

Utilities

While current capacity is sufficient for today's users, additional infrastructure investment will be required to accommodate growth—particularly in Old Hilliard, the Big Darby, and most rural areas within the study area.



Chapter 9:

Utilities

Utilities Goal

Continue to provide high quality public utility service to both current and future users, balancing the objectives of increasing system capacity and improving system reliability with the need of ensuring reasonable utility rates for all users.

Both public and private utilities provide a broad range of services to those who live and work within the City of Hilliard. City owned and operated utilities include drinking water, sanitary sewer, and stormwater systems. Private utilities include natural gas provided by Columbia Gas of Ohio, electricity provided by AEP Ohio, and solid waste collection and recycling services both provided by Rumpke. Traditional land-line telephone service is provided by AT&T, and fiber- and cable-based telephone, broadband internet, and cable television services are provided by AT&T, Time Warner Cable, and WOW Internet and Cable. Together, Hilliard and these private companies work to meet the needs of those who live and do business in the City.

Generally, the private utilities own, operate, and maintain their infrastructure. Though their services are essential, they are not analyzed in this plan given that they are not owned, managed, or maintained by the City. It is assumed that these firms will make the investments necessary to maintain and expand their systems as the City grows. This plan, and specifically this chapter, addresses the three City-owned public utilities.

Opposite: Nearly 50 feet below the surface, workers assemble tracks that will guide a tunnel boring machine as it drills a new sanitary sewer trunk line under I-270 near Hayden Run Road. Given Hilliard’s relatively flat terrain, extending gravity-fed sewer service has been a difficult and expensive task necessary to support future development.

Utilities Key Findings

Water and Sanitary Sewer service

In 1994, Hilliard entered into two 49-year contracts with the City of Columbus to provide fresh drinking water and dispose of sanitary sewer waste from the city. These agreements require Hilliard to own, operate, and maintain the water distribution and sanitary sewer collection systems within its City limits and a designated service area (see Map 9.1), connecting Columbus' drinking water and sanitary sewer disposal services to local homes and businesses. To help Hilliard maintain and expand its network, a small portion of each user's monthly water and sewer bill is directed to the City to maintain and manage the systems within Hilliard.

With a dedicated service area, only Hilliard is permitted to provide water and sanitary sewer service to this area. This virtually prohibits any neighboring municipalities from annexing into the service area as they would not be able to supply water and sewer services needed for development. Those seeking water and sewer service must petition Hilliard to be incorporated, and then pay to tap into its water and sanitary sewer networks. As Hilliard has grown over the years, more and more developers, home owners, and businesses have gone through this process, expanding both the City and the needs placed on the water and sanitary sewer systems.

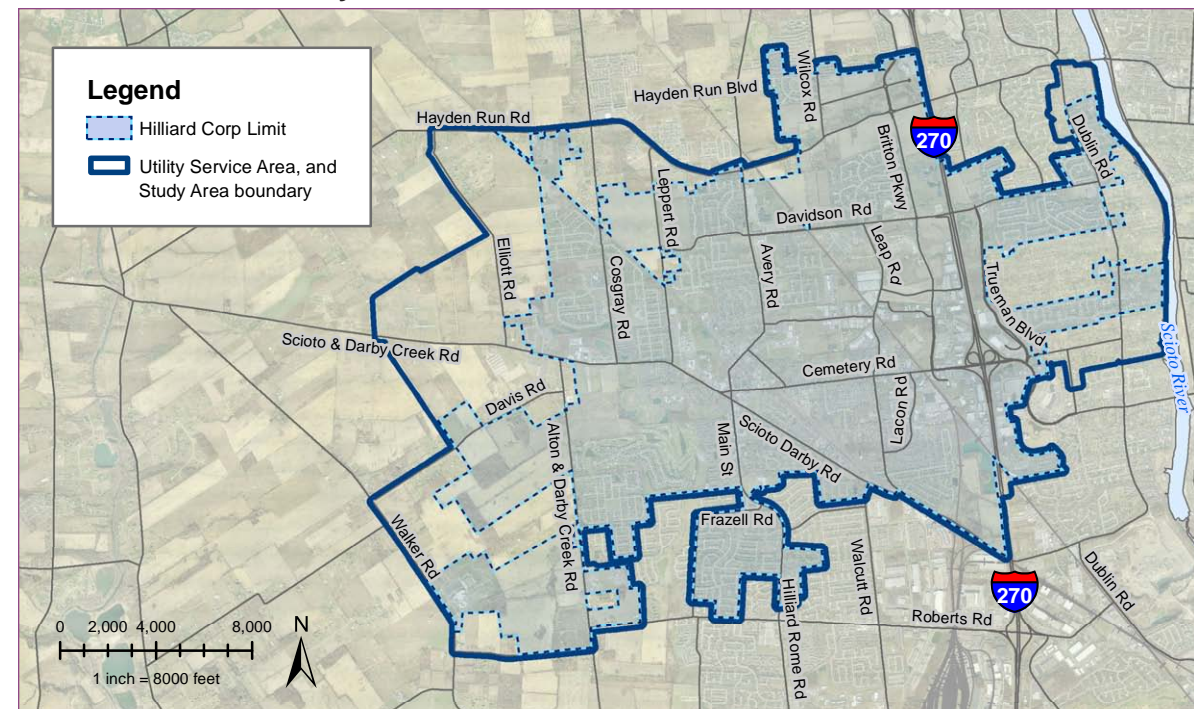
Water and Sanitary Sewer Master Plans

Over the past 10 years, the City has undertaken several studies and in 2001 created master planning documents to guide the development of its water and sanitary sewer systems. These studies and planning documents have helped the City

better understand its systems and how to manage and maintain its infrastructure.

As a part of this comprehensive planning effort, Hilliard's 2001 Water Master Plan and 2001 Sanitary Sewer Master Plan are being updated. The development of Hilliard's new 2011 Water

Map 9.1 – Hilliard's Utility Service Area



Master Plan will be greatly impacted by the results of an on-going City of Columbus study analyzing the water distribution system in northwestern Franklin County, including the distribution of water through and around the City of Hilliard. Expected to be released in 2011, the Columbus study will influence the recommendations within Hilliard’s 2011 Water Master Plan.

Once the Water Plan is completed, this will be used to guide the recommendations of Hilliard’s 2011 Sanitary Sewer Master Plan. Still under development at the time of the Comprehensive Plan’s adoption, the 2011 Water and Sanitary Sewer master plans will be the key documents for guiding City utility management, maintenance, and expansion activities into the future. Though the Comprehensive Plan seeks to provide a planning level overview of the needs of the utility system, deference should be provided to the 2011 master plans for a detailed analysis and a comprehensive list of capital improvement and maintenance recommendations.

Drinking Water Supply

The source of Hilliard’s drinking water is largely from the Scioto River, specifically Columbus’ O’Shaughnessy and Griggs reservoirs. These facilities feed Columbus’ Dublin Road Water Treatment Plant, which is currently being expanded to meet future demand in central, southwestern, and northwestern Franklin County. The water service agreement between Hilliard and Columbus ensures the city’s users will have a supply of fresh and clean drinking water (Figure 9.1).

In addition to serving users in Hilliard, Columbus provides service to the City of Dublin as well as Columbus’ own residential and business users in northwestern Franklin County. To ensure a high quality of service for all users, Columbus maintains a water delivery system that is interconnected across municipal boundaries. Upon being piped into the Hilliard area, water may flow directly to individual users or be stored in one of several storage tank facilities (or water towers) located within and outside of Hilliard’s service area. By design, the interconnected system of storage tank facilities and water mains owned and located within either Columbus or Hilliard work together to serve users in both jurisdictions. Storage tanks help maintain water pressure and provide a reserve in case of a fire emergency. Because the water lines are pressurized, drinking water is able to flow both up and down hill and is relatively easy to direct around the City as there is need.

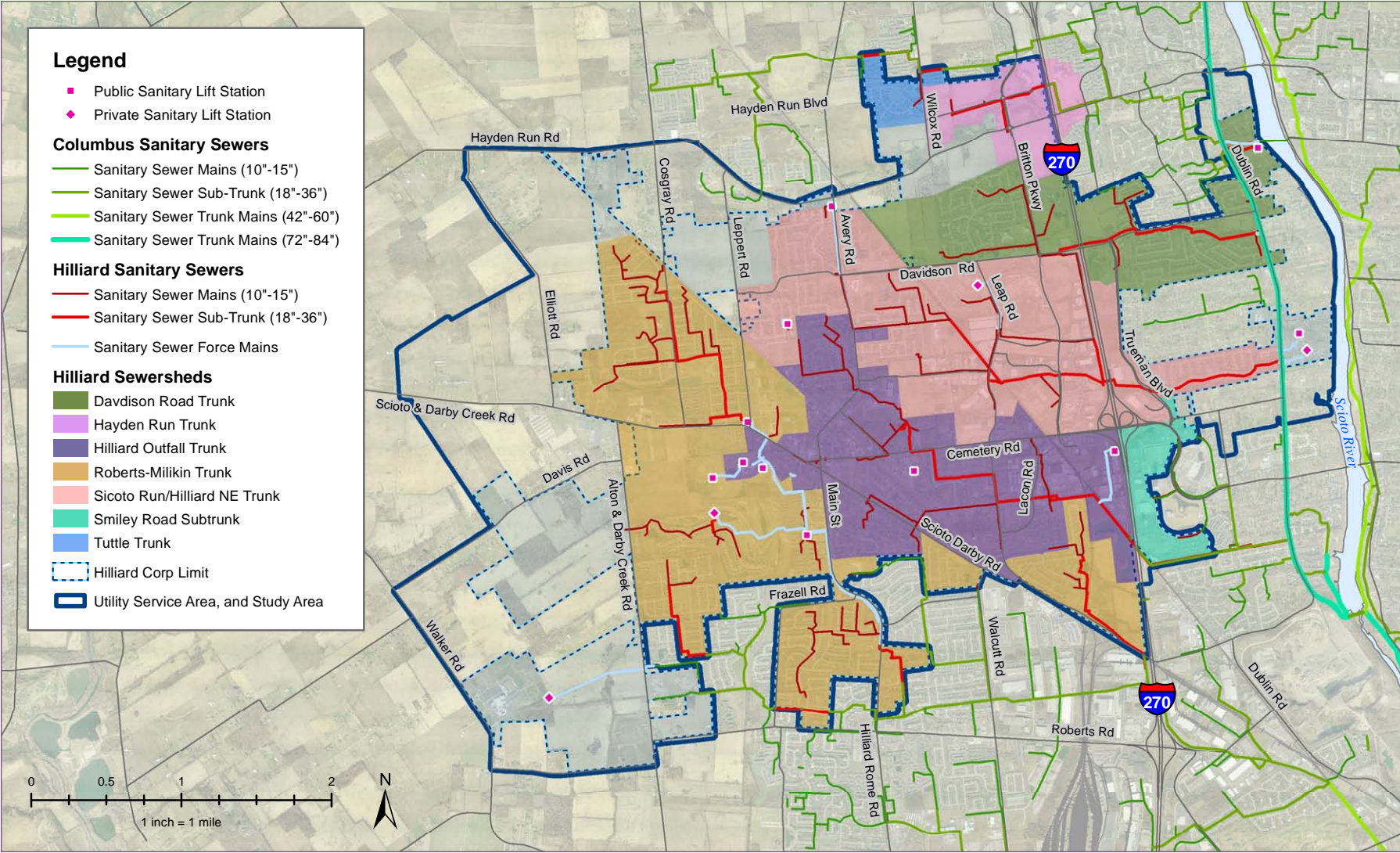
Capacity for Growth

Hilliard’s water distribution system is sufficient for current users, maintaining sufficient pressure around the City. As large developments are built placing significant demands on the system, new water mains, system connections, and storage tanks will be necessary. Access is available in all focus areas except for the Big Darby Focus Area. Beyond the Focus Areas, the water distribution system may likely require the extension or creation of new water mains to ensure adequate pressure and volume to new development. While the 2011 Water Master Plan will provide specific recommendations for expanding the overall system, developers will largely be responsible for ensuring proper access to local users in their developments.



Figure 9.1 – Hilliard’s drinking water is collected from the Scioto River Watershed. Water from the Scioto River is stored in O’Shaughnessy and Griggs reservoirs, is treated at the Dublin Road Water Treatment Plant, and then piped to the City of Hilliard.

Map 9.2 – Hilliard Sanitary Sewer Network



Sanitary Sewer

Sanitary sewer service is provided by Hilliard, who owns and operates the citywide network of sewer mains and trunk sewers which remove waste from buildings throughout Hilliard and direct it into one of six major trunk sewers. From here, waste

flows into one of Columbus’ networks, specifically one of two regional trunk sewers, one near Roberts Road and another along Dublin Road. These regional sewers eventually direct the waste to Columbus’ Jackson Pike Wastewater Treatment Plant.

Unlike the drinking water system, sanitary sewer mains are typically not pressurized and operate by allowing gravity to carry wastewater downhill. By design, sanitary sewer service typically follows natural watershed boundaries, allowing gravity to

carry the waste to a single point where it enters a larger sewer main. Generally conforming to the topography and watersheds of the city, there are six major sanitary sewersheds. Map 9.2 on page 180 shows the locations of key infrastructure, specifically sanitary sewer mains and lift stations.

Lift Stations

In places where land topography does not allow wastewater to run downhill, lift stations or large pumps are used to force the wastewater horizontally or even uphill through a pressurized “force main” to a point where the wastewater can then again be carried away by gravity. Though lift stations and force mains are less expensive to construct than gravity mains, lift stations have on-going maintenance and operation expenses. Additionally, a pump failure or power outage could cause the station to fail, possibly resulting in wastewater backing up into basements. Hilliard’s generally flat terrain and location, straddling both the Big Darby Creek and Scioto River watersheds, has required the use of lift stations to move wastewater from the Big Darby watershed to the Scioto River watershed.

At the adoption of this plan, there were 13 public sanitary sewer lift stations operating in the city. Annual costs, calculated in 2008 for Hilliard’s Lift Station Master Plan, included about \$17,000 in electric costs (for eight major sanitary pump stations) and about \$190,000 in annual maintenance costs. The same plan recommended over \$2 million in capital improvements and studies between 2008 and 2013. Study results may produce additional recommendations for further investments in the lift station system. Though these lift stations have allowed development to occur where

it was cost-prohibitive to build a gravity sewer, the result is a future stream of cost to operate, maintain, upgrade and eventually replace the facilities. In most cases, these costs have been passed onto all users of the system, subsidizing their use and the development they support.

Inflow and Infiltration

Most all sanitary sewer networks experience a phenomenon called Inflow and Infiltration or “I/I” (see Figure 9.2). As most sanitary sewer mains are not under pressure and, as such, require gravity to drain correctly, ground water can “Infiltrate” around old pipe fittings and enter the sanitary sewer system. Additionally, there may be locations where stormwater is able to enter or “Inflow” into the network through the improper connection of sump pumps, down spouts, and under drains to the sanitary sewer pipes. Regardless of the source, Inflow and Infiltration results in the loss of valuable and needed sanitary sewer capacity to stormwater that does not need to be treated as

wastewater. Typical of older sanitary sewer systems, I/I issues may result in situations where the capacity designed for current and future users is temporarily exceeded by groundwater and/or stormwater, possibly resulting in a sanitary sewer overflow (SSOs) onto a street, into a creek, or producing water in basement (WIB) incidents. Though none of these events are common, they most likely occur when groundwater levels are at their highest, usually between the end of winter (snow melts) and early spring (major rain events).

Hilliard Outfall Sewer

Hilliard observed some of the issues mentioned above in the Hilliard Outfall Sewer. The City had a study conducted in 2009 to model the conditions creating the overflow events. Though the sewer works fine in normal weather, I/I issues result in significant influxes of stormwater into the network. The presence of these events in some sanitary sewer sheds may limit the potential to add significant amounts of new development in this

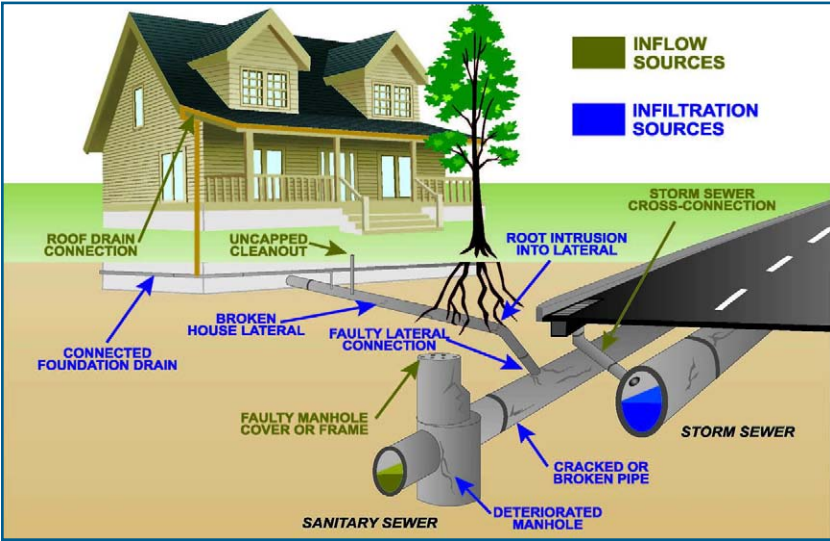
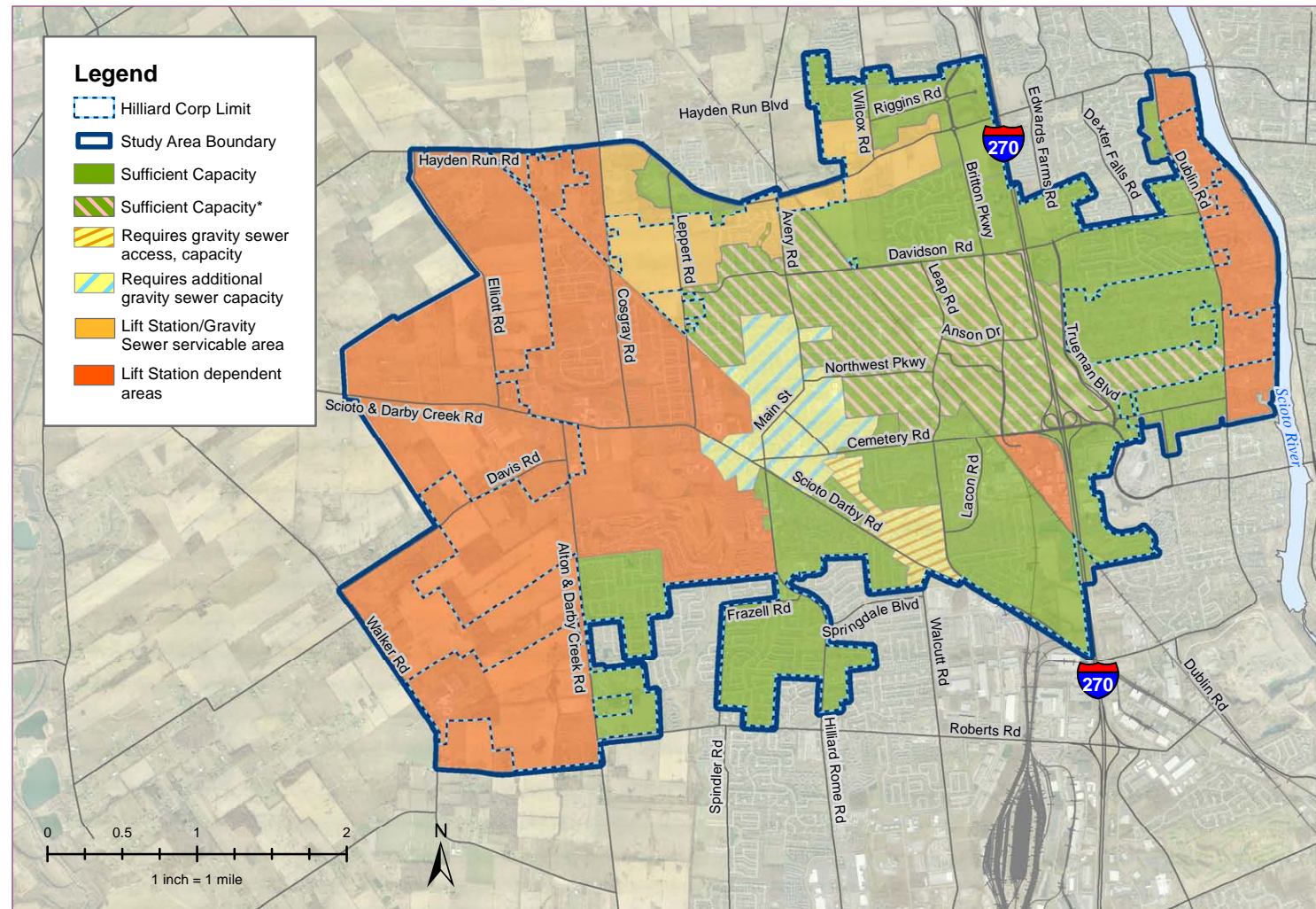


Figure 9.2 – Potential Sources of I/I. While newer homes and modern sanitary sewer systems have been constructed to more stringent standards, older homes and neighborhoods may have deteriorated systems or these systems may have even been designed to encourage I/I flows to help those systems function.

Map 9.3 – Hilliard Sanitary Sewer System Access and Capacity



*Though capacity is not a problem in the short run, the number of users that may eventually be added to this sewershed could exceed its capacity at some point in the future. As the I-270 Focus Area develops, TIF funds could be used to address this concern. Solutions may include increasing the capacity of the existing trunk sewer main and/or shifting users in the north and west ends of the sewershed to a different sewershed.

Capacity for Growth

Beyond the issues addressed in this chapter, Hilliard's existing sanitary sewer system (see Map 9.2, page 180) is in otherwise acceptable shape and able to support additional users. A planning-level capacity analysis of the Focus Areas shows:

- **I-270 Corridor:** Where land use and density changes are recommended, capacity is largely sufficient for the vast majority of future growth planned for in the Land Use and Focus Area chapters. The remaining capacity needed for the northwest quadrant of the Cemetery Road/I-270 interchange could be supplied by taking users out of the Scioto Run Trunk Sewer and connecting them to the Hayden Run or Davidson Road sewersheds as these trunk sewers may be extended. Depending upon the build-out of the I-270 Corridor Focus Area, a capacity enhancement may be required in the future.
- **Darby Area:** Sanitary sewer service has yet to be extended to the vast majority of the Darby Focus Area. Though access has been constructed to support development in several places, all access to the sanitary sewer system has been dependent upon at least one lift station to pump wastewater out of the area. Lift station capacities are limited but in some cases can be increased to accommodate new development adjacent to existing development.
- **Retired Railroad Corridor:** Though sanitary sewer service is in close proximity to the retired railroad corridor, it is provided by the Hilliard Outfall Sewer. Improvements that provide better access and additional capacity will be



required to support the density of development recommended for this Focus Area.

- Old Hilliard: As Old Hilliard lies within the sewershed of the Hilliard Outfall Sewer, the ability for growth to be accommodated within Old Hilliard may depend largely upon the implementation of solutions to reduce I/I and improve capacity to the area. The construction of a gravity-fed relief sewer from Old Hilliard to I-270 has the potential to solve these capacity problems. Such a relief sewer may be able to be located within a portion of the Retired Railroad Corridor, providing the access and capacity to the Focus Area, whose growth may be able to help finance the relief sewer.

Beyond the Focus Areas, gravity-fed sanitary sewer service is readily available to developable properties along the Britton Parkway, Trueman Boulevard, Davidson Road, and Riggins Road corridors in the northeastern to east-central areas of the city. Lift stations and/or multi-million dollar extensions of sanitary sewer trunk mains will be required to service developable parcels along Hayden Run, Leppert and Cosgray roads in the north-central to northwestern areas of the city. A city-wide map describing system limitations is provided in Map 9.3.

Stormwater

The third “utility,” officially created by City Council in 2009, is stormwater management. Through this utility the City provides management over the maintenance of the stormwater system as it collects water from neighborhood streets, roofs, and parking lots and discharges it into the area’s streams and rivers. Hilliard’s stormwater

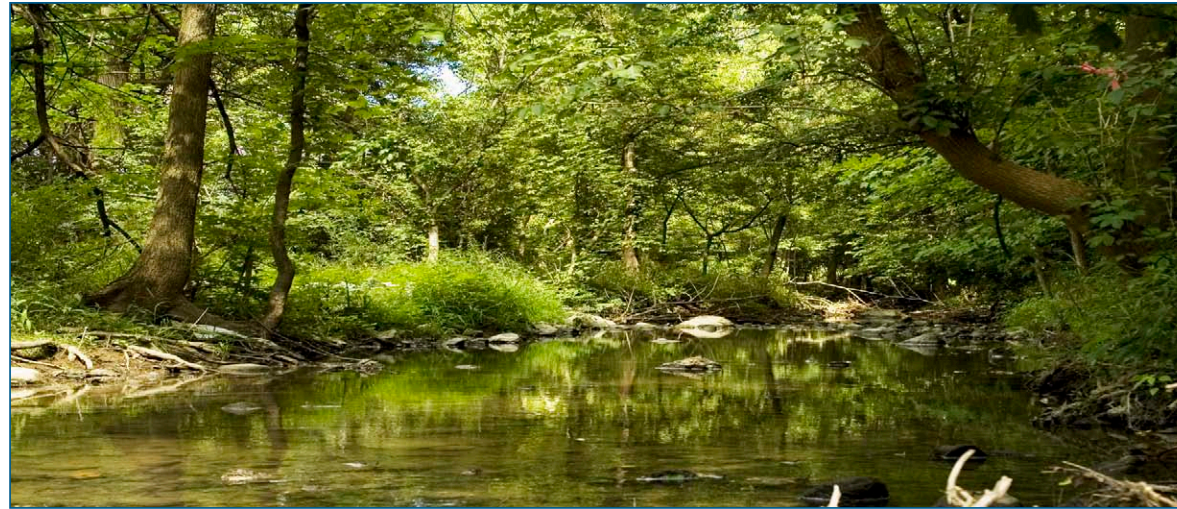


Figure 9.3 – Hayden Run, protected by its riparian corridor, is an example of a resource that should be protected. Though many of Hilliard’s ditches may have started as the end point for field tiles drains, there is the potential to naturalize these ditches, improving area water quality, making new habitat, and taking an eyesore and turning it into an asset.

generally flows into one of eight tributaries, which then flow into either the Big Darby Creek or the Scioto River.

In an effort to reduce pollution discharged into the nation’s waterways, the Clean Water Act authorizes the U.S. Environmental Protection Agency (USEPA) to regulate point sources of pollution. To do this, a permit program called the National Pollutant Discharge Elimination System (NPDES) was created. Administered by the Ohio EPA, Hilliard has been designated as a NPDES Phase II community, covering municipal separate storm sewer systems. This requires Hilliard to implement a stormwater management plan and take practical steps to try to reduce the amount of pollution entering local waterways. Improving the quality of its stormwater will reduce pollution entering the Scioto River, the source of the city’s drinking water, and reduce pollution that enters and

impacts the ecosystem of area streams, the Scioto River, and Big Darby Creek – a state and national scenic river.

In 2005, the City completed a Stormwater Management Plan (SWMP) to comply with the requirements of the NPDES Phase II program. As a part of this plan, the City developed operation and maintenance guidelines for existing stormwater infrastructure within the city, and a five year capital improvement plan to prioritize the improvements needed to comply with the regulation. The City recently implemented a stormwater utility fee to provide a reliable source of revenue to pay for regular maintenance and improvements tied to the NPDES requirements. These regulations will help the City achieve similar standards to what local businesses and developments are required to meet when they develop a property.

Utilities Recommendations

Goal

Continue to provide high quality public utility service to both current and future users, balancing the objectives of increasing system capacity and improving system reliability with the need of ensuring reasonable utility rates for all users.

Objective U-1: Increase system capacity to accommodate additional users where most feasible.

While Hilliard should continue its water and sanitary sewer system development strategy of planning for growth, these activities should balance the needs of providing capacity enhancements and ensuring utility rates remain reasonable.

- **Action U-1.1:** *Continue to evaluate the costs and benefits of water and sanitary sewer expansion projects based on their ability to allow growth throughout the city.*
Prioritize projects based on their ability to promote growth in Focus Areas, and for their ability to be paid for by financing agreements, new revenue-generating development, and by reducing sources of reoccurring expenses such as lift stations.

- **Action U-1.2:** *Develop a comprehensive strategy to ensure capacity is provided to and paid for by new development as it occurs throughout the city.* Developers should pay for necessary improvements to extend the water and sanitary sewer systems to support development in places where the infrastructure does not exist. In this way, the City will allow growth but reduce its subsidy of it. The following points should be addressed by such a policy:

- Developers should compensate the City for placing increasing demand on City-owned and operated lift stations, particularly where multiple lift stations are required to pump waste into a gravity sewer main.
- Funding strategies should include TIF districts to pay for capital infrastructure costs, and fee districts to recoup the anticipated cost of service delivery to a specific area.

Methods to collect the fees could include surcharges on utility bills or the creation of a Community Development Authority to generate additional property taxes to finance the construction as well as legacy expenses such as the continual operation, maintenance, and eventual need to replace such facilities.

Objective U-2: Improve system reliability and efficiency to further ensure a high quality utility service for all users.

- **Action U-2.1:** *Make necessary purchases and enhancements to ensure redundant and dependable operation of the City's water and sanitary sewer systems.*

Specific to the sanitary sewer system, the elimination of lift station facilities should be a high priority given their cost. Where not possible, remaining lift station facilities should be made



to be more resilient to both power outages and equipment failures.

- **Action U-2.2:** *Perform a comprehensive cost/benefit analysis of alternatives to eliminate the need for some or all lift stations west of Main Street.*
This analysis should evaluate opportunities to consolidate equipment, reduce maintenance costs, and potentially eliminate lift stations.
- **Action U-2.3:** *Make it City policy to prohibit developers from utilizing privately owned and operated lift station(s) to provide sanitary sewer service to new developments.*
Should the lift station be necessary for development, a financial arrangement should be negotiated to pay for the station's construction to the City standards, and Hilliard's operation, maintenance, and eventual replacement of the facility. These conditions are important given that Current EPA regulations require governing jurisdiction (i.e. the City of Hilliard) to take over failed and abandoned private lift-station systems, often at great expense. Where possible, steps should be taken to discourage the use of private lift stations.

Objective U-3: Focus city-subsidized utility infrastructure projects to incentivize growth in the Focus Areas, specifically in Old Hilliard, and along the Retired Railroad and I-270 corridors.

- **Action U-3.1:** *Build a relief sewer to support development in Old Hilliard and provide access to support development along the Retired Railroad Corridor.*
Providing improved service to Old Hilliard and the Retired Railroad Corridor, the City should

evaluate the possibility of locating a potentially needed relief sewer for the Hilliard Outfall Trunk Sewer along the corridor. This improvement would encourage development in both focus areas and eliminate the potential of future sanitary sewer overflows.

- **Action U-3.2:** *Develop financing options to facilitate the construction of water and sewer projects to support development in the Old Hilliard and Retired Railroad Corridor focus areas.*
The City should develop financing options to allow this relief sewer to be partially paid for by development in Old Hilliard and along the Retired Railroad corridor, and if possible, from cost savings of shutting down an additional lift station.
- **Action U-3.3:** *Evaluate financing and implementation options for ensuring sufficient sanitary sewer service to support the desired development pattern in the I-270 Focus Area.*
Financing options should help complete the Hayden Run sanitary trunk sewer, eliminating users from the northern half of the Scioto Run Sub-trunk sewershed and other methods to improve capacity.

Objective U-4: Encourage above ground stormwater facilities with dual purposes, including naturalized open spaces and public recreation.

- **Action U-4.1:** *Amend applicable City Codes to strongly encourage consolidated stormwater facilities that provide service to all parcels within a subdivision.*
This code revision should preclude subdivided parcels from establishing their own detention

or retention basin facilities. Where possible, arrangements should be made to connect such facilities and open spaces to those of adjacent development creating larger, contiguous areas of open space and/or stormwater facilities. Such a policy should not preclude or discourage the use of rain gardens or rain barrels.

- **Action U-4.2:** *Encourage the improvement of above ground stormwater facilities and surrounding open space to allow its dual function as public recreation space.*
A policy should be established by which such spaces could be transferred to the City (or other agency that seeks to provide access to recreation) to be dedicated as park space in new (or existing) developments, counting toward a developer's park space dedication requirement. Surrounding open space should include attractive landscaping and public access, and may include recreational facilities such as walking paths, a shelter or gazebo, a playground, and perhaps a dock or boardwalk. The developer and the City would negotiate the financial arrangement for facility maintenance and upkeep.
- **Action U-4.3:** *Create a policy to encourage developers to build a more diversified collection of flood- and storm-water storage and treatment facilities.*
Facilities to be encouraged include stormwater-retaining (constructed) wetlands, ponds with wetland planting shelves, meadows, and dual purpose grass recreation or athletic fields that may serve as storage space for particularly large storms.

Objective U-5: Develop a comprehensive ditch/stream corridor restoration program and policies.

- **Action U-5.1:** *Identify ditches and streams throughout the City and develop recommendations as for whether these streams should be protected or either restored or reconstructed.*

Protect those that should be protected and encourage developers and the City to restore or reconstruct those that need improvement.

- **Action U-5.2:** *Restore ditches and streams that are recommended to be restored, and then place them in a conservation easement to protect these investments.*

Those developing properties adjacent to or including a ditch or stream should be strongly encouraged to reconstruct the corridor as a part of their project, relocating the waterway if needed as a part of their development. City-led projects adjacent to or including a ditch/stream corridor should include the restoration or reconstruction of similar ditch/stream corridors. When completed, the restored or reconstructed ditch/stream should be placed within an easement held, if possible, by the City.

- **Action U-5.3:** *Streams identified as needing to be protected should be protected by the City.*
Ditches/streams that should be protected should be placed within some method of preservation such as a conservation easement or otherwise protected by a zoning overlay. Where possible, the City should oversee the tools used to protect the stream.

Objective U-6: Develop and implement regulations recommended in the Big Darby Accord Watershed Master Plan to help protect the Big Darby Watershed.

- **Action U-6.1:** *Ensure the recommendations of the next revisions of the utility master plans will improve water and sanitary sewer services to support the type and density of development called for in the Comprehensive Plan and the Big Darby Accord.*

- **Action U-6.2:** *Ensure local development in the Big Darby Focus Area includes an effort to improve both Hamilton and Clover Groff ditches.*
This should include the restoration of the riparian corridor along both channels. These projects should be designed to reasonably meet the objective of significantly improved water quality standards for the Big Darby watershed.



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