

**MEMO**  
**VIA EMAIL**

TO: Raymond Wong, PE  
City of Mountain View

DATE: May 18, 2018

FROM: Dan Schaaf, PE

JOB #: MTNV.20.16

SUBJECT: Additional Services – Storm Drain Modeling

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In order to help the City of Mountain View better plan and improve its stormwater infrastructure Schaaf & Wheeler proposes to spend a significant amount of effort on the City's storm drain system that is not account for in the master plan. We would add a lot of complexity to the master plan models in order to assist the City with important modeling for critical public and development projects along with providing a better understanding of how climate change could impact stormwater infrastructure.

The City has requested that Schaaf & Wheeler create a fully-coupled hydraulic model, using MIKE-FLOOD, of the storm drainage and creek systems. This model would couple the drainage network, flood control channels, bay tides and overland flooding. The originally master plan modeling approach used two separate models (HEC-RAS and MIKE-URBAN) to perform these analyses in a much less cohesive manner. The complexity of the new comprehensive model will take a significant amount of modeling and engineering effort to create, run and extract information. Dozens of engineering hours will be spent building these robust models, calibrating and validating them, and running numerous existing conditions, proposed conditions and climate change scenarios to determine necessary capital projects for the City's storm drainage systems. This effort is not scoped in our original master plan agreement nor approved amendments. Additional cloud-based computational services may be required as well.

With the fully-coupled model Schaaf & Wheeler will run numerous additional scenarios to develop alternatives for several critical proposed CIP projects. This effort will help the City make informed decisions on future changes to its stormwater infrastructure. In particular, there will be several models developed to analyze the flooding concerns along Ellis Street near Highway 101. Schaaf & Wheeler will create several improvement alignments, create models, cost improvements and present findings to City staff for review. Each modeled alternative will takes several hours to model and analyze. Along with Ellis Street, there bill be other locations throughout the City where additional models are necessary to develop project alternatives. These areas may include Grant Road near El Camino Hospital, the Santiago Villa mobile home park, Moffatt Gateway and others. Each of these areas requires coordination with City staff, developers and other engineers.

The additional efforts to create this holistic model and alternatives analysis are estimated at 62 hours of Associate Engineer, 108 hours of Assistant Engineer and 28 hours of Project Manager. Schaaf & Wheeler estimates \$34,730 for this effort. Work will be billed in accordance with our master planning contract rates. If you have any questions regarding this scope and budget, do not hesitate to contact me at (415) 433-4848.