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May 9, 2025

Katherine Woodhull-Fuget
City of Visalia
Engineering and Building Department
315 E Acequia Ave.
Visalia, CA 93291

Subject: Storm System Nexus Study

Dear Katherine:

Enclosed is a Scope and Fee prepared by Carollo Engineers, Inc. (Carollo), to provide an updated master plan, nexus study, and rate study for the City of Visalia (City) Storm system. In addition to rate study analysis, updates to the storm master plan will be incorporated. The following sections outline our project team, scope, and fee for this work.

Project Team

We have selected a team that is both familiar with the City of Visalia and can provide specialized expertise in stormwater systems. Our team will provide the City with a technically sound and comprehensive plan to guide future project cost to support the required storm improvements. **Ryan Sellman** is the proposed principal-in-charge and will lead resource management for the project team. **Reace Fisher**, who will be responsible for day-to-day communication with the City and the project team. Reace will be supported by a team of qualified staff essential to meeting the project goals. **Isalah Barnes**, who has been supporting the City on the collection system rate study and has over 16 years of related financial experience, will serve as the project's financial technical advisor. She has not only served the City of Visalia, but numerous clients with rate study/nexus study projects throughout California. **Ryan Orgill** will lead the planning efforts team. Ryan has over 20 years of hydraulic modeling support and helped the City on their last two master plan updates.

Scope of Work

The following scope of work is our interpretation of the City's base scope of work provided and our understanding of the desired changes after City review. There are sub-tasks included in this scope of work without associated sub-task fees in the detailed cost schedule simplified for billing purposes. These tasks are described in detail to provide clarity on the overall completion of the project per City direction.

Storm Drain Tasks

Task SD-1 – Model Review

After some discrepancies with the initial models developed by CWE were identified, particularly in comparison with the City's adopted Storm Master Plan and Engineering Standards, City staff utilized the models provided by CWE to conduct additional research and explore design alternatives. This included some extensive modification to CWE's models.

Now that the City has explored design alternatives and settled on revised design parameters to utilize moving forward, the City intends to provide Carollo with the revised models and associated documentation. Under this task, Carollo will:

- Validate the City-revised existing and future conditions models. Review the revised models and associated documentation for flaws in approach, methodology, assumptions, and engineering judgement. Bring any identified flaws and proposed improvements or solutions to the attention of City staff for discussion.
- Based on discussions with City staff, further modify the models as needed for sound engineering practice.

Deliverables:

- Memorandum summarizing findings of model review
- Carollo-validated (and revised if necessary) Existing Conditions and Future Conditions SWMM models
- GIS deliverables (packaged geodatabase with layers/shapefiles for SWMM elements)

Task SD-2 – Master Plan Redevelopment

Carollo will revise the draft Storm Master Plan as part of this task. The revised Storm Master Plan will be updated to:

- Provide direction for development
 - » Identify tributary areas
 - » Propose pipe sizes and depths
 - » Identify (potential) basin locations
 - » Propose basin capacities (and dimensions)
 - » Clearly define design criteria
 - Level of Protection for different types of infrastructure
 - Minimum pipe sizes, slopes, and velocities
 - Accepted calculation methods
 - Establish runoff coefficients and other constants
- Provide a basis for updating the storm impact fees
 - » Outline Master Plan CIPs with defensible cost estimates (include discussion of cost estimate methodology)
 - » Clearly define included and excluded costs (what is covered by the impact fee)
- Provide a high level basis for updating the storm service charges
 - » Outline Master Plan CIPs to address existing deficiencies
 - Articulate design criteria used to evaluate the existing system
 - Provide defensible cost estimates for CIPs for identified deficiencies
 - Provide placeholder/generalized CIPs for MS4 Compliance deficiencies
 - » Include a recommendation of further evaluation of the conveyance capacity of the waterways, and for further regional flood control efforts

- Discuss value/drawbacks of integrated modeling of the waterways
- » Estimate R&R needs based on estimated age of existing system
 - Provide rough order of magnitude estimates for replacement of aging/failing infrastructure, including culverts
- » Estimate operation and maintenance costs given projected growth and maintaining an acceptable level of service
- Articulate how the design criteria were established
 - » Discuss how the City's design methodology, philosophy, and criteria have changed over time
 - Ex: shift from detention to retention
 - » Discuss the differences between the continuous modeling approach and the rational method, and the steps taken to converge the two
- Discuss overlap between storm master plan and MS4 compliance
 - » MS4 hydromodification requirements (development peak runoff cannot exceed pre-development peak runoff of 2-year 24-hour design storm)

Under this task, Carollo will revise the draft Storm Master Plan draft prepared by CWE to meet the needs outlined above. Modifications to specific sections of the draft are outlined below.

- Executive Summary – update
- 1. Introduction – update to discuss previous efforts in more depth, as appropriate
- 2. Existing Conditions – revise to add more description of the existing drainage system design and less detail into the ditch agreements
- 3. Basis of Design – update
 - » 3.1. Level of Protection – elaborate on the listed level of protection. Provide the additional context of the modeling method used in 1994 in comparison with the Rational method used to check incoming development. Explain what the estimated level of protection provided by existing infrastructure is (e.g., roughly 2-year).
 - The 1994 MP did not run a 10-day duration storm, it ran a 1-day storm for both the 2-year and the 10-year events. All of the in-town regional basins outlined in the 1994 MP were designed as detention, not retention. The 1994 MP only identified the waterways and the Goshen Drain as “Major Drains” subject to the 10-year level of protection, with everything else identified as Minor (Collector) Drains sized for no less than the 2-year level of protection (in many cases a value somewhere between the 2-year and the 10-year was selected).
 - Incoming development has been evaluated using the Rational method and only held to a 2-year level of protection for conveyance. Basins have been sized using the rational coefficients and so provide capacity less than that required by modeling a continuous 10-year, 10-day storm.

- » 3.2. Low Impact Development – elaborate on implications of MS4 compliance on storm drain infrastructure and master planning. Describe the impact, if any, increased LID implementation will have on the functionality of the overall system
- 4. Hydrologic Analysis – update based on City’s modeling efforts
 - » 4.1. Modeling Approach – update, note removal of seepage from sizing of storage units
 - » 4.2. Scenarios – update design storms
 - » 4.3. Subcatchment Delineation – update figures
 - » 4.4. Rainfall – elaborate on NOAA Atlas 14 data usage. Include discussion of variability across the City and defend the use of a single set of values city-wide
 - » 4.5. Infiltration – provide source information for the curve numbers and land cover data (or tie back to section 4.1). Add a comparison of mapped hydrologic groups with those in the 1994 master plan (the dominant soil type in the 1994 MP was type C but the updated soil survey has the dominant type as type B) and discuss the implications on model results.
 - » 4.6. Runoff – update to reflect removal of percent imperviousness because it is already accounted for in the CN. Note that subcatchments with zero slope were estimated based on neighboring catchments to ensure their runoff was accounted for.
- 5. Hydraulic Analysis of Waterways – Add a disclaimer to this section regarding the limited usefulness and accuracy associated with the 2006 LiDAR data used by CWE, which was modified based on the assumption that there was ponded water or vegetation. The disclaimer would also apply to the associated model results.
 - » 5.1. Modeling Approach – explain the rationale of the selected modeling approach of using HEC-RAS models for the waterways, rather than a single model in SWMM5
 - » 5.2. Stormwater Outfall Flows – Update based on City’s modeling efforts. Clarify, as appropriate, how the outfall peak flows were derived from the model(s) and discuss the uncertainty involved in comparing the sum of outfall discharges distributed along a waterway with the channel capacity of point cross-sections.
 - » 5.3. Analysis and Results – discuss, as appropriate, the use of 2006 LiDAR data and the assumptions involved in modifying cross-sections. Describe what flows were applied to the HEC-RAS models and where, and clearly articulate under what circumstances (and design storm) bank overtopping occurs.
- 6. Hydraulic Analysis of Basins, Pumps, & Pipe Network
 - » 6.1. Modeling Approach – Elaborate on the dynamic wave method vs kinematic wave method. At a minimum, note that the 1994 MP used the kinematic wave method and explain why the dynamic wave method was used instead.
 - » 6.2. Existing Conditions Model Components – update based on City’s modeling efforts
 - » 6.3. Existing Conditions Deficiencies - update based on City's modeling efforts
 - » 6.4. Future Conditions Model Components - update based on City's modeling efforts
 - 6.4.1. Storage Basins – elaborate on design of future storage basins. Include discussion of water depths in park-basin facilities
- 7. Stormwater Management Alternatives

- » 7.1. Level of Protection – provide an evaluation of the current and alternative levels of protection. Discuss the implications of changing the level of protection and make a recommendation.
- » 7.2. Stormwater Storage – elaborate on the current approach to stormwater storage and how it differs from the historical approach. Discuss alternative approaches to stormwater storage (detention vs retention, shared-use vs single-use facilities, etc.) and make a recommendation.
- » 7.3. Stormwater Conveyance – elaborate on methods of conveyance and their implications.
- 8. Proposed Improvements
 - » 8.1. CIP Cost Estimates – provide more information as to the cost estimate methodology, including contingencies and unit costs.
 - » 8.2. Existing Conditions CIPs – update based on City modeling efforts. Add discussion of the need for MS4 compliance CIPs, CIPs for waterway capacity deficiencies, regional flood protection projects, and localized flooding projects. CWE ECIP #11 will be kept, but it will be rewritten
 - » 8.3. Future Conditions CIPs – update based on City modeling efforts
- 9. Water Quality Measures – discuss overlap between storm master plan and MS4 compliance
- Appendices
 - » Appendix A: Photographs of Flooded City Areas – Photographs of flooding not addressed by any proposed projects will be excluded in the document
 - » Appendix B: Basins, Pumps, and Pipe Network Map – provide a larger map with more detailed information, if appropriate
 - » Appendix C: Existing Conditions CIPs – update/redo based on City modeling efforts. Anticipate 1 to 2 new/revised sheets
 - » Appendix D: Matrix Ranking of Existing Conditions CIPs - update/redo based on City modeling efforts
 - » Appendix E: Future Conditions CIPs - update/redo based on City modeling efforts. Anticipate 33 new or revised sheets
 - » Appendix F: Matrix Ranking of Future Conditions CIPs - update/redo based on City modeling efforts
- New Chapters/Sections to add:
 - » Design Criteria for Master Plan Implementation
 - Clearly articulate design criteria and methodology to be used by development
 - Include methodology for upsizing and criteria for reimbursement of lines not explicitly included in master plan (for pipe oversizing)
 - Develop a high-level estimate for pipe oversizing for incorporation in CIP. This could be based on a high-level percentage assumption.
 - » Recommendations for Future Studies

Deliverables:

- Draft Revised Storm Master Plan (in both Microsoft Word and PDF formats)
- Final Storm Master Plan (in both Microsoft Word and PDF formats)

Task SD-3 – CEQA Assistance – Optional or Not-to-Exceed

The City has procured the environmental consulting firm Dudek to fulfill the CEQA compliance requirements of adopting the Storm and Sewer Master Plans. At this time, the Storm Master Plan is expected to require an Initial Study and Programmatic Environmental Impact Report. Under this optional task, Carollo would provide the City with assistance in providing information to Dudek during the CEQA process. Additionally, should the environmental review process trigger the need to modify projects in the Storm Master Plan, Carollo would revise the Storm Master Plan under this task.

Deliverables:

- Exhibits if requested (native files preferred)
- Revised Storm Master Plan if necessary (in both Microsoft Word and PDF formats)

Task SD-4 – Storm Nexus Study Additional Work

Carollo will update the Storm Rate Study from the original Task 4 Nexus Study. This update will include incorporating the most recent financial, capital, and customer billing data from the City into the previously developed models.

Task 4.1: Project Initiation

A kickoff meeting will be used to formalize lines of communication between Carollo and the City's team, finalize the project schedule, and ensure project goals and objectives are clearly defined, delineated, and understood by all parties. Additionally, milestones for project deliverables will be established.

Carollo will prepare a data request list and submit it to the City staff upon Notice to Proceed. As data is received, we will review each data item for completeness and clarity so we can follow up with additional requests or questions if needed. Some data may have previously been sent to Carollo, but we may need most up to date data.

Task 4.1 Deliverables

- Kick-off meeting workshop with City staff.
- Data request list for Nexus Study.

Task 4.2: Calculate Storm Impact Fees

Carollo will review and confirm the previously agreed upon impact methodology for appropriateness. Carollo will utilize the model developed in the original Task 4 Study. The recommended impact fee will be in line with industry best practices and in compliance with California legislation.

Task 4.2 Deliverables

- Identify impact fee methodology.
 - Calculate impact fee.
 - Meeting to discuss results (web-based).
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Task 4.3: Storm Impact Fees Documentation and Presentation

Carollo will present preliminary findings and recommendations in successive drafts for review and comment by City staff (up to 2 revisions of each report before authorization to produce final). The report will include the aspects identified in the California Department of Housing and Community Development Impact Fee Nexus Studies Template. Carollo will incorporate City comments and revisions into the Final Nexus Study Report.

Carollo will attend and present the draft and final Rate Study Report at one (1) City Council meeting.

Task 4.3 Deliverables

- Draft Storm Impact Fee Nexus Report (in Microsoft Word and PDF format) with up to 2 revision cycles.
- Final Storm Impact Fee Nexus Report (in Microsoft Word and PDF format).
- Attendance and presentation (in Microsoft PowerPoint and PDF format) of Final Sewer Rate Study Report at one City Council meeting.

Task 4.4: Community Outreach

Carollo will facilitate with City staff up to two community meetings to present study updates and findings. We will assist City staff to prepare presentation materials prior to each meeting. Some community members may not be familiar with cost of service and rate design, so much of the material may be focused on educating members about cost of service and rate design principles and methodologies. We will help ensure that the attendees understand the process and calculations that result in our recommendations.

Task 4.4 Deliverables

- Facilitate two community outreach meetings (in-person) to be combined with the Rate Study meeting.
- Minutes for each meeting.

Task SD-5 – Storm Rate Study Additional Work

Carollo will update the Storm Rate Study from the original Task 4. This update will include incorporating the most recent financial, capital, and customer billing data from the City into the previously developed models.

Task 5.1: Project Initiation

A kickoff meeting will be used to formalize lines of communication between Carollo and the City's team, finalize the project schedule, and ensure project goals and objectives are clearly defined, delineated, and understood by all parties. Additionally, milestones for project deliverables will be established. Some data may have previously been sent to Carollo, but we may need most up to date data.

Carollo will prepare a data request list and submit it to the City staff upon Notice to Proceed. As data is received, we will review each data item for completeness and clarity so we can follow up with additional requests or questions if needed. Some data may have previously been sent to Carollo, but we may need most up to date data.

Depending on the City's desired start for Task SD-4 and SD-5, the kickoff meeting for these two tasks can be one meeting.



Task 5.1 Deliverables

- Kick-off meeting workshop with City staff.
- Data request list for Rate Study

Task 5.2: Storm Rate Study Revenue Requirements (Funds 222 and 481)

Carollo will analyze the short- and long-term sufficiency of the fund's existing revenues against existing and forecasted operational and capital expenditures, including potential repair and replacement needs that have been identified in the City's capital improvement program. The revenue requirements analysis will be undertaken in close collaboration with City staff. Future changes in expenditures due to regulatory requirements, including both capital and level of service objectives, can be evaluated and incorporated into the forecast.

A multi-year financial plan will be prepared with projections of expenses, revenues, and reserves. These expense projections will focus on providing adequate funding for operating and capital expenses. Carollo will consider up to two capital planning horizon scenarios. The multi-year financial plans will indicate the annual revenue increases needed to fund the project expenses and to maintain adequate reserves.

As part of this task, Carollo will develop capital deficiencies based on Task SD-1 and discussions with City staff.

Task 5.2 Deliverables

- 10-year capital deficiencies.
- 10-Year revenue requirement forecast (two planning horizons).
- Two workshops with City staff (web-based).

Task 5.3: Cost of Service Analysis

The cost of service analysis will justify and allocate the revenue requirements among customer classes. A cost of service analysis will be conducted, beginning with updating the functional and cost component allocations. Separate allocations for O&M and capital costs will be developed. Carollo uses methodologies endorsed by AWWA and WEF to allocate costs to functional categories, cost components, and customer classes.

Task 5.3 Deliverables

- Costs by customer class.

Task 5.4: Service Charges Calculation

Where the cost of service analysis determines the allocation of costs between various functions, the service charge calculation is used to ensure each customer, within a class, is paying their appropriate and reasonable share. We will develop a five-year service charge plan to transition the City from your existing rates to cost-based rates by Year 5. Any proposed charges will be in compliance with City ordinances and voter-approved propositions, and state and federal regulations and requirements.

Task 5.4 Deliverables

- 5-year rate schedule.
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- Bill impacts.

Task 5.5: Community Outreach

Carollo will facilitate with City staff up to two community meetings to present study updates and findings. We will assist City staff to prepare presentation materials prior to each meetings. Some community members may not be familiar with cost of service and rate design, so much of the material may be focused on educating members about cost of service and rate design principles and methodologies. We will help ensure that the attendees understand the process and calculations that result in our recommendations.

Task 5.5 Deliverables

- Facilitate two community outreach meetings (in-person) to be combined with the Nexus Study meetings.
- Minutes for each meeting.

Task SD-6 – Project Management

Project management activities associated with tasks SD-1 through SD-5 will be conducted as part of this task, including day-to-day administration, communication with the City, coordination, and progress meetings. Carollo will administer the project to maintain project schedule and budget. The project progress and budget status will be included in monthly progress reports that will be attached to billing invoices.

Additionally, monthly progress reports shall include a list of work completed for the time period and meeting minutes for all meetings held during the time period.

Biweekly informal project status meetings/calls between the project team and the City will also be conducted as a part of this task. It is assumed that up to 20 bi-weekly calls (30-minutes or less) will be conducted throughout the project duration. Carollo will be responsible for providing meeting agendas and minutes for each meeting.

Meeting agendas shall be provided to the City prior to the meeting and meeting minutes shall be provided to the City within 2 working days after the meeting. These agendas and minutes shall clearly outline any needs from the City and dates when the information is needed by.



Fee Proposal

The following proposed fee schedule (Attachment A) is included to provide a lump sum effort change order of **\$115,700** to complete the above-described scope of work. Work will be completed on a Lump Sum basis and billed by percent complete for each task provided on the fee schedule.

Schedule

Based on our experience with similar studies and discussions with City staff, we estimate a project timeline of approximately fourteen (14) months to complete all tasks and perform council presentations/workshops. See Attachment B for the Schedule task breakdown.

We look forward to working with you on this project. Please feel free to contact Reace Fisher (559)-696-4961 for questions, comments, or changes.

Sincerely,
CAROLLO ENGINEERS, INC.



Ryan Sellman, PE
Principal-in-Charge



Reace Fisher, PE
Project Manager

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Attachment A - Fee Schedule

**Nexus Study Support
CITY OF VISALIA**

May 9, 2025

Carollo Labor

		Principal-in-Charge	Project Manager	Technical Advisor	Project Engineer	Staff Analyst	Engineering Support	Document Processing/ QC					
Task	Task Description								Total Hours	Labor Cost	Total ODC Cost ⁽³⁾	Remaining Budget	Total Change Order ^(1,2)
		\$311	\$291	\$325	\$240	\$154	\$291	\$142					
Storm Project													
SD-1	Model Review	2	6	8	28	58	34	4	140	\$31,082	\$2,600	\$0	\$33,700
SD-2	Master Plan Redevelopment	2	12	6	52	166	24	16	278	\$53,364	\$4,700	\$0	\$58,100
SD-3	CEQA Assistance, Optional	0	4	2	8	10	6	0	54	\$7,020	\$900	\$0	\$8,000
SD-4	Storm Nexus Study Additional Work	1	24	2	0	24	6	1	58	\$13,529	\$1,000	\$7,348	\$7,200
SD-5	Storm Rate Study Additonal Work	1	24	2	0	32	2	1	62	\$13,597	\$5,000	\$18,600	\$0
SD-6	Storm Project Management	0	20	0	10	0	0	0	30	\$8,220	\$500	\$0	\$8,700
Storm Total Hours:		6	90	20	98	290	72	22	622				
Storm Total:		\$1,866	\$26,190	\$6,500	\$23,520	\$44,660	\$20,952	\$3,124		\$126,812	\$14,700	\$25,948	\$115,700

Notes:

- Budget is based on an estimated level of effort based on our interpretation of the project requirements based our discussions with the Owner.
- Budget is based on a 14-month overall project completion schedule. Additional time over 14-months will incur additional cost.
- Other Direct Costs include project equipment/communication, workshop materials, expert necessary travel.

Attachment B - Schedule

Nexus Study Support
CITY OF VISALIA

May 9, 2025

Task Task Description

Storm Project

Task	June	July	Aug	Sep	Oct	Nov	Dec	Feb	Mar	Apr	May	Jun	July	Aug
SD-1 Model Review														
SD-2 Master Plan Redevelopment														
SD-3 CEQA Assistance, Optional														
SD-4 Storm Nexus Study Additional Work														
SD-5 Storm Rate Study Additional Work														
SD-6 Storm Project Management														

Assumes 6 months - May Vary

To Start at end of CEQA Process

To Start at end of CEQA Process

14-Month Duration Min