AQRP Monthly Technical Report

PROJECT TITLE	MOVES-Based NO$_x$ Analyses for Urban Case Studies in Texas	PROJECT #	16-010
PROJECT PARTICIPANTS	Sonoma Technology, Inc. (STI)	DATE SUBMITTED	December 8, 2016
REPORTING PERIOD	**From:** November 1, 2016 **To:** November 30, 2016	REPORT #	2

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task

STI received the fully executed subject task order on November 7, 2016 and started the planned project work. STI also received templates for the quarterly report and financial status report, and delivered the October monthly technical report (on November 7, 2016) and September – November quarterly report (on November 28, 2016).

During this reporting period, the STI team focused on Task 1 Emissions Reconciliation Analyses, by collecting and processing near-road ambient air quality data for three monitoring sites in Houston, Fort Worth, and El Paso. The team collected pollutant concentration data from the U.S. Environmental Protection Agency (EPA) Air Quality System (AQS). The team also started evaluation of data needed for MOVES modeling to get prepared for requesting information from local planning agencies for MOVES runs.

Preliminary Analysis

The STI team assessed the MOVES modeling data needs based on the local agency data submission requirement to develop the 2014 National Emissions Inventory (NEI). As shown in **Table 1** for an example, the team developed specific summary of data tables associated with the County Data Manager (CDM) and Project Data Manager (PDM), which will be used to request and organize local data for future MOVES modeling runs. These data will directly support modeling work in the emissions reconciliation analysis and the MOVES sensitivity analysis.

Table 1. Summary of example data and data tables needed for MOVES modeling runs.

Purpose	CDM/PDM	Tab Name	Table Name
PDM ER / CDM	CDM/PDM	AgeDistribution	soucetypeagedistribution
			FuelSupply
			FuelFormulation
			FuelUsageFraction
PDM ER / CDM	CDM/PDM	fuel	AVFT
PDM ER / CDM	CDM/PDM	Meteorology	ZoneMonthHour
PDM ER / CDM	CDM/PDM	I/M Programs	IMCoverage
PDM ER / CDM	CDM/PDM	Retrofit	onRoadRetrofit
PDM ER / CDM	CDM	Hotelling	hotellingHours
PDM ER	PDM	Hotelling	hotellingActivityDistribution
PDM ER	PDM	Link Source	link
PDM ER	PDM	Link Source Type	linkSourceTypeHour
PDM ER	PDM	Link Drive Schedule	driveScheduleSecondLink
PDM ER	PDM	Off-Network	offNetworkLink
PDM ER	PDM	Operating Mode Distribution	opModeDistribution
PDM Traffic Activity	PDM	Link length	
PDM Traffic Activity	PDM	Link hourly traffic volume (or AADT + hourly distribution)	
PDM Traffic Activity	PDM	Link hourly speed distribution (or average speed)	
PDM Traffic Activity	PDM	Link fleet mix (AADT percentage by vehicle classes or truck percentages)	
			HPMSVtypeYear
			monthVMTFraction
			dayVMTFraction
CDM	CDM	Vehicle Type VMT	hourVMTFraction
CDM	CDM	Source Type Population	sourceTypeYear
CDM	CDM	Road Type Distribution	roadTypeDistribution
CDM	CDM	average Speed Distribution	avgspeeddistribution
			starts
			startsPerDay
			startsHourFraction
			startsSourceTypeFraction
			startsMonthAdjust
CDM	CDM	Starts	importStartsOpModeDistribution

Data Collected

Ambient air quality data were retrieved from AQS, which is an online application that contains ambient meteorological, air quality, and ancillary data submitted by the EPA, state, local, and tribal air pollution control agencies. For this analysis, the STI team obtained the raw data for all available parameters at the three study sites from 2014-01-01 00:00 to 2015-12-31 23:59. The major parameters include wind speed, wind direction, hourly CO, hourly NO_x, hourly $PM_{2.5}$, and speciated VOCs, where available. The data fields in the output files are pipe-delimited, as shown in **Figure 1** for an example. The STI team is conducting data processing, such as parsing, re-formatting, and quality checking outputs from the AQS database (see **Figure 2** for example).

Figure 1. Screen capture of raw data pulled from the AQS.

Figure 2. Time series of 2014 ambient NOx concentrations at the El Paso site (AQS ID 481410037); raw data obtained from AQS are being processed and quality assured for emissions reconciliation analysis.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments

No problems or issues were encountered during the reporting period.

Goals and Anticipated Issues for the Succeeding Reporting Period

The STI team began the planned emissions reconciliation analysis with processing near-road monitoring data; the team plans to continue work with ambient air quality data processing, meteorological data collection, and ambient-based pollutant ratios calculation. We do not expect significant issues in the next reporting period.

Detailed Analysis of the Progress of the Task Order to Date

The completion of each project task and the project deliverables are expected to follow the schedule from the work plan and quality assurance project plan.

Do you have any publications related to this project currently under development? If so, please provide a working title, and the journals you plan to submit to.

___Yes   _x_No

Do you have any publications related to this project currently under review by a journal? If so, what is the working title and the journal name? Have you sent a copy of the article to your AQRP Project Manager and your TCEQ Liaison?

___Yes   _x_No

Do you have any bibliographic publications related to this project that have been published? If so, please list the reference information. List all items for the lifetime of the project.

___Yes   _x_No

Do you have any presentations related to this project currently under development? If so, please provide working title, and the conference you plan to present it (this does not include presentations for the AQRP Workshop).
___Yes   _x_No

Do you have any presentations related to this project that have been published? If so, please list reference information. List all items for the lifetime of the project.

___Yes   _x_No

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