

**AGREEMENT
BETWEEN
CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY
AND
PARADIGM ENVIRONMENTAL**

This Agreement entered this ___ day of _____ **2018**, by and between the CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY, a joint powers agency whose members include the County of San Mateo and the twenty incorporated cities and towns within San Mateo County, hereinafter called “C/CAG,” and Paradigm Environmental, hereinafter called “CONSULTANT”.

WHEREAS, C/CAG, is the Congestion Management Agency for San Mateo County and administers the Countywide Water Pollution Prevention Program; and

WHEREAS, Caltrans awarded C/CAG \$986,300 from its Adaptation Planning Grant Program to develop a Countywide Sustainable Streets Master Plan for integrating green stormwater infrastructure into the countywide roadway network to help adapt to precipitation-based climate change impacts and to support C/CAG member agencies’ Green Infrastructure Plans required by the Municipal Regional Permit; and

WHEREAS, C/CAG is required to provide a minimum 11.47% local match and committed \$145,185 in revenue from the \$4 vehicle registration fee revenue dedicated to stormwater pollution prevention programs; and

WHEREAS, C/CAG requires CONSULTANT services to assist in developing the Sustainable Streets Master Plan; and

WHEREAS, C/CAG has determined CONSULTANT has the requisite qualifications to perform this work; and

WHEREAS, by approving Resolution 18-65, the Board of Directors of the City/County Association of Governments of San Mateo County authorizes the C/CAG Chair to execute a funding agreement with CONSULTANT to support development of the Countywide Sustainable Streets Master Plan, and further authorize the C/CAG Executive Director to negotiate final terms, subject to legal counsel review prior to execution by the C/CAG Chair, in a cumulative amount not to exceed \$942,221.

NOW, THEREFORE, IT IS HEREBY AGREED by the parties as follows:

1. **Services to be provided by CONSULTANT.** CONSULTANT agrees to provide services at hourly rates contained in Exhibit A and consistent with the scope of work contained in Exhibit B.

2. **Payments.**
 - a. In consideration of CONSULTANT providing the assistance and services described in Exhibit B, C/CAG shall reimburse CONSULTANT at the rates shown in Exhibit A, not to exceed a cumulative maximum of \$942,221. Indirect costs are not allowable under this Agreement. C/CAG will reimburse consultant only for actual allowable costs that are incurred in accordance with the provisions of this Agreement.
 - b. Travel expenses and per diem rates are not to exceed the rate specified by the State of California Department of Human Resources for similar employees (i.e. non-represented employees) unless written verification is supplied that government hotel rates were not then commercially available at the time and location required as specified in the California Department of Transportation's Travel Guide Exception Process. Allowable travel and per diem expenses will be reimbursed under this Agreement only after CONSULTANT or sub-consultants incur and pay for such expenses.
 - c. Invoices shall include names of personnel performing work; dates and times of project work; locations of project work; itemized costs, including identification of personnel providing services during the period of the invoice, number of hours and hourly rates for each employee or contractor, authorized travel expenses with receipts, and receipts for authorized materials or supplies; and a written progress report detailing the work completed during the period of the invoice.
3. **Relationship of the Parties.** It is understood that CONSULTANT is an Independent CONSULTANT and this Agreement is not intended to, and shall not be construed to, create the relationship of agent, servant, employee, partnership, joint venture or association, or any other relationship whatsoever other than that of Independent CONSULTANT.
4. **Non-Assignability.** CONSULTANT shall not assign this Agreement or any portion thereof to a third party without the prior written consent of the C/CAG Executive Director.
5. **Provision of Contracts or Sub-Agreements.** CONSULTANT shall provide C/CAG copies of all contracts or sub-agreements with sub-consultants or contractors entered into in relation to this Agreement. C/CAG is required to submit these agreements to Caltrans under the September 19, 2018 Restricted Grant Agreement between C/CAG and Caltrans to develop the Countywide Sustainable Streets Master Plan.
6. **Contract Term.** This Agreement shall be in effect as of _____ and shall terminate on February 28, 2021; provided, however, the C/CAG Chairperson may terminate this Agreement at any time for any reason by providing 30 days' notice to CONSULTANT. Termination to be effective on the date specified in the notice. In the event of termination under this paragraph, CONSULTANT shall be paid for all services provided to the date of termination.

7. **Hold Harmless/ Indemnity.** CONSULTANT shall indemnify and save harmless C/CAG, its agents, officers, and employees from all claims, suits or actions to the extent caused by the negligence, errors, acts or omissions of the CONSULTANT, its agents, sub-consultants, officers or employees related to or resulting from the performance, or non-performance, under this Agreement.

The duty to indemnify and save harmless as set forth herein shall include the duty to defend as set forth in Section 2778 of the California Civil Code.

8. **Insurance.** CONSULTANT or its sub-consultants performing the services on behalf of CONSULTANT shall not commence work under this Agreement until all insurance required under this section has been obtained. CONSULTANT shall furnish C/CAG with Certificates of Insurance evidencing the required coverage and there shall be a specific contractual liability endorsement extending the CONSULTANT's coverage to include the contractual liability assumed by CONSULTANT pursuant to this Agreement. These Certificates shall specify or be endorsed to provide that thirty (30) days' notice must be given, in writing, to C/CAG of any pending change in the limits of liability or of non-renewal, cancellation, or modification of the policy.

Workers' Compensation and Employer Liability Insurance: The CONSULTANT shall have in effect, during the entire life of this Agreement, Workers' Compensation and Employer Liability Insurance providing full statutory coverage.

Liability Insurance: CONSULTANT shall take out and maintain during the life of this Agreement such Bodily Injury Liability and Property Damage Liability Insurance as shall protect CONSULTANT, its employees, officers and agents while performing work covered by this Agreement from any and all claims for damages for bodily injury, including accidental death, as well as any and all operations under this Agreement, whether such operations be by CONSULTANT or by any sub-consultant or by anyone directly or indirectly employed by either of them. Such insurance shall be combined single limit bodily injury and property damage for each occurrence and shall be not less than \$1,000,000 unless another amount is specified below and shows approval by C/CAG Staff.

Required insurance shall include:

	Required Amount	Approval by C/CAG Staff if under \$ 1,000,000
a. Comprehensive General Liability	\$ 1,000,000	_____
b. Workers' Compensation	\$ Statutory	_____

C/CAG and its officers, agents, employees and servants shall be named as additional insured on any such policies of insurance, which shall also contain a provision that the

insurance afforded thereby to C/CAG, its officers, agents, employees and servants shall be primary insurance to the full limits of liability of the policy, and that if C/CAG, or its officers and employees have other insurance against a loss covered by such a policy, such other insurance shall be excess insurance only.

In the event of the breach of any provision of this section, or in the event any notice is received which indicates any required insurance coverage will be diminished or canceled, the C/CAG Chairperson, at his/her option, may, notwithstanding any other provision of this Agreement to the contrary, immediately declare a material breach of this Agreement and suspend all further work pursuant to this Agreement.

9. **Non-discrimination.**

- a. CONSULTANT and its sub-consultants shall not deny the Agreement's benefits to any person on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military and veteran status. CONSULTANT shall ensure that the evaluation and treatment of employees and applicants for employment are free of such discrimination.
- b. CONSULTANT shall comply with the provisions of the Fair Employment and Housing Act (Gov. Code, § 12900 et seq.), the regulations promulgated thereunder (Cal. Code Regs., tit. 2, § 11000 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Gov. Code, §§ 11135-11139.5), and the regulations or standards adopted by Caltrans to implement such article.
- c. CONSULTANT shall permit access by representatives of the Department of Fair Employment and Housing and Caltrans upon reasonable notice at any time during normal business hours, but in no case less than twenty-four (24) hours' notice, to such of its books, records, accounts, and all other sources of information and its facilities as said Department or Caltrans shall require to ascertain compliance with this clause.
- d. CONSULTANT and its sub-consultants shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
- e. CONSULTANT shall include these nondiscrimination and compliance provisions in all sub-agreements with sub-consultants or contractors.

10. **Americans with Disabilities Act.** CONSULTANT shall at all times comply with the applicable provisions of the Americans with Disabilities Act (ADA) of 1990 that prohibits discrimination on the basis of a disability, as well as all applicable regulations and

guidelines issued pursuant to the ADA (42. U.S.C. § 12101 et seq.)

11. **Compliance with All Laws.** CONSULTANT shall at all times comply with all applicable laws and regulations, including without limitation those regarding services to disabled persons, including any requirements of Section 504 of the Rehabilitation Act of 1973.
12. **Substitutions:** If specific people are identified in Exhibit A as working on this Agreement, CONSULTANT will not assign others to work in their place without the prior written consent of the C/CAG Executive Director. Any substitution shall be with a person of commensurate experience and knowledge unless otherwise authorized by the C/CAG Executive Director.
13. **Sole Property of C/CAG:** Work products of CONSULTANT which are delivered under this Agreement, or which are developed, produced, and paid for under this Agreement, shall be and become the property of Caltrans or C/CAG, as provided in the September 19, 2018, Restricted Grant Agreement between C/CAG and Caltrans to develop the Countywide Sustainable Streets Master Plan. CONSULTANT shall not be liable for Caltrans' or C/CAG's use, modification, or re-use of products without CONSULTANT's participation or for purposes other than those specifically intended pursuant to this Agreement.
14. **Access to Records.** C/CAG, or any of its duly authorized representatives, shall have access to any books, documents, papers, and records of CONSULTANT which are directly pertinent to this Agreement for the purpose of conducting audits or examinations or making excerpts or transcriptions.
15. **Retention of Records.** CONSULTANT shall comply with Title 2, Code of Federal Regulations, Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. CONSULTANT shall maintain all required records for three years after C/CAG makes final payments and all other pending matters are closed.
16. **Accounting System/Audits.** CONSULTANT shall establish and maintain an accounting system and records that properly accumulate and segregate incurred project costs by line. The accounting system shall conform to Generally Accepted Accounting Principles (GAAP), enable the determination of incurred costs at interim points of completion, and provide support for reimbursement payment vouchers or invoices. All accounting records and other supporting papers shall be held open to inspection, copying, and audit by representatives of C/CAG, Caltrans, the California State Auditor, and auditors representing the federal government. Copies thereof will be furnished upon receipt of any request made by C/CAG, Caltrans, or their agents. CONSULTANT shall maintain and make available for inspection all books, documents, papers, accounting records, and other evidence pertaining to the performance of this Agreement, including, but not limited to, the costs of administering this Agreement. CONSULTANT shall make such materials available at its respective offices at all reasonable times during the duration of the Agreement and for three (3) years from the date of Caltrans' final payment to C/CAG under the September 19, 2018, Restricted Grant Agreement between C/CAG and Caltrans to develop the Countywide Sustainable Streets Master Plan. Caltrans, the California State Auditor, or any duly

authorized representative of Caltrans or the United States Department of Transportation shall each have access to any books, records, and documents that are pertinent to this Agreement for audits, examinations, excerpts, and transactions, and CONSULTANT shall furnish copies thereof if requested. CONSULTANT will permit access to all records of employment, employment advertisements, employment application forms, and other pertinent data and records by the State Fair Employment Practices and Housing Commission, or any other agency of the State of California designated by Caltrans, for the purpose of any investigation to ascertain compliance with the September 19, 2018, Restricted Grant Agreement between C/CAG and Caltrans to develop the Countywide Sustainable Streets Master Plan.

17. **Merger Clause.** This Agreement, including Exhibits A and B attached hereto and incorporated herein by reference, constitutes the sole agreement of the parties hereto with regard to the matters covered in this Agreement, and correctly states the rights, duties and obligations of each party as of the document's date. Any prior agreement, promises, negotiations or representations between the parties not expressly stated in this Agreement are not binding. All subsequent modifications shall be in writing and signed by the C/CAG Chairperson. In the event of a conflict between the terms, conditions or specifications set forth herein and those in Exhibit A attached hereto, the terms, conditions or specifications set forth herein shall prevail.
18. **Governing Law.** This Agreement shall be governed by the laws of the State of California, without regard to its choice of law rules, and any suit or action initiated by either party shall be brought in the County of San Mateo, California.
19. **Notices.** All notices hereby required under this agreement shall be in writing and delivered in person or sent by certified mail, postage prepaid and addressed as follows:

City/County Association of Governments of San Mateo County
555 County Center, 5th Floor
Redwood City, CA 94063
Attention: Matthew Fabry

Notices required to be given to the CONSULTANT shall be addressed as follows:

Paradigm Environmental
9320 Chesapeake Drive, Suite 100
San Diego, CA 92123
Attention: Stephen Carter

20. **Cost Principles.**
 - a. CONSULTANT agrees to comply with Title 2, Code of Federal Regulations (CFR), Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, to the extent applicable.
 - b. CONSULTANT agrees that (a) Contract Cost Principles and Procedures, 48 CFR,

Federal Acquisition Regulations System, Chapter 1, Part 31, et seq., shall be used to determine the allowability of individual Project cost items and (b) all parties shall comply with Federal administrative procedures in accordance with 2 CFR, Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.

- c. CONSULTANT agrees indirect costs are not allowable under this agreement and will not include indirect costs in any requests for payment.

IN WITNESS WHEREOF, the parties hereto have affixed their hands on the day and year first above written.

Paradigm Environmental

By _____ Date _____

City/County Association of Governments of San Mateo County (C/CAG)

By _____ Date _____
Maryann Moise Derwin
C/CAG Chair

Approved as to form:

By _____
Matthew J. Sanders, C/CAG Counsel

Exhibit A

CONSULTANT BILLING RATES

Hourly billing rates for (CONSULTANT) and (SUB-CONSULTANT(S)), are included on the following pages.

The following rates will be used for identified proposal staff and others that may work on the project

Paradigm Environmental

Principal Engineer	\$215
Senior Engineer	\$190
Sr. Developer	\$175
Associate Engineer	\$155
Associate Developer	\$145
Associate Scientist	\$135

Lotus Water

Principal-in-charge	\$195
Senior Engineer	\$185
Project Manager	\$170
Project Engineer	\$140
Design Engineer	\$125
CADD/Graphics	\$105
Admin/PM Support	\$95

Alta Planning + Design

Principal	\$270
Senior Design Associate	\$205
Associate Engineer	\$170
Planning Associate	\$163
Planner	\$106

EOA

Principal	\$230
Managing Engineer/Scientist III	\$216
Managing Engineer/Scientist II	\$214
Managing Engineer/Scientist I	\$211
Design Engineer	\$125
CADD/Graphics	\$105
Senior Engineer/Scientist III - Project Leader	\$194
Senior Engineer/Scientist II	\$172
Senior Engineer/Scientist I	\$154
Associate Engineer/Scientist II	\$144
Associate Engineer/Scientist I	\$117
Technician	\$94
Clerical/Computer Data Entry	70

Urban Rain | Design

Principal	\$195
Intern	\$75

Northwest Hydraulic Consultants

Senior Scientist	\$172
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CD+A

Principal	\$240
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Exhibit B

SCOPE OF WORK, BUDGET, AND SCHEDULE

1 WORK PLAN

The following provides a detailed Work Plan for completing those tasks in the Scope of Work (SOW) assigned to the Consultant team to complete the San Mateo Countywide Sustainable Streets Master Plan (SSMP).

Task 1. Project Initiation

The following outlines the Work Plan for completing Tasks 1.3 through 1.5 of the SOW designated for the consultant.

Task 1.3. Coordination Meetings

The Consultant team will participate in monthly conference calls with C/CAG and Caltrans to provide updates on the status of tasks and deliverables and coordination efforts with parallel countywide projects (e.g., Reasonable Assurance Analysis, County of San Mateo Climate Change Preparedness and Adaptation Guidance Documents). On a quarterly basis and as determined necessary by C/CAG, the Consultant team will attend coordination meetings in person with C/CAG and Caltrans.

Deliverables: Monthly project team meeting agenda and minutes.

Task 1.4. Stakeholder Advisory Committee Meetings

The Consultant team will assist C/CAG with convening quarterly meetings of a Stakeholder Advisory Committee (SAC) to provide updates and seek input on project deliverables. The meetings will focus on addressing local jurisdiction priorities, community concerns, and infrastructure constraints with respect to developing the prioritization criteria and project concepts for the SSMP. The Consultant team will work closely with C/CAG staff to strategize the formation of the SAC and anticipated participants (including external stakeholders from transportation agencies and community organizations), develop objectives and desired outcomes of the quarterly stakeholder meetings, plan the meetings, facilitate the meetings, and develop meeting agenda packages and other meeting materials as needed.

Deliverables: Quarterly SAC meeting agenda and minutes.

Task 1.5. Consultant Project Management

The Consultant will provide management of the team of subconsultants and coordinate efforts for each task and the preparation of deliverables. Monthly invoices that comply with C/CAG and Caltrans requirements will be provided to C/CAG that include progress reports on activities supporting each task and the status of deliverables.

Deliverables: Monthly consultant invoices and work summaries.

Task 2. Community Engagement

Task 2.1. Develop Community Engagement Strategy

The Consultant team will work with C/CAG to leverage the County's Climate Change Collaborative and ongoing C/CAG community outreach strategies to develop an engagement strategy that allows stakeholders and the public to meaningfully participate in the planning process. The team will hold an initial meeting with C/CAG to discuss the proposed engagement strategy and obtain feedback on how to proceed. Based on C/CAG input, the team will prepare a memo outlining the project engagement strategy, schedule, deliverables, and roles and responsibilities. The engagement strategy will identify key goals, project milestones, audience types, specific measures to engage and receive participation from vulnerable communities, and communications tools, and then organize these concepts into a schedule of activities.

The Consultant team will organize the engagement around four phases of the project where education and input will benefit the process. The first phase will focus on educating the community about the project and process, then a discussion about the proposed sustainable streets prioritization criteria, followed by input on

design concepts, and finally review of the draft plan. In each phase, the team will facilitate public events and provide an online presence to allow a broader population to engage. The goal will be to offer a fun and productive community forum that results in two-way communication about the master planning process, public goals and concerns, and design ideas.

Phase I: Project Introduction and Sustainable Street Design Toolkits (March 2019)

The goals for this phase of outreach include introducing the project and educating the public about climate change impacts and green infrastructure (GI) and sustainable streets role in addressing the challenges. The team will introduce the project goals, scope, and timelines to the community and share previous work and decisions made in the Stormwater Resource Plan (SRP), Green Streets Design Guidebook, and bicycle and pedestrian plans. As part of the workshop, the team will ask the public to provide their feedback on preferences for the various elements that make up sustainable streets. Planning for this workshop will consider opportunities to locate the event at or near a school in a vulnerable community.

Phase II: Prioritization Criteria and Street Network (July 2019)

For the second phase of outreach, the team will engage the public to learn about their priorities for the various criteria the team is considering for evaluating sustainable streets priorities. The team will hold a series (up to 6 events) of targeted “pop-up” events with stakeholders, either through attending existing meetings (like neighborhood groups) or hosting a booth or table at community events or community institutions. These pop-up events will reach community stakeholders that may not be able to join typical workshops, such as children and working families, seniors and elderly, as well as the disabled community. The team will update the community on the project process, introduce the proposed criteria for sustainable street prioritization, and ask the public to rank the criteria most important to them. The progress of the plan will also be shared on a project website where people can submit their preferences on the criteria via an online survey.

Phase III: Review Initial Design Concepts (November 2019)

In this phase, the team will facilitate Walk and Talks on the corridors with proposed pilot concept designs so that the community can talk about the potential improvements on site. Walking tours will focus on reviewing the GI design concepts, traffic calming elements, and intersection improvements. The team will look for opportunities where the Walk and Talk routes can be coordinated with existing complete street and green street projects to provide the public with a comparison. The team will identify local community organizations to partner with on facilitating the events.

Phase IV: Draft Sustainable Streets Master Plan (March 2020)

The team will organize a final workshop that will be an open house, ideally timed with an existing community event, to share the draft SSMP. Key elements of the plan will be shared on boards and the team will be present to talk through the ideas and recommended projects. This will also be an opportunity for the public to share their feedback on the streetscape design concepts, the overall network, and priorities. This input will be combined with comments from C/CAG member agencies and stakeholders to refine the draft SSMP for the final version.

Deliverables:

- Draft community engagement strategy.
- Final community engagement strategy (incorporating C/CAG comments).
- Outreach event materials, including Power Point presentations, event meeting notes, and attendance records.

Task 3. Climate Adaptation Risk Analysis on Local Transportation Network

Task 3.1. Quantify Climate Change–Related Precipitation Impacts Related to Transportation Network

As part of preparing the County of San Mateo’s Climate Change Preparedness and Adaptation Guidance Study under its Round 1 Climate Adaptation Planning Grant, the County’s separate consultants will downscale Global Climate Model (GCM) predictions for use in modeling hydrology. The C/CAG Consultant team will work collaboratively with the County’s consultant to review proposed methodologies and ensure that downscaling techniques and results will meet the needs of Task 3.1.

Based on the downscaled GCM predictions, the Consultant will perform adjustments to the countywide hydrology model to simulate the changes in peak storm events and runoff from various impervious surfaces, including roadways. The updated hydrology model will provide simulation of hydrologic scenarios representing existing conditions and future conditions with climate change. The model will be used to compare these scenarios using multiple metrics, including annual runoff volumes, peak flow conditions (e.g., 5-, 10-, or 25-year storms), or other critical conditions identified in Task 5.1 for prioritizing sustainable street opportunities. The model will also enable comparison of scenarios at different spatial scales, including estimation of stormwater runoff at the countywide level, within city/unincorporated county jurisdictions, within vulnerable communities, or from roadways or other urban areas that drain to roadways. These model results will be processed and presented spatially to serve as a primary factor in the sustainable streets prioritization process developed in Task 5.1. For each of the model subwatersheds, model results will be summarized in terms of climate change impacts on annual rainfall, annual runoff, and peak flows, and the influence that roadway runoff has on these metrics. Up to four climate change scenarios will be considered in the analysis of precipitation impacts to the transportation network.

Deliverables:

- Draft technical memo summarizing the changes in runoff characteristics for different climate change scenarios.
- Final technical memo incorporating comments from C/CAG and the SAC.

Task 3.2. Quantify Stormwater Capture Benefits

The San Mateo Countywide Reasonable Assurance Analysis required by the Municipal Regional Permit includes the linkage of the countywide hydrology model with EPA’s System of Urban Stormwater Treatment & Analysis Integration (SUSTAIN) model to provide simulation of GI stormwater capture, treatment, and infiltration processes and cost-optimization of GI projects to inform GI planning efforts. The Consultant will link the SUSTAIN model to the Task 3.1 hydrology model and provide simulation of future climate change to evaluate the benefits of planned GI for climate change adaptation, and the additional level of green streets needed to meet long-term pollutant goals. The SUSTAIN model is configured with multiple scenarios representing increasing levels of green streets in combination with existing GI projects (implemented since 2003), LID associated with new development and redevelopment projected for 2040, and regional projects identified in the SRP.

Deliverables:

- Draft technical memo summarizing stormwater capture benefits of green streets to support climate change adaptation, and the additional green streets needed to provide equivalent pollutant load reductions under future climate change scenarios.
- Final technical memo incorporating comments from C/CAG and the SAC.

Task 4. Hi–Resolution Data Analysis and Fine Scale Drainage Delineation

Task 4.1. Data Collection

The Consultant will support C/CAG to work with C/CAG member agencies, Caltrans, and other stakeholders to identify and compile additional datasets that can support the SSMP, including information

for natural and surface drainage features, utility systems, capital improvement programs, other community priorities (e.g., bicycle or pedestrian plans), localized flooding, vulnerable communities, environmental justice issues, etc. Once compiled, the Consultant will identify missing data that are not included, are geospatially mis-located, or do not have complete attribute information. The first level of QA/QC will be completed using high resolution LiDAR and ortho-imagery data, Digital Elevation Model (DEM), and Google street view. Field verification will be conducted as the second level of QA/QC to obtain possible information on missing data. The Consultant will generate a Geographic Information System (GIS)-based inventory with meaningful attributes necessary to complete the SSMP and will be transferable to a web-based platform that could be accessed by all project team members.

Deliverables:

- Technical memo outlining data requested from C/CAG member agencies and stakeholders to support Task 4.
- Data inventory and web-based viewer incorporating key datasets for stakeholder review.

Task 4.2. High-Resolution Drainage System Delineation

The Consultant will utilize the GIS-based inventory generated under Task 4.1 to delineate drainage areas at the catch-basin scale. Urban hydrology differs from natural environments in terms of minor elevation changes (e.g., street crown or curb) that define the flow path of runoff, and thus requires innovative approaches to analyze high-resolution data to understand areas that drain to individual catch basins. When analyzed at the scale of San Mateo County, the number of catch basins and associated drainage areas requires an automated procedure to perform delineations cost-effectively and within the C/CAG budget for the SSMP. The Consultant will tailor automated algorithms in ArcGIS to perform the necessary automated delineations at the county scale. The Consultant will perform the following steps to automate delineation of catch basin drainage areas throughout the county:

1. Incorporate high-resolution LiDAR and ortho-imagery data to modify the DEM to account for: (A) urbanized features (e.g., street crowns or curbs, buildings) that impact the flow direction of surface runoff, and (B) the storm drain network that transfers flows across topographic divides.
2. Use a series of automated ArcHydro tools in ArcGIS to determine flow direction, flow accumulation, and drainage areas for each catch basin.
3. The prioritization of sustainable streets opportunities (Task 5.1) and development of the SSMP (Task 5.2) will be highly dependent on the accuracy of the catch basin drainage area delineation. Therefore, drainage area delineation results will be reviewed for QA/QC and as determined necessary, the above algorithms will be revised for improved accuracy until sufficient quality is obtained.

Deliverables:

- GIS dataset of catch-basin-scale drainage area delineation and web-based viewer incorporating dataset.
- Draft technical memo summarizing process and results for catch-basin-scale drainage area delineation.
- Final technical memo summarizing process and results for catch-basin-scale drainage area delineation, incorporating comments from C/CAG and the SAC.

Task 4.3. Identify Sustainable Streets Opportunities in the ROW at the Street-Scale

Development of the San Mateo County Stormwater Resource Plan included an initial screening of all streets in the county that can provide meaningful opportunities for green streets. This screening considered factors such as road type (e.g., local neighborhood, city street), ownership (GI is focused on public and ROW opportunities), and road slope. The Consultant will build upon this screening and develop automated algorithms to identify GI opportunities within streets and the public rights-of-way (ROW) that can be integrated with sustainable street designs. The Consultant will perform the following steps:

1. Develop GIS-based tools that process the available countywide 2017 ortho-imagery data, in conjunction with LiDAR and shaded-relief data, to extract major surface features within the ROW and streets.

2. Tailor algorithms to utilize the above results and automate identification of opportunities for GI features such as vegetative curb extensions at: (A) intersections with catch basins and storm drain infrastructure (to allow cost-effective underdrain connections, as needed), and (B) mid-block locations where they can be integrated with pedestrian and bicycle improvements (considering on-street parking and/or red curb zones). Constraints such as utilities, driveway cuts, hazard areas, etc. will be used to exclude areas from consideration.
3. Perform QA/QC of the identified sustainable street opportunities and locations of GI features. If results indicate that improvements are needed, the above processes will be modified. This process will continue until sufficient QA/QC is achieved.
4. Using algorithms developed in Task 4.2, drainage areas will be delineated for each of the GI features identified with the sustainable street opportunities.

Based on the identified opportunities for sustainable streets and associated GI features, the Consultant will translate information developed in Task 4.3 into assumptions for stormwater capture, treatment, and/or infiltration that can be incorporated in the SUSTAIN model and used for Task 3.2 to evaluate the benefits of sustainable streets for mitigating the impacts of climate change. This same information can be used in future updates to the countywide RAA for assessment of needed green streets to meet long-term MRP goals for pollutant load reduction.

Deliverables:

- GIS dataset of identified opportunities for GI within sustainable streets.
- Draft technical memo summarizing identification of GI opportunities within sustainable streets.
- Final technical memo summarizing identification of GI opportunities within sustainable streets, incorporating comments from C/CAG and the SAC.

Task 5. Prioritization of Sustainable Streets Opportunities and Development of Master Plan

Task 5.1. Develop Prioritization Criteria

The San Mateo County Stormwater Resource Plan included a quantitative scoring and prioritization system that considered multiple benefits of green streets. The output from the Stormwater Resource Plan prioritization process is 1000's of streets with individual quantitative scores that were categorized as High, Medium, and Low priority for representation in the RAA modeling system. The Consultant will build upon this effort to: (1) incorporate more-detailed information from Task 4 on the opportunities for GI within street ROW and the associated drainage areas, and (2) expand the prioritization approach to provide more-detailed consideration of co-benefits of sustainable streets and community input obtained in Task 2.

Task 4 will provide comprehensive information on the opportunities to incorporate GI within the street ROW throughout the county, including specific locations for GI components (e.g., individual bioretention basins, bulb-outs at intersections) and the associated drainage areas. For Task 5.1, this information will be critical to improving methods for quantifying and scoring the benefits of green streets in terms of effectiveness. For instance, the more locations within a street ROW to incorporate bioretention or the larger the drainage area, the more opportunity to capture, store, and/or infiltrate stormwater. The Stormwater Resource Plan prioritization process considered surrogate factors to evaluate green street effectiveness for stormwater capture, such as imperviousness or hydrologic soil group (e.g., higher imperviousness or more sandy soil can indicate more capture and infiltration). With the new information developed in Task 4, Task 5.1 will incorporate improved metrics for evaluating and scoring green street effectiveness for the SSMP. For instance, a street with a greater drainage area and more GI opportunities within the ROW will be assigned greater scores.

The Consultant team will develop Task 5.1 prioritization criteria that will be grouped into three main categories: performance, constructability, and co-benefits. The performance criteria will add site-level granularity to the Stormwater Resource Plan output by using the detailed information provided in Task 4. This will be coupled with localized data on flooding (if available) or ongoing flood management planning

efforts to improve overall projected stormwater performance per street location. In addition to adding granularity to reduce the 1000's of streets into a more manageable prioritization list for master planning, the performance criteria will include data to target preferred subwatersheds for pollutant load reduction and climate adaptation. This will be done by leveraging RAA and Task 3 results for subwatershed-specific stormwater capture benefits, while giving reduced preference to areas expected to be addressed by other efforts, such as those streets that fall within drainage areas of planned regional projects or those that are within priority growth areas that are expected to be addressed via C.3. As an alternative scenario for the SSMP, C/CAG member agencies may wish to explore approaches that *emphasize* green streets within large areas projected for redevelopment, with a goal for municipalities to partner with developers on sustainable street retrofits that can enhance these communities.

Constructability criteria consist of geotechnical constraints and site space constraints. Improved geotechnical data versus the SRP screening allows for better analysis of infiltration feasibility and rates, which improves prioritization of opportunities. Examples of improved site-level data include available boring log data, groundwater well data or depth to groundwater layers, and contaminated soil layers. The LiDAR and utility analysis from Task 4 will improve our understanding of surface and subsurface space constraints for green street retrofit feasibility. Shallow, large diameter utilities, such as water mains and gas transmission mains, provide high risk utility conflicts that reduce GI implementation feasibility and overall project cost-benefit. GIS-level analysis will be cross-checked using visual inspection at top sites to verify utility locations by identifying valve box, manholes, and other visible indicators.

Co-benefit criteria help to rank sites, but more importantly, they serve as indicators of project synergy and funding opportunities that can be used with Task 5.2 to support project phasing and SSMP development. Criteria such as overlaps with planned capital streetscape improvement projects or with other city of countywide priorities, such as Safe Routes to Schools, can be critical for identifying projects to prioritize for near-term implementation. Some of these co-benefits were considered in the Stormwater Resource Plan prioritization process, but improvements can be made through further coordination with C/CAG member agencies. Co-benefit criteria also allow for incorporation of community engagement and stakeholder input from Task 2 to be factored into project selection by including the sustainable street co-benefits that are most important to the local community. This may be habitat enhancement or new community gathering spaces, or stakeholders' interests may be more performance-driven, such as addressing nuisance flooding.

Deliverables:

- Draft I technical memo outlining the sustainable streets prioritization criteria and approach.
- Draft II technical memo outlining the sustainable streets prioritization criteria and approach, incorporating comments from C/CAG and the SAC.
- Final technical memo outlining the sustainable streets prioritization criteria and approach, incorporating public/stakeholder comments.
- GIS dataset of prioritized sustainable street projects and web-based viewer incorporating dataset.

Task 5.2. Develop Countywide Sustainable Streets Master Plan

Converting a ranked list of street segments into a master plan requires grouping segments into feasible sustainable street projects, evaluating implementation mechanisms (e.g., policies, programs, and co-located projects), and identifying funding sources (e.g., Caltrans, Prop 1, streetscape improvement projects). Ranked street segments from Task 5.1 will be grouped by linking contiguous top-ranked streets into cohesive projects that meet minimum drainage area and cost-effectiveness metrics. This process of identifying individual projects will also take into consideration physical overlaps with other planned streetscape projects, complete street initiatives, or active transportation network recommendations that could serve as implementation mechanisms. The result of this effort will be a ranked project list with quantified costs and benefits. The total runoff capture from the project list would be sufficient to meet volume capture targets identified by the RAA to be met with green streets, while also supporting flooding, climate change, recharge, pedestrian and bicycle safety and connectivity, transit operation improvements, and other co-benefit goals. These projects will be phased into a recommended master plan by directly linking them to implementation mechanisms and

funding sources, evaluating project schedules and costs, and creating a long-term plan that spreads fiscal and staffing resources into a feasible annual allocation.

The Consultant team will ensure that the SSMP leans heavily on linking the prioritized streets to the programmatic and policy strategies that would enable sustainable street retrofits at a rate needed to achieve stormwater capture targets and climate change adaptation goals. C/CAG member agencies are also developing GI plans that map out GI projects within their boundaries, including green streets, to meet MRP pollutant reduction targets by 2040. The SSMP will directly link to these GI plans to align recommendations, identify local supporting procedures, and reference key documents. The SSMP will serve as an implementation extension of these GI plans.

To support a programmatic approach to green street implementation, sustainable street projects can be developed and phased to mesh with complete street initiatives that could serve as funding mechanisms. The Consultant team will coordinate with C/CAG member agencies to identify planned streetscape capital improvement projects within the county and consider those that could serve as synergy opportunities for GI implementation. This process will leverage potential co-located projects originally identified for the SRP and to be refined in Task 5.1, as well as the ongoing efforts within the GI plans. The integration of bicycle facility improvements, sidewalks, safe crossings, and transit routes and stops with stormwater management benefits will result in sustainable street projects that have more widespread public support and financial tools for implementation.

In addition to a programmatic approach, the Consultant team will also consider a policy or regulatory approach to sustainable street implementation. Streetscape projects that create or replace 10,000 ft² or more of contiguous impervious area are subject to C.3 compliance and are thus required to implement GI. GI planning efforts in the county are identifying planning and policy documents that support GI integration and thus may also serve as implementation mechanisms for sustainable streets. Examples include climate resiliency and adaptation plans, flood policy programs, and street tree master plans. The SSMP will support resiliency efforts in the county and will aim to sync with these plans by evaluating the impact of climate change on stormwater compliance targets and by quantifying the adaptation benefits of the proposed green streets, based on information developed in Task 3, as well as the potential mode shift from vehicles to alternative modes, walking, biking, or transit to reduce carbon emissions.

After evaluating synergies with existing policies, the Consultant team will develop a model Sustainable Streets Policy to further guide green street implementation in the county. The Policy will leverage the C/CAG materials to guide opportunity identification, but will also specify the physical conditions per street type and the scope of the planned improvements that warrant the evaluation and implementation of GI within the ROW. The goal of the SSMP and accompanying proposed Policy is to create an implementation road map that guides countywide integration of sustainable streets to 2040. The SSMP will bring together the information from the other tasks to not only define which projects should be implemented and how they can be funded, but also what the process for outreach will be, how identification, evaluation, and prioritization can occur in the future to refine recommendations and adaptively manage the SSMP, and how progress will be tracked to quantify benefits.

The SSMP will provide a database of prioritized sustainable street opportunities, with quantified costs and benefits, documented site suitability characteristics, and identified synergy opportunities. Top priority projects recommended for near-term implementation as part of the 0 to 5-yr plan will have an increased level of detail in the SSMP. This increased detail includes identifying the potential project lead, collaborating agencies, and funding sources, while also verifying project feasibility via site evaluations and developing more detailed project cost estimates and schedules. Input from C/CAG members and knowledge gained from stakeholder engagement outlined in Task 2 will also be critical to the process of identifying the top projects to include in the 0 to 5-yr plan. The data for the projects in the 10- and 20-yr implementation horizon will be documented within the SSMP and included in web-based mapping tools similar to the tool developed for the SRP. This will enable easy updates as data changes and will facilitate assessments of sustainable street viability as synergy opportunities arise from 2020 to 2040.

Deliverables:

- Draft I SSMP report that combines output from the other tasks into a comprehensive 5-, 10-, and 20-yr sustainable streets implementation plan.
- Draft II SSMP report that incorporates comments from C/CAG and the SAC.
- Final SSMP report that incorporates public/stakeholder comments and additional comments from C/CAG and the SAC.

Task 6. Project Concepts

Task 6.1. Develop Pilot Project Concepts

The Consultant team will work with C/CAG and its member agencies to select 10 high priority projects evaluated in Task 5 for development of conceptual designs. The conceptual designs will be consistent with the San Mateo County Green Streets and Parking Lots Design Guidebooks. To support this task, the Consultant team will build upon the conceptual design templates and layouts prepared for the Stormwater Resource Plan that have proven successful in conveying information to the State Water Resources Control Board and Caltrans and have led to successful grant funding and funding partnerships. To build upon these concept templates, the Consultant team will incorporate more-detailed information to demonstrate how GI can be integrated with bicycle and pedestrian improvements, discuss the multiple benefits of sustainable streets for adapting to climate change, quantify stormwater capture and pollutant load reduction benefits (based on methods consistent with the RAA to maintain relevancy with GI plans), and provide cost estimates for various phases of design and construction to support grant applications or discussions on funding or partnerships. The Consultant team will develop visually compelling concepts, while also summarizing water quality, greenhouse gas, and other project benefits. The goal is to create concepts that serve as effective tools for C/CAG member agencies to convey project potential to stakeholders and potential funding partners.

Deliverables:

- Up to 10 Draft I project concepts
- Up to 10 Draft II project concepts, incorporating comments from C/CAG member agencies
- Up to 10 Final project concepts, incorporating public/stakeholder comments and additional comments from C/CAG and the SAC , to be incorporated in the SSMP.

Task 7. Web-Based Sustainable Streets Project Implementation Mapping and Tracking Tool

Task 7.1. Develop a Mapping and Tracking Tool

There are several functional considerations for development of a tracking tool that will meet the various needs of C/CAG member agencies for demonstrating progress implementing GI and sustainable streets, quantifying benefits (e.g., progress towards meeting MRP pollutant reduction targets and climate change adaptation goals), and presenting results. There are additional technical considerations of a web-based system related to software, user access, and system maintainability. The following outlines key considerations for the tracking tool and proposed approaches to meet these needs given the budget and schedule of the project. The Consultant will meet with C/CAG and its member agencies, Caltrans, and other stakeholders to discuss these and other considerations to ensure that all user preferences and desired functionality are understood. Based on this feedback, the Consultant will develop a detailed software development plan that outlines the system architecture, user access, system requirements (e.g., either hosted on local server or cloud), and other details for C/CAG review. Once the plan is approved, the Consultant will develop the system, prepare a user manual, and provide a training course for C/CAG and its member agencies and stakeholders.

Leverage the RAA to Calculate Tracking Metrics (Relevant to the MRP and Water Resources Planning Initiatives)

Key to the tracking of GI implementation is the quantitative metrics that will be used to assess and report progress to the Water Board for meeting interim and final PCB and mercury reduction targets in the MRP. The countywide RAA is translating load reduction targets into preferred quantifiable metrics that can be

used by the tracking tool. The outputs are envisioned to lead to future “stormwater volume management” goals that can be linked to parallel planning efforts for stormwater, water supply and reuse, flood resiliency, precipitation-based climate change impacts, and more. In this way, stormwater volumes can become the common “currency” for future integrated planning efforts, and a common goal that links various funding opportunities from state agencies (e.g., Prop 1, Caltrans). The RAA will estimate stormwater volumes to be managed over time to meet the pollutant reduction targets, which will be reported spatially (by municipal jurisdiction and subwatershed) and by each category of GI project (e.g., LID, regional projects, green streets). The tracking tool will serve as an essential component supporting the adaptive management process and provide recalculation of managed stormwater volumes as projects are implemented.

The Consultant will use the same algorithms from the RAA models to generate outputs for the tracking tool. By leveraging the work to date, the Consultant will cost-effectively prepare a user-friendly tool for C/CAG member agencies to enter projects and estimate volumes that are consistent with RAA metrics that will serve as the foundation for implementation, compliance reporting, and adaptive management.

Public Domain Tool

The Consultant will deliver a customized tool built upon a technology stack that is compatible with nearly all municipal IT systems while also avoiding any extra licensing fees. The Consultant will utilize free and open source software (FOSS) for the web-based architecture. The tracking tool will be built upon FOSS and will accept and output multiple data formats; allow for interactive mapping; and provide efficient user management, maintenance, and data consistency.

Functionality and User Friendliness

Functionality and user friendliness can be the most important considerations for the tracking tool to ensure that the system continues to be utilized by C/CAG member agencies and stakeholders. Functionality refers to the usefulness of the system—if the system is considered to be a useful tool then users will continue to access it for their planning needs. User friendliness refers to the system’s ease of access, aesthetics, and overall “feel” of the system. For a tool that handles complex subjects and data (i.e., GI implementation, volume capture, mapping, etc.) then functionality and user friendliness are even more important for ease of operation and display of outputs that are intuitive and self-evident (reducing the need for overly detailed manuals or continuous training).

It is anticipated that elements of the tracking tool will be public facing and password-protected. For instance, the tracking tool can include a unique login for each C/CAG member agency in order for city or County staff to update and view GI implementation progress within their jurisdiction only. In addition, jurisdictional data will also be rolled up to report and visualize results countywide (combining all GI projects implemented within all jurisdictions), which will support C/CAG (or their consultants) with compiling information for preparation of annual reports to the Water Board. Separately, a public-facing element of the tracking tool (accessed from the C/CAG or SMCWPPP website) could include narratives and visualizations that are less technical and serve the additional role as a public outreach tool. The Consultant will work closely with C/CAG and its member agencies to identify target audiences of the tracking tool, various logins/permissions needed, and visualizations/narratives to be tailored for the public-facing and password-protected elements.

Deliverables:

- Draft software development plan that outlines the system architecture, user access, system requirements (e.g., either hosted on local server or cloud), and other details for the proposed web-based tracking tool.
- Final software development plan incorporating comments from C/CAG and the SAC.
- Draft web-based tracking tool.
- Training session providing a demonstration of the web-based tracking tool.
- Final web-based tracking tool incorporating recommended changes and comments received from C/CAG and the SAC.

2 PROJECT SCHEDULE

The following outlines a proposed project schedule for each fiscal year that shows the duration of the project and individual tasks, and key milestones designated as deliverables for major tasks.

Task No.	Tasks/Sub-Tasks	Fiscal Year 2018/19						Fiscal Year 2019/20											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1	Project Initiation																		
1.3	Staff/Consultant Coordination Meetings	[Task Duration]																	
1.4	Stakeholder Advisory Committee Meetings	[Task Duration]																	
1.5	Consultant Project Management	[Task Duration]																	
2	Community Engagement																		
2.1	Develop Community Engagement Strategy	[Task Duration]																	
2.2	Community Stakeholder and Engagement Meetings	[Task Duration]																	
2	Climate Adaptation Risk Analysis on Local Transportation Network																		
3.1	Quantify climate change-related precipitation impacts related to the transportation network	[Task Duration]																	
3.2	Quantify stormwater capture benefits	[Task Duration]																	
4	Hi-Resolution Data Analysis and Fine-Scale Drainage Delineation																		
4.1	Data Collection	[Task Duration]																	
4.2	High-resolution drainage system delineation	[Task Duration]																	
4.3	Identify Sustainable Streets opportunities in the ROW at the street-scale	[Task Duration]																	
5	Prioritization of Sustainable Streets Opportunities and Development of Master Plan																		
5.1	Develop prioritization criteria	[Task Duration]																	
5.2	Develop Countywide Sustainable Streets Master Plan	[Task Duration]																	
6	Project Concepts																		
6.1	Develop pilot project concepts	[Task Duration]																	
7	Web-based Sustainable Streets Project Implementation Mapping and Tracking Tool																		
7.1	Develop a mapping and tracking tool	[Task Duration]																	

● Draft Deliverable(s) ● Final Deliverable(s) [Grey Box] Task/Sub-Task Duration

Note: All completion dates for Tasks, Sub-Tasks, and Deliverables assume a Notice to Proceed on Dec. 3, 2018

3 COST PROPOSAL

The following tables provides cost estimates for each fiscal year and task to meet the deliverable milestones per the schedule presented in Section 2.

Table 1. Cost Estimate for Fiscal Year 2018/19

Task No.	Task	Paradigm				Paradigm Total	Lotus			Lotus Total	Alta			Alta Total	EOA		EOA Total	URD		URD Total	NHC		NHC Total	CD + A		CD+A Total	Team Total
		Principal Engineer	Sr. Engineer	Sr. Developer	Associate Engineer		Principal	Sr. Engineer	Design Engineer		Sr. Design Associate	Planning Associate	Planner		Managing Engineer	Senior Scientist		Principal	Senior Scientist		Principal	Senior Scientist		Principal	CD+A		
		\$215	\$190	\$175	\$155		\$195	\$185	\$125		\$205	\$163	\$106		\$216	\$172		\$195	\$172		\$240						
1	Project Initiation																								\$22,950		
1.3	Staff/Consultant Coordination Meetings	16	0	0	0	\$3,440	12	0	0	\$2,340	12	0	0	\$2,460	0	2	\$344	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$8,584
1.4	Stakeholder Advisory Committee Meetings	12	0	0	0	\$2,580	10	0	0	\$1,950	6	0	0	\$1,230	6	0	\$1,296	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$7,056
1.5	Consultant Project Management	34	0	0	0	\$7,310	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$7,310	
2	Community Engagement																								\$45,390		
2.1	Develop Community Engagement Strategy	2	0	0	0	\$430	2	0	0	\$390	72	30	0	\$19,650	0	60	\$10,320	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$30,790
2.2	Community Stakeholder and Engagement Meetings	4	0	0	0	\$860	4	0	0	\$780	24	24	0	\$8,832	0	24	\$4,128	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$14,600
3	Climate Adaptation Risk Analysis on Local Transportation Network																								\$0		
3.1	Quantify climate change-related precipitation impacts related to the transportation network	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$0
3.2	Quantify stormwater capture benefits	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$0
4	Hi-Resolution Data Analysis and Fine-Scale Drainage Delineation																								\$200,420		
4.1	Data Collection	10	28		151	\$30,875	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$30,875
4.2	High-resolution drainage system delineation	20	110	75	180	\$66,225	8	0	100	\$14,060	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$80,285
4.3	Identify Sustainable Streets opportunities in the ROW at the street-scale	20	120	80	140	\$62,800	8	40	140	\$26,460	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$89,260
5	Prioritization of Sustainable Streets Opportunities and Development of Master Plan																								\$17,550		
5.1	Develop prioritization criteria	4	0	0	20	\$3,960	20	30	0	\$9,450	12	0	0	\$2,460	0	0	\$0	0	\$0	0	\$0	0	\$0	7	\$1,680	\$0	\$17,550
5.2	Develop Countywide Sustainable Streets Master Plan	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$0
6	Project Concepts																								\$0		
6.1	Develop pilot project concepts	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$0
7	Web-based Sustainable Streets Project Implementation Mapping and Tracking Tool																								\$87,625		
7.1	Develop a mapping and tracking tool	32	65	220	165	\$83,305	0	0	0	\$0	0	0	0	\$0	20	0	\$4,320	0	\$0	0	\$0	0	\$0	0	\$0	\$0	\$87,625
Total		154	323	375	656	\$261,785	64	70	240	\$55,430	126	54	0	\$34,632	26	86	\$20,408	0	\$0	0	\$0	7	\$1,680	\$1,680	\$373,935		

Table 2. Cost Estimate for Fiscal Year 2019/20

Task No.	Task	Paradigm				Paradigm Total	Lotus				Lotus Total	Alta				Alta Total	EOA		EOA Total	URD		URD Total	NHC		NHC Total	CD + A		CD+A Total	Team Total
		Principal Engineer	Sr. Engineer	Sr. Developer	Associate Engineer		Principal	Sr. Engineer	Design Engineer	Sr. Design Associate		Planning Associate	Planner	Managing Engineer	Senior Scientist		Principal	URD Total		Senior Scientist	NHC Total		Principal	CD+A Total					
		\$215	\$190	\$175	\$155		\$195	\$185	\$125	\$205		\$163	\$106	\$216	\$172		\$195	\$172		\$240									
1	Project Initiation																									\$43,060			
1.3	Staff/Consultant Coordination Meetings	32	0	0	0	\$6,880	24	0	0	\$4,680	24	0	0	\$4,920	0	8	\$1,376	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$17,856	
1.4	Stakeholder Advisory Committee Meetings	18	0	0	0	\$3,870	15	0	0	\$2,925	9	0	0	\$1,845	9	0	\$1,944	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$10,584	
1.5	Consultant Project Management	68	0	0	0	\$14,620	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$14,620	
2	Community Engagement																									\$42,720			
2.1	Develop Community Engagement Strategy	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	
2.2	Community Stakeholder and Engagement Meetings	12	0	0	0	\$2,580	12	0	0	\$2,340	70	70	0	\$25,760	0	70	\$12,040	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$42,720	
3	Climate Adaptation Risk Analysis on Local Transportation Network																									\$88,269			
3.1	Quantify climate change-related precipitation impacts related to the transportation network	12	80	0	114	\$35,450	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	40	\$6,880	0	\$0	0	\$0	0	\$0	\$42,330	
3.2	Quantify stormwater capture benefits	20	90	0	145	\$43,875	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	12	\$2,064	0	\$0	0	\$0	0	\$0	\$45,939	
4	Hi-Resolution Data Analysis and Fine-Scale Drainage Delineation																									\$0			
4.1	Data Collection	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	
4.2	High-resolution drainage system delineation	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	
4.3	Identify Sustainable Streets opportunities in the ROW at the street-scale	0	0	0	0	\$0	0	0	0	\$0	0	0	0	\$0	0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$0	
5	Prioritization of Sustainable Streets Opportunities and Development of Master Plan																									\$172,512			
5.1	Develop prioritization criteria	4	0	0	20	\$3,960	20	30		\$9,450	12	0	0	\$2,460	0	0	\$0	0	\$0	0	\$0	8	\$1,920		\$0		\$17,790		
5.2	Develop Countywide Sustainable Streets Master Plan	11	20	0	60	\$15,465	90	125	190	\$64,425	74	170	200	\$64,080	32	0	\$6,912	0	\$0	0	\$0	16	\$3,840		\$0		\$154,722		
6	Project Concepts																									\$88,475			
6.1	Develop pilot project concepts	4	0	0	81	\$13,415	8	150	210	\$55,560	0	0	0	\$0	0	0	\$0	100	\$19,500	0	\$0	0	\$0	0	\$0	0	\$0	\$88,475	
7	Web-based Sustainable Streets Project Implementation Mapping and Tracking Tool																									\$133,250			
7.1	Develop a mapping and tracking tool	38	84	280	360	\$128,930	0	0	0	\$0	0	0	0	\$0	20	0	\$4,320	0	\$0	0	\$0	0	\$0	0	\$0	0	\$0	\$133,250	
Total		219	274	280	780	\$269,045	169	305	400	\$139,380	189	240	200	\$99,065	61	78	\$26,592	100	\$19,500	52	\$8,944	24	\$5,760		\$5,760		\$568,286		