Add the request of City staff, the R+A team added the following greenhouse gas inventory to our scope of work.

Task 3.15: Greenhouse Gas Inventory

ESA will prepare a community-wide and municipal operations greenhouse gas (GHG) emissions inventory for the City for non-energy sectors. These sectors include on-road transportation, off-road vehicles and equipment, solid waste, wastewater treatment, and refrigerants. Note that ESA is preparing a GHG inventory for the energy-related sectors under a separate contract.

ESA will develop the community-wide and municipal operations inventories for the same calendar year being used for the energy inventories (e.g., 2017, if data is available) using methods consistent with current best practices, including the U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions (ICLEI 2012 Protocol), the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC), the Local Government Operations Protocol (LGO). Where appropriate, ESA will draw on methods from the California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and other sources as applicable. ESA will compile inventory activity data in excel worksheets and enter these data into the web-based ClearPath tool from the Statewide Energy Efficiency Collaborative (SEEC) to calculate GHG emissions. This will ensure that the information is integrated with the City's energy emissions data, is easily accessible and easily revised, and that the GHG emissions results can be compared across inventory years (if future inventories are prepared by the City).

Task 3.15a: Coordination and Meetings

ESA will coordinate with City staff to identify key existing documents, data needs, and data collection and management to support subsequent tasks.

ESA will also provide an in-person presentation of the final GHG Inventory Report to the City Council, and participate in ongoing phone meetings with City staff throughout the project.

Task 3.15b: Determine Inventory Methods

ESA will prepare a Data and Methods Memorandum to present the data sources and calculation methods that we recommend for developing the community-wide and municipal non-energy inventories. We anticipate preparing the inventories for the same year being used for the energy-related GHG inventories, using the most recent data available, including vehicle miles traveled (VMT) data provided by the General Plan Update traffic consultant. We will consult with the City to determine the most appropriate and optimal year based on all factors to be considered.

Task 3.15c: Data Collection and Analysis

We anticipate including the following non-energy-related sources in the inventories. For those sectors marked with an asterisk (*), the accuracy and completeness of emissions estimates will depend on data availability:

Community Sector	Municipal Sector
On-road transportation	Vehicle Fleet: on-road vehicles
Commuter and freight rail *	Employee commute
Off-road vehicles and equipment	Vehicle Fleet: off-road vehicles and equipment
Solid waste	Solid waste
Wastewater (fugitive emissions)	Wastewater (fugitive emissions)
Refrigerants (HFCs) *	Refrigerants (HFCs) *

For some community sectors (e.g., solid waste, off-road transportation), ESA will be able collect the data directly from publicly-available sources. For other community sectors, ESA will need to coordinate with the City to get the data directly from City departments, or to request the data from the appropriate agency (e.g., LA Metro).

For municipal operations data collection, ESA assumes the following support from the City:

- City staff will lead data collection for all sectors of the municipal inventory, and ESA will provide templates to identify the data needed (e.g., fleet fuel use) and guide the data collection effort.
- The City will provide all requested data for the inventory year in an agreed-upon format (such as Excel). Data collection will be discussed at the kickoff meeting. When needed, ESA can assist the City in obtaining and processing datasets.

Task 3.15d: GHG Emissions Quantification and Report

After the data collection process is complete, ESA will prepare community and municipal energy-related GHG inventories for the year 2017 (or other year based on consultation with the City). We will endeavor to ensure that all significant and appropriate sources of emissions are included; the boundaries, assumptions and methods used to quantify GHG emissions are sufficient for the purpose of future climate action planning; and the methods are clear, easily replicable, and allow for future benchmarking to California state-wide emissions and to other counties in the region and across the state.

The inventory development process will enable the City to rank emissions sources according to their contribution and to identify their relative significance in an overall emissions reduction strategy (if this is of future interest to the City), both for municipal operations and within the community.

ESA will use ClearPath to quantify emissions and present the community and municipal GHG inventories. Results will be summarized in a brief report that includes assumptions, inventory methods, data sources, and emission trends. The results will be presented so that the City can compare emissions by sector across inventory years (such as 2010), and provide a solid foundation for future GHG reduction planning.

ESA will compile results and methodologies into a draft GHG Emissions Inventory Report inclusive of the community and municipal inventories, inclusive of the energy-related emissions inventories if available. Following review by the City, ESA will complete a final GHG Inventory Report.

Task 3.15 Deliverables

- In-person kick off meeting
- Inventory Data and Methods Memo, including socioeconomic and land use assumptions (draft and final versions)
- Municipal Data Collection Templates
- Community and Municipal GHG Inventory for 2017 (or other year based on consultation with the City), compiled in MS-Excel workbooks and in ClearPath
- Community and Municipal GHG Inventory Report (draft and final versions)
- Regular project check-in meetings (6)
- ESA in-person presentation of the GHG Inventory Report to City Council

Task 3.15 Assumptions

- The General Plan traffic consultant will provide VMT estimates for the City for the inventory year using the origin-destination (OD) trip method and the regional SCAG travel forecasting model developed for the SCAG 2016–2040 RTP/SCS.