TREND REPORT NO. 4

# UTILITIES & INFRASTRUCTURE

*"Roads, bridges, rail, water and gas lines, electrical grids, dams—the very network of our nation is, in most cases, decades and sometimes more than a century old. And badly showing its age."*

PennLive/Harrisburg Patriot-News Editorial, May 9, 2016

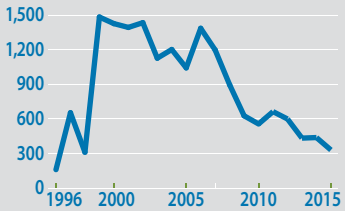
## Water facilities and supply

**Water facility ownership:** The acquisition of local water companies by large investor utilities is a continuing trend with implications for future growth areas.

**Source water protection:** The protection of source drinking water supplies is of increasing concern. Nitrate is of particular concern in western Chester County. Roadway deicing is also causing higher levels of chloride in streams.

**Water quantity:** Water availability could become a concern within the planning horizon. Demands for more water could result in the drilling of more or deeper wells or relying on water supply from distant sources.

### Approved wells




Source: Chester County Health Department

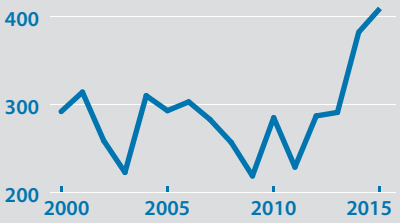
## Wastewater facilities

**Water and sewer planning:** There is no mechanism or incentive to coordinate land use planning and sewer and water service areas.

**On-lot system failures:** As aging on-lot systems approach the end of their useful life, there may not be suitable replacement areas or options for connection to public sewers.

**Sewage facilities funding:** Cutbacks and elimination of state funding to assist municipalities with sewage facilities upgrades, failing on-lot systems, and sewage facilities planning is a significant infrastructure issue.

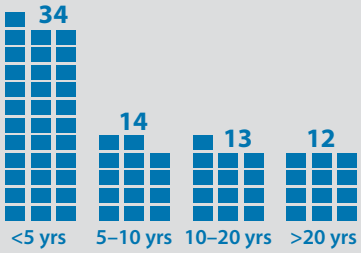
### Malfunctioning on-lot sewage systems




Source: Chester County Health Department

### Age of sewage facilities plans

Municipal Act 537 plans




Source: PaDEP, 2015

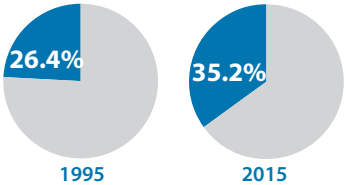
## Stormwater management and flooding

**Existing development:** Past development is a major cause of current stormwater problems but, there is limited ability to retroactively address these pre-existing conditions.

**Municipal stormwater (MS4):** Costs to comply with MS4 mandates are expected to continue to increase and may result in wider use of municipal stormwater fees. Further, municipalities are subject to fines for non-compliance with mandated regulations.

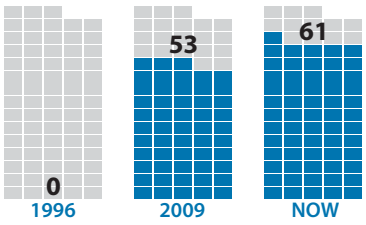
**Flood insurance:** Rising flood insurance rates, as well as increased awareness of flood risks, is negatively affecting the marketability of floodplain properties.

### Increase in developed land*




*Developed land: residential, commercial, industrial, institutional
Source: DVRPC land use mapping

### Municipalities required to comply with MS4 mandates




Source: Chester County Water Resources Authority, 2016

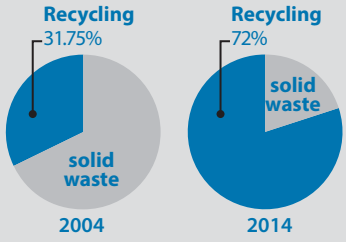
## Solid and hazardous waste management

**Landfill capacity:** The landfills serving Chester County are anticipated to meet county needs through at least 2030. Options for additional sites or expansion need to be explored.

**Recycling:** The trend towards single-stream recycling increases recycling compliance rates, reducing the demand on landfill capacity.

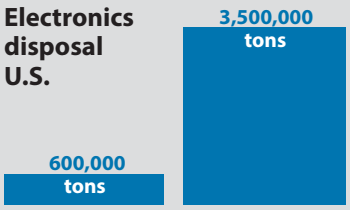
**E-waste disposal:** The proper disposal and recycling of e-waste (televisions, computers, computer monitors, etc.) is an increasingly difficult issue due to limited options for disposal.

**Recycled material** vs. **solid waste**
Percent of tonnage




Source: Chester County Solid Waste Authority

**Electronics disposal U.S.**




Source: Institute of Scrap Recycling Industries, Inc., 2011

**Emerging markets:** Markets for waste by-products, such as methane gas, continue to evolve.

**Methane gas** utilized from the Lanchester Landfill is equivalent to:

removal of emissions of approximately
**210,000**
**cars** per year

or preventing use of
**220,000**
**barrels of oil** per year

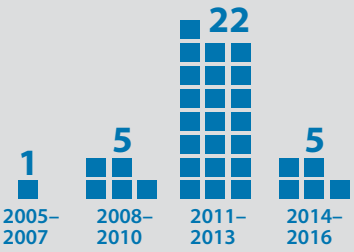
## Energy generation, transmission, and distribution

**Energy planning:** While energy prices are currently low, this sector has experienced significant fluctuations in recent decades. Long-term policy planning should take this into account.

**Energy resiliency:** Emerging technologies permit local energy production on a small scale ("microgrid"). This can help create appropriate backups and resiliency to utility-scale generation and the larger energy grid, but can potentially impact neighborhoods and be land intensive (e.g., solar farms).

**Local regulation of renewable energy:** Municipalities are increasingly aware of the need to regulate renewable energy sources, such as solar and wind, to minimize impacts on neighboring land uses. These regulations can potentially encourage or discourage renewable energy options.

**Renewable energy ordinances adopted**




Source: Chester County Planning Commission, 2016

Since 2005, 33 municipalities have adopted alternative energy ordinances (including solar, wind, outdoor furnaces, and geothermal). The rate of adoptions has slowed in recent years which may reflect the reduction in renewable-energy credits and overall lowering of conventional energy costs.

**Pipeline infrastructure:** Chester County is a major pathway for pipelines moving Marcellus shale products to market. Despite the current downturn in production, proposals for transmission pipeline expansion are likely to continue in Chester County. Pipeline safety and their impacts on property values and the environment are of significant concern to residents, landowners, and municipalities. Conversely, the local economic benefits of pipeline projects are not apparent to many county residents. The county has a limited role in pipeline regulation and siting; however, it can play an important role in facilitating communication between stakeholders.

Nearly **600 miles** of transmission pipeline corridors cross the county

## Communications (Internet/Telephone/Cable)

**Wireless communications facilities:** While customers' demands for signal strength and uninterrupted cell coverage are strong, communities are also concerned about the visual impact of the cell towers and supporting infrastructure that provide this coverage.

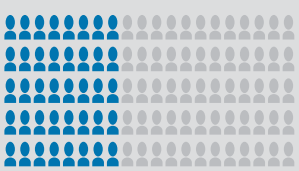
**Access to broadband communications:** The availability of broadband communication is a critical element to the success of Chester County's business community and educational institutions. Populations without access to broadband are at an economic disadvantage.

**Internet access at home**

**90.9%** internet access
**41.4%** via cable modem
**16.1%** via DSL
**17.3%** via fiber optic

**Two or more hours online per day**

**40%**



Source: Esri, 2016