

CHAPTER 7 INFRASTRUCTURE

INTRODUCTION

This section surveys the condition of essential city infrastructure based on available resources. No primary data gathering was performed for the analysis. Recommendations are made regarding the city's transportation, sanitary sewer, and water systems to accommodate future growth. The condition, availability, and capacity of essential infrastructure is an important element that in part defines a community's quality of life and desirability as a location to establish a business facility.

TRANSPORTATION SYSTEM

An examination of the traffic patterns, access points, and conditions of the street network is an integral part of the Master Plan because land use and the street system are interdependent. For example, commercial uses generate high traffic volumes and numerous turning movements. As a result, commercial uses gravitate toward primary thoroughfares like Roosevelt Boulevard that have high traffic capacity. Industrial and warehousing operations generate heavy truck traffic. Office and industrial employment centers generate high peak-hour volumes and need convenient routes to expressways. Residents desire convenient access to work and shopping, but generally want safe, low-volume streets in their neighborhood.

A well-designed street system can safely accommodate a mix of traffic generated by each land use. This Master Plan proposes an improved road network to accommodate future residential and business growth, improving existing circulation patterns, and improving regional access and circulation to and within Middletown.

TRANSPORTATION PLAN

Planned improvements to existing roadway and proposed new roadway, and interchange locations are shown on Map 6 Transportation Plan. The Transportation Plan Map graphically summarizes most of the transportation improvements outlined in this section. Improvements to existing roadways are shown as solid lines; planned new roadways or extension of existing roadways is shown as dashed lines on Map 6.

- **Overview.** Middletown has a very good system of streets and highways connecting the City internally and to the greater region. The two major issues with this network are lack of proper maintenance and having one interstate interchange. On two different occasions fairly recently (1996 and 2004) a “street levy” was placed before the voters for an increase in Income Tax specifically for streets but each levy was defeated. The community needs to understand the relationship between proper roadway maintenance and costs. Deferred maintenance costs more money in the long run as costs go up exponentially the longer roads are allowed to degrade.
- **Interstate Access.** The City has shown two different potential new points of interstate access over the years but neither has been very aggressively pursued. One location is at Manchester Road and I-75 (this is also shown on the City of Franklin's present master plan) and the other location is at Greentree Road at I-75. Both of these potential interchange locations would enhance the City of Middletown's access and presence along the I-75 corridor.

An attempt was made in 2002 to add an interchange when the Middletown Regional Hospital was contemplating relocating to the Greentree Road area. But without the support of Warren County, Monroe or Turtlecreek Township, the TRAC committee (ODOT's prioritization body) turned down the application. This denial was given because there was neither consensus nor support from Middletown's neighbors. This sends a signal of the growing importance of having multi-jurisdictional cooperation for highway and other projects of a regional magnitude.

The three existing interchanges currently available to the City of Middletown have all had or are planned to have major safety and capacity upgrades. The S.R. 123 interchange just north in Franklin was recently improved. The southbound S.R. 122 off-ramp in Middletown was improved in 2002. The S.R. 63 and S.R. 122 interchanges are both scheduled for major upgrades in 2006 and 2007 respectively.

These improvements will increase access to Middletown. However, adding another interchange at Manchester and/or Greentree Road will further that access and visibility for the City. A new Manchester interchange would make the Miami University-Middletown Campus, the Downtown, Hook Field (local 6100' foot runway airport), the new Middletown Regional Hospital site as well as the cities of Franklin and Springboro and Warren County much more accessible.

An interchange at Greentree Road will increase the City's access to AK Steel and the Downtown as well as to the cities of Monroe, Trenton and Lebanon plus the fast growing Warren County. An interchange at Greentree Road will require the extension of either Breiel Boulevard or Oxford State Road to meet with Greentree Road. These 2 new interchanges need to be agreed upon and the alignments journalized before any more development in either area occurs. Development will only add to the difficulty in making them a reality and the cost of the projects for right of way prohibitive.

Making a new interstate interchange a reality is a long and arduous task. The sooner the groundwork is laid the better. At least 5 years and \$15 million would be required for a new interchange with both the time and cost ever increasing as more and more studies, reviews, approvals, etc., become necessary. A more realistic estimate would be 10 years and \$20 million. The biggest stumbling block to the success of building another interchange is political, not physical or monetary.

- ***Interchange Alternatives.*** An extension eastwardly of S.R. 73 from Cincinnati-Dayton Road and Riley Boulevard paralleling the creek and connecting to S.R. 123 just west of the existing I-75 interchange is shown on the City of Franklin's master plan. This extension would be very beneficial to Middletown especially if another interchange at Manchester never happens. This extension of S.R. 73 would provide a shorter and quicker access northbound I-75. Extending Yankee Road to the south to SR 63 would provide an additional means of interstate access to the I-75/SR 63 interchange.

- Improve Existing Roadways.** Another interstate access issue being addressed in phases is the “Parallel Roadway” system to I-75 using the Cincinnati-Dayton Road and the Union Road corridors. A cooperative improvement of Cincinnati-Dayton Road from S.R. 63 in Monroe to Oxford-State Road in Middletown was completed in 1998 widening the roadway from 2 to 5 lanes. The next section of Cincinnati-Dayton Road from Oxford State Road north to S.R. 122 in Middletown is currently being widened to 5 lanes, and will be completed the summer of 2005. The last three sections to the north are on the City of Middletown’s long-range plans with the portion from S.R. 122 to Central Avenue (Coles Road) scheduled for 2006. The plans are for a 3 lane section from S.R. 122 to Franklin. The last two sections from Central Avenue to the City of Franklin are almost entirely in unincorporated Warren County. Improvements for these sections will need to be coordinated with the City of Franklin and Warren County. Franklin also has the widening of Cincinnati-Dayton Road from Manchester north to S.R. 73 shown on their master plan but it also is not scheduled.



Cincinnati-Dayton Road widening project

Widening of Union Road (within the current Middletown limits) from just south of S.R. 122 northwardly, has been designed and ready for bids and should be improved in late 2005. The remaining sections to the south and north are again on the City’s long-range plan but no funding is available at present. Completing the Union Road “parallel roadway” will need to be coordinated with the Cities of Franklin and Monroe as well as Warren County, Franklin Township and Turtlecreek Township.

Warren County is currently upgrading the intersection of Union Road and Manchester Road. The Union and Hendrickson Road intersection has been designed but funding was eliminated in 2004. The intersection of Union Road and Greentree Road is on Warren County’s long-range plan but currently not scheduled. Warren County is also working preliminarily with ODOT on widening and upgrading S.R. 122 from Union Road east to at least S.R. 741.

The Trenton Bypass is another major roadway improvement that has been on ODOT and OKI’s long range plans for a number of years. Although none of the Trenton By-pass system is within the City of Middletown, it is important that Middletown understand the alignment and how it can positively affect the City. The upgrading of Yankee Road in Middletown and its extension south through Monroe to S.R. 63 will make the Trenton By-pass an even more important connector for the City of Middletown. Middletown should be a supporter of this project as well as any other local projects that positively impact the City.

- Extending Existing Roadways.** A few major new roadways need to be built over the next 10 years for continued traffic flow upgrades in the City. The first in the southwest section of the City is extending Yankee Road to S.R. 63. Although this section is in Monroe, it will greatly improve access to some of Middletown’s few remaining acres of commercially/industrially zoned greenfield areas. The portion of Yankee Road within the City needs to be upgraded substantially from the median divided section ending at Lafayette, south to Todhunter Road where it ends at the Monroe Corporation line.

Hendrickson Road is another roadway that needs to be extended. Extending Hendrickson to the west to intersect with Breiel Boulevard will add another secondary east-west connector in the City's growing east side. Needless to say, the existing section of Hendrickson Road needs to be upgraded substantially. This will take cooperation with the City of Monroe and Warren County as it should be widened to at least its intersection with Union Road east of I-75. Middletown must work with Monroe, Warren County and ODOT on the extension and widening of the Hendrickson Road bridge over I-75. A dedicated pedestrian path should be provided on the bridge as few pedestrian crossings are available across I-75.

The 1997 Master Plan Update identified a new major "loop" in the east end of the City (east of I-75). More recently the proposed alignment as shown has been cut in half by the recent residential subdivision underway. There is pressure from residential builders for build-out and an alignment journalized will be critical if this "loop" is ever to come to fruition. This will take cooperation with Warren County, Franklin and Monroe as well as Turtlecreek and Franklin Townships.

- ***Upgrades to Existing Roadways.*** Oxford State Road from S.R. 4 to just west of Breiel Boulevard has been shown on Middletown's master plans since the 1970's but most of this area has been outside the City limits until recently. A very small portion remains outside the City's control. Right-of-way acquisition will be difficult through the west half of this project as a number of older houses and small businesses have been built near the roadway. Two major rail lines cross this section of Oxford State Road representing a major expense for grade separation. This project, however, would present an alternative to the Trenton Bypass that would serve a similar purpose while yielding more direct improvements in access to Middletown.

Grade separations would be very beneficial to vehicular traffic and train traffic as well as emergency vehicle access. If and when High Speed Rail Service comes to Ohio, the Conrail Line (the one farther to the east) will have a grade separation built-in. This will be some time in the future, however, if at all. Improving this roadway section will be beneficial to several greenfield as well as brownfield sites within the City identified on the "Development Opportunities Map". As mentioned it will be one of the more difficult and expensive sections to upgrade.

The Downtown partial loop of Reinartz Boulevard (Columbia), Carmody Boulevard and Second Avenue should be revisited including the First-Second connector. This will be more important if and when High Speed Rail Service comes through Middletown. If existing rail lines are used, then this system will run through Middletown's downtown parallel to University Boulevard. Grade separation will be designed where possible. The First Avenue intersection with University has long had excess right-of-way set aside for an overpass with the rail line similar to the overpass at Reinartz Boulevard built in the late 1960's.

The Manchester and Central Avenue connectors with University Boulevard would become more secondary than they are today. However, in understanding that more traffic is desired on Central for business redevelopment, perhaps a possible overpass with Central should be considered instead. More right-of-way would be necessary but not impossible to acquire. First Avenue could be blocked off before University and a longer left-turn lane onto westbound Central Avenue from northbound University could also add to the activity of Central if an overpass never happens.

Grand Avenue from the split with Roosevelt Boulevard near Marshall Road should be evaluated for another major access to the Downtown. The majority is already a four-lane roadway section. The western connector with Central Avenue (which is actually Sutphin) could be widened to four lanes as well with a reconfiguration of the intersection with Central to favor Grand/Sutphin.

Extending Central Avenue east from its present terminus with Cincinnati-Dayton Road should be studied. An overpass crossing I-75 and connecting to Union Road would add another major east-west access through the entire City and improve access to the new Hospital for both the public and Middletown EMS vehicles. Extending Central Avenue would not be an easy extension because of the existing houses and fairly substantial ravine west of I-75.

- **Others:** Extending Marshall Road south to intersect with Lefferson/ Breiel Boulevard; upgrading Lefferson Road from Breiel Boulevard east to Cincinnati-Dayton Road; extending Riverview Drive east to connect with Cincinnati-Dayton Road; extending Miller Road east to connect with Decker Road (in Franklin); upgrading Columbia Avenue west of Main Street; upgrading Nelbar Street, upgrading Lafayette St. west of Verity; extending Rosedale to Cincinnati-Dayton Road; upgrading Highland Street south of Roosevelt; upgrading the Reinartz overpass over University Boulevard; connecting Jackson Lane south of Burbank and upgrading Carmody Boulevard east of Germantown Road are other roadways projects that are important locally for traffic flow.
- **Roads outside the City not previously mentioned.** Todhunter Road (Monroe); Greentree Road (Warren County); S.R. 122 east (Warren County); Manchester Road(Franklin and Warren County); S.R. 73 through Trenton or Trenton By-pass are all regional roadway improvements which Middletown should support both because of the benefit directly to the City of Middletown and to build strong relationships with neighbors. Coordinating with neighbors to have master plans for roadway systems align both from an access perspective and from a funding perspective will help speed up any funding and/or approvals from outside agencies. Competition for the limited outside and internal funds will be reduced.
- **Multi-Modal.** Another important factor for Middletown to keep in mind is its ability to leverage points added to federally-funded projects with ability to have multi-modal access. Middletown has a fixed route transit system, which is quite functional and economically viable. Federal dollars still are available for mass transit projects or for enhancing a roadway project to better accommodate mass transit. Middletown needs to be more active with OKI and ODOT in adding linkages with Warren County, Queen City Metro, Dayton Transit and even the smaller specialized transit services such as Senior Citizens.

Bike paths are another very good opportunity for advancing multi-modal efforts. Middletown has a very good path system through its downtown Smith Park as well as a 3-mile section along the Great Miami River to which it connects. Another section along the Great Miami River to the south is partially funded and planned for 2005. This is part of “The Great Connector” planned to eventually connect Dayton with Cincinnati. Franklin and Hamilton are both aggressively pursuing construction of their portions of this bike/ trail system for 2005. Additionally a bike path was built parallel to S. Verity Parkway in 2003 but connects to no other path at present. A path/trail around the ravine behind the new Middletown Hospital site northeast of 122 and Union Road has been shown for a number of years but never finalized. This should be brought into the overview of a community system. It is recommended that staff develop a master plan for its bike paths with the community. This could possibly allow the City to avail itself of more Federal dollars when a roadway project lines up with a future bike path section.

A third multi-modal opportunity that may eventually come to Middletown is High Speed or Light Rail service. This topic continues to be discussed by federal, state and local officials. The High Speed Service is proposed at present to use existing rail lines. The connector from Cincinnati to Dayton would go through downtown Middletown parallel to University Boulevard. If the Light

Rail System wins out, the present planned alignment is along the median of I-75, which will run through Middletown's east side. Trenton discusses the need to connect to this rail system in Middletown in their master plan. Monroe and Franklin are both on the alignment but neither currently is shown to have a destination stop. Middletown needs to be a more active participant in these discussions to make sure that politics do not relocate the final alignment away from Middletown. Further, Middletown needs to keep these two alignments in mind when considering any infrastructure improvements over the next 5-10 years.

SANITARY SEWER SYSTEM

- **Combined Sewers.** Middletown, being an older industrial city, still has combined sewers (i.e., sewers that carry both sanitary and storm water) that account for approximately one-third of the entire system. Many new lines have been built, particularly in the east end. However, most new sanitary lines flow into the combined system prior to reaching the Wastewater Treatment Plant at the southwest corner of the City. Nine overflows to the Great Miami River are spread along the main interceptor from Manchester Avenue south to Lafayette Avenue. Additionally, a 48” process sewer from AK Steel is interconnected to the City’s combined sewer in the Verity Parkway/Yankee Road area.
- **Long Term Control Plan.** A Long Term Control Plan (LTCP) has been developed (submitted but not yet approved), separately with Ohio Environmental Protection Agency’s (OEPA) guidance, that will mean millions of dollars in upgrades to the Middletown sewer system. The goal of OEPA is to greatly reduce the impact of the sewer overflows into the Great Miami River. OEPA was recently holding up permits for a proposed new residential subdivision that would add flow to the combined system until a final LTCP was at least preliminary approved or a separate study put together that could prove that no additional pollutants would potentially be added to the river. This development now has approval to proceed under the OEPA “approval credit program” which requires that they remove 5 times the amount of storm water in the system above the projected sanitary flow amount to be added by the development.

This LTCP may have a significant impact on future growth of the City as the existing relatively low sewer rates will have to be dramatically increased. An increase of as much as 60% has been projected for the next 10 years. The City does have a stepped rate system both for sewer and water users that greatly benefits larger users. This is very unusual today as most systems have either a flat rate or a stepped rate that discourages larger users, especially for water users. These reduced rates for larger users have had little impact in recent years as an economic development tool. A slow flattening of the sewer rates should be considered, especially in light of the dramatic sewer rate increases expected. A gradual flattening of the stepped rate system currently in place should also be considered to avoid financial hardship on existing large sewer users. Individual sewer agreements could be considered as an option with reduced rates given for “job credits”.

Another consideration for increasing rates would be to set up a split-rate system. A higher rate for those connecting to the main interceptor system (where all the overflows to the river are connected) and a lower rate for those connecting to the East Middletown system where no overflows exist. The legality and political fallout of this option would need further study.

- **Sanitary Sewer Planning Area.** In the mid-1970’s, EPA defined the areas that were to be eventually drained into the different jurisdictional wastewater treatment plants. These plans came to be known as “208” plans and have remained virtually unchanged for 30 years until recently. These planning areas were defined primarily by gravitational flow areas. A few thousand acres were removed from Middletown’s 208 system planning area at Warren County’s request in 2002 with the installation of a new sewer system for the previously unsewered Hunter area east of I-75. Four pump stations were required in this design to pump the sewage north to the Warren County / Franklin Wastewater Plant. Even though the City of Middletown’s “East Middletown” sewer system was sized for all of this area, taking away this entirely residential area will allow Middletown’s sewer system to potentially add several large sewer users in the undeveloped area in the I-75/122 area. The currently slightly oversized sewer also allows more margins for infiltration (groundwater getting into the sewer system) downstream before major or even minor

sewer backups might occur. The current excess capacity is not to say that any infiltration can or should be ignored. Transporting and treating clean ground water is never a sound economic business practice.

Another very large “208 Planning area” that has been shown since the 70’s is the huge unsewered, rural area west and northwest of the City, across the Great Miami River. Sewers will become a necessity as this area continues to develop. As this area would have to be served with a new dedicated sanitary sewer system, Middletown’s Treatment Plant capacity will be the limiting factor. Butler County also has a wastewater treatment plant farther south but also on the east side of the river and of much smaller capacity than Middletown’s. How best to serve this area west of the river with sewers will require a separate detailed study and service plan. Butler County and Middletown are currently looking into a joint system to sewer the Brown’s Run area of homes with a trunk sewer connecting into Middletown’s system at 9th Avenue after a new “Consolidation Sewer” is in place as per the LTCP. The Wastewater Treatment Plant has a design capacity of 26 MGD for dry weather flow and 48 MGD for wet weather flow. The average daily flow is 14 MGD.

- **Pump Stations.** The sewer system presently has six sanitary and two stormwater pump stations. Two sanitary pump stations were recently eliminated (2001) with the extension of sewers to and under I-75 at S.R. 122.

Another lift station (Mayfield) is under design to be replaced by a gravity system in 2005. There are no known hindrances to service or expansion of service caused by any of these stations. Telemetry has been added to all the lift stations with monitoring at the City’s Wastewater Plant. Other than adding back-up power and security, these pump stations can continue until such time as an economically feasible gravity system can be installed. The existing condition of each station, it’s life expectancy, operating and maintenance costs and cost to extend a gravity system have to be investigated on a site by site basis.

- **Sewer System Service Expansion.** All of the areas identified on the “Development Opportunity Map” as greenfield properties have existing sewers of sufficient capacity within a few thousand feet at most. This is predicated on future development in line with planned usage and normal sewer demands. Any exceptionally large sewer use will have to be explored in detail and a possible “express sewer” or equalization or “holding” system might need to be incorporated. However, treatment plant capacity and sewer capacity exist for build-out of the entire I-75/122 growth area, as well as other greenfield sites.
- **Brownfield Sites.** A number of older unused or underused industrial, commercial and residential sites have also been identified on the “Development Opportunities Map”. All of these sites except for the Aeronca and Crystal Tissue sites have existing sanitary sewer service. The mobile home park located in the northwest area of the City between North SR 4 and North SR 73 has a pump station; however, the capacity designed for the more than 200 homes should be more than sufficient for most any replacement usage if and when this property is redeveloped.

Gravity sewers to serve both the Aeronca and Crystal Tissue/Midd-Cities sites have been preliminarily designed and both are certainly feasible and not cost prohibitive.

For the other brownfield sites with existing sewers, a maximum available sewer capacity could be assigned to each of these redevelopment sites based on existing sanitary sewers to each. The Planning and Engineering Departments might consider assembling a plan for each redevelopment

site showing existing utilities to the site, capacities of each on-site city utility, as well as nearby services such as fiber-optic system, gas, etc.

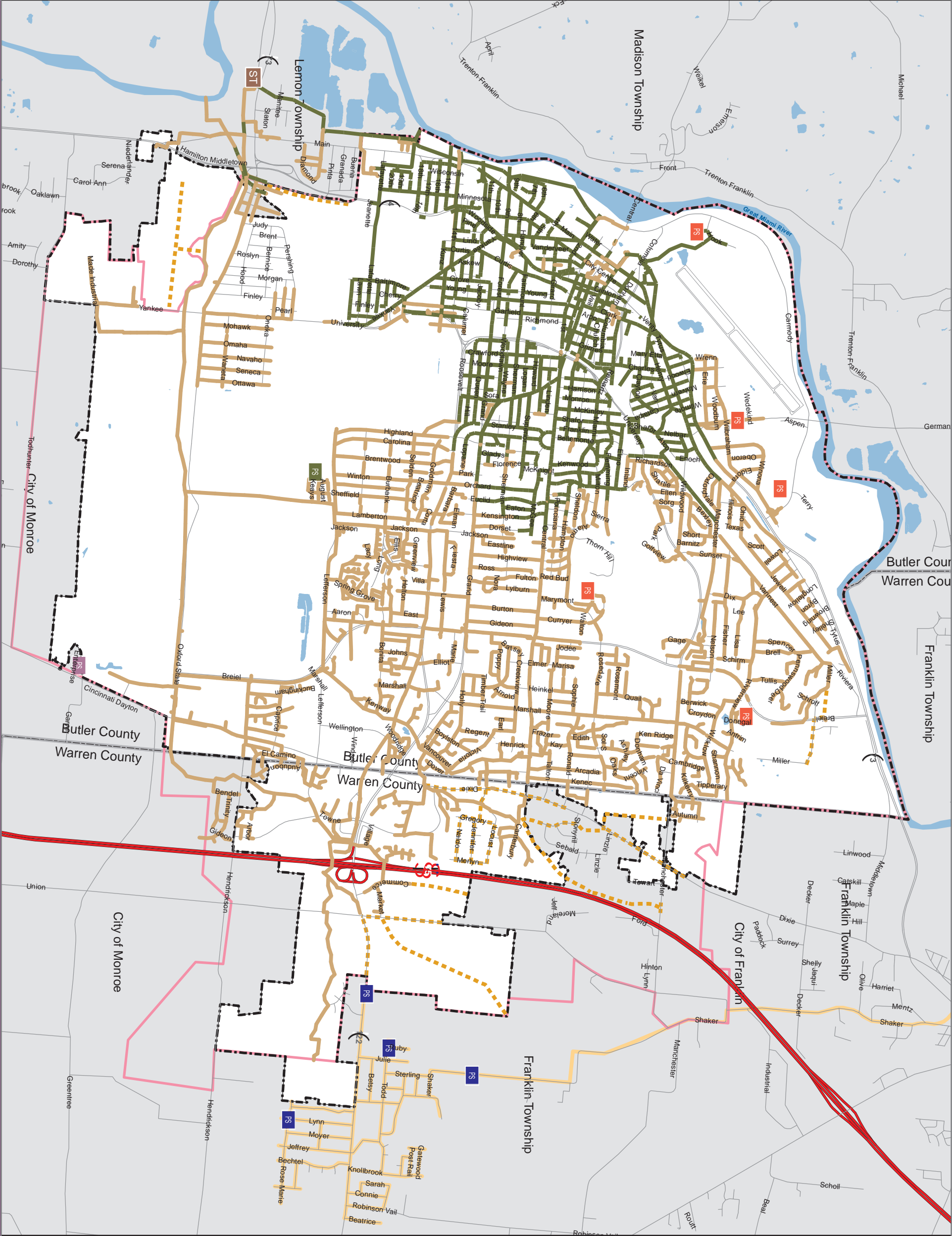
As a reminder, any of these sites whose sewer flows to the main interceptor sewer may require an additional study or even face a moratorium until such time as OEPA has, at least, a preliminarily approved Long Term Control Plan (LTCP) for the City's sewer system.

- **System Improvements.** A number of system improvements were outlined in a Sewer System Plan prepared for the City in 1996. A number of those improvements have been made, a few more are in the planning stages, a few remain unresolved, some no longer are an issue and a few new items need to be added. Most of these amendments have been made as part of the application for the LTCP approvals from EPA.

Relief sewers and other large, downtown sewers were all installed in the 1950's and earlier. Their condition needs to be carefully analyzed for rehabilitation, relining or possible replacement. A problem with any of these large sewers would be very catastrophic for areas upstream.

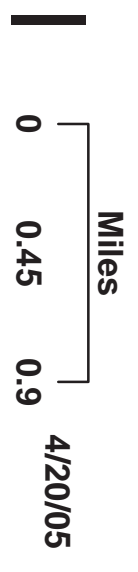
The East Middletown Sewer appears to have only two existing areas in need of upgrades at this time. The first pipe section immediately east of the Wastewater Plant and three sections just a little south of Hendrickson Road could present flow restrictions as the system approaches build-out. A plan for replacement, realignment or relining needs to be added into the City's 5-year CIP.

A major sanitary sewer extension (East Middletown) was built in the late 60's and early 70's from the Wastewater Treatment Plant to serve future projected growth areas to the then mostly unincorporated area along I-75. This system also replaced an old Butler County primary treatment facility which served the Amanda/Oneida area, as well as providing for AK Steel (then Armco) expansion.



Legend

- City Boundary
- County Line
- Middletown Service Area
- Sewer Type**
 - Existing Combined
 - Existing Sanitary
 - Proposed
 - Existing Warren County
- Sewer Treatment Facility**
 - Sewer Treatment Facility
 - Butler County/Monroe Pump Station
 - Pump Station Sanitary
 - Pump Station Storm
 - Warren County Pump Station
- Street
- Interstate



4/20/05

STORM SEWER SYSTEM

Little time will be spent discussing the City's storm sewer system as this system is substantially newer and less extensive than any of the other major infrastructure systems. The major problems with the storm sewers are in the "combined sewers" and these issues have been discussed in the previous section. The City does have a number of areas in the community which experience flooding either overland or in sewer backups. Most of the overland flooding is due to inadequately sized or maintained swales and creeks. There are also a few areas of poorly graded sites where very localized flooding occurs. The majority of sewer backups in basements are located in the combined sewer areas. The City initiated a Backflow Prevention Program a few years ago that has eliminated a number of those individual issues.

Several reports have been prepared by the City's engineering staff in recent years and solutions have readily been identified. A Stormwater Utility was proposed several times as the means to fund the improvements identified. In late 2003 a Utility study was authorized with a citizen's committee overview. This report with recommendations was presented to City Council in 2004 but unfortunately no action was taken to implement the plans "action steps". Numerous other funding needs outweigh the storm needs at present with the City.

There are a few of the older storm sewers that are beginning to show signs of deterioration. And, although not as serious as the combined or sanitary sewers, they should be addressed. These storm sewers need to be video taped, catalogued and prioritized as have most of the other types of sewers. The City has its own video equipment as well as sewer cleaning equipment, which is a real plus.

WATER SYSTEM

Much like the sewer system, the water system is well laid out and serves all of the community. The biggest problems with the water system are age and size of much of the Downtown system. Many of these mains were installed in the early part of the 20th century without much planning for the vast growth eastwardly Middletown would experience in the mid to late 1900's. Several large transmission mains were built during these growth periods extending from the Water Treatment Plant located at the City's western edge to the east. However, a number of mains in downtown are undersized for today's demands. These limit both pressure and supply for several sections of the older community.

A number of the brownfield sites for commercial and industrial re-development are located in the downtown area. Another problem with an older water distribution system is an inordinately high number of watermain breaks each year. City employees are well trained and handle the breaks most efficiently. However, as more breaks occur and OEPA becomes increasingly strict on the issuance of "boil advisories", the business community as well as the residential users is more and more inconvenienced. A plan to reline or replace these older watermains systematically should be investigated.

The water treatment plant is of adequate capacity for a substantial amount of growth before any major expenditure would need to be made. The average daily flow is 8-9 MGD while the plant is designed for 20 MGD and the wellfield can supply 23 MGD. Additional lands for new wells may need to be considered before others acquire them and development occurs or possible conflicting wells pop up. This will only be more difficult to achieve in the future. OEPA may be helpful here in acknowledging Middletown's wellfield drawdown limits and its wellfield protection zone as well.

Another need is in replacing or by-passing a number of larger Downtown isolation valves. This has been on the City's scope for a number of years. It needs to be a higher priority to prevent potential major problems with any main break in the Downtown area.

There are expected to be a number of significant leaks in the downtown as this area has granular sub-grade and leaks can go largely undetected. A major leak testing is recommended for this area. A few tests were performed several years ago but never completed.

Several larger water users have their own well such as AK Steel, Bay West, Smurfit Paper, Crystal Tissue even though Middletown has a very stepped rate structure favoring larger users. Bay West is the only system, however, that is close to the City's system. It does not conflict presently with the City's drawdown.

A few water supply loops need to be completed to help the overall system. The most obvious loops are: the section of Oxford State Rd between Yankee Road and Breiel Boulevard; Riviera Drive east to the City corporation line; Carmody Boulevard to 2nd Street; and S. Main Street to the City of Monroe system (now supplied from Middletown's Yankee Road Tank).

- **Growth East.** There are 3 ways to provide for growth to the east of I-75.
 1. Warren County can expand their existing water service system.
 2. Middletown can take over the western portion of the Warren County system and expand.
 3. Middletown can build a parallel system.

Each alternative has its own city of opportunities and constraints that must be thought out more clearly before a decision is made. Expanding water service beyond I-75 by the City of Middletown will necessitate creating a 4th pressure district requiring extra storage and pumping stations for Middletown.

In reviewing the FPS 2001 report "*Plan for Water Service to Area East of I-75*", the overview is that growth in the area will be gradual and expansion to provide adequate water supply can be very gradual as well. Their plan also shows how any water extensions can follow the growth pattern in their flexibility. Their assessment of "build-out" needs will cost approximately \$17 million but should be able to be paid by tap fees alone from future users.

If Middletown were to expand across I-75 instead of allowing Warren County to supply the water, additional storage and pumping will also have to added at the Kensington Reservoir site. Capacity of the transmission mains should be investigated as well.

Financing: Like the Sewer System, Middletown's Water System is set up as an Enterprise Fund and as such can and does generate it's own revenues since rates can be adjusted by City Council without a vote of the public. By law these 2 funds must remain self-sufficient and pay for themselves.

In reviewing the latest City of Englewood Rate Survey for southwest Ohio, Middletown is in the lower end of the rates at 27th of the 70 cities and systems reporting for their water rates. Their combined rate for water and sewer puts them 13th of 65 systems that provide both water and sewer.

Unlike sewer rates however, there is no huge increase for Middletown's water rates forecast. Continued expansion, replacements, maintenance, etc., should be able to be funded with basically only cost of living increases for the near term.

- **Other Water Systems.** Warren County/Franklin-A new joint water treatment plant was built in 1998 with a capacity of 2.3 MGD and a wellfield capacity of 6.3 MGD. This plant is located just beyond the northeast corner of the City of Middletown on the Great Miami River.

There is an existing water treatment plant on the south side of Greentree Road just east of I-75. This is an older plant on the Dick's Creek leg of the Great Miami Aquifer and is slowly but surely being overused as a water source. Warren County has discussed abandoning this plant in the near future. The Warren County system is tied into the Middletown system on Manchester Road west of Cincinnati Dayton Road.

Monroe's water treatment plant is just south of Warren County's on the same Dick's Creek branch of the Great Miami Aquifer and as stated above is being slowly drawn down. Monroe has been looking for new well fields to the west of town along the Great Miami River. Middletown took over supplying water to the northwest section of Monroe in 1999 with a new joint 1.5 million gallon water tank just north of Todhunter Rd west of Yankee Road This has helped Monroe keep up with supply and pressure for the rest of Monroe. There is also a Monroe system tie-in with the Middletown system on Cincinnati-Dayton Road just south of Greentree Road

Trenton is in the planning stages of building a new water treatment plant to replace their existing "pump and chlorinate" plant. There is no tie-in to either Middletown's system or South West Rural Water's systems although either could be easily made.

South West Regional Water gained ownership of the water system for parts of Madison and Wayne Townships (formerly provided under contract by Middletown) from Butler County in the late 1990's. They have added several sections to this system and the connection near the Great Miami River with Middletown's system is still maintained as back up.

- **Capacity for Greenfield and Brownfield Development.** Planned residential areas identified in Chapter 8 Future Land Use are all accessible to sufficient water supply. Sites-The area between S.R. 4 and Yankee Road and south of Oxford State Road have inadequate water service for commercial and industrial growth. It would appear that Middletown can best service this area with water, but Middletown needs to work with Monroe to plan for this area.

The area on the west side of Cincinnati-Dayton Road south of Oxford State Road also has inadequate water service for growth. Again, Middletown should work cooperatively with Monroe for a solution.

As mentioned previously, the major problems in the Downtown are due to the smaller, older mains that were built in the early 1900's. Larger lines, replacing or by-passing non functioning isolations valves and leak testing need to be priorities. A loop for the Reinartz-Carmody-Second Avenue area should be considered as well as total replacement of the entire spiral-welded steel pipe installed in the 50's and 60's. The City has a good inventory of their locations.

Old School sites identified may present water service needs depending on their future use. The City should get with the school system and find out their intended use. At present it appears that no extraordinarily large water user would go in at any old school site.

Oxford State Road between Yankee and Breiel Boulevard needs to be connected to eliminate the two dead-ends that exist there now.

The east end is the largest area for expansion if in fact the City and Warren County decide that Middletown will supply water for this relatively open area. Any expansion, however, can be phased in as development comes in accordance with the 1997 plan the City has on file. Whatever solution is chosen to provide for this future growth area, a new service agreement(s) needs to be developed with Warren County. All service agreements with Warren County have expired.



INFRASTRUCTURE OBJECTIVES AND STRATEGIES

OBJECTIVE I 1: Adapt water, sewer, roads, and communications infrastructure to meet modern needs and standards.

ISSUE: Certain elements of the infrastructure need modernization before underutilized sites can be marked for development.

I 1.1 Prepare water and sewer master plans. Plan for phased replacement in areas where existing infrastructure is old or outdated or is undersized to accommodate new growth and/or redevelopment.

1.1.1. Assess the condition of water and sanitary sewer lines in conjunction with redevelopment projects and replace/upgrade as needed to enhance project viability.

1.1.2. Compile utility service level information as a part of inventory of redevelopment sites discussed in Chapter 4 Redevelopment.

I 1.2 Eliminate combined storm sewer overflows. Create and implement a plan to address this issue before heavy fines are imposed and EPA mandates preclude new development.

1.2.1. Adjust sewer rates to a more flattened rate structure as a partial means of financing improvements.

I 1.3 Create new gateways. Plan new interchanges and alternative means of improved interstate access to enhance access to downtown, brownfield properties, and existing industrial parks.

1.3.1. Prepare Interchange Justification Study (IJS) for new interchange at I-75 and Greentree Tree Road and get project on OKI's Long Range Transportation Improvement Plan.

1.3.2. Widen and extend Yankee Road south to SR 63 to connect to the I-75/SR63 interchange.

1.3.3. Create connector road between SR 73 and SR 123 starting at Cincinnati-Dayton Road to provide quicker access to downtown, Hook Field Municipal Airport, and Miami University at Middletown via the I-75/SR 123 interchange

1.3.4. Create regional parallel roadway system to I-75 by improving Union Road and Cincinnati Dayton Road to modern primary thoroughfare standards.

1.3.5. Widen Oxford State Road from Breiel Boulevard to SR 73.

I 1.4 Improve or extend existing roadways to improve local circulation.

1.4.1. Widen Hendrickson Road and bridge spanning I-75

1.4.2. Extend Hendrickson Road west to Breiel Boulevard.

1.4.3. Get approval and construct new Central Avenue bridge over I-75 to connect to Union Road.

1.4.4. Improve efficiency of Grand, Sutphin, Central as a viable downtown route.

1.4.5. Implement other improvements as identified on Transportation Plan.

I 1.5 Advocate for a high-speed rail station in Middletown as a part of the long-range statewide plan developed by the Ohio Rail Development Commission.

- 1.5.1. Leverage high-speed rail as a tool for economic development and community revitalization.
- I 1.6 Encourage high speed communications infrastructure.** Middletown businesses, schools, and homes must have high speed internet access to compete in the New Economy.
- 1.6.1. Review Right-of-Way Ordinances. Update the City’s right-of-way ordinances permitting private sector investment in broadband cable or fiber optics in the City.
 - 1.6.2. Develop Communication Infrastructure Specifications and Guidelines. Create communication technology standards, similar to civil engineering standards, to have consistent and uniform product when developers and communications carriers design and build communication infrastructure.
 - 1.6.3. Install Communication Conduit Infrastructure. Require new development or redevelopment to include conduit and hand holes for the installation of fiber optics. This will save time and money and prevent disruptive construction projects when broadband cable or fiber optics are installed later.
- I 1.7 Prepare technology capital improvement and financing plan.** Set priorities for communication and technology capital improvement projects. The capital improvements should be linked to a technology plan and financing strategy. Assess options and consider forming a public-private partnership that could help defray the costs of implementing a telecommunications infrastructure system in the City. Funding options, including grants, are available and should be considered.
- 1.7.1. Technology subcommittee. Create a technology subcommittee of Council to consider needs and make recommendations.
 - 1.7.2. Technology Needs Assessment. Determine the city’s position in the New Economy from a technology perspective. Inventory existing infrastructure and prepare recommendations to upgrade the City’s communication technology. Needs should be based on expert opinion and interviews with industry, business, school and community leaders and residents.
 - 1.7.3. Close the Digital Divide. Technology is quickly becoming the main gap between the “haves” and the “haves not” in American society. Close the digital divide by providing the “last mile” in neighborhoods and business clusters where high- speed internet access is not available.
- I 1.8 Continue the creation of a stormwater utility to address Phase II stormwater requirements.**
- 1.8.1. Develop a Best Management Practices manual. Examples include stream restoration, natural swales, porous pavement, and green building design, etc.
 - 1.8.2. Reduce utility rates for development that incorporate best practices in site design.