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Utilities and Green Infrastructure

Utilities

The study area has adequate utilities to meet the needs of nearly any use. The utility providers within the study area are not planning on making any improvements to the area in the near future. In general, the amount and type of redevelopment envisioned in this study should not require major changes to the utilities. The Northern Kentucky Water District will review their system if a use with a high water demand is planning to locate within the study area. Currently electrical power is conveyed using overhead lines. To reduce the cluttered appearance, it is recommended for the city to work with Duke Energy to bury the power lines as redevelopment occurs. The cost of this change would be a part of the overall redevelopment cost of each project.

Green Infrastructure

Green infrastructure is a concept that elevates the importance of the natural environment to the level of the built environment, requiring careful consideration and planning. Green infrastructure utilizes land and water that supports native species, maintains natural ecological processes, sustains air and water resources and contributes to the health and quality of life of our citizens. It also includes community initiatives integrating the natural ecosystem with the built environment using elements such as parks, tree lined streets, rain gardens, bio-retention systems and green roofs. Sanitation District Number One is currently working with communities and citizens to incorporate green infrastructure techniques into their overall stormwater and water quality management plans.

The study area is heavily developed and has few green infrastructure measures being practiced. The primary elements of green infrastructure are the wooded hillside along Dry Run Creek in the vicinity of the railroad, and the tree canopy found within the residential area. It is expected that the hillside will remain wooded into the future due to its steep slope and the challenges it presents to potential development. With the expected replacement of the residential uses with commercial or industrial uses (see Chapter 4), the amount of tree canopy may be further reduced. This plan recommends landscaping around buildings, in parking lots, and along the streets to help compensate for the loss of these natural benefits. It is the intent of this plan that the amount of green infrastructure not be diminished due to the redevelopment, but rather increased whenever possible.

Stormwater Control

Stormwater control is typically an issue with developed areas. The large amount of impervious pavement channels large amounts of surface water into the man-made stormwater system. This system of pipes is expensive to build and to maintain system of pipes, and the large volume of water they discharge can cause flooding and severe erosion. The goal of using green infrastructure stormwater management techniques is to reduce the amount of water flowing into the man-made system. This is accomplished by allowing stormwater to infiltrate the ground using such methods as biofiltration swales, retention ponds and vegetated swales, stormwater gardens, and green roofs. These techniques can reduce the potential for flooding and reduce the size, and thus the cost, of man-made stormwater systems.

Currently Sanitation District Number One does not identify any flooding issues within the study area. Instead, it does identify only those issues or potential issues typically involving stormwater runoff occurring immediately after heavy rainstorms. Proposed redevelopment increases the likelihood that the area may experience stormwater issues with redevelopment the following recommendations are offered.

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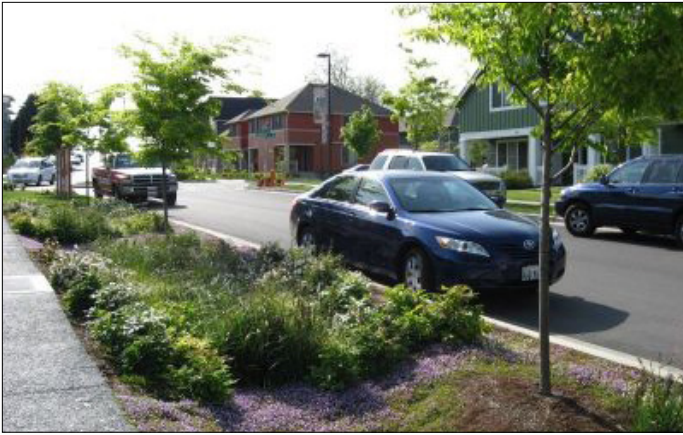


Figure 13: Example of a rain garden



Figure 14: Retention pond and rain garden



Figure 15: Example of another pervious surface



Figure 16: Pervious concrete allows water to flow through it into the ground below

- A portion of the landscaping around structures, in the planting strip (area between the sidewalk and street), and in and around the parking lots should be designed for stormwater infiltration. These specially designed rain gardens usually require improving the soil for faster infiltration and the use of native plants instead of typical grass. The amount and location of these rain gardens will be determined as the redevelopment of the area occurs. The city and property owners should work with Sanitation District Number One to determine the amount and best placement of these elements.
- Use pervious surfaces (allows water to penetrate through and into the ground) where possible: parking lots, sidewalks, and courtyards
- Redirect roof drains from emptying into the stormwater system by diverting into retention ponds and/or swales, infiltration landscaping, and cisterns.

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Tree Canopy

The amount of tree canopy is the current standard for measuring green infrastructure. Trees help cool the air temperature, absorb pollutants, and increase the value of the land. Trees also provide habitat for a wide range of native fauna. Approximately 13 acres of tree canopy comprises 18 percent of the study area. While there is no standard minimum amount of tree canopy for a suburban commercial area, the study area is above the American Forests Organization’s recommendation of 15 percent for an urban business district. As noted previously, there is a good possibility the recommended redevelopment will reduce the amount of tree canopy unless careful measures are taken to add trees. The following recommendations are potential actions to be taken by the city or a developer to introduce more trees into the existing urban landscape.

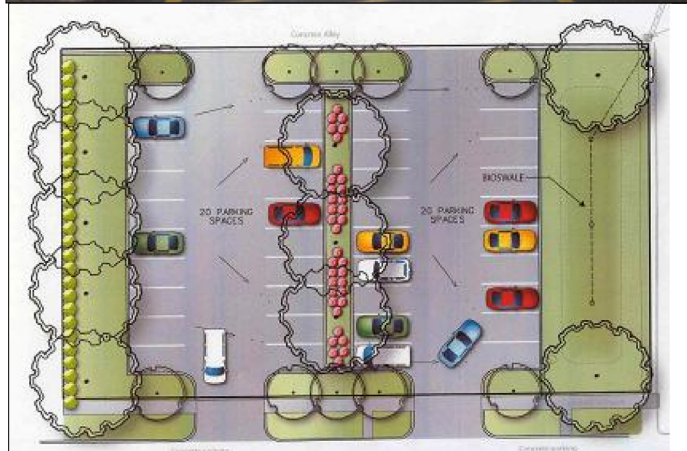


Figure 17: Examples of landscaping parking lots

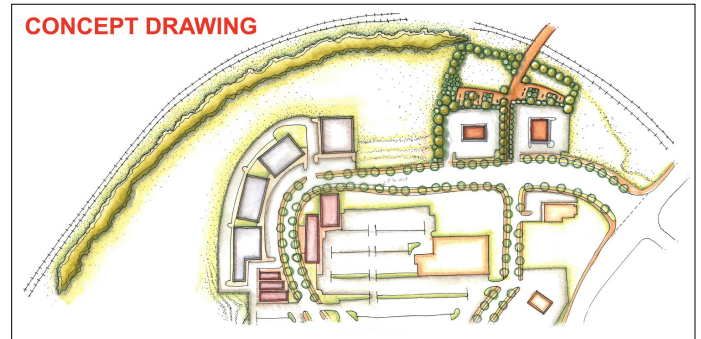


Figure 18: Concept drawing showing possible park at foot bridge and tree buffer along railroad

Not only will these measures increase the amount of tree canopy, they will also improve stormwater management and help beautify the area.

- Trees should be a part of the landscaping along roads, around buildings, and in parking lots. The Northern Kentucky Urban and Community Forestry Council is a good resource to determine the best trees for this region (see Figures 17 and 19).
- A narrow strip of land bordering the railroad could be set aside as a tree buffer. The railroad is a low point where stormwater gathers during heavy rain events. This buffer would serve as a stormwater infiltration strip and provide an attractive screen helping to minimizing the railroads negative visual impact (see Figure 18).
- A small park could be created near the foot bridge that crosses the railroad. This bridge connects Sub Area A to the older part of Crescent Springs and provides convenient access for nearby residents. A small park would also be an attractive amenity for workers in nearby office buildings and other businesses to eat and relax (see Figure 18).



Figure 19: Example of landscaping around building

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