Planning Primer 4: Infrastructure Planning

Local and Regional Strategies - Public Utilities

INFRASTRUCTURE PLANNING

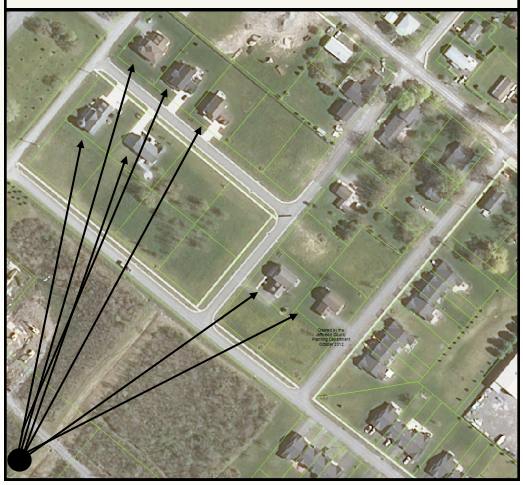
Infrastructure Planning: It is recognized that infrastructure planning can help advance more desirable land use patterns, opportunities for economic development and housing, preservation of open space, and sustainable communities. Proper infrastructure solutions are vital to achieving the land use patterns that communities desire.

Vibrant Centers: Local planning priorities typically advocate focusing most new development in community identified growth areas, such as infill redevelopment sites and land immediately around centers, rather than encouraging construction in outlying or rural areas. But for communities without public water or sewer systems, additional development can be constrained by the limitations of private on-site wells and/or septic systems. The need to maintain sufficient land for well sites and septic leach fields, including septic field replacement space, may make it difficult to expand existing buildings, or to allow more intensive uses within the current building footprint, such as adding second floor apartments over first floor retail space. Poor soils or inadequate space may render existing vacant lots constrained under current septic system design standards. This piece of the development puzzle leads communities to examine their infrastructure needs as communities look to shape new growth centers through comprehensive planning and zoning initiatives.

Protecting the Countryside: Outside the villages, crossroads and hamlets, one technique used to foster growth while maintaining acreage for open space or agriculture could be conservation subdivisions. This technique calls for clustering smaller lots on a portion of the parent parcel, while preserving the remaining land as commonly held open space, rather than carving the entire site into standard large lots. However, if the site is not already within an existing water or sewer district, a conservation subdivision with a cluster of homes can create challenges in providing appropriate water and sewer solutions. Mandatory separation distances can make it impossible to locate a private well and septic system on each lot in some cases. Any water system serving five or more homes is considered a public water system, with resulting regulatory requirements that can become cost prohibitive for small groups of homeowners.

Infrastructure Matters: If communities want to grow sustainably by focusing new development in and around their villages and hamlets, they must be able to solve this core challenge of providing water and wastewater disposal. Regardless of water or wastewater issues facing a community, it is important to involve property owners and residents early on it the discussion regarding future growth. Community leaders can help start the dialogue regarding the need for suitable infrastructure in appropriate areas. This infrastructure should be viewed as an investment that can improve water quality, property values, and quality of life for residents and the environment in nearby areas by providing a reliable source of water and limiting potential effluent discharges.

Growth example: new homes in an area with municipal services...



Green Infrastructure: The other side of the page discusses the benefits of Green Infrastructure with several examples.

"Infill development where services and infrastructure already exist [or are anticipated] maintains the integrity of our existing communities."
Growth and Development Guidelines, Jefferson County Planning Board - 2005

Also based on: Smart Sewers for Smart Growth from the Dutchess County eNewsletter "Plan On It" - April 2012

Green Infrastructure

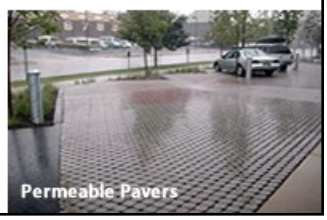
What is Green Infrastructure? Green infrastructure is an approach to storm water management that protects, restores, or mimics the natural water cycle. Green Infrastructure is a network of decentralized storm water management practices, such as green roofs, trees, rain gardens, bio-swales, and permeable pavement, that can capture rain where it falls, thus reducing storm water runoff and improving the health of surrounding wetlands, streams, rivers, and lakes.

Storm water runoff can be a major cause of water pollution in urban or developed areas. When rain falls in undeveloped areas, the water is largely absorbed and filtered by soil and plants. However, when rain falls on roofs, streets, and parking lots, the water cannot soak into the ground. In many urban areas, storm water is drained through engineered collection systems and discharged into nearby waterbodies. As runoff occurs, the storm water can carry trash, bacteria, nutrients, heavy metals, and other pollutants from roadways, parking lots, and retention ponds, degrading the quality of the receiving waters. Higher flows from these systems can also result in erosion and flooding, damaging habitat, property, and infrastructure.

Site/Neighborhood Examples: Rain gardens and bioswales can be used in medians and along parking lot perimeters. Bioswales are vegetated channels that slow water infiltration and filter out pollutants from stormwater. Permeable pavements are paved surfaces that allow water to infiltrate, thus treating and/or storing rainwater where it falls. Permeable pavements may be constructed from pervious concrete, porous asphalt, permeable interlocking pavers, and other materials. Planter boxes are urban rain gardens with vertical walls and open or closed bottoms that collect and absorb runoff from sidewalks, parking lots and streets.

Community Benefits: Benefits of Green Infrastructure include less water runoff, decreased stormwater storage needs, runoff entering systems at a slower rate, and decreased water treatment volume for combined sewer/stormwater systems. Other important benefits include: reducing erosion and sedimentation, thus improving water quality in waterbodies; as well as lower infrastructure costs during site development.

More Green Infrastructure Examples



PLANNING PRIMERS: compiled by the Jefferson County Planning Office - modeled with permission after the set of *Greenway Guides*, developed by the Dutchess County Department of Planning and Development - 2001
also based on the Jefferson County Planning Board *Growth and Development Guidelines* - 2005
Green Infrastructure content was based on several sources: US EPA, American Rivers, Cranbrook Great Lakes Freshwater Forum.