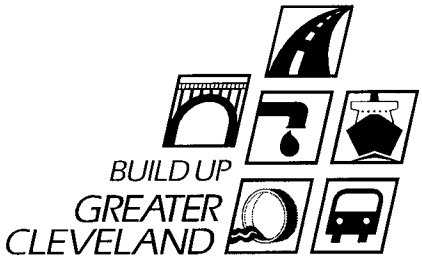

MUNICIPAL WATER RESOURCES INFRASTRUCTURE SURVEY REPORT

DECEMBER 2003

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Executive Summary

In 2003 Build Up Greater Cleveland (BUGC) elected to obtain improved insight into the amount of **local** (city/village/township) **funds** being planned to be spent annually to maintain and enhance all existing local water resources infrastructure systems (sewer and water) in Cuyahoga County. This information is important to BUGC to facilitate federal and state advocacy initiatives focused on generating additional infrastructure funds for local governments. BUGC was primarily interested in obtaining information on planned water resources infrastructure capital investments for the next five years (2003-2007). In addition, BUGC desired base-line data needed to establish the extent of the water resources inventory in Cuyahoga County.

With the support and encouragement of the Cuyahoga County Mayors and Managers Association, BUGC developed and sent a "Water Resources Infrastructure Survey" to all the mayors and/or city managers in Cuyahoga County with a courtesy copy to each municipality's engineer.

The response to the request for information was outstanding. Almost all the cities responded. The final results represent 99.5% of the year 2000 census population of the municipalities in Cuyahoga County.

Planned Water Resources Infrastructure Expenditures (2003-2007)

For the five-year period 2003 through 2007, the municipalities in Cuyahoga County plan to spend more than $988 million, or approximately $200 million a year, on water resources infrastructure systems (replacement, rehabilitation, major repair and new projects.)

Although BUGC envisioned that the planned investment information provided by municipalities would reflect a recognition of the actual funding <u>needed</u> to adequately maintain, preserve and upgrade the water resources infrastructure in each community, it soon became clear that the information provided, in most instances, reflected an estimate of the amount of funding that was envisioned to be <u>available</u> over the next five year. Hence, there are undoubtedly more unmet needs to discover, either by a systematic investigation or by unanticipated failures of parts of the water resources infrastructure systems. Furthermore, BUGC believes that these planned funding investments do not adequately reflect future "needs" associated with recently promulgated federal Phase 2 storm water management mandates.

Local Funding Sources

The City of Cleveland funds all water resources projects with local user fees. Excluding the City of Cleveland, **suburban municipalities** plan to spend approximately $353 million over the five-year period, of which 84% will be local funds or $300 million. This is approximately $60 million per year. Most of the non-local funding sources are envisioned to be derived from grant applications for Ohio Issue 2 funds.

Average annual suburban municipal water resources infrastructure investments of $71 million are distributed as follows:

Replacement:	$31 million
Rehabilitation:	$20 million
Major Repair:	$6 million
New Project:	$14 million

Infrastructure Inventory and Asset Valuation

Underneath the surface of Cuyahoga County, municipalities have constructed more than 72 million feet of water resources infrastructure. The replacement value of these capital assets, almost 14,000 miles, is estimated at $8.7 billion.

Funding Shortfall Analysis

Based on an analysis conducted by BUGC, the following annual funding shortfalls were estimated for adequately maintaining existing municipal water resources systems in Cuyahoga County:

Suburban Sewer Systems:	$12 million
Cleveland Sewer Systems:	$27 million
County (City & Suburban) Water Distribution Systems	$10 million

It must be emphasized that these shortfall estimates do not include any additional investments that may be required in the future to meet recently promulgated federal Phase 2 storm water management mandates.

Hence, BUGC estimates that municipalities in Cuyahoga County should be investing at least $50 million more annually (about 25% more) to properly maintain and preserve existing municipal water resources infrastructure.

GASB 34 Status

Only nineteen (19) of the suburban municipalities have completed the accounting recommendations of Statement 34 of the Government Accounting Standards Board (GASB) process and were able to provide "book" valuations.

Most of the rest of the respondents report that they are in the process of implementing a GASB 34 inventory valuation.

Conclusions

The continued heavy reliance on user fees to adequately preserve existing municipal water resources systems and to meet known and emerging federal water quality mandates is not sustainable. New funding partnerships with applicable federal and state agencies are needed to meet desired regional water quality goals. Existing low interest federal and state loan programs are helpful, but this funding source still relies on user fees to pay back the loans. What is needed is a return to the federal water-related grant program that existed in the 1980's to help municipalities meet current unfunded mandates to improve water quality at the local level. Everyone wants improved water quality and safe drinking water. However, this is an unrealistic goal if it is to be achieved by constantly raising user fees.

Introduction

In 2003 Build Up Greater Cleveland (BUGC) elected to obtain insights into five issues dealing with existing and planned local municipal water resources infrastructure systems (sewer and water) in Cuyahoga County:

- Quantify the anticipated current levels of infrastructure **investment** planned by Cuyahoga County municipalities for the five-year period 2003-2007 related to the replacement, rehabilitation, major repairs, and/or additions of water and sewer systems.
- Identify the anticipated annual amount of this investment that is projected to be municipal funds, (i.e., supported with **local user fees),** to maintain and enhance these water resources infrastructure assets.
- **Inventory** the amount (in lineal feet) of municipal water resources infrastructure systems in Cuyahoga County and their estimated replacement value.
- Using a "valuation" process, determine what an **optimum** annual investment in water resources infrastructure in Cuyahoga County should be!
- Identify the current status of municipalities complying with the Government Accounting Standards Board (**GASB**) 34 process.

These data were not readily retrievable from current databases. The Ohio Public Works Commission (OPWC) collects similar information annually, for the Issue 2 Program, but without an indication of how much of the planned infrastructure spending will come from investments of **local funds**. Furthermore, OPWC only has data for the year in which municipalities request OPWC funding.

Information about the amount of **local funds** invested in water resources infrastructure systems is important to BUGC to facilitate federal and state advocacy initiatives focused on generating additional infrastructure funds for local governments.

BUGC contacted the Cuyahoga County Mayors and Managers Association to discuss how best to obtain the insights described above for municipal water resources infrastructure systems. Association members supported and encouraged the idea of a countywide survey.

BUGC developed the "Water Resources Infrastructure Survey" that is included as **Appendix A**. The survey requested that each municipality provide a funding breakdown of planned expenditures over the next five-year period (2003-2007), on a project-by-project basis. The survey also requested the municipality's baseline information of the amount of lineal feet (LF) of each type of water resources infrastructure system together with an estimate

of the current replacement value of each infrastructure system. The financial "book" value of each infrastructure system was requested from those municipalities electing to comply with the GASB Statement 34 (GASB 34), adopted in June 1999.

The survey was mailed to all Cuyahoga County municipalities in May 2003 with a requested response during June 2003. To help expedite the response, BUGC sent a courtesy copy of the survey to each municipal engineer. In most instances, a municipality's finance department, service/engineering department and engineering consultants had to work together to complete the survey. With repeated follow-up telephone calls, almost all the requested survey data were received in November 2003.

Much of the information requested by the survey was not readily available to the municipalities and required work to collate and report accurately. Some municipalities had no internal information and referred BUGC directly to their consultant engineer for answers. Often, the only information available was the five-year plans sent to OPWC (as part of an Issue 2 application) that required pre-editing and estimating before using in this report. Furthermore, many surveys received by BUGC needed to be reviewed and re-confirmed with the person filling out the form to verify the accuracy of the information.

BUGC issued one written follow-up letter to the municipalities that had not yet responded and whose mayor had not yet decided to authorize the city's consulting engineer to spend the time to prepare the survey data. The letter acknowledged that some municipalities might not have had the financial resources to complete the report.

Originally, BUGC did not anticipate getting a large segment of the municipalities to respond to the survey. To our pleasant surprise, all of the municipalities wanted to be included in this survey, as long as BUGC could be patient in the time allowed to complete the survey. It was decided to be patient and allow all the time needed to fill out the form correctly. Only one municipality is not represented in this survey.

With the pending implementation by municipalities of the financial accounting requirements outlined in GASB 34, the results of this survey could also serve as *the* summary baseline for future financial comparisons of Cuyahoga County's water resources infrastructure assets.

GASB 34 provides the following relevant definitions:

- *Infrastructure assets* are long-lived capital assets that normally are stationary in nature and normally can be preserved for a significantly greater number of years than most capital assets. Examples of

infrastructure assets include roads, bridges, tunnels, drainage systems, water and sewer systems, dams, and lighting systems.[1]

- *Maintenance costs* allow an asset to continue to be used during its originally established useful life. Maintenance costs are expensed in the period incurred, regardless of the method of accounting for the asset.[2]
- *Preservation costs* extend the useful life of an asset beyond its previously established useful life. Preservation costs generally are considered to be those outlays that extend the useful life of an asset beyond its original estimated useful life, but do not increase the capacity or efficiency of the asset. Preservation costs are capitalized and depreciated if the asset is accounted for using traditional depreciation, but are expensed in the period incurred if the asset is accounted for using the modified approach.[3]
- *Additions and improvements* to existing infrastructure assets are capitalized regardless of the method of accounting for the asset.

Conforming to the GASB 34 definitions, respondents were requested to differentiate among the various reasons for implementing their planned projects: replacement, rehabilitation, major repair, new project or an "asset management system" support project, as defined by the responding municipality. GASB 34 encourages municipalities to consider their built infrastructure as major municipality assets and to take steps to manage those assets using modern computer-based systems. BUGC also wished to determine which municipalities, if any, were planning to implement such systems.

The remainder of this report is separated into six sections:

- Planned Water Resources Infrastructure Expenditures (2003-2007);
- Local Funding Sources;
- Infrastructure Inventory and Asset Valuation;
- Funding Shortfall Analysis;
- GASB 34 Status; and
- Conclusions

[1] GASB 34 Implementation Guide [2000], p.74
[2] GASB 34 Implementation Guide [2000], p.14
[3] GASB 34 Implementation Guide [2000], p.75

Planned Water Resources Infrastructure Expenditures (2003-2007)

Respondents were asked to provide information on all major water resources infrastructure assets: storm water sewer systems, sanitary sewer systems (including pump stations), combined sewer systems (if applicable), water distribution systems, and open channels (creeks or ditches). Preliminary information about the infrastructure assets of engineered ditches and modified creeks has hitherto not been tabulated. (See Table 2.) BUGC was uncertain what data were available to describe the water resources assets.

For the five-year period 2003 through 2007, the municipalities in Cuyahoga County plan to spend more than $988 million, or approximately $200 million a year, on water resources infrastructure. As shown in detail on **Table B-1** in **Appendix B,** during the next five years Cuyahoga County's major municipal water resources systems will be enhanced with the following investment amounts:

Infrastructure	Cleveland	Suburbs	TOTAL
Storm Water Sewer	$2.6 million	$118.2 million	**$120.8 million**
Sanitary Sewer	$6.9 million	$143.4 million	**$150.3 million**
Water Distribution	$602.3 million	$87.7 million	**$690.0 million**
Combined Sewer	$15.2 million	$3.7 million	**$18.8 million**
Other Support Projects	$7.7 million		**$7.7 million**
Totals	**$634.6 million**	**$352.9 million**	**$987.6 million**

Excluding the City of Cleveland, suburban municipalities plan to spend almost $353 million of which 84% will be local funds or $300 million. This is $60 million per year.

Of the total amount, **local** taxpayers are projected to pay $930 million (94%) through their **local** taxes and user fees, which equates to approximately $186 million annually. County, state and federal funds are projected to make up the balance.

During the next five years, in conformance with the GASB 34 definitions, and as shown on **Table B-2** in **Appendix B**, the total municipal water resources infrastructure investment of $988 million will be distributed as follows:

Replacement:	$207 million
Rehabilitation:	$185 million
Major Repair:	$410 million
New Projects:	$69 million
Asset Management Projects:	$117 million

More detailed breakdowns of this information are shown in **Table 1**. The survey category of an "Asset Management Project" was included to track whether municipalities are planning to invest in computer hardware and software systems to track their inventory of infrastructure assets. BUGC found that only the City of Cleveland has plans to use computer technology to identify, inventory and evaluate their water resources infrastructure systems. Four municipalities[4] have included projects for "Engineering Management" of the federal Phase 2 storm water management program.

Although BUGC envisioned that the planned investment information provided by municipalities would reflect a recognition of the actual funding needed to adequately maintain, preserve and upgrade the water resources infrastructure in each community, it soon became clear that the information provided, in most instances, reflected an estimate of the amount of funding that was envisioned to be available over the next five year. Hence, there are undoubtedly more unmet needs to discover, either by a systematic investigation or by unanticipated failures of parts of the water resources infrastructure systems. Furthermore, BUGC believes that these planned funding investments do not adequately reflect future "needs" associated with recently promulgated federal Phase 2 storm water management mandates.

The City of Cleveland has elected not to apply for external funding for its water resources infrastructure projects and, therefore, depends exclusively on local user fees to finance its projects.

Most of the suburban municipal respondents provided the source breakdown of their future water resources infrastructure investments. Some municipalities indicated *construction costs* only in their listing; hence, engineering and administration costs may not have been included. Usually both of these expenditures are paid for with **local** funds. Therefore, the five-year amounts listed should be considered as conservative.

Municipal decisions related to some projects planned for later in the five-year period have not yet been made, relative to applying for federal, state or county support. In such cases, municipalities often show 100 percent as the **local** contribution. This implies that the local suburban calculated contribution of 84% may be slightly overestimated. (See **Table 2**.)

[4] Brecksville, Brooklyn, Richmond Heights and Warrensville Heights

Six municipalities[5] did not report any projects related to their water distribution infrastructure. This fact helped BUGC to understand and highlight the four methods by which drinking water is supplied to the residents of Cuyahoga County:

- The City of Berea is a "stand-alone" municipality with respect to water distribution projects. Berea has chosen to be responsible for all aspects of providing the operating, capital and maintenance funding for its water distribution projects.
- The six municipalities previously identified have a contractual arrangement with the City of Cleveland's Water Department for the Department to provide all required water distribution services to these municipalities. BUGC calls these "integrated" municipalities.
- Forty-four (44) municipalities in Cuyahoga County are "direct service" municipalities whereby the Water Department and the municipalities "share" in the on-going maintenance and rehabilitation of their existing water distribution infrastructure assets. Essentially, the Water Department is responsible, by contract, for the main "trunk" lines, greater than 16" in diameter, and the municipality itself is responsible for all other water distribution infrastructure assets.
- Five municipalities[6] are "master meter" municipalities, which buy bulk wholesale water from the Water Department, and resell the water to their residents. Master meter municipalities are responsible for the maintenance and rehabilitation of all their water distribution infrastructure assets.

This 2003 Survey did not request information regarding possible projects dealing with open channel storm water flow. BUGC assumed that any such "ditch projects" would be maintenance projects handled as part of the daily operations of a municipality's service department. Any short length culverts to handle storm water are assumed to be part of a street or road project and, therefore, not identified as separate projects.

[5] Bay Village, Broadview Heights, Fairview Park, North Olmsted, Olmstead Falls, Strongsville
[6] Bedford, Chagrin Falls, Cleveland Heights, East Cleveland, Lakewood

Cuyahoga County (including Cleveland)

Project Type (and Code)	Storm Water Sewer	Sanitary Sewer	Combined Sewer	Water	Other Support Projects	Grand TOTAL
Replacement	$50,310	$59,847	$13,400	$83,141		**$206,698**
Rehabilitation	$36,441	$37,812	$1,902	$108,687		**$184,841**
Major Repair	$11,888	$8,800	$3,000	$385,955		**$409,643**
New Project	$19,628	$43,832		$5,259		**$69,219**
Asset Management	$2,500	$0		$106,963	$7,690	**$117,153**
Totals	**$120,767**	**$150,291**	**$18,802**	**$690,005**	**$7,690**	**$987,554**
To be paid with LOCAL FUNDS	**$96,250**	**$131,392**	**$17,451**	**$677,219**	**$7,690**	**$930,002**
						94.2%

Note: All amounts in $1000

Sum of Estimated Costs of Projects Planned: FY's 2003-2007

All Suburbs (excludes Cleveland)

Project Type (and Code)	Storm Water Sewer	Sanitary Sewer	Combined Sewer	Water	Other Support Projects	Grand TOTAL
Replacement	$48,210	$52,947		$54,325		**$155,482**
Rehabilitation	$36,441	$37,812	$1,902	$21,687		**$97,841**
Major Repair	$11,888	$8,800	$1,250	$6,442		**$28,380**
New Project	$19,628	$43,832		$5,259		**$69,219**
Asset Management	$2,000	$0				**$2,000**
Totals	**$118,167**	**$143,391**	**$3,652**	**$87,713**		**$352,922**
To be paid with LOCAL FUNDS	**$93,650**	**$124,492**	**$2,301**	**$74,927**		**$295,370**
						83.7%

Note: All amounts in $1000

Sum of Estimated Costs of Projects Planned: FY's 2003-2007

TABLE 1

Local Funding Sources

In response to follow-up telephone calls, municipalities reported many different sources of local funding for their water resources infrastructure systems.

Many municipalities submit funding requests to other governmental entities to complement local expenditures. These requests are public documents and hence the information is readily available to researchers. However, the BUGC Water Resources Infrastructure Survey focused on **local** funding contributions for capital project expenditures. As shown in Table 1, local funds are planned to finance 84% of all the suburban water resources projects.

To confirm the accuracy of the non-local funding sources, respondents were telephoned with a follow-up question to determine the source of the non-local funding. Some respondents had incorrectly identified state loans as non-local. The loans, of course, had to be paid back out of local sources. These data were corrected.

The most highly used non-local funds source was Ohio Issue 2 grants funds. Issue 2 funding applications are very competitive because of the limited amount of money available.

In the historic distribution of Issue 2 funds within Cuyahoga County, approximately **40%** of the available funds were directed toward water resources infrastructure projects (the remaining 60% has been allocated to transportation projects). This 40% appears to be a realistic future expectation. The Cuyahoga County Planning Department reports that, since its inception, fifteen years ago in 1988, Issue 2 funds have been disbursed as follows:

30	Storm Water projects	$36 million
133	Sanitary Sewer projects	$122 million
98	Water Distribution projects	$123 million
		$281 million

The current plans for the suburban municipalities assume that approximately $27 million will be available from Issue 2 grants over a five-year period. Issue 2 funds made available every year to Cuyahoga County amount to approximately $12.7 million. Thus, in five years Cuyahoga County can be expected to disburse $63.5 million. Forty percent amounts to $25.5 million, which is close to the $27 million expected requests by municipalities. However, many municipalities have no current plans to submit an Issue 2 grant application.

The Revolving Loan Program (RLP) of the Issue 2 program also offers approximately **$2 million** annually in loans to municipality projects in Cuyahoga County. The repayment of these loans represents a local contribution and therefore not added to the total above.

With the recent increase in the Ohio fuel tax, additional funds are expected to be available for municipal road and bridge projects, which may potentially "free" more Issue 2 funds than the historical 40% share to water resources projects.

To leverage available Cuyahoga County infrastructure funds, many municipalities use the expedient of requesting a grant for road repairs from the County Engineer and then they "piggy-back" the needed upgrade to the applicable underground water resources infrastructure as part of the road grant application. This option requires very close planning and collaboration between two sometimes mutually exclusive infrastructure objectives. It is not always possible to combine the two types of projects. There are no other sources of funds from Cuyahoga County for water resources infrastructure projects.

Therefore, to totally fund these important water resources infrastructure projects, the municipalities must somehow access other sources of funds. In Cuyahoga County, water resources infrastructure projects are primarily financed by limited sources of **local** funds. User fees based on water consumption are the only source of **local** funding common to all municipalities. The most common sources of **local** funds are:

Storm Water Systems:
- General fund

Sanitary Sewer Systems:
- User fees based on constant fees per quarter **or** on water consumption
- Special **or** annual assessments

Water Systems:
- User fees based on consumption

As reported previously[7], there are very few septic systems left in Cuyahoga County. As of 2000, less than 2.5 percent of residences or industrial facilities still utilizing septic systems:

Brecksville	10% residential; 1% industrial

[7] BUGC [2001] *Municipal Infrastructure Expenditures Survey Report*, p. 17

Highland Heights	7% residential
North Royalton	10% residential; 5% industrial
Olmsted Falls	40% residential
Parma	5% residential
Pepper Pike	60% residential
Richmond Heights	20% residential; 10% industrial
Solon	8% residential: 0.3% industrial

Plans are in progress within many of these municipalities, and non-reporting villages, to reduce the use of septic systems. For example, Solon spent $11 million over a three-year period (2001-2003) to reduce its use of septic systems to less than one percent. And Seven Hills plans to have 90% of funding provided through an Issue 2 grant to construct a $1.6 million sewer "subtrunk" to provide future sanitary services to current septic tank owners. The cost of new sanitary sewers for these municipalities could be a significant future investment, and in most instances, funding sources have not yet been identified.

Infrastructure Inventory and Asset Valuation

Inventory

The BUGC survey requested additional information regarding the buried physical inventory for each municipality. **Table 2** shows the data obtained for each water resources infrastructure system. In addition, the financial valuation known as "the estimated replacement value" was requested.

Four[8] responding municipalities were unable to inventory their water resources infrastructure systems. However, using the responses from other municipalities, average lineal feet (LF) per capita estimates could be developed, thus allowing for extending the submitted data to include the non-inventoried municipalities. The following lineal foot *estimates* were used:

Storm Water Sewer	*19.0* LF per capita
Sanitary Sewer	*18.0* LF per capita
Water Distribution	*25.0* LF per capita

These estimated values are included in the summary data in this report. BUGC believes that these estimates will not introduce significant errors.

Underneath the surface of Cuyahoga County, municipalities have constructed more than 72 million feet of water resources infrastructure. The replacement value of these capital assets, almost 14,000 miles, is estimated at $8.7 billion.

Table 2 also shows the replacement valuation of the plant and facilities that support almost all of the residents of the Cuyahoga County through the City of Cleveland's Water Department.

Only eighteen (18) municipalities reported open channels or drainage ditches in their municipalities. The rest of the municipalities had no data to report on this water resources infrastructure system. Either the municipality lacked the information or else the municipality no longer had any open channel ditches or creeks used for storm water flow. BUGC did not ask a question to verify which.

Replacement Cost Valuation

BUGC used the average unit costs of estimated replacement value provided by responding municipalities for the municipalities that were unable to estimate their own replacement value, but did provide an inventory lineal

[8] Berea, Broadview Heights, Fairview Park, Strongsville

footage for their water resources infrastructure system. The following valuation *estimates* were used:

Storm Water Sewer	*$110.00* per lineal foot
Sanitary Sewer	*$105.00* per lineal foot
Water Distribution	*$90.00* per lineal foot

These estimated values are included in the summary data in this report. BUGC believes that these estimates will not introduce significant errors.

Table 3 summarizes the estimated replacement costs of the storm water and sanitary sewer infrastructure systems for Cleveland, first ring suburbs and outer suburbs.

Note that the lineal footage of the storm water sewers and the sanitary sewers for the whole county are almost the same. This highlights that both types of infrastructure systems are based on similar engineering design principles, i.e., the design is based on "gravity flow" of the liquids flowing downhill within a watershed.

Six (6) municipalities constructed Combined Sewer Overflow (CSO) systems early in their history. Each CSO installation will need to be replaced or upgraded to meet environmental regulations to prevent pollution of Lake Erie. The BUGC Water Resources Infrastructure Survey did not explicitly capture the estimated total dollar amount of this pending need. The Northeast Ohio Regional Sewer District plans to spend more than $1 billion over the next twenty years to help alleviate some of these CSO problems within Cuyahoga County.

The municipalities that still have CSOs as part of their underground water resources infrastructure systems include:

Municipality	LF
Cuyahoga Heights	44,000
Euclid	25,000
Garfield Heights	118,650
Lakewood	133,000
Newburgh Heights	37,560
Cleveland	5,702,400

Table 4 summarizes the replacement cost for Cuyahoga County's water distribution infrastructure system. This table also identifies the different location of the water distribution system provided by the City of Cleveland. (Note that the City Water Department's data added information about two Cuyahoga County townships. These data are not included in the other BUGC survey summary tables.)

Build Up Greater Cleveland (BUGC)

December 2003

Water Resources Infrastructure Survey (2003)

Cuyahoga County	2000 Census Population:	1,393,978
Cleveland	2000 Census Population:	478,403
Percent of population represented by survey responses		**99.5%**

WATER RESOURCES INFRASTRUCTURE SYSTEM

Suburbs	Storm Water Sewers	Sanitary Sewers	Combined Sewers	Water Distribution	Open Channel	TOTAL
Lineal Feet (LF)	14,605,558	14,258,556	359,785	13,784,685	1,103,700	**44,112,285**
Replacement Value	$1,531,122,330	$1,510,439,530	$49,564,000	$1,240,345,286	$52,824,000	**$4,384,295,146**
$/LF	$104.83	$105.93	$137.76	$89.98	$47.86	
Cleveland						
Lineal Feet (LF)	316,800	316,800	5,702,400	21,981,594 *		**28,317,594**
Replacement Value	$95,040,000	$95,040,000	$1,710,720,000	$2,432,257,500 *		**$4,333,057,500**
$/LF	$300.00	$300.00	$300.00	$110.65		
				only water distribution lines		
County-wide						
Lineal Feet (LF)	14,922,358	14,575,356	6,062,185	35,766,279	1,103,700	**72,429,879**
Replacement Value	$1,626,162,330	$1,605,479,530	$1,760,284,000	$3,672,602,786	$52,824,000	**$8,717,352,646**
Cleveland Water Department Plant & Facilities				$3,834,524,900		**$12,551,877,546**

TABLE 2

Storm Water Sewer

	2000 Census Population	LF	Replacement
First Ring Consortium Suburbs (15):	449,041	6,325,418	$661,551,000
All Other Suburbs (41):	466,534	8,280,140	$869,571,330
SUBURBAN TOTAL	915,575	14,605,558	$1,531,122,330
Central City:			
Cleveland	478,403	316,800	$95,040,000
COUNTY TOTAL	**1,393,978**	14,922,358	$1,626,162,330

Sanitary Sewer

	2000 Census Population	LF	Replacement
First Ring Consortium Suburbs (15):	449,041	6,030,350	$557,316,000
All Other Suburbs (41):	466,534	8,228,206	$953,123,530
SUBURBAN TOTAL	915,575	14,258,556	$1,510,439,530
Central City:			
Cleveland	478,403	316,800	$95,040,000
COUNTY TOTAL	**1,393,978**	14,575,356	$1,605,479,530

TABLE 3

Water Distribution

	2000 Census Population	LF	Replacement
County Municipalities (57):			
1 Stand Alone (2):			
Berea	18,970	406,205	$27,552,000
Cleveland	478,403	7,101,356	$710,135,600
2 Integrated (6):	135,559	2,592,524	$259,252,400
3 Shared (44):			
"Feeders:"	598,277	11,372,480	$994,851,000
"Mains:"		12,287,714	$1,462,869,500
4 Master Meter (5):	152,059	2,006,000	$217,942,000
County Townships (2):	10,710	151,878	$15,187,800
COUNTY TOTAL	**1,393,978**	35,918,157	$3,687,790,000

TABLE 4

Notes:

1 The Stand Alone muncipalities own and operate their own system. 2. The Integrated municipalities have their system maintained by Cleveland, 3 The Shared municipalities have their main lines maintained by Cleveland, the feeders are maintained by the municipality, 4. The Master Meter municipalities maintain their own distribution mains and feeders.

Funding Shortfall Analysis

As stated previously, although BUGC hoped that unmet needs would be listed, it became clear early in the survey process that individual municipalities were generally only able to list those projects that had already been "formally" approved in some way. The listing of planned projects, therefore, is determined primarily by the estimated amount of money available and not by a real recognition of the actual need to maintain, preserve and upgrade the water resources infrastructure of the municipality. Some respondents called these unmet needs a "wish list" because there is an obvious lack of financing to implement them.

In the interest of developing an estimated shortfall of investments for Cuyahoga County's existing water resources infrastructure system, BUGC created three tables to highlight a recommended "replacement cycle" for each of the infrastructure systems. These tables are based on the planned five-year priority projects averaged for a single year. These tables exclude new and asset management projects.

Table 5 shows, with a BUGC recommended 60-year replacement cycle for storm water, sanitary sewer and CSO infrastructure systems, that there is an annual investment shortfall of about **$12 million** for Cuyahoga County's suburban sewer systems.

Table 6 shows, with a similar replacement cycle for the City of Cleveland sewer system, an annual shortfall of **$27 million**.

Table 7 shows, with a BUGC recommended 85-year replacement cycle for water distribution systems, that there is an annual investment shortfall of approximately **$10 million** for Cuyahoga County's water distribution system. However, in general, suburban municipalities responsible for their own water distribution systems are currently spending at an adequate annual level to properly maintain and preserve these systems.

Based on this analysis and given the current annual $200 million invested, BUGC estimates that at least **$50 million more** should be invested annually to properly maintain and preserve the existing municipal water resources infrastructure systems in Cuyahoga County.

When the actual age of all the water infrastructure systems in Cuyahoga County becomes available through the GASB 34 process, better data will allow for better estimates of capital asset replacement cycles.

Cuyahoga County Suburban Sewer Investment Shortfall

Suburban Municipality		Storm Water Sewer	Sanitary Sewer	CSO Systems	
Number of respondants		56	56	5	See note #1
Inventory (from survey)					
TOTAL	LF	**14,600,000**	**14,300,000**	**360,000**	See note #2
Replacement Valuation (from survey)					
TOTAL		**$1,530,000,000**	**$1,510,000,000**	**$49,600,000**	**$3,090,000,000**
Average Annualized Planned Re-investment (from survey)					
Replacement		$9,640,000	$10,590,000	$0	
Rehabilitation		$7,290,000	$7,560,000	$380,000	
Major Repair		$2,380,000	$1,760,000	$250,000	
Total:		**$19,300,000**	**$19,900,000**	**$730,000**	**$39,930,000**
Annual Investment Options to Replace Suburban Systems					
Number of Years	Per cent Replacement per year				
79	1.26%	**$19,300,000**	$19,000,000	$620,000	See note #3
76	1.32%	$20,100,000	**$19,900,000**	$650,000	
68	1.48%	$22,600,000	$22,300,000	**$730,000**	
	....				
70	1.42%	$21,700,000	$21,400,000	$700,000	
60	1.67%	**$25,600,000**	**$25,200,000**	**$830,000**	**$51,630,000**
50	2.00%	$30,600,000	$30,200,000	$990,000	
Shortfall Totals:	Year: **60**	**$6,300,000**	**$5,300,000**	**$100,000**	**$11,700,000**

TABLE 5

Notes:

1 Responding municipalities represent 99 percent of the suburban population

2 BUGC estimated the inventory of six of these municipalities

3 Current storm water sewer investments assume a replacement cycle of 79 years
Current sanitary sewer investments assume a replacement cycle of 76 years
Current CSO investments assume a replacement cycle of 68 years

City of Cleveland
Sewer Investment Shortfall

		Storm Water Sewer	Sanitary Sewer	CSO Systems	
Inventory (from survey)					
TOTAL	LF	**316,800**	**316,800**	**5,702,400**	
Replacement Valuation (from survey)					
TOTAL		**$95,040,000**	**$95,040,000**	**$1,710,720,000**	**$1,901,000,000**
Average Annualized Planned Re-investment (from survey)					
Replacement		$420,000	$1,380,000	$2,680,000	
Rehabilitation		$0	$0	$0	
Major Repair		$0	$0	$350,000	
Total:		**$420,000**	**$1,380,000**	**$3,030,000**	**$4,830,000**
Annual Investment Options to Replace Sewer Systems					
Number of Years	Per cent Replacement per year				
556	0.18%	$171,000	$171,000	**$3,080,000**	See note #1
227	0.44%	**$418,000**	$418,000	$7,530,000	
67	1.50%	$1,400,000	**$1,400,000**	$25,660,000	
70	1.42%	$1,300,000	$1,300,000	$24,300,000	
60	1.67%	**$1,600,000**	**$1,600,000**	**$28,600,000**	**$31,800,000**
50	2.00%	$1,900,000	$1,900,000	$34,200,000	
Shortfall Totals:	Year: **60**	**$1,180,000**	**$220,000**	**$25,570,000**	**$26,970,000**

TABLE 6

Notes:

1 Current storm water sewer investments assume a replacement cycle of 227 years
Current sanitary sewer investments assume a replacement cycle of 67 years
Current CSO system investments assume a replacement cycle of 556 years

Cuyahoga County Water Distribution Investment Shortfall

Municipality		**Suburban**	**Cleveland**	
Number of respondants		56	1	See note #1
Inventory (from survey)				
TOTAL	LF	**13,800,000**	**22,000,000**	See note #2
Replacement Valuation (from survey)				
TOTAL		**$1,240,000,000**	**$2,432,300,000**	**$3,672,300,000**
				See note #3
Average Annualized Planned Re-investment(from survey)				
Replacement		$10,800,000	$5,763,200	
Rehabilitation		$4,400,000	$11,400,000	
Major Repair		$1,288,400	$0	
Total:		**$16,488,400**	**$17,163,200**	**$33,651,600**
Annual Investment Options to Replace Distribution Systems				
Number of Years	% Replacement per year			
142	0.71%	$8,800,000	**$17,200,000**	See note #4
75	1.33%	**$16,500,000**	$32,300,000	
90	1.11%	$13,800,000	$27,000,000	
85	1.18%	**$14,600,000**	**$28,700,000**	**$43,300,000**
80	1.25%	$15,500,000	$30,400,000	
Shortfall Totals:	Year: **85**	**-$1,888,400**	**$11,536,800**	**$9,648,400**

Notes:

1 Responding municipalities represent 99 percent of the suburban population

2 BUGC estimated the inventory of two of these municipalities
The Cleveland total LF represents only the mains within the County, which are the responsibility of the Cleveland Water Department.

3 This valuation represents only water distribution mains, not plant facilities.

4 Current suburban water distribution investments assume a replacement cycle of 75 years
Current Cleveland water distribution investments assume a replacement cycle of 142 years

TABLE 7

GASB 34 Status

The pending implementation of GASB 34 for all local governments allowed BUGC to request additional information not normally readily available.

Survey respondents were asked to provide financial or "book" valuations of their municipality's water resources infrastructure. Only nineteen (19) of the 56 suburban municipalities have completed the GASB 34 inventory and valuation process and were able to provide "book" valuations. The "book" valuations vary because of the age of the systems and because of differing methods of implementing the GASB 34 process. Most of the rest of the respondents report that they are in the process of implementing a GASB 34 inventory valuation. BUGC anticipates that all municipalities, excepting only those with small populations such as villages, will eventually comply with the GASB 34 recommended financial inventory and evaluation process.

Suburban municipalities have more than 44 million feet of water resources infrastructure. The replacement value of these underground assets, about 8,400 miles, is estimated at $4.4 billion. Of this estimated asset value, currently only $1.5 billion has been subjected to the GASB 34 process. The calculated GASB depreciated "book value" for these assets is $0.3 billion or approximately one fifth, actually 22.7%, of the replacement value.

The GASB 34 recommendations allow a depreciated financial or "book" valuation of zero dollars for any infrastructure asset more than twenty years old. Many municipalities within Cuyahoga County have underground water resources infrastructure systems that are more than twenty years old. Sixty years is a typical "engineering design life" of newly constructed wastewater infrastructure systems. The GASB 34 recommendations thus allow a valuation of zero dollars for forty years of the sewer infrastructure asset's life.

BUGC has anecdotal information that many of the underground water resources infrastructure systems have exceeded their engineering design life. Most municipalities are unable to report on the "average life" of their water resources infrastructure systems. Only the completion of the formal GASB 34 inventory and valuation process for each municipality will allow us to discover how ancient these water resources infrastructure systems really are.

GASB 34 recognizes the reality of the current infrastructure management system. If an asset has been depreciated to zero book value, then policy makers are often loath to fund the needed maintenance and technical upgrades to the infrastructure. As a result, our culture and our municipalities consistently underfund the needed maintenance and upgrades of the infrastructure.

GASB 34 proposed an alternative to the current "business as usual" depreciation approach to maintaining the nation's infrastructure -- "modified method". The "modified method" is based on treating infrastructure systems as capital assets and implementing a formal annual "asset management" process. No municipality in Cuyahoga County has adopted the "modified method".

As stated previously, only eighteen (18) municipalities reported that there existed open channels or drainage ditches in their municipalities. Most had no data to report on this water resources infrastructure system. Only two (2) municipalities had included this infrastructure in the GASB 34 process as a municipal infrastructure asset. BUGC believes that open channel and drainage ditches should be considered as valid municipal infrastructure assets, and, therefore, should be included in the GASB 34 process.

The survey revealed a continuing lack of emphasis on municipal water resources infrastructure system asset management in Cuyahoga County. With GASB 34 in progress, BUGC recommends that municipalities adopt the GASB 34 "modified method" of accounting, which encourages an asset management approach. Only the recommended GASB 34 "modified method," has the potential to develop a meaningful municipal status for water resources infrastructure renovation or replacement.

Conclusions

The BUGC Water Resources Infrastructure Survey was a first-time effort in Cuyahoga County to measure municipal contributions toward specific water resources infrastructure investments and to quantify a minimal level of investment to properly maintain and preserve existing municipal water resources systems. Consideration should be given to periodically updating this survey. The next survey should be conducted when most municipalities have completed their GASB 34 processes.

With a minimum unmet need of potentially **$50 million** annually to bring existing Cuyahoga County's water resources infrastructure systems up to acceptable standards, enhanced advocacy for federal and state funds is required. Advocacy can only succeed if the data provided to policy makers is credible and current. The survey respondents have provided the best possible responses given the existing political will. Education is required to focus on the municipal need for "capital asset management" of all water resources infrastructure systems.

The continued heavy reliance on user fees to adequately preserve existing municipal water resources systems and to meet known and emerging federal water quality mandates is not sustainable. New funding partnerships with applicable federal and state agencies are needed to meet desired regional water quality goals. Existing low interest federal and state loan programs are helpful, but this funding source still relies on the user fees to pay back the loans. What is needed is a return to the federal water-related grant program that existed in the 1980's to help municipalities meet current unfunded mandates to improve water quality at the local level. Everyone wants improved water quality and safe drinking. However, this is an unrealistic goal if it is to be achieved by constantly raising user fees.

BUGC wishes to extend its appreciation to the Cuyahoga County mayors and city managers for their support in providing the assistance of their staff and outside consultants in responding to the BUGC Water Resources Infrastructure Survey.

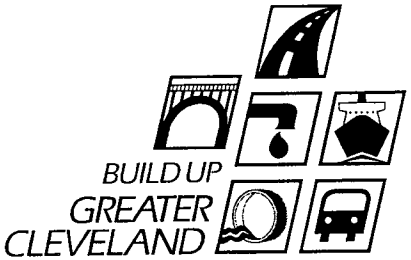
Additional copies of this report may be obtained by contacting Build Up Greater Cleveland.

APPENDIX A

BUGC WATER RESOURCES INFRASTRUCTURE SURVEY FORM

BUGC Water Resources Infrastructure Survey

May 2003



Build Up Greater Cleveland (BUGC)
Tower City Center
50 Public Square, Suite 200
Cleveland, OH 44113

BUGC desires to obtain upgraded information about the projected level of municipal investment needed in Cuyahoga County to implement future priority capital water resources infrastructure improvement projects (storm water sewers, sanitary sewers and water systems). This information in not readily obtained from current databases. This information is important to BUGC to facilitate new federal advocacy initiatives to generate additional water resources grant funds for local governments.

BUGC requests your assistance in completing this form to obtain the desired information for your community. If the desired information is not available, please indicate by placing "NA" (for not applicable or not available) in the appropriate section of the survey form. If you have any questions about the form, please contact Soren Hansen at 216-592-2444.

If possible, BUGC would like the completed form returned by June 13, 2003. Please place the completed form in the stamped and pre-addressed envelope that accompanies this survey form.

Thank you in advance for any assistance you can provide to BUGC in this important effort to support local infrastructure investments.

Name of the contact person filling out this form: _____

Name of community or municipality: _____ (Also entered on each survey page.)

Contact person's telephone number: (____)_____

BUGC Water Resources Infrastructure Survey

Community _____

Please identify PRIORITY capital infrastructure projects for the period FY 2003 through 2007. (Use additional sheet(s) if necessary.) Also, where possible, indicate the estimated cost of the proposed project and the anticipated sources of funds. Under **CODE** indicate whether the project is a: **1)** Replacement; **2)** Rehabilitation; **3)** Major Repair (not maintenance) project; **4)** New project; or **5)** Asset Management System support project.

Priority Projects	CODE	Estimated Cost ($ Thousands)	Source of Funds (in percentages)			
			Federal	State	County	Local
Storm Water Sewer						
Sanitary Sewer (including pump stations)						

BUGC Water Resources Infrastructure Survey

Community _____

Priority Projects	CODE	Estimated Cost ($ Thousands)	Source of Funds (in percentages)			
			Federal	State	County	Local
Combined Sewer (if applicable)						
Water						

BUGC Water Resources Infrastructure Survey

Community _____

For 2003, what are the estimated values for the following measures of your water resource infrastructure systems?

Infrastructure	Lineal Feet (total)	Replacement Value ($ Thousands)	"Book" Valuation ($ Thousands)
Storm Water Sewer			
Sanitary Sewer			
Combined Sewer (if applicable)			
Water			
Open Channel (Creek and/or Ditch)			

APPENDIX B

TABLE B-1 – INFRASTRUCTURE PROJECT TOTALS

TABLE B-2 – ACTION CODE TOTALS

Build Up Greater Cleveland (BUGC)

Water Resources Infrastructure Survey (2003)

December 2003

Sum of Est'd Cost ($1000)	Infrastructure					
Community	Combined Sewer	Other Support Projects	Sanitary Sewer	Storm Water Sewer	Water	Grand Total
Bay Village			$1,010			$1,010
Beachwood			$566	$1,298	$1,837	$3,701
Bedford			$2,763	$1,550		$4,313
Bedford Heights			$2,419	$1,034	$609	$4,062
Bentleyville				$250		$250
Berea			$4,450			$4,450
Brecksville			$7,250	$1,120	$3,500	$11,870
Broadview Heights			$1,350		$200	$1,550
Brook Park			$720	$1,020	$921	$2,661
Brooklyn	$1,000		$77	$555		$1,631
Chagrin Falls			$915	$700	$915	$2,530
Cleveland Heights			$3,465	$750	$2,569	$6,784
Cleveland Water					$602,292	$602,292
Cleveland-WPC	$15,150	$7,690	$6,900	$2,600		$32,340
Cuyahoga Heights	$700			$100		$800
Euclid	$1,202		$1,750	$7,749	$3,072	$13,773
Fairview Park			$2,558			$2,558
Garfield Heights			$2,100			$2,100
Gates Mills			$750	$1,456		$2,206
Glenwillow			$105	$379		$484
Highland Heights				$8,094	$246	$8,340
Hunting Valley					$70	$70
Lakewood			$980	$480	$6,185	$7,645
Lyndhurst			$650	$800	$1,700	$3,150
Maple Heights			$8,400	$2,500	$3,300	$14,200
Mayfield Heights			$5,030	$1,300	$770	$7,100
Mayfield Village			$2,900	$2,593		$5,493
Middleburg Heights				$170		$170
Moreland Hills			$2,250	$970	$900	$4,120
North Olmsted			$16,092	$12,428		$28,520
North Randall			$100	$300	$52	$452
North Royalton			$350	$2,000	$546	$2,896
Oakwood Village			$1,282	$500	$320	$2,102
Olmsted Falls			$1,875	$200		$2,075
Parma			$4,109	$2,050	$4,025	$10,184
Parma Heights			$565	$365	$1,087	$2,017
Pepper Pike			$4,300	$625	$300	$5,225
Rocky River			$4,680	$4,680	$3,580	$12,940
Seven Hills			$4,173	$4,215	$1,025	$9,413
Shaker Heights			$4,980	$220	$2,712	$7,912
Solon			$6,500	$14,060	$500	$21,060
South Euclid			$2,298	$5,022	$4,249	$11,569
Strongsville			$3,400	$670		$4,070
University Heights			$1,419		$250	$1,669
Valley View			$320	$2,475	$28	$2,823
Walton Hills			$600	$80	$1,124	$1,804
Westlake			$3,123	$4,298	$5,130	$12,551
Woodmere			$50	$200	$120	$370
Bratenahl	$500		$650	$800	$200	$2,150
Newburgh Heights	$250			$645		$895
East Cleveland			$16,000	$19,000	$28,471	$63,471
Orange Village			$46	$156		$202
Highland Hills			$282	$1,040	$330	$1,652
Richmond Heights			$7,469	$500	$600	$8,569
Warrensville Heights			$6,270	$6,770	$6,270	$19,310
Grand Total	**$18,802**	**$7,690**	**$150,291**	**$120,767**	**$690,005**	**$987,554**

Note: Amounts in $1000

Sum of Estimated costs of projects planned: FY's 2003-2007

TABLE B-1

Sum of Est'd Cost ($1000)	Code					
Community	1	2	3	4	5	Grand Total
Bay Village		$1,010				$1,010
Beachwood		$3,701				$3,701
Bedford	$130	$2,943		$1,240		$4,313
Bedford Heights	$609			$3,453		$4,062
Bentleyville	$50	$50	$75	$75		$250
Berea	$4,450					$4,450
Brecksville	$5,870	$250		$5,250	$500	$11,870
Broadview Heights				$1,550		$1,550
Brook Park				$2,661		$2,661
Brooklyn		$131	$1,000		$500	$1,631
Chagrin Falls	$922	$342	$455	$811		$2,530
Cleveland Heights	$4,565	$2,219				$6,784
Cleveland Water	$28,816	$87,000	$379,513		$106,963	$602,292
Cleveland WPC	$22,400		$1,750		$8,190	$32,340
Cuyahoga Heights		$700		$100		$800
Euclid	$9,499	$4,274				$13,773
Fairview Park	$2,308	$250				$2,558
Garfield Heights				$2,100		$2,100
Gates Mills	$750	$1,456				$2,206
Glenwillow	$379			$105		$484
Highland Heights	$1,694			$6,646		$8,340
Hunting Valley				$70		$70
Lakewood	$7,445	$200				$7,645
Lyndhurst	$2,350	$500	$300			$3,150
Maple Heights	$7,300	$6,900				$14,200
Mayfield Heights	$4,050	$1,830		$1,220		$7,100
Mayfield Village		$2,900	$2,593			$5,493
Middleburg Heights	$130			$40		$170
Moreland Hills	$2,870	$500	$750			$4,120
North Olmsted	$993	$27,527				$28,520
North Randall			$452			$452
North Royalton	$896	$2,000				$2,896
Oakwood Village	$120	$160	$130	$1,692		$2,102
Olmsted Falls		$557		$1,518		$2,075
Parma	$5,200	$1,375		$3,609		$10,184
Parma Heights		$1,652	$365			$2,017
Pepper Pike	$600	$625	$1,000	$3,000		$5,225
Rocky River	$12,940					$12,940
Seven Hills	$6,327	$1,025		$2,061		$9,413
Shaker Heights	$6,572	$578		$762		$7,912
Solon	$300	$11,660		$9,100		$21,060
South Euclid	$11,569					$11,569
Strongsville	$420	$750	$500	$2,400		$4,070
University Heights		$1,049		$620		$1,669
Valley View	$1,920		$50	$853		$2,823
Walton Hills	$1,189	$15		$600		$1,804
Westlake	$3,410	$150		$8,991		$12,551
Woodmere			$370			$370
Bratenahl		$1,650		$500		$2,150
Newburgh Heights			$780	$115		$895
East Cleveland	$46,971	$16,500				$63,471
Orange Village	$84	$72		$46		$202
Highland Hills		$340	$750	$562		$1,652
Richmond Heights	$600			$7,469	$500	$8,569
Warrensville Heights			$18,810		$500	$19,310
Grand Total	**$206,698**	**$184,841**	**$409,643**	**$69,219**	**$117,153**	**$987,554**

Note: Amounts in $1000

Sum of Estimated Costs of projects planned: FYs 2003-2007
Code: 1 = Replacement; 2 = Rehabilitation; 3 = Major Repair;
4 = New Project; 5 = Asset Management Project

TABLE B-2