DRAFT Scope of Work: GIS-Based Regional Stormwater Conveyance Network

Project Description

At the request of the Western Regional Water Commission, the Truckee Meadows Regional Planning Agency (TMRPA) presents this proposal to connect and complete a GIS data network of regional stormwater conveyance. The project is envisioned in 3 phases. The first phase will concentrate on identifying and gathering together all existing GIS data that maps stormwater conveyance and will evaluate/confirm the level of work required to complete the network. The second phase will consist of creating new GIS data to fill in identified gaps in the network and ensure network connectivity. The final phase will be focused on situating that network within the context of an urban and exurban hydrologic regime by mapping impervious surfaces and contributing stream runoff areas.

During each phase a plan for ongoing maintenance of updated or newly created GIS data layers will be identified. A brief summary of the three phases is presented in table 1 below.

Table 1. Summary

Project Phase	Summary of Work	Major Milestones
1	Acquisition and assessment of available municipal GIS information describing stormwater conveyance	• Gather existing data in partnership with local agencies/entities • Identification of data gaps and estimation of time/cost to complete network • Creation of technical advisory committee to oversee work completed in phases 2 and 3
2	GIS data editing and feature creation to complete a topologically connected network of "regional-scale" stormwater conveyance	• Digitization of GIS line features to fill in identified gaps in the existing conveyance network • Assignment of key attributes (e.g. diameter, type) as possible • Targeted field data collection or validation as required • Ensure topological connectivity of line network
3	Creation of ancillary GIS data layers to support stormwater-event modeling on the completed conveyance network	• Literature review and methods assessment for impervious surface modeling • Creation of impervious surface model within developed areas of the region • Implementation of ArcGIS Hydro Modeling tools to identify hillside runoff networks and hydrographic areas contributing to conveyance network intake locations

This project is intended to deliver our region with a comprehensive, regional-scale GIS model of stormwater conveyance and contributing features. This GIS data will provide planning and

engineering staff at affected local entities with information to assess potential impacts of future precipitation and runoff events. These data will be highly valuable for several municipal-type functions such as: evaluating areas at high risk during flood events and estimation of potential economic loss; preparation of emergency response strategies; preparation and implementation of stormwater network maintenance schedule and tasks; identification of contributing areas to stormwater water quality monitoring locations; and assessment of potential impacts to stormwater conveyance given future land-use development.

The regional stormwater conveyance network and ancillary GIS data layers will be compatible with previous GIS data work completed by TMRPA and will be incorporated into the existing scenario-planning toolset used to evaluate future development patterns in our region and thus inform regional land use policy.

The following table (2) contemplates estimated costs for materials, labor and professional services as understood at this time. These costs are subject to change with the completion of phase 1 and a close inspection of required work to complete phases 2 and 3. Whenever possible we propose using existing TMRPA staff resources, in-kind services/hours from partner agencies, and leveraging affordable intern labor to keep costs low. However, we may be required to augment in-house efforts by contracting the assistance of academic researchers or professional consultants. Total cost estimates by fiscal year for both funding and anticipated in-kind support are indicated in table 3.

Table 2: Cost Estimation

Project Phase	Summary of Work	Cost Reimbursement or New Funding	In-Kind Services (Loaned Staff)
1	Acquisition and assessment of available municipal level GIS information describing stormwater conveyance and estimation of completion effort	• Reimbursement for 0.31 FTE of TMRPA staff time from 7/1/2017 to 10/31/2017 • Includes: 15% GIS Coordinator, 15% GIS/Planning Analyst, and 1% Executive Director/Overhead • Value: $10,100 (reimbursement for existing costs) • Purchase of hardware, software and/or data required to support stormwater network construction and maintenance of GIS data • Value: 10,000 (new funding)	• 10% of Jim Smitherman's time to support stormwater GIS data gathering, research, and enlistment of technical advisory committee membership • Value: $6,250 (in-kind)

2	GIS data editing and creation to complete a topologically connected network of "regional-scale" stormwater conveyance	• Reimbursement for 0.31 FTE of TMRPA staff time from 11/1/2017 to 6/30/2018 • Includes: 15% GIS Coordinator, 15% GIS/Planning Analyst, and 1% Executive Director/Overhead • Value: $20,200 (reimbursement for existing costs) • Estimation of intern labor from 11/1/2017 to 6/30/2018 -30 hours per week -$17.00/hour (includes taxes) -32 weeks • Value: $16,500 (new funding) • Academic research or professional services as required • Value: $7,500 (new funding)	• 5% of Jim Smitherman's time to support review of constructed GIS stormwater data and participation/chair of technical advisory committee • Value: $6,250 (in-kind)

3	Creation of ancillary GIS data layers to support stormwater-event modeling on the completed conveyance network	• Reimbursement for 0.31 FTE of TMRPA staff time from 7/1/2018 to 12/31/2018 • Includes: 15% GIS Coordinator, 15% GIS/Planning Analyst, and 1% Executive Director/Overhead • Value: $15,200 (reimbursement for existing costs) • Estimation of intern labor from 7/1/2018 to 12/31/2018 -30 hours per week -$17.00/hour (includes taxes) -24 weeks • Value: $12,500 (new funding) • Academic research or professional services as required • Value: $7,500 (new funding) • Financial contribution to Washoe County Basemap Committee to assist with acquisition costs for QL1 LIDAR data (high-quality). LIDAR data will provide a fine-resolution digital elevation model for impervious surface and hydrologic network modeling and is scheduled to be available in the first half of calendar year 2018 • Value: $5,000 (new funding – for inclusion in fiscal year 2017-2018 total)	• 5% of Jim Smitherman's time to support review of modeled impervious surface and contributing hillslope hydrologic network. Continued chair and participation on technical advisory committee • Value: $5,000 (in-kind)

Table 3: Funding Schedule

Project Phase	Funding Amount	In-kind Amount	Fiscal Year
1, 2	$64,300	$12,500	2017 - 2018*
3	$40,200	$5,000	2018 - 2019
	$104,500	**$17,500**	

***** Any designated funds for the Project remaining unexpended from the Regional Water Management Fund at the end of a fiscal year may be carried forward and applied to the Project budget for the succeeding fiscal year.

Additional funding notes:

Funds shall be available for transfer between project phases and/or line items within phases, not to exceed 10% of the total budget.

Additional in-kind services, not yet identified (e.g. from local government public works staff), may help keep costs lower than anticipated.