



# Future Wastewater Infrastructure Needs and Capital Costs

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REPORT TO THE LEGISLATURE

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April 2004



[Minnesota Pollution Control Agency](http://www.mn.gov/MPCA)



# Future Wastewater Treatment Needs and Capital Costs A Report to the Legislature/April 2004

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The Appendices to *Future Wastewater Infrastructure Needs and Capital Costs* are bound as a separate document and will be provided upon request. Appendix 2 may be provided statewide or for specific counties or Economic Development Regions, upon request.

### Part VI. Appendices to *Future Wastewater Infrastructure Needs and Capital Costs*

- Appendix 1: 2003 Wastewater Infrastructure Needs Survey (WINS) – Communities Providing Estimates of Future Wastewater Infrastructure Costs Summarized by Economic Development Regions and Counties (32 pages)
- Appendix 2: 2003 WINS – Descriptions of Individual Community Needs, Projects, Costs and Affordability (153 pages – alphabetical)
- Appendix 3: WINS Survey Forms
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- Appendix 5: Executive Summary, West Central Initiative's Infrastructure Study
- Appendix 6: State Fiscal Year 2004 Project Priority List (PPL) (alphabetical and priority)
- Appendix 7: 2003 WINS – Description of Projects Submitted to WINS for Which Communities Do Not Yet Have Cost Estimates

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Printed on paper with at least 30 percent post consumer waste content

The cost of preparing this report:

■	Staff salary and fringe	\$5,692.00
■	Printing or reproduction	500.00
■	<b>TOTAL</b>	<b>\$6,192.00</b>

# Introduction

## The Purpose and Scope of this Report

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In keeping with Minn. Stat. § 115.03 Subd.9<sup>1</sup>, the Minnesota Pollution Control Agency (MPCA) has prepared this report on:

- Future infrastructure needs and capital costs of rehabilitating, improving and expanding publicly owned wastewater treatment and collection systems;
- Cost increases to residential users resulting from currently planned wastewater infrastructure projects;
- The affordability of such costs; and,
- The Environmental Protection Agency's (EPA's) Impaired Waters - Total Maximum Daily Load (TMDL) program and how this emerging program will affect wastewater treatment facilities' expansions and effluent limits.

Minnesota's publicly owned wastewater treatment systems are operated according to National Pollution Discharge Elimination System (NPDES) and State Disposal System (SDS) permits issued by the MPCA. In addition to providing an overview of existing permitted facilities, the report also identifies approximately 60 project proposals from communities that do not have permitted wastewater treatment facilities (i.e., "unsewered areas"), but plan to construct such facilities.

The report does not address privately owned NPDES or SDS permitted facilities (e.g., industrial and commercial dischargers that do not discharge to publicly owned wastewater treatment facilities), nor does it address privately owned Individual Sewage Treatment Systems (ISTS). Of the total residences in Minnesota, an estimated 70 percent discharge to publicly owned wastewater treatment and collection systems and the remainder discharge to private, primarily ISTS systems.

The ownership and operation of publicly owned wastewater treatment and collection systems is the work of approximately 680 Minnesota cities and sewer districts. Of the latter, Metropolitan Council Environmental Services (MCES) and the Western Lake Superior Sanitary District (WLSSD) are the most prominent in the extent of services provided.

### Types of Infrastructure Costs:

#### Capital Costs, Operation and Maintenance Costs

While this report focuses on future capital costs, publicly owned and operated wastewater treatment and collection systems are subject to both capital costs and operation and maintenance costs. Capital costs are for constructing wastewater infrastructure rehabilitations, improvements and expansions. Operation and maintenance costs include personnel costs and the costs of chemicals, supplies, laboratory analysis, power, equipment repair and replacement, etc.

Capital cost increases result from one or some combination of the following factors:

- Infrastructure rehabilitation and replacement,
- Community growth and corresponding infrastructure expansion,
- Development of systems to address wastewater collection and treatment in unsewered and under-sewered communities, and
- Treatment facility upgrades to meet new and/or more restrictive wastewater discharge standards (i.e., NPDES and SDS permit conditions and requirements or implementation of TMDLs).

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<sup>1</sup> A copy of Minn. Stat. § 115.03 Subd.9 is included as Appendix 4.

Operation and maintenance cost increases are attributable to:

- Changes in operation and maintenance procedures resulting from capital changes,
- Expansion of treatment facility systems and processes,
- Collection system expansions,
- Inflation, and
- Changes in operation and maintenance to achieve new and/or more restrictive discharge standards.

### **Data Sources**

The data in this report have been acquired from sources including:

#### ***The 2003 Wastewater Infrastructure Needs Survey (WINS)***

The WINS survey, begun in fall 2003, replaces the Annual Planning and Evaluation Survey (APES) to:

- Provide a more user-friendly format;
- Address certain chronic data entry problems of APES; and
- Include data and formatting that will allow information to be transferred into the EPA 2004 Clean Watershed Needs Survey database without re-surveying Minnesota communities. Communities are required to complete the WINS survey as a part of their NPDES and SDS permit conditions.

#### ***The State Fiscal Year 2004 Project Priority List (PPL) (August 2003)***

The PPL, which is an annual priority list of wastewater treatment and collection needs, is generated by the MPCA according to Minnesota Rule 7077. Communities identifying the need for a wastewater treatment and/or collection system project request placement on the PPL. The MPCA develops the PPL by listing and ranking PPL project requests according to environmental criteria. The PPL is then used by the Public Facilities Authority (PFA) to develop the Intended Use Plan (IUP) for the disbursement of State Revolving Fund (SRF) low-interest loans and Wastewater Infrastructure Fund (WIF) grants and loans. The 2004 fiscal year PPL is included as Appendix 6 of this report.

#### ***The West Central Initiative's Infrastructure Study***

Part V of the report introduces the *West Central Initiative's Infrastructure Study*, a comparative survey of infrastructure costs. This survey investigated the wastewater, drinking water and stormwater needs of Minnesota Economic Development Region IV (Becker, Clay, Douglas, Grant, Otter Tail, Pope, Stevens, Traverse and Wilkin counties). The survey discusses household costs and includes an extrapolation of Region IV costs for Greater Minnesota. The West Central Initiative (WCI) is a nonprofit development agency, and the *Infrastructure Study* was funded through private grants to the WCI. The Executive Summary to the WCI study is reprinted as Appendix 5 to this report, and the complete study is available at the WCI Web site at [www.wcif.org/publications/infrastructurestudy.shtml](http://www.wcif.org/publications/infrastructurestudy.shtml) or by contacting WCI at (800) 735-2239 (toll-free in Minnesota only).

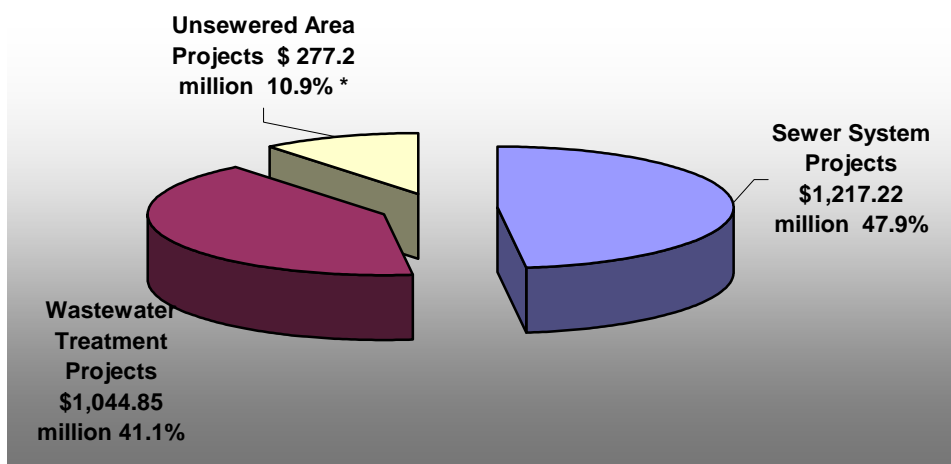
## Part I. Summary Information:

### 2004 Future Wastewater Infrastructure Needs and Capital Costs

This section provides summary information on future wastewater infrastructure needs and corresponding capital costs facing Minnesota communities and sanitary districts. The summaries are comprised of wastewater infrastructure needs that were identified in the 2003 WINS survey and/or are listed on the current State Fiscal Year 2004 Project Priority List (PPL). Summaries are provided according to types of need, Minnesota's Economic Development Regions, and the proposer's projected time frame (i.e., current 0-5 years, 5-10 years, 10-20 years).

The following charts and tables provide a basic overview of the projected \$2,539.28 million in wastewater infrastructure costs.

**Chart 1: Wastewater Infrastructure Costs by Project Type**  
**Total Costs = \$2,539.28 million**



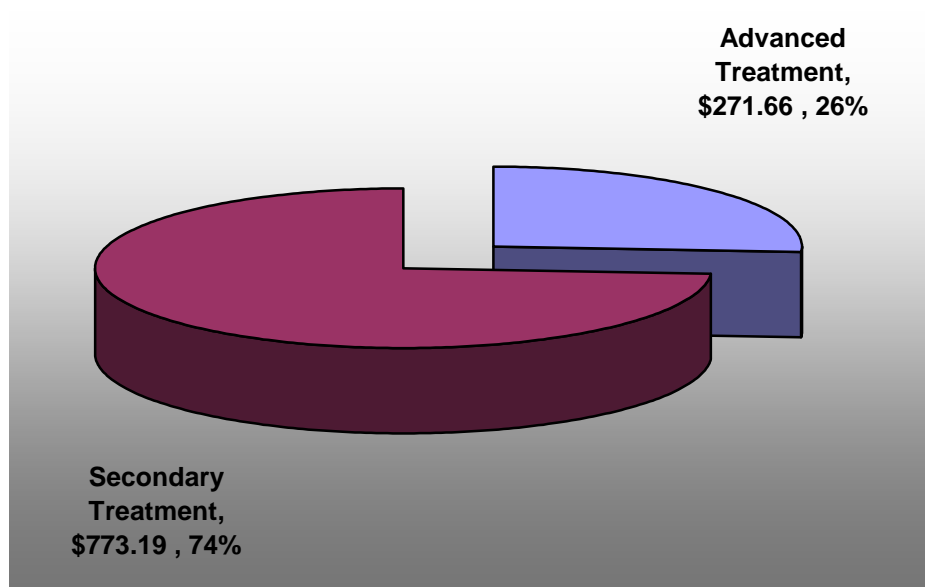
\* The unsewered area projects identified in this report are limited to those that have requested placement on the 2004 PPL (see discussion of data sources below). The MPCA estimates the potential need to address unsewered areas with failed or inadequate ISTS systems is much greater, approximately one billion dollars.

#### Definition of Project Types

- **Unsewered Area Projects** – Projects to address wastewater in communities or areas that do not have existing sewer collection systems and treatment facilities. Solutions may include or involve individual sewage treatment systems (ISTS) and cluster systems as well as conventional centralized sewer collection and treatment systems.
- **Wastewater Treatment Projects** – The construction, improvement, expansion of treatment facilities/works/plants for the secondary and advanced treatment of wastewater to meet water quality standards.
- **Sewer System Projects** – Projects involving the rehabilitation, construction and/or expansion of collection and interceptor sewer systems and projects to correct infiltration and inflow (I/I) and/or combined sewer overflows.

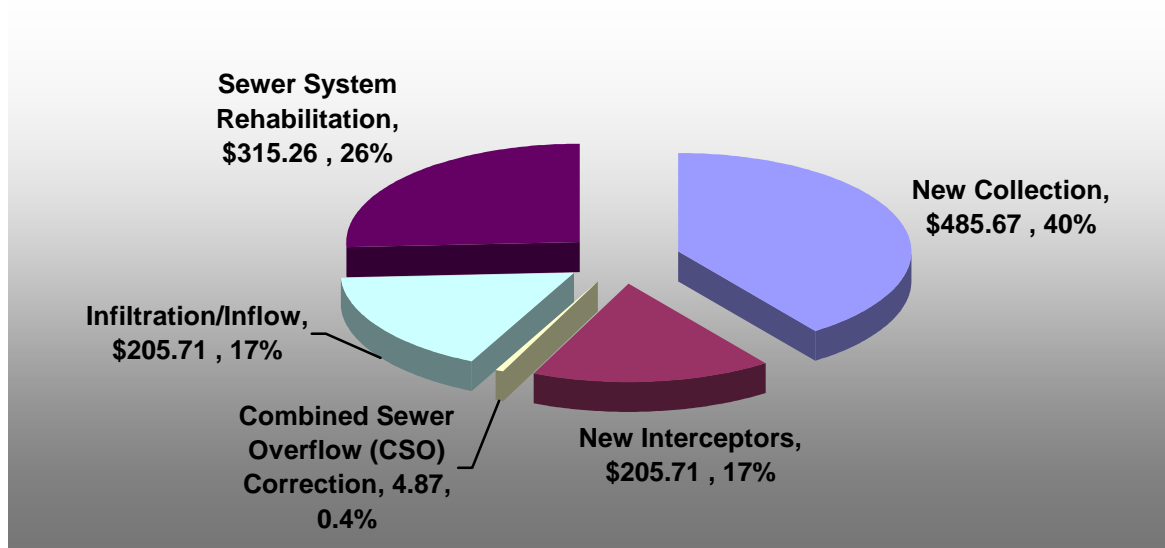
The \$1,044.85 million dollars in wastewater treatment project costs for the rehabilitation, improvement and expansion of wastewater treatment facilities and processes are distributed between secondary and advanced treatment as follows:

**Chart 2: Distribution of Wastewater Treatment Facility Costs According to Secondary and Advanced Treatment (in millions)**



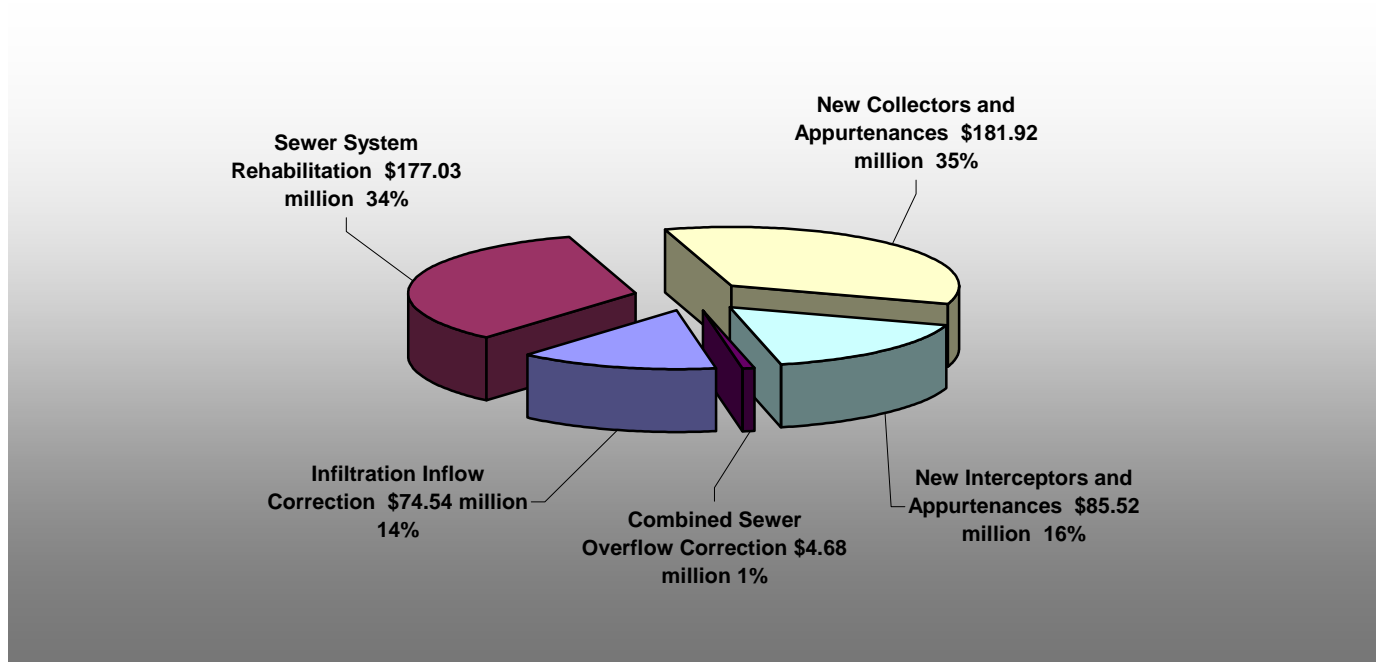
Of the \$1,217.22 million dollars of sewer system projects to rehabilitate, improve and expand sewer collection and interceptor systems, costs are distributed as indicated in Chart 3.

**Chart 3: Distribution of Sewer System Project Costs According to Type of Project (in millions)**



The following chart presents the distribution of sewer system project cost according to type of project for Greater Minnesota and for metropolitan Twin Cities communities served by Metropolitan Council Environmental Services (MCES), but *excludes* \$ 694.40 million of MCES sewer system interceptor costs. MCES interceptor costs are clearly a prominent infrastructure need, but by excluding such costs from Chart 4, a more characteristic profile is provided of the types of sewer system project costs facing Minnesota communities.

**Chart 4: Distribution of Sewer System Project Costs  
According to Type of Project – Excluding MCES**



Note that the sewer system project costs identified in Chart 4 are very close to being evenly divided between the rehabilitative and remedial activities of sewer system rehabilitation, infiltration inflow correction and combined sewer overflow correction (a combined total of 49 percent); as compared to the construction of new sewers and appurtenances (a combined total of 51 percent).

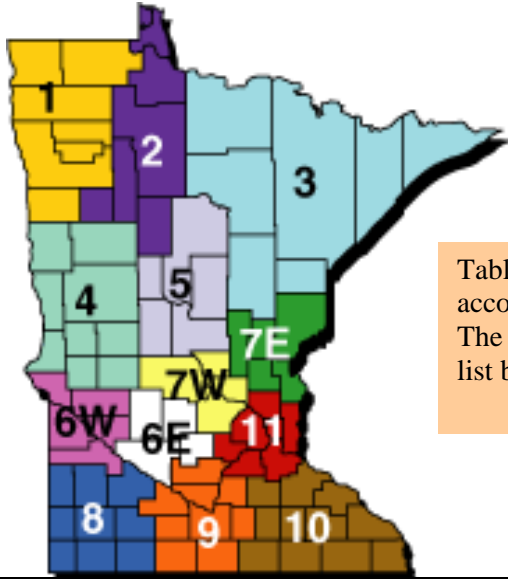


Table 1 indicates the distribution of wastewater infrastructure costs according to Minnesota's Economic Development Regions (EDRs). The regions are illustrated on the accompanying map, with a county list below.

<b>EDR # 1</b> Kittson Marshall Norman Pennington Polk Red Lake Roseau	Lake of the Woods Mahnommen <b>EDR # 3</b> Aitkin Carlton Cook Itasca Koochiching	Clay Douglas Grant Otter Tail Pope Stevens Traverse Wilkin	Wadena <b>EDR # 6E</b> Kandiyohi McLeod Meeker Renville <b>EDR # 6W</b> Big Stone Chippewa	<b>EDR # 7E</b> Chisago Isanti Kanabec Mille Lacs Pine <b>EDR # 7W</b> Benton Sherburne Stearns Wright	Cottonwood Jackson Lincoln Lyon Murray Nobles Pipestone Redwood Rock	Le Sueur Martin Nicollet Sibley Waseca Watonwan <b>EDR # 10</b> Dodge Fillmore Freeborn Goodhue Houston Mower	Olmsted Rice Steele Wabasha Winona <b>EDR # 11</b> Anoka Carver Dakota Hennepin Ramsey Scott Washington
<b>EDR # 2</b> Beltrami Clearwater Hubbard	Lake St. Louis <b>EDR # 4</b> Becker	<b>EDR # 5</b> Cass Crow Wing Morrison Todd	Lac qui Parle Swift Yellow Medicine	<b>EDR # 8</b>	<b>EDR # 9</b> Blue Earth Brown Faribault		

**Table 1: Projected Wastewater Infrastructure Costs by Economic Development Regions**

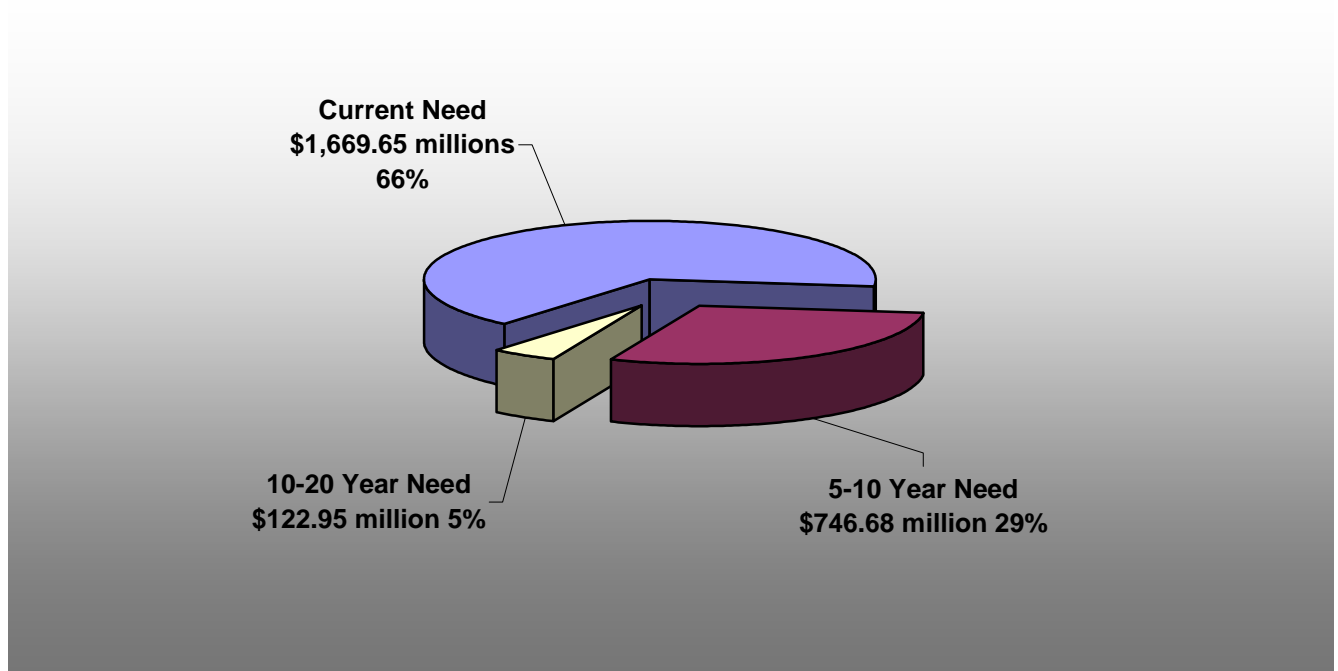
Economic Development Regions (EDR)	Projected Wastewater Infrastructure Costs (millions)
1	26.35
2	8.71
3	237.77
4	150.41
5	60.38
6E	81.08
6W	18.66
7E	70.92
7W	174.35
8	54.34
9	87.25
10	265.42
<b>Subtotal for Greater Minnesota*: 1,235.64</b>	
11**	1303.64
<b>Statewide Total: 2,539.28</b>	

\* EDRs 7E and 7W include three Twin Cities Metro Counties: Chisago, Sherburne, and Wright

\*\* Twin Cities Metropolitan Area (includes Metropolitan Council Environmental Services or MCES)

Chart 5 illustrates wastewater infrastructure needs according to time frames: current (within 0-5 years); 5-10 years; and 10-20 years. As indicated, the overwhelming majority of costs are identified as current needs. Infrastructure costs of 5-10 years and 10-20 years may be underrepresented, in part because such costs are unanticipated. In addition, many communities, particularly smaller communities, lack the planning and fiscal resources to engage in strategic and comprehensive capital improvement planning. (See “Part IV: Survey Responses and Methodological Considerations” for further discussion of this point.)

**Chart 5: Wastewater Infrastructure Costs by Time Frame**



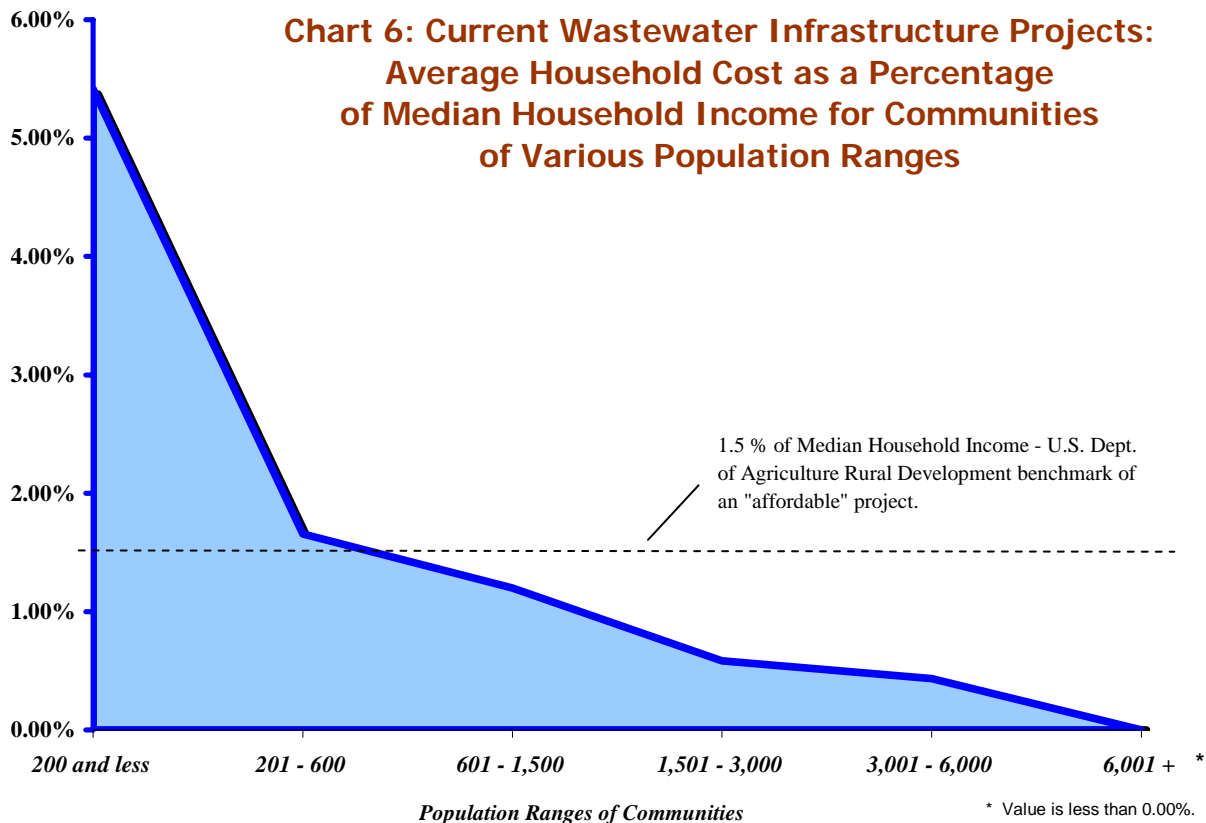
## Part II. Summary Information:

### Wastewater Infrastructure Costs, Household Costs and Affordability

This section provides summary information on household costs and a comparative measure of affordability of wastewater infrastructure projects. In determining the effects of infrastructure costs on households, the following assumptions have been made:

- Projects are assigned an estimated market rate loan of 4.50 percent over 20 years. This assumption is consistent with the Wastewater Infrastructure Fund (WIF) Report provided to the Legislature by the Public Facilities Authority.
- Residential connections are assumed to be responsible for providing 90 percent of the debt service payments for individual communities and projects. This general assumption may not apply to specific communities where, for example, a treatment facility's expansion is being funded by industrial development, in which case the residential share of a project could be considerably less than 90 percent.
- With sewer system collection or interceptor costs, affordability figures assume that such costs are spread across the entire community at 90 percent for residential connections, whereas such costs may in fact be localized and limited within communities and paid according to special assessments.

Chart 6 illustrates the relationship between the size of communities and the costs of current projects as a percentage of annual median household income, indicating the pronounced effect of economies of scale on household costs and affordability.



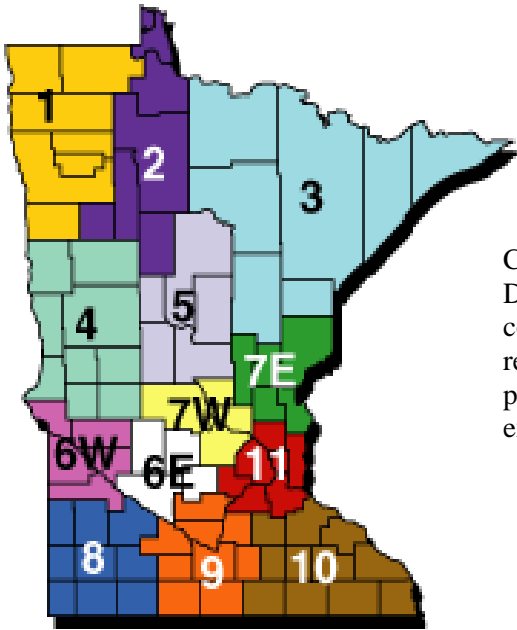
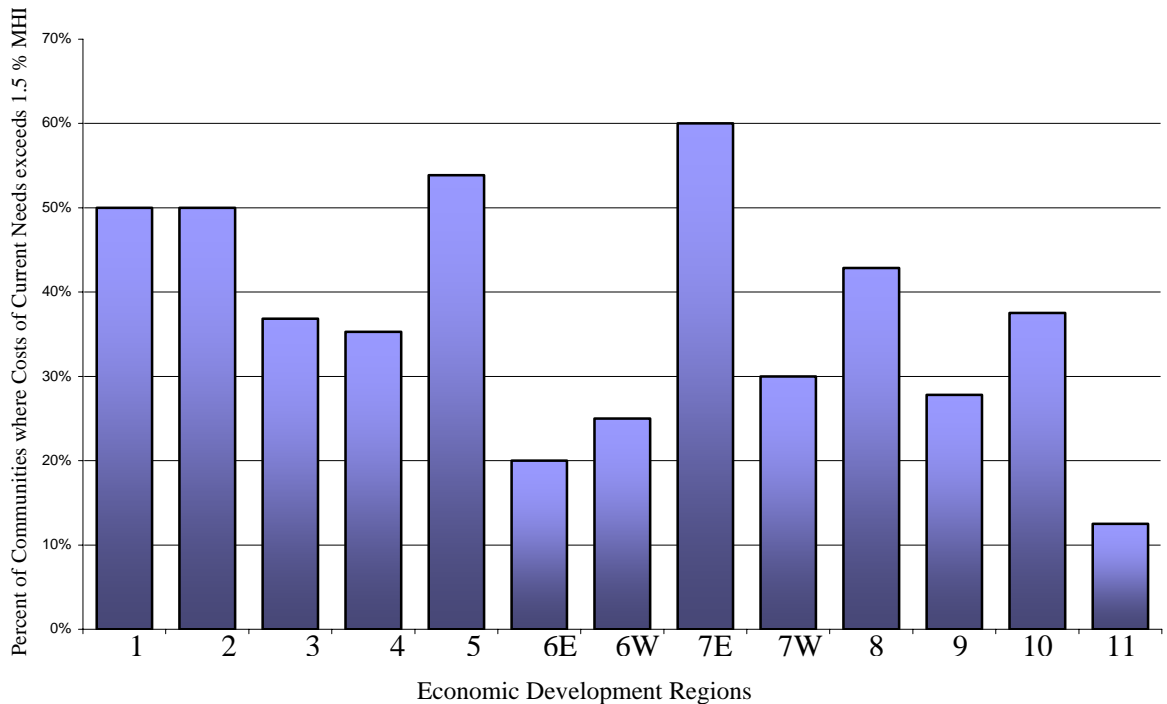


Chart 7 below indicates within each Economic Development Region (EDR) the percentage of communities with populations less than 6,000 responding to the WINS survey where the cost of paying for current wastewater infrastructure needs exceeds 1.5 percent of median household income.

**Chart 7: Percentage of Communities with Wastewater Infrastructure Costs Exceeding 1.5% of Median Household Income**



## Estimating Future Costs

A number of factors influence the variability between reported estimates of future costs and the actual costs of infrastructure improvements encountered during construction. There are also conditions affecting the availability and timeliness of cost estimates.

The timeframe from when a need is identified and costs are estimated to the completion of construction consists of several phases (described in more detail on page 12):

- Recognition of Need,
- Facilities Planning,
- Plans and Specifications, and
- Bidding and Construction.

The WINS survey uses three timeframes for cost estimates:

- *Current Needs* (Immediate needs up to five years),
- *Five – 10 Year Needs*, and
- *10 – 20 Year Needs*.

The longer the timeframe from the initial estimate of future costs to the actual date of construction, the greater the likelihood of variability between the initial estimate and the actual construction costs. Correspondingly, as an anticipated project moves from initial planning to facility planning to the development of construction plans and specifications, cost estimates will become more detailed, refined and precise. There are, however, exceptions to this overall process. Conditions affecting the availability and timeliness of cost information include:

### *Cost Estimates from Active Projects*

Communities that have already identified a wastewater need and are *actively planning and developing a project* will characteristically have readily available needs and cost information. Such information is likely to be both reasonably accurate and up-to-date. Accordingly, projects currently on the PPL are more likely to have readily available and well-developed cost information than communities not yet actively engaged in assessing and addressing needs.

### *Community Capabilities, Resources and Expertise*

Correspondingly, the accuracy of future cost estimates is also affected by the availability of resources and expertise to:

- Effectively monitor, survey and track the condition of existing infrastructure and ascertain the need for rehabilitation and replacement;
- Engage in strategic planning to address growth and expanding capacity needs; and
- Estimate project costs, including architectural and engineering specifications, construction costs planning and project administration.

Given these factors, the *capability* of a community or sanitary district to estimate the future costs of wastewater treatment has to do with the availability of resources and expertise. The availability of resources and expertise is, in turn, dependent upon the number of connections and the economies of scale within a community or sanitary district. In general, as the population of a service area exceeds one-thousand residents, it becomes increasingly feasible for communities and sanitary districts to engage in capital improvement planning for wastewater infrastructure. Smaller communities that are not faced with an immediate need tend to have problems exercising the administrative capabilities and acquiring the resources necessary to survey or plan for infrastructure improvements.

## Part III. Wastewater Infrastructure Costs, Impaired Waters and TMDLs

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The Clean Water Act requires states to conduct a Total Maximum Daily Load (TMDL) evaluation for each pollutant causing a water body to fail to meet applicable water quality standards. The TMDL evaluates why a water body isn't meeting a water-quality standard and sets point and nonpoint pollutant reduction goals. A water defined as impaired for more than one pollutant may need one or more TMDL evaluations.

TMDLs are an essential step towards understanding, reducing and eliminating impairments to Minnesota's waters. By focusing on goal-specific, place-based corrections of impaired waters, the TMDL program approach is one tool to apply to achieve state and federal water-quality standards. (Minn. Stat. § 115.03 Subd.9 calls for "... a list of existing and proposed state water quality standards that are more stringent than is necessary to comply with federal law either because the standard has no applicable federal water quality criterion, or because the standard is more stringent than the applicable federal water quality criterion.")

Many of Minnesota's water resources cannot currently meet their designated uses because of pollution problems from a combination of point and nonpoint sources. (See [www.pca.state.mn.us/water/tmdl.html#tmdl](http://www.pca.state.mn.us/water/tmdl.html#tmdl) for a list of these.) Through resource investigations, including water-quality sampling and computer modeling, as well as public involvement, the MPCA determines how much each pollutant source must reduce its contribution to assure the water-quality standard is met.

The TMDL program will have two important impacts relative to permitted point sources (i.e., NPDES and SDS permitted discharges) — and associated wastewater infrastructure needs and costs:

- The Impaired Waters – TMDL program is a cooperative effort between federal and state regulators and will focus on specific water-quality outcomes. State and federal water-quality standards may differ during the evaluation and implementation phases of the TMDL program. The effluent limits for wastewater treatment facilities will be directly affected by decisions on standards and allocation.
- Federally mandated TMDL studies of the causes of and the solutions to impairment should fully account for nonpoint as well as point source contributions to particular impairments. Communities and sanitary districts operating permitted NPDES/SDS wastewater treatment facilities may be required to achieve more rigorous effluent limits based on TMDL study results. Permit effluent limits must be consistent with the requirements of the TMDL's waste-load allocation for point sources, as required in 40CFR122.44 (vii)(B), and the timelines for implementing changes.
- Wastewater treatment facilities that must reduce waste loads of specific pollutants will be less able to grow or expand in response to population or development stresses.

The Impaired Waters – TMDL effort is an important federal water-quality restoration and improvement requirement. However, there are serious concerns among point-source dischargers that they will be asked to take on disproportionately high wastewater treatment costs (capital and operation/maintenance) as the result of the TMDL process. Because of this concern, resource investigations are followed by ongoing discussions with affected communities before allocating loads.

Minnesota is just beginning to complete TMDLs. Twenty TMDLs have been approved by the EPA to date and approximately 100 more are underway. As more TMDL studies are concluded, the emphasis shifts to implementation of point and nonpoint source measures to eliminate impairments. Future updates of this report will assess the fiscal impact of TMDL implementation on the wastewater infrastructure costs of communities. For additional information on impaired waters work at the MPCA, see the agency's TMDL Web page at [www.pca.state.mn.us/water/tmdl](http://www.pca.state.mn.us/water/tmdl) or contact Jeff Risberg at (651) 296-7231.

## Part IV: Survey Responses and Methodological Considerations

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The projected wastewater infrastructure needs and capital costs contained in this report are intended to inform the ongoing discussion about the condition and future of Minnesota's public infrastructure. This information also may help frame discussion about the comparative roles and responsibilities of state and local governments in maintaining, investing in, and financing wastewater infrastructure.

Given the significance of these policy considerations, legislators and others making use of this report should be aware of certain factors affecting the accuracy of survey information. Specifically, are future wastewater infrastructure needs and capital costs *over-reported* or *under-reported* by the WINS survey and the Project Priority List (PPL) — and therefore affecting the usefulness of this report?

Based on a review of survey results and interactions with those completing the WINS survey, it is the considered opinion of the MPCA that the *variability of future cost estimates* and the *limited capability, resources and expertise of smaller communities* make it probable that this report *under-reports* future wastewater infrastructure needs and capital costs.

### *Variability of Future Cost Estimates*

There is an inherent variability between estimates of future costs and the actual costs of infrastructure improvements. The process beginning when a project need is first identified to construction completion consists of several phases:

- **Recognition of Need.** The process may begin formally with infrastructure strategic planning, a capital improvement plan (CIP), infiltration/inflow analysis or a sewer system evaluation survey. Or it may begin with little more than a general recognition of a need (e.g., the collection system on the northwest side of town was constructed some time in the 1930s and will need to be rehabilitated or replaced within the next five to ten years – if not sooner.)
- **Facilities Planning.** The next step is to develop a facilities plan (also known as a preliminary engineering report), initiate the process of environmental review and begin to secure funding for the project.
- **Plans and Specifications.** The approval of a facilities plan (the MPCA and Rural Development of the U.S. Department of Agriculture review and approve facilities plans in Minnesota) the completion of environmental review and securing of funding commitments is followed by the development of construction plans and specifications.
- **Bidding and Construction.** In every major construction project, there are risks of unforeseen conditions that alter the total cost of the project.

Cost estimates for future projects reported to the WINS survey and the PPL are inevitably at all different phases in this life-cycle of an infrastructure project. This increases the variability of future cost estimates. Also, based on anecdotal information, costs generally increase from initial estimates to construction (even adjusted for present value). Without additional research, it is unclear whether this is a routine occurrence that contributes to the under-reporting of future infrastructure costs.

### ***Community Capabilities, Resources and Expertise***

The accuracy of future cost estimates for wastewater infrastructure projects are significantly affected by the availability of resources and expertise to:

- Effectively monitor, survey and track the condition of existing infrastructure and ascertain the need for rehabilitation and replacement;
- Engage in strategic planning to address growth and expanding capacity needs; and
- Estimate project costs, including assessment of architectural and engineering specifications, construction cost planning and project administration.

While there are exceptions, the *capability* of a community or sanitary district to accurately estimate the future costs of wastewater treatment depends on resources and expertise. This is, in turn, dependent upon the size of the community or sanitary district — the number of connections — and the opportunity for economies of scale.

Consider, for example, the difference in capability characteristic of a city of 300 residents as compared to the state's largest wastewater entities, Metropolitan Council Environmental Services (MCES) and the Western Lake Superior Sanitary District (WLSSD). MCES and WLSSD have extensive capabilities to track the condition of existing infrastructure and ascertain the need for rehabilitation and replacement over time frames extending to 20 years and longer and to develop extensive strategic and capital improvement plans based on professional evaluations and itemizations of project costs. In contrast – and although there are notable exceptions – a city of 300 tends to be fortunate if it can locate an accurate and comprehensive map of its collection sewer system or afford a professional evaluation of the condition and remaining useful life of its treatment facilities.

In general, as the population of a community or sanitary district service area exceeds 1,000 residents, capital improvement planning for wastewater infrastructure becomes more feasible. For smaller communities not faced with an immediate and critical need, exercising the administrative and institutional capabilities and acquiring the resources and expertise necessary for infrastructure surveying and planning tends to be problematic. The probable result of this situation is that the future needs (i.e., 5-10 years and 10-20 years) of communities with populations of less than 1,000 tend to be significantly *under-reported* in the WINS survey.

The next section of the report provides an interesting example of an infrastructure survey that provided on-site professional assistance to smaller communities in estimating their future infrastructure needs and costs.

## Part V. A Comparative Survey: *The West Central Initiative Infrastructure Study*

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The West Central Initiative (WCI) is an independent public foundation, created to serve the people of nine counties in west central Minnesota that comprise Economic Development Region (EDR) IV (Becker, Clay, Douglas, Grant, Ottertail, Pope, Stevens, Traverse and Wilkin). WCI meets the current needs of residents in west central Minnesota using tools such as grants, loans, training and technical assistance.

During 2002, WCI conducted an extensive *Infrastructure Study for West Central Minnesota Communities* (i.e. Economic Development Region IV). The study addressed water, wastewater and stormwater infrastructure. The consulting firm of Widseth, Smith and Nolting was contracted to provide technical assistance. The study was published in January 2003.

WCI's infrastructure study is notable in that resources were available to conduct *on-site interviews* with local facilities and their operators. These interviews focused on assessing the current condition of infrastructure and determining what kinds of capital projects and activities would be needed to rehabilitate, maintain and improve infrastructure services.

As discussed in Part IV of this report, the opportunity to conduct such on-site interviews and to provide technical assistance – particularly relative to small communities – increases the likelihood that the otherwise unarticulated and *under-reported* needs of such communities will be identified.

The following text and results from the *West Central Initiative (WCI) Infrastructure Study* are used by permission of the WCI. In addition, the Executive Summary of the WCI study is included as Appendix 5 to this report. The complete study is available online at: [www.wcif.org/publications/infrastructurestudy.shtml](http://www.wcif.org/publications/infrastructurestudy.shtml) or by contacting WCI at (800) 735-2239 (toll-free in Minnesota only).

Finally, at the conclusion of this section is a comparison of future wastewater needs and costs as reported to the WINS survey and as reported to the *West Central Initiative (WCI) Infrastructure Study*. This is followed by a brief discussion of the possible cause of the significant discrepancy between the two information sources.

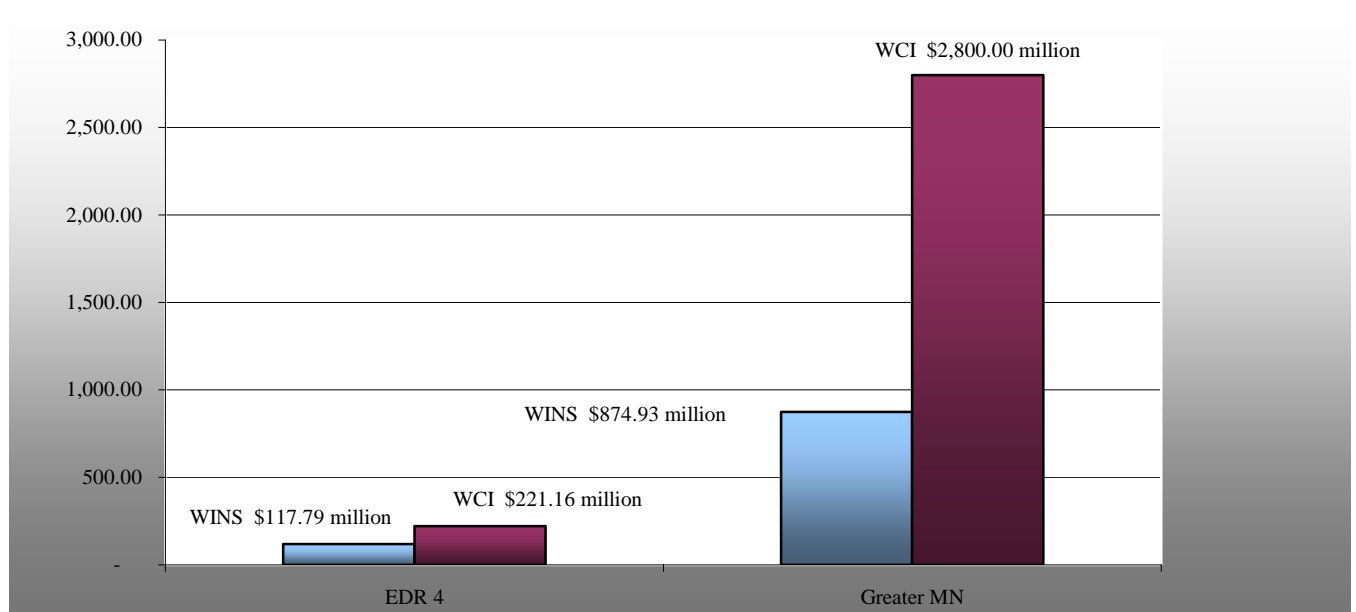
### *From the WCI report:*

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The *West Central Initiative (WCI) Infrastructure Study* was commissioned by West Central Initiative (WCI) to estimate the needs for water, wastewater, and storm sewer repair and replacement in the communities within WCI's nine-county service area. As WCI gathered community input prior to updating its strategic plan, common issues surfaced for many communities. Many of those issues are related to infrastructure problems that affect quality of life, hamper development, or threaten the long-term viability of the communities. As a result, West Central Initiative became concerned about the condition of existing public infrastructure and the availability of funding for repair, upgrade and replacement. WCI learned that no regional, state, or federal source collects or maintains information on the status of community infrastructure, or the scale of the needs. This lack of quantifiable information led WCI to commission this infrastructure study to research and analyze the existing infrastructure in their service area and the ability of communities to address their infrastructure needs. Many of the region's communities rely on infrastructure systems that were constructed during the 1930's, often as WPA projects. Today, many of these systems and facilities have outlived their design life and are in poor repair. Communities often lack the capacity to bond for the funds to repair or replace these facilities, and WCI is frequently asked to help communities find the resources to address this challenge. WCI is not able to finance these projects directly, since replacement of a single water tower or wastewater treatment plant would easily consume WCI's entire annual grant budget. State and Federal agencies with funds to help pay for infrastructure work report that their backlog of applications is in the hundreds of millions of dollars in Minnesota.

To address this issue, WCI believes that a coordinated public policy response is needed. This study is intended to provide information that may be used to inform community leaders and policy makers at the local, state and federal levels. This report provides an estimate of current and future needs in our communities. This study has shown that there is a substantial, immediate infrastructure need in Greater Minnesota. If financial and human resources are not applied to this situation, the future of many communities in Greater Minnesota will be in jeopardy.

**Chart 8: Comparative MPCA WINS and West Central Initiative Infrastructure Study Survey Data on Current Needs\***



As Chart 8 shows, estimated future wastewater infrastructure needs for Economic Development Region IV (EDR 4) as reported by WINS are slightly more than half of those reported by WCI. The contrast in estimates for Greater Minnesota is even more pronounced, with the WCI study estimating \$2.8 billion in future wastewater infrastructure needs or over 3 times the \$874.93 million reported by the WINS survey.

Which estimate is a better approximation of the actual wastewater infrastructure need? This substantial difference in future cost estimates for Greater Minnesota has important implications for how state and local governments prepare for and respond to the need to invest in wastewater infrastructure. While providing a definitive answer to this question is beyond the scope of this report, the MPCA will consult with the WCI, particularly as preparations are made for the 2005 WINS survey and the 2006 *Future Wastewater Infrastructure Needs and Capital Costs Report*.

At this point, however, the MPCA can identify two conditions that may influence the comparative estimates.

■ ***West Central Initiative Extrapolation of EDR IV Costs Statewide***

While the WCI Infrastructure Study cost estimates for EDR IV are based on interviews with local communities, to develop a comparable Greater Minnesota estimate of wastewater infrastructure costs, WCI extrapolated EDR IV costs. (The methodology used in extrapolating costs is described on page 4 of the WCI study.) While the methodology used is well developed and reasonable, the extent of the extrapolation may account for some of the variation in the comparative estimates for Greater Minnesota.

■ ***The Quality of West Central Initiative EDR IV Cost Estimates***

Conversely, WINS survey data for EDR IV is, to a considerable extent, based on and benefits from data and information developed through the intensive, cooperative on-site infrastructure evaluations of the WCI study. WINS data acquired elsewhere in the state does not reflect the benefits of such a prior intensive onsite study. It may be that the future costs as extrapolated for Greater Minnesota by the WCI Study are closer to the actual situation statewide. If it becomes practicable for the WINS survey to conduct cooperative on-site infrastructure evaluations — either through representative sampling or by providing planning assistance to local communities — WINS survey data may be turn out to be considerably closer to the WCI Study statewide estimates.

With this report, the MPCA seeks to inform the ongoing discussion about the condition and future of Minnesota's public infrastructure. This information is also intended to help frame a consideration of the comparative roles and responsibilities of state and local governments in maintaining, investing in, and financing wastewater infrastructure. The MPCA hopes to refine and improve this approach in future.