Options for New Development

In San Mateo County, retrofitting vegetated swales within existing neighborhood streets may be difficult because there are typically too many driveways that interrupt the continuous space needed for swales. New and redeveloped residential streets, though, present an opportunity to use swales effectively since there is greater control of where driveways are located. The most desirable scenario is to have driveways located toward the back of the house and accessed by an alley. This allows for the long, continuous landscape space at the front of the house that is well-suited for swales. The design example below illustrates how new development can incorporate vegetated swales in the street’s planting strips. The designs on the opposite page show additional options for using vegetated swales depending on how the street drainage is designed.

Figure 4-16: EXISTING: A typical new development residential street.

Figure 4-17: RETROFIT OPPORTUNITY: The same residential street using vegetated swales within the street’s planting strips.
Vegetated swale on both sides of the street

On-street parking on one side of the street only

Vegetated swale on one side of the street

A mid-block pedestrian access point should be provided for access to the sidewalk on the other side of the vegetated swale

Two-way car travel

On-street parking on one side of the street only

Swale on One Side of Street, Parking on Other Side Plan View

Side Swales and Median Swale (No On-Street Parking) Plan View
Narrow, Dense, and Pervious!

Some residential streets in San Mateo County are so dense that there is barely room to squeeze a parked car in between driveways. If the need for on-street parking limits the use of landscape-based stormwater facilities, then pervious paving may be the best retrofit option. The retrofit opportunity below shows an application of pervious, sand-set concrete pavers. The result is a unique-looking street that reduces the amount of stormwater runoff. Some high-density residential streets in San Mateo County are narrow enough that the use of pervious paving on the entire street may be cost effective if the native soils and physical conditions are well-suited for pervious paving.

Figure 4-18: EXISTING: A typical narrow and highly dense residential street in San Mateo County.

Figure 4-19: RETROFIT OPPORTUNITY: The same residential street retrofitted with pervious paving in the parking zone of the street.
Figure 4-20: **EXAMPLE:** Concrete pavers used in a residential street’s parking zone. Notice the visual “narrowing” of the street.
Narrow Street with Curb Extensions

In areas where there can be some conversion of parking space to landscape space, small curb extensions can be placed between driveway curb cuts. Because these curb extensions will most likely be smaller than what would be ideal for managing a street’s runoff, they should be spaced frequently to better distribute flow to each landscape area. For better curb appeal, residents may prefer to have a stormwater curb extension with landscaping and trees in front of their house instead of a parked car. For high-density residential streets, the best option may be to combine pervious paving in the parking zone with stormwater curb extensions. However, the two design strategies can work independently.

Figure 4-21: EXISTING: A typical narrow and dense residential street in San Mateo County.

Figure 4-22: RETROFIT OPPORTUNITY: The same residential street using short curb extension in between driveways.
Figure 4-23: EXAMPLE: Conventional curb extensions are placed in a staggered orientation on this residential street. Although these curb extensions do not allow stormwater runoff to soak into the ground, they could be modified to do so.
Wide Residential Streets

Some high-density residential streets in San Mateo County are very wide. In some cases, a particularly wide street also has a center landscape median. This presents an opportunity to convert an existing median into a vegetated swale or to retrofit a wide street with a new center median. The challenge of retrofitting a center median swale is how to direct runoff to the center of the street (which is typically the high point of drainage). On moderately sloped streets, there is a way to redirect stormwater from the street curb to the center of street. A small speed bump set on a diagonal can direct water to the median swale. It is a simple technology that could be used in specific situations in San Mateo County. The illustration below shows how an existing center median can be retrofitted using this design technique.

Figure 4-24: EXISTING: A steep high density residential street with an existing lawn median in San Mateo County.

Figure 4-25: RETROFIT OPPORTUNITY: The same residential street retrofitted with a stormwater median swale. Note the illustrated check dams and weirs that help terrace the steep grade of the street and help control the desired water retention depth.
Figure 4-26: EXAMPLE: This vegetated swale utilizes check dams and adjustable weirs to control the ponding of stormwater runoff.