated in other languages, as appropriate to ensure materials are culturally sensitive and appropriate for our target population in the project area.

#### Deliverables:

- Up to 6 Fact Sheets
- Up to 4 Rounds of Talking Points & FAQs
- Up to 4 PPTs for Briefings and Community Workshops
- Up to 12 Display Boards

- Up to 8 Promotional Assets
- Up to 4 Videos
- Up to 4 Animations

Working Assumptions:

- Task 1 Timeline January 2023-June 2024
- Four public engagement touchpoints
  - Main Topic(s): Educational, Information Sharing, Timeline Setting
  - Main Topic(s): Confirming What We Heard, Additional Project Elements, Sharing Next Steps
  - Main Topic(s): Draft Concept Report, Proposed Alignments
  - Main Topic(s): Final Concept Report, Refined Alignments

Summary of Task 1 Proposed Scope and Deliverables:

Task / Activity	Purpose	Quantity
Risk Assessment and Public Involvement Plan	Serve as road map for program and identifies audiences, messaging, tools, tactics, and schedule	1
Contact Database / Comments Tracking	Web-based tool for managing data and engagement, tracks public input and comments.	Monthly
Website Content Creation	Collaborate with RTC to develop project specific website content and update monthly or as needed.	Monthly
Stakeholder Engagement	Briefings and engagement in advance of milestones with the following:	Up to
	RTC Board	6-8
	RTC Committee(s)	6
	<ul> <li>Stakeholder/Community Work Groups/Focus Groups</li> <li>Regulatory Agencies/Jurisdictional Partners</li> </ul>	10-12
	Policy/Elected Official Briefings/Tribes	6-8
	Community Advisory Committees	6-8
	Community Working Groups/Focus Groups	6-8
	• Speakers Bureau/Road Show (Municipalities,	16
	Civic/Community Orgs, Residential and Advocacy Assoc.)	
Informational Toolkit	Clear and concise messaging told in a visual way with use of project specific brand, infographics, and illustrations;	
	<ul> <li>Overview, Explain Two Technologies – Light Rail Vs Commuter Rail, Project Timeline, etc.</li> <li>Talking Points and EAO</li> </ul>	6
	PPT for Briefings and Community Workshops	4
	Display Boards	4
	<ul> <li>Promotional Assets such as newspaper ads. invites.</li> </ul>	12
	flyers and social media	8

	Videos	4
	Animations	4
Public Workshops	Spring 2023 – Education and Information Gathering	
	<ul> <li>Two In Person Community Workshops (Santa Cruz/Watsonville)</li> </ul>	2
	One Virtual Offering	1
	Fall 2023 – Confirming What We Heard and Initial AlignmentsSharing Next Steps	
	Two In Person Community Workshops (Santa Cruz/Watsonville)	2
	One Virtual Offering	1
	Early 2024 – Confirm What We Heard, Refined Alignments and StationsDraft Concept Report and Proposed Alignments	
	Two In Person Community Workshops (Santa Cruz/Watsonville)	2
	One Virtual Offering	1
	<ul> <li>Spring 2024 – Final Concept Report and Alignments</li> <li>Two In Person Community Workshops (Santa</li> </ul>	2
	One Virtual Offering	1
ODC Considerations	<ul> <li>Paid Advertising to Promote Milestone Workshops</li> <li>Translation and Interpretation Services – RTC has a local vendor to use</li> <li>Printing Costs for Handouts</li> <li>Meeting costs (venue, A/V, etc) but RTC should be able to book some of the meeting venues</li> </ul>	

## Task 1.8 – Preliminary Geotechnical Report

During the conceptual engineering phase, the HDR Team will prepare Preliminary Geotechnical Report (PGR) for the alignment. This scope of the work is to review readily available materials and prepare a Preliminary Geotechnical Report in support of the preliminary design of the project. No field exploration work is proposed for this phase; however, site review and data research are proposed. The review will be based on readily available data including as-built Logs of Test Borings from the existing projects and other Agency records.

The potential geotechnical/geologic impacts and mitigations will be discussed on a broad basis including slope stability, geology, seismic impacts, erosion, groundwater conditions, etc. for the proposed project. Generally, the geotechnical issues relevant to the proposed project will be presented in a qualitative manner with no specific design recommendations. Design assumptions will be made in consultation with the team regarding the type of retaining wall, type of foundations, and approximate slope angles etc.

#### Key Understandings

• Underground geotechnical exploration and / or utility potholing will not be performed for the preliminary geotechnical report. There are no structural designs available currently. The Environmental document will need input for the Geology, Soils and Seismicity elements along the project alignment. This information will be provided in sections that can be included in the Environmental Document. A separate report is generally not prepared.

#### Deliverables

• Draft and final preliminary geotechnical report following Caltrans guidelines as applicable and appropriate.

## Task 1.9 – Conceptual Rail Corridor Safety Assessment

HDR will conduct a conceptual rail corridor safety assessment of the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road). The assessment will evaluate operational safety and regulatory requirements of a rail transit service and trail within the SCBRL right-of-way and at points of intersection with the multimodal transportation network. The assessment for one one (1) rail transit build alternative will include analysis and conceptual recommendations for highway-rail and pathway-rail grade crossing locations, rail transit system operation and wayside control requirements (e.g., Centralized Traffic Control, Positive Train Control, etc.), grade crossing active warning device and Quiet Zone options, and separation measures/infrastructure between conceptual rail transit and trail alignments. The activity will leverage the conceptual rail corridor infrastructure evaluation in Task 1. Right-of-way outside of the existing SCBRL right-of-way that may be needed to accommodate the safety improvements, systems, or requirements will be identified.

Key Understandings

- Eight (8) site visits to the SCBRL corridor will be conducted by three (3) HDR staff to develop the conceptual assessment during this task. Activities will be conducted from public property to the maximum extent possible and HDR will coordinate with SCCRTC to gain access to select locations within the SCBRL corridor right-of-way, as required.
- SCCRTC will provide HDR with available previous grade crossing signal and right-of-way inspection reports.
- Assessment will consider current federal and state requirements and regulations and the recent experience of peer transit agencies regarding rail and trail safety and systems. SCCRTC and HDR coordination may be needed with the FRA, FTA, Caltrans, California Public Utilities Commission (CPUC), and peer transit agencies to collect inputs to support the assessment. Up to four (4) virtual meetings may occur.

Deliverable

• Draft Conceptual Rail Corridor Safety Assessment Technical Memorandum for review by SCCRTC and stakeholders. Final version will be incorporated into Draft Project Concept Report in Task 1.15.

Optional Services (not currently in budget):

• Development of potential future risk factors and hazard indices for highway-rail and pathwayrail grade crossings in the corridor and identifies and prioritizes grade crossing closure, separation, and consolidation projects and trespassing mitigation projects. Development of materials to support an FRA Quiet Zone study.

### Task 1.10 - Conceptual Rail Transit and Coastal Rail Trail Alignment

#### **Conceptual Rail Transit Alignment**

HDR will develop a conceptual alignment within the existing SCBRL corridor right-of-way for a rail transit line and adjacent Coastal Rail Trail between Pajaro and Santa Cruz (Shaffer Road) in CAD for one (1) rail transit build alternative. The alignment will support, and be informed by, the conceptual analysis of rail vehicle technology and performance requirements, rail transit operations modeling, identification of rail transit station and layover and maintenance facility locations and conceptual Coastal Rail Trail alignment.

The conceptual rail transit alignment will include a horizontal and vertical alignment for one main track and proposed passing siding tracks to accommodate shared use passenger and freight rail operations; and to adhere to applicable federal and state regulations and guidance related to railroad safety and operating practice. Major assumptions developed for the alignment, including such items as estimated maximum speeds for passenger and freight rail operations, maximum curvature, maximum and ruling grades, maximum unbalance, and turnout sizes and diverging speeds will be documented. The number and location of potential passing siding and stub-ended terminal station tracks will be determined through the operations modeling and an assessment of the horizontal and vertical profile of the alignment, right-of-way width, proximity to highway-rail grade crossings and potential stations, proximity to bridges and structures, known environmentally sensitive areas, and other considerations.

SCCRTC and HDR will coordinate with Union Pacific Railroad (UP) and St. Paul & Pacific Railroad (SPPR), which provides the SCBRL a connection with the national freight network at Pajaro and the Santa Cruz, Big Trees and Pacific Railway (SCBG) which provides freight rail service on SCBRL at Pajaro and Watsonville and operates the Roaring Camp Beach Train on SCBRL at Santa Cruz to identify needs, issues, challenges, and opportunities for the development of the rail and trail alignments at the locations where they interface with SCBRL.

This task will also include conceptual evaluation of potential modifications to the conceptual rail alignment which would allow an increase in design speed and coastal resiliency at the following locations where the new rail transit facility and trail interface at constrained areas on the SCBRL corridor, including:

• SCBRL interface with the UP Coast Subdivision at Pajaro (Watsonville Junction).

- SPPR freight rail operations within the City of Watsonville including on Walker Street where the SCBRL is located within the roadway footprint.
- Along the Watsonville, Harkins, and Gallighan sloughs and coastal bluffs along the SCBRL where adjustment in horizontal and vertical alignment may be needed to accommodate maintenance requirements, anticipated sea level rise, and climate resiliency.
- The existing Santa Cruz, Big Trees & Pacific Railway (Roaring Camp) Beach Train operating over the SCBRL from the Santa Cruz Wye to the Boardwalk along Beach Street in the City of Santa Cruz.

This task is informed by the environmental screening completed in Task 1.6. An alternatives analysis scoped in coordination with the CCC will be completed for locations subject to coastal erosion and flooding as identified in the Coastal Resiliency and Hazards Technical study in Task 1.5 to inform the Conceptual Rail Transit Alignment. At this time, it is assumed that up to one alternative footprint will be prepared for the bluff areas between MP 8.65 to MP 8.80 San (Manresa/La Selva Beach area), between MP 14.85 (New Brighton Underpass) to MP 15.2 (Grove Lane crossing), and between MP 16.0 (Wharf Road) to MP 16.4 (47<sup>th</sup> Avenue).

#### Conceptual Coastal Rail Trail Alignment

HDR understands that a trail is a component of the project between West Santa Crus and Pajaro. HDR will work with SCCRTC to develop engineering criteria to guide the incorporation of both rail and trail throughout the corridor.

We understand that trail designs have been finalized between West Santa Cruz and Pacific Avenue. Between Pacific Avenue and 17<sup>th</sup> Avenue design is at the 30% level, and between 17<sup>th</sup> Avenue and Aptos it is in the planning stage. A brief review of these plans and concepts suggests that, in some areas, there may be geometric or constructability issues with the proposed location of the trail. The trail alignment will be developed in conjunction with the rail alignment (described above), including new cross sections for both facilities.

Early and consistent coordination between HDR, SCCRTC, and other stakeholders engaged in the planning, design, construction, and maintenance of the Coastal Rail Trail within and adjacent to the SCBRL corridor will be conducted. This coordination will be used to better understand the proposed trail alignment and to conceptually identify whether alignment adjustments to the rail transit line or existing or planned segments of the trail may be needed to accommodate both modes within the SCBRL right-of-way. Based on HDR's rail and trail design effort, at locations on the SCBRL corridor for which the existing right-of-way is of insufficient width to accommodate the rail line and trail will be noted. In these locations, SCCRTC will need to identify whether additional right-of-way would be acquired, or whether trail/rail standards would be compromised, or where existing trail segments could be reconstructed, in order to accommodate both modes in the existing right-of-way.

Key Understandings

- Conceptual rail and trail alignments will be subject to revision as the Electric Passenger Rail Transit and Trail Project and the Coastal Rail Trail Project advance through iterations of planning, coordination, and design.
- SCCRTC will provide available right-of-way, railroad valuation, and other mapping and survey data that defines the boundaries and characteristics of the SCBRL corridor.
- SCCRTC and other public agencies will provide drawings and CAD files, including digital terrain models of the proposed trail (e.g., the City or Santa Cruz's proposed trail segments), for all segments of the Coastal Rail Trail for which the design or environmental documentation process is underway or complete and confirm trail planning and design standards and schedule for trail development within or adjacent to the SCBRL corridor by segment. The existing digital terrain models will be necessary in order to assess the alignment, profile, and extents of the proposed trail and proposed avoidance, or, if necessary, relocation approaches for the rail line.
- Design effort assumes that digital terrain models of existing ground and matching, geolocated aerial imagery will be made available by Santa Cruz County or SCCRTC. Alternately, an existing 1' contour file of the corridor that was previously provided to HDR may be used for design, though the provenance of this file is unknown.
- Where vegetation obscures the corridor in the aerial imagery, HDR will interpolate based on other data or judgment. However, no topographic survey is included.
- HDR will coordinate with SCCRTC on the identification of general design criteria to guide development of the preliminary rail transit and trail alignments.
- Up to two (2) virtual meetings with Union Pacific Railroad or St. Paul and Pacific Railroad and up to two (2) virtual meetings with Santa Cruz, Big Trees & Pacific Railway (Roaring Camp) during this task are assumed.

Up to two (2) virtual meetings with City of Santa Cruz, City of Watsonville and County of Santa Cruz to review trail segments that are completed or under development.

- Three (3) additional site visits to the SCBRL corridor will be conducted by HDR staff to develop the conceptual rail and trail alignment during this task. Activities will be conducted from public property to the maximum extent possible and HDR will coordinate with SCCRTC to gain access to select locations within the SCBRL corridor right-of-way, as required.
- No utility investigations or environmental assessments will occur for this task.
- Develop one (1) design concepts for rail trail interface, focusing on cross sections, rail crossings and connections for segments 13-20.
- Develop one (1) design concept for rail trail interface for Segments 7-12 that are informed by completed or previously designed trail segments.
- Develop trail design recommendations for advancement to Environmental phase, including potential trail phasing recommendations

#### Deliverables

- Draft Conceptual Rail Transit and Trail Alignment for one build alternative and including cross sections; rail crossing concepts for Segments 13-20 will be provided for review by SCCRTC and stakeholders. Final work will be included in Draft Project Concept Report.
- Draft Conceptual Rail Transit and Trail Alignment for one build alternative and including cross sections; rail crossing concepts for Segments 7-12 will be provided for review by SCCRTC and stakeholders.

- Plan and profile deliverables will be of a sheet size and scale that will allow approximately ½ mile of corridor to be displayed on each sheet; roll plots may be provided (for example, similar to the approach that the City of Santa Cruz appears to have used for some of their trail studies posted on their website).
- Cross sections will be developed for the entire corridor. These are intended for HDR's use in developing designs and quantities. Cross sections will be available for review by SCCRTC staff. For documents shared with the public, only typical sections, generally representative of longer stretches of the corridor, will be prepared. Typical sections will be included on the plan sheets or on separate sheets.
- All deliverables are assumed to be electronic format.

## Task 1.11 – Conceptual Rail Transit Station and Layover and Maintenance Facility Locations

HDR will conceptually identify potential rail transit station and layover and maintenance facility locations on the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road). The task will be developed through a site visit, assessment of past SCBRL corridor studies, coordination with SCCRTC and project stakeholders, analysis of Google Earth Pro imagery, usage and zoning of adjacent properties, and in consideration of the analysis of conceptual rail transit vehicle technology and performance requirements, preliminary conceptual rail transit and trail alignment development, conceptual rail transit ridership forecast, and conceptual rail transit operations modeling in Task 1.

In the previous TCAA, between 11 and 15 rail transit stations were conceptually identified between Pajaro and Santa Cruz (Shaffer Road) by SCCRTC, depending upon whether the LRT or CRT alternative was selected. In this task, potential locations for up to fifteen (15) rail transit stations on the SCBRL between Pajaro and Santa Cruz (Shaffer Road) will be identified for a single rail transit alternative. SCCRTC and project stakeholders will be consulted for inputs regarding station locations. First and last mile connections and roadway access to and from stations and the potential need for additional rightof-way outside of the existing SCBRL to accommodate station footprints will be assessed.

Station areas may be sized based on ridership potential and local site conditions and will include a station building (which may be located on the station platform), single-face Americans with Disabilities Act (ADA)-compliant level-boarding concrete platform at intermediate stations and ADA-compliant center platforms at the terminal stations, canopy covering a portion of the platform, access ramp and stairs, lighting, signage, security, and fare collection infrastructure, such as ticket vending machines. Preliminary conceptual Station Typical Site Plan and Cross Section concepts will be developed in CAD format for two (2) "typical" station sizes. The potential for a parking lot to be included within the SCBRL right-of-way and/or on adjacent right-of-way will be considered and a footprint estimated. In addition, any impacts to the adjacent Coastal Rail Trail posed by these facilities will be assessed and potential mitigation measures identified.

In the previous TCAA, potential locations for a layover and maintenance facility were conceptually identified by SCCRTC in an industrial area in Watsonville and near Natural Bridges Road and Shaffer Road in Santa Cruz. In this task, potential locations for one (1) layover and maintenance facility for the commuter rail transit build alternative and one (1) layover and maintenance facility for the light rail build alternative on the SCBRL between Pajaro and Santa Cruz (Shaffer Road) where rail transit vehicles

will be stored during periods of non-operation and routine maintenance occurs will be identified. SCCRTC and project stakeholders will be consulted for inputs regarding potential facility location. One (1) preliminary Layover and Maintenance Facility Typical Site Plan will be developed for each concept in CAD format. Right-of-way needs to accommodate the facility outside of the existing SCBRL right-of-way will be identified.

Key Understandings

- Up to two (2) site visits to the SCBRL corridor will be conducted by up to three (3) HDR staff to develop the conceptual rail transit station and layover and maintenance facility locations. Activities will be conducted from public property to the maximum extent possible and HDR will coordinate with SCCRTC to gain access to select locations within the SCBRL corridor right-of-way, as required.
- SCCRTC and HDR will coordinate with UP and TAMC regarding needs, issues, challenges, and opportunities for development of a terminal / transfer station at Pajaro.
- Conceptual design for potential station and layover and maintenance facility concepts will be developed in a future project phase, after rail transit service and vehicle type are confirmed.
- Identify high Level Station Access and Circulation Needs: Identify station circulation and access needs, including first-mile/last-mile connections, bike and car parking, surface transit connections and pick up/drop off needs, to include:
  - o Review potential station access and circulation concept designs
  - Review space needs within the station areas and on platforms based on expected passenger volumes and flows based on station level ridership forecasts
  - Evaluate expected demand for park-and-ride, pick-up and drop-off curb space and future vehicle access accommodations, including autonomous vehicles
  - o Identify potential feeder bus and/or shuttle space needs
  - Coordinate with local jurisdictions to understand multimodal station access needs and implications on the broader station area transportation network, including pedestrian and bicycle access routes and accommodations for micromobility (e.g. e-scooters) and bike parking (including e-bikes and cargo bikes).

Deliverable

• Draft Conceptual Rail Transit Station and Maintenance Facility Locations Technical Memorandum for review by SCCRTC . Final version will be incorporated into Draft Project Concept Report

## Task 1.12 – Conceptual Passenger and Freight Rail Interface Assessment

Freight rail service is currently provided on approximately 3 miles of the SCBRL from the Union Pacific Railroad (UP) interchange at Pajaro (Watsonville Junction) to Watsonville by the Santa Cruz, Big Trees and Pacific Railway (SCBG) and there is potential demand for freight service on the rest of the SCBRL to Santa Cruz and Davenport in the future. SCBG also operates the Roaring Camp passenger Beach Train on approximately 1 mile of the SCBRL in Santa Cruz. The balance of the SCBRL – approximately 28 miles – is currently out of service for rail operations while repair and other corridor projects are advanced.

SCCRTC currently plans for the common carrier obligation and freight rail service to be retained on the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road), coincident with the development of a rail transit service and a trail within and/or adjacent to the SCBRL facility. SCBG expressed an interest in continuing to operate the Beach Train over the SCBRL between the Santa Cruz Wye and Boardwalk, during TCAA development.

HDR will develop a conceptual assessment in this task that contemplates the operational capabilities, constraints, and interface between and comingling of passenger rail transit, passenger trains, and freight railroads on the shared-use SCBRL rail corridor for one (1) rail transit alternative.

The assessment will consider the operation of FRA compliant and FRA non-compliant light rail transit and commuter rail transit vehicles on a shared-use corridor, potential wayside signal and control systems that may be required (e.g., Centralized Traffic Control, Positive Train Control, etc.), and potential strategies to best accommodate mixed passenger and freight railroad operations (e.g., temporal separation of passenger and freight operations, gauntlet tracks, or retractable level boarding compliant bridge plates platform edges) to accommodate freight rail operations around passenger rail stations and level-boarding platforms, full separation via designated tracks for passenger and freight operations, etc.). The assessment will also consider federal and state regulations, guidance, and best practices for interface, setback, and separation between a shared-use rail line and trail within the SCBRL corridor right-of-way. The assessment will also identify and conceptually evaluate up to three (3) examples of other transit operations that share right-of-way and tracks with freight rail operations.

SCCRTC and HDR will coordinate with UP, SCBG/Roaring Camp, and TAMC to better understand current and anticipated future passenger and freight rail operations on SCBRL and at points of intersection with the SCBRL. SCCRTC and HDR will coordinate with FRA, FTA, and CPUC, as needed, to confirm current and anticipated federal and state regulations, requirements, guidance, and best practices that apply to shared-use passenger and freight rail corridors and facilities and potential implementation on the SCBRL corridor.

#### Key Understandings

- One (1) virtual meeting each with UP, SCBG/Roaring Camp, and TAMC during this task is assumed.
- One (1) virtual meeting each with FRA, FTA, and CPUC during this task is assumed.

#### Deliverable

• Draft Conceptual Passenger and Freight Rail Interface Assessment Technical Memorandum with recommendations and examples of best practices for implementation for review by SCCRTC and stakeholders. Final version will be incorporated into Draft Project Concept Report

## Task 1.13 – Conceptual Rail Transit Operations Modeling

SCCRTC anticipates development of a rail transit service operating in both directions over a single main track on approximately 22 miles of the SCBRL between Pajaro (where a connection would be made with

the San Francisco-Gilroy-Salinas passenger rail service proposed by TAMC and potentially with the existing Amtrak Coast Starlight service) and Santa Cruz (Shaffer Road) with sidings spaced across the network to accommodate meet-pass events between trains. Outputs from the operations modeling will be used to test the desired rail transit vehicle types over the profile of the network, identify and validate the optimal locations for sidings and stub-ended terminal station tracks to accommodate flexibility for scheduled and out-of-slot meet-pass events and wayside electric (or hydrogen as identified in the TCAA Business Plan) vehicle recharging infrastructure, and to develop outputs necessary to create a preliminary conceptual service schedule for one (1) rail transit alternative..

HDR will develop tentative train consists and headways based on the results of ridership forecasts and the performance characteristics of the vehicle types chosen, and then perform operations modeling using these parameters. Similarly, initial estimates of station and terminal dwell times will be developed. These figures will be modified based on the recharging requirements at some intermediate stations based on the output of the operation modeling.

Operations modeling of electric rail transit vehicles will be developed using OpenTrack OpenPowerNet (OT OPN) modeling software. OT OPN is an internationally tested and proven software and will simulate performance of electric and battery powered rail transit vehicles on the conceptual rail transit alignment taking into account different operational and performance characteristics of the vehicles resulting in variations in traction power draw (while accelerating, coasting, and braking, with or without use of regenerative braking, or stopping at stations), observing operating speed restrictions and impacts of vertical and horizontal curves of track alignment, and state of charge/discharge of the on-board batteries (including initial charge at the starting station, discharge while trains are running, and charging at specific recharging stations). Modeling with this software will facilitate arriving at optimal locations and configurations of sidings required at different train stations for facilitating peak period train operations. Modeling with this software will also help in identifying potential locations of wayside charging stations and their configurations (power requirements and charging arrangements). HDR will also support SCCRTC in initiating discussions with the Santa Cruz Municipal Utilities (the local power utility company) for providing reliable power supply at these recharging stations. HDR will also provide assessment of recharging power requirements in the layover and maintenance facility. The output of the operational model in conjunction with other data will provide an assessment of the annual energy consumption figures.

#### **Key Understandings**

- HDR will confirm modeling approach through coordination with SCCRTC.
- HDR will develop operations modeling for up one (1) rail transit alternative.
- HDR will conduct coordination with rail transit vehicle manufacturers to obtain information about rail transit vehicle characteristics, operational specifications, and operation on a shared-use passenger and freight rail corridor to support the model.
- Analysis assumes SCBRL corridor between Pajaro and Santa Cruz will be shared use with
  passenger and freight operations. Freight rail operations are assumed to be temporally
  separated from passenger rail operations and will not be modeled. Some level of separation
  with Santa Cruz, Big Trees & Pacific Railway (Roaring Camp) passenger trains currently operating
  on SCBRL between Santa Cruz Wye and Santa Cruz Boardwalk is assumed and may not be
  modeled.

#### Deliverable

• Draft Conceptual Rail Transit Operations Modeling will be included in the Rail Transit Operations and Equipment Technical Memorandum (capturing all work in Tasks 1.10 and 1.11) for review by SCCRTC. Final version will be incorporated into Draft Project Concept Report

#### **Optional Services**

• Development of conceptual rail transit operations modeling for additional service scenarios and alternatives.

## Task 1.14 – Conceptual Rail Transit Operations and Equipment Plan

HDR will develop a conceptual rail transit operations and equipment plan for the proposed rail transit service between Pajaro and Santa Cruz (Shaffer Road) for one (1) rail transit alternative, based upon past study for passenger rail implementation on the SCBRL corridor and the analysis of potential rail transit vehicle types, forecasted ridership and revenue, confirmed conceptual rail transit alignment and station locations, and outcomes of conceptual rail transit operations modeling during Task 1.

The conceptual operations plan will describe the general operating characteristics of the equipment used on the corridor, service frequencies and capacities during peak and off-peak and weekend and holiday periods, infrastructure requirements, station and platform interface requirements, preliminary conceptual service scheduled vehicle requirements, number of in-service and spare trainsets in the fleet required to support the preliminary service schedule and anticipated routine maintenance cycles over the lifecycle of the trainsets, and needs and connectivity, integration, and interaction with existing and planned and programmed future bus, rail, and other transit services in Santa Cruz and Monterey counties.

#### Key Understandings

• HDR will utilize the output of the operations model in coordination with the other relevant SCBRL corridor data developed in the previous task to develop a Conceptual Rail Transit Operations and Equipment Plan.

#### Deliverable

• Draft Conceptual Rail Transit Operations and Equipment Plan will be included in the Rail Transit Operations and Equipment Technical Memorandum for review by SCCRTC . Final version will be incorporated into Draft Project Concept Report

#### **Optional Services**

• Development of conceptual rail transit operations modeling for additional service scenarios and alternatives.

## Task 1.15 – Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates

HDR will develop a preliminary opinion of probable conceptual capital and operations and maintenance costs for the construction and implementation of passenger rail transit service for one (1) rail transit build alternative on the SCBRL corridor between Pajaro and Santa Cruz (Shaffer Road). The preliminary conceptual costs will be based on previous planning level cost estimates developed by SCCRTC for passenger rail implementation on the SCBRL, the corridor assessment undertaken in Task 1, and a general range of comparable costs and industry experience on other recently implemented railroad projects in the U.S. Preliminary probable conceptual costs will be developed for the following:

#### 1. Conceptual Capital Costs

- Rehabilitation or replacement of rail corridor infrastructure, as follows:
- Track Adjustments in the SCBRL horizontal and vertical alignment might be necessary at Watsonville, Harkins, and Gallighan sloughs and along the coastal bluffs to accommodate anticipated increases in operating speed, maintenance needs, sea level rise and climate resiliency.
  - Bridges and structures
  - Miscellaneous drainage improvements (e.g., ditch grading, additional culverts, etc.)
  - Highway-rail grade crossing signals and roadway surfaces
- Construction of new rail and trail infrastructure, as follows:
  - Track and, where applicable, sections of adjacent trail
  - Structures
  - Stations
  - Layover and maintenance facility
  - Wayside signal or control system
  - Highway-rail grade crossing signals and roadway surfaces
  - Wayside electric rail vehicle recharging stations, if applicable
  - Corridor fencing
- Conceptual station cost estimates for each of the two (2) sizes, as follows:
  - Station facilities
  - ADA-compliant level-boarding platform with a canopy
  - Lighting, signage, and ticket vending machines
  - Parking lot
  - Measures required to accommodate freight rail cars (e.g., gauntlet tracks, platform bridge plates, etc.)
- Right-of-Way acquisition outside of the existing SCBRL corridor
- Passenger rail equipment, including:
  - Procurement of new or rehabilitated passenger rail transit trainsets
- Trail components
  - o Earthwork
  - Construction of the trail
  - Trail surfaces
  - Fences and other setback barriers between trail and rail alignments

#### 2. Conceptual Operations and Maintenance Costs

• Probable operations and maintenance costs for the first year of rail transit service implementation will be developed from estimated costs for labor, fuel, materials, insurance, overhead, management, and marketing, and other publicly available historical data and information available from peer transit agencies and passenger rail vehicle manufacturers.

#### Key Understandings

- More refined conceptual level cost estimates will be developed in a subsequent phase and after the characteristics of the rail alignment are confirmed during engineering design undertaken in a future project task.
- Conceptual costs for construction and maintenance will be developed on a unit price basis. Items for which limited detail is available will be developed on a lump sum basis.

#### Deliverable

• Draft Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates Technical Memorandum for review by SCCRTC and stakeholders. Final version will be incorporated into Draft Project Concept Report

### Task 1.16 - Conceptual Initial Risk Analysis and Risk Register

HDR will develop a conceptual initial risk analysis and risk register for one (1) rail transit alternative. For each project risk, the register will identify risk type (e.g., planning, design, environmental, funding, institutional, etc.), project impact descriptions, likelihood of risk occurring (e.g., low/medium/high), impact of risk occurring (e.g., low/medium/high), potential risk mitigation strategies, and potential mitigation actions and recommended timeframe for actions.

#### Key Understandings

• HDR will develop and maintain a Level 3 risk register. The Level 3 risk register includes estimated probabilities of events occurring with schedule and cost impacts. A level 3 risk register is typically used for more complex projects.

#### Deliverable

- Conceptual Initial Risk Analysis and Risk Register included in Draft Project Concept Report
- Draft Conceptual Initial Risk Analysis and Risk Register will be included in the Project Next Steps Technical Memorandum for review by SCCRTC and stakeholders. Final version will be incorporated into Draft Project Concept Report

### Task 1.17 – Potential Project Next Steps

HDR will leverage the TCAA Business Plan, work done in Task 1, and additional analysis to develop potential next steps for stakeholders and decision-makers to consider regarding advancement of the SCCRTC Electric Passenger Rail Transit and Trail Project in a strategic and efficient manner. Subject to confirmation from SCCRTC, the topics that HDR will potentially broach include:

- Next steps for design, permitting, and construction of the project.
- Refined governance strategies and potential models for oversight of the rail transit operation.
- Potential availability and applicability of current and anticipated future federal, state, and local funding program opportunities for the design, construction, operation, and maintenance of a rail transit service (e.g., FTA New Starts and Small Starts, USDOT discretionary grant programs of the 2021 Bipartisan Infrastructure Bill, state funding, local funding, etc.).
- Strategies for tailoring the project and related upfront planning and design activities to meet anticipated eligibility and merit criteria of federal and state grant and funding programs and to be more competitive among peer projects.
- Development of the project using a phased approach.
- Rail transit vehicle procurement strategies.
- Strategies for advancing the rail transit project simultaneously and synergistically with the parallel Coastal Rail Trail project and other intersecting public agency projects.
- Stakeholder and public project engagement and partnering strategies.

#### Key Understandings

• At SCCRTC's discretion, SCCRTC and HDR may coordinate virtually with up to two (2) peer transit agencies regarding experiences and best practices to develop, construct, and operate rail transit systems on shared-use corridors with a trail component. Outputs from this coordination would support development of next steps.

#### Deliverable

• Draft Project Next Steps will be included in the Project Next Steps Technical Memorandum for review by SCCRTC and stakeholders. Final version will be incorporated into Draft Project Concept Report

## Task 1.18 – Draft Project Concept Report

The work and draft results developed by HDR through coordination with SCCRTC and other project stakeholders and documented in Technical Memoranda throughout Task 1 will culminate in the Draft Project Concept Report in this task. HDR will develop a draft outline and submit to SCCRTC to confirm organization of the Draft Project Concept Report and appendices. The draft report will be presented to SCCRTC, and other stakeholders identified by SCCRTC and the community, for review and comment.

#### Key Understandings

• Draft Report will be presented in-person in Santa Cruz at a location to be determined by SCCRTC. Up to six (6) HDR staff will participate.

#### Deliverables

- Draft Project Concept Report Outline in PDF format.
- Draft Project Concept Report in Microsoft Word and PDF formats.

## Task 1.19 – Final Project Concept Report

Comments received from SCCRTC and stakeholders on the Draft Project Concept Report will be used by HDR to finalize results and develop a Final Project Concept Report in this task. The Final Report will be presented to SCCRTC, project stakeholders, and the public.

#### Key Understandings

• Final Report will be presented in-person in Santa Cruz at a location to be determined by SCCRTC. Up to six (6) HDR staff will participate.

#### Deliverable

• Final Project Concept Report in Microsoft Word and PDF formats.

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1.7	Strategic Communications and Public Involvement Approach																					180	220	7,500	2760	208797	323385	7500	539682	53218
1.8	Preliminary Geotechnical Report	24	24																					200	114	12255	18981	200	31436	3124
1.9	Conceptual Rel Corridor Safety Assessment		16								80											2		200	722	58895	91217	200	150312	15011
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1.15	Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates	1	12		16	40		8	8	40	32	32	8	24	16	40			16	16	80	2		1,200	902	84532	130924	1200	216656	21546
1.16	Conceptual Initial Risk Analysis and Risk Register							8	24		16	16						80	16	16	24	2		2,216	522	44799	69385	2216	116401	11418
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1.18	Draft Project Concept Report				-	8	8			6	6	8	12				8	8	8			8		400	928	90838	140690	400	231928	23153
1.19	Final Project Concept Report	+				8	12			4	4	6	18				8	4	10			12		400	830	76108	117876	400	194384	19398
	TOTAL TALKS A 1 DEPARTMENT	1 160	1110	644	1674	1700	1600		100	167	286	110	262			60		104			104	176	F 16	*****	26.220	2052 665			AL 461 471	6033.039

Cost Pr	oposal and Breakdown of Costs for Base Project	MULTIPLIERS S of budget in Current Year (Cr) 0.00% Accepted Overhead Rate 106.0%												MULTIPLIERS															
Santa Ci	ruz County Regional Transportation Commission (SCCTRC)	% of budget is % of budget is	n Current Year (C n CY+1	ΥJ	80.00%	Accepted Overl Fringe Rate	head Rate	105.09%								% of budget in % of budget in	Current Year (C CY+1	0.00% 80.00%	Accepted Over Fringe Rate	head Rate		0.00%							
Projec	t Name: Santa Cruz Branch Line Electric Passenger Rail & Trail Project	% of budget is % of budget is	1 CY+2		20.00%	Negotiated Pro	fit Rate	10.00%								% of budget in % of budget in	CY+2	20.00%	Negotiated Pro Arrowal Escalation	fit Rate		10.00%							
Betwe	en Pajaro Junction and Santa Cruz, RFP2153	Annualization	Factor		1.0362											Annualization I	actor	1.0362											<u> </u>
Cost P	roposal Date: 11/17/2022	Subcor	nsultant	AIM												Subcon	sultant	Chaudł	hary & A	ssociate	es, Inc. (	Field Ov	erhead)						
					DATA ENTR	Y SECTION						CALCULATI	ON SECTION						DATA ENTR	Y SECTION						CALCULATION	N SECTION		
	Rents of Caselinite	Gladys Control	Dankener Trans	Kale DrMalo	Daw Dverport	Alysa Thuman	Name Tak	Name Tak	Direct Eigenses (\$)	Hours	feabled Direct labor or MR \$	fring a/Ov enhas d	Direct Expenses	YOTAL COST	Profit	Antin Chaudhamy, PLS Principal in Charge	Hagen Berster, P. E. Project Manager	Hudmut Kostisck, PLS Project Surve yor	s tadi Survey Technidan	S tudi Party Chief	3 sulf In Sir um en type ni con	S tulf Rodperson	Direct Expenses (\$ )	Hours	Ecolored Direct labor or MRR \$	fring a/Dv othes d	Direct Expension	TUTAL COST	Profit
	Direct Salary Rate (Average, Actual, Max) for Current Year	\$68.49	\$60.17	\$51.01	\$41.82	\$28.84	\$0.00	\$0.00								\$99.00	\$65.00	\$73.00	\$53.00	\$53.00	\$48.00	\$46.50							1 1
	Annualized Direct Salary Rate (or enter Negotiated Billing Rate)	\$70.97	\$62.35	\$52.86	\$43.33	\$29.88	\$0.00	\$0.00								\$102.58	\$67.35	\$75.64	\$54.92	\$54.92	\$49.74	\$48.18							
Task #	Fully Burdened Rilling Rate	\$160.88	\$141.34	\$119.82	598.24	\$67.75	50.00	50.00								\$287.80	\$188.96	\$212.22	\$154.07	\$154.07	\$139.54	\$135.18							
	BASE PROJECT TASKS/DELIVERABLES																										_	_	
0	PROJECT MANAGEMENT AND PROJECT MEETINGS		0	0	0	0	0	٥	0	0	0	0	0	0	0	0	0	0	٥	0	0	0	0	٥	٥	0	0		0
0.1	Monthly Reporting and Invoicing									0	0	0	0	0	0									0	0	0	0	0	0
0.2	Manage Contract Cost and Schedule									0	0	0	0	0	0									0	0	0	0	0	0
0.3	Project Management Plan & QA/QC Plan									0	0	0	0	0	0									0	0	0	0	0	0
0.4	Critical Path CPM Project Schedule									0	0	0	0	0	0									0	0	0	0	0	0
0.5	Maintaining Project Records									0	0	0	0	0	0									0	0	0	0	0	0
0.6	Project Expectation Meeting (Kickoff Meeting)									0	0	0	0	0	0									0	0	0	0	0	0
0.7	Committee-Board Meetings with SCORTC									0	0	0	0	0	0									0	0	0	0	0	0
0.8	Consultant Internal Weekly Meetings \ RTC Checkin Meetings									0	0	0	0	0	0									0	0	0	0	0	0
0.9	Project Development Team Meetings (PDT Meetings)									0	0	0	0	0	0									0	0	0	0	0	0
1	DEVELOP PROJECT CONCEPT REPORT AND PROJECT DEFINITION	145	220	246	146	85	0	0	1,500	845	45966	48765	1500	96230	9473	0	0	0	0	240	240	240	0	720	36681	56874	0	93554	9355
1.1	Bail Corridor and Project Description									0	0	0	0	0	0									0	0	0	0	0	0
1.2	Bail Transit and Trail Project Purpose and Need									0	0	0	0	0	0									0	0	0	0	0	0
1.3	Analysis of Conceptual Rail Transit Vehicle Technology and Performance Requirements									0	0	0	0	0	0									0	0	0	0	0	0
1.4	Conceptual Rail Transit Ridership and Revenue Forecast									0	0	0	0	0	0									0	0	0	0	0	0
1.5	Conceptual Rail Corridor Infrastructure Evaluation									0	0	0	0	0	0					240	240	240		720	36681	56874	0	93554	9355
1.6	Environmental Screening for SCCRTC Electric Passenger Rail Transit and Trail Project									0	0	0	0	0	0									0	0	0	0	0	0
1.7	Strategic Communications and Public Involvement Approach	145	220	246	146	88			1,500	845	45966	48765	1500	96230	9473									0	0	0	0	0	0
1.8	Preliminary Geotechnical Report									0	0	0	0	0	0									0	0	0	0	0	0
1.9	Conceptual Rail Corridor Safety Assessment									0	0	0	0	0	0									0	0	0	0	0	0
1.10	Preliminary Conceptual Rel Transit and Trail Alignment and Profile and Selected Cross Sections									0	0	0	0	0	0									0	0	0	0	0	0
1.11	Conceptual Rail Transit Station and Layover and Maintenance Facility Locations									0	0	0	0	0	0									0	0	Û	0	0	0
1.12	Conceptual Passenger and Freight Rail Interface Assessment		+							0	0	0	0	0	Ó									0	0	0	0	0	0
1.13	Conceptual Rail Transit Operations Modeling		+	+						0	0	0	0	0	0									0	0	0	0	0	0
1.14	Conceptual Rail Transit Operations and Equipment Plan		+							0	0	0	0	0	Ó									0	0	0	0	0	0
1.15	Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates		+							0	0	0	0	0	0			1			1			0	0	0	0	0	0
1.16	Conceptual Initial Risk Analysis and Risk Register		-							0	d	d	0	0	0 Q						1			0	0	0	0	0	d
1.17	Potential Project Next Solph		-							0	0	0	0	0	0						1			0	0	0	0	0	
1.10	East Project Concept Papers		1							0	0	0	0	0	0											0	0		
1.19	TOTALTASKS 0.1 DELIVERABLES	145	220	246	146	85			\$ 1.500	845	45,966	48,765	\$ 1.500	\$ 96,230	\$ 9,473					240	240	240	0	720	36681	56874	0	23554	9355

Cost Pr Santa Cr Projec	oposal and Breakdown of Costs for Base Project ar County Regional Transportation Commission (SCCTRC) t Name: Santa Cruz Branch Line Electric Passenger Rail & Trail Project	% of budget in % of budget in % of budget in % of budget in	n Current Year (C n CY+1 n CY+2 n CY+3	Y)	MULTIPLIER: 0.009 80.009 20.009 0.009	5 Office Overhead Field Overhead Negotiated Pro Annual Escalatio	d Rate Rate fit Rate on Rate	185.46% 0.00% 10.00% 3.00%		_	_					% of budget in % of budget in % of budget in % of budget in	Current Year (CY) CY+1 CY+2 CY+3	0	MUL70 0.00% 80.00% 20.00% 0.00%	PLIERS Accepted Overh Fringe Rate Negotiated Prof Annual Escalatio	ead Rate it Rate n Rate		182.82% 0.00% 10.00% 3.00%	_		_				
Betwe	en Pajaro Junction and Santa Cruz, RFP2153	Annualization	Factor	Choud	1.0362	scociato	r Inc (	Office O	vorhood	i)						Annualization	factor	Eabr &	1.0362 Doorc											
COSCI	000301 Date. 11/ 17/2022	subconsultant. Chaumary & Associates, Inc. (Unice Overnedu)											Subcon	isuitaiit.	Felli &	Feels														
			1		DATA ENT	RY SECTION						CALCULATIO	N SECTION						DATA	A ENTRY SECT	on						CALCULATION	SECTION		
	Names and Coolfactor	Arrin Chsudhary, PLS Principal In Charge	Hagen Brese e, P.E. Project Manager	Helmut Korstick, PLS Project Surveyor	staff Survey Technician	Staff Party Chief	Staff Ins & u mentpers on	Staff Rodperson	Direct Expenses (\$)	SURGH	ficabled Direct tabor or MBR \$	Fring a/Or ethered	Direct Expenses	TOT AL COST	Profit	MARE NAVYOR, Principal	Taylor Whitsker, Deputy Phil	Bytas Dau, Senior Marner/Brghoer	Michela Chung, Serier Graphics/GIS Technician	Bob Grady, Technical Expect	Onis Brelland, Technical Expect	Maxed Thomas, Sr. Project. Administrator	Name Tide	Direct Expenses (\$)	No. 14	tionined Direct labor or MRR \$	Fring e/Ov ethesed	Direct Expenses	TOT AL COST	Profit
	Direct Salary Rate (Average, Actual, Max) for Current Year	\$99.00	\$65.00	\$73.00	\$53.00	\$53.00	\$48.00	\$46.50								\$112.50	\$52.40	\$49.52	\$42.31	\$127.40	\$110.58	\$40.87	\$0.00							
	(or enter Negotiated Billing Rate)	\$102.58	\$67.35	\$75.64	\$54.92	\$54.92	\$49.74	\$48.18								\$116.57	\$54.30	\$51.31	\$43.84	\$132.01	\$114.58	\$42.35	\$0.00							
Task #	Fully Burdened Billing Rate	\$322.11	\$211.49	\$237.52	\$172.44	\$172.44	\$156.18	\$151.30								\$362.65	\$168.92	\$159.63	\$136.39	\$410.68	\$356.46	\$131.75	\$0.00							
	BASE PROJECT TASKS/DELIVERABLES																													
0	PROJECT MANAGEMENT AND PROJECT MEETINGS	0	0	0	0	۰	0	0	0	0	0	0	•	•	0	0	0	0	0	0	0	0	0	0	0	0	0	0	•	•
0.1	Monthly Reporting and Involcing									0	0	0	0	0	0										٥	0	0	0	0	0
0.2	Manage Contract Cost and Schedule									0	0	0	0	0	0										0	0	0	0	0	0
0.3	Project Management Plan & QA/QC Plan									0	0	0	0	0	0										0	0	0	0	0	0
0.4	Critical Path CPM Project Schedule									0	0	0	0	0	0										0	0	0	0	0	0
0.5	Maintaining Project Records									0	0	0	0	0	0										0	0	0	0	0	0
0.5	Project Expectation Meeting (Kickoff Meeting)									0	0	0	0	0	0										0	0	0	0	0	0
0.7	Committee-Board Meetings with SCOTIC									0	0	0	0	0	0										0	0	0	0	0	0
0.9	Constrant Internal Weekly Weekings ( KIC Checkin Meetings									0	0	0	0	0	0										0	0	0	0	0	0
										0	0	0	0	0	0										0	0	0	0	0	0
	Bail Conder and Paring Decolation	140	340		1140				433,000	0	0	0	433000	0	-		10			<u>^</u>	0	4	0	200	22	1646	2002	300	1957	465
12	Bail Transit and Trail Project Deposed and Need									0	0	0	0	0	0			U U	Ŭ,	Ŭ	0			200	0	0	0	0	0	0
1.3	Analysis of Conceptual Bail Transit Webcle Technology and Performance Requirements									0	0	0	0	0	0										0	0	0	0	0	0
1.4	Conceptual Rail Transit Ridership and Revenue Forecast									0	0	0	0	0	0	60	100	220	76	36	32	52		3,400	576	37665	68860	3400	109925	10653
1.5	Conceptual Rail Conidor Infrastructure Evaluation	140	320	600	1280				435,000	2340	151593	281145	435000	867738	43274	16	80	40	20	8	0	20		900	184	11041	20185	900	32126	3123
1.6	Environmental Screening for SCORTC Electric Passenger Rail Transit and Trail Project									0	0	0	0	0	0										0	0	0	0	0	0
1.7	Strategic Communications and Public Involvement Approach									0	0	0	0	0	0										0	0	0	0	0	0
1.8	Preliminary Geotechnical Report									0	0	0	0	0	0										0	0	0	0	0	0
1.9	Conceptual Reil Conridor Safety Assessment									0	0	0	0	0	0	48	162	132	136	8	8	38		2,300	532	30709	56142	2300	89150	8685
1.10	Preliminary Conceptual Rail Transit and Trail Alignment and Profile and Selected Cross Sections									0	0	0	0	0	0	24	40	24	8	8	0	26		1,000	130	8709	15922	1000	25630	2463
1.11	Conceptual Rail Transit Station and Layover and Maintenance Facility Locations									0	0	0	0	0	0	16	80	40	20	8	0	20		2,100	184	11041	20185	2100	33326	3123
1.12	Conceptual visioninger and renegational interface Assessments		1		1					0	0	0	0	0	0											U O	0	0		
1.13	Conceptual Rail Transit Operations Modeling Conceptual Bail Transit Operations and Environment Plan			1	1					0	0	0	0	0	0									-	0	0	0	0	0	0
1.15	Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates		1		1	1				0	0	0	0	0	0										0	0	0	0	0	0
1.16	Conceptual Initial Risk Analysis and Risk Register									0	0	0	0	0	0										0	0	0	0	0	0
1.17	Potential Project Next Steps									0	0	0	0	0	0	4	16	12	2	4	4	2	-		44	3109	5685	0	8794	879
1.18	Draft Project Concept Report			-						0	0	0	0	0	0	8	24	40	16	8	8	2	-	200	106	7047	12883	200	20130	1993
1.19	Final Project Concept Report		1							0	0	0	0	0	0	4	16	4	8	4	4	2		200	42	2962	5415	200	8577	838
	TOTAL TASKS 0.1 DELIVERABLES	140	320	600	1280			0	435.000	2,340	151.593	281.145	\$ 435,000	5 867,738	\$ 43,274	188	528	512	286	84	56	166	0	\$ 10,300	1.820	113,929	208.284	\$10,300	\$332,513	\$32,221

Cost P	roposal and Breakdown of Costs for Base Project			_	_	_	MULTIPLIERS	_	_	_	_	_	_	_	_		_	_	_		_	_	_	MULTIP	LIERS	_	_		_		_				
Santa (	ruz County Regional Transportation Commission (SCCTRC)	% of budget i	in Current Year (	CT)				0.00% Accept	ted Overhead	Rate			0.00%	_							% of budget in	Current Year (C)		0.00%	Accepted Over	head Rate		137.35%							
		% of budget i	in CY+1					20.00% Fringe I	Rate	ate	T		0.00%	_							% of budget in % of budget in	CY+1 CY+2	-	80.00%	ringe Rate	de Bata		42.87%							
Proje	ct Name: Santa Cruz Branch Line Electric Passenger Rail & Trail Project	% of budget i	in CY+3					0.00% Annual	Escalation R	ate			3.00%								% of budget in	CY+3		0.00%	Annual Escalati	on Rate		3.00%							
Betw	Between Pajaro Junction and Santa Cruz, RFP2153					_		1.0362									_		_		Annualization I	Factor		1.0362											
Cost	Cost Proposal Date: 11/17/2022			: ICF																	Subcon	sultant:	Parikh C	onsulta	ints, Ind	c. (Parikl	ו)								
							DATA ENTI	RY SECTION									CALCULATIO	ON SECTION						DATA	ENTRY SECT	non			CALCULATION SECTION						
			1																															-	
	Nurres and Gaudication															14 S							ä								14 S				
		Hoe gh Brock Project Director	Rich Walter Project Manager	Staff Managing Consultant	Staff Senior Project Dire ctor	Staff Technical Director	Staff Senior Technical Analys Staff	Senior Consultant III Staff	Senior Consultant II	Staff Senior Consultant I	Staff Associate Consultant I	Staff Associate Consultant II	Staff Associate Consultant III	Direct Expenses (\$)	Naurs	Escalated Direct labor or NB	Fring e/Ov ethes d	Direct Expenses	TOT AL COS T	Profit	Gary Parish Project Manager	David Wang Serior Engine er/QC Manag	Frank Wang Sr. Project Engineer/Geolog	Sauf Project Engineer	Staff Project Geodogist	Saaf f CAD D Draffing Technician	Nume Title	Nam e Tide	Direct Expenses (\$)	нин	Esabled Direct labor or NB	Fring q/Ov ethes d	Direct Expenses	TOT AL COST	Profit
	Direct Salary Rate (Average, Actual, Max) for Current Year Annualized Direct Salary Rate		<u> </u>												-						\$107.34	\$77.80	\$71.85	\$56.72	\$49.01	\$41.84		_							—
	(or enter Negotiated Billing Rate)	\$350.53	\$282.95	\$174.41	\$246.25	\$190.90	\$169.83 \$15	2.76 \$125	5.65 \$	126.05	\$87.81	\$104.67	\$121.38								\$111.22	\$80.61	\$74.45	\$58.77	\$50.78	\$43.35	\$0.00	\$0.00							1
Task #	Fully Burdened Billing Rate	\$385.58	\$311.25	\$191.85	\$270.88	\$209.99	\$186.81 \$16	8.04 \$138	8.22 \$	138.66	\$96.59	\$115.14	\$133.52								\$342.84	\$248.49	\$229.48	\$181.16	\$156.54	\$133.63	\$0.00	\$0.00							1
	BASE PROJECT TASKS/DELIVERABLES																																		
0	PROJECT MANAGEMENT AND PROJECT MEETINGS	4	80	0	0	32	0		0	0	0	٥	٥	500	116	30147	٥	500	30647	3015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.1	Monthly Reporting and Invoicing														0	0	0	0	0	0										0	0	0	0	0	0
0.2	Manage Contract Cost and Schedule														0	0	0	0	0	0										0 /	0	0	0	0	0
0.3	Project Management Plan & QA/QC Plan														0	0	0	0	0	0										0	0	0	0	0	0
0.4	Critical Path CPM Project Schedule														0	0	0	0	0	0										0	0	0	0	0	0
0.5	Maintaining Project Records														0	0	0	0	0	0										0	0	0	0	0	0
0.6	Project Expectation Meeting (Kickoff Meeting)														0	0	0	0	0	0										0	0	0	0	0	0
0.7	Committee-Board Meetings with SCCRTC														0	0	0	0	0	0										0	0	0	0	0	0
0.8	Consultant Internal Weekly Meetings \ RTC Checkin Meetings	4	80			32								500	116	30147	0	500	30647	3015										0	0	0	0	0	0
0.9	Project Development Team Meetings (PDT Meetings)														0	0	0	0	0	0										0	0	0	0	0	0
1	DEVELOP PROJECT CONCEPT REPORT AND PROJECT DEFINITION	8	117	105	16	48	40 1	48 11	20	64	80	244	78	30,000	1069	162079	٥	30000	192079	16208	8	20	65	24	80	32	0	0	5,000	230	14276	25729	5000	45005	4000
1.1	Rail Corridor and Project Description		8												8	2264	0	0	2264	226										0	0	0	0	0	0
1.2	Rail Transit and Trail Project Purpose and Need		24												24	6791	0	0	6791	679										0	0	0	0	0	0
1.3	Analysis of Conceptual Rail Transit Vehicle Technology and Performance Requirements														0	0	0	0	0	0										0	0	0	0	0	0
1.4	Conceptual Rail Transit Ridership and Revenue Forecast														0	0	0	0	0	0										0 /	0	0	0	0	0
1.5	Conceptual Rail Corridor Infrastructure Evaluation														0	0	0	0	0	0										0	0	0	0	0	0
1.6	Environmental Screening for SCCRTC Electric Passenger Rail Transit and Trail Project	8	85	105	16	48	40 1	48 11	20	64	80	244	78	30,000	1037	153024	0	30000	183024	15302										0	0	0	0	0	0
1.7	Strategic Communications and Public Involvement Approach														0	0	0	0	0	0										0	0	0	0	0	0
1.8	Preirrinary Geotechnical Report														0	0	0	0	0	0	8	20	66	24	80	32			5,000	230	14276	25729	5000	45005	4000
1.9	Conceptual Rail Corridor Safety Assessment														0	0	0	0	0	0										0	0	0	0	0	0
1.10	Preliminary Conceptual Rail Transit and Trail Alignment and Profile and Selected Cross Sections														0	0	0	0	0	0										0	0	0	0	0	0
1.11	Conceptual Rail Transit Station and Layover and Maintenance Facility Locations														0	0	0	0	0	0										0	0	0	0	0	0
1.12	Conceptual Passenger and Freight Rail Interface Assessment														0	0	0	0	0	0										0	0	0	0	0	0
1.13	Conceptual Rail Transit Operations Modeling														0	0	0	0	0	0										0	0	0	0	0	0
1.14	Conceptual Rail Transit Operations and Equipment Plan			1	1										0	0	0	0	0	0										0	0	0	0	0	0
1.15	Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates				1						-	-		_	0	0	0	0	0	0							-	-		0	0	0	0	0	0
1.16	Conceptual Initial Risk Analysis and Risk Register														0	0	0	0	0	0							_			0	0	0	0	0	0
1.17	Potential Project Next Steps														0	0	0	0	0	0										0	0	0	0	0	0
1.18	Draft Project Concept Report				1						-	-		_	0	0	0	0	0	0							-	-		0	0	0	0	0	0
1.19	Final Project Concept Report														0	0	0	0	0	0										0	0	0	0	0	0
				106		**					**	144		10.000				10100		10333		10	"	24	**			0	E 020	110					

Cost Pr	oposal and Breakdown of Costs for Base Project								
Santa Cr	uz County Regional Transportation Commission (SCCTRC)								
Desiles	A New yor Courte Court Descent Line Electric Descences Dell 8, Tabil Deslect								
Projec	t Name: Santa Cruz Branch Line Electric Passenger Rall & Trail Project								
Betwe	en Pajaro Junction and Santa Cruz, RFP2153								
Cost P	roposal Date: 11/17/2022				Project S	Summary			
			1		CALCULATI	DN SECTION			-
	Names and Gasilication	unot	Gioa lakeed Drive cf. La bay or ABAR \$	frigy/Overhood	Girect Expenses	test Cost	Podit	Toul Cat + Profit	% of Tatal Non-Confingency Labor Costs
	Direct Colors Data (Assessed Advantation Constantion)	-	_						
	Direct Salary Nate (Average, Actual, Mate) for Orrent Year Annualized Direct Salary Rate								
	(or enter Negotiated Billing Rate)								
Task #	Fully Burdened Billing Rate								
	BASE PROJECT TASKS/DELIVERABLES								
۰	PROJECT MANAGEMENT AND PROJECT MEETINGS	3832	\$ 358,615	\$ 508,732	\$ 48,000	\$ 915,347	\$ 86,735	\$ 1,002,082	13.57
0.1	Monthly Reporting and Invoicing	336	\$ 26,823	\$ 41,544	\$ 100	\$ 68,467	\$ 6,837	\$ 75,304	1.19
0.2	Manage Contract Cost and Schedule	246	\$ 23,287	\$ 36,067	s .	\$ 59,354	\$ 5,935	\$ 65,289	0.95
0.3	Project Management Plan & QA/QC Plan	272	\$ 22,112	\$ 34,247	s -	\$ 56,360	\$ 5,636	\$ 61,996	0.95
0.4	Critical Path CPM Project Schedule	152	\$ 14,017	\$ 21,710	s -	\$ 35,727	\$ 3,573	\$ 39,300	0.69
0.5	Maintaining Project Records	258	\$ 20,840	\$ 32,277	\$ 100	\$ 53,218	\$ 5,312	\$ 58,530	0.89
0.7	Project Expectation weeting (DCKD1 Weeting)	136	\$ 11,482	\$ 17,783	\$ 1,800	\$ 31,065	\$ 2,927	\$ \$3,992	0.59
0.8	Consultant Internal Weakly Meetings URT Cherkin Meetings	512	5 40,396	\$ 62,506	\$ 24,000	5 126,962	5 10,295	5 137,259	1.67
0.9	Project Development Team Meetings (PDT Meetings)	249	5 135,417	5 159,944	s 19,000	5 297,361 ¢ 196,939	5 29,330	5 320,097	4.07
1	DEVELOP PROJECT CONCEPT REPORT AND PROJECT DEFINITION	29578	\$ 2,247,719	5 3,289,682	5 666,488	5 6,203,890	\$ 553,740	\$ 6,757,630	86.57
1.1	Rail Corridor and Project Description	170	\$ 14,869	\$ 19,984	\$ 400	5 35,253	\$ 3,485	\$ 38,738	0.59
1.2	Rail Transit and Trail Project Purpose and Need	276	\$ 27,661	\$ 32,323	\$ 200	\$ 60,184	\$ 5,998	\$ 66,183	0.95
1.3	Analysis of Conceptual Rail Transit Vehicle Technology and Performance Requirements	522	\$ 51,706	\$ 80,082	\$ 200	\$ 131,987	\$ 13,179	\$ 145,166	2.19
1.4	Conceptual Rail Transit Ridership and Revenue Forecast	834	\$ 66,017	\$ 112,771	\$ 3,600	\$ 182,388	\$ 17,879	\$ 200,267	2.89
1.5	Conceptual Rail Corridor Infrastructure Evaluation	11824	\$ 724,569	\$ 1,171,716	\$ 595,072	\$ 2,491,357	\$ 189,629	\$ 2,680,986	29.69
1.6	Environmental Screening for SCORTC Electric Passenger Rail Transit and Trail Project	1237	\$ 172,783	\$ 30,603	\$ 31,200	\$ 234,586	\$ 20,339	\$ 254,925	3.29
1.7	Strategic Communications and Public Involvement Approach	3605	\$ 254,762	\$ 372,149	\$ 9,000	\$ 635,912	\$ 62,691	\$ 698,603	9.89
1.8	Preliminary Geotechnical Report	344	\$ 26,532	\$ 44,710	\$ 5,200	\$ 76,441	\$ 7,124	\$ 83,565	1.19
1.9	Conceptual Rail Corridor Safety Assessment	1254	\$ 89,604	\$ 147,358	\$ 2,500	\$ 239,462	\$ 23,695	\$ 263,158	3.75
1.10	Pretiminary Conceptual Rail Transit and Trail Alignment and Profile and Selected Cross Sections	2917	5 209,192	5 326,429	5 8,800	5 544,421	5 53,562	5 597,983	8.45
1.11	Lonceptual nan inamic station and Layover and Maintenance Facility Locations	1067	5 89,039	5 140,989	5 2,300	5 232,328	5 25,003	5 255,331	\$.69
1.12	Conception reserves and responses History AMMANNET	804	40,740	63,098	200	£ 104,038	e 10,584	e 114,422	1.67
1.13	Conception one cancel operations and English and Engli	546	5 52,470	\$ 8126,712	\$ 200	\$ 133,936	\$ 13,374	\$ 147.309	2.19
1.15	Preliminary Opinion of Probable Conceptual Capital and Operations and Maintenance Cost Estimates	902	\$ 84,532	\$ 130,924	5 1200	\$ 216,656	\$ 21,546	\$ 238,202	3.45
1.16	Conceptual Initial Nisk Analysis and Nisk Register	522	\$ 44,799	\$ 69,385	\$ 2,216	\$ 116,401	\$ 11,418	\$ 127,819	1.89
1.17	Potential Project Next Steps	438	\$ 43,549	\$ 68,317	\$ 2,800	\$ 114,666	\$ 11,187	\$ 125,853	1.79
1.18	Draft Project Concept Report	1034	\$ 97,885	\$ 153,573	\$ 600	\$ 252,059	\$ 25,146	\$ 277,204	3.9%
1.19	Final Project Concept Report	872	\$ 79,070	\$ 123,291	\$ 600	\$ 202,961	\$ 20,236	\$ 223,197	3.29
	TOTAL TASKS 0, 1 DELIVERABLES	33410	\$ 2,606,335	\$ 3,798,414	\$714,488	\$7,119,237	\$640,475	\$7,759,711	100.007