

# MN2050 | State of the Infrastructure 2015 Survey

## Executive summary

The goals of the ‘State of the Infrastructure’ survey are: 1) to learn to what degree city, county, and state agencies are using asset management practices in Minnesota, and 2) to share collective knowledge regarding the wide range of infrastructure types and condition of infrastructure assets in Minnesota. In partnership with MN2050 and the Minnesota Department of Transportation (MnDOT), Wilder Research developed a web survey that asked about asset management practices.

The survey was emailed to 417 cities (148 cities with populations of 5,000 or more and 269 cities with populations of less than 5,000), 87 counties, and two state agencies (Metropolitan Council and MnDOT). Representatives from 96 smaller cities (35%), 104 larger cities (70%), 64 counties (74%), and both state agencies completed the survey for a total of 266 respondents (53% overall response rate).

Asset management is a relatively new strategic process of operating and maintaining our physical assets in order to extend their life. It is used to identify and structure a sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good service over the lifecycle of the assets at minimum practicable cost.



### Summary of key findings

- Most, but not all, Minnesota jurisdictions practice some form of asset management.
- The estimated per capita gap between the jurisdiction’s annual infrastructure investment needs and available funds, based on responses from 7% of smaller cities, 35% of larger cities, 41% of counties, and one state agency in Minnesota, is: \$304 for residents of smaller cities, \$153 for residents of counties, and \$144 for counties. One state agency in Minnesota reported their gap in funding is \$0 and the other state agency did not answer this question.

OCTOBER 2015



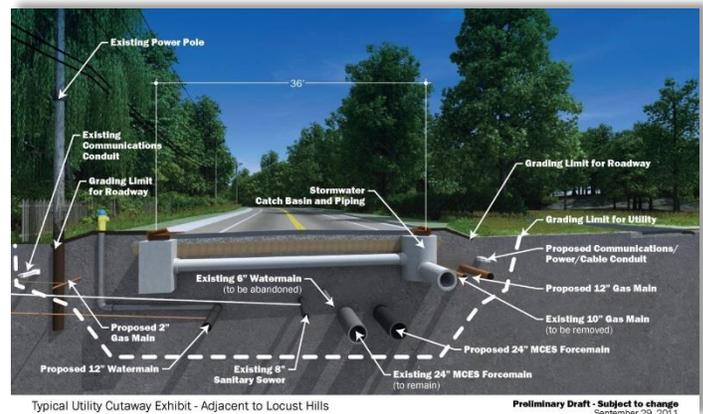
**Wilder  
Research**

Information. Insight. Impact.

- Public infrastructure assets include more than just roads, bridges, and transit. Minnesota’s cities, counties, and state agencies manage storm sewers, traffic fixtures, waste water systems, water supply systems, storm ponds, and buildings. Less common types include electrical systems, airports, solid waste facilities, natural gas network, railways, transit lines, and ports for watercraft.
- Agencies use standard tools, including MS Excel, ESRI GIS, and pencil and paper to manage their infrastructure. However, respondents have not standardized their use of more specialized asset management systems; over 40 systems are being used across jurisdictions that participated in this survey, with Cartegraph, Icon, SIMS, and Simple Signs most commonly used.
- Small cities are managing as broad a range of asset types as larger cities and counties. State agencies, however, manage fewer types of infrastructure assets.
- On a 5-point scale (with “1” being not very effective, and “5” being very effective), 43% of respondents gave their jurisdiction a rating of 3 and 39% of respondents gave a rating of 1 or 2, indicating that most respondents see room for improvement in how their jurisdiction practices asset management.
- Respondents identified multiple reasons for using asset management practices, especially budgeting for and prioritizing maintenance tasks, preserving and maintaining infrastructure assets, and tracking and mapping infrastructure assets and their condition.

## Recommendations

- Make resources available, especially for smaller cities, to implement an asset management system.
- Host conferences, training sessions, webinars, or other forms of education to help those who want to begin or strengthen asset management practices in their jurisdiction.
- Consider advocating for the use of a few select, easy-to-use asset management systems rather than so many different systems, to promote collaboration and capacity building across jurisdictions.
- Facilitate the building of relationships with neighboring jurisdictions to build regional capacity for using asset management systems and practices.
- Explore public policy solutions that could make asset management a standard practice for every jurisdiction.



Hennepin County road and infrastructure  
Photo courtesy of AECOM

# MN2050 | State of the Infrastructure 2015 Survey

## Introduction

In partnership with MN2050, Wilder Research conducted an online survey for the Minnesota Department of Transportation (MnDOT) State Aid that included engineers and other personnel from 266 jurisdictions across Minnesota, including cities, counties, Metropolitan Council, and MnDOT.

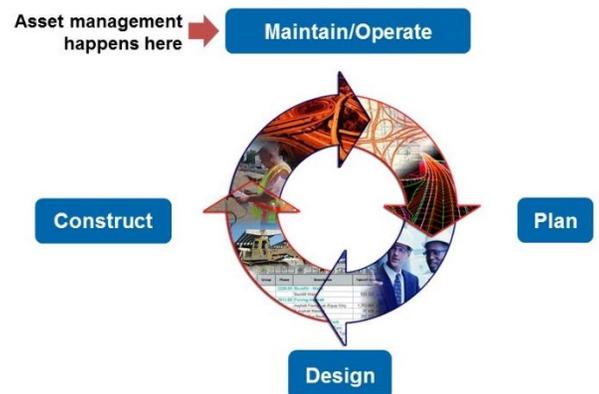
The goals of this State of the Infrastructure survey are: 1) to learn to what degree city, county, and state agencies are using asset management practices in Minnesota, and 2) to share collective knowledge regarding the wide range of infrastructure types and condition of infrastructure assets in Minnesota. Survey findings in this report and in the detailed ‘Data Book’ can be used by Engineering/Public Works departments to identify and implement good/best practices. Findings can also be used to guide legislators as well as the general public to make appropriate investments toward the proper management of public infrastructure. This survey attempts to quantify the value of Minnesota’s infrastructure and the gap between infrastructure funding and need.

### What is asset management and why is it important?

Infrastructure has a life cycle: It is planned, designed, built, maintained/operated, and eventually replaced. Asset management is a strategic process during the maintenance and operation phase to measure the age, value, and condition of a physical asset and to evaluate those features in order to develop a cost-effective strategy to sustainably extend the useful life of that asset. Asset management is important – it is reasonable to assume that annual budgets are insufficient to rebuild our current infrastructure at the end of its life expectancy.

**Infrastructure has a life cycle, and asset management is an important part of that cycle.**

### Engineering Infrastructure Life Cycle



## Study methods and participants

### *Survey instrument design*

The survey was designed by MN2050 and Wilder Research with input from MnDOT State Aid and the study's advisory group (a group of civil engineering professionals). The survey included questions about the use of asset management practices, types of infrastructure managed, and the condition, value, and mapping of each type of infrastructure.

### *Survey respondents*

MN2050 and Wilder Research worked with MnDOT State Aid and the League of Minnesota Cities to obtain the names and email addresses of city, county, and state representatives from the Engineering/Public Works departments within their jurisdiction. Most often, survey respondents were government employees (typically, an engineer) or consultants (engineering firms) hired by the jurisdiction.

### *Data collection*

All sampled jurisdictions were sent an email inviting them to participate in the web survey. The survey invitation email was sent on June 9, 2015. The survey officially closed on July 10, 2015, after two reminder emails were sent to respondents to complete the survey.

### *Completed surveys*

The survey was emailed to representatives from 87 counties, 417 cities (148 cities with populations of 5,000 or more and 269 cities with populations of less than 5,000), and two state agencies (MnDOT and Metropolitan Council). Representatives from 96 smaller cities (35%), 104 larger cities (70%), 64 counties (74%), and both state agencies completed the survey for a total of 266 respondents (53% overall response rate). See the table on the next page for more information about completed surveys.

For a more detailed description of the methods used and detailed tables for every question on the survey, please see the '[Data Book](#)'.



Bridge Inspections  
*Photo courtesy of MnDOT*



Utilities under LRT  
*Photo courtesy of City of Minneapolis*

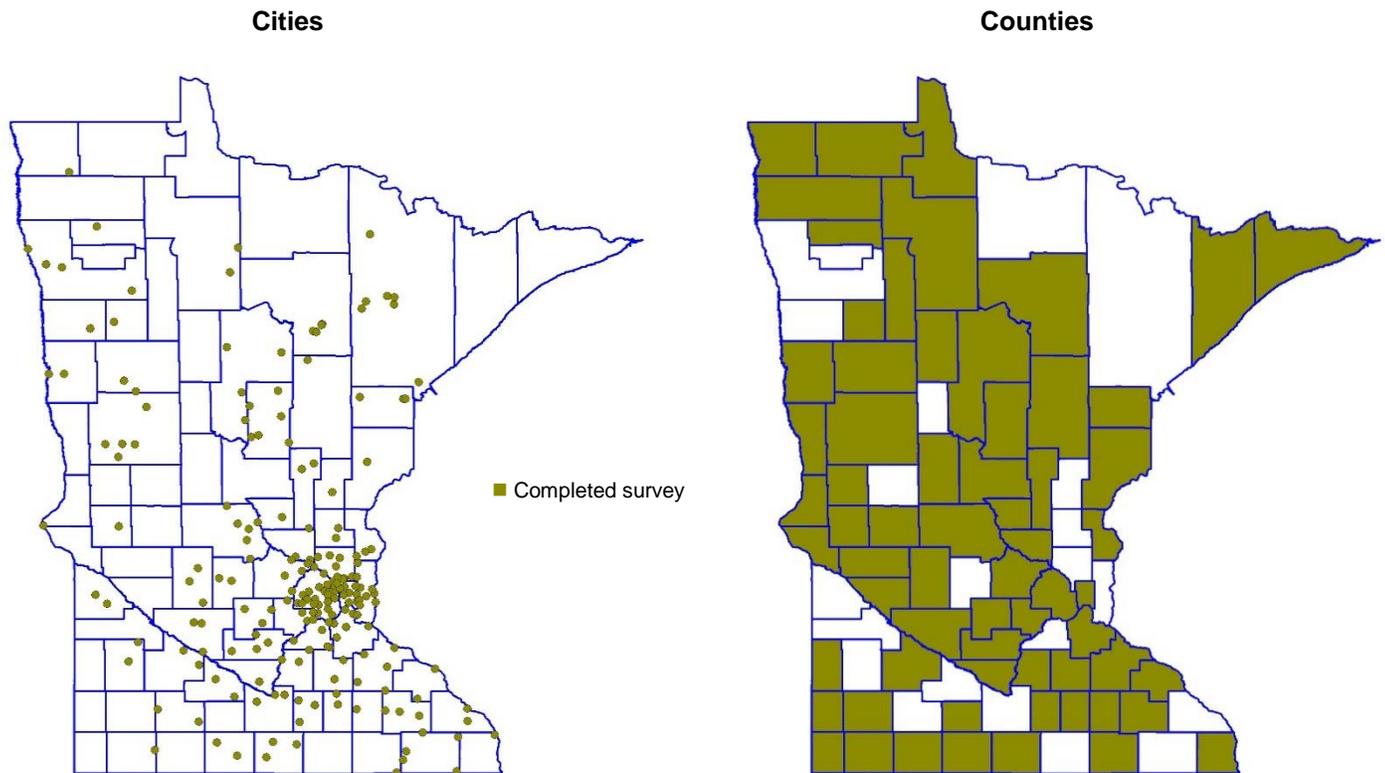
## Survey respondents

	Number of jurisdictions of this type that were sampled	Number of jurisdictions that completed the survey	Response rate
Cities with less than 5,000 residents <sup>1</sup>	269	96	35%
Cities with 5,000 or more residents <sup>2</sup>	148	104	70%
Counties <sup>2</sup>	87	64	74%
State agencies	2	2	100%
<b>Total</b>	<b>506</b>	<b>266</b>	<b>53%</b>

<sup>1</sup> Sample purchased from League of Minnesota Cities

<sup>2</sup> Sample provided by MnDOT State Aid

## Cities and counties that participated in the survey<sup>1</sup>



<sup>1</sup>Two state agencies, MnDOT and Metropolitan Council, also completed the survey.



## Most, but not all, Minnesota jurisdictions practice some form of asset management

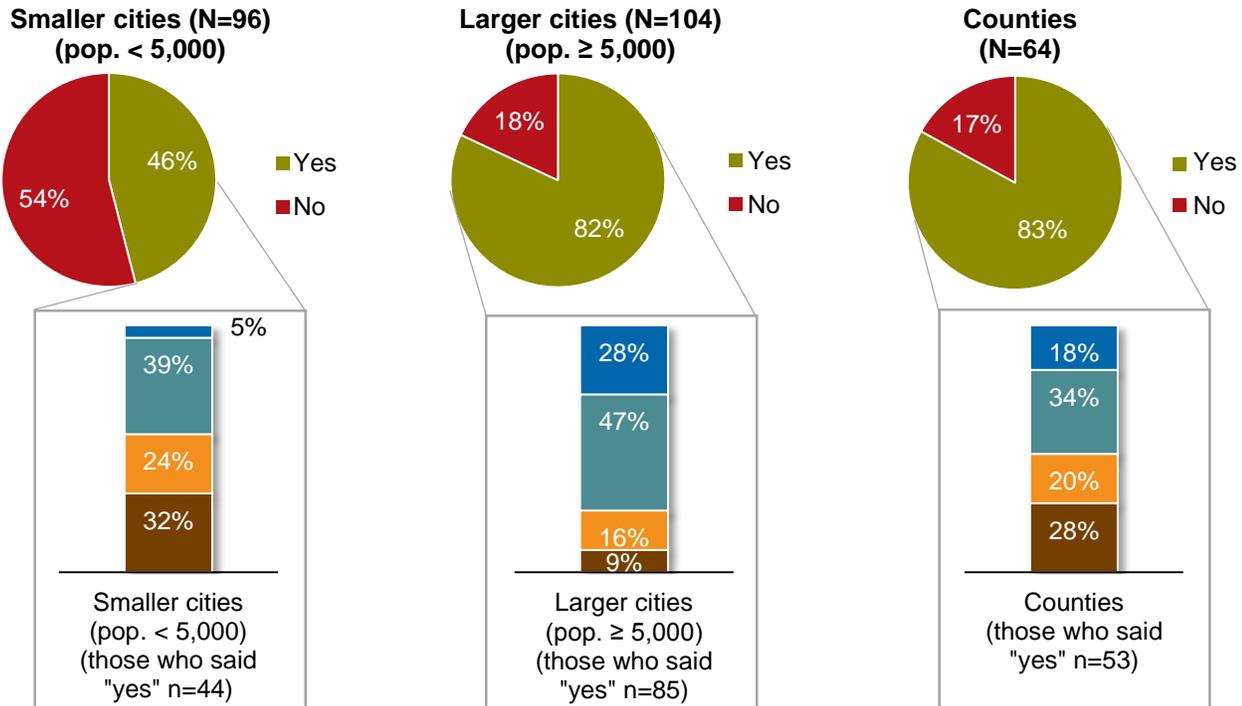
- Larger cities and counties in Minnesota are more likely to practice asset management than small cities. However, all three types of jurisdictions appear to manage a similar range of asset types.

### Percent of each type of jurisdiction that has each type of infrastructure asset

	Smaller cities (pop. < 5,000) (N=88)	Larger cities (pop. ≥ 5,000) (N=98)	Counties (N=60)	State agencies (N=2)
Roads	100%	100%	100%	50%
Bridges	16%	63%	100%	50%
Transit lines	1%	7%	8%	0%
Traffic fixtures	75%	81%	75%	50%
Buildings	91%	91%	80%	100%
Water supply and distribution pipes	91%	96%	8%	0%
Waste water collection and treatment	93%	96%	5%	50%
Storm sewers	91%	97%	67%	100%
Storm ponds	61%	95%	42%	50%
Airports	17%	20%	17%	0%
Ports	0%	3%	2%	0%
Railways	12%	11%	12%	0%
Electrical systems	22%	43%	10%	0%
Solid waste facilities	12%	8%	35%	0%
Natural gas networks	17%	9%	7%	0%
<b>Total number of asset types managed</b>	<b>14</b>	<b>15</b>	<b>15</b>	<b>7</b>

- While development of an Asset Management Plan (AMP) is a best practice, over 80% of survey respondents who had not created an AMP still reported using asset management tools and systems.
- 10% of respondents indicate that they participate in an asset management countywide or other consortium (25% of counties, 7% of larger cities, and 2% of smaller cities).

**Proportion of each type of jurisdiction that reported using asset management practices to operate, maintain, and/or extend the life of their infrastructure assets**



- Have a completed Asset Management Plan
- Have not started but are currently considering an Asset Management Plan
- Have started an Asset Management Plan
- Have not considered or started an Asset Management Plan



**Top reasons for practicing asset management**

1. Budgeting for and prioritizing maintenance tasks

*"[We practice asset management] to minimize long-term costs through timely budgeting of repairs and improvements, and secondly, to maintain an inventory of improvements that can be referenced by operations personnel."*

2. Preserving and maintaining infrastructure assets

*"[We practice asset management] to do the right maintenance at the right time. This will help keep the asset management at an affordable cost to the public. It will also keep the systems maintained better for greater longevity."*

3. Tracking and mapping infrastructure assets and their condition

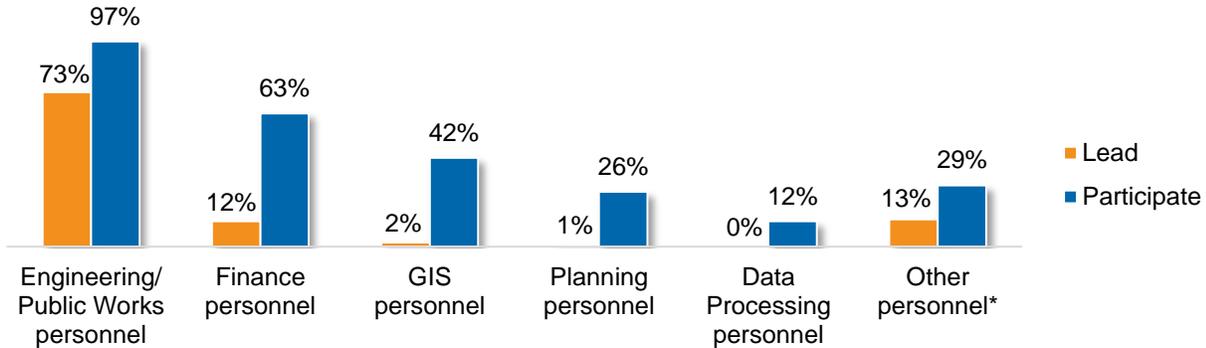
*"[We practice asset management] to keep track of and locate our assets, and to keep track of maintenance of those facilities."*



## While many different professionals participate in asset management, Engineering/Public Works staff generally lead it

Of all different types of professionals, Engineering/Public Works and Finance personnel most commonly participate in and lead asset management for their organizations; GIS, Planning, and Data Processing staff sometimes participate in the process.

### Types of staff who participate at any level in asset management



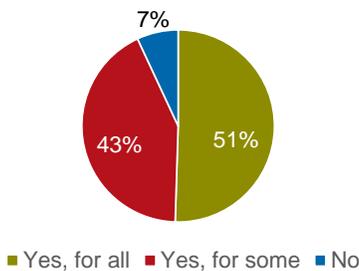
\*Other departments that lead asset management include Administration, City Council, Clerk, Manager, and individually assigned departments for each asset type.

\*Other personnel that participate in asset management include Administration, Streets, Utilities, Maintenance, City Council and Clerk, and Parks.



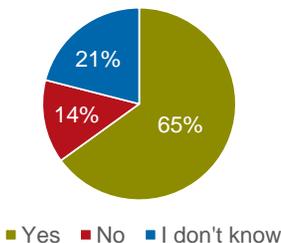
## Awareness of asset management requirements, standards, and practices varies

### “As-built” drawings for infrastructure construction or repair projects



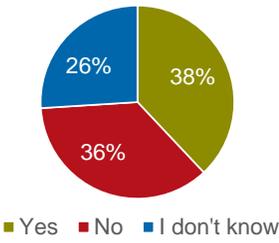
Most survey respondents reported that their jurisdictions create “as-built” drawings after infrastructure construction or repair projects – either for all of their construction and repair projects (51%) or for some of their construction and repair projects (43%). Larger cities were more likely than smaller cities and counties to create “as-built” drawings. “As-built” drawings are important to have as a record from which future system changes and/or additions can be designed. Future renovation projects can be more efficient and less disruptive if the as-built documents can be depended upon for critical information.

### GASB34



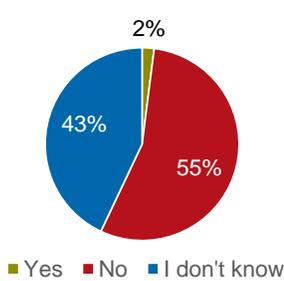
About two-thirds of survey respondents said their organization uses the GASB34 to report on their infrastructure assets. Counties are most likely, and smaller cities are least likely, to use this standard. GASB34 is a standard for reporting basic financial statements for governmental use set by the Governmental Accounting Standards Board.

**MAP-21**



Over one-third of respondents use the MAP-21 requirements for asset management, over one-third do not use these requirements, and about one-quarter are unsure if their jurisdiction uses these requirements. Counties were most likely, and smaller cities were least likely, to be aware of these requirements. *MAP-21 stands for “Moving Ahead for Progress in the 21<sup>st</sup> Century,” and refers to the Federal Highway Administration’s requirement for each state to develop a risk-based asset management plan to preserve or improve condition of infrastructure assets in the National Highway System (NHS).*

**ISO 55000**



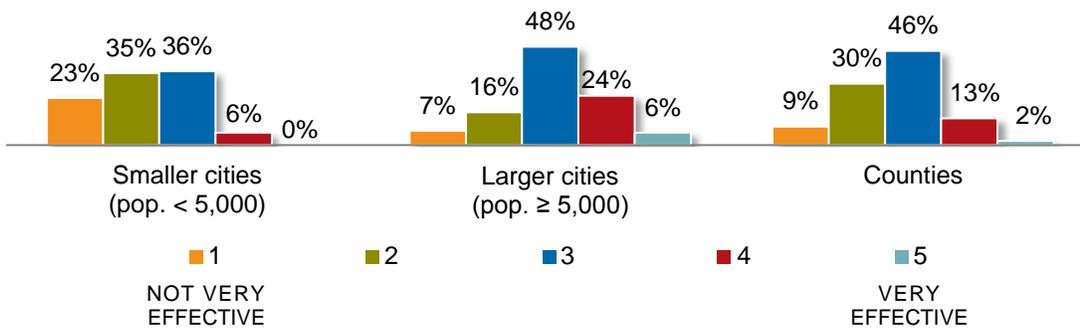
Nearly all survey respondents said their jurisdiction either does not use ISO 55000 for lifecycle management of their infrastructure assets or they are unsure if their organization uses this tool. *The International Organization for Standardization has developed a set of standards for asset management. One of them is called ISO 55000 and it gives guidance regarding best practices in physical asset management.*



**Although some jurisdictions rate their current asset management practices as effective, most believe there is at least some room for improvement**

Findings indicate that smaller cities were more likely than larger cities to rate their agency’s current practices as less than satisfactory to users. The majority (94%) of smaller cities gave a rating of 3 or less, while the majority (78%) of larger cities gave a rating of 3 or higher, on a scale of 1 to 5.

**Respondents’ ratings of their jurisdiction’s asset management practices overall**





## There are many different types of infrastructure in Minnesota, and many different approaches to managing these assets

Survey respondents were asked about 15 different types of infrastructure assets in their jurisdiction. If respondents indicated that they have a particular asset in their jurisdiction, they were asked:

- Whether the asset is mapped
- What asset management system is used to operate, maintain, and improve that asset
- What the value of these assets are
- In what software program the asset is mapped
- Whether they know the value of that asset
- What other information, if any, about that asset is included in their asset inventory



Port

*Photo courtesy of Duluth Seaway Port Authority*

- Small cities are managing as broad a range of asset types as larger cities and counties. State agencies, however, manage fewer types of infrastructure assets.
- The infrastructure assets most likely to be fully mapped were roads (85%), airports (82%), bridges (79%), water supply and distribution pipes (77%), and waste water collection and treatment facilities (72%). The assets that were most likely not to be mapped were buildings (29%), solid waste facilities (29%), natural gas networks (27%), traffic fixtures (26%), and transit lines (23%).
- 99% of larger cities have roads fully mapped whereas 67% of smaller cities have their roads fully mapped.
- The type of software used for mapping assets depends on the type of asset: 11 of the 15 assets included in this survey are most frequently mapped by using GIS only. However, some jurisdictions use CAD only or both GIS and CAD to map assets.



## Little is known about the current value of infrastructure assets among jurisdictions in Minnesota

- When asked about the value of each infrastructure asset in their jurisdiction, less than one-quarter of respondents reported that they knew the value of any asset type.
- **There is currently no measure of the value of Minnesota’s infrastructure. A few survey respondents, which represent only a portion of all jurisdictions in Minnesota, gave their estimates of what the value of the infrastructure is in their particular jurisdiction.**

- **Per capita value:** In an effort to estimate the current value of these infrastructure assets in Minnesota, we calculated the per capita value of each asset by jurisdiction type, based on the responses we received on the survey. The per capita value of each asset type was calculated by adding the total value of an asset type given for each type of jurisdiction that responded to that question, divided by the population of those jurisdictions. See calculations in the chart below.



Stormwater pond  
*Photo courtesy of City of Minneapolis*

The chart on pages 12-14 illustrates the types of infrastructure assets managed by jurisdictions in Minnesota, as well as the asset management practices they use and information about the mapping and current value of these infrastructure assets.



Water main break  
*Photo courtesy City of Minneapolis*

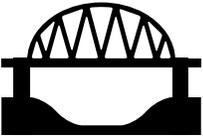
## Asset management practices of jurisdictions in Minnesota by infrastructure type

Shading key:

Green = 50% +

Orange = 25% - 49%

Pink = 0% - 24%

Asset	Jurisdiction	# of this type of jurisdiction who answered this question	# who have this type of asset	Of those who have this type of asset...		
				% with asset	Asset is mapped	Know value of asset
<b>Roads</b> 	Smaller cities	88	88	100%	67%	5%
	Larger cities	98	98	100%	99%	24%
	Counties	60	60	100%	88%	29%
	<p><u>\$33,772,624,842</u> is the total value added up from the 34 respondents who answered this question; the per capita value of the roads is <u>\$5,583</u> for smaller cities, <u>\$2,811</u> for larger cities, <u>\$5,048</u> for counties, and <u>\$5,380</u> for state agencies in MN.</p>					
<b>Bridges</b> 	Smaller cities	88	14	16%	50%	8%
	Larger cities	98	62	63%	79%	7%
	Counties	60	60	100%	84%	22%
	<p><u>\$6,795,864,702</u> is the total value added up from the 16 respondents who answered this question; the per capita value of the bridges is <u>\$1,576</u> for smaller cities, <u>\$215</u> for larger cities, <u>\$272</u> for counties, and <u>\$1,209</u> for state agencies in MN.</p>					
<b>Transit lines</b> 	Smaller cities	88	1	1%	0%	0%
	Larger cities	98	7	7%	29%	0%
	Counties	60	5	8%	20%	0%
	<p>A value was not calculated for this infrastructure asset, since no survey respondents provided an estimated value for their jurisdiction.</p>					
<b>Traffic fixtures</b> (signs, signals, lights, etc.) 	Smaller cities	88	66	75%	5%	3%
	Larger cities	98	79	81%	41%	7%
	Counties	60	45	75%	33%	5%
	<p><u>\$15,944,950</u> is the total value added up from the 6 respondents who answered this question; the per capita value of the traffic fixtures is <u>\$20</u> for smaller cities, <u>\$37</u> for larger cities, <u>\$11</u> for counties, and <u>N/A</u> for state agencies in MN.</p>					
<b>Buildings</b> 	Smaller cities	88	80	91%	19%	25%
	Larger cities	98	89	91%	35%	17%
	Counties	60	48	80%	31%	22%
	<p><u>\$3,176,917,137</u> is the total value added up from the 32 respondents who answered this question; the per capita value of the buildings is <u>\$12,784</u> for smaller cities, <u>\$3,673</u> for larger cities, <u>\$890</u> for counties, and <u>\$92</u> for state agencies in MN.</p>					

Shading key:

Green = 50% +

Orange = 25% - 49%

Pink = 0% - 24%

Asset	Jurisdiction	# of this type of jurisdiction who answered this question	# who have this type of asset	Of those who have this type of asset...		
				% with asset	Asset is mapped	Know value of asset
<b>Water supply and distribution pipes</b> (water pipes) 	Smaller cities	88	80	91%	66%	8%
	Larger cities	98	94	96%	90%	21%
	Counties	60	5	8%	0%	0%
	<p><u>\$366,134,294</u> is the total value added up from the 17 respondents who answered this question; the per capita value of the water supply and distribution pipes is <u>\$2,023</u> for smaller cities, <u>\$1,693</u> for larger cities, <u>N/A</u> for counties, and <u>N/A</u> for state agencies in MN.</p>					
<b>Waste water collection and treatment</b> (sanitary sewers) 	Smaller cities	88	82	93%	59%	5%
	Larger cities	98	94	96%	86%	20%
	Counties	60	3	5%	0%	0%
	<p><u>\$7,114,500,140</u> is the total value added up from the 15 respondents who answered this question; the per capita value of the waste water collection and treatment assets is <u>\$2,279</u> for smaller cities, <u>\$1,135</u> for larger cities, <u>N/A</u> for counties, and <u>\$1,191</u> for state agencies in MN.</p>					
<b>Storm sewers</b> 	Smaller cities	88	80	91%	42%	4%
	Larger cities	98	95	97%	80%	15%
	Counties	60	40	67%	5%	0%
	<p><u>\$299,124,395</u> is the total value added up from the 11 respondents who answered this question; the per capita value of the storm sewers is <u>N/A</u> for smaller cities, <u>\$558</u> for larger cities, <u>N/A</u> for counties, and <u>N/A</u> for state agencies in MN.</p>					
<b>Storm ponds</b> 	Smaller cities	88	54	61%	50%	6%
	Larger cities	98	93	95%	71%	5%
	Counties	60	25	42%	17%	4%
	<p><u>\$6,175,000</u> is the total value added up from the 6 respondents who answered this question; the per capita value of the storm ponds is <u>\$216</u> for smaller cities, <u>\$18</u> for larger cities, <u>\$1</u> for counties, and <u>N/A</u> for state agencies in MN.</p>					
<b>Airports</b> 	Smaller cities	88	15	17%	85%	8%
	Larger cities	98	20	20%	88%	18%
	Counties	60	10	17%	70%	10%
	<p><u>\$28,673,500</u> is the total value added up from the 4 respondents who answered this question; the per capita value of the airports is <u>\$1,766</u> for smaller cities, <u>\$361</u> for larger cities, <u>N/A</u> for counties, and <u>N/A</u> for state agencies in MN.</p>					
<b>Ports</b> (for watercraft) 	Smaller cities	88	0	0%	0%	0%
	Larger cities	98	3	3%	33%	0%
	Counties	60	1	2%	100%	0%
	<p>A value was not calculated for this infrastructure asset, since no survey respondents provided an estimated value for their jurisdiction.</p>					

Shading key: Green = 50% + Orange = 25% - 49% Pink = 0% - 24%

Asset	Jurisdiction	# of this type of jurisdiction who answered this question	# who have this type of asset	Of those who have this type of asset...		
				% with asset	Asset is mapped	Know value of asset
<b>Railways</b> (for freight or transit) 	Smaller cities	88	11	12%	30%	0%
	Larger cities	98	11	11%	80%	0%
	Counties	60	7	12%	29%	14%

\$26,500,000 is the total value added up from the 1 respondent who answered this question; the per capita value of the railways is N/A for smaller cities, N/A for larger cities, \$581 for counties, and N/A for state agencies in MN.

**Electrical systems**



Smaller cities	88	19	22%	50%	0%
Larger cities	98	42	43%	50%	11%
Counties	60	6	10%	33%	20%

\$85,981,522 is the total value added up from the 3 respondents who answered this question; the per capita value of the electrical systems is N/A for smaller cities, \$2,854 for larger cities, N/A for counties, and N/A for state agencies in MN.

**Solid waste facilities**



Smaller cities	88	11	12%	30%	0%
Larger cities	98	8	8%	25%	12%
Counties	60	21	35%	30%	5%

\$4,010,020 is the total value added up from the 2 respondents who answered this question; the per capita value of the solid waste facilities is N/A for smaller cities, \$25 for larger cities, \$146 for counties, and N/A for state agencies in MN.

**Natural gas network**



Smaller cities	88	15	17%	31%	17%
Larger cities	98	9	9%	22%	11%
Counties	60	4	7%	25%	0%

\$15,075,909 is the total value added up from the 3 respondents who answered this question; the per capita value of the natural gas network is \$2,781 for smaller cities, \$763 for larger cities, N/A for counties, and N/A for state agencies in MN.

Smaller cities (pop. < 5,000), Larger cities (pop. ≥ 5,000)

Source: U.S. Census Bureau, Decennial Census <http://factfinder2.census.gov/main.html> and U.S. Census Bureau, Population Estimates <http://www.census.gov/popest/>



Metro Transit Bus Shelter  
Photo courtesy of TKDA



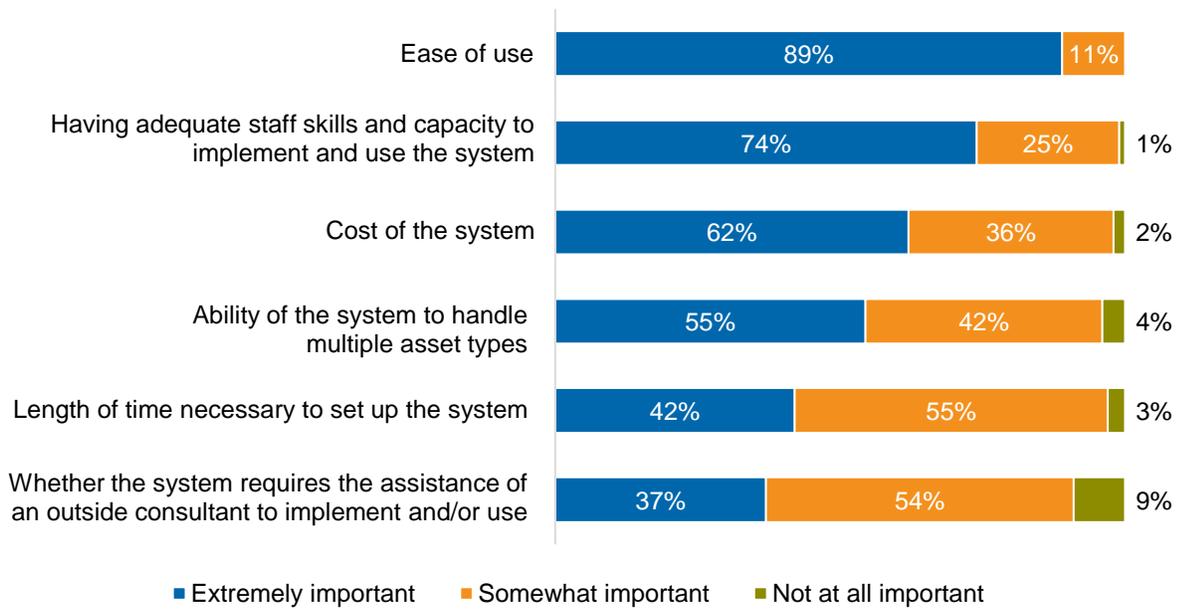
## Over 40 different asset management systems are used in Minnesota

- Most agencies performing asset management use basic tools, including MS Excel, ESRI GIS database, and pencil and paper. See the first three columns in the chart on page 18. However, agencies also use a wide variety of systems intended specifically for asset management. Most commonly used asset management systems include Cartegraph, MnDOT SIMS, Icon, and Simple Signs. In total, over 40 asset management systems are used in Minnesota.
- Although 32 jurisdictions reported having completed an Asset Management Plan (AMP), there is not a strong correlation between having completed an AMP and the use of asset management systems. Findings indicate that jurisdictions are at varying stages in the development of their AMPs, and may be using one or several asset management systems, for one or several types of assets.
- **Ease of using a system and staff skills and capacity to use the system are the top two reasons why particular asset management systems are selected by jurisdictions. Cost of the system was also identified as an important factor.** It is important to further increase understanding about what factors are considered when jurisdictions are deciding which asset management system to use. Smaller jurisdictions, in particular, face barriers in having adequate staff capacity and financial resources to obtain and effectively implement asset management software. This information could be used to support jurisdictions in Minnesota in selecting and implementing appropriate asset management systems, thereby increasing the number of jurisdictions in Minnesota using asset management practices.



Sewer reconstruction project  
*Photo courtesy of City of Maplewood*

**Respondents' ratings of the importance of each of these factors when deciding which asset management system(s) to use**



Airport

*Photo courtesy of Metropolitan Airports Commission*

## Asset management tools and systems used in Minnesota

Asset type		Tools			Systems					
		MS Excel	ESRI GIS database	Pencil & paper	Cartograph	MnDOT SIMS	Icon	Simple Signs	Other	No system
<b>Roads (N=228)</b>	Smaller cities	32%	8%	23%	1%	0%	0%	0%	12%	44%
	Larger cities	48%	47%	20%	23%	4%	20%	2%	23%	9%
	Counties	55%	28%	29%	3%	22%	26%	22%	16%	17%
<b>Bridges (N=126)</b>	Smaller cities	36%	9%	18%	0%	0%	0%	0%	0%	36%
	Larger cities	29%	27%	25%	9%	32%	2%	0%	11%	20%
	Counties	29%	9%	21%	0%	69%	3%	3%	12%	16%
<b>Transit lines (N=8)</b>	Smaller cities	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Larger cities	0%	50%	0%	0%	0%	0%	0%	0%	50%
	Counties	33%	0%	33%	0%	33%	0%	0%	0%	33%
<b>Traffic fixtures (N=165)</b>	Smaller cities	13%	2%	28%	0%	0%	0%	0%	0%	60%
	Larger cities	30%	33%	17%	16%	0%	3%	6%	19%	31%
	Counties	22%	17%	17%	7%	2%	12%	27%	15%	24%
<b>Buildings (N=183)</b>	Smaller cities	19%	0%	25%	0%	0%	0%	0%	3%	57%
	Larger cities	29%	26%	24%	3%	0%	0%	0%	15%	39%
	Counties	16%	3%	39%	0%	0%	0%	0%	11%	45%
<b>Water supply and distribution pipes (N=156)</b>	Smaller cities	32%	0%	26%	1%	0%	10%	0%	40%	41%
	Larger cities	41%	0%	15%	15%	0%	51%	0%	16%	16%
	Counties	20%	0%	20%	0%	0%	0%	0%	15%	60%
<b>Waste water collection and treatment (N=159)</b>	Smaller cities	32%	8%	25%	1%	0%	0%	0%	13%	43%
	Larger cities	39%	52%	20%	16%	0%	1%	0%	18%	18%
	Counties	0%	33%	33%	0%	0%	0%	0%	67%	33%
<b>Storm sewers (N=186)</b>	Smaller cities	27%	9%	24%	1%	0%	0%	0%	11%	47%
	Larger cities	36%	54%	17%	17%	0%	0%	0%	17%	17%
	Counties	19%	10%	23%	0%	0%	6%	0%	7%	48%
<b>Storm ponds (N=145)</b>	Smaller cities	24%	11%	9%	2%	0%	0%	0%	9%	58%
	Larger cities	35%	58%	16%	14%	0%	0%	0%	16%	17%
	Counties	6%	11%	17%	0%	0%	6%	0%	0%	61%
<b>Airports (N=32)</b>	Smaller cities	33%	8%	17%	0%	0%	0%	0%	25%	25%
	Larger cities	64%	29%	21%	0%	0%	0%	0%	7%	7%
	Counties	17%	33%	50%	0%	0%	0%	0%	0%	33%
<b>Ports (N=2)</b>	Smaller cities	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Larger cities	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Counties	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Railways (N=18)</b>	Smaller cities	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Larger cities	0%	25%	0%	0%	0%	0%	0%	13%	75%
	Counties	0%	0%	0%	0%	33%	0%	33%	0%	67%
<b>Electrical systems (N=52)</b>	Smaller cities	27%	7%	27%	0%	0%	0%	0%	20%	33%
	Larger cities	41%	44%	21%	3%	0%	0%	0%	18%	24%
	Counties	0%	0%	0%	0%	33%	0%	33%	33%	33%
<b>Solid waste facilities (N=27)</b>	Smaller cities	0%	20%	40%	0%	0%	0%	0%	20%	20%
	Larger cities	29%	14%	29%	0%	0%	0%	0%	14%	43%
	Counties	20%	13%	33%	0%	0%	0%	0%	13%	40%
<b>Natural gas networks (N=18)</b>	Smaller cities	11%	0%	11%	0%	0%	0%	0%	11%	67%
	Larger cities	0%	14%	14%	0%	0%	0%	0%	0%	71%
	Counties	50%	0%	0%	0%	0%	0%	0%	50%	50%

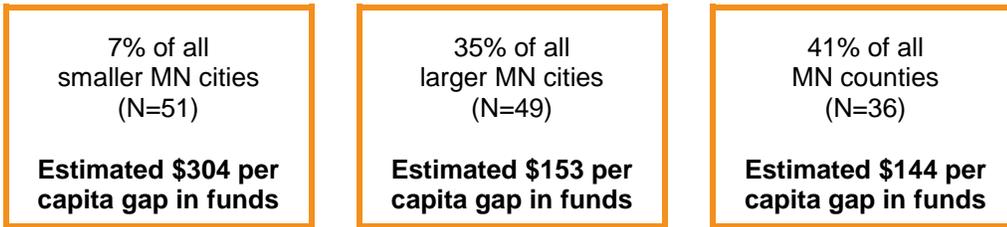
Smaller cities (pop. < 5,000), Larger cities (pop. ≥ 5,000)



## There is a substantial gap between infrastructure investment needs and available funds

Survey participants were asked about the gap between their jurisdiction’s annual infrastructure investment needs and available funds. The per capita estimates below are based on calculations of the gap in funds per capita for each jurisdiction based on responses from 6 percent of all smaller cities, 36 percent of all larger cities, 40 percent of all counties, and one state agency in Minnesota.

### Estimated per capita gap between annual infrastructure investment needs and available funds



*Larger cities (population ≥ 5,000). Smaller cities (population < 5,000).  
Smaller city, larger city, and county totals based on 5-yr 2009-2013 American Community Survey estimates.  
One of the two state agencies surveyed answered this question and responded that the gap in funds is \$0.*



Greater Minnesota road  
Photo courtesy of Crow Wing County Highway Department

# Suggestions for strengthening asset management practices in Minnesota

## Key findings:

-  Asset management practices are not being fully implemented across jurisdictions in Minnesota for the 15 types of infrastructure assets included in this survey. This is true across jurisdiction types.
-  Of all the jurisdiction types, smaller cities need the most support with asset management.
-  Some jurisdictions may need more technical assistance and support to select and implement asset management tools/software.
-  Many jurisdictions lack awareness of and/or do not use various asset management practices, standards, and requirements.

The following recommendations should be considered as possible ways to strengthen asset management practices across jurisdiction types in Minnesota:

-  Make resources available, especially for smaller cities, to implement an asset management system.
-  Host conferences, training sessions, webinars, or other forms of education to help those who want to begin or strengthen asset management practices in their jurisdiction.
-  Consider advocating for the use of a few select, easy-to-use asset management systems rather than so many different systems, to promote collaboration and capacity building across jurisdictions.
-  Facilitate the building of relationships with neighboring jurisdictions to build regional capacity for using asset management systems and practices.
-  Explore public policy solutions that could make asset management a standard practice for every jurisdiction.

## Wilder Research

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### For more information

This summary presents highlights of the *2015 State of the Infrastructure survey*. For more information about this report, contact Nicole MartinRogers at Wilder Research, 651-280-2682.

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