

**SIXTH AMENDMENT TO AGREEMENT FOR
PROFESSIONAL SERVICES
(Design Professional)**

THIS SIXTH AMENDMENT TO AGREEMENT is made and entered into this 1st day of NOVEMBER, 2021, by and between the City of Merced, a California Charter Municipal Corporation ("City"), and Stantec Consulting Services, Inc., a New York Corporation ("Consultant").

WHEREAS, City is undertaking a project to prepare a Wastewater Collection System Master Plan for the City of Merced ("Project"); and

WHEREAS, City and Consultant have previously entered into an Agreement for Professional Services ("Agreement") dated April 1, 2013, a First Amendment to said Agreement dated June 16, 2014, a Second Amendment to said Agreement dated April 20, 2015, a Third Amendment to said Agreement dated April 17, 2017, a Fourth Amendment to said Agreement dated September 4, 2018, and a Fifth Amendment to said Agreement dated June 15, 2020; and

WHEREAS, City and Consultant desire to amend said Agreement to provide for additional services in connection with said project.

NOW, THEREFORE, the parties hereto, in consideration of the mutual covenants hereinafter recited, agree as follows:

1. Section 31, "ADDITIONAL SCOPE OF SERVICES," is hereby added to the Agreement to read as follows:

"31. ADDITIONAL SCOPE OF SERVICES. The Scope of Services is amended in accordance with the changes outlined in Exhibit 1 attached hereto."

2. Section 32, "ADDITIONAL COMPENSATION," is hereby added to the Agreement to read as follows:

"32. ADDITIONAL COMPENSATION. The City shall pay to Consultant the not to exceed additional sum of One Hundred Eighteen Thousand Three Hundred Dollars (\$118,300.00) for the additional services described in

Exhibit 1 and in accordance with the fee schedule set forth on Exhibit 1, attached hereto."

3. Except as herein amended, the Agreement dated April 1, 2013, First Amendment dated June 16, 2016, Second Amendment dated April 20, 2015, Third Amendment dated April 17, 2017, Fourth Amendment dated September 4, 2018, and Fifth Amendment dated June 15, 2020, shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused this Sixth Amendment to Agreement to be executed on the date first above written.

CITY OF MERCED
A California Charter Municipal
Corporation

BY: _____

Stephanie R. Dietz
City Manager

ATTEST:

STEPHANIE R. DIETZ, CITY CLERK

BY: _____

[Signature]
Assistant/Deputy City Clerk

APPROVED AS TO FORM:

BY: _____

Kimberly C. Maday
City Attorney

9/10/21
Date



213469
ACCOUNT DATA:

PO# 109009

BY: _____

[Signature]
Verified by Finance Officer *V-16324*

Funds available - by 10/7/21
553-1107-532-17 00 FL 10/7/21
\$118,300.00



CONSULTANT
STANTEC CONSULTING SERVICES,
INC., A New York Corporation

BY: SLB
(Signature)

Steven L. Beck
(Typed Name)

Its: Senior Principal
(Title)

BY: _____
(Signature)

(Typed Name)

Its: _____
(Title)

Taxpayer I.D. No. 68-0309852

ADDRESS: 3875 Atherton Road
Rocklin, CA 95765

TELEPHONE: (916) 773-8100

FAX: (916) 773-8448

E-MAIL: steven.beck@stantec.com



Stantec Consulting Services Inc.
3875 Atherton Road, Rocklin CA 95765-3716

July 26, 2021
File: TBD

Attention: Ken Elwin, Director of Public Works
City of Merced
1776 Grogan Avenue
Merced, CA 95341

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

Dear Mr. Elwin,

Stantec Consulting Services Inc. (Stantec) is submitting this proposal for professional services to assist the City with developing updated per capita wastewater flow design criteria. Following Development of new wastewater per capita flows, Stantec will update the sewer collection hydraulic model, perform a capacity analysis, and prepare an updated Draft Wastewater Collection System Master Plan (WCSMP).

The updated Draft WCSMP will consider new alternatives to maximize the capacity of the existing wastewater collection system for the Interim Project and Build-Out Conditions. Revisions to draft Environmental Impact Report (EIR) for the WCSMP are not included in this scope.

Our proposed scope of work is as follows:

TASK 1: UPDATE WCSMP DESIGN CRITERIA

As a result of water conservation, the City needs to update their wastewater collection design criteria to reflect the most recent flow data trends and conditions. Stantec will work with the City to establish the appropriate design criteria that can be used to update the WCSMP.

TASK 1.1: REVIEW FLOW MONITORING DATA AND ANALYSIS

Stantec will review flow monitoring data provided the City's consultant V&A Consulting Engineers, Inc. (V&A) and flow data analysis information provided by the Virginia Smith Trust (VST) consultant's Peak Planning and Development, LLC and MKN Associates. Stantec will communicate and share data with the developer's consultants to establish a consensus on wastewater per capita flow generation rates.

TASK 1.2: ESTABLISH PER CAPITA WASTEWATER GENERATION RATE

Stantec will assist the City to establish an updated per capita wastewater generation rate to be used for wastewater collection system master planning purposes. Historically, the City has used 85 gallons per capita per day (gpcd) which is believed to be too conservative. Stantec will review the sewer collection system flow monitoring data and number of residences to establish average dry weather flows per single family residence that compares flow data from several different locations within the City's Service Area. After establishing an average wastewater flow per single family residence, the household population density as determined by the City's Planning Department, will be used to establish an updated per capita wastewater generation rate.

EXHIBIT 1

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

TASK 1.3: ESTABLISH UNIT DENSITIES FOR FUTURE LAND USE DESIGNATIONS

The City's existing land uses and associated development densities, i.e., the number of EDUs per acre (EDU/acre) used in the 2017 WCSMP are shown in **Table 1**.

Table 1 : Wastewater Generation Rates and Unit Densities per Land Use Designation

LU CODE	GPNAME	gpd/acre	EDU/acre
CG	General Commercial	1,500	5.8
BP	Business Park	1,500	5.8
BP-R	Business Park Reserve	1,500	5.8
CO	Commercial Office	1,500	5.8
CT	Thoroughfare Commercial	1,500	5.8
RC	Regional Community Commercial	1,500	5.8
COM-R	Commercial Reserve	1,500	5.8
CN	Neighborhood Commercial	1,500	5.8
IND	Manufacturing/Industrial	2,000	7.8
IND-R	Industrial Reserve	2,000	7.8
FSCH	Future School	3,765	14.6
SCH	School	3,765	14.6
P/G	Public General Use	1,500	5.8
AG	Agricultural	0	0.0
OS-PK	Open Space - Park Recreation	0	0.0
FPK	Future Park	0	0.0
RR	Rural Residential	513	2.0
LD	Low Density Residential	1,155	4.5
LMD	Low To Medium Density Residential	2,182	8.5
HMD	High To Medium Residential	4,621	18.0
HD	High Density Residential	7,188	28.0
RMH	Mobile Home Park Residential	2,054	8.0
VR	Village Residential	3,080	12.0
RES-R	Residential Reserve	1,155	4.5
CP	Community Plan	1,155	4.5
MU	Mixed Use	3,057	11.9

Using the updated average per capita wastewater generation rate and population density per EDU, Table 1 will be revised and approved by the City before updating the hydraulic model as described under Task 2.

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

TASK 1.4: UPDATE STUDY AREA DATA

It is assumed that the City will provide any adjustments to the service area to be included in the interim and build-out scenarios. Including changes to which parcels are included in each scenario as well as the parameters associated with those parcels from which the flow projection is based, (i.e., the number of EDUs, land use, entitlement status, etc.). It is assumed that this information will be provided in GIS format as a parcel shapefile containing all parcels within the City's planning area and with the appropriate attributes defined. These attributes include either the land use designation or EDUs to be used for the parcel and the model scenario it should be included in (i.e., existing, interim, future).

TASK 1.5: FUTURE FLOW PROJECTIONS

After finalizing the design criteria with the City and receiving the data file described in Task 1.4, Stantec will update the interim and build-out wastewater flow projections for use in the model update and analysis. Flow projections will be developed for interim and build-out levels of development using the information gathered in the preceding tasks. The updated flow projections will be presented to the City for confirmation before proceeding with Task 2.

TASK 1: DELIVERABLES

- Draft design criteria and flow projection spreadsheet
- Final design criteria and flow projection spreadsheet

TASK 2: MODEL UPDATE AND CAPACITY ASSESSMENT

Using the future flow projections established in Task 1, Stantec will update the City's interim and build-out model scenarios, as were evaluated in the 2017 WCSMP. The model simulation results of the interim and build-out scenarios will be evaluated against the City's level of service (LOS) criteria described in the 2017 WCSMP. The results of each scenario will also be evaluated for differences that exist from what had been presented in the 2017 WCSMP and subsequent evaluations. Any adjustments to the parameters established in Task 1 after this task has begun will require additional authorization.

TASK 2.1: HYDRAULIC MODEL UPDATE

The updated future development model scenarios will be built from the most recent version of the City's existing system model calibrated to flow data collected in 2019. New flow monitoring data will be used to redistribute and calibrate the monitored ADWF within the model. Recalibration of the existing system model under wet-weather conditions is excluded from this effort. It is assumed that wet-weather parameters within the model will be unchanged as part of this effort. The model will use the updated distribution of dry weather flow and R-T-K unit hydrograph parameters established by the 2019 wet-weather calibration results. Future development scenarios will be updated to reflect the design criteria and flow projections established in Task 1.

The model update will be limited to the following two scenarios and assumptions:

- Interim Development, under PWWF Conditions
 - Assuming existing system infrastructure without any improvements.
- Build-out Development, under PWWF Conditions
 - Including the recommended South Trunk alternative from the Collection System Hydraulic Model Conversion & South Trunk Sewer Service Alternatives Analysis (June 2020).

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

TASK 2.2: CAPACITY EVALUATION

After the updated dry weather flow distribution, design criteria, and service area parameters are input into the model, the results of each scenario will be used to re-evaluate the capacity requirements of the future collection system under interim and build-out conditions. The results of this evaluation will be used to identify and recommend alternative system improvements which provide the interim and build-out capacity required to serve future development. This effort will be summarized and discussed with the City before being incorporated into the updated WCSMP document. System capacity will be described and presented in figures which will be incorporated into the updated WCSMP.

TASK 2: DELIVERABLES

- Updated Hydraulic Model Files
- Conference call with City staff to discuss the model update methodology and results.

TASK 3: INTERIM AND BUILD-OUT INFRASTRUCTURE IMPROVEMENTS UPDATE

Using the updated future development models, Stantec will reassess the future infrastructure improvements required to serve future development. The evaluation will consider alternative improvements to those recommended in the 2017 WCSMP. Specifically, the evaluation will focus on improvements necessary to provide capacity for interim development and that needed to serve North Merced under buildout conditions. The recommended South Trunk alternative identified in the June 2020 Model Update and South Trunk Alternatives Analysis will be incorporated into the updated build-out model. The recommended South Trunk Alternative will be summarized and presented along with the associated opinion of probable cost in the updated WCSMP.

TASK 3.1: IDENTIFY INTERIM INFRASTRUCTURE IMPROVEMENTS

The updated interim system model and capacity results will be used to identify alternative improvement projects that provide sufficient capacity to serve the City's committed sewer service area under interim conditions. The evaluation of interim improvements options will include the development of the following alternatives:

1. Baseline Alternative – “Do nothing alternative”, present the existing system capacity limitations under interim conditions.
2. Standard Improvements Alternative – Upsize pipelines with capacity constraints to provide sufficient capacity to serve the interim service area.
3. Phased Improvements Alternative – Consider a phased Main Influent Trunk improvement project further described in the following task, as well as other alternative upstream improvements including running parallel sections of pipe, localized pump stations, flow diversions, and other potential improvements to the existing system will be considered. Integrating improvements to create a phased approach that serves interim and build-out improvements.

TASK 3.2: IDENTIFY BUILD-OUT INFRASTRUCTURE IMPROVEMENTS

The updated build-out system model and capacity results will be used to identify alternative improvement projects to provide sufficient collection system capacity at build-out of the City's General Plan. As discussed, improvement alternatives have already been evaluated for build-out of the South Merced service area, the TM documenting this effort will be integrated into the updated WCSMP document. The South Trunk Alternative alignment will be resized if necessary, to accommodate the updated flow projection and model results but no “new” alternatives to this recommended project will be developed for South Merced.

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

After refining the sizing requirements for the proposed South Trunk and evaluating potential improvements to the existing system, Stantec will consider alternatives improvements to the North Trunk and North Merced Pump Station proposed in the 2017 WCSMP.

The following alternatives will be considered to provide build-out sewer service to North Merced:

1. Baseline Alternative – Re-evaluate the infrastructure proposed in the WCSMP,
2. Resize Baseline Alternative – present the differences between the capacity requirements described in the 2017 WCSMP for the North Merced service area and those needed with updated flows and design criteria
3. Gravity Alignment Alternative – Stantec will use newly available LiDAR elevation data to evaluate the feasibility of a gravity alignment alternative to provide service to build-out development areas.

The build-out system alternatives analysis will include an element to consider phased improvements of the main influent trunklines connecting the City collection system to the WWTF considering both interim and build-out capacity needs.

TASK 3.3: OPINION OF PROBABLE COSTS AND ALTERNATIVES ANALYSIS

After developing the alternatives described above, Stantec will develop opinions of probable costs for each and evaluate the feasibility of each alternative. Based on the results of the alternatives analysis Stantec will recommend the best apparent alternative. The alternatives analysis will be summarized and discussed with the City before being incorporated into the updated WCSMP document. Alternative improvements and recommendations will be described and presented in figures which will be incorporated into the updated WCSMP.

TASK 3: DELIVERABLES

- Updated Hydraulic Model Files
- Cost Estimate Spreadsheet

TASK 4: WASTEWATER COLLECTION SYSTEM MASTER PLAN UPDATE

After presenting and discussing the updated design criteria, model, and alternatives analysis with the City, Stantec will update the City's Master Plan document. New model analyses, iterations, or alternative design criteria will require additional authorization after this task has begun. The results of additional analysis beyond this point will result in re-work, which is not included in this proposal, therefore confirming the results of Tasks 1 through 3 with the City is required before proceeding with Task 4.

TASK 4.1: UPDATE WSCMP CHAPTERS 1-4

Stantec will update the forward Chapters of the 2017 WCSMP, including:

- Chapter 1: Introduction, Purpose, Study Area, and Background
- Chapter 2: An Overview of Planning Wastewater Service
- Chapter 3: Basis for City Collection System Planning
- Chapter 4: Existing Wastewater Collection System

It is assumed that the City will provide any comments or additional information related to these Chapters prior to authorizing Task 4.

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

TASK 4.2: INCORPORATE SOUTH TRUNK ALTERNATIVES ANALYSIS

The results of the Model Update and South Trunk Alternatives Analysis (June 2020), describing the existing system model calibration and update, will be incorporated into the updated WCSMP document. The City should provide comments on the draft South Trunk Alternatives Analysis Technical Memorandum prior to starting Task 4. The capacity of the recommended South Trunk alternative will be reevaluated based on the updated design criteria established in Task 1, as well as the corresponding opinion of probable cost.

TASK 4.3: UPDATE WCSMP CHAPTERS 5-8

After confirming the results of Tasks 1 – 3 with the City, Stantec will incorporate the results into the updated WCSMP document along with the results of the June 2020 analysis. The remaining chapters will be updated:

- Chapter 5: Sewer Flow Estimates
- Chapter 6: Hydraulic Model
- Chapter 7: Collection System Model Results
- Chapter 8: Alternative Wastewater Collection System Improvement Plans and Recommendations

TASK 4: DELIVERABLES

- Updated Draft WCSMP (5 hard copies and 1 electronic copy)

TASK 5: PROJECT MANAGEMENT AND MEETINGS

TASK 6.1: PROJECT COORDINATION

Stantec will proactively manage its team, review work progress, schedule work assignments, and maintain budget through the duration of the project. The project management and QA/QC includes:

- Establishing necessary agreements with the City.
- Maintaining open communications with the City staff.
- Implementation of quality control procedures throughout the duration of the project.
- Monitoring and controlling the progress of the work to assure compliance with schedule and budget.
- Producing monthly project invoices, progress reports, and budget summaries for submittal to the City.
- Obtaining prior approval from the City, including authorization, for changes in scope.

This scope and fee do not include contingency to incorporate additional project parameters or refinement than identified herein, but follow-up work or refinement may be desired and can be added at City direction with approval of a change order(s) to this scope of services and associated budget authorization.

TASK 6.2: MEETINGS

Stantec coordination and review with City staff will primarily be performed via web-based meetings and email. For updating the WCSMP (Tasks 1 through 4), this task includes three (3) web-based meetings with City staff. The meetings will be for the purpose of obtaining initial project input, followed by input and comments from City staff on the draft submittals. Stantec will prepare a PowerPoint presentation and attend one City Council workshop.

July 26, 2021

Ken Elwin, Director of Public Works

Page 7 of 7

Reference: City of Merced Updated Draft Wastewater Collection System Master Plan Update

PROJECT ASSUMPTIONS

Assumptions for Updating the WCSMP:

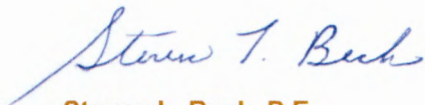
- The hydraulic model from the Collection System Hydraulic Model Conversion & South Trunk Sewer Service Alternatives Analysis (June 2020) will be used as the basis in revising and updating the hydraulic model. The existing system scenario from this assessment will be adjusted to reflect the updated distribution of ADWF, but the previously established wet-weather parameters will remain unchanged in this effort. It is assumed that the City will provide flow data needed to establish and distribute the ADWF within the model.
- The design criteria will be confirmed by the City prior to performing the model update, any adjustments to this information after the model update has begun (Task 2) will require additional authorization. Alternative criteria can be added at City direction, with approval of a change order(s) to this scope of services and associated budget authorization.
- The data required as part of Task 1 will be provided by the City in the correct format, Stantec will not develop, format, or compile any of this information. Any adjustments to this data after the model update has begun (Task 2) will require additional authorization to restart Task 2.
- It's assumed that the City will provide any additional information or comments on the 2017 WCSMP or Collection System Hydraulic Model Conversion & South Trunk Sewer Service Alternatives Analysis (June 2020) TM prior to authorizing the Master Plan Update (Task 4).
- Assessment of treatment capacity at the City's WWTF is excluded from this scope of services.
- It is assumed the City can spot check critical survey information and provide record or as-built drawings as requested for use in this project. No survey allowance has been provided in this scope and fee.

BUDGET

The estimated time and expense budget for the above scope of services is **\$118,300**. A breakdown of the labor costs and other direct costs is provided in Attachment A.

Regards,

Stantec Consulting Services Inc.



Steven L. Beck, P.E.

Senior Principal

Phone: (916) 826-3665

Attachment: Attachment A – Fee Proposal



FEE ESTIMATE - City of Merced WCSMP Update

	Project Manager	Senior Project Engineer	Project Engineer	Graphic Designer	Technical Editor	Other Unlabeled Costs
Name	Beck, Steven	Van Doorn, Mike	Webb, Breanna	Maddux, Mike	Lahman, Amy	
Project Billing Rate	\$252.00	\$243.00	\$183.00	\$192.00	\$154.00	\$1.00
Total Units (T&M)	141	8	410	16	14	566
Fee (T&M)	\$35,532.00	\$1,944.00	\$75,030.00	\$3,072.00	\$2,156.00	\$566.00

Project Summary	Labour	Expense	Subs	Total
Fixed Fee	\$0.00	\$0.00	\$0.00	\$0.00
Time & Material	\$117,734.00	\$566.00	\$0.00	\$118,300.00
Total	\$117,734.00	\$566.00	\$0.00	\$118,300.00

Task ID	Task Name	Start Date	End Date	Units	Task Type	Hours	Labour	Expense	Subs	Total
1	TASK 1 UPDATE WCSMP DESIGN CRITERIA				Time & Material	231	\$47,034.00	\$0.00	\$0.00	\$47,034.00
1.1	Subtask 1.1 Review Flow Monitoring Data and Analysis			49	Time & Material	131	\$27,354.00	\$0.00	\$0.00	\$27,354.00
1.2	Subtask 1.2 Establish Per Capita Wastewater Generation Rate			4	Time & Material	20	\$3,826.00	\$0.00	\$0.00	\$3,826.00
1.3	Subtask 1.3 Establish Unit Densities for Future Land Use			4	Time & Material	20	\$3,826.00	\$0.00	\$0.00	\$3,826.00
1.4	Subtask 1.4 Update Study Area Data			4	Time & Material	28	\$5,400.00	\$0.00	\$0.00	\$5,400.00
1.5	Subtask 1.5 Future Flow Projections			6	Time & Material	32	\$6,408.00	\$0.00	\$0.00	\$6,408.00
2	TASK 2 MODEL UPDATE and CAPACITY ASSESSMENT				Time & Material	76	\$15,216.00	\$0.00	\$0.00	\$15,216.00
2.1	Subtask 2.1 Hydraulic Model Update			4	Time & Material	40	\$7,836.00	\$0.00	\$0.00	\$7,836.00
2.2	Subtask 2.2 Capacity Evaluation			8	Time & Material	36	\$7,380.00	\$0.00	\$0.00	\$7,380.00
3	TASK 3 INTERIM AND BUILD-OUT INFRASTRUCTURE				Time & Material	124	\$24,072.00	\$0.00	\$0.00	\$24,072.00
3.1	Subtask 3.1 Identify Interim Infrastructure Improvements			8	Time & Material	40	\$7,872.00	\$0.00	\$0.00	\$7,872.00
3.2	Subtask 3.2 Identify Build-Out Infrastructure Improvements			8	Time & Material	40	\$7,872.00	\$0.00	\$0.00	\$7,872.00
3.3	Subtask 3.3 Opinion of Probable Costs and Alternative Analysis			4	Time & Material	44	\$8,328.00	\$0.00	\$0.00	\$8,328.00
4	TASK 4 WCSMP UPDATE				Time & Material	134	\$26,364.00	\$200.00	\$0.00	\$26,564.00
4.1	Subtask 4.1 Update WCSMP Chapters 1-4			4	Time & Material	40	\$7,852.00	\$100.00	\$0.00	\$7,952.00
4.2	Subtask 4.2 Incorporate South Trunk Alternatives Analysis			4	Time & Material	32	\$6,016.00	\$0.00	\$0.00	\$6,016.00
4.3	Subtask 4.3 Update WCSMP Chapters 5-8			8	Time & Material	62	\$11,796.00	\$100.00	\$0.00	\$11,896.00
5	TASK 5 PROJECT MANAGEMENT				Time & Material	24	\$6,048.00	\$366.00	\$0.00	\$6,414.00
5.1	Subtask 5.1 Project Coordination				Time & Material	0	\$0.00	\$0.00	\$0.00	\$0.00
5.2	Subtask 5.2 Meetings			24	Time & Material	24	\$6,048.00	\$366.00	\$0.00	\$6,414.00