

2011 Puget Sound Emissions Inventory Update Scope of Work /Budget/Schedule

The following document is Starcrest's understanding of the scope of work issued in the request for proposal (RFP), based on the meeting between the Port of Tacoma and Starcrest Consulting Group, LLC (Starcrest) on 2 November 2010.

The scope of work is to cover the work related to the 2011 Puget Sound Emissions Inventory (PSEI) update. Unlike the 2005 PSEI, a significant portion of the effort associated with the project leadership responsibility and data collection will be the responsibility of the Port of Tacoma's Project Manager (PTPM) and participating funding members (whether in-kind or financial). In order to best minimize cost, the base contract focuses Starcrest on set of core tasks (Tasks A, B, C – Table 1, D, E, & F (as detailed below)).

Inventory Data Managers (IDMs) for each port and participating entities will be fully responsible to collect the required data (as specified in Task B) and provide their data to the PTPM for review in the time schedule set by the PTPM in order to sufficiently allow for the completion of the project as defined in the RFP. IDMs will report to the PTPM. Starcrest will assist the PTPM and IDMs in understanding what data is needed and will provide the PTPM (for distribution to the IDMs) the previous inventories data sheets to be updated. If data is not collected by an IDM, then the PTPM will decide if that portion of the PSEI will be excluded from the update. Starcrest will not be responsible for gathering data outside of its assigned core tasks.

Alternatively, ports and participating entities can negotiate with Starcrest to collect and update their required data (listed in Task C – Tables 2 and 3). This option shifts the data collection responsibility from the IDM entity to Starcrest. Once a separate scope of work and cost is agreed upon, it will be executed under the existing Port of Tacoma master contract. Funding of the scope will be the responsibility of the port/participating entity.

All requests for additional work from Starcrest outside of the core tasks and those funded by participating entities will be directed through the PTPM. Contract modifications will be required prior to starting work.

Task A: Summarize the Methodology Used in the 2005 PSEI and Recommend Revisions as Needed (Core Task)

Starcrest will provide the PTPM a bulleted list that outlines the methods used in the 2005 EI and a bulleted list of recommendations for changes by source category. Once the list is approved by the PTPM, a meeting with the Project Funding Committee (PFC) will be convened by the PTPM and Starcrest will present the details associated with the bulleted lists in a conversation format allowing the PFC to ask questions and clarifications. The details will include the pros and cons of making the recommended changes, how the changes will affect the emission results compared to using the 2005 EI method, how it will affect our ability to compare this inventory to others and how not making the change would affect future inventories. The goal of the meeting is to get agreement on any changes that will be agreed upon so that they can be incorporated into Task B.

The deliverables for this task will be: preliminary draft bulleted lists for 2005 methods and recommendations to the PTPM, draft bulleted lists to the PTPM for distribution to the PFC, and final bulleted lists based on comments from the PFC meeting.

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The task will be completed by 19 November 2010.

The anticipated budget for this task is \$2,010

Task B: Finalize 2011 Emission Calculation Methodology and Data Collection Procedures (Core Task)

Starcrest will compile an emission calculation methodology and data collection procedures document which will outline the following 2011 PSEI parameters and methods:

- Geographical extent
- Pollutants
- Source categories to be included
- Methods and emission factors to be used for estimating emissions from the included source categories
- Data requirements for each source category
- Data management responsibility matrix with key progress milestones to track data collection progress
- Applicable data collection spreadsheets to be collected by Starcrest and the IDMs
- Schedule for project milestones
- 2011 PSEI report format/structure

The draft protocols document will be sent by the PTPM to the PFC. The PTPM will convene a meeting of the PTC in which Starcrest will lead a “walk through” of the document and will discuss questions/suggestions/etc. with the PFC. Comments from this meeting will be incorporated by Starcrest and a revised procedures document will be submitted to the PTPM. The PTPM will provide the revised procedure document to the PFC for final approval. Starcrest will finalize the procedures document and the PTPM will distribute to the PFC.

The deliverables for this task will be: preliminary draft procedures document to the PTPM, draft procedures document to the PTPM for distribution to the PFC, draft final incorporating the PFC’s comments, and a final document.

The anticipated schedule for this task is as follows:

- Preliminary draft to PTPM 3 Dec 2010
- PTPM comments 7 Dec 2010
- Draft to PTPM 10 Dec 2010 with PTPM distribution to PFC
- Meeting week of 13 Dec 2010
- Draft final 20 Dec 2010
- Comments back from PFC 22 Dec 2010
- Final 31 Dec 2010 with PTPM distribution to PFC

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The anticipated budget for this task is \$9,240

Task C: Data Collection (Table 1 Core Task Only)

The data collection is divided into three sections. Table 1 consists of the core task data collection efforts that Starcrest will be responsible for completing. Table 1 data collection efforts that Starcrest is responsible for include (individual costs are provided in Attachment D PSEI RFP Pricing Sheet):

- C1 Ocean-Going Vessel (OGV) Activity Data – times, dates, port, at-berth, transit, and maneuvering activity data for the entire emissions inventory domain. Similar to the 2005 PSEI, this data will come from the Marine Exchange. **Note:** *In the RFP, OGV data was split between Tables 1 and 2, however the data provided by the marine exchange includes all activity and therefore this effort does not need to be duplicated.*
- C2 Harbor Craft (HC) Activity Data – Starcrest will provide limited data collection on HC. The effort will focus on working with the IDMs from the Ports of Tacoma, Seattle and Everett, and Washington State Ferries who will be responsible for collecting the data for all harbor craft that is within their boundaries or under their ownership, including all marinas. For all harbor craft outside of these, Starcrest will collect all data needed. If the budget does not allow for collection of all required data by Starcrest, they will recommend a methodology for using the 2005 data to estimate activity level for 2011. The harbor craft work group will approve the methodology and Starcrest will use the estimated 2011 data in the emission inventory. Starcrest will brief PSCAA and IDMs on data collected for the 2005 inventory, contact information, data sheets from the previous PSEI, and answer questions. Starcrest works with Foss on separate projects and would collect Foss related information. There may be new harbor vessel companies in the area that were not there in 2005. At the time of data collection IDMs and Starcrest will ask the existing harbor vessel companies if there are other harbor craft companies operating in the area that may not be on the 2005 list of harbor craft companies. Each IDM and Starcrest will add new companies to the list and data will be collected for the new companies' fleet by IDMs. If budget does not allow for Starcrest to collect names and data for new companies, these will not be included in the emission inventory.
- C4 Rail Locomotive (RL) Activity Data – Starcrest will limit its RL activity data collection to activity that is within the inventory domain that is outside of port property and does not include activity between Ports of Tacoma and Seattle (those ports' IDMs will provide that data).
- C5 Heavy-Duty Trucks (HDT) Activity Data – Starcrest will limit its HDT activity data collection to drayage trucks traveling regionally within the inventory domain. HDT activity on port property and terminals will be collected by the IDMs.

The cost associated with Table 1 is \$27,490.

If money allows, Starcrest would be tasked with some or all of Table 2. The following changes have been made after the 2 Nov 2010 meeting with Port of Tacoma:

- Deleted OGV items as they will be collected as part of Table 1 (core task).
- Includes an optional limited Vessel Boarding Program (VBP).

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- HC is left as an option if Starcrest. were to collect the data without the PSCAA staff resources.

Table 3 is data that will be collected by the IDMs.

IDMs may request Starcrest to collect some or all of the items in Tables 2 or 3, however the costs would be agreed between the IDM and Starcrest, the PTPM would verify funding and then instruct Starcrest to conduct work after the contracting paper work is completed. The PTPM has sole authorization for any additional work. Starcrest will not proceed on additional work without written approval from the PTPM.

IDMs will ensure that the data needed to for the inventory is being collected and will notify the PTPM if there are issues. The Starcrest Project Manager (SPM) will coordinate with the PTPM on data review updates (Task D), any data gaps in the data (Task D) and ready to be moved to emission estimating phase (Task F). Completed data sets will be submitted to the PTPM for data review after they have been collected in 2012.

This task will be completed by the 15 Mar 2012.

The deliverables for this task are the completed data spreadsheets ready for emissions estimating and updated data collection milestone matrix sheets from Task B on a quarterly basis (as determined by the PTPM).

All data sets need to be completed and approved (Task D) by 15 Mar 2012 in order to meet the report schedule. The PTPM will be responsible for determining if the report will be delayed if any of the IDM data is missing or to publish the report without those impacted sources.

Task D: Data Review (Core Task)

Starcrest will review the datasets provided by the IDMs in Task C for completeness and to ensure that the data is within anticipated ranges. Data that is questionable will be sent back to the PTPM and IDMs for clarification. Once a dataset is deemed valid and complete, the SPM will notify the PTPM and that dataset will be logged as complete in the data collection matrix.

The deliverable for this task will be to log dataset's status in the data collection matrix and the final datasets for emission estimates.

This task will be completed by the 15 Mar 2012.

The anticipated budget for this task is \$9,360

Task E: Meetings (Core Task)

This task includes up to ten coordination meetings. The time and content of these meetings will be coordinated by the PTPM and may include a wide range of participants. The subject of these meetings may include project progress updates, technical issue discussions that arise as part of the inventory, schedule issues that need to be resolved, summary of reviewed data, review of initial

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results, review of draft work products, etc. Starcrest will provide meeting support as requested by the PTPM. It is assumed that these meeting will not be in excess of 3 hours on average.

The deliverables for this task will be meeting notes which include brief summary of topics discussed, action items, resolutions, etc.

The anticipated budget for this task is \$12,620.

The meetings will be concluded before the end of the project.

Task F: Draft and Final Report (Core Task)

The 2011 PSEI report structure and content will be decided in Task B.

This task also includes the estimating of emissions based on the data collected in Task C based on the methods agreed upon in Task B. The emission estimates will be validated through QA/QC procedures employed by Starcrest.

The structure and contents of the report will be decided in Task B. The report, as priced in Appendix D, will include:

- Controlled 2011 emissions, by port, by county, and total for data collected in Task C
- Concise Executive Summary (recommend limiting to less than 5 pages)
- Concise Section 1 Introduction will not repeat port descriptions and general information from 2005 report, but will include list of emission reduction strategies that were employed in 2011 that resulted in the controlled emissions.
- Concise Section 1 Introduction will include list of emission reduction strategies by port and terminal/entity.
- Section 2 Summary Results will follow similar format as 2005 report.
- Section 3 OGV will include same format as 2005, except for Emission Control Measure Benefits (optional task – see below) and Strengths, Limitations and Recommendations sections (Note: the Strength, Limitations and Recommendations will be consolidated in Section 9).
- Section 4 Harbor Craft will include same format as 2005, except for Emission Control Measure Benefits and Strengths, Limitations and Recommendations sections.
- Section 5 CHE will include same format as 2005, except for Emission Control Measure Benefits and Strengths, Limitations and Recommendations sections.
- Section 6 Rail Locomotives will include same format as 2005, except for Emission Control Measure Benefits and Strengths, Limitations and Recommendations sections.
- Section 7 Heavy-Duty Vehicles will include same format as 2005, except for Emission Control Measure Benefits and Strengths, Limitations and Recommendations sections.
- Section 8 Fleet Vehicles will include same format as 2005, except for Emission Control Measure Benefits and Strengths, Limitations and Recommendations sections.
- Section 9 Conclusions and Recommendations will include same format as 2005. This includes a summary of the Strengths, Limitations and Recommendations.
- Appendices similar as 2005.

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Starcrest will provide the PTPM a preliminary draft of the 2011 PSEI report (minus appendices) for review. PTPM comments will be incorporated and a draft report will be distributed by the PTPM to the PFC. Comments from PFC will be incorporated into a final draft report which will be distributed by the PTPM to the PFC. Final comments will be incorporated into a print version final. Based on the 2 Nov 2010 meeting, comments will be limited and major changes will not be included as the structure and format of the document will be agreed upon in Task B.

Starcrest will provide each port and funding partner its source activity data (final datasets from Task C) and emissions calculation spreadsheets for CHE, RL, HDT, LDT. A locked and unlocked version will be provided. Only the locked version will be warranted by Starcrest. Input and output files for OGV (as permitted by the Lloyd's licensing agreement) and HDV will be provided along with emission factors, control factors, and correction factors. The draft and final reports will be provided in Word and pdf formats. The appendices will be provided in pdf formats (licensing agreements do not allow for the Lloyd's data to be provided in any other format).

The budget includes 1 hard copy of the report (bound, color, and double-sided on recycled products).

The schedule for this task is as follows:

- Preliminary draft report w/o appendices 28 May 2012 (morning)
- Preliminary draft comments 1 Jun 2012 (evening)
- Draft report w/o appendices 7 Jun 2012 (evening)
- Draft comments 14 Jun 2012 (morning)
- Final draft report w/appendices 21 Jun 2012 (morning)
- Final comments 26 Jun 2012 (evening)
- Print version final document, appendices, and data files 29 Jun 2012

The anticipated budget for this task is \$162,280.

Additional Optional Tasks

There were several additional optional tasks that were brought up in the interview meeting on 28 Oct 2010. These optional tasks are listed below:

- Report printing –Starcrest has reassigned report printing as an optional task to be funded by PFC member(s) requesting printed reports. Starcrest does not markup printing expenses so the cost would be determined at the time of printing.
- Move OGV inventory to Automated Identification System (AIS) format which would be an upfront cost but would make future updates much more efficient. The cost at this time is not known, as Starcrest is developing the methods and procedures for this type of inventory with the Port Authority of New York & New Jersey. Once the method has been validated for that project, Starcrest can brief the PFC on potential costs.

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- Special requests for data management or emissions forecasting tools not specifically used by Starcrest to calculate the 2011 Puget Sound Air Emissions Inventory will be funded by the PFC member(s) requesting the data management or emissions forecasting tool.
- Emission reduction quantification by measure and port – due to the increased number of measures employed by the ports as part of their air quality plans, this task will be much more involved than in the 2005 PSEI. The estimated cost to incorporate the details into the 2011 PSEI report is \$25,000.
- Qualitative emission comparison section – to develop a section in which progress between 2011 and 2005 is presented, detailing the changes between the two inventories, and adjusting 2005 activity using control factors defined for each change (as done in the 2006 Port of Los Angeles emissions inventory) is estimated to cost \$10,000. A more costly alternative would be to run 2005 activity data through the 2011 models (cost to be determined).