BART Agreement Number: 6M8145 **Approval Date:** 12/22/2020

Work Plan: No. B.03-02 – New Rail Vehicle Change Order Review Audit

Scope:

The proposed scope of work for this Trend has been divided into the following eight (8) tasks.

Task 1. Continue the onboard and wayside noise measurements at six (6) month intervals. The number of wayside sites will be increased to six (6) to provide some support for the ongoing monitoring at 50 test sites. The estimated level of effort each time that onboard or wayside measurements are performed is 80 hours, which includes the time for obtaining track time, mobilization, performing the measurements, analyzing the measurement recordings, and preparing a memorandum summarizing the measurement results. This labor estimate assumes six (6) wayside measurement sites. The onboard measurements require two to three days for an ATS staff member onboard BART trains. When performing the onboard noise measurements the ATS staff member is always accompanied by a BART staff member.

Task 2. Determine difference between onboard noise and vibration measurements on new Bombardier and old vehicles. This task will be based on comparison of onboard measurements of train consists of all Bombardier vehicles to onboard measurements with all trains with all legacy vehicles. We anticipate that measurements to document the difference between onboard noise on the Bombardier and legacy BART vehicles will be performed as part of the August 2020 onboard measurements. ATS will prepare a memorandum that outlines our planned approach for these measurements prior to the August 2020 measurements and a revised version of the memorandum will be provided prior to the February 2021 measurements.

Task 3. Under-car measurement task removed.

Task 4. Introduce OnTrack as a replacement for CorrTracker. A beta version of OnTrack that is currently available and in use by BART staff. OnTrack includes most of the capabilities that were available in

CorrTracker and a number of new features. As discussed above, OnTrack has an annual license fee of $10,000 that will cover the standard OnTrack features. Customizations to adapt OnTrack to requirement specific to BART are currently being implemented. Additional potential customizations include alternative ways of displaying data, incorporating data from wayside monitoring into the OnTrack database, automatic tracking and display of onboard data at the 50 monitoring sites, and expansion of OnTrack analysis software to identify various trends and issues with track.

Task 5. Evaluate trends. As discussed above, the new OnTrack database is configured to support investigation of trends. There are a number of different trends that could be explored. Candidates include rate of growth of rail corrugation, effectiveness of rail grinding at removing rail corrugation, effectiveness of the rail friction management program, and identification of incidences of rail faults such as squats.

Task 6. Continued support for the team efforts between BART, PreScience, ARM, and ATS to resolve the rail corrugation problem at BART.

Task 7. Coordination with ARM to make sure that the ATS tool (OnTrack) works smoothly with the ARM tool (ARMapp). An initial thought is that On-Board could function as a module of ARMapp. ATS staff and ARM staff have had several discussions on this topic.

Task 8. Miscellaneous small tasks and participation in team meetings. For this task we have assumed that BART team meetings will occur on a monthly basis, which means approximately 18 meetings over the duration of this Trend. For each meeting, ATS will present a summary of our work to date, and discuss any important observations or conclusions. These presentations will typically use PowerPoint. For the cost estimates we have assumed six (6) meetings will include on-site participation of at least one ATS staff member.

Prime: Jacobs

Subconsultant	Amount	DBE (Y/N)	SBE (Y/N)
Acoustic Strategies, Inc. (dba ATS)	$ 262,599	N	N

Total Work Plan Value: $ 347,018