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1. EXECUTIVE SUMMARY

1.1 Project Overview

NCTD is implementing an interoperable Positive Train Control (PTC) System on the San Diego Subdivision where passenger operations are conducted (as set forth in the Rail Safety Improvement Act of 2008 (RSIA08) and 49 CFR 236 Subpart I).

The purpose of a PTC System is to prevent the following:

- Train-to-train collisions
- Over speed accidents
- Incursion into work zones
- Movements through a misaligned switch by requiring automatic control systems to override mistakes by human operators

This PTC System will be designed and implemented to follow the standard and guidelines established by the Interoperable Train Control (ITC) Committee. The ITC Committee is comprised of the four largest US freight railroads – BNSF Railway, CSX, Norfolk Southern Railway (NS), and Union Pacific Railroad (UPRR).

The NCTD goal for PTC implementation is the required December 31, 2015 completion date as stipulated in the Federal Rail Safety Act of 2008. In August 2011, NCTD procured a Vendor/Integrator contractor to design, install, commission, and maintain the PTC System.

In addition to and in advance of the implementation of the PTC System, NCTD has assumed the management control of the San Diego Subdivision by installing a new computer-aided dispatch system for the control of the centralized traffic control system, TMDS. Previously, NCTD's dispatching was managed by SCRRRA using the DIGICON CTC system. The San Diego Subdivision dispatch cutover was April 2012, and the Escondido Subdivision dispatch cutover was December 2011.

The new PTC system will be located at the Rail Operations Center (ROC) within the Sprinter Operations Facility (SOF) in Escondido CA. NCTD's General Administration Office (GAO) has been identified as a second office location to provide geographic redundancy for both the command and control functions as well as the PTC back office functions. Once the Operations Control Center at GAO has been fully built out, GAO will be transitioned to the primary locations with the ROC becoming the backup center.

1.1.1. PTC Inter-Agency Coordination

Inter-Agency Coordination is one of the keys for the project success. The PTC system must be fully and mutually compatible with host and tenant railroads. Interoperability will enable safe operation of mixed freight and passenger services to allow seamless uninterrupted movement among different host railroads. Interoperability shall be based on the Interoperable Train Control Committee (ITC) standard and guidelines, and member governance currently in development by the UPRR, BNSF Railway, CSX, and NS. Host and tenant railroads may also execute Interoperability Agreements, which are envisioned as being similar to Shared Use Agreements.

The San Diego Subdivision rail corridor is 60.3 miles in length from the Orange County/San Diego County line (MP 207.4) to 200 feet south of Broadway Street in San Diego (MP 267.7). The entire line is signaled CTC territory with 50% of the territory having segments of multiple main track and passing sidings. Passenger train operations on the corridor are COASTER (22
trains/weekday), Amtrak Pacific Surfliner intercity service (22-24 trains/day), and SCRRA Metrolink commuter rail services (up to 14 trains/day). Freight service on the Subdivision is BNSF Railway (4-6 trains/day) and Pacific Sun Railroad (5-10 trains/week).

NCTD's COASTER service operates between the Oceanside Transit Center in Oceanside (MP 226.4) and Santa Fe Depot in San Diego (MP 267.5). NCTD’s Maintenance facility is located at Stuart Mesa (MP 221.9), north of Oceanside on Camp Pendleton. This yard is also used by SCRRA Metrolink. A layover facility is located at the San Diego Trolley Yard (MP 268.4) at 12th and Imperial in Centre City San Diego where COASTER train sets are stored during midday.

In addition to the NCTD COASTER service area, the tenant railroads use the corridor as follows:

- Amtrak’s Pacific Surfliner Service - Entire subdivision,
- BNSF Railway - Entire subdivision,
- SCRRA’s Metrolink Orange County Line - From Oceanside to the Orange County Line,
- BNSF Railway’s contracted operator Pacific Sun Railroad, a Watco Company - Local freight service operating between Stuart Mesa Maintenance Facility and Miramar freight spur, and Escondido Subdivision with occasional trips to San Onofre near the Orange County Line.

NCTD has organized monthly interoperability calls and include the FRA, Caltrans Division of Rail, Pacific Sun, Southern California Regional Rail Authority (SCRRA), BNSF Railway, and Amtrak.

NCTD also attends the LA Regional PTC Conference quarterly meeting hosted by SCRRA and attended by BNSF Railway, UPRR and Amtrak.

1.1.2. PTC Operations and Maintenance
Herzog Technologies Inc. (HTI) was selected as NCTD’s Vendor/Integrator to provide a proposal for PTC System Maintenance Services for a base period of five years with an additional five year option. HTI is responsible for all maintenance of back-office PTC systems, on-board equipment on locomotives and cab cars, communications equipment at other base station locations, and Roadway Worker Protection (portable) equipment. At the time of award, HTI estimated a cost for the base period of five years for $6,706,464. The second five year maintenance period estimated cost was $7,973,230. The maintenance scope and fee will need to be revisited as the project progresses.

For the purpose of the Office Maintenance Services, the office will include back office and network management equipment. For the office maintenance, the Vendor/Integrator will provide a technology refresh of the hardware and technology as part of the scheduled maintenance during year four of both the five year contract and the optional five year contract. The technology refresh will consist of replacing the back office hardware, software, and firmware with the latest proven operating platform, subject to NCTD approval.

1.2. Scope of Work Overview
HTI and its subcontractors are solely responsible for designing and implementing a PTC system that meets FRA and other applicable requirements and is FRA approved for NCTD rail operations.
HTI is required to follow the Positive Train Control Development Plan (PTCDP) submitted by the NS, CSX, and UPRR railroads and utilize it as the basis for the NCTD PTC system. This PTCDP, revised on June 1, 2011 and subsequently approved by the FRA on August 26, 2011, is known as "1-ETMS".

HTI and its subcontractors are scoped to be following the 1-ETMS Rung 1 model, which fully adheres to AAR/ITC standards and specifications, while designing the NCTD PTC system. This is in an effort to ensure FRA required "type approval" as well as streamlining the final FRA acceptance process. Any deviations from I-ETMS functionalities will require Request(s) for Amendment (RFA) to the FRA and may extend the timeline for FRA acceptance.

The Contract has been awarded as a single Contract to be executed in two phases (based on available funding). Phase I includes the initial surveys, studies, and all design work necessary to amend the PTCDP submitted by NS, CSX, and UP to the FRA. Phase 2 includes all other work necessary for the design, installation and implementation of the PTC system.

The PTC System is scoped to be completed by the mandated date of December 31, 2015 in accordance with the schedule defined in the Positive Train Control Implementation Plan (PTCIP), and must be compliant with standards and specifications developed by the ITC Committee for forthcoming publication by the Association of American Railroads (AAR).

Safety is paramount. Consideration must also be given during the PTC System design to the NCTD level of service. The throughput (capacity) of the commuter railroad system must be maintained after PTC deployment, and the PTC System needs to support future capacity improvements and ridership growth.

a. Phase 1

HTI is scoped to:

i. Perform the necessary studies and surveys; attend meetings; and perform the engineering analysis, design and systems engineering necessary to amend the PTCDP per the RFA procedural requirements of 49 CFR 236.1009. The Vendor/Integrator is scoped to provide all documentation, research, validation and verification services to ensure a "Type-Approved" system is provided to NCTD prior to commissioning.

ii. Provide for the development and submittal of a project schedule and planning for each task of the overall PTC program. The Vendor/Integrator is scoped to develop a design, procurement and installation milestone schedule and plan construction, testing, and certification of the specified NCTD PTC System for full deployment in accordance with the milestones and deadlines established by NCTD. As part of the Vendor/Integrator's coordination with tenant railroads, the Vendor/Integrator shall prepare and submit an Interoperability Coordination Plan (ICP).

iii. Provide services necessary to perform detailed onboard surveys:

   a. Perform data collection subtasks for onboard systems. These data shall be used in designing the removal, relocation, and installation of onboard systems (both existing and new systems).

   b. Develop and submit a Locomotive Survey Report and a Cab Car Survey Report. The survey report is intended to identify probable equipment mounting locations for all Interoperable-Electronic Train Management System (IETMS) system components, create the preliminary BOM, measure probable cable lengths required, and identify probable relocations of existing equipment.
c. Develop and submit a preliminary Bill of Materials (BOM) and a baseline Installation and Relocation manual and schematics for each locomotive, cab car, and Hy-Rail vehicle type.

b. Phase 2

Upon issuance of the second NTP for Phase 2 by NCTD, HTI is scoped to:

i. Continue with the development, procurement, and installation of the PTC System for NCTD's PTC program.

ii. Prepare all required documents for submittal to and approval by the FRA, including the PTC Safety Plan (PTCSP).

iii. Provide a complete functional PTC System in accordance with the Contract Documents in compliance with the NCTD approved milestone schedule. The system is scoped to include wayside, onboard, radio communications network, and back office server segments.

iv. Develop an installation milestone schedule.

v. Plan construction, testing, and certification of the specified NCTD PTC System including full deployment.

vi. Complete an initial design incorporating all PTC System components, including pre-PTC equipment. The PTC System proposed shall be based on NCTD's PTCIP deferred track area of the San Diego Subdivision.

vii. Be responsible for ensuring proper systems engineering processes, systems integration, system function, and correct sub-systems interaction for all aspects of the NCTD PTC System and its inter-relationships, inter-dependencies, and interfaces with other equipment and systems. The furnished PTC System shall be interoperable with the PTC Systems that are being deployed in Southern California by SCRRA and BNSF. Interoperability refers to the ability of trains to cross property boundaries under PTC at territory speed without stopping to acquire authorities. The PTC System shall also require direct or throughput communications among the PTC offices of NCTD, SCRRA, and BNSF.

viii. Coordinate all PTC activities with the FRA and the California Public Utilities Commission (CPUC) as necessary.

ix. Establish a safety program that conforms with the requirements of 49 CFR 236 Parts 214, 218, 219, CPUC General Orders, and NCTD Operating Rules; and obtain roadway worker safety training certification for all Vendor/Integrator and supplier, subcontractor and subconsultant personnel who may enter the NCTD San Diego Subdivision and project right-of-way.
2. PROGRAM MANAGEMENT

2.1. Integration Management
This section describes the status of integration management, program governance, program controls, change management process and program/project management information systems.

2.1.1. Program Governance
In recent months, NCTD’s PTC program and the PTC project have undergone some changes. The governance for the PTC program is organized as follows:

**NCTD Organization**
- Deputy General Manager: Reed Caldwell
- Deputy Chief Operating Officer - Rail Systems: Eric Roe
- Chief Technology Officer: Ryan Cashin
- Chief Financial Officer: Ryan Bailey
- Chief of Safety: Tom Tulley
- Deputy Chief Operating Officer – Rail Operations: Nick Freeman
- Senior Network Engineer: Roy Gilbert
- Rail Systems Engineer: Robert Paladino
- Right of Way Officer: Tim Morehead
- Public Outreach: Jill Gibson

**HNTB Organization**
- PTC Program Manager: Mary Holland
- PTC Deputy Program Manager: Anna Borrell
- PTC Construction Manager: Scott Kyles
- Document Control Coordinator: Victor Delgado
- Business Manager: Robert Hartley
- Project Analyst: Matt Daniels
- PTC Program Scheduler: Maggie Harris
- PTC Quality Manager: Mike Phillips

NCTD and the consultant team believe future workshops would facilitate project communication and progress and are evaluating the timing of a future workshop.

2.1.2. Program Control
The PTC program has 21 active vendor-implemented projects within the PTC program. The status of each of the 21 projects is described in Section 5 of this report. The following projects are in the process of closing out:

- North COASTER Fiber (PO # 13013 OS)
- TMDS Network Extension (PO # 30729 OP)
- Centralized Traffic Control (PO # 10054 OS)
- Centralized Traffic Control System Design (PO # 29314)

The total dollar value of the 21 vendor-implemented (active and closed) projects is $56,085,569.
2.1.3. Change Management
The changes that are currently in process for the 21 active vendor-implemented projects are:

- Positive Train Control (PO # 11046 OS) - Herzog Technologies, Inc.
  To include a transfer of PTC integration into the CTC dispatch system from HTSI to HTI. Anticipated for board approval in December.

- Centralized Traffic Control (PO # 10054) - HTSI
  To include a transfer of PTC integration into the CTC dispatch system from HTSI to HTI. Anticipated for board approval in December.

- South COASTER Fiber (PO # 13020 OS) - MP Nexlevel of California, Inc.
  Documents to be assembled for project completion with the goal for Board approval being January.

2.1.4. Program/Project Management Information Systems
The current document control software was assessed for adequacy and will be maintained at this time.

2.2. Scope Management
The Contract Document Requirements List (CDRL) for the PTC project is being updated and will be cross-checked against the schedule in November and December to ensure contract requirements. Other projects supporting the PTC program will be monitored for incorporation into the PTC project.

2.3. Schedule Management

2.3.1. Schedule Development
The PTC program schedule is being updated to incorporate CIP projects affecting inputs into the PTC system.

2.3.2. Critical Path
The following critical path graphic from the Herzog Technologies Inc. (HTI) Contract No. 11046 October, 2013 Project Schedule Update demonstrates current status of work of the PTC project. HTI has recently submitted Time Impact Analysis No. 1 (TIA) identifying a 64 calendar day delay resulting from the Wayside Interface Unit (WIU) work suspension. NCTD provided comments at a recent joint HTI and NCTD meeting, following which, HTI resubmitted TIA No. 1-Rev1 calculating a 19 calendar day delay. NCTD is currently reviewing the reasonableness of the resubmission and will determine entitlement and quantum based on the contract terms and conditions.
After a final review of TIA No. 1-Rev 1, NCTD will commence review of HTI TIA #2 and HTI TIA #3.

NCTD and FRA coordination processes have revealed that the approximate one year of FRA Review of the NTCD PTC Project PTCSP can be reduced by an estimated six months based on intermittent PTCSP submittals when available rather than a fully complete PTCSP submittal at the conclusion of FRA testing. If this occurs, this could mitigate approximately six months of contractor delay without affecting the FRA Review and possibly achieving the mandated completion date of December 31, 2015, and is contingent upon the actual occurrence of events.
2.4. Quality Management

2.4.1. Configuration Control Management Plan
The kick-off meeting for the Configuration Control Management Board (CCB) was held on November 19, 2013. As per the meeting and as shown in the Configuration Control Management Plan (CCMP), the NCTD Quality Manager will be assigned a position on the CCB and will be responsible for attending the CCB meetings as well as performing the following primary duties:

- Performing Plan Audits
- Performing Compliance Audit
- Performing Traceability Audit
- Initiation of Annual CCMP Reviews

The CCMP is still in draft format and is being reviewed and commented on by the NCTD Quality Manager along with other individuals participating on the CCB. The next CCB meeting is scheduled for December 17, 2013.

2.4.2. Quality Plan Review
The team is reviewing the various Quality Plans identified for the program and is developing a clear path forward with regard to implementation of these plans to meet all the various requirements set forth for the program.

2.4.3. PTC Quality Audits and Surveillances
A schedule for Audits and Surveillances is being established as well as a clear set of recommendations for performing Quality Reviews for the PTC program including the fiber projects and the PTC project. The team will be attending various construction inspections (surveillances) with the contractors as warranted.

2.4.4. Corrective Action Reports (CAR)
The team is working with HTI to review the Corrective Action Report # CA-001 for the 220 MHz Antenna Misplacement.

2.5. Risk Management
Monitoring of project risk is ongoing by the NCTD and HTI project teams.

A Risk Management Plan (RMP) is under development. The draft RMP is scheduled for completion in November and the final RMP is expected to be completed by the end of 2013.

2.6. Stakeholder and Communications Management
NCTD communicated to stakeholders about the broader PTC project, antenna installations, and fiber network. This included communications with City Staff, SANDAG, neighbors, written notices, e-mail communications, and website updates. Outreach prior to each tower installation and alongside the fiber work occurred in September and has been subsequently suspended while the team works through the FCC permit issues.
3. PROGRAM SAFETY

Per the NTSB’s Safety Recommendations dated June 18, 2013, the charts below reflect the progress being made on the required components and training for the NCTD PTC program.

In the last month, one additional locomotive and locomotive radio was completed. Installation of the base station radios is just over 50 percent complete, with 10 of the 19 base station radios completed. Nearly 25 percent of the wayside units have been installed and completed and 12 percent of the locomotive and locomotive radio components have been completed.

COMPONENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Total Components</th>
<th>Completed</th>
<th>Remaining</th>
<th>Percent Complete</th>
<th>Estimated Completion Date</th>
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<tr>
<td>Locomotives</td>
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<td>Wayside Units</td>
<td>VHLC</td>
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<tr>
<td>Switches</td>
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<tr>
<td>Base Station Radios</td>
<td>Meteorcomm</td>
<td>19</td>
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<td>Locomotive Radios</td>
<td>Meteorcomm</td>
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<td>15</td>
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<td>Wayside Radios</td>
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Training activities are anticipated to begin in the first quarter of 2014, with training on the Simulator starting in February 2014.

TRAINING

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<th>Training Description</th>
<th>Total Employees</th>
<th>Employees Trained</th>
<th>Employees Remaining</th>
<th>Percent Trained</th>
<th>Estimated Completion Date</th>
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<td>NCTD Mgmt/Ops</td>
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<td>NCTD Operations</td>
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<td>NCTD Mgmt/Ops</td>
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<td>TBD</td>
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<td>Dec-2014</td>
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### 4. PROGRAM PROGRESS

The latest schedule rollup for the PTC project is shown below. The schedule is showing a six month schedule slip from the baseline schedule.

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<th>ACTIVITY</th>
<th>BASELINE</th>
<th>ACTUAL</th>
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<tr>
<td>NCTD-DesignBuildProject</td>
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<td>General Requirements</td>
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<td>Concept/Feasibility</td>
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<td>Design/Build</td>
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<tr>
<td>Engineering/Technical Require</td>
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<td>Design/Phase</td>
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<td>Concept/Phase</td>
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<tr>
<td>Concept/Build</td>
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<td>Design/Build</td>
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<td>Engineering/Technical Require</td>
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<td>Engineering/Technical Require</td>
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<td>LEGEND</td>
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<td>Critical</td>
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<td>Schedule Slips</td>
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</tbody>
</table>
5. POSITIVE TRAIN CONTROL CONTRACTS AND STATUS

The PTC Program has 21 active vendor-implemented projects that range from the Orange County Line in the north to the Santa Fe Depot in the south. The total dollar value of the 21 active vendor-implemented projects is $56,085,569. The table below provides “at-a-glance” information for the 21 projects. Additional detail on the progress and financial status for the 21 projects is described in the following subsections.

<table>
<thead>
<tr>
<th>NCTD Tracking Number</th>
<th>Project Name</th>
<th>Contractor</th>
<th>Contract Amount</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>11046</td>
<td>PTC for the LOSSAN Corridor</td>
<td>Herzog Technologies, Inc.</td>
<td>$36,322,947</td>
<td>On-Going</td>
</tr>
<tr>
<td>13013</td>
<td>North COASTER Fiber Cable &amp; Conduit Installation</td>
<td>The Fishel Company</td>
<td>$1,308,968</td>
<td>Close-Out</td>
</tr>
<tr>
<td>13020</td>
<td>South COASTER Fiber Cable &amp; Conduit Installation</td>
<td>MP Nexlevel</td>
<td>$5,234,395</td>
<td>On-Going</td>
</tr>
<tr>
<td>13035</td>
<td>San Diego COASTER Fiber Cable &amp; Conduit Installation</td>
<td>The Fishel Company</td>
<td>$551,055</td>
<td>Pending Const. Permit</td>
</tr>
<tr>
<td>30475</td>
<td>Environmental Support Services</td>
<td>BRG Consulting</td>
<td>$2,144,097</td>
<td>On-Going</td>
</tr>
<tr>
<td>29935</td>
<td>Engineering Support Services</td>
<td>HNTB</td>
<td>$2,620,999</td>
<td>On-Going</td>
</tr>
<tr>
<td>30066</td>
<td>PTC Network Design</td>
<td>Datel Systems</td>
<td>$81,908</td>
<td>Closed</td>
</tr>
<tr>
<td>30729</td>
<td>TMDS Network Extension</td>
<td>Datel Systems</td>
<td>$74,033</td>
<td>Close-Out</td>
</tr>
<tr>
<td>10054</td>
<td>Centralized Traffic Control</td>
<td>HTSI</td>
<td>$2,287,625</td>
<td>Close-Out</td>
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<tr>
<td>11032</td>
<td>Centralized Traffic Control &amp; Operations Control Center Support Services</td>
<td>Macro Corp.</td>
<td>$390,000</td>
<td>On-Hold</td>
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<td>12024</td>
<td>Configuration Management Software</td>
<td>RailCar Management</td>
<td>$688,119</td>
<td>On-Going</td>
</tr>
<tr>
<td>13003</td>
<td>Test &amp; Training Facility Equipment</td>
<td>Datel Systems</td>
<td>$170,799</td>
<td>On-Going</td>
</tr>
<tr>
<td>30374</td>
<td>PTC Lab Install (Task 2)</td>
<td>Datel Systems</td>
<td>$3,880</td>
<td>On-Going</td>
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<tr>
<td>30616</td>
<td>Additional Requirements to PO 30374</td>
<td>Datel Systems</td>
<td>$0</td>
<td>On-Going</td>
</tr>
<tr>
<td>30265</td>
<td>Task Order: PTC Lab Cabling</td>
<td>Datel Systems</td>
<td>$12,000</td>
<td>On-Going</td>
</tr>
<tr>
<td>29314</td>
<td>Centralized Traffic Control System Design</td>
<td>Pacific Railway Enterprises, Inc.</td>
<td>$323,633</td>
<td>Close-Out</td>
</tr>
<tr>
<td>29485</td>
<td>Wayside Interface Unit (WIU) Design &amp; Installation</td>
<td>Pacific Railway Enterprises, Inc.</td>
<td>$136,461</td>
<td>On-Going</td>
</tr>
<tr>
<td>29895</td>
<td>Design Support During Construction</td>
<td>Pacific Railway Enterprises, Inc.</td>
<td>$2,325,000</td>
<td>On-Going</td>
</tr>
<tr>
<td>29504</td>
<td>CTC/PTC Network Design &amp; Implementation</td>
<td>Datel Systems</td>
<td>$177,528</td>
<td>On-Going</td>
</tr>
<tr>
<td>30073</td>
<td>PTC Signal Maintainer &amp; WIU Installation</td>
<td>TASI</td>
<td>$367,875</td>
<td>On-Going</td>
</tr>
<tr>
<td>13007</td>
<td>Signal Upgrade – CP Friar/Taylor Street</td>
<td>Herzog Technologies, Inc.</td>
<td>$864,246</td>
<td>Recently Awarded</td>
</tr>
<tr>
<td>Miscellaneous*</td>
<td>TASI Flagging and NCTD Personnel costs</td>
<td></td>
<td></td>
<td>Pending</td>
</tr>
</tbody>
</table>

* These miscellaneous items include potential purchase orders. When approved they will become part of the PTC Program active vendor-implemented projects.
5.1. Positive Train Control System for the LOSSAN Corridor
Herzog Technologies, Inc. (HTI)
NCTD Purchase Order: 11046

The PTC System for the LOSSAN Corridor is the primary contract for implementation of the PTC system.

PROJECT STATUS
HTI Continues to Pre-Wire Radio Tower locations in preparation for the PTC Towers. PTC Towers installation has been completed on the towers that fall within the pre-2001 collocation agreement. The remaining towers are awaiting FCC approval; HTI has contacted and is following up with the FCC. HTI has begun the network design. Sub div file validation has occurred having a 98% success rate; a new sub div file is being created, will be re-validated, and will become the baseline sub div file upon achieving a 100% success rate. A proposed HVAC system is under evaluation. Simulator (Corys) site acceptance test completed and training completed.

Vehicle installation is ongoing. NCTD inspected and documented WRE deviation from the installation guide – this issue has been addressed by HTI directing WRE to comply with the NCTD approved installation guide.

CONTRACT DATES
- Notice to Proceed 08/19/2011
- Phase 1: Development Completed 07/31/2012
- Phase 2: Procurement/Installation/Testing 02/15/2014
- System Safety Certification 05/15/2014
- System Commissioning into Revenue Service 12/31/2015

Phase 1 includes the initial surveys, studies, and all design work necessary to amend the Positive Train Control Development Plan (PTCDP) submitted by NS, CSX, and UPRR to the FRA. This Phase has been completed. An amended PTCDP was not needed at the time this phase was completed. Once lab testing is underway, the PTCDP may be revisited.

Phase 2 includes all other work necessary for the design, installation and implementation of the PTC system.

COMPLETION UPDATE
- Phase 1: Development Completed 100%
- Phase 2: Procurement/Installation/Testing 42%
- System Safety Certification Not Started
- System Commissioning into Revenue Service Not Started

COST UPDATE
- Contract Amount $36,322,947
- Spent to Date $17,962,524
- Encumbered $18,360,423
San Diego Subdivision Fiber Installation

The San Diego Subdivision fiber installation is comprised of three geographically based contracts as listed below and shown in the following graphic:

- North Coast – Orange County Line to Oceanside Transit Center
- South Coast – Oceanside Transit Center to Old Town Transit Center
- San Diego – Old Town Transit Center to Santa Fe Depot

All three contracts include the installation of fiber conduit and cable along the San Diego Subdivision right-of-way to provide fiber for the PTC communication system.

Status and financial information on the individual contracts is provided in the following three sections (5.2, 5.3, and 5.4).
5.2. North COASTER Fiber Cable & Conduit Installation  
Fishel Company  
NCTD Purchase Order: 13013

This contract is one of three contracts for fiber conduit and cable installation along the San Diego Subdivision right-of-way to provide fiber for the PTC communication system. Project limits are from the Orange County Line to Oceanside Transit Center.

PROJECT STATUS  
The Project Closeout memo has been signed and retainage payment made to Fishel.

The PTC Fiber across the existing Santa Margarita Bridge is scheduled for relocation to the new bridge on December 2\textsuperscript{nd} through the 4\textsuperscript{th}. This work is being completed by SANDAG.

CONTRACT DATES

- Notice to Proceed: 11/29/2012
- Completion: 06/10/2013

COMPLETION UPDATE

- Conduit Installation: 100%
- Fiber Installation: 100%

COST UPDATE

- Contract Amount: $1,308,968
- Spent to Date: $1,308,968
- Encumbered: $0

5.3. South COASTER Fiber Cable & Conduit Installation  
MP Nexlevel  
NCTD Purchase Order: 13020

This contract is one of three contracts for fiber conduit and cable installation along the San Diego Subdivision right-of-way to provide fiber for the PTC communication system. Project limits are from the Oceanside Transit Center to the Old Town Transit Station.

PROJECT STATUS  
The project is currently 93% complete. MP Nexlevel’s contract expired on September 30th, 2013. Completion of the final work efforts for this contract will be completed using a third party contractor.

HNTB has developed a list of remaining work and will be developing a plan to complete.

HNTB is working with Fishel to investigate the conduit blockage issue found in the Solana Beach (MP 241.1 to MP 241.9) area.

Railpros is evaluating MP Nexlevel’s change orders and working with NCTD staff to closeout the contract.
5.4. San Diego COASTER Fiber Cable & Conduit Installation
Fishel Company
NCTD Purchase Order: 13035

This contract is one of three contracts for fiber conduit and cable installation along the San Diego Subdivision right-of-way to provide fiber for the PTC communication system. Project limits are from the communication house at Old Town Transit Station to Santa Fe Depot.

PROJECT STATUS
Notice to proceed for Team Fishel was given on October 3rd, 2013. NCTD provided work approval letter to Contractor on 11/15. Contractor is awaiting MTS permit issuance; permit is expected by 12/13. A preconstruction site walk with Contractor, NCTD, and BRG took place on November 8th to review site conditions. Anticipated construction start is anticipated for mid-December dependent on MTS permit.

CONTRACT DATES
- Notice to Proceed 10/3/2013
- Completion NTP + 90 days

COMPLETION UPDATE
- Conduit Installation 0%
- Fiber Installation 0%

COST UPDATE
- Contract Amount $551,055
- Spent to Date $0
- Encumbered $551,055
5.5. Environmental Support Services  
BRG Consulting  
NCTD Purchase Order: 30475

This contract provides as needed environmental support for PTC project. Initial task order was increased due to extent of environmental risks and other considerations identified in the PTC program, specifically the fiber project.

**PROJECT STATUS**  
On October 29th BRG received NTP for the San Diego COASTER Fiber project for environmental review; BRG is reviewing both the San Diego COASTER Fiber Project and CP Friar Signal Project.

BRG attended a preconstruction site walk to the San Diego COASTER Fiber Project with HNTB and Fishel. Based on that site visit BRG issued a letter to the Coastal Commission on November 27th to request their concurrence for No Effects Determination for the San Diego section of the PTC Project.

Efforts are provided on an as-needed basis for environmental and archeological monitoring support for the PTC Program.

**CONTRACT DATES**

- Notice to Proceed 09/18/2012  
- Completion 12/31/2015

**COST UPDATE**

- Contract Amount $2,144,097  
- Spent to Date $148,665  
- Encumbered $1,995,433

5.6. Engineering Support Services  
HNTB  
NCTD Purchase Order: 29935

This contract provides continuing support, guidance and monitoring of the PTC project. Scope includes design submittal review, as needed design work, scheduling services, and general project management.

**PROJECT STATUS**  
HNTB Program Management efforts are ongoing. HNTB has assigned six full-time employees to the project. All are co-located at the NCTD offices in Oceanside (Tremont office); additional staff support is being identified to further support the PTC program and project management efforts identified as necessary by NCTD management.

HNTB is in the process of developing an amendment to the current contract scope of work and fee. This Amendment #1 covers scope additions to the original Task Order necessary to support the PTC program through completion. Negotiations with NCTD have taken place in November. HNTB is now incorporating comments received from NCTD. A final version is anticipated to be submitted in early-December.
5.7. PTC Network Design
Datel Systems
NCTD Purchase Order: 30066

This contract scope includes preliminary and final design for the network component of the PTC system.

PROJECT STATUS
This contract has been closed and remaining work transferred to the Positive Train Control System for the LOSSAN Corridor, HTI purchase order 11046.

COST UPDATE

- Contract Amount: $2,620,999
- Spent to Date: $1,448,286
- Encumbered: $1,172,713

5.8. TMDS Network Extension
Datel Systems
NCTD Purchase Order: 30729

This contract provides a temporary solution for NCTD to free up fiber for the PTC project.

PROJECT STATUS
This contract is closing out.

COST UPDATE

- Contract Amount: $74,033
- Spent to Date: $74,033
- Encumbered: $0
5.9. Centralized Traffic Control
HTSI
NCTD Purchase Order: 10054

This contract is for design and support of centralized traffic control for the PTC project.

PROJECT STATUS
Final acceptance completed. Software license agreement under continuing review. HTI is handling all future changes to TMDS, per HTSI maintenance agreement.

This contract is complete and is in the process of being closed.

CONTRACT DATES

- Notice to Proceed 01/21/2011
- Completion¹ 02/20/2012

1. Note: Date reflects PTC portion of the purchase order.

COST UPDATE

- Contract Amount $2,287,625
- Spent to Date $1,973,214
- Encumbered $314,412

5.10. Centralized Traffic Control & Operations Control Center Support Services
Macro Corp.
NCTD Purchase Order: 11032

This contract provides support for the centralized traffic control system and the operations control center.

PROJECT STATUS
Task 1 CTC: Final acceptance is underway.
Task 2: NCTD selected the 810 Mission building as the location for the Operations Command Control Center. Hardware is being evaluated. The initial OCC meeting was held on November 15th. PTC will require three racks to house BOS, ITCM, AvNet and TMDS.

CONTRACT DATES

- Notice to Proceed 05/13/2011
- Completion 05/12/2016

COST UPDATE

- Contract Amount $390,000
- Spent to Date $351,307
- Encumbered $38,693
5.11. Configuration Management Software  
**RailCar Management**  
NCTD Purchase Order: 12024  

This contract scope provides track configuration management software, including implementation.

**PROJECT STATUS**  
RailDOCS software is in use for all NCTD field work by TASI contractors and quality control and enforcement is underway by NCTD. RailDOCS and NCTD are conducting track module training for track crews. RailDOCS made a track Configuration Management Software (CMS) presentation to NCTD; NCTD is deciding on whether to move forward with track CMS. Track and signal crews were notified they have to officially start using raildocs by Jan 8th, 2014.

RailDOCS has sent NCTD a scope of work to convert the current signal testing schedule of 30 days to 28 days. NCTD is moving forward on proposal.

**CONTRACT DATES**
- Notice to Proceed: 09/05/2012
- Completion: 06/30/2016

**COST UPDATE**
- Contract Amount: $688,119
- Spent to Date: $261,013
- Encumbered: $427,106

5.12. Test & Training Facility Equipment  
**Datel Systems**  
NCTD Purchase Order: 13003  

This contract provides as needed hardware, software, and licenses for the PTC Test & Training Facility (TTF).

**PROJECT STATUS**  
This contract is complete. NCTD has begun the close out process for Datel scope of work. NCTD has received all invoices for work conducted by Datel. NCTD is waiting on final delivery of equipment before processing invoices.

**CONTRACT DATES**
- Notice to Proceed: 09/21/2012
- Completion: 03/31/2013

**COST UPDATE**
- Contract Amount: $170,799
- Spent to Date: $170,799
- Encumbered: $0
5.13. PTC Lab Install (Task 2)
Datel Systems
NCTD Purchase Order: 30374

This contract provides PTC lab installation requirements under task 2.

PROJECT STATUS
This contract is complete. NCTD has begun the close out process for Datel scope of work. NCTD has received all invoices for work conducted by DATEL. NCTD is waiting on final delivery of equipment before processing invoices.

CONTRACT DATES

- Notice to Proceed 09/21/2012
- Completion 03/31/2013

COST UPDATE

- Contract Amount $3,880
- Spent to Date $3,880
- Encumbered $0

5.14. Additional Requirements to PO 30374
Datel Systems
NCTD Purchase Order: 30616

This contract provides additional requirements to the PTC lab installation purchase order under task 2.

PROJECT STATUS
This contract is complete. NCTD has begun the close out process for Datel scope of work. NCTD has received all invoices for work conducted by DATEL. NCTD is waiting on final delivery of equipment before processing invoices.

CONTRACT DATES

- Notice to Proceed 09/21/2012
- Completion 03/31/2013

COST UPDATE

- Contract Amount $0
- Spent to Date $0
- Encumbered $0

5.15. Task Order: PTC Lab Cabling
Datel Systems
NCTD Purchase Order: 30265

This contract provides the required cabling to the PTC lab.
PROJECT STATUS
This contract is complete. NCTD has begun the close out process for Datel scope of work. NCTD has received all invoices for work conducted by DATEL. NCTD is waiting on final delivery of equipment before processing invoices.

CONTRACT DATES

- Notice to Proceed: 09/21/2012
- Completion: 03/31/2013

COST UPDATE

- Contract Amount: $12,000
- Spent to Date: $12,000
- Encumbered: $0

5.16. Centralized Traffic Control System Design
Pacific Railway Enterprises, Inc.
NCTD Purchase Order: 29314

This contract provides design support for the centralized traffic control (CTC) system.

PROJECT STATUS
Consultant continues to provide as needed design support.

CONTRACT DATES

- Notice to Proceed: 01/28/2011
- Completion: 12/31/2015

COST UPDATE

- Contract Amount: $323,633
- Spent to Date: $235,627
- Encumbered: $88,006

5.17. Wayside Interface Unit (WIU) Design & Installation
Pacific Railway Enterprises, Inc.
NCTD Purchase Order: 29485

This contract provides design support and installation programming services for wayside interface units (WIU).

PROJECT STATUS
All WIU's have been received by PRE from General Electric. HTI has begun updating WIU locations with new executive software.

CONTRACT DATES

- Notice to Proceed: 05/19/2011
- Completion: 12/31/2015
5.18. Design Support During Construction
Pacific Railway Enterprises, Inc.
NCTD Purchase Order: 29895

This contract provides signal and communication systems support for the PTC project.

PROJECT STATUS
The consultant provides ongoing signal oversight for the PTC project.

PRE wrote a memo to issue to SANDAG regarding the review of PTC contract drawings and specifications on SANDAG projects. PRE working with PTC team regarding configuration management processes. Future tasks within this contract may include the review of the PTC contract specifications.

CONTRACT DATES

- Notice to Proceed 11/08/2011
- Completion 12/31/2015

COST UPDATE

- Contract Amount $2,325,000
- Spent to Date $564,676
- Encumbered $1,760,324

5.19. CTC/PTC Network Design & Implementation
Datel Systems
NCTD Purchase Order: 29504

This contract provides network design and implementation for the PTC project.

PROJECT STATUS
This contract has been closed.

COST UPDATE

- Contract Amount $177,528
- Spent to Date $177,528
- Encumbered $0
5.20. PTC Signal Maintainer & WIU Installation  
TASI  
NCTD Purchase Order: 30073

**PROJECT STATUS**

This contract provides for the installation and testing of the Wayside Interface Units (WIU) and the training, special tools, equipment and vehicle lease for the signal maintainer. WIU installation began this month and is still ongoing.

**CONTRACT DATES**

- Notice to Proceed  
- Completion

**COST UPDATE**

- Contract Amount $367,875  
- Spent to Date $223,797  
- Encumbered $144,078

5.21. Signal Upgrade – CP Friar/Taylor Street 
Herzog Technologies  
NCTD Purchase Order: 13007

Contractor will provide modernization upgrade to the civil, signaling, and communication equipment within the signaling houses at CP Friar and Taylor Street.

**PROJECT STATUS**

Notice to proceed was issued on October 17, 2013. Pre-construction meeting was held on October 30. HTI anticipates initial submittals on November 18 and construction start in May 2014.

**CONTRACT DATES**

- Notice to Proceed October 13, 2013  
- Completion NTP + 268 days

**COST UPDATE**

Financials pending NTP issued to selected contractor.

- Contract Amount $864,246  
- Spent to Date $0  
- Encumbered $864,246
6. EXPENDITURES / FUNDING SOURCES

6.1. Expenditures
Through November, 2013, expenditures to date on the project total $33,898,298, or 39 percent of the project budget.

The period expenditures total $341,266 and were primarily composed of contractor charges, followed by NCTD staff, engineering, and consultant charges.

Overall, expenditures are in line with the current $87,292,969 estimate at completion. Nevertheless, NCTD is closely monitoring the budget and the impact of pending contractor change orders and schedule changes.

6.2. Funding Sources
The FRA and Prop 1A Discretionary funds comprise just over 55 percent of the overall PTC budget. Prop 1A Formula funds total 20 percent of the PTC program budget and Federal Section 5307 Formula Funds total comprise roughly 9 percent. A variety of sources make up the remaining 16 percent, with the largest component being Prop 1B – TSGP funds.

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Section 5307 Formula Funds</td>
<td>$7,658,502.00</td>
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<tr>
<td>FRA</td>
<td>$24,900,000.00</td>
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<tr>
<td>Prop 1A Discretionary</td>
<td>$24,010,000.00</td>
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<tr>
<td>Prop 1A Formula</td>
<td>$17,833,000.00</td>
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<tr>
<td>Prop 1B - PTMISEA</td>
<td>$1,302,585.00</td>
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<tr>
<td>Prop 1B – TSGP</td>
<td>$5,757,164.00</td>
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<tr>
<td>Other State / Local Funding</td>
<td>$3,641,402.00</td>
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<tr>
<td>TDA Article 4.0</td>
<td>$1,190,316.00</td>
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<tr>
<td>TransNet Major Corridor</td>
<td>$1,000,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$87,292,969.00</strong></td>
</tr>
</tbody>
</table>
NCTD Purchase Order 13035: San Diego COASTER Fiber Cable & Conduit Installation

On November 8 2013, the following photos were taken during a site walk with the Contractor, NCTD, and BRG to review site conditions:

San Diego COASTER Fiber Project; Site visit – Handhold 1800ft south of Old Town - November 8, 2013

San Diego COASTER Fiber Project; Site visit – Old Town conduit entry - November 8, 2013

San Diego COASTER Fiber Project; Site visit – NCTD Patch panel Old Town - November 8, 2013

San Diego COASTER Fiber Project; Site visit – NCTD Rack Old Town - November 8, 2013
San Diego COASTER Fiber Project; Site visit – Old Town signal house - November 8, 2013

San Diego COASTER Fiber Project; Site visit – Santa Fe Depot, Conduit Entry - November 8, 2013

San Diego COASTER Fiber Project; Site visit – Handhold adjacent to Washington - November 8, 2013

San Diego COASTER Fiber Project; Site visit – Old Town MTS Patchpanel - November 8, 2013
On November 21 2013, the following photos were taken during a cable investigation to inspect for potentially abandoned cables:

San Diego COASTER Fiber Project; Cable Investigation – Cabinet 2000ft South of Old Town - November 21, 2013

San Diego COASTER Fiber Project; Cable Investigation – Pullbox 2000ft South of Old Town - November 21, 2013

San Diego COASTER Fiber Project; Cable Investigation – Pullbox to cabinet, 2000ft South of Old Town - November 21, 2013