

DESIGN DETAILS: Getting the Water In - Sheet Flow or Curb Cuts?



Figure 5-26: This “curbless” street example allows for sheet flow of runoff into a vegetated swale.



Figure 5-27: A typical curb cut used to allow water to enter a stormwater curb extension.



Figure 5-28: Sheet flow of stormwater runoff enters a vegetated swale from a public plaza space.

One of the primary considerations for designing stormwater facilities associated with streets and parking lots is determining how the runoff enters a stormwater facility. There are two primary ways that runoff is directed into stormwater facilities- sheet flow and curb cuts. Sheet flow describes stormwater runoff that enters a stormwater facility evenly distributed on the pavement surface without concentrating flow. Curb cuts allow stormwater to enter a stormwater facility at specific points along a raised curb, thus concentrating runoff both in velocity and volume.

Of the two methods, sheet flow is by far the better design because it mimics the natural flow of water across the landscape, employs a less complicated design, and is less prone to failure. Sheet flow, or “curbless” streets and parking lots, typically employ a concrete band edging that is flush with the stormwater facility and the street/ parking lot surface. Having this concrete band provides a clean edge along the more malleable asphalt surface. In addition, the concrete band is easier to fine grade than asphalt in order to direct water into the stormwater facility.

Curb cuts along a raised curb system are commonly used to allow water to flow into stormwater facilities. This approach channelizes water flow and can be prone to failure if the curb cut design is poor and/or there is a build up of sediment or debris at the curb cut. If curb cuts are used, they should be carefully designed. Curb cuts should be spaced frequently along the length of the curb to distribute the water flow as evenly as possible within the stormwater facility.

In new street design, the decision to have curbed or uncurbed streets is typically based on the anticipated type and intensity of vehicular and pedestrian use. In general, the higher the traffic speed and less pedestrian-oriented the street is, the more likely a raised curbed street edge will be required. Conversely, streets