

# Using Green Infrastructure to Increase Resilience and Mitigate

Ms. Natalie Hardman and Ms. Britt Patterson-Weber

## Background

Green infrastructure projects model natural systems to manage stormwater runoff and water recharge, reduce ambient temperatures, and even buffer noise pollution. When it rains, for example, rather than directing run off directly to storm drains and a water treatment facility, a green infrastructure system would divert water into planted swale areas for filtration, where it also recharges the aquifer. Green infrastructure, like bio-swales slow the flow allowing plant roots to absorb water, trap harmful nutrients and pollutants and allow for evapotranspiration, ultimately reducing of water to sewer systems. In contrast, traditional gray infrastructure moves water rapidly to treatment centers and this type of infrastructure is aging in many parts of the country, losing its capacity to keep pace with significant rain events. The use of shade trees along roadways and in park spaces is another example of relieving urban heat-island effects and particulate matter pollution from neighborhoods. At the community level, measures like increasing urban tree canopy, conserving natural spaces, and utilizing the right plants in the right place on shorelines and other planting projects can aid with flood protection, while also providing valuable wildlife habitat.

Implementing green infrastructure projects often face challenges. Green infrastructure sometimes requires acquisition of land, especially for conservation and restoration of ecosystem services. There is a perception that these infrastructure systems might not preform as designed and that that require more intensive and costly maintenance. In assessing the cost/benefit of these projects, it is also challenging to quantify the ecosystem benefits, leading decision makers to favor traditional engineered solutions. However, we also know that green infrastructure has a favorable public perception and should be used as part of our climate solutions. In this table top discussion we will look at ways to promote the use of green infrastructure.

## Resources

The EPA website has an excellent discussion on Green Infrastructure in relation to climate change. Links can be found here:

<https://www.epa.gov/arc-x/climate-adaptation-and-stormwater-runoff#:~:text=Climate%20changes%2C%20including%20more%20frequent,or%20introduce%20new%2C%20pollution%20problems.>

<https://www.epa.gov/green-infrastructure/what-green-infrastructure>

## **Questions to Consider**

How can homeowners, renters and multi-family housing implement green infrastructure to reduce the stormwater runoff from their property?

How could communities and municipalities mandate the consideration or prioritize the use of green infrastructure to reduce the stormwater runoff and address increased heat?

What are the role of architects, urban designers ,landscape professionals and NGOs to promote green infrastructure solutions in design?

## **Strategies for Consideration**

- Develop a Community Participatory Process to introduce green infrastructure concepts and projects to the community, allowing them to gain acceptance.
- Create Market-based incentives, including payments equal to the ecosystem value of services rendered that would persuade land owners to develop green infrastructure projects on their land.
- Have an expedited permitting process for projects that meet green standards (such as LEEDs) reducing concern that the project will be delayed or rejected. This includes green roofs, green walls, permeable materials use in parking facilities.
- Identify grants and other funding sources specifically geared toward green infrastructure to help offset costs of the project and encourage public utilities to design these types of projects.
- Revise landscaping ordinances to discourage the use of sod grass and codify alternative landscape designs and better protect the tree canopy.
- Offer training on the engineering of natural systems to staff in local jurisdictions so they can feel more comfortable including the requirements in RFPs for work, and approvals of permits.