Low Impact Development (LID) or green infrastructure can be used to improve water quality in urban environments through the use of swales, bioretention basins, permeable pavement, and other approaches to managing stormwater. However, there can be challenges to actually putting green infrastructure in place.

Max Gomberg and I recently published an Op-Ed in the San Francisco Chronicle (subscription required or ping me for a copy), arguing that green infrastructure deserves a place on the streets of Berkeley and in other communities.

This stormwater detention pond provides aesthetic and functional benefits. It recently replaced an unbroken expanse of concrete on Lower Sproul Plaza, UC Berkeley. Photo – Mike Kiparsky

Standard asphalt and concrete surfaces affect water quality by collecting a wide range of pollutants such as oil and other fluids from cars, particles from tires and brake pads, and many others. Asphalt itself can contain toxic substances in its sealants. When it rains, pollutants wash into storm drains and from there to local streams and other water bodies. Since impervious surfaces don't absorb water like soil does, they also lead to increased flooding within urban areas, and to higher peak stream flows that further impact aquatic plants and animals.

LID can help reduce these problems. By allowing water to seep into permeable pavement, or channeling it into temporary ponds or depressions filled with native vegetation. To a certain extent, plants and soils can remove contaminants, or at least reduce the intensity of the

concentrated flush that occurs during rainstorms.

In 2012 Berkeley voters passed a bond measure providing $30 million for green infrastructure and street replacement. The language of the measure emphasizes green infrastructure. For example, the ballot question:

> Shall the City of Berkeley issue general obligation bonds not exceeding $30,000,000 for street improvements and integrated Green Infrastructure such as rain gardens, swales, bioretention cells and permeable paving, to improve roads, reduce flooding and improve water quality in the creeks and Bay?

Unfortunately, the City does not seem to be delivering on the promise of Measure M – bond funds for the 2014-15 budget are likely to be spent almost wholly on asphalt paving. More background, and potential solutions, to come.