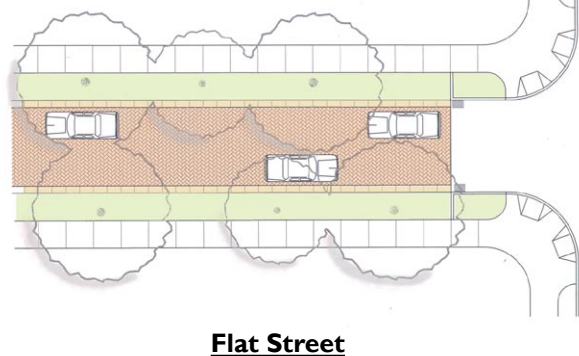
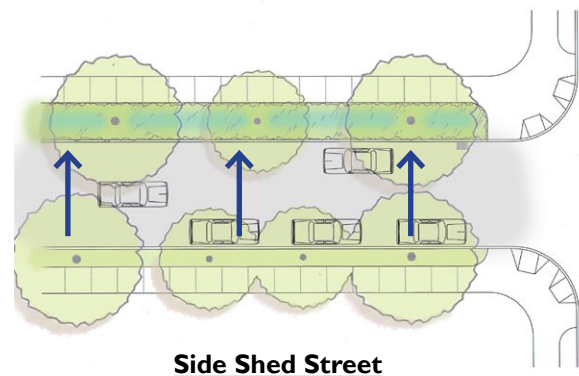
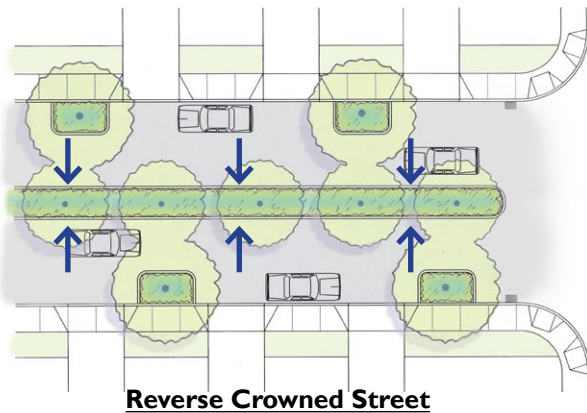
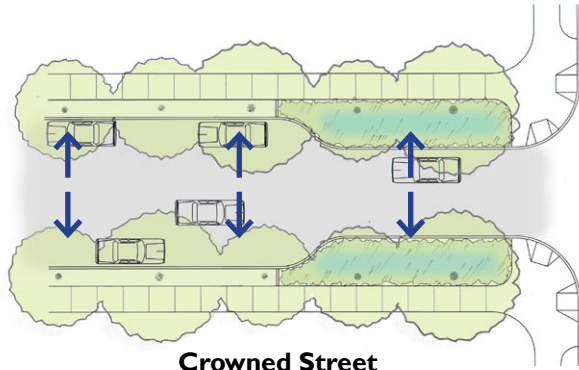
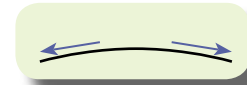


## DESIGN DETAILS: Street Profile



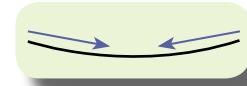
The street profile determines how stormwater runoff flows off of a street. Streets can be crowned, reverse crowned, drain to one side, or flat.

### Crown



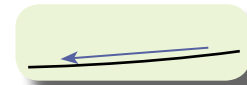
The most common street profile is a crowned street with stormwater draining to the sides of a street. There is often a curb and gutter system directing flow into a stormwater drain inlet. These drain inlets are located at the middle or end of each block depending on the block length. A variation of the crowned street is a “double crown street.” This type of street is two crowned profiles next to each other with a median in the middle. This type of street profile is common with arterial streets and boulevards.

### Reverse crown:



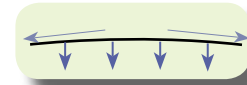
A reverse-crowned street, is the opposite of a crowned street and directs runoff to the center line of the street. This type of street is common with alley ways, arterial streets, and even freeways.

### Side Shed:



Streets can be also be designed to shed all the water to one side of the street.

### Flat:



Flat drainage is referred to in this document in the context of pervious paving. With pervious paving, the primary drainage of water is directly through the paving surface into the subsoil. Typically, these streets are graded slightly so they drain to the sides or center when there is too much water to filter through the paving.

**New Construction:**

When building new streets, a decision on what kind of street profile a particular street will have is one of the first steps in determining what kind of stormwater solution should be used. Two variables that should be considered and addressed when designing green streets and parking lots are: 1) how to maximize the amount of stormwater runoff that can potentially be managed in a landscaped system, and 2) how to realize the stormwater facility's physical capability to effectively manage the runoff. For new construction, there is far more flexibility for stormwater management because the street profile can be designed in a variety of ways.

**Retrofit Conditions:**

Retrofit projects tend to offer fewer options for flexibility. When retrofitting existing streets, one of the first details to look for is how stormwater drains from the street. It can often be prohibitively expensive to rebuild the street profile and underground infrastructure. Hence, conforming to the existing street profile and identifying stormwater solutions that work with this drainage condition, is the simplest and most cost-effective approach to retrofitting a street. Using this approach not only saves money, but it also minimizes the amount of street reconstruction.

The example in Figure 5-9 illustrates a crowned street with a center median at the high point of the crown. It would be a great opportunity to retrofit this landscape median for stormwater management, but the existing profile of the street drains water away from the median to the outside curb of the street. Regrading the street would turn a simple retrofit into an expensive project. In this case, a better option would be to build stormwater facilities between the street and sidewalk or use stormwater curb extensions.



SOURCE: NEVUE NGAN ASSOCIATES

**Figure 5-7:** This newly constructed green street is designed as a reverse-crowned street, allowing runoff to flow into a center median vegetated swale. In the example above, stormwater runoff enters the swale through inlet pipes. A better design solution would be for the runoff to enter on the surface via curb cuts.



SOURCE: NEVUE NGAN ASSOCIATES

**Figure 5-8:** This green street retrofit is designed with a narrow curb extension that captures runoff from an existing crowned street.



SOURCE: NEVUE NGAN ASSOCIATES

**Figure 5-9:** This crowned street has an existing landscape center median. Unfortunately, runoff cannot be easily routed to the center median because runoff is directed away from it.