

WHY USE GREEN STREETS AND GREEN PARKING LOTS?



SOURCE: NEVUE NGAN ASSOCIATES

Figure 1-15: When it rains on our streets, pollutants are washed directly into pipes and then into creeks, the Bay, or the Pacific Ocean.

Inadequate Existing Stormwater Infrastructure

Urban development leads to an increase in impervious surfaces and a corresponding increase in surface runoff and pollutants from vehicles and other urban sources. The problem is exacerbated when increased stormwater runoff reaches a creek channel that is not capable of handling increased flows without significant erosion and degradation. Creeks with tributary areas having greater than 10% impervious surfaces are likely to have degraded water quality and habitat.



SOURCE: NEVUE NGAN ASSOCIATES

Figure 1-16: Even small parking lots contribute to the larger problem of increased stormwater runoff.

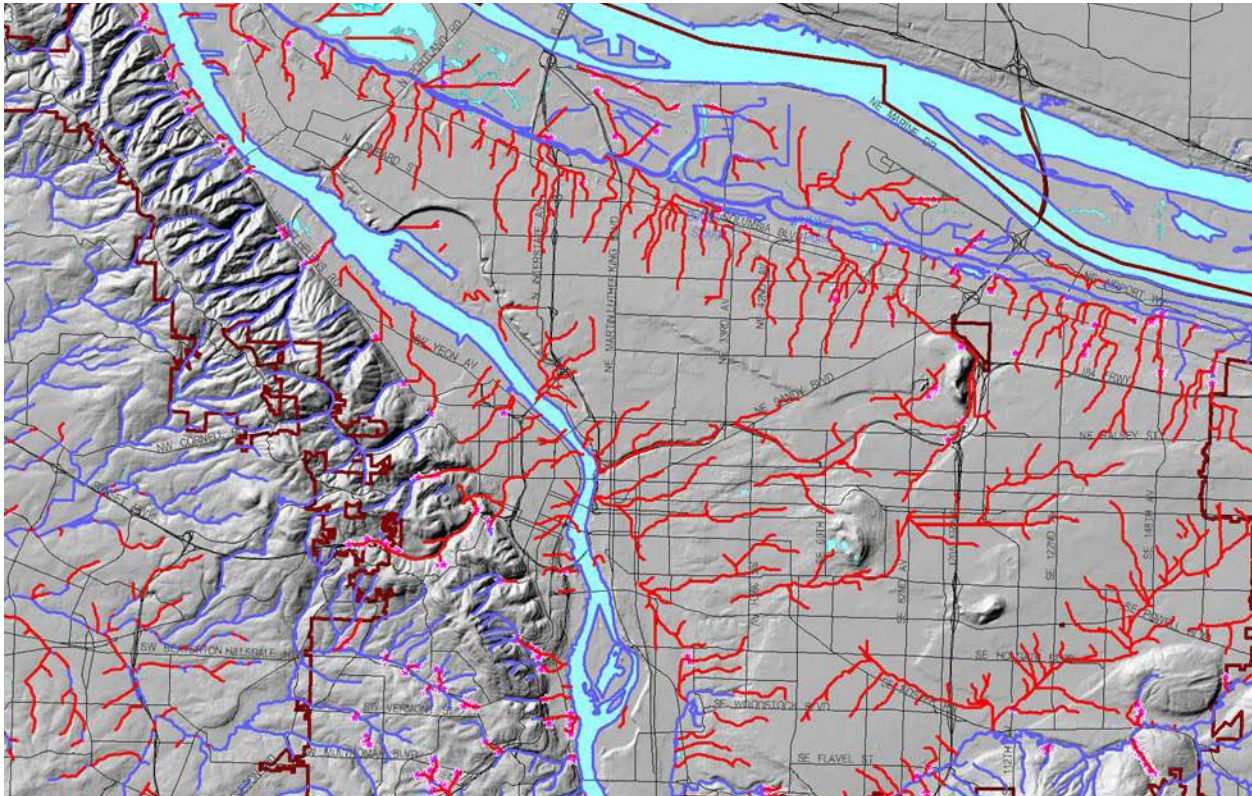
In San Mateo County, many of the regional storm drain systems were designed to outdated standards and lower service populations. Steady growth and urbanization over recent decades has left some local storm drain systems unable to handle the quantity of runoff produced by larger storm events, resulting in local flooding and associated damage. Besides being under-designed, other storm drain system inadequacies exist for a variety of reasons, including:

- Existing storm drain infrastructure has deteriorated
- Local neighborhood catch basins are inadequate
- Culverts have reduced capacity due to siltation
- Culverts are too low to drain by gravity during tidal conditions



SOURCE: CITYWIDE FACILITIES IMPROVEMENTS: STORM DRAIN IMPROVEMENTS REPORT, CITY OF BURLINGAME, 2004

Figure 1-17: There is only so much that the existing storm drain infrastructure can take. Green streets and parking lots can help relieve over-taxed systems.



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

Figure I-18: The red lines indicate creeks and small streams in urban areas that have been replaced by decades of built underground pipe infrastructure. This scenario is all too common in communities throughout the United States.

Flooding from an overwhelmed storm drain system results in a myriad of problems, such as:

- Storm drain backups and localized flooding
- Property damage
- Creek bank and bed erosion and downstream sedimentation
- Settled creek levees
- Restricted vehicular access
- Damaged roads
- Damaged or deteriorated bridge structural members

Water Pollution from Streets and Parking Lots

San Mateo County's storm drain system was designed to prevent local flooding by channeling stormwater runoff ultimately into the San Francisco Bay or the Pacific Ocean. This system provides no inherent water quality treatment. Stormwater runoff accounts for a majority of the pollutants entering local creeks and the San Francisco Bay. Potential pollutants include:

- Oil, grease, antifreeze, heavy metals from leaking and deteriorating cars and trucks, and brake pad and tire wear
- Pesticides, herbicides, and fertilizers from our residential and commercial landscapes
- Solvents and household chemicals (e.g., paint thinner, detergents, and paint)

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- Animal waste, litter, decomposing vegetation, and sewage from leaks
- Construction debris, such as fresh concrete or mortar

Certain creeks, coastlines, and water bodies in San Mateo County have been identified under the Clean Water Act's section 303(d) as impaired by specific types of pollutants, such as sediment (see Appendix C). Sediment impairment of creeks is often caused by non-point sources associated with past and current land use practices. Conventional development practices may degrade the environment at a substantial cost to the larger community.

The Multiple Benefits of Using Green Streets and Parking Lots

Implementing landscape-based stormwater management facilities as part of green streets and parking lots in San Mateo County has the potential to minimize pollution, stream degradation, and localized flooding. Reintroducing bioretention into the hydrologic cycle reduces peak runoff rates and volumes by holding back and slowing down the water that would otherwise flow quickly into the storm drain system. By increasing natural storage and infiltration of rainwater, municipalities can slow peak flows and ease the burden of overwhelmed storm drain infrastructure. However, the benefits of using green streets and parking lots go beyond the obvious and include many ancillary environmental and community benefits.

Trash Removal

The effects of trash is another important water quality issue in San Mateo County. Improperly discarded trash is often washed into drainage systems during rains and finds its way into local creeks and the San Francisco Bay. In addition to physical pollution, trash can contribute chemical pollutants when it includes batteries,

fluorescent tubes, and other such toxic waste. While there is no substitute for keeping trash out of the drainage system, green streets and parking lots can serve as localized collectors. Trash that would otherwise end up in San Mateo County's waterways can be regularly removed, recycled, or discarded in an environmentally appropriate way.



SOURCE: NEVUE NGAN ASSOCIATES

Figure 1-19: An example of the type of trash that often is conveyed into water bodies.



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

Figure 1-20: Landscape-based stormwater facilities, such as this stormwater curb extension, can capture urban debris before it gets into creeks and other waterways.

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Community and Neighborhood Benefits

Green streets are not just about better stormwater management, but they are also about creating more beautiful and livable neighborhoods and communities in San Mateo County. Effectively “greening” the urban fabric helps provide a unique quality of life that increases the desirability of living in a particular community. Furthermore, incorporating green streets and parking lots offers people a very tangible way to learn about environmental sustainability. These types of projects can be built where we live, work, shop, learn, and play, and are constant reminders that rainwater is a resource, not a waste.



SOURCE: KEVIN ROBERT PERRY - CITY OF PORTLAND

Figure 1-21: Neighborhood green streets are commonly seen as a community asset.

Air Quality Benefits

Significant tree plantings throughout a parking lot or along a street site help mitigate local air quality issues. Trees help settle out particulate matter, reduce low-level ozone, and help mitigate the urban heat island effect. Light-colored permeable pavement further mitigates the heat island effect, since it increases the albedo, or diffuse reflectivity, of the paved area.



SOURCE: WWW.IA.NRCS.USDA.GOV

Figure 1-22: Light-colored pervious paving within a parking lot helps reflect heat rather than absorb it.

Economic Benefits

Providing more landscaping in the urban environment makes good economic sense. *Project Evergreen* (2008) states the following:

- *Smart Money* magazine indicated that consumers value a landscaped home up to 11.3% higher than its base price
- Studies by the University of Washington showed that drivers found it easier to locate businesses on a street when they were framed by trees and landscaping, rather than having this green material removed
- A recent study has also found that consumers are willing to pay, on average, a 12% premium for goods purchased in retail establishments that are accompanied by quality landscaping



SOURCE: NEVUE NGAN ASSOCIATES

Figure 1-23: This downtown residential street in Chicago, Illinois illustrates how ample landscaping can increase the appeal of a street.