Stemming the tide
City offers incentives to keep storm water out of the Bay
by Megan Rawlins

Every winter, generally around New Year’s, there’s at least one big storm, a storm that pounds Palo Alto with wind and rain, a storm that forces even the most dedicated to seek refuge indoors, a storm that severely taxes the city’s storm-drain infrastructure.

Palo Alto gets between 15 and 20 inches of rain a year, according to the Oregon Weather Service. That translates into thousands of gallons of storm water flowing down storm drains between late October and May.

In an effort to stem the tide and provide relief to the city’s underground pipes, the public works department is offering property owners incentives to implement measures that minimize storm-water runoff.

In April 2005, a majority of Palo Alto property owners voted in favor of a measure that granted the city annual adjustments of the storm drainage fee, which is included in utility bills. This fee funds infrastructure upgrades, which the drainage system, built in the ’40s, desperately needs.

“It was approved because we worked with a citizens group to come up with how the funds would be spent,” Joe Teresi, senior engineer in the planning department, said. The group questioned the city’s emphasis on capacity-building and suggested that efforts be made to reduce the amount of storm water before it flowed into the drains, he said.

With this in mind, the city launched a rebate program in August, offering property owners funds to offset the cost of approved projects. These include the installation of rain barrels, cisterns, permeable pavement and green roofs.

The new program in Palo Alto is cutting edge and a good way to get people to think differently about stormwater runoff, according to Geoff Brosseau, executive director of California Stormwater Quality Association, a Menlo Park-based nonprofit and former quasi-governmental organization that studies storm-water management, science and regulation.

“It is really hard for people to fathom how much water falls in a storm,” he said. “It can end up being a lot of water really quickly.”

He recognizes the infrastructure issues facing the city, but is quick to point out the environmental benefits of reducing storm-water runoff.

“Storm-water runoff has two environmental impacts,” he said. “One is the sheer volume of new water. When that water gets to a creek that isn’t able to handle that flow, it causes erosion along, undercutts the trees and causes other problems along the banks.”

The second impact, he continued, is that along with the storm-water runoff flow pollutants: pesticides and fertilizers from gardens, heavy metals like copper and lead

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from cars that end up in the streets. Everything is hydraulically connected, he said. What ends up on the street or sidewalks ends up in the creeks: San Francisquito, Adobe, Barron and Matadero creeks. All storm drains dump out into creeks, and all of those creeks eventually flow to the San Francisco Bay. Reducing storm-water runoff spares the city’s antiquated infrastructure and reduces the pollution of the watershed and bay.

“There are two strategies to reducing storm-water runoff,” he said. “One is minimizing impervious area.”

This includes the permeable pavement and green-roof option.

“In this area we have a lot of clay material where the water doesn’t get absorbed quickly,” Teresi said.

Permeable pavement allows the water to drain into a sort of catchment of gravel and rock that moderates its absorption into the groundwater system.

“This allows the water to soak into the ground slowly,” he said.

Green roofs absorb the water directly, using it to nourish the plants that cover the surface of the roof.

“The other methods actually capture the water from the impervious area, minimizing the flow,” Brosseau said.

Rain barrels and cisterns fall into this category, they capture and store rainwater, which can be reused as non-potable water, similar to gray water.

“Rain barrels and cisterns are generally stored underground. The water can then be pumped up for irrigation purposes or filtered and used for drinking or cooking,” Brosseau said.

The city’s rebate program was launched in August by an insert in utility bills. It is in its nascent days, and Teresi hasn’t distributed any rebates yet.

He said he hopes to start giving out the funds to qualified projects within a month.

“We’ve got a lot of interest, though,” he said. “Most of the inquiries have been about the rain barrels and permeable paving.”

Kurt Kielty installed a permeable pavement driveway at his Homer Avenue home in 2006 with help from an Acterra grant. According to estimates from the San Francisquito Watershed Council, his new driveway absorbs almost 25,000 gallons of water that would otherwise be runoff.

“We took an asphalt driveway that was 175 feet long and tore it all out and put in semi-permeable pavers as well as grass pavers,” Kielty said. “We also have rain gardens that absorb water from the downsputs; we have essentially prevented any run-off from our property. He’s happy with his new driveway, with how it looks and functions, but there were some hiccups along the way.

“It didn’t work perfectly the first time,” he said. “The grass pavers didn’t hold up with all the traffic. They weren’t absorbing the water and quickly turned into clay. We changed it to a combination of grass pavers and semi-permeable pavers, and that’s worked.”

Ironically, his water bill has gone up, he said. He has more grass that needs to be watered in the summer months now.

Of the four stormwater reduction techniques, the rain barrels are the cheapest option and the only one that homeowners can do themselves. Cisterns, permeable pavement and green roofs all require permits from the city and that the work be done by a licensed contractor.

“The rebates won’t pay for the projects; they are gauged merely to incentivize. “A lot of people want to do the right thing,” he said, “and this fits with the emphasis on green building. When people replace their driveway, I am trying to get them to think about doing it a different way, to put the permeable pavement in.”

“The city,” Brosseau said, “is trying to give people a number of options of which way to go depending upon the site needs and how much money they were willing to spend. Someone who isn’t doing work on their house might just go for a rain barrel, whereas people who are remodeling their house might have the opportunity to put a new roof on or a new driveway.”

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