

**DRAFT CONSULTANT SERVICES AGREEMENT BETWEEN
CITY OF SUNNYVALE AND WOODARD & CURRAN FOR COLLECTION
SYSTEM MODEL UPDATE AND CAPACITY ANALYSIS**

THIS AGREEMENT, dated _____, is by and between the CITY OF SUNNYVALE, a municipal corporation ("CITY"), and WOODARD & CURRAN, a California corporation ("CONSULTANT").

WHEREAS, CITY desires to secure professional services necessary for investigation, analysis, design, preparation of construction drawings and contract specifications, consultation, services during construction and other services for a project known as Collection System Model Update and Capacity Analysis; and

WHEREAS, CONSULTANT represents that it, and its sub-consultants, if any, possess the professional qualifications and expertise to provide the required services and are licensed by the State of California to practice engineering in the required disciplines;

NOW, THEREFORE, THE PARTIES ENTER INTO THIS AGREEMENT.

1. Services by CONSULTANT

CONSULTANT shall provide services in accordance with Exhibit "A" entitled "Scope of Work." All exhibits referenced in this Agreement are attached hereto and are incorporated herein by reference. To accomplish that end, CONSULTANT agrees to assign Cathy Greenman to this project, to act in the capacity of Project Manager and personally direct the professional services to be provided by CONSULTANT.

Except as specified in this Agreement, CONSULTANT shall furnish all technical and professional services, including labor, material, equipment, transportation, supervision and expertise to perform all operations necessary and required to satisfactorily complete the services required in this Agreement.

2. Notice to Proceed/Completion of Services

- (a) CONSULTANT shall commence services upon receipt of a Notice to Proceed from CITY. Notice shall be deemed to have occurred three (3) calendar days after deposit in the regular course of the United States mail.
- (b) When CITY determines that CONSULTANT has satisfactorily completed the services defined in Exhibit "A," CITY shall give CONSULTANT written Notice of Final Acceptance, and CONSULTANT shall not incur any further costs hereunder. CONSULTANT may request this determination of completion when, in its opinion, it has satisfactorily completed the Scope of Work (Exhibit "A"), and if so requested, CITY shall make this determination within fourteen (14) days of such request.

3. Project Schedule

The Project Schedule is set forth in the attached Exhibit "A-1."

4. Payment of Fees and Expenses

Payments shall be made to CONSULTANT on a monthly basis as set forth in the attached Exhibit "B" entitled "Compensation Schedule." All compensation will be based on monthly billings as provided in Exhibit "B." Compensation will not be due until said detailed billing is submitted to CITY

within a reasonable time before payment is expected to allow for normal CITY processing. An estimate of the percent of total completion associated with the various categories of the services shall be furnished by CONSULTANT with said billing. When applicable, copies of pertinent financial records will be included with the submission of billing(s) for all direct reimbursables. Compensation shall not exceed the amounts set forth in Exhibit "B" for each task description total fee, and shall include services as identified in Exhibit "A." In no event shall the total amount of compensation payable under this agreement exceed the sum of Six Hundred Ninety Thousand Eight Hundred Nineteen and No/100 Dollars (\$690,819.00) unless upon written modification of this Agreement. All invoices, including detailed backup, shall be sent to City of Sunnyvale, attention Accounts Payable, P.O. Box 3707, Sunnyvale, CA 94088-3707.

CONSULTANT will be reimbursed as promptly as fiscal procedures will permit upon receipt by the CITY of itemized invoices in triplicate. Invoices shall be submitted no later than 45 calendar days after the performance of work for which CONSULTANT is billing. Invoices shall detail the work performed on each milestone and each project as applicable. Invoices shall follow the format stipulated in the Compensation Schedule and shall reference the project title. The final invoice must contain the final cost and all credits due CITY. The final invoice should be submitted within 60 calendar days after completion of CONSULTANT's work.

5. No Assignment of Agreement

CONSULTANT bind themselves, their partners, successors, assigns, executors, and administrators to all covenants of this Agreement. Except as otherwise set forth in this Agreement, no interest in this Agreement or any of the work provided for under this Agreement shall be assigned or transferred, either voluntarily or by operation of law, without the prior written approval of CITY. However, claims for money due to or to become due to CONSULTANT from CITY under this Agreement may be assigned to a bank, trust company or other financial institutions, or to a trustee in bankruptcy, provided that written notice of any such assignment or transfer shall be first furnished to CITY. In case of the death of one or more members of CONSULTANT's firm, the surviving member or members shall complete the services covered by this Agreement. Any such assignment shall not relieve CONSULTANT from any liability under the terms of this Agreement.

6. Consultant is an Independent Contractor

CONSULTANT is not an agent or employee of CITY but is an independent contractor with full rights to manage its employees subject to the requirements of the law. All persons employed by CONSULTANT in connection with this Agreement will be employees of CONSULTANT and not employees of CITY in any respect. CONSULTANT is responsible for obtaining statutory Workers' Compensation coverage for its employees.

7. Consultant's Services to be Approved by a Registered Professional

All reports, costs estimates, plans and other documents which may be submitted or furnished by CONSULTANT shall be approved and signed by a qualified registered professional in the State of California. The title sheet for calculations, specifications and reports, and each sheet of plans, shall bear the professional seal, certificate number, registration classification, expiration date of certificate and signature of the professional responsible for their preparation.

8. Standard of Workmanship

CONSULTANT represents and maintains that it is skilled in the professional calling necessary to perform the services and its duties and obligations, expressed and implied, contained herein, and CITY expressly relies upon CONSULTANT's representations regarding its skills and knowledge. CONSULTANT shall perform such services and duties in conformance to and

consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California.

The plans, designs, specifications, estimates, calculations reports and other documents furnished under the Scope of Work (Exhibit "A") shall be of a quality acceptable to CITY. The criteria for acceptance of the work provided under this Agreement shall be a product of neat appearance, well-organized, technically and grammatically correct, checked and having the maker and checker identified. The minimum standard of appearance, organization and content of the drawings shall be that used by CITY for similar projects.

9. Responsibility of CONSULTANT

CONSULTANT shall be responsible for the professional quality, technical accuracy and the coordination of the services furnished by it under this Agreement. Neither CITY's review, acceptance nor payment for any of the services required under this Agreement shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement and CONSULTANT shall be and remain liable to CITY in accordance with applicable law for all damages to CITY caused by CONSULTANT's negligent performance of any of the services furnished under this Agreement.

Any acceptance by CITY of plans, specifications, calculations, construction contract documents, reports, diagrams, maps and other material prepared by CONSULTANT shall not, in any respect, absolve CONSULTANT for the responsibility CONSULTANT has in accordance with customary standards of good engineering practice in compliance with applicable Federal, State, County and/or municipal laws, ordinances, regulations, rules and orders.

10. Right of CITY to Inspect Records of CONSULTANT

CITY, through its authorized employees, representatives, or agents, shall have the right, at any and all reasonable times, to audit the books and records including, but not limited to, invoices, vouchers, canceled checks, time cards of CONSULTANT for the purpose of verifying any and all charges made by CONSULTANT in connection with this Agreement. CONSULTANT shall maintain for a minimum period of three (3) years from the date of final payment to CONSULTANT or for any longer period required by law, sufficient books and records in accordance with generally accepted accounting practices to establish the correctness of all charges submitted to CITY by CONSULTANT. Any expenses not so recorded shall be disallowed by CITY.

11. Confidentiality of Material

All ideas, memoranda, specifications, plans, calculations, manufacturing procedures, data, drawings, descriptions, documents, discussions or other information developed or received by or for CONSULTANT and all other written information submitted to CONSULTANT in connection with the performance of this Agreement shall be held confidential by CONSULTANT and shall not, without the prior written consent of CITY be used for any purposes other than the performance of the Project services, nor be disclosed to an entity not connected with the performance of the Project services. Nothing furnished to CONSULTANT which is otherwise known to CONSULTANT or is or becomes generally known to the related industry shall be deemed confidential. CONSULTANT shall not use CITY's name, insignia or distribute exploitative publicity pertaining to the services rendered under this Agreement in any magazine, trade paper, newspaper or other medium without the express written consent of CITY.

12. No Pledging of CITY's Credit

Under no circumstances shall CONSULTANT have the authority or power to pledge the

credit of CITY or incur any obligation in the name of CITY.

13. Ownership of Material

All material, including information developed on computer(s), which shall include, but not be limited to, data, sketches, tracings, drawings, plans, diagrams, quantities, estimates, specifications, proposals, tests, maps, calculations, photographs, reports and other material developed, collected, prepared or caused to be prepared, under this Agreement shall be the property of CITY, but CONSULTANT may retain and use copies thereof.

CITY shall not be limited, in any way, in its use of said material, at any time, for work associated with Project. However, CONSULTANT shall not be responsible for damages resulting from the use of said material for work other than Project, including, but not limited to the release of this material to third parties for work other than on Project.

14. Hold Harmless/Indemnification

To the extent permitted by law (including, without limitation, California Civil Code section 2782.8), CONSULTANT agrees to indemnify, defend and hold harmless CITY, its officers and employees from any and all claims, demands, actions, causes of action, losses, damages, liabilities, known or unknown, and all costs and expenses, including reasonable attorneys' fees in connection with any injury or damage to persons or property to the extent arising out of any negligence, recklessness or willful misconduct of CONSULTANT, its officers, employees, agents, contractor, subcontractors or any officer, agent or employee thereof in relation to CONSULTANT's performance under this Agreement. In no event shall the cost to defend charged to the design professional exceed the design professional's proportionate percentage of fault. However, notwithstanding the previous sentence, in the event one or more defendants is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, the design professional shall meet and confer with other parties regarding unpaid defense costs. Such defense and indemnification shall not apply in any instance of and to the extent caused by the sole negligence, recklessness or willful misconduct of CITY, its officers, employees, agents or representatives.

15. Insurance Requirements

CONSULTANT shall take out and maintain during the life of this Agreement policies of insurance as specified in Exhibit "C" attached and incorporated by reference, and shall provide all certificates and/or endorsements as specified in Exhibit "C."

16. No Third Party Beneficiary

This Agreement shall not be construed or deemed to be an agreement for the benefit of any third party or parties and no third party or parties shall have any claim or right of action hereunder for any cause whatsoever.

17. Notices

All notices required by this Agreement, other than invoices for payment which shall be sent directly to Accounts Payable, shall be in writing, and sent by first class with postage prepaid, or sent by commercial courier, to address below.

Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by email or fax, to accomplish timely communication. Each party may change the address by written notice in accordance with this paragraph. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of

three business days after mailing.

To CITY: Eric Evans
Environmental Services Department
CITY OF SUNNYVALE
P. O. Box 3707
Sunnyvale, CA 94088-3707

To CONSULTANT: Woodard & Curran
Attn: Cathy Greenman
100 W. San Fernando St. Suite 320
San Jose, CA 95113

18. Waiver

CONSULTANT agrees that waiver by CITY of any one or more of the conditions of performance under this Agreement shall not be construed as waiver(s) of any other condition of performance under this Agreement.

19. Amendments

No alterations or changes to the terms of this Agreement shall be valid unless made in writing and signed by both parties.

20. Integrated Agreement

This Agreement embodies the agreement between CITY and CONSULTANT and its terms and conditions. No verbal agreements or conversation with any officer, agent or employee of CITY prior to execution of this Agreement shall affect or modify any of the terms or obligations contained in any documents comprising this Agreement. Any such verbal agreement shall be considered as unofficial information and in no way binding upon CITY.

21. Conflict of Interest

CONSULTANT shall avoid all conflicts of interest, or appearance of conflict, in performing the services and agrees to immediately notify CITY of any facts that may give rise to a conflict of interest. CONSULTANT is aware of the prohibition that no officer of CITY shall have any interest, direct or indirect, in this Agreement or in the proceeds thereof. During the term of this Agreement CONSULTANT shall not accept employment or an obligation which is inconsistent or incompatible with CONSULTANT'S obligations under this Agreement.

22. Governing Law, Jurisdiction and Venue

This Agreement shall be governed by and construed in accordance with the laws of the State of California, excluding its conflict of law principles. Proper venue for legal actions will be exclusively vested in a state court in the County of Santa Clara. The parties agree that subject matter and personal jurisdiction are proper in state court in the County of Santa Clara, and waive all venue objections.

23. Records, Reports and Documentation

CONSULTANT shall maintain complete and accurate records of its operation, including any and all additional records required by CITY in writing. CONSULTANT shall submit to CITY any and all reports concerning its performance under this Agreement that may be requested by CITY in

writing. CONSULTANT agrees to assist CITY in meeting CITY's reporting requirements to the state and other agencies with respect to CONSULTANT's work hereunder. All records, reports and documentation relating to the work performed under this Agreement shall be made available to City during the term of this Agreement.

24. Termination of Agreement

- A. If CONSULTANT defaults in the performance of this Agreement, or materially breaches any of its provisions, CITY at its option may terminate this Agreement by giving written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be compensated in proportion to the percentage of satisfactory services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. CONSULTANT shall present CITY with any work product completed at that point in time.
- B. Without limitation to such rights or remedies as CITY shall otherwise have by law, CITY also shall have the right to terminate this Agreement for any reason upon ten (10) days' written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be compensated in proportion to the percentage of services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. CONSULTANT shall present CITY with any work product completed at that point in time.
- C. If CITY fails to pay CONSULTANT, CONSULTANT at its option may terminate this Agreement if the failure is not remedied by CITY within (30) days after written notification of failure to pay.

25. Subcontracting

None of the services covered by this Agreement shall be subcontracted without the prior written consent of CITY. Such consent may be issued with notice to proceed if subcontract consultants are listed in the project work plan.

26. Fair Employment

CONSULTANT shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, condition of physical handicap, religion, ethnic background or marital status, in violation of state or federal law.

27. Changes

CITY or CONSULTANT may, from time to time, request changes in the terms and conditions of this Agreement. Such changes, which are mutually agreed upon by CITY and CONSULTANT, shall be incorporated in amendments to this Agreement.

28. Other Agreements

This Agreement shall not prevent either Party from entering into similar agreements with others.

29. Severability Clause.

In case any one or more of the provisions contained herein shall, for any reason, be held invalid, illegal or unenforceable in any respect, it shall not affect the validity of the other provisions which shall remain in full force and effect.

30. Captions

The captions of the various sections, paragraphs and subparagraphs, of the contract are for convenience only and shall not be considered nor referred to for resolving questions of interpretation.

31. Entire Agreement; Amendment

This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced by writing signed by all parties.

32. Miscellaneous

Time shall be of the essence in this Agreement. Failure on the part of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to compel enforcement of such provision or any other provision.

IN WITNESS WHEREOF, the parties have executed this Agreement.

ATTEST:

CITY OF SUNNYVALE ("CITY")

By _____
City Clerk

By _____
City Manager

WOODARD & CURRAN ("CONSULTANT")

APPROVED AS TO FORM:

By _____

Name/Title

City Attorney

By _____

Name/Title

Exhibit A
SCOPE OF WORK
WASTEWATER COLLECTION SYSTEM MODEL
EXPANSION AND CAPACITY ANALYSIS

This scope of work details Consultant's proposed work plan to prepare a Model Expansion and Capacity Analysis for the City of Sunnyvale's wastewater collection system. The project is expected to be completed within 19 months. It is understood that sewer flow monitoring must be done in order to complete the Project; therefore, the Project schedule may be lengthened as needed to allow for completion of major tasks after the 2019-2020 rainy season.

The Scope of Work provides a description of each task and subtask and the anticipated deliverables. In addition to Technical Memoranda (TMs), maps, data, and model files listed as specific deliverables, analysis methodologies, assumptions, and results will be presented and discussed at project progress meetings. Unless specifically noted, it is assumed that draft deliverables will be submitted electronically for the City's review. City's comments on TMs will be incorporated into the final TMs to be prepared as part of the summary report under Task 6. However, if City comments on draft TMs are substantial, the City may request revised draft TMs prior to the final report preparation.

Task 1 – Project Management and Coordination

Subtask 1.1 – Project Administration

The Consultant shall perform day-to-day management of the Project including QA/QC and timely submissions of deliverables such as technical reports, monthly progress reports, and invoices.

Consultant shall update the schedule monthly and notify the City of any delays. In such cases, Consultant shall make up the schedule in subsequent phases of the project or request a time extension.

In compliance with its Quality Assurance/Quality Control (QA/QC) program, Consultant shall conduct an internal Senior Technical Approach Review (STAR) Workshop following the City's Notice to Proceed. Additionally, throughout the project, Consultant shall follow established QA/QC procedures for review of data, results and deliverables prior to submittal to the City. (Note: labor effort and budget for QC checking are included under individual project tasks.)

Subtask 1.2 - Meetings

Consultant shall prepare for and attend the kickoff meeting and progress meetings to discuss progress, decisions, and coordination. The budget for this subtask includes attendance at nine (9) meetings at City offices.

Task 1 Deliverables – Monthly invoices with progress reports, schedule updates, meeting minutes.

Task 2 – Data Collection and Review

Subtask 2.1 – Review Existing Information

Prior to the kickoff meeting, Consultant shall prepare an initial request list of data and information to supplement the information provided as part of the RFP. For information required from other City departments (e.g. City Planning), Consultant shall coordinate the data collection with assistance from the City's project manager and/or City staff.

The information to be provided by City will include:

- 2015 Wastewater Collection System Master Plan
- City's current sewer system model
- Technical memoranda from sewer utility impact studies
- City's most current digital collection system map and database in GIS format
- Past flow monitoring reports
- Manhole survey data
- Relevant sewer as-built drawings, as available
- Pump station SCADA data, record drawings and operating information
- Digital mapping related to the City's General Plan, specific plans, and other mapping of active and/or planned developments
- Latest County tax assessor's database and/or the City's customer billing database, which include parcel use information, number of dwelling units, and sewer connections
- Information on specially permitted large and/or industrial dischargers
- Available water consumption data by customer account
- Construction bids for sewer rehabilitation or replacement projects
- City's sewer design and construction standards
- Technical memoranda or reports related to the storm drain system
- LiDAR ground elevation data. Consultant already has 2006 Santa Clara County data. More recent data will be used as available.

Consultant shall review available information and data in order to assess the information available. For data not available but critical for the Project, Consultant shall recommend an approach for obtaining the information or making use of existing data and will discuss this approach with the City.

A local engineering consultant is completing a focused wastewater capacity study of the Sunnyvale Town Center / Cityline area, generally bounded by S. Mathilda Ave., W. Iowa Ave., S. Sunnyvale Ave., and W. Washington Ave. Pipes downstream of this area, extending to the treatment plant, will also be modeled and analyzed. Survey, flow monitoring, and other information from this effort shall be included in the Project. Coordination shall take place to prevent or minimize any redundancy of efforts.

Subtask 2.2 – Review Sewer Network Data and Prepare Field Surveying Plan

Consultant shall conduct an initial review of the sewer network for the purpose of identifying missing and/or apparent erroneous data. Initial review includes importing the available sewer network data into the model, comparing manhole rim elevations to LiDAR ground elevation data and reviewing pipe profiles. Through this review Consultant shall develop a list of manholes that may be field surveyed to verify or supplement existing data. The list will include manholes along sewers 10" and larger within the Project area, defined as being within City Limits north of and including Homestead Road, as well as manholes along 6" and 8" trunk sewers identified for inclusion in the hydraulic model. Consultant shall determine which 6" and 8" sewers may be defined as trunks, subject to approval from the City.

Not all manholes along these 6", 8", 10", and larger sewers need be surveyed. The Consultant shall examine the existing system and determine an appropriate selection of manholes to be surveyed in order to develop an adequately accurate hydraulic model of the overall system. The City has noted that a storm drain manhole along Borregas Ave. near US-101 is configured in a manner that diverts stormwater into the sewer system. This inflow is presumed to reduce sewer capacity along Borregas Ave, including capacity available to receive flow from the Lal. This storm drain manhole, as well as others in the vicinity of Borregas Avenue and Weddell Drive, Persian Drive, and Ahwanee Avenue will be included in the plan.

The Consultant will prepare a field surveying plan and review its recommendations with the City.

Subtask 2.3 – Conduct Field Surveying

Consultant shall perform field survey, including necessary traffic control, of manholes identified in the surveying plan.

Up to 200 manholes will be field surveyed. The exact number may vary depending on field conditions and the needs of the project, as approved by the City. Field survey of sewer manholes along the Lawrence Interceptor, extending from Homestead Road to the WPCP, is excluded from this effort because this data was already obtained from others. The budget for this task includes surveying of 200 manholes and standard traffic control, plus preparation of up to 10 sheets for site-specific traffic control plans, where required by the City. The 10 traffic control plans refer specifically to locations where the City requires additional special traffic control that require preparation of site-specific plans (for the surveying work only).

For all surveyed manholes, "dip form" data sheets are to be provided. Data collection shall include X & Y coordinates & elevations of rims. It shall additionally include the sizes, invert elevations, and compass positions (NW, E., etc.) of all inlet and outlet

pipes. In the case of drop manholes, invert elevations shall be collected at both upper and lower incoming pipes.

Any unusual features observed in the manholes shall be specially noted and a photo shall be taken (photos taken facing north). These features may include but are not limited to manholes with more than one outgoing pipe, weirs (surveyor to capture weir elevations), overflow sewers, concrete or other intentional blockages, and steel plates that may cover the channels below. The existing GIS mapping does not show all existing City sewer manholes, though this should not preclude the Consultant from surveying manholes discovered in the field along sewers of interest, if surveying such manholes will assist the project.

The data will be collected using a combination of GPS technology and conventional land surveying, depending on field conditions. Measurements will have an accuracy of ± 0.03 ft. Data will be recorded on maps and “dip sheets” and also provided in AutoCAD format to facilitate incorporating into GIS under Task 3.

Subtask 2.4 – Prepare Data Collection TM

Consultant will prepare a TM summarizing the work performed under Task 2, the data collected, and findings of interest such as manholes with flow splits and cross connections identified between the storm drain system and the sewer system. The TM will also summarize the work performed for the GIS update under Task 3.

Task 2 Deliverables – Field surveying plan; collected survey data, dip sheets, notes, manhole photos; and a Data Collection TM.

Task 3 – GIS Mapping Update

Subtask 3.1 – Update GIS Database

Using information and data from Task 2, Consultant shall update the existing GIS mapping and make corrections as needed. Manholes that were field surveyed shall be specially noted in the GIS, so that one can easily determine whether data for a particular manhole was obtained via survey from this Project, or from other sources. Manholes that were previously surveyed as part of the Downtown Specific Plan Sewer Utility Impact Study will also be updated in GIS.

Task 3 Deliverables - Updated GIS mapping files.

Task 4 – Flow Monitoring

Subtask 4.1 – Prepare Flow Monitoring Plan

Consultant shall refine the preliminary flow monitoring locations identified in its November 20, 2018 proposal and identify locations of rainfall gauges based on discussion with City staff. Consultant shall prepare a flow monitoring plan and review its recommendations with the City for City’s approval.

Subtask 4.2 – Conduct Flow Monitoring

Consultant’s flow monitoring subconsultant, ADS Environmental Services (ADS), shall conduct a reconnaissance of the flow monitoring and rain gauge sites to confirm the

locations are appropriate for monitoring from the standpoint of hydraulic conditions, safety, and access. ADS shall also determine the appropriate meter type for the specific hydraulic conditions at each site (all gravity flow meters will be area-velocity type, capable of recording both flow depth and velocity). All meters will be equipped with wireless telemetry to enable downloading of data remotely. Consultant shall review flow monitoring site reports to confirm final flow meter locations. After City approval, ADS will then install, calibrate, and maintain the flow meters and rain gauges for up to two months during the rainy season and remove the meters at the end of this monitoring period. The date for the start of flow monitoring shall be determined jointly by the City and Consultant and shall depend on available weather forecasts for the 2019/20 winter season. It is anticipated that the flow meters and rain gauges will be installed in December 2019 or January 2020.

ADS will provide standard traffic control (one arrowboard or flashing vehicle beacon, 2 signs and 18 cones) at meter sites. City will provide additional traffic control at locations requiring more than standard traffic control. City will also provide access to sites and site preparation, if required, including exposing manholes, clearing easements, and cleaning sewers. ADS will provide final electronic data files (15-minute data) at the conclusion of the monitoring.

Consultant shall periodically review the flow monitoring data during the flow monitoring period to check data quality and consistency. ADS data analysts will review the downloaded data weekly to identify any changes that may indicate equipment problems or site issues such as sensors fouled by debris. If such issues are noted, ADS will notify their field crew manager and visit the meter site within 5 business days to investigate and resolve any problems. Relatively short periods of missing or faulty data (e.g., due to fouling of sensors by debris) can be reconstructed using good data from other periods during the flow monitoring.

The budget for this task is based on installation of thirty-three (33) flow meters and four (4) rain gauges installed for two months during the 2019/20 wet weather season, and assumes that no fee permits are required. The budget includes submittal of standard traffic control setups but does not include preparation of special site-specific traffic control plans..

Subtask 4.3 – Review and Summarize Flow Monitoring Data

ADS will provide a summary report documenting the flow monitoring program including flow meter site reports, summary information for each flow meter (e.g., average, minimum and peak flows) and plots of depth, velocity, flow rate and rainfall. Note that analysis of the data to develop design wastewater flows and flow components will be conducted as part of model expansion and calibration in Task 5.

Task 4 Deliverables - Flow monitoring plan, flow monitoring and rainfall data, and summary report.

Task 5 – Hydraulic Model Expansion

Using updated GIS mapping and data from previous tasks, this task creates an updated and expanded hydraulic model of the Project area. Consultant shall use InfoWorks™ ICM model software and its own model software licenses for the Project work.

Subtask 5.1 – Expand and Update Model Network

Using data from City’s updated GIS and other sources identified under Subtask 2.1, Consultant shall develop an expanded hydraulic model of the trunk sewer system. The modeled sewer network will include, at a minimum, larger sewers (typically 10” and larger) and critical small diameter pipes, including those that serve areas of significant size, are known or suspected by City staff to have capacity problems, provide alternative flow paths within the system, or serve areas of potential future growth. It is anticipated that over one-third of the system will be included in the model network. Less critical smaller-diameter pipelines will not be included in the trunk model but could be added in the future as needed.

Following the construction of the model database, Consultant shall use a process called “model validation” to verify the data before beginning model runs. Similar to the initial network review conducted to prepare the field surveying plan, this process will include checking network connectivity and data completeness and reasonableness for apparent discrepancies (e.g., negative pipe slopes, outlet pipe invert elevations higher than inlet invert elevations etc.). Missing or suspect data will be resolved to the extent possible through review of available record drawings or additional requested field verification. The source of new or updated data in the model will be documented directly in the model using InfoWorks “flags” and notes. The budget for this subtask assumes Consultant shall provide up to 80 hours of record drawing review to supplement or correct data.

Consultant shall also delineate model subcatchment (sub-basin) boundaries and assign the model loads and preliminary flow factors developed as part of Subtask 5.2 to the subcatchments.

Subtask 5.2 - Develop Existing Model Loads

Consultant shall review existing parcel, customer billing and water use data, land use type, number and type of dwelling units, etc. that are collected under Subtask 2.1 to determine the best approach for using this data to estimate existing base wastewater flows. The exact methodology to be used to develop model loadings will depend on the format and completeness of available parcel-based data.

Consultant shall develop preliminary criteria to be used to estimate wastewater flows, including unit base wastewater flow factors; diurnal base wastewater flow patterns; and I/I parameters. These criteria will be developed based on the flow monitoring data plus Consultant’s experience with similar Bay Area systems. These criteria will be verified/refined through the model calibration process under Subtask 5.4.

Subtask 5.3 - Develop Future Model Loads

Consultant shall review the City’s General Plan Land Use and Transportation Element, Specific Plans, and Urban Water Management Plan/Water Supply Assessment Projections and consult with the City’s Planning Department to identify specific planning issues and potential growth and planned development projects in the City. Using this

information, estimates of future wastewater flows based on the locations of anticipated developments and growth will be developed. To the extent that the information is available, these estimates will be compiled at the parcel level. The projected timing of new developments will also be discussed and documented, and model flow scenarios representing near-term future (ca. 2025) and long-term future (ca. 2035) will be developed. The budget for this subtask assumes one meeting with the City's planning staff.

Subtask 5.4 - Calibrate Model

Consultant shall run the model under existing conditions and compare the computed dry weather and wet weather flow hydrographs to observed flow monitoring data collected under Task 4. Modeling parameters such as unit flow rates, diurnal curves, and I/I factors will be adjusted as needed to achieve a reasonable match for modeled to metered flows.

Subtask 5.5 - Prepare Model Development TM

Consultant shall prepare a TM summarizing the development of the hydraulic model, including development of model loads and model calibration results.

Task 5 Deliverables - TM describing the model software and documenting model development and calibration; calibrated and properly functioning hydraulic model to be submitted at the end of the Project.

Task 6 – Capacity Analysis

The Consultant shall use the hydraulic model to conduct a capacity analysis of the trunk sewer system as defined in Subtask 2.2, including areas of particular concern to the City, such as the Lawrence, Lockheed, and Borregas interceptors and Arques Lift Station.

Subtask 6.1 - Develop Design Flow and Hydraulic Criteria and Prepare TM

Consultant shall propose design and hydraulic criteria to be used for assessing the capacity of existing sewer facilities and sizing new facilities, including Manning's "n" factor for gravity sewers, maximum d/D values, minimum and maximum velocities, slopes, and depth of cover, and pump station design and reliability considerations (e.g., firm capacity). Consultant also identify approaches for defining an appropriate design storm or storms, including use of an actual historical storm, use of a synthetic event based on rainfall intensity-duration-frequency statistics, or other methods such as the SCS Type IA distribution curve. Consultant shall propose criteria for evaluating the performance of the system under the design event (e.g., acceptable level of surcharge) that reflects the City's desired level of service and risk acceptance. The proposed criteria will be documented in a TM that will be reviewed and discussed with City staff.

Subtask 6.2 – Evaluate Impact of Borregas Stormwater Flow Diversion

The modeling work shall address how much and under what conditions stormwater flows into the sanitary sewer system at the aforementioned storm drain manhole along

Borregas Avenue, and how sewer system capacity may improve from reducing or eliminating this inflow.

Assuming the results from Task 2 confirm the connection between the storm and sanitary sewer at Borregas Avenue, this subtask will determine the watershed contributing to the storm drain-sanitary sewer connection point and the estimated drainage flow diversion from that watershed. Consultant's subconsultant, Schaaf & Wheeler, will develop a small focused storm drainage model providing the level of detail necessary to estimate the flow diversion. Using the results of the survey, as well as existing LiDAR, system GIS and as-builts provided by the City, the catchment to the storm drainage network will be delineated in GIS. The 2- and 10-year flow rates from the watershed will be determined based on Santa Clara County Drainage Manual SCS methodology in HEC-HMS or MIKEUrban. The flows will be routed through a pipe network model developed in MIKEUrban, limited to the catchment upstream of the storm drain-sanitary sewer connection point. Modeled pipes will be based on field survey in Task 2, as-builts and GIS provided by the City. The model will be developed to the extent necessary to determine flow rates and is not intended to be a detailed hydraulic model of the watershed. The result of this effort will be the 2- and 10-year flow rates which enter the sewer system. Consultant shall use these results to assess potential impacts to the sanitary sewer system.

Subtask 6.3 – Conduct Model Simulations and Identify Capacity Deficiencies

Using the hydraulic model and based on the criteria established in Subtask 6.1, Consultant shall evaluate the performance of the existing gravity trunk sewers, pump stations included in the model, and force mains under dry and design wet weather flows. In addition to any new deficiencies that may be identified through the hydraulic modeling for this Project, Consultant shall review and evaluate capacity deficiencies that were previously identified in the 2015 MP, including but not limited to areas within the Lawrence and Lockheed sewersheds, and elsewhere within the Project limits. Flow conditions to be addressed shall be existing, 2025, and 2035. As described under Subtask 5.4, future condition flows shall account for information available at this time, including the General Plan, Specific Plans, and information about upcoming development as provided by the City.

Thematic maps and hydraulic gradeline plots will be prepared to present the identified capacity problem areas. Based on the results of Subtask 6.2, sewer system capacity deficiencies resulting from estimated stormwater diversions at Borregas Avenue will also be identified.

Subtask 6.4 – Develop and Model Preliminary Solutions

Using an iterative simulation process and engineering judgment, Consultant shall develop and test solutions to identified capacity deficiencies. Solutions may include upsizing or paralleling existing pipes, upgrading pump stations that lack sufficient firm capacity, consolidating flows in new sewers or existing sewers with available capacity, implementing flow diversions at critical locations, or sewer rehabilitation to reduce I/I. The City has noted that diversion of flow from the Lai into other sewersheds such as Borregas and Cannery may exacerbate existing capacity limitations or create new ones in those sewersheds. This analysis shall address these situations and include projects to improve these limitations.

Based on preliminary model results and discussion with City staff, the alternatives will be refined and focused on the most viable solutions for more detailed project development.

Subtask 6.5 - Evaluate Potential Capacity Improvement Projects

Consultant shall evaluate potential project alternatives in further detail, including review of project sites on aerial mapping or in the field. The purpose of these evaluations is to confirm the suitability of pipeline alignments, and identify design, constructability, permitting, or environmental issues that could potentially be “fatal flaws” or that should be considered in project development.

Where potential new sewer projects may run along arterial roadways including though not necessarily limited to Wolfe Road, Consultant shall evaluate roadways and their existing utilities and obstacles to determine their feasibility to accept new sewers. Identification of existing utilities and obstacles will be based on visual observation and/or available drawings provided by the City.

Subtask 6.6 - Evaluate Arques Lift Station

The Arques Lift Station, within the Lawrence Interceptor sewershed, shall also be evaluated to detail its deficiencies and to identify projects that would improve its capacity to handle existing and future flows.

Consultant’s subconsultant, Schaaf & Wheeler, will conduct an evaluation of the Arques Lift Station necessary to determine if hydraulic improvements are needed to convey projected wastewater flows. The work under this subtask will include:

- Review record information regarding the station, influent lines, and discharge piping.
- Perform site visit to observe existing condition of the station, observe connections and discharge location, and if possible, perform pump drawdown test to determine approximate pump capacities. It is assumed that any monitoring components needed for testing, including flow meters or pressure gauges, would be provided by the City or authorized as an additional service. If taps are provided, Schaaf & Wheeler will install pressure gauges to aide in the performance evaluation of the pump station.
- Coordinate with the modeling effort to determine adequacy of existing station with respect to anticipated flows.
- Prepare written documentation of observations and findings for inclusion in the Model Expansion and Capacity Analysis Report (see Subtask 6.8), including description of station hydraulic deficiencies relative to the modeling results and recommendations for correction; necessary modifications to the existing station to confirm to the hydraulic recommendations; identification of non-hydraulic deficiencies and recommended improvements for complying with reliability standards and general good practice for sanitary sewer pump stations.

Subtask 6.7 - Develop Capacity Improvement Plan

Based on the results of the above tasks, Consultant shall develop a capital improvement plan for the recommended capacity improvements, including prioritization of projects, estimated construction and capital costs, and implementation schedule. Planning level costs for recommended improvements will be based on the City's historical costs for sewer projects as well as data from other similar agencies compiled by Consultant. Information provided about capacity improvement projects shall be adequate to allow the City to proceed with preliminary design of those projects.

Subtask 6.8 - Prepare Model Expansion and Capacity Analysis Report

Consultant shall prepare a report summarizing the work performed under Task 6 and detailing deficiencies, projects, and their planning level costs. The report appendix will include the final versions of the TMs prepared under previous tasks. Consultant shall prepare a draft report for City's review. Comments on the draft report will be incorporated into a final report.

Task 6 Deliverables – TM on design flow and hydraulic criteria; thematic maps and hydraulic gradeline plots of predicted capacity deficiencies; draft and final Model Expansion and Capacity Analysis Report.

Exhibit A-1
Project Schedule

Wastewater Collection System Model Expansion and Capacity Analysis
Proposed Project Schedule

Task	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	
Task 1: Project Management & Coordination																					
1.1 Project Administration	NTP																				
1.2 Meetings		★		★		★			★			★		★			★		★		★
Task 2: Data Collection and Review																					
2.1 Review Existing Information																					
2.2 Review Sewer Network Data & Prepare Surveying Plan																					
2.3 Conduct Field Surveying																					
2.4 Prepare Data Collection & GIS Update TM																					
Task 3: GIS Mapping Update																					
3.1 Update GIS Database																					
Task 4: Flow Monitoring																					
4.1 Prepare Flow Monitoring Plan																					
4.2 Conduct Flow Monitoring																					
4.3 Review and Summarize Flow Monitoring Data																					
Task 5: Hydraulic Model Expansion																					
5.1 Expand and Update Model Network																					
5.2 Develop Existing Model Loads																					
5.3 Develop Future Model Loads																					
5.4 Calibrate Model																					
5.5 Prepare Model Development TM																					
Task 6: Capacity Analysis																					
6.1 Develop Design Flow & Hydraulic Criteria and Prepare TM																					
6.2 Evaluate Impact of Borregas Stormwater Flow Diversion																					
6.3 Conduct Model Simulations & Identify Capacity Deficiencies																					
6.4 Develop and Model Preliminary Solutions																					
6.5 Evaluate Potential Capacity Improvement Projects																					
6.6 Evaluate Arques Lift Station																					
6.7 Develop Capacity Improvement Plan																					
6.8 Prepare Model Expansion and Capacity Analysis Report																					

★ Progress Meeting or Workshop TM Technical Memorandum D Draft Report F Final Report

Exhibit B Compensation Schedule



Fee Estimate

City of Sunnyvale Wastewater Collection System Model Expansion and Capacity Analysis

Tasks	Labor										Total Hours	Total W&C Labor Costs (1)	Outside Services			Subtotal	Sub-consultant Total Cost (2)	Total ODCs (3)	Total Fee
	Dave Richardson	Gisa Ju	Cathy Greenman	Nuria Bertran-Ortiz	Chris van Lienden	Staff Engineer	Glenn Hermanson	GIS Technician	Admin. Support				Kier & Wright	Schaaf & Wheeler	ADS				
	Principal In Charge	Technical Advisor	Project Manger	Project Engineer	Modeling Support	Project Support	Capacity Project Development	GIS Updates	Admin	Surveying			Stormwater & Pump Station Evaluations	Flow Monitoring					
Billing classification>> 2019 billing rate>>	NPL	STPL	SPM	PM1	PM1	E1	STPL		PA										
	320	310	282	251	251	162	310	134	110										
Task 1: Project Management & Coordination																			
1.1 Project Administration	4	2	42	12	2	2	2		24	90	\$21,155		\$1,840		\$1,390	\$1,529	\$0	\$22,684	
1.2 Meetings		12	32	32	6	12	6			100	\$26,477				\$450	\$495	\$200	\$27,172	
Subtotal Task 1:	4	14	74	44	8	14	8	0	24	190	\$47,632	\$0	\$1,840	\$0	\$1,840	\$2,024	\$200	\$49,856	
Task 2: Data Collection and Review																			
2.1 Review Existing Information		2	8	16	8	16				50	\$11,492				\$0	\$0	\$0	\$11,492	
2.2 Review Sewer Network Data and Prepare Field Surveying Plan		2	12	40		80				134	\$27,004				\$0	\$0	\$0	\$27,004	
2.3 Conduct Field Surveying (4)			8	12		16				36	\$7,860	\$69,000			\$69,000	\$75,900	\$0	\$83,760	
2.4 Prepare Data Collection and GIS Update TM		2	8	16		24		16		66	\$12,924				\$0	\$0	\$0	\$12,924	
Subtotal Task 2:	0	6	36	84	8	136	0	16	0	286	\$59,280	\$69,000	\$0	\$0	\$69,000	\$75,900	\$0	\$135,180	
Task 3: GIS Mapping Update																			
3.1 Update GIS Database (5)			4	10		20		100		134	\$20,278				\$0	\$0	\$0	\$20,278	
Subtotal Task 3:	0	0	4	10	0	20	0	100	0	134	\$20,278	\$0	\$0	\$0	\$0	\$0	\$0	\$20,278	
Task 4: Flow Monitoring																			
4.1 Prepare Flow Monitoring Plan		2	4	8	8	24				46	\$9,652				\$0	\$0	\$0	\$9,652	
4.2 Conduct Flow Monitoring (6)		2	2	4		40				48	\$8,668		\$159,588	\$159,588	\$175,547	\$0	\$0	\$184,215	
4.3 Review and Summarize Flow Monitoring Data			2	2						4	\$1,066				\$0	\$0	\$0	\$1,066	
Subtotal Task 4:	0	4	8	14	8	64	0	0	0	98	\$19,386	\$0	\$0	\$159,588	\$159,588	\$175,547	\$0	\$194,933	
Task 5: Hydraulic Model Expansion																			
5.1 Expand and Update Model Network			32	60		100				192	\$40,284		\$1,880		\$1,880	\$2,068	\$0	\$42,352	
5.2 Develop Existing Model Loads		2	24	32		40				98	\$21,900				\$0	\$0	\$0	\$21,900	
5.3 Develop Future Model Loads		2	16	24		32				74	\$16,830				\$0	\$0	\$0	\$16,830	
5.4 Calibrate Model		2	24	24	40	120				210	\$44,179				\$0	\$0	\$0	\$44,179	
5.5 Prepare Model Development TM		4	16	24	8	24				76	\$18,202				\$0	\$0	\$0	\$18,202	
Subtotal Task 5:	0	10	112	164	48	316	0	0	0	650	\$141,395	\$0	\$1,880	\$0	\$1,880	\$2,068	\$0	\$143,463	
Task 6: Capacity Analysis																			
6.1 Develop Design Flow & Hydraulic Criteria and Prepare TM		4	16	8						28	\$7,993				\$0	\$0	\$0	\$7,993	
6.2 Evaluate Impact of Borregas Stormwater Flow Diversion		2	4		12					18	\$4,903		\$9,080	\$9,080	\$9,988	\$0	\$0	\$14,891	
6.3 Conduct Model Simulations & Identify Capacity Deficiencies		2	8	16		32				58	\$12,438				\$0	\$0	\$0	\$12,438	
6.4 Develop and Model Preliminary Solutions		2	8	24		24	8			66	\$15,726				\$0	\$0	\$0	\$15,726	
6.5 Evaluate Potential Capacity Improvement Projects		4	8	24		40	24			100	\$24,143				\$0	\$0	\$300	\$24,443	
6.6 Evaluate Arques Lift Station		2	4		8					14	\$3,869		\$9,710	\$9,710	\$10,681	\$0	\$0	\$14,550	
6.7 Develop Capacity Improvement Plan		4	16	16		24	24			84	\$21,729				\$0	\$0	\$0	\$21,729	
6.8 Prepare Model Expansion and Capacity Analysis Report		4	40	40	8	40			12	144	\$33,339				\$0	\$0	\$2,000	\$35,339	
Subtotal Task 6:	0	24	104	128	28	160	56	0	12	512	\$124,140	\$0	\$18,790	\$0	\$18,790	\$20,669	\$2,300	\$147,109	
TOTAL	4	58	338	444	100	710	64	116	36	1870	\$412,111	\$69,000	\$22,510	\$159,588	\$252,938	\$276,208	\$2,500	\$690,819	

- The individual hourly rates include salary, overhead and profit based on Woodard & Curran's standard billing rates at the time the work is performed. Woodard & Curran reserves the right to adjust its hourly rate structure at the beginning of the calendar year for all ongoing contracts. This estimate assumes a 3% increase in billing rates for work performed in 2020.
- Subconsultants will be billed at actual cost plus 10%.
- Other direct costs (ODCs) such as reproduction, delivery, mileage (rates will be those allowed by current IRS guidelines), and travel expenses, will be billed at actual cost.
- Based on surveying of 200 manholes.
- Based on GIS update for 200 manholes surveyed for this project, plus approx. 100 previously surveyed manholes on Lawrence Interceptor and approx. 200 previously surveyed manholes in the downtown area.
- Based on 33 meters and 4 rain gauges installed for two months during the 2019/20 wet weather season.

INSURANCE REQUIREMENTS FOR CONSULTANTS

Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the Consultant, his agents, representatives, or employees.

Minimum Scope and Limits of Insurance. Consultant shall maintain limits no less than:

1. **Commercial General Liability:** \$2,000,000 per occurrence and \$4,000,000 aggregate for bodily injury, personal injury and property damage. ISO Occurrence Form CG 0001 or equivalent is required.
2. **Automobile Liability:** \$1,000,000 per accident for bodily injury and property damage. ISO Form CA 0001 or equivalent is required.
3. **Workers' Compensation** Statutory Limits and **Employer's Liability:** \$1,000,000 per accident for bodily injury or disease.

Industry Specific Coverages. If checked below, the following insurance is also required:

- Professional Liability Insurance / Errors and Omissions Liability in the minimum amount of \$1,000,000 per occurrence.
- If working directly with children, the Certificate of Insurance must include coverage for molestation and sexual abuse in the minimum amount of \$1,000,000 per occurrence and \$2,000,000 aggregate. In the event that Abuse & Molestation Liability coverage is provided via a Claims Made Policy, the coverage shall include a minimum of a five year extended reporting clause.
- Pollution Liability Insurance in the minimum amount of \$1,000,000 per occurrence
- MCS-90 Endorsement to Business Automobile insurance for transportation of hazardous materials and pollutants
- Builder's Risk / Course of Construction Insurance in the minimum amount of \$_____.

Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared and approved by the City of Sunnyvale. The consultant shall guarantee payment of any losses and related investigations, claim administration and defense expenses within the deductible or self-insured retention.

Other Insurance Provisions

The **general liability** and automobile liability policies (and if applicable, pollution liability, sexual abuse and molestation, and builder's risk policies) shall contain, or be endorsed to contain, the following provisions:

1. The City of Sunnyvale, its officials, employees, agents and volunteers are to be covered as additional insureds with respects to liability arising out of activities performed by or on behalf of the Consultant; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; or automobiles owned, leased, hired or borrowed by the Consultant. The coverage shall contain no special limitations on the scope of protection afforded to the City of Sunnyvale, its officers, employees, agents or volunteers.
2. For any claims related to this project, the Consultant's insurance shall be primary. Any insurance or self-insurance maintained by the City of Sunnyvale, its officers, officials, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not contribute with it.
3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City of Sunnyvale, its officers, officials, employees, agents or volunteers.
4. The Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City of Sunnyvale.
6. The policy limits of coverage shall be made available to the full limits of the policy. The minimum limits stated above shall not serve to reduce the CONSULTANT'S policy limits of coverage. Therefore, the requirements for coverage and limits shall be (1) the minimum coverage and limits specified in this agreement, or (2) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the named insured, whichever is greater.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of not less than A:VII, unless otherwise acceptable to the City of Sunnyvale.

Verification of Coverage

Consultant shall furnish the City of Sunnyvale with original a Certificate of Insurance effecting the coverage required. The certificates are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates are to be received and approved by the City of Sunnyvale prior to commencement of work.

Subcontractors

CONSULTANT shall require all subcontractors to procure and maintain insurance policies subject to these requirements. Failure of CONSULTANT to verify existence of sub-contractor's insurance shall not relieve CONSULTANT from any claim arising from sub-contractors work on behalf of CONSULTANT.