Attachment 6
Monitoring, Assessment, and Performance Measure

This section presents the planned monitoring, assessment and project performance measures for the Ash Avenue Improvements Project. These measures are meant to ensure the project meets its goals, achieve measurable outcome, and provide value to the State of California. Monitoring and assessment are valuable parts of project implementation, as they help project administrators evaluate what measures are most effective for implementation on future projects.

Table 6-1 presents the planned monitoring, assessment and performance measures that will be used to demonstrate that the proposed project meets its goals. The intent of this table is to provide a summary of the information that will be used to quantify and verify project performance with respect to the project benefits or goals. The Project Performance Measures Table includes the following items:

- Project goals
- Desired outcomes
- Output indicators
- Outcome indicators
- Measurement tools and methods
- Targets

Monitoring Plan

Monitoring of the project will consist of several measures. Water quality monitoring will measure temperature (units). Pre-project data will be collected with efforts initiated beginning February 2013. The target storm event is the 85th percentile, 24-hour event. Grab samples will be collected at the downstream location of the LID project. Pollutant load reductions for bacteria for the 85th percentile, 24-hour storm event will be extrapolated. 1-2 post-construction wet seasons of data will be collected, with a target of 10 samples for bacteria and dissolved oxygen per wet season. Additionally, if the project completion date is conducive, an attempt will be made to monitor the “first flush” event, which may occur in the summer or fall. The monitoring plan includes a data management plan including a sub-task to enter data into the SWAMP database. Note that the selection of “only” three key parameters responds not only to parameters of interest for public and aquatic health, but also recognizes the limitations of the site characteristics to effectively assess other pollutant types that would require composite sampling and therefore, a very challenging monitoring scenario when dealing with multiple sheet flow contributions, such as presented by this project.

Evaluation of educational components will be conducted via assessment of YouTube video ‘hits’; and, observations of individuals reading the education panels. Additionally, documentation of use of the Owner’s Handbook will include a survey as to the usefulness of the handbook in conducting site maintenance assessments.

For monitoring of the flood control portion of this project, the successful conveyance of stormwater from the surrounding urban area will be used for monitoring. The facilities will be monitored by staff during rain events to determine if debris needs to be cleaned out of the drainage facilities.

Table 6-1
Monitoring, Assessment, and Performance Measures

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Provide safe public health to recreators and adjacent property owners	Reduction of flood damage, reduction of mosquito habitat	LID project facilities designed for bacterial degradation and capture and improved flood control	Reduction of post-project total fecal coliform counts and reduction of flood damages	Reduction of property damage claims	Treatment of stormwater runoff and reduction of flood hazards
Improve urban runoff water quality	Improved dissolved oxygen and temperature in runoff	LID project facilities designed to enhance stormwater runoff cooling and increase dissolved oxygen	Reduced temperature and increased dissolved oxygen pre- vs. post-project of water discharging from project	Standard methods for temperature and dissolved oxygen analysis	Reduced surface flow of 24-hour storm events
Support natural hydrologic retention and infiltration of stormwater	Project area will slow, retain and infiltrate stormwater, reducing flood risks	Infiltration and storage capacity of the project	Reduction of stormwater surface runoff and flooding pre- and post-project	Estimates of pre-project surface runoff based on Rational Method calculations. Direct measurements of surface runoff volumes post-project	Reduction flooding

Table 6-1 (continued)
Monitoring, Assessment, and Performance Measures

Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Improve natural watershed functions, important to receiving water health	Project location will support pre-development natural soil and vegetation	Amended and engineered soil used in the bioretention design and native plants used in the bioretention design	Healthy soils and native plant species in the bioretention area	Simple home-gardener tests for soil balance and microbial, number and type of native plant species.	Established coverage of native plants throughout the bioretention area
Create long-lasting high performance stormwater treatment and flood control facilities	Low maintenance and functional LID and flood control facilities. Appropriate frequency and type of maintenance. High aesthetic appeal	Creation of 'user's handbook' to include maintenance education. City commitment for long-term maintenance. Completion of project provides esthetic appeal.	Project not adversely impacted by inadequate maintenance	Site visits during dry and wet seasons to assess vegetation and soil conditions; condition of inlets, and overflow systems; presence of trash	Project maintained to perform as designed and provide visual appeal.
Improve public understanding of pollutant casual factors	Educate local residents and visitors of the importance of improving water quality	Number of individuals engaging in educational components of project (education panels, videos, use of 'owners handbook'	Increased public understanding and behavioral changes	Residential and visitor surveys	100% of the residents in the project drainage area are educated to improve their behaviors