Financial Needs for Water and Wastewater Infrastructure in Indiana (2015–2034)

Indiana Advisory Commission on Intergovernmental Relations
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Executive Summary

Financial Needs for Water and Wastewater Infrastructure in Indiana (2015–2034) is an assessment of water and wastewater infrastructure needs in Indiana. This study is sponsored by the Indiana Advisory Commission on Intergovernmental Relations (IACIR) and the Indiana Office of Community and Rural Affairs (OCRA). The Indiana Association of Regional Councils provided research assistance. The Indiana Finance Authority State Revolving Loan Programs (SRF), U.S. Department of Agriculture Rural Development – Indiana (USDA RD), ACEC Indiana Funding Sources Committee, and the Indiana Rural Wastewater Task Force provided additional assistance and important feedback during the effort.

Needs are defined generally as the costs of investments required for capital projects to rehabilitate or improve infrastructure to meet current service or regulatory requirements. Twenty-year needs (2015–2034) are estimated here for: (1) correction of combined sewer overflows (CSO); (2) wastewater conveyance and treatment; (3) remediation of failing septic systems; (4) stormwater conveyance and management; and (5) drinking water production, treatment, and distribution. The estimates are based on self-reporting, surveys, engineering models, and other data depending on the type of infrastructure. A range of estimates is presented to account for the uncertainty associated with methodologies developed in the absence of complete site-specific data.

20-year water and wastewater capital needs are $15.6–$17.5 billion

The 20-year working estimates of statewide needs for water and wastewater infrastructure range from $15.6 to $17.5 billion (Figure ES1 and Table ES1). This likely is an underestimate of actual needs because some infrastructure types are underestimated, and the estimate does not include all types of infrastructure, operations and maintenance, the cost of potential new regulations, or potential cost overruns.

20-year water and wastewater capital needs funding gap are $6.5–$8.5 billion

Current evidence indicates water and wastewater needs will not be met by current levels of investment by state and local governments. Between January 2005 and December 2014, local governments invested approximately $3.4 billion in CSOs, wastewater, and stormwater infrastructure, or $343 million annually. These entities invested approximately $1.1 billion in drinking water infrastructure or $111 million annually (Dodge Data & Analytics, 2015). State and federal agencies, including the SRF, OCRA, and the U.S. Department of Agriculture Rural Development, supported many of these investments. If infrastructure spending is similar to the previous estimate (Dodge Data & Analytics, 2015), state and local governments will have to invest an additional $6.5 to $8.5 billion, or $326 to $423 million annually, to meet the infrastructure capital needs identified in this report.

Drinking water infrastructure accounts for the most needs: $6.6 billion

The 20-year working estimate of statewide capital needs for drinking water infrastructure is $6.6 billion. This includes estimates for three categories of systems:

- $1.9 billion for large systems (serving greater than 100,000 population)
- $3.6 billion for medium systems (serving 3,301 to 100,000 population)
- $1.2 billion for small systems (serving 3,300 or less population)

This estimate is based on needs from the U.S. Environmental Protection Agency *2011 Drinking Water Needs Survey and Assessment* (2013), referred to as "2011 DWNS" hereafter. For medium and large

Figure ES1. Working estimates of water and wastewater capital needs in Indiana 2015–2034

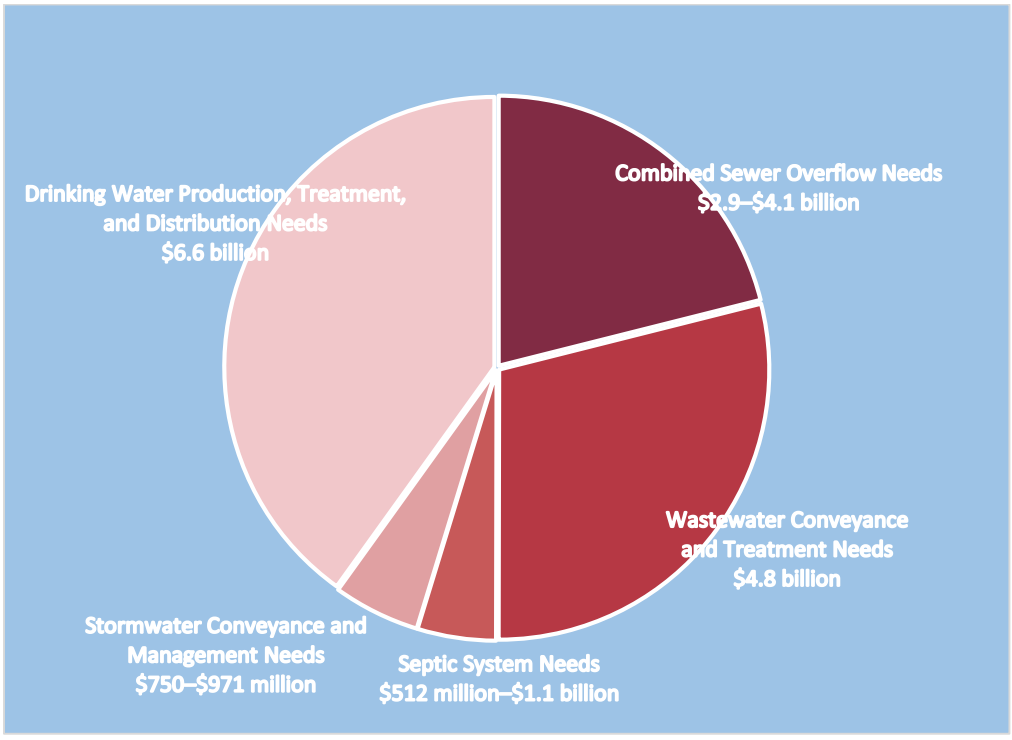

Table ES1. Working estimates of water and wastewater capital needs in Indiana 2015–2034 (2014 dollars rounded to ten thousands)

	Combined sewer overflow (CSO) needs	Wastewater conveyance and treatment needs	Septic system needs	TOTAL wastewater needs (CSO, wastewater, septic)	Stormwater conveyance and manage-ment needs	Drinking water production, treatment, and distribution needs	TOTAL water and wastewater needs
20-year needs							
Low	$2,910,410,000	$4,798,850,000	$512,140,000	$8,221,400,000	$749,660,000	$6,642,570,000	$15,613,630,000
High	$4,075,600,000	$4,798,850,000	$1,032,020,000	$9,906,470,000	$971,240,000	$6,642,570,000	$17,520,280,000
Midpoint	$3,493,010,000	$4,798,850,000	$772,080,000	$9,063,940,000	$860,450,000	$6,642,570,000	$16,566,960,000
Annual needs							
Low	$145,520,000	$239,940,000	$25,610,000	$411,070,000	$37,480,000	$332,130,000	$780,680,000
High	$203,780,000	$239,940,000	$51,600,000	$495,320,000	$48,560,000	$332,130,000	$876,010,000
Midpoint	$174,650,000	$239,940,000	$38,600,000	$453,200,000	$43,020,000	$332,130,000	$828,350,000

Note: Sources and methodologies for estimating high and low needs by type of water infrastructure are provided on pages 8 to 28.

facilities, the DWNS is based specifically on national data from all large systems and a sample of medium systems. Infrastructure needs from the 2007 national assessment were used to estimate needs for small systems. While the 2011 DWNS is the best available estimate, it may be conservative because it does not include infrastructure needs that are not eligible for the SRF loan program.

Wastewater conveyance and treatment needs are $4.8 billion

The 20-year working estimate of statewide capital needs for correction of wastewater conveyance and treatment is $4.8 billion. These needs are based on estimates from the U.S. Environmental Protection Agency 2012 Clean Watershed Needs Survey [database](2015c) referred to hereafter as "2012 CWNS." Of the 446 municipal sewer systems surveyed, 212 responded to the 2012 CWNS (47.5 percent). To address this underreporting of needs, the research team calculated per capita costs for respondent systems in the aggregate and applied that factor to nonrespondent systems. The estimate of needs reported here is the aggregation of the reported and extrapolated needs.

Combined sewer overflow corrections needs range from $2.9–$4.1 billion

The 20-year working estimates of statewide capital needs for the correction of CSOs is $2.9 to $4.1 billion. Seventy-one communities in 48 counties had outstanding CSO infrastructure projects in March 2015, which is fewer communities with documented needs than in 2003 (Lindsey, Worgan & Palmer).

The range of needs documented here is based on costs documented in community long-term control plans. Costs were identified for the 2012 CWNS using documentation contained in these plans. Similarly, the 2015 estimate also was based on an analysis of projects of community long-term control plans identified as outstanding in Indiana Department of Environmental Management (IDEM) Work Activity Log (WAL) Tasks Reports on March 23, 2015. The two estimates are used to establish a range of needs in each county.

Remediation of failing septic systems needs range are $512 million–$1 billion

The 20-year working estimate of statewide capital needs for solutions to septic system failures ranges from $512 million to $1 billion. The approach to estimating needs for remediation of failing septic systems involved determining the number of failing systems in each county and multiplying that number by the estimated cost of remediation. The data were collected by surveying county health departments. While a number of counties did not respond to the survey, the responses from respondent counties were too varied to create estimates that could be used for the missing information. No adjustment has been made to the survey responses to account for nonrespondents. As a result, the needs reported here likely are an underestimation.

Stormwater management needs are $750–$971 million

The 20-year working estimate of statewide capital needs for stormwater infrastructure ranges from $750 to $971 million. Currently, there is no comprehensive compilation of stormwater infrastructure needs. A very limited set of needs for storm sewers are included in the 2012 CWNS. Many of these needs are drawn from plans prepared by communities required to have National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) programs to control pollutants in urban runoff. The coverage of these needs is inadequate for use to estimate overall stormwater infrastructure needs. The alternate approach for estimation is based on the following factors: the number of developed acres in each county, the per-acre stormwater programming cost for varied levels of services, assumptions about the proportion of stormwater costs associated with capital

needs, and assumptions about the level of service that is required to meeting water quality and drainage/flooding objectives. The alternate method of estimation was used except in a few cases when needs identified in the 2012 CWNS were greater.

All counties have significant needs

All 92 Indiana counties have significant water and wastewater infrastructure needs (Table ES2). Across counties, the working estimates of needs range from lows of $11.5 to $12.2 million in Warren County and $13.5 to $13.7 million in Union County to highs of $3.2 to $3.5 billion in Marion County and $1.2 to $1.3 billion in Lake County. Of the low estimates, including Marion and Lake counties, 31 counties have needs greater than $100 million. Thirty-seven additional counties have low estimated needs greater than $50 million. Of the high estimates, 34 counties have needs greater than $100,000. Thirty-six additional counties have high estimated needs greater than $50 million.

Communities must use user rates first to meet needs and utilize asset management to maximize the utility of local investments

Indiana will need significant additional funding to meet community water and wastewater infrastructure needs over the next 20 years. Ultimately, much of the infrastructure will be paid for with user charges. Utilities must be encouraged to set user rates that allow them to address capital depreciation, operations and maintenance, and other needs. Asset management is important for utilities of all sizes in maximizing the benefit of existing resources. Utilities must know the assets they own and the condition of those assets to manage them and to make good choices about repair and replacement.

Additional low-cost loan and grant funding and low-cost infrastructure options needed to meet water capital needs for the most challenged communities

Even with good management, some communities will not be able to afford their infrastructure needs because of low customer incomes and/or relatively expensive project costs due to a limited number of customers and distance from other communities. Currently, communities have access to limited grant funding and interest rate subsidies. IFA SRF, OCRA, USDA RD, and other funders do everything they can to find additional resources and to wring the most utility out of available resources. However, to serve the most challenged communities additional grant funds and low-or-no interest loans are needed. In addition to more funding support, Indiana must institutionalize the maintenance of existing septic systems and the availability of additional low cost infrastructure solutions.

Ongoing effort needed to refine and update these infrastructure needs estimates

To maintain focus on this important issue, these estimates should be updated with the completion of each new CWNS and DWNS and other studies that document water-related infrastructure. The estimates of septic remediation and stormwater needs will be the subject of additional immediate work by the IACIR. Currently, the research team is working with the Indiana Rural Community Action Program to update an inventory of unsewered communities that will augment the septic remediation needs reported here. The research team will explore additional methods for establishing community-specific stormwater needs beyond the strict requirements of the CWNS.

Table ES2. Working estimates for water and wastewater capital needs by county 2015–2034 (2014 dollars and rounded to ten thousands)

	Total water and wastewater needs			Total water and wastewater needs	
County	**Low**	**High**	**County**	**Low**	**High**
Adams	$93,260,000	$94,410,000	Lawrence	$114,360,000	$114,960,000
Allen	$976,110,000	$1,117,440,000	Madison	$289,110,000	$292,820,000
Bartholomew	$112,700,000	$114,200,000	Marion	$3,212,780,000	$3,487,050,000
Benton	$22,390,000	$28,540,000	Marshall	$76,340,000	$77,560,000
Blackford	$49,540,000	$50,400,000	Martin	$55,250,000	$55,490,000
Boone	$110,660,000	$112,140,000	Miami	$80,280,000	$81,930,000
Brown	$56,950,000	$57,000,000	Monroe	$149,020,000	$149,620,000
Carroll	$20,060,000	$20,510,000	Montgomery	$61,980,000	$61,980,000
Cass	$147,360,000	$148,580,000	Morgan	$137,600,000	$138,560,000
Clark	$240,240,000	$242,950,000	Newton	$28,350,000	$29,640,000
Clay	$44,610,000	$45,240,000	Noble	$78,420,000	$85,470,000
Clinton	$53,330,000	$54,120,000	Ohio	$23,110,000	$23,200,000
Crawford	$30,010,000	$30,190,000	Orange	$49,040,000	$49,370,000
Daviess	$66,400,000	$66,980,000	Owen	$53,670,000	$53,790,000
Dearborn	$161,550,000	$170,300,000	Parke	$36,830,000	$37,170,000
Decatur	$43,200,000	$44,090,000	Perry	$63,090,000	$63,960,000
DeKalb	$91,160,000	$93,030,000	Pike	$32,020,000	$32,410,000
Delaware	$278,260,000	$577,820,000	Porter	$168,380,000	$179,020,000
Dubois	$134,230,000	$135,080,000	Posey	$37,210,000	$37,880,000
Elkhart	$353,380,000	$385,650,000	Pulaski	$14,630,000	$15,490,000
Fayette	$73,000,000	$81,470,000	Putnam	$50,920,000	$51,650,000
Floyd	$61,230,000	$62,200,000	Randolph	$70,830,000	$72,180,000
Fountain	$34,190,000	$34,660,000	Ripley	$76,440,000	$76,980,000
Franklin	$28,770,000	$29,080,000	Rush	$36,110,000	$36,690,000
Fulton	$41,020,000	$41,510,000	St. Joseph	$1,100,700,000	$1,121,830,000
Gibson	$92,690,000	$95,430,000	Scott	$59,640,000	$59,970,000
Grant	$155,460,000	$190,580,000	Shelby	$57,510,000	$58,590,000
Greene	$78,340,000	$78,790,000	Spencer	$56,460,000	$65,850,000
Hamilton	$331,950,000	$351,210,000	Starke	$37,230,000	$38,020,000
Hancock	$91,380,000	$95,500,000	Steuben	$94,570,000	$109,080,000
Harrison	$102,190,000	$102,520,000	Sullivan	$74,940,000	$78,130,000
Hendricks	$337,930,000	$418,390,000	Switzerland	$30,950,000	$31,400,000
Henry	$77,920,000	$80,960,000	Tippecanoe	$260,630,000	$598,410,000
Howard	$131,200,000	$133,460,000	Tipton	$37,840,000	$60,020,000
Huntington	$104,450,000	$108,190,000	Union	$13,510,000	$13,670,000
Jackson	$81,910,000	$86,550,000	Vanderburgh	$811,190,000	$1,038,500,000
Jasper	$78,300,000	$100,440,000	Vermillion	$58,760,000	$59,680,000
Jay	$70,640,000	$78,880,000	Vigo	$282,410,000	$330,520,000
Jefferson	$80,660,000	$82,310,000	Wabash	$81,580,000	$83,710,000
Jennings	$119,540,000	$122,610,000	Warren	$11,540,000	$12,230,000
Johnson	$170,960,000	$176,490,000	Warrick	$98,870,000	$100,030,000
Knox	$63,170,000	$64,160,000	Washington	$89,830,000	$90,080,000
Kosciusko	$125,830,000	$127,480,000	Wayne	$206,450,000	$232,980,000
LaGrange	$37,940,000	$39,190,000	Wells	$41,940,000	$44,830,000
Lake	$1,195,740,000	$1,287,900,000	White	$77,930,000	$80,810,000
LaPorte	$122,360,000	$183,360,000	Whitley	$59,200,000	$65,070,000

Note: Sources and methodologies for estimating high and low needs by type of water infrastructure are provided on pages 8 to 28.

Introduction

Financial Needs for Water and Wastewater Infrastructure in Indiana (2015–2034) is an update of two similar assessments published by the Indiana Advisory Commission on Intergovernmental Relations (IACIR) in 2003 and 2006 (Lindsey, Worgan & Palmer; Palmer, Lindsey & Worgan). The current study is sponsored by the IACIR and the Indiana Office of Community and Rural Affairs (OCRA). The Indiana Association of Regional Councils and its member organizations provided research assistance. The Indiana Finance Authority State Revolving Loan Programs (SRF), U.S. Department of Agriculture Rural Development – Indiana (USDA RD), ACEC Indiana Funding Sources Committee, and the Indiana Rural Wastewater Task Force provided assistance and important feedback during the effort.

As in the past, the current assessment documents financial needs for five categories of water-related infrastructure in Indiana. Needs are defined generally as the costs of investments required for capital projects to rehabilitate or improve infrastructure to meet current service or regulatory requirements. Twenty-year working estimates (2015–2034) are provided here for: (1) correction of combined sewer overflows (CSO); (2) wastewater conveyance and treatment; (3) remediation of failing septic systems; (4) stormwater conveyance and management; and (5) drinking water production, treatment, and distribution.

While this work updates information published in 2003 and 2006 (Lindsey, Worgan & Palmer; Palmer, Lindsey & Worgan), care should be taken in comparing the needs across the three reports. This report does not include as complete an inventory as in 2003 and 2006. The next update of our work will fill in additional needs for communities that are not reported here.

This report has three major findings:

- 20-year statewide capital needs for wastewater and drinking water infrastructure are $15.6 billion to $17.5 billion (Table 1).
- Indiana has significant needs in all water-related infrastructure categories.
- All 92 counties have significant capital needs (Table 2)
- Indiana has a $6.5 to $8.5 billion 20-year funding gap. This translates to an annual funding gap of $326 to $423 million.

The remainder of the report presents working estimates in five categories of water and wastewater infrastructure accompanied by a brief discussion of the methodology used to create them. Estimates are presented for the state and by county. They are summed across infrastructure categories to establish an overall working estimate of needs. These estimates are called “working estimates” because they are incomplete and could change as better information becomes available. High and low estimates are presented where possible to account for the uncertainty that comes with forecasting.

The description of working estimates is followed by a discussion of water-related infrastructure spending and the potential funding gap between needed infrastructure and current levels of investment. In addition, the discussion includes documentation of support provided by SRF, OCRA, and USDA RD. The report wraps up with a brief discussion of the policy implications.

Current Working Water and Wastewater Capital Needs Estimates

The U.S. Environmental Protection Agency estimates from the 2012 Clean Watershed Needs Survey (2015c; referred to hereafter as "2012 CWNS") and the 2011 Drinking Water Needs Survey (2013; referred to hereafter as "2011 DWNS") were used as the basis for the estimates presented here, and were supplemented using additional methodologies depending on the type of infrastructure. The estimate for drinking water needs is reported without modification except the adjustment for inflation. For CSO infrastructure, estimates are based on a combination of the 2012 CWNS data and a new analysis of outstanding projects in community long-term control plans (LTCP). The 2012 CWNS estimates for wastewater were supplemented by assigning a per capita cost to non-respondent systems. Original estimates were developed for septic system remediation. The 2012 CWNS and original estimates were combined to estimate stormwater infrastructure needs. In most cases, ranges of needs were developed to account for the uncertainty associated with missing or calculated data. Complete descriptions of needs and methodologies by infrastructure type are presented below.

High and low 20-year working estimates of financial needs for the five types of water and wastewater infrastructure are reported in Figure 1 and Table 1. This assessment indicates that needs range from $15.6 to $17.5 billion. These estimates are higher than those identified by the U.S. Environmental Protection Agency because they include needs and categories of needs that are not included in the 2012 CWNS or are underreported there.

These working estimates likely underestimate the true magnitude of needs for several reasons. First, they do not include a complete set of needs for each community. Some communities either chose not to provide data when asked or were not able to provide it in the format needed. Additionally, they do not include estimates for operations and maintenance costs, additional resources that may be needed for new regulations, or contingencies for cost overruns.

All 92 Indiana counties have significant water and wastewater infrastructure needs (Table 2). Across counties, the working estimates of needs range from lows of $12 million in Warren County and $14 million in Union County to highs of $3.2 to $3.5 billion in Marion County and $1.2 to $1.3 billion in Lake County. Of the low estimates, including Marion and St. Joseph counties, 31 counties have needs greater than $100 million. Thirty-seven additional counties have needs greater than $50 million. Of the high estimates, 34 counties have needs greater than $100,000. Thirty-six additional counties have needs greater than $50 million.

The variation in needs across counties reflects variations in real needs and in the approaches used to develop these estimates. All counties do not have real needs or reported needs in all categories. For example, 71 communities in 48 counties have identified CSO needs. Capital needs are reported for 64 of these communities in 44 counties. Similarly, likely there are septic system remediation needs in almost all counties, but only 28 counties supplied sufficient information to create estimates.

Figure 1. Working estimates of water and wastewater capital needs in Indiana 2015–2034

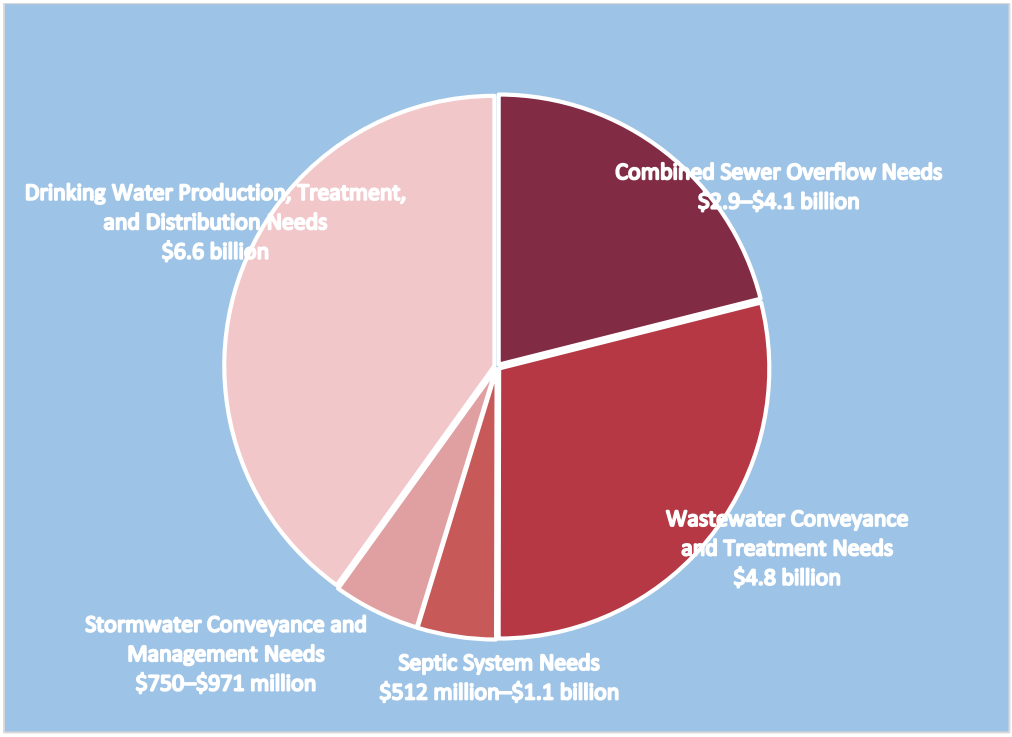

Table 1. Working estimates of water and wastewater capital needs in Indiana 2015–2034 (2014 dollars rounded to ten thousands)

	Combined sewer overflow (CSO) needs	Wastewater conveyance and treatment needs	Septic system needs	TOTAL wastewater needs (CSO, wastewater, septic)	Stormwater conveyance and manage-ment needs	Drinking water production, treatment, and distribution needs	TOTAL water and wastewater needs
20-year needs							
Low	$2,910,410,000	$4,798,850,000	$512,140,000	$8,221,400,000	$749,660,000	$6,642,570,000	$15,613,630,000
High	$4,075,600,000	$4,798,850,000	$1,032,020,000	$9,906,470,000	$971,240,000	$6,642,570,000	$17,520,280,000
Midpoint	$3,493,010,000	$4,798,850,000	$772,080,000	$9,063,940,000	$860,450,000	$6,642,570,000	$16,566,960,000
Annual needs							
Low	$145,520,000	$239,940,000	$25,610,000	$411,070,000	$37,480,000	$332,130,000	$780,680,000
High	$203,780,000	$239,940,000	$51,600,000	$495,320,000	$48,560,000	$332,130,000	$876,010,000
Midpoint	$174,650,000	$239,940,000	$38,600,000	$453,200,000	$43,020,000	$332,130,000	$828,350,000

Note: Sources and methodologies for estimating high and low needs by type of water infrastructure are provided on pages 8 to 28.

Table 2. Low and high working estimates for water and wastewater capital needs by county 2015–2034 (2014 dollars and rounded to ten thousands)

	CSO needs		Wastewater	Septic system needs		Total wastewater needs		Stormwater needs		Drinking water	Total water and wastewater needs	
County	Low	High	needs	Low	High	Low	High	Low	High	needs	Low	High
All counties	$2,910,410,000	$4,075,600,000	$4,798,850,000	$512,140,000	$1,032,020,000	$8,221,400,000	$9,906,470,000	$749,660,000	$971,240,000	$6,642,570,000	$15,613,630,000	$17,520,280,000
Adams	$3,000,000	$3,040,000	$16,370,000	$26,100,000	$26,400,000	$45,470,000	$45,810,000	$2,640,000	$3,450,000	$45,150,000	$93,260,000	$94,410,000
Allen	$205,370,000	$233,690,000	$139,120,000	$147,500,000	$250,000,000	$491,990,000	$622,810,000	$34,320,000	$44,830,000	$449,800,000	$976,110,000	$1,117,440,000
Bartholomew	$0	$0	$49,170,000	$0	$0	$49,170,000	$49,170,000	$4,870,000	$6,370,000	$58,660,000	$112,700,000	$114,200,000
Benton	$0	$5,180,000	$7,110,000	$0	$0	$7,110,000	$12,290,000	$3,190,000	$4,160,000	$12,090,000	$22,390,000	$28,540,000
Blackford	$13,790,000	$14,350,000	$15,200,000	$0	$0	$28,990,000	$29,550,000	$1,000,000	$1,300,000	$19,550,000	$49,540,000	$50,400,000
Boone	$0	$0	$60,660,000	$0	$0	$60,660,000	$60,660,000	$4,850,000	$6,330,000	$45,150,000	$110,660,000	$112,140,000
Brown	$0	$0	$4,170,000	$0	$0	$4,170,000	$4,170,000	$160,000	$210,000	$52,620,000	$56,950,000	$57,000,000
Carroll	$0	$0	$8,500,000	$0	$0	$8,500,000	$8,500,000	$1,480,000	$1,930,000	$10,080,000	$20,060,000	$20,510,000
Cass	$13,410,000	$13,710,000	$79,720,000	$0	$0	$93,130,000	$93,430,000	$3,030,000	$3,950,000	$51,200,000	$147,360,000	$148,580,000
Clark	$30,930,000	$33,640,000	$32,990,000	$0	$0	$63,920,000	$66,630,000	$10,410,000	$10,410,000	$165,910,000	$240,240,000	$242,950,000
Clay	$0	$0	$13,790,000	$1,140,000	$1,140,000	$14,930,000	$14,930,000	$2,070,000	$2,700,000	$27,610,000	$44,610,000	$45,240,000
Clinton	$0	$0	$23,160,000	$0	$0	$23,160,000	$23,160,000	$2,560,000	$3,350,000	$27,610,000	$53,330,000	$54,120,000
Crawford	$0	$0	$3,520,000	$13,820,000	$13,820,000	$17,340,000	$17,340,000	$580,000	$760,000	$12,090,000	$30,010,000	$30,190,000
Daviess	$0	$0	$21,360,000	$0	$0	$21,360,000	$21,360,000	$1,900,000	$2,480,000	$43,140,000	$66,400,000	$66,980,000
Dearborn	$2,400,000	$2,430,000	$27,180,000	$2,650,000	$10,600,000	$32,260,000	$56,680,000	$2,520,000	$3,290,000	$126,800,000	$161,580,000	$186,770,000
Decatur	$0	$0	$14,700,000	$0	$0	$14,700,000	$17,100,000	$2,900,000	$3,790,000	$25,600,000	$43,200,000	$46,490,000
DeKalb	$18,210,000	$18,900,000	$23,970,000	$0	$0	$42,180,000	$42,870,000	$3,830,000	$5,010,000	$45,150,000	$91,160,000	$93,030,000
Delaware	$135,880,000	$179,260,000	$54,210,000	$20,060,000	$273,530,000	$210,150,000	$507,000,000	$8,850,000	$11,560,000	$59,260,000	$278,260,000	$577,820,000
Dubois	$0	$0	$25,040,000	$6,640,000	$6,640,000	$31,680,000	$31,680,000	$2,760,000	$3,610,000	$99,790,000	$134,230,000	$135,080,000
Elkhart	$116,270,000	$140,690,000	$115,630,000	$1,500,000	$1,500,000	$233,400,000	$257,820,000	$25,640,000	$33,490,000	$94,340,000	$353,380,000	$385,650,000
Fayette	$17,400,000	$25,400,000	$22,300,000	$6,180,000	$6,180,000	$45,880,000	$53,880,000	$1,520,000	$1,990,000	$25,600,000	$73,000,000	$81,470,000
Floyd	$0	$0	$2,890,000	$30,000	$30,000	$2,920,000	$2,920,000	$3,680,000	$4,650,000	$54,630,000	$61,230,000	$62,200,000
Fountain	$1,040,000	$1,040,000	$6,020,000	$0	$0	$7,060,000	$7,060,000	$1,530,000	$2,000,000	$25,600,000	$34,190,000	$34,660,000
Franklin	$0	$0	$4,190,000	$0	$0	$4,190,000	$4,190,000	$1,000,000	$1,310,000	$23,580,000	$28,770,000	$29,080,000
Fulton	$0	$0	$13,790,000	$0	$0	$13,790,000	$13,790,000	$1,630,000	$2,120,000	$25,600,000	$41,020,000	$41,510,000
Gibson	$0	$0	$17,520,000	$5,100,000	$6,820,000	$22,620,000	$24,340,000	$3,350,000	$4,370,000	$66,720,000	$92,690,000	$95,430,000
Grant	$18,920,000	$52,200,000	$61,760,000	$0	$0	$80,680,000	$113,960,000	$6,040,000	$7,880,000	$68,740,000	$155,460,000	$190,580,000
Greene	$0	$0	$16,190,000	$0	$0	$16,190,000	$16,190,000	$1,470,000	$1,920,000	$60,680,000	$78,340,000	$78,790,000
Hamilton	$5,820,000	$17,050,000	$188,030,000	$0	$0	$193,850,000	$205,080,000	$26,220,000	$34,250,000	$111,880,000	$331,950,000	$351,210,000
Hancock	$0	$2,470,000	$40,840,000	$0	$0	$40,840,000	$43,310,000	$5,390,000	$7,040,000	$45,150,000	$91,380,000	$95,500,000
Harrison	$0	$0	$11,430,000	$0	$0	$11,430,000	$11,430,000	$1,050,000	$1,380,000	$89,710,000	$102,190,000	$102,520,000
Hendricks	$3,500,000	$3,580,000	$73,110,000	$147,000,000	$223,540,000	$223,610,000	$300,230,000	$12,520,000	$16,360,000	$101,800,000	$337,930,000	$418,390,000
Henry	$21,460,000	$23,390,000	$19,170,000	$0	$0	$40,630,000	$42,560,000	$3,630,000	$4,740,000	$33,660,000	$77,920,000	$80,960,000
Howard	$5,350,000	$5,420,000	$83,010,000	$0	$0	$88,360,000	$88,430,000	$7,160,000	$9,350,000	$35,680,000	$131,200,000	$133,460,000
Huntington	$27,180,000	$29,930,000	$42,390,000	$0	$0	$69,570,000	$72,320,000	$3,230,000	$4,220,000	$31,650,000	$104,450,000	$108,190,000
Jackson	$0	$3,730,000	$35,800,000	$0	$0	$35,800,000	$39,530,000	$2,970,000	$3,880,000	$43,140,000	$81,910,000	$86,550,000
Jasper	$0	$19,970,000	$35,540,000	$0	$0	$35,540,000	$55,510,000	$7,080,000	$9,250,000	$35,680,000	$78,300,000	$100,440,000
Jay	$32,440,000	$40,130,000	$12,820,000	$0	$0	$45,260,000	$52,950,000	$1,800,000	$2,350,000	$23,580,000	$70,640,000	$78,880,000
Jefferson	$5,420,000	$7,070,000	$6,400,000	$0	$0	$11,820,000	$13,470,000	$6,150,000	$6,150,000	$62,690,000	$80,660,000	$82,310,000
Jennings	$1,060,000	$3,720,000	$19,420,000	$33,000,000	$33,000,000	$53,480,000	$56,140,000	$1,350,000	$1,760,000	$64,710,000	$119,540,000	$122,610,000
Johnson	$0	$0	$42,110,000	$8,320,000	$10,400,000	$50,430,000	$52,510,000	$11,270,000	$14,720,000	$109,260,000	$170,960,000	$176,490,000
Knox	$0	$0	$6,720,000	$0	$0	$6,720,000	$6,720,000	$3,240,000	$4,230,000	$53,210,000	$63,170,000	$64,160,000
Kosciusko	$0	$0	$36,400,000	$0	$0	$36,400,000	$36,400,000	$5,390,000	$7,040,000	$84,040,000	$125,830,000	$127,480,000
LaGrange	$0	$0	$17,750,000	$0	$0	$17,750,000	$17,750,000	$4,070,000	$5,320,000	$16,120,000	$37,940,000	$39,190,000
Lake	$233,780,000	$310,180,000	$232,040,000	$0	$0	$465,820,000	$542,220,000	$51,520,000	$67,280,000	$678,400,000	$1,195,740,000	$1,287,900,000

Table 2. Low and high working estimates for water and wastewater capital needs by county 2015–2034 (2014 dollars and rounded to ten thousands) (continued)

	CSO needs		Wastewater	Septic system needs		Total wastewater needs		Stormwater needs		Drinking water	Total water and wastewater needs	
County	Low	High	needs	Low	High	Low	High	Low	High	needs	Low	High
LaPorte	$0	$0	$14,020,000	$17,500,000	$75,000,000	$31,520,000	$89,020,000	$11,430,000	$14,930,000	$79,410,000	$122,360,000	$183,360,000
Lawrence	$0	$0	$21,840,000	$830,000	$830,000	$22,670,000	$22,670,000	$1,980,000	$2,580,000	$89,710,000	$114,360,000	$114,960,000
Madison	$63,910,000	$64,090,000	$108,150,000	$480,000	$720,000	$172,540,000	$172,960,000	$10,740,000	$14,030,000	$105,830,000	$289,110,000	$292,820,000
Marion	$862,750,000	$1,056,360,000	$1,674,420,000	$0	$0	$2,537,170,000	$2,730,780,000	$263,500,000	$344,160,000	$412,110,000	$3,212,780,000	$3,487,050,000
Marshall	$0	$0	$19,160,000	$0	$0	$19,160,000	$19,160,000	$3,970,000	$5,190,000	$53,210,000	$76,340,000	$77,560,000
Martin	$0	$0	$11,330,000	$0	$0	$11,330,000	$11,330,000	$780,000	$1,020,000	$43,140,000	$55,250,000	$55,490,000
Miami	$17,230,000	$17,930,000	$16,180,000	$0	$0	$33,410,000	$34,110,000	$3,130,000	$4,080,000	$43,740,000	$80,280,000	$81,930,000
Monroe	$0	$0	$14,910,000	$170,000	$210,000	$15,080,000	$15,120,000	$5,120,000	$5,680,000	$128,820,000	$149,020,000	$149,620,000
Montgomery	$0	$0	$18,700,000	$0	$0	$18,700,000	$18,700,000	$5,590,000	$5,590,000	$37,690,000	$61,980,000	$61,980,000
Morgan	$0	$0	$32,680,000	$0	$0	$32,680,000	$32,680,000	$3,120,000	$4,080,000	$101,800,000	$137,600,000	$138,560,000
Newton	$0	$0	$6,000,000	$0	$0	$6,000,000	$6,000,000	$4,210,000	$5,500,000	$18,140,000	$28,350,000	$29,640,000
Noble	$4,950,000	$11,130,000	$13,400,000	$0	$0	$18,350,000	$24,530,000	$2,820,000	$3,690,000	$57,250,000	$78,420,000	$85,470,000
Ohio	$0	$0	$2,730,000	$510,000	$510,000	$3,240,000	$3,240,000	$320,000	$410,000	$19,550,000	$23,110,000	$23,200,000
Orange	$2,320,000	$2,410,000	$8,860,000	$0	$0	$11,180,000	$11,270,000	$770,000	$1,010,000	$37,090,000	$49,040,000	$49,370,000
Owen	$0	$0	$3,680,000	$28,000,000	$28,000,000	$31,680,000	$31,680,000	$420,000	$540,000	$21,570,000	$53,670,000	$53,790,000
Parke	$0	$0	$6,060,000	$0	$0	$6,060,000	$6,060,000	$1,140,000	$1,480,000	$29,630,000	$36,830,000	$37,170,000
Perry	$2,320,000	$2,870,000	$12,580,000	$0	$0	$14,900,000	$15,450,000	$1,020,000	$1,340,000	$47,170,000	$63,090,000	$63,960,000
Pike	$0	$0	$7,150,000	$0	$0	$7,150,000	$7,150,000	$1,290,000	$1,680,000	$23,580,000	$32,020,000	$32,410,000
Porter	$7,900,000	$14,200,000	$95,110,000	$0	$0	$103,010,000	$109,310,000	$14,170,000	$18,510,000	$51,200,000	$168,380,000	$179,020,000
Posey	$0	$0	$11,450,000	$0	$0	$11,450,000	$11,450,000	$2,180,000	$2,850,000	$23,580,000	$37,210,000	$37,880,000
Pulaski	$0	$0	$5,760,000	$0	$0	$5,760,000	$5,760,000	$2,820,000	$3,680,000	$6,050,000	$14,630,000	$15,490,000
Putnam	$0	$0	$10,950,000	$10,000	$40,000	$10,960,000	$10,990,000	$2,270,000	$2,970,000	$37,690,000	$50,920,000	$51,650,000
Randolph	$0	$700,000	$19,550,000	$0	$0	$19,550,000	$20,250,000	$2,100,000	$2,750,000	$49,180,000	$70,830,000	$72,180,000
Ripley	$0	$0	$11,990,000	$0	$0	$11,990,000	$11,990,000	$1,760,000	$2,300,000	$62,690,000	$76,440,000	$76,980,000
Rush	$3,400,000	$3,550,000	$5,720,000	$0	$0	$9,120,000	$9,270,000	$1,390,000	$1,820,000	$25,600,000	$36,110,000	$36,690,000
St. Joseph	$410,600,000	$422,530,000	$225,800,000	$0	$0	$636,400,000	$648,330,000	$30,030,000	$39,230,000	$434,270,000	$1,100,700,000	$1,121,830,000
Scott	$0	$0	$11,470,000	$12,000,000	$12,000,000	$23,470,000	$23,470,000	$1,090,000	$1,420,000	$35,080,000	$59,640,000	$59,970,000
Shelby	$0	$0	$22,330,000	$0	$0	$22,330,000	$22,330,000	$3,530,000	$4,610,000	$31,650,000	$57,510,000	$58,590,000
Spencer	$4,250,000	$13,200,000	$14,680,000	$420,000	$420,000	$19,350,000	$28,300,000	$1,430,000	$1,870,000	$35,680,000	$56,460,000	$65,850,000
Starke	$0	$0	$13,090,000	$0	$0	$13,090,000	$13,090,000	$2,570,000	$3,360,000	$21,570,000	$37,230,000	$38,020,000
Steuben	$0	$0	$25,930,000	$10,560,000	$23,760,000	$36,490,000	$49,690,000	$4,270,000	$5,580,000	$53,810,000	$94,570,000	$109,080,000
Sullivan	$24,860,000	$27,540,000	$12,730,000	$0	$0	$37,590,000	$40,270,000	$1,670,000	$2,180,000	$35,680,000	$74,940,000	$78,130,000
Switzerland	$0	$0	$10,080,000	$860,000	$1,170,000	$10,940,000	$11,250,000	$460,000	$600,000	$19,550,000	$30,950,000	$31,400,000
Tippecanoe	$121,270,000	$455,470,000	$40,660,000	$10,200,000	$10,200,000	$172,130,000	$506,330,000	$11,700,000	$15,280,000	$76,800,000	$260,630,000	$598,410,000
Tipton	$3,820,000	$25,550,000	$11,010,000	$0	$0	$14,830,000	$36,560,000	$1,440,000	$1,890,000	$21,570,000	$37,840,000	$60,020,000
Union	$0	$0	$7,050,000	$1,920,000	$1,920,000	$8,970,000	$8,970,000	$510,000	$670,000	$4,030,000	$13,510,000	$13,670,000
Vanderburgh	$291,610,000	$514,720,000	$111,320,000	$0	$0	$402,930,000	$626,040,000	$13,690,000	$17,890,000	$394,570,000	$811,190,000	$1,038,500,000
Vermillion	$4,490,000	$4,570,000	$9,820,000	$0	$0	$14,310,000	$14,390,000	$2,730,000	$3,570,000	$41,720,000	$58,760,000	$59,680,000
Vigo	$132,230,000	$177,960,000	$83,160,000	$0	$0	$215,390,000	$261,120,000	$7,760,000	$10,140,000	$59,260,000	$282,410,000	$330,520,000
Wabash	$15,040,000	$16,370,000	$8,680,000	$0	$0	$23,720,000	$25,050,000	$2,630,000	$3,430,000	$55,230,000	$81,580,000	$83,710,000
Warren	$0	$0	$3,240,000	$0	$0	$3,240,000	$3,240,000	$2,250,000	$2,940,000	$6,050,000	$11,540,000	$12,230,000
Warrick	$0	$0	$18,890,000	$0	$0	$18,890,000	$18,890,000	$3,780,000	$4,940,000	$76,200,000	$98,870,000	$100,030,000
Washington	$0	$0	$45,890,000	$0	$0	$45,890,000	$45,890,000	$800,000	$1,050,000	$43,140,000	$89,830,000	$90,080,000
Wayne	$5,640,000	$30,470,000	$135,980,000	$0	$0	$141,620,000	$166,450,000	$5,570,000	$7,270,000	$59,260,000	$206,450,000	$232,980,000
Wells	$0	$2,190,000	$16,080,000	$0	$0	$16,080,000	$18,270,000	$2,280,000	$2,980,000	$23,580,000	$41,940,000	$44,830,000
White	$11,870,000	$13,110,000	$22,990,000	$0	$0	$34,860,000	$36,100,000	$5,380,000	$7,020,000	$37,690,000	$77,930,000	$80,810,000
Whitley	$7,340,000	$8,530,000	$12,380,000	$9,640,000	$13,640,000	$29,360,000	$34,550,000	$2,230,000	$2,910,000	$27,610,000	$59,200,000	$65,070,000

Note: Sources and methodologies for estimating high and low needs by type of water infrastructure are provided on pages 8 to 28.

Working estimate of capital needs for correction of combined sewer overflows (CSOs)

The 20-year working estimates of statewide capital needs for the correction of CSOs range from $2.9 to $4.1 billion. Among counties that reported CSO needs, Fountain County had the least needs ($1 million). Marion County has the most needs ($863 million to $1.1 billion). The median county has no CSO needs (Table 3).

Approach and Limitations

The working estimates of capital needs for CSO correction are based on the review of long-term control plans (LTCP). The 2012 CWNS estimates for CSO correction (Category V) are based on documentation contained in these plans. Data for 64 communities in 46 counties were submitted for the 2012 CWNS. The CWNS has strict requirements for the documentation of needs accepted for the survey. Some projects may be excluded as a result. Similarly, the 2015 estimate also was based on an analysis of projects of community long-term control plans identified as outstanding in Indiana Department of Environmental Management (IDEM) Work Activity Log (WAL) Tasks Reports on March 23, 2015. Seventy-one communities in 48 counties had outstanding CSO infrastructure needs in March 2015. The 2015 estimate includes capital needs for 64 communities that have CSO discharges in 44 counties. Costs were obtained from community LTCPs accessed from the IDEM Virtual File Cabinet and local government websites. The full cost of any project listed as outstanding is included in these estimates. No attempt was made to discern what proportion of the project was complete and to exclude those costs. As a result, costs may be overestimated in some cases. For seven communities project estimates were not available, either because we were not able to access the LTCP, the LTCP has not been approved, or because those communities are in the process of completing a second LTCP. The aggregated estimates do not include these needs. The two estimates are used to establish a range of costs in each county. All estimates are normalized to 2014 dollars and reported in $10,000 increments.

The IACIR 2003 and 2006 water and wastewater capital needs updates utilized different methodologies (Lindsey, Worgan & Palmer; Palmer, Lindsey & Worgan). During that period, communities were just beginning implementation and many did not yet have LTCPs in place. As a result, the U.S. Environmental Protection Agency modelled CSO needs. They have since established that LTCPs are the preferred source of these needs.

Table 3. Combined sewer overflow (CSO) capital needs by county 2015–2034 (2014 dollars rounded to ten thousands)

County	2012 CWNS	2015 Analysis	Low estimate	High estimate
All counties	$3,348,880,000	$3,637,860,000	$2,910,410,000	4,075,600,000
Adams	$3,040,000	$3,000,000*	$3,000,000	$3,040,000
Allen	$205,370,000	$233,690,000	$205,370,000	$233,690,000
Bartholomew	$0	$0	$0	$0
Benton	$0	$5,180,000	$0	$5,180,000
Blackford	$13,790,000	$14,350,000	$13,790,000	$14,350,000
Boone	$0	$0	$0	$0
Brown	$0	$0	$0	$0
Carroll	$0	$0	$0	$0
Cass	$13,710,000	$13,410,000	$13,410,000	$13,710,000
Clark	$30,930,000	$33,640,000	$30,930,000	$33,640,000
Clay	$0	$0	$0	$0
Clinton	$0	$0*	$0	$0
Crawford	$0	$0	$0	$0

Table 3. Combined sewer overflow (CSO) capital needs by county 2015–2034 (2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	2015 Analysis	Low estimate	High estimate
Daviess	$0	$0*	$0	$0
Decatur	$0	$0	$0	$0
DeKalb	$18,900,000	$18,900,000*	$18,900,000	$18,900,000
Delaware	$135,880,000	$179,260,000	$135,880,000	$179,260,000
Dubois	$0	$0	$0	$0
Elkhart	$116,270,000	$140,690,000	$116,270,000	$140,690,000
Fayette	$17,400,000	$25,400,000	$17,400,000	$25,400,000
Floyd	$0	$0	$0	$0
Fountain	$1,040,000	$1,040,000	$1,040,000	$1,040,000
Franklin	$0	$0	$0	$0
Fulton	$0	$0	$0	$0
Gibson	$0	$0	$0	$0
Grant	$18,920,000	$52,200,000	$18,920,000	$52,200,000
Greene	$0	$0	$0	$0
Hamilton	$17,050,000	$5,820,000	$5,820,000	$17,050,000
Hancock	$2,470,000	$0	$0	$2,470,000
Harrison	$0	$0	$0	$0
Hendricks	$3,500,000	$3,580,000*	$3,500,000	$3,580,000
Henry	$23,390,000	$21,460,000	$21,460,000	$23,390,000
Howard	$5,350,000	$5,420,000	$5,350,000	$5,420,000
Huntington	$29,930,000	$27,180,000	$27,180,000	$29,930,000
Jackson	$3,730,000	$0	$0	$3,730,000
Jasper	$0	$19,970,000	$0	$19,970,000
Jay	$40,130,000	$32,440,000	$32,440,000	$40,130,000
Jefferson	$5,420,000	$7,070,000	$5,420,000	$7,070,000
Jennings	$1,060,000	$3,720,000	$1,060,000	$3,720,000
Johnson	$0	0*	$0	$0
Knox	$0	$0	$0	$0
Kosciusko	$0	$0	$0	$0
LaGrange	$0	$0	$0	$0
Lake	$310,180,000	$233,780,000	$233,780,000	$310,180,000
LaPorte	$0	$0	$0	$0
Lawrence	$0	$0	$0	$0
Madison	$63,910,000	$64,090,000	$63,910,000	$64,090,000
Marion	$862,750,000	$1,056,360,000	$862,750,000	$1,056,360,000
Marshall	$0	$0	$0	$0
Martin	$0	$0	$0	$0
Miami	$17,230,000	$17,930,000	$17,230,000	$17,930,000
Monroe	$0	$0	$0	$0
Montgomery	$0	$0	$0	$0
Morgan	$0	$0	$0	$0
Newton	$0	$0	$0	$0
Noble	$11,130,000	$4,950,000	$4,950,000	$11,130,000
Ohio	$0	$0	$0	$0
Orange	$2,320,000	$2,410,000	$2,320,000	$2,410,000
Owen	$0	$0	$0	$0
Parke	$0	$0	$0	$0
Perry	$2,320,000	$2,870,000	$2,320,000	$2,870,000
Pike	$0	$0	$0	$0
Porter	$14,200,000	$7,900,000	$7,900,000	$14,200,000
Posey	$0	$0	$0	$0
Pulaski	$0	$0	$0	$0

Table 3. Combined sewer overflow (CSO) capital needs by county 2015–2034 (2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	2015 Analysis	Low estimate	High estimate
Putnam	$0	$0	$0	$0
Randolph	$0	$700,000	$0	$700,000
Ripley	$0	$0	$0	$0
Rush	$3,400,000	$3,550,000	$3,400,000	$3,550,000
St. Joseph	$422,530,000	$410,600,000	$410,600,000	$422,530,000
Scott	$0	$0	$0	$0
Shelby	$0	$0	$0	$0
Spencer	$13,200,000	$4,250,000	$4,250,000	$13,200,000
Starke	$0	0*	$0	$0
Steuben	$0	$0	$0	$0
Sullivan	$27,540,000	$24,860,000	$24,860,000	$27,540,000
Switzerland	$0	$0	$0	$0
Tippecanoe	$121,270,000	$455,470,000	$121,270,000	$455,470,000
Tipton	$25,550,000	$3,820,000	$3,820,000	$25,550,000
Union	$0	$0	$0	$0
Vanderburgh	$514,720,000	$291,610,000	$291,610,000	$514,720,000
Vermillion	$4,490,000	$4,570,000	$4,490,000	$4,570,000
Vigo	$177,960,000	$132,230,000	$132,230,000	$177,960,000
Wabash	$15,040,000	$16,370,000	$15,040,000	$16,370,000
Warren	$0	$0	$0	$0
Warrick	$0	$0	$0	$0
Washington	$0	$0	$0	$0
Wayne	$5,640,000	$30,470,000	$5,640,000	$30,470,000
Wells	$2,190,000	$0	$0	$2,190,000
White	$13,110,000	$11,870,000	$11,870,000	$13,110,000
Whitley	$8,530,000	$7,340,000	$7,340,000	$8,530,000

Notes:

1. * indicates that there are CSO needs within the county for which no estimate was available either because no LTCP could be located, the plan was not approved, or the community is working on a supplemental LTCP.
2. Batesville (Ripley/Franklin), Edinburgh (Johnson/Bartholomew/Shelby), Nappanee (Elkhart/Kosciusko), and St. Paul (Shelby/Decatur) cross county lines. Estimates for infrastructure in those municipalities are included in the first county listed in parentheses after each municipality.
3. The median county had no CSO capital needs.

Sources:

1. U.S. Environmental Protection Agency, 2012 Clean watershed needs survey [database] (2015)
2. Analysis of outstanding CSO projects on IDEM WAL reports (2015, March 23)
3. Community CSO Long Term Control Plans accessed from the IDEM Virtual File Cabinet and local websites

Working estimate of capital needs for correction wastewater conveyance and treatment

The 20-year working estimate of statewide capital needs for correction of wastewater conveyance and treatment is $4.8 billion. Among counties, Ohio County has the least capital needs ($3 million) and Marion County has the most needs ($1.7 billion). The median county has $17 million in capital needs (Table 4).

Approach and Limitations

Estimated capital needs for wastewater conveyance and treatment are based on estimates from the 2012 CWNS. These estimates include needs for secondary (Category I) and advanced (Category II) wastewater treatment facilities, infiltration and inflow correction (Category III), sewer replacement and

rehabilitation (Category III), and new collector and interceptor sewers (Category IV). Of the 446 municipal sewer systems surveyed, 212 responded (47.5 percent).

The 2012 CWNS does not include estimates for the needs of nonrespondents. To address this underreporting of needs, the research team calculated per capita costs for respondent systems in the aggregate and applied that factor to nonrespondent systems. The estimate of needs reported here is the aggregation of the reported and extrapolated needs. All estimates are normalized to 2014 dollars and reported in $10,000 increments.

In the IACIR 2003 and 2006 water and wastewater needs studies (Lindsey, Worgan & Palmer; Palmer, Lindsey & Worgan), the low needs estimate was based on the methodology described above. Researchers also identified non-respondent systems to the CWNS and applied the per capita cost for respondent systems to the non-respondents. This was used as the high estimate. In the future, researchers may elect to survey non-respondent systems to document directly additional needs that either were not reported or not eligible for the CWNS.

Table 4. Wastewater conveyance and treatment facilities capital needs by county 2015–2034 (2014 dollars rounded to ten thousands)

County	2012 CWNS	Extrapolated needs	Total wastewater needs
All counties	$3,520,800,000	$1,278,050,000	$4,798,850,000
Adams	$4,620,000	$11,750,000	$16,370,000
Allen	$135,910,000	$3,210,000	$139,120,000
Bartholomew	$2,030,000	$47,140,000	$49,170,000
Benton	$3,230,000	$3,880,000	$7,110,000
Blackford	$4,550,000	$10,650,000	$15,200,000
Boone	$22,370,000	$38,290,000	$60,660,000
Brown	$3,600,000	$570,000	$4,170,000
Carroll	$4,180,000	$4,320,000	$8,500,000
Cass	$77,600,000	$2,120,000	$79,720,000
Clark	$15,440,000	$17,550,000	$32,990,000
Clay	$510,000	$13,280,000	$13,790,000
Clinton	$1,450,000	$21,710,000	$23,160,000
Crawford	$1,130,000	$2,390,000	$3,520,000
Daviess	$0	$21,360,000	$21,360,000
Dearborn	$5,490,000	$21,690,000	$27,180,000
Decatur	$110,000	$14,590,000	$14,700,000
DeKalb	$4,000,000	$19,970,000	$23,970,000
Delaware	$44,870,000	$9,340,000	$54,210,000
Dubois	$660,000	$24,380,000	$25,040,000
Elkhart	$76,280,000	$39,350,000	$115,630,000
Fayette	$22,300,000	$0	$22,300,000
Floyd	$1,570,000	$1,320,000	$2,890,000
Fountain	$1,510,000	$4,510,000	$6,020,000
Franklin	$2,950,000	$1,240,000	$4,190,000
Fulton	$110,000	$13,680,000	$13,790,000
Gibson	$3,990,000	$13,530,000	$17,520,000
Grant	$55,150,000	$6,610,000	$61,760,000
Greene	$9,420,000	$6,770,000	$16,190,000
Hamilton	$53,150,000	$134,880,000	$188,030,000
Hancock	$930,000	$39,910,000	$40,840,000
Harrison	$3,600,000	$7,830,000	$11,430,000

Table 4. Wastewater conveyance and treatment facilities capital needs by county 2015–2034 (2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	Extrapolated needs	Total wastewater needs
Hendricks	$230,000	$72,880,000	$73,110,000
Henry	$10,260,000	$8,910,000	$19,170,000
Howard	$82,530,000	$480,000	$83,010,000
Huntington	$36,400,000	$5,990,000	$42,390,000
Jackson	$10,530,000	$25,270,000	$35,800,000
Jasper	$29,530,000	$6,010,000	$35,540,000
Jay	$10,240,000	$2,580,000	$12,820,000
Jefferson	$2,670,000	$3,730,000	$6,400,000
Jennings	$10,080,000	$9,340,000	$19,420,000
Johnson	$710,000	$41,400,000	$42,110,000
Knox	$5,050,000	$1,670,000	$6,720,000
Kosciusko	$0	$36,400,000	$36,400,000
LaGrange	$13,370,000	$650,000	$17,750,000
Lake	$12,340,000	$5,410,000	$232,040,000
LaPorte	$178,170,000	$53,870,000	$14,020,000
Lawrence	$3,170,000	$18,670,000	$21,840,000
Madison	$97,130,000	$11,020,000	$108,150,000
Marion	$1,659,920,000	$14,500,000	$1,674,420,000
Marshall	$11,300,000	$7,860,000	$19,160,000
Martin	$0	$11,330,000	$11,330,000
Miami	$5,150,000	$11,030,000	$16,180,000
Monroe	$14,060,000	$850,000	$14,910,000
Montgomery	$15,000,000	$3,700,000	$18,700,000
Morgan	$4,500,000	$28,180,000	$32,680,000
Newton	$0	$6,000,000	$6,000,000
Noble	$4,140,000	$9,260,000	$13,400,000
Ohio	$0	$2,730,000	$2,730,000
Orange	$0	$8,860,000	$8,860,000
Owen	$0	$3,680,000	$3,680,000
Parke	$780,000	$5,280,000	$6,060,000
Perry	$0	$12,580,000	$12,580,000
Pike	$6,290,000	$860,000	$7,150,000
Porter	$10,610,000	$84,500,000	$95,110,000
Posey	$3,030,000	$8,420,000	$11,450,000
Pulaski	$0	$5,760,000	$5,760,000
Putnam	$5,900,000	$5,050,000	$10,950,000
Randolph	$12,590,000	$6,960,000	$19,550,000
Ripley	$5,740,000	$6,250,000	$11,990,000
Rush	$2,170,000	$3,550,000	$5,720,000
St. Joseph	$223,440,000	$2,360,000	$225,800,000
Scott	$11,470,000	$0	$11,470,000
Shelby	$0	$22,330,000	$22,330,000
Spencer	$0	$14,680,000	$14,680,000
Starke	$0	$13,090,000	$13,090,000
Steuben	$11,440,000	$14,490,000	$25,930,000
Sullivan	$9,620,000	$3,110,000	$12,730,000
Switzerland	$8,120,000	$1,960,000	$10,080,000
Tippecanoe	$39,760,000	$900,000	$40,660,000
Tipton	$730,000	$10,280,000	$11,010,000
Union	$0	$7,050,000	$7,050,000
Vanderburgh	$111,320,000	$0	$111,320,000

Table 4. Wastewater conveyance and treatment facilities capital needs by county 2015–2034 (2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	Extrapolated needs	Total wastewater needs
Vermillion	$6,400,000	$3,420,000	$9,820,000
Vigo	$81,740,000	$1,420,000	$83,160,000
Wabash	$7,050,000	$1,630,000	$8,680,000
Warren	$0	$3,240,000	$3,240,000
Warrick	$6,610,000	$12,280,000	$18,890,000
Washington	$43,380,000	$2,510,000	$45,890,000
Wayne	$130,610,000	$5,370,000	$135,980,000
Wells	$0	$16,080,000	$16,080,000
White	$1,380,000	$21,610,000	$22,990,000
Whitley	$1,430,000	$10,950,000	$12,380,000

Notes:
1. Batesville (Ripley/Franklin), Edinburgh (Johnson/Bartholomew/Shelby), Nappanee (Elkhart/Kosciusko), and St. Paul (Shelby/Decatur) cross county lines. Estimates for infrastructure in those municipalities are included in the first county listed in parentheses after each municipality.
2. The median county has $17 million in wastewater capital needs.

Sources:
1. U.S. Environmental Protection Agency, 2012 Clean watershed needs survey [database] (2015c).
2. Extrapolated estimates for nonrespondent wastewater systems based on the per capita needs calculated for respondent systems in the aggregate.

Working estimate of capital needs for septic system remediation

The 20-year working estimate of statewide capital needs for solutions to septic system failures range between $512 million and $1 billion. This estimate clearly is conservative as only 38 of 92 counties responded, and only 28 provided enough information to create estimates. If estimates are based on the lower range of costs reported by local officials, the capital needs for the remediation of septic systems range from a low of $10,000 in Putnam County to a high of $148 million in Allen County. Using the upper range of costs, the needs range from a low of $30,000 in Floyd County to a high of $274 million in Delaware County (Table 5).

Approach and Limitations

The approach to estimating needs for remediation of failing septic systems involved determining the number of failing systems in each county and multiplying that number by the estimated cost of remediation. These data were collected by surveying county health departments. The survey included questions about the number of failing septic systems as defined by the Indiana Department of Health (410 IAC 6-8.3-33) and non-systems in local communities and unincorporated areas, the proposed remedy (septic system replacement, replacement with a mound, wetland, etc., installation of sewers), and a cost estimate for each type of remedy. A non-system is a sewage disposal system that is not a proper septic system, such as a pipe running from a residence directly to a ditch. The survey is provided in Appendix A.

The initial survey was sent to county health departments by the OCRA on March 11, 2015. A reminder was send out to non-responding departments by the Indiana Association of Regional Councils on March 20, 2015. Health departments in areas served by regional councils also were contacted directly by regional council staff. The response rate for the survey was 41 percent with 30 percent of counties providing enough information to create estimates.

Based on the survey responses, the needs for remedying failing or non-systems were determined using the following method:

1. For counties that provided both an estimate of failing systems and an estimate of the cost of particular remedies, the number of failing systems was multiplied by the cost estimate by type of remedy. In cases when health departments provided ranges of cost, the number of systems was multiplied by both the high and low estimate to create a range. The needs for all combinations of failing septic systems and remedies were aggregated to provide a single or low/high estimate for each county.
2. In a few cases when health officials were uncomfortable estimating total failing systems, due to being new to the county or for some other reason, they provided an annual average for septic replacement and maintenance permits and cost estimates for remedies. These annual averages were multiplied by 20 to establish needs in those counties.
3. In cases when county officials did not respond or did not provide cost estimates for remedies, no specific needs are listed.

As indicated above, a number of counties did not respond to the survey. No adjustment has been made to the survey responses to account for non-responding counties. As a result, the working estimate is surely an underestimation. The responses from counties were too varied to create estimates that could be used to estimate needs for nonrespondent counties.

In past efforts, researchers had access to U.S. Census data regarding septic systems to use for estimating needs. These data are no longer collected. Also, researchers previously used average costs for septic replacement across counties to fill in these needs. Data from the survey were not consistent enough to allow that here. In subsequent efforts, we expect to do additional work to standardize the costs associated with various remedies. Also, a second resource, the *Unsewered Community Survey Report* (2002) prepared by the Indiana Rural Community Assistance Program (RCAP) and the Indiana Department of Health, also was used to estimate costs. Researchers are working with RCAP to update the most recent *Unsewered Communities Survey Report*. This new information will be used in subsequent estimates of needs.

Table 5. Septic system remediation capital needs by county 2015–2034 (2015 dollars rounded to ten thousands)

	Septic system needs			Septic system needs	
County	**Low**	**High**	**County**	**Low**	**High**
All counties	$512,140,000	$1,032,020,000	Lawrence	$830,000	$830,000
Adams	$26,100,000	$26,400,000	Madison	$480,000	$720,000
Allen	$147,500,000	$250,000,000	Marion	NR	NR
Bartholomew	NR	NR	Marshall	*	*
Benton	NR	NR	Martin	NR	NR
Blackford	NR	NR	Miami	NR	NR
Boone	NR	NR	Monroe	$170,000	$210,000
Brown	NR	NR	Montgomery	NR	NR
Carroll	NR	NR	Morgan	NR	NR
Cass	NR	NR	Newton	NR	NR
Clark	NR	NR	Noble	NR	NR
Clay	$1,140,000	$1,140,000	Ohio	$510,000	$510,000
Clinton	NR	NR	Orange	*	*
Crawford	$13,820,000	$13,820,000	Owen	$28,000,000	$28,000,000
Daviess	NR	NR	Parke	NR	NR
Dearborn	$2,650,000	$10,600,000	Perry	*	*

Table 5. Septic system remediation capital needs by county 2015–2034 (2015 dollars rounded to ten thousands) (continued)

County	Septic system needs		County	Septic system needs	
	Low	High		Low	High
Decatur	NR	NR	Pike	*	*
DeKalb	NR	NR	Porter	NR	NR
Delaware	$20,060,000	$273,530,000	Posey	NR	NR
Dubois	$6,640,000	$6,640,000	Pulaski	NR	NR
Elkhart	$1,500,000	$1,500,000	Putnam	$10,000	$40,000
Fayette	$6,180,000	$6,180,000	Randolph	NR	NR
Floyd	$30,000	$30,000	Ripley	*	*
Fountain	NR	NR	Rush	NR	NR
Franklin	*	*	St. Joseph	NR	NR
Fulton	NR	NR	Scott	$12,000,000	$12,000,000
Gibson	$5,100,000	$6,820,000	Shelby	NR	NR
Grant	NR	NR	Spencer	$420,000	$420,000
Greene	NR	NR	Starke	NR	NR
Hamilton	NR	NR	Steuben	$10,560,000	$23,760,000
Hancock	NR	NR	Sullivan	NR	NR
Harrison	NR	NR	Switzerland	$860,000	$1,170,000
Hendricks	$147,000,000	$223,540,000	Tippecanoe	$10,200,000	$10,200,000
Henry	NR	NR	Tipton	NR	NR
Howard	NR	NR	Union	$1,920,000	$1,920,000
Huntington	NR	NR	Vanderburgh	NR	NR
Jackson	NR	NR	Vermillion	*	*
Jasper	*	*	Vigo	*	*
Jay	NR	NR	Wabash	NR	NR
Jefferson	NR	NR	Warren	NR	NR
Jennings	$33,000,000	$33,000,000	Warrick	NR	NR
Johnson	$8,320,000	$10,400,000	Washington	NR	NR
Knox	NR	NR	Wayne	NR	NR
Kosciusko	NR	NR	Wells	NR	NR
LaGrange	*	*	White	NR	NR
Lake	NR	NR	Whitley	$9,640,000	$13,640,000
LaPorte	$17,500,000	$75,000,000			

Notes:
1. * denotes counties that indicated having needs but did not provide repair estimates.
2. NR is not reported.

Source: 2015 survey of local health departments

Working estimate of capital needs for stormwater infrastructure

The 20-year working estimate of statewide capital needs for stormwater infrastructure is $750 million to $971 million. Across counties, Marion County ($264 million to $344 million) and Brown County ($160,000 to $210,000) had the most and least needs, respectively. The median county's capital need ranges from $2.9 to $3.7 million (Table 7).

Approach

Currently, there is no comprehensive compilation of stormwater infrastructure needs. A very limited set of needs for storm sewers (Category VI) are included in the 2012 CWNS. Many of these needs are associated with plans prepared by communities required to have National Pollutant Discharge Elimination System (NPDES) Muncipal Separate Storm Sewer Systems (MS4) programs. The coverage of these needs is inadequate for use to estimate overall stormwater capital needs.

The alternate approach is based on the relationships among the amount of impervious surface (or developed acreage), the volume of runoff, and capital costs for stormwater management by level of service. Estimates of developed land by county were produced using land cover data maintained by the Multi-Resolution Land Characteristics Consortium (2011), specifically, using three specific land covers: *Developed- Low Intensity*, *Developed- Medium Intensity*, and *Developed-High Intensity*. These data were used to establish the amount of impervious surface in each county in acres.

Estimates of annual costs per developed acre for future stormwater management were calculated using guidelines established by Treadway and Reese (2000). These estimated ranges of cost are categorized based on a hierarchical scale with incidental (or baseline) to exceptional levels of service (Table 6).

Table 6. Typical costs of stormwater management programs

Program level	Program cost $/acre/year (2000)	Program cost $/acre/year (2014)	Cost used in analysis $/acre/year	Typical program features
Incidental	$15-$30	$21-$41	30.93	Reactive incidental maintenance, and regulation as part of other programs
Minimum	$30-$60	$41-$82.50	$61.86	Above and add: right-of-way maintenance, better regulation and inspection, more staff, and erosion control
Moderate	$60-$90	$82.50-$124	$103.11	Above and add: additional maintenance programs and levels of service, better regulation and inspection, some planning, minor capital programs, and general upgrade of capabilities
Advanced	$90-$150	$124-$206	$164.97	Above and add: maintenance (of some sort) of the whole system, master planning, regional treatment, some water quality, data collection, multi-objective planning, strong control of development and other programs, and utility funding
Exceptional	Over $150	Over $206	$206.00	Above and add: stormwater quality, advanced flood control, advanced levels of service for maintenance, aesthetics become more important, and public programs

Source: Treadway & Reese, 2000

Each of the five levels of service includes a range of costs associated with the estimated program cost per acre per year. For all levels of service, aside from exceptional, an average of the range was used to estimate costs per county per year. For the exceptional level of service, the cost per acre used was the bottom of the range. Costs were adjusted to 2014 dollars.

While Treadway and Reese (2000) do not provide specific estimates of capital costs associated with each level of service, it was learned through personal communication with Reese (October 25, 2002) that 25 percent of the typical annual programmatic budget goes towards capital costs or debt service. This estimate was used to determine the capital needs associated with going from an incidental level of service to the four higher levels of service. For example, in Adams County the total number of developed acres is 6,316 and the average cost per developed acre for an advanced level of service is $164.97. Therefore, the cost for an advanced level of service for stormwater management programs in Adams County is $1,041,962. Annual capital costs or debt service are 25 percent of this amount, or $260,490.

Using a 20-year time frame, and a five percent interest rate, the present value of this annual stream of payments is approximately $3.2 million. Subtracting the incidental level of service (approximately $609,000) from this amount yields new needs. For Adams County, the marginal capital need associated with from moving from an incidental to an advanced level of service over 20 years is about $2.6 million. The need associated with all levels of service were calculated similarly (Table 7).

The estimated need associated with an increase in level of service from incidental to advanced and from incidental to exceptional were identified as the low and high estimates for each county in most cases. The advanced level of service is associated with some programs to manage control pollutants in urban stormwater runoff, particularly as defined in the National Pollutant Discharge Elimination System (NPDES) Muncipal Separate Storm Sewer Systems (MS4) program. For a few counties, the needs identified in the 2012 CWNS were greater than one or both of these estimates. In those cases, the CWNS estimates were used as the low and/or high estimate.

Limitations

This general approach to estimating needs has a number of limitations. With the exception of the counties for which CWNS data were used, the estimates are not based on site specific information. The estimates likely are conservative for two reasons. First, estimates of developed land based on satellite imagery may underestimate developed land uses as defined by community land use planning and zoning. Second, a generalized approach may not account for the capital needs associated with current and deferred drainage and stormwater projects. In the few counties for which the 2012 CWNS data were substituted for the general estimates, there is evidence that capital needs for a limited number of reporting jurisdictions exceed the estimates developed under the general approach.

Table 7. Stormwater infrastructure capital needs by county 2015–2034 (in 2014 dollars rounded to ten thousands)

County	2012 CWNS	Level of service (LOS) estimates using developed acreage					TOTAL stormwater needs low	TOTAL stormwater needs high
		Incidental baseline LOS	Minimum LOS	Moderate LOS	Advanced LOS	Exceptional LOS		
All counties	$172,570,000	$170,480,000	$170,480,000	$397,850,000	$738,810,000	$964,960,000	$749,660,000	$971,240,000
Adams	$930,000	$610,000	$610,000	$1,420,000	$2,640,000	$3,450,000	$2,640,000	$3,450,000
Allen	$3,010,000	$7,920,000	$7,920,000	$18,480,000	$34,320,000	$44,830,000	$34,320,000	$44,830,000
Bartholomew	$1,920,000	$1,120,000	$1,120,000	$2,630,000	$4,870,000	$6,370,000	$4,870,000	$6,370,000
Benton	NR	$740,000	$740,000	$1,720,000	$3,190,000	$4,160,000	$3,190,000	$4,160,000
Blackford	NR	$230,000	$230,000	$540,000	$1,000,000	$1,300,000	$1,000,000	$1,300,000
Boone	$5,380,000	$1,120,000	$1,120,000	$2,610,000	$4,850,000	$6,330,000	$4,850,000	$6,330,000
Brown	NR	$40,000	$40,000	$90,000	$160,000	$210,000	$160,000	$210,000
Carroll	NR	$340,000	$340,000	$800,000	$1,480,000	$1,930,000	$1,480,000	$1,930,000
Cass	$170,000	$700,000	$700,000	$1,630,000	$3,030,000	$3,950,000	$3,030,000	$3,950,000
Clark	$10,410,000	$1,730,000	$1,730,000	$4,040,000	$7,500,000	$9,790,000	$10,410,000	$10,410,000
Clay	NR	$480,000	$480,000	$1,110,000	$2,070,000	$2,700,000	$2,070,000	$2,700,000
Clinton	$980,000	$590,000	$590,000	$1,380,000	$2,560,000	$3,350,000	$2,560,000	$3,350,000
Crawford	NR	$130,000	$130,000	$310,000	$580,000	$760,000	$580,000	$760,000
Daviess	NR	$440,000	$440,000	$1,020,000	$1,900,000	$2,480,000	$1,900,000	$2,480,000
Dearborn	NR	$880,000	$880,000	$2,060,000	$3,830,000	$5,010,000	$2,520,000	$3,290,000
Decatur	$50,000	$580,000	$580,000	$1,360,000	$2,520,000	$3,290,000	$2,900,000	$3,790,000
DeKalb	$650,000	$670,000	$670,000	$1,560,000	$2,900,000	$3,790,000	$3,830,000	$5,010,000
Delaware	$1,680,000	$2,040,000	$2,040,000	$4,770,000	$8,850,000	$11,560,000	$8,850,000	$11,560,000
Dubois	$220,000	$640,000	$640,000	$1,490,000	$2,760,000	$3,610,000	$2,760,000	$3,610,000
Elkhart	$6,610,000	$5,920,000	$5,920,000	$13,810,000	$25,640,000	$33,490,000	$25,640,000	$33,490,000
Fayette	$220,000	$350,000	$350,000	$820,000	$1,520,000	$1,990,000	$1,520,000	$1,990,000
Floyd	$3,680,000	$820,000	$820,000	$1,920,000	$3,560,000	$4,650,000	$3,680,000	$4,650,000
Fountain	NR	$350,000	$350,000	$820,000	$1,530,000	$2,000,000	$1,530,000	$2,000,000
Franklin	NR	$230,000	$230,000	$540,000	$1,000,000	$1,310,000	$1,000,000	$1,310,000
Fulton	NR	$380,000	$380,000	$880,000	$1,630,000	$2,120,000	$1,630,000	$2,120,000
Gibson	NR	$770,000	$770,000	$1,800,000	$3,350,000	$4,370,000	$3,350,000	$4,370,000
Grant	$1,580,000	$1,390,000	$1,390,000	$3,250,000	$6,040,000	$7,880,000	$6,040,000	$7,880,000
Greene	NR	$340,000	$340,000	$790,000	$1,470,000	$1,920,000	$1,470,000	$1,920,000
Hamilton	$15,290,000	$6,050,000	$6,050,000	$14,120,000	$26,220,000	$34,250,000	$26,220,000	$34,250,000
Hancock	$1,010,000	$1,240,000	$1,240,000	$2,900,000	$5,390,000	$7,040,000	$5,390,000	$7,040,000
Harrison	NR	$240,000	$240,000	$570,000	$1,050,000	$1,380,000	$1,050,000	$1,380,000
Hendricks	$11,580,000	$2,890,000	$2,890,000	$6,740,000	$12,520,000	$16,360,000	$12,520,000	$16,360,000
Henry	$180,000	$840,000	$840,000	$1,960,000	$3,630,000	$4,740,000	$3,630,000	$4,740,000

Table 7. Stormwater infrastructure capital needs by county 2015–2034 (in 2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	Level of service (LOS) estimates using developed acreage					TOTAL stormwater needs low	TOTAL stormwater needs high
		Incidental baseline LOS	Minimum LOS	Moderate LOS	Advanced LOS	Exceptional LOS		
Howard	$6,920,000	$1,650,000	$1,650,000	$3,850,000	$7,160,000	$9,350,000	$7,160,000	$9,350,000
Huntington	NR	$740,000	$740,000	$1,740,000	$3,230,000	$4,220,000	$3,230,000	$4,220,000
Jackson	$40,000	$680,000	$680,000	$1,600,000	$2,970,000	$3,880,000	$2,970,000	$3,880,000
Jasper	NR	$1,630,000	$1,630,000	$3,810,000	$7,080,000	$9,250,000	$7,080,000	$9,250,000
Jay	NR	$420,000	$420,000	$970,000	$1,800,000	$2,350,000	$1,800,000	$2,350,000
Jefferson	$6,150,000	$380,000	$380,000	$890,000	$1,660,000	$2,160,000	$6,150,000	$6,150,000
Jennings	NR	$310,000	$310,000	$730,000	$1,350,000	$1,760,000	$1,350,000	$1,760,000
Johnson	$1,300,000	$2,600,000	$2,600,000	$6,070,000	$11,270,000	$14,720,000	$11,270,000	$14,720,000
Knox	$660,000	$750,000	$750,000	$1,740,000	$3,240,000	$4,230,000	$3,240,000	$4,230,000
Kosciusko	$20,000	$1,240,000	$1,240,000	$2,900,000	$5,390,000	$7,040,000	$5,390,000	$7,040,000
LaGrange	NR	$2,640,000	$2,640,000	$6,160,000	$11,430,000	$14,930,000	$4,070,000	$5,320,000
Lake	$28,950,000	$940,000	$940,000	$2,190,000	$4,070,000	$5,320,000	$51,520,000	$67,280,000
LaPorte	$330,000	$11,890,000	$11,890,000	$27,740,000	$51,520,000	$67,280,000	$11,430,000	$14,930,000
Lawrence	NR	$460,000	$460,000	$1,060,000	$1,980,000	$2,580,000	$1,980,000	$2,580,000
Madison	$2,560,000	$2,480,000	$2,480,000	$5,780,000	$10,740,000	$14,030,000	$10,740,000	$14,030,000
Marion	$32,630,000	$60,800,000	$60,800,000	$141,890,000	$263,500,000	$344,160,000	$263,500,000	$344,160,000
Marshall	$640,000	$920,000	$920,000	$2,140,000	$3,970,000	$5,190,000	$3,970,000	$5,190,000
Martin	NR	$180,000	$180,000	$420,000	$780,000	$1,020,000	$780,000	$1,020,000
Miami	NR	$720,000	$720,000	$1,680,000	$3,130,000	$4,080,000	$3,130,000	$4,080,000
Monroe	$5,120,000	$1,000,000	$1,000,000	$2,340,000	$4,350,000	$5,680,000	$5,120,000	$5,680,000
Montgomery	$5,590,000	$690,000	$690,000	$1,610,000	$2,980,000	$3,900,000	$5,590,000	$5,590,000
Morgan	$2,730,000	$720,000	$720,000	$1,680,000	$3,120,000	$4,080,000	$3,120,000	$4,080,000
Newton	NR	$970,000	$970,000	$2,270,000	$4,210,000	$5,500,000	$4,210,000	$5,500,000
Noble	$30,000	$650,000	$650,000	$1,520,000	$2,820,000	$3,690,000	$2,820,000	$3,690,000
Ohio	NR	$70,000	$70,000	$170,000	$320,000	$410,000	$320,000	$410,000
Orange	NR	$180,000	$180,000	$420,000	$770,000	$1,010,000	$770,000	$1,010,000
Owen	NR	$100,000	$100,000	$220,000	$420,000	$540,000	$420,000	$540,000
Parke	NR	$260,000	$260,000	$610,000	$1,140,000	$1,480,000	$1,140,000	$1,480,000
Perry	NR	$240,000	$240,000	$550,000	$1,020,000	$1,340,000	$1,020,000	$1,340,000
Pike	NR	$300,000	$300,000	$690,000	$1,290,000	$1,680,000	$1,290,000	$1,680,000
Porter	$3,730,000	$3,270,000	$3,270,000	$7,630,000	$14,170,000	$18,510,000	$14,170,000	$18,510,000
Posey	NR	$500,000	$500,000	$1,180,000	$2,180,000	$2,850,000	$2,180,000	$2,850,000
Pulaski	NR	$650,000	$650,000	$1,520,000	$2,820,000	$3,680,000	$2,820,000	$3,680,000

Table 7. Stormwater infrastructure capital needs by county 2015–2034 (in 2014 dollars rounded to ten thousands) (continued)

County	2012 CWNS	Level of service (LOS) estimates using developed acreage					TOTAL stormwater needs low	TOTAL stormwater needs high
		Incidental baseline LOS	Minimum LOS	Moderate LOS	Advanced LOS	Exceptional LOS		
Putnam	NR	$520,000	$520,000	$1,220,000	$2,270,000	$2,970,000	$2,270,000	$2,970,000
Randolph	NR	$490,000	$490,000	$1,130,000	$2,100,000	$2,750,000	$2,100,000	$2,750,000
Ripley	NR	$410,000	$410,000	$950,000	$1,760,000	$2,300,000	$1,760,000	$2,300,000
Rush	NR	$320,000	$320,000	$750,000	$1,390,000	$1,820,000	$1,390,000	$1,820,000
St. Joseph	$6,400,000	$6,930,000	$6,930,000	$16,170,000	$30,030,000	$39,230,000	$30,030,000	$39,230,000
Scott	NR	$250,000	$250,000	$590,000	$1,090,000	$1,420,000	$1,090,000	$1,420,000
Shelby	$740,000	$810,000	$810,000	$1,900,000	$3,530,000	$4,610,000	$3,530,000	$4,610,000
Spencer	NR	$330,000	$330,000	$770,000	$1,430,000	$1,870,000	$1,430,000	$1,870,000
Starke	NR	$590,000	$590,000	$1,390,000	$2,570,000	$3,360,000	$2,570,000	$3,360,000
Steuben	$140,000	$990,000	$990,000	$2,300,000	$4,270,000	$5,580,000	$4,270,000	$5,580,000
Sullivan	NR	$380,000	$380,000	$900,000	$1,670,000	$2,180,000	$1,670,000	$2,180,000
Switzerland	NR	$110,000	$110,000	$250,000	$460,000	$600,000	$460,000	$600,000
Tippecanoe	NR	$2,700,000	$2,700,000	$6,300,000	$11,700,000	$15,280,000	$11,700,000	$15,280,000
Tipton	NR	$330,000	$330,000	$780,000	$1,440,000	$1,890,000	$1,440,000	$1,890,000
Union	NR	$120,000	$120,000	$280,000	$510,000	$670,000	$510,000	$670,000
Vanderburgh	$1,720,000	$3,160,000	$3,160,000	$7,370,000	$13,690,000	$17,890,000	$13,690,000	$17,890,000
Vermillion	NR	$630,000	$630,000	$1,470,000	$2,730,000	$3,570,000	$2,730,000	$3,570,000
Vigo	$10,000	$1,790,000	$1,790,000	$4,180,000	$7,760,000	$10,140,000	$7,760,000	$10,140,000
Wabash	$70,000	$610,000	$610,000	$1,410,000	$2,630,000	$3,430,000	$2,630,000	$3,430,000
Warren	NR	$520,000	$520,000	$1,210,000	$2,250,000	$2,940,000	$2,250,000	$2,940,000
Warrick	$270,000	$870,000	$870,000	$2,040,000	$3,780,000	$4,940,000	$3,780,000	$4,940,000
Washington	NR	$190,000	$190,000	$430,000	$800,000	$1,050,000	$800,000	$1,050,000
Wayne	$290,000	$1,280,000	$1,280,000	$3,000,000	$5,570,000	$7,270,000	$5,570,000	$7,270,000
Wells	NR	$530,000	$530,000	$1,230,000	$2,280,000	$2,980,000	$2,280,000	$2,980,000
White	NR	$1,240,000	$1,240,000	$2,890,000	$5,380,000	$7,020,000	$5,380,000	$7,020,000
Whitley	$20,000	$510,000	$510,000	$1,200,000	$2,230,000	$2,910,000	$2,230,000	$2,910,000

Notes:

1. NR = not reported. This should not be interpreted as a failure of the local governments in these counties. The eligibility requirements for submissions to the CWNS are very stringent.
2. The median county has $2.9 to $3.7 million stormwater capital needs.

Sources:

1. U.S. Environmental Protection Agency, 2012 Clean watershed needs survey [database] (2015c).
2. Needs calculated using developed acres from Multi-Resolution Land Characteristics Consortium, 2011 Land Cover Database and spending estimates by stormwater level of service developed by Treadway and Reese (2000).

Working estimate of capital needs for drinking water infrastructure

The 20-year working estimate of statewide capital needs for drinking water infrastructure is $6.6 billion. This includes estimates for three categories of systems:

- $1.9 billion for large systems (serving greater than 100,000 population)
- $3.6 billion for medium systems (serving 3,301 to 100,000 population)
- $1.2 billion for small systems (serving 3,300 or less population)

Across counties, Union County ($4 million) and Lake County ($678 million) have the smallest and the largest needs, respectively. The median county has $44 million in capital needs (Table 8).

Approach and Limitations

This estimate is based on needs from the 2011 DWNS. For medium and large facilities, the 2012 DWNS is based specifically on national data from all large systems and a sample of medium systems. Infrastructure needs from the 2007 national assessment were used to estimate needs for small systems. Per system costs established in the 2011 DWNS were applied to drinking water systems by county. Because the 2011 DWNS used sample data to establish needs by size of drinking water system, no adjustments were made except to adjust the needs to 2014 dollars and round to ten thousands. While the 2011 DWNS is the best available estimate, it may be conservative because it does not include infrastructure needs that are not eligible for the SRF loan program.

Table 8. Drinking water infrastructure needs by county and system size 2015–2034 (in 2014 dollars and rounded to ten thousands)

County	Small system needs	Medium system needs	Large system needs	TOTAL drinking water needs
All counties	$1,199,050,000	$3,560,390,000	$1,885,140,000	$6,642,570,000
Adams	$10,080,000	$35,080,000	$0	$45,150,000
Allen	$20,150,000	$52,620,000	$377,030,000	$449,800,000
Bartholomew	$6,050,000	$52,620,000	$0	$58,660,000
Benton	$12,090,000	$0	$0	$12,090,000
Blackford	$2,020,000	$17,540,000	$0	$19,550,000
Boone	$10,080,000	$35,080,000	$0	$45,150,000
Brown	$0	$52,620,000	$0	$52,620,000
Carroll	$10,080,000	$0	$0	$10,080,000
Cass	$16,120,000	$35,080,000	$0	$51,200,000
Clark	$8,060,000	$157,850,000	$0	$165,910,000
Clay	$10,080,000	$17,540,000	$0	$27,610,000
Clinton	$10,080,000	$17,540,000	$0	$27,610,000
Crawford	$12,090,000	$0	$0	$12,090,000
Daviess	$8,060,000	$35,080,000	$0	$43,140,000
Dearborn	$4,030,000	$122,770,000	$0	$126,800,000
Decatur	$8,060,000	$17,540,000	$0	$25,600,000
DeKalb	$10,080,000	$35,080,000	$0	$45,150,000
Delaware	$24,180,000	$35,080,000	$0	$59,260,000
Dubois	$12,090,000	$87,690,000	$0	$99,790,000
Elkhart	$24,180,000	$70,160,000	$0	$94,340,000
Fayette	$8,060,000	$17,540,000	$0	$25,600,000
Floyd	$2,020,000	$52,620,000	$0	$54,630,000

Table 8. Drinking water infrastructure needs by county and system size 2015–2034 (in 2014 dollars and rounded to ten thousands) (continued)

County	Small system needs	Medium system needs	Large system needs	TOTAL drinking water needs
Fountain	$8,060,000	$17,540,000	$0	$25,600,000
Franklin	$6,050,000	$17,540,000	$0	$23,580,000
Fulton	$8,060,000	$17,540,000	$0	$25,600,000
Gibson	$14,110,000	$52,620,000	$0	$66,720,000
Grant	$16,120,000	$52,620,000	$0	$68,740,000
Greene	$8,060,000	$52,620,000	$0	$60,680,000
Hamilton	$24,180,000	$87,690,000	$0	$111,880,000
Hancock	$10,080,000	$35,080,000	$0	$45,150,000
Harrison	$2,020,000	$87,690,000	$0	$89,710,000
Hendricks	$14,110,000	$87,690,000	$0	$101,800,000
Henry	$16,120,000	$17,540,000	$0	$33,660,000
Howard	$18,140,000	$17,540,000	$0	$35,680,000
Huntington	$14,110,000	$17,540,000	$0	$31,650,000
Jackson	$8,060,000	$35,080,000	$0	$43,140,000
Jasper	$18,140,000	$17,540,000	$0	$35,680,000
Jay	$6,050,000	$17,540,000	$0	$23,580,000
Jefferson	$10,080,000	$52,620,000	$0	$62,690,000
Jennings	$12,090,000	$52,620,000	$0	$64,710,000
Johnson	$4,030,000	$105,230,000	$0	$109,260,000
Knox	$18,140,000	$35,080,000	$0	$53,210,000
Kosciusko	$66,500,000	$17,540,000	$0	$84,040,000
LaGrange	$16,120,000	$0	$0	$16,120,000
Lake	$38,290,000	$263,080,000	$377,030,000	$678,400,000
LaPorte	$44,330,000	$35,080,000	$0	$79,410,000
Lawrence	$2,020,000	$87,690,000	$0	$89,710,000
Madison	$18,140,000	$87,690,000	$0	$105,830,000
Marion	$18,140,000	$35,080,000	$377,030,000	$412,110,000
Marshall	$2,020,000	$35,080,000	$0	$53,210,000
Martin	$8,060,000	$35,080,000	$0	$43,140,000
Miami	$26,200,000	$17,540,000	$0	$43,740,000
Monroe	$6,050,000	$122,770,000	$0	$128,820,000
Montgomery	$20,150,000	$17,540,000	$0	$37,690,000
Morgan	$14,110,000	$87,690,000	$0	$101,800,000
Newton	$18,140,000	$0	$0	$18,140,000
Noble	$22,170,000	$35,080,000	$0	$57,250,000
Ohio	$2,020,000	$17,540,000	$0	$19,550,000
Orange	$2,020,000	$35,080,000	$0	$37,090,000
Owen	$4,030,000	$17,540,000	$0	$21,570,000
Parke	$12,090,000	$17,540,000	$0	$29,630,000
Perry	$12,090,000	$35,080,000	$0	$47,170,000
Pike	$6,050,000	$17,540,000	$0	$23,580,000
Porter	$16,120,000	$35,080,000	$0	$51,200,000
Posey	$6,050,000	$17,540,000	$0	$23,580,000
Pulaski	$6,050,000	$0	$0	$6,050,000
Putnam	$20,150,000	$17,540,000	$0	$37,690,000
Randolph	$14,110,000	$35,080,000	$0	$49,180,000
Ripley	$10,080,000	$52,620,000	$0	$62,690,000
Rush	$8,060,000	$17,540,000	$0	$25,600,000
Scott	$0	$35,080,000	$0	$35,080,000
Shelby	$14,110,000	$17,540,000	$0	$31,650,000

Table 8. Drinking water infrastructure needs by county and system size 2015–2034 (in 2014 dollars and rounded to ten thousands) (continued)

County	Small system needs	Medium system needs	Large system needs	TOTAL drinking water needs
Spencer	$18,140,000	$17,540,000	$0	$35,680,000
St. Joseph	$22,170,000	$35,080,000	$377,030,000	$434,270,000
Starke	$4,030,000	$17,540,000	$0	$21,570,000
Steuben	$36,270,000	$17,540,000	$0	$53,810,000
Sullivan	$18,140,000	$17,540,000	$0	$35,680,000
Switzerland	$2,020,000	$17,540,000	$0	$19,550,000
Tippecanoe	$24,180,000	$52,620,000	$0	$76,800,000
Tipton	$4,030,000	$17,540,000	$0	$21,570,000
Union	$4,030,000	$0	$0	$4,030,000
Vanderburgh	$0	$17,540,000	$377,030,000	$394,570,000
Vermillion	$24,180,000	$17,540,000	$0	$41,720,000
Vigo	$24,180,000	$35,080,000	$0	$59,260,000
Wabash	$20,150,000	$35,080,000	$0	$55,230,000
Warren	$6,050,000	$0	$0	$6,050,000
Warrick	$6,050,000	$70,160,000	$0	$76,200,000
Washington	$8,060,000	$35,080,000	$0	$43,140,000
Wayne	$24,180,000	$35,080,000	$0	$59,260,000
Wells	$6,050,000	$17,540,000	$0	$23,580,000
White	$20,150,000	$17,540,000	$0	$37,690,000
Whitley	$10,080,000	$17,540,000	$0	$27,610,000

Notes:

1. Batesville (Ripley/Franklin), Edinburgh (Johnson/Bartholomew/Shelby), Nappanee (Elkhart/Kosciusko), and St. Paul (Shelby/Decatur) cross county lines. Estimates for infrastructure in those municipalities are included in the first county listed in parentheses after each municipality.
2. The median county has $44 million in drinking water capital needs

Source: U.S. Environmental Protection Agency, 2011 Drinking water needs survey and assessment (2013)

Water and Wastewater Investments & Funding Gap

Local governments and utilities across Indiana make significant investments in water and wastewater infrastructure. These investments are supported by state and federal agencies, including SRF, OCRA, and the USDA RD. All investments except cumulative loan amounts are reported in 2014 dollars.

Local governments invested $4.5 billion in drinking water, wastewater, and stormwater infrastructure between 2005 and 2014 (Dodge Data & Analytics, 2015) (Tables 9 and 10). During this same period, the SRF programs provided $2.1 billion in assistance through loans and grants for wastewater infrastructure and $418 million for drinking water. Between 2006 and 2014, OCRA granted $119 million for drinking water, wastewater, and stormwater infrastructure. Between 2005 and 2014, USDA RD obligated $195 million and $100 million in loans and grants, respectively, for CSO and wastewater infrastructure. It obligated $116 million and $22 million for loans and grants, respectively, for drinking water infrastructure. These investments are discussed in more detail below.

Likely, Indiana will have significant unmet needs over the next 20 years. The 20-year needs (2015–2034) reported here are $15.6 to $17.5 billion. If water and wastewater infrastructure spending continues at the levels documented for 2005-2014, we expect $9.1 billion in investments will be made over the next 20 years. This leaves a potential funding gap of $6.5 to $8.5 billion.

Infrastructure construction estimates

To estimate public investments in water and wastewater infrastructure, researchers purchased the Construction Starts Information data extract from Dodge Data & Analytics (2015). These data are collected nationally by reporters who visit firms involved in the development projects and county and municipal officials. Data fields include details about construction projects, including year, structure type, cost, owner type (local, state, federal, and private) and whether the project is new construction, an addition, or alteration to an existing facility.

Local public investments are shown in Tables 9 and 10 for:

- Drinking water infrastructure including water treatment plants, water tanks, water lines and water supply dams/reservoirs;
- Wastewater conveyance and treatment: sewage treatment and sanitary sewers; and
- Storm sewers/flood control.

Investments in CSOs are classified as wastewater or storm sewer/flood control projects. There is no specific coding for those projects in the Dodge database.

Local governments invested $1.1 billion in drinking water infrastructure projects identified in 91 of 92 counties (Table 9). Among counties in which there were investments, local governments in Lake County ($125 million) invested the most and local governments in Ohio County ($220,000) invested the least. No drinking water infrastructure investments were identified in Fountain County.

Local governments invested $2.8 billion in wastewater infrastructure projects identified in 91 of 92 counties (Table 10). Among counties in which there were investments, local governments in Marion County ($440 million) invested the most, and local governments in Warren County ($390,000) invested the least. No projects were identified in Fayette County.

Local governments invested $634 million in storm sewers and flood control infrastructure projects identified in 87 of 92 counties. Among counties in which investments were made, local governments in Marion County ($113 million) invested the most, and local governments in Orange County ($80,000) invested the least. No projects were identified in Carroll, LaGrange, Ohio, Union, and Warren counties.

The Dodge data provide a useful indicator of the magnitude of infrastructure investments. Limiting our scope to local public projects likely underestimates investments, particularly for drinking water infrastructure. Investments by private utilities are not easily separated from investments made by private industries and for new residential subdivisions.

Table 9. Local public drinking water investments by county, 2005–2014 (2014 dollars rounded to ten thousands)

County	Water treatment plants	Water tanks	Water lines	Water supply dams/reservoirs	TOTAL drinking water needs
All counties	$521,600,000	$114,110,000	$467,850,000	$3,250,000	$1,106,810,000
Adams	$0	$1,040,000	$0	$0	$1,040,000
Allen	$71,110,000	$1,050,000	$38,340,000	$0	$110,500,000
Bartholomew	$9,110,000	$870,000	$4,990,000	$0	$14,960,000
Benton	$1,920,000	$0	$500,000	$0	$2,420,000
Blackford	$530,000	$0	$700,000	$0	$1,230,000
Boone	$1,920,000	$3,510,000	$9,400,000	$0	$14,830,000
Brown	$3,950,000	$3,440,000	$660,000	$0	$8,050,000
Carroll	$0	$0	$2,380,000	$0	$2,380,000
Cass	$2,940,000	$180,000	$2,890,000	$0	$6,010,000
Clark	$6,140,000	$2,020,000	$5,640,000	$0	$13,800,000
Clay	$0	$860,000	$5,370,000	$0	$6,230,000
Clinton	$4,870,000	$2,590,000	$5,110,000	$0	$12,570,000
Crawford	$1,690,000	$0	$3,200,000	$0	$4,890,000
Daviess	$4,310,000	$1,080,000	$2,350,000	$0	$7,730,000
Dearborn	$240,000	$560,000	$6,910,000	$0	$7,710,000
Decatur	$6,040,000	$1,200,000	$6,320,000	$0	$13,560,000
DeKalb	$9,630,000	$2,700,000	$8,540,000	$0	$20,870,000
Delaware	$680,000	$2,520,000	$0	$0	$3,200,000
Dubois	$12,200,000	$4,640,000	$8,830,000	$0	$25,660,000
Elkhart	$6,830,000	$3,510,000	$10,840,000	$0	$21,180,000
Fayette	$640,000	$0	$1,830,000	$0	$2,460,000
Floyd	$580,000	$1,240,000	$1,560,000	$0	$3,380,000
Fountain	$0	$0	$0	$0	$0
Franklin	$0	$70,000	$1,950,000	$0	$2,020,000
Fulton	$3,520,000	$370,000	$2,700,000	$0	$6,590,000
Gibson	$9,930,000	$2,600,000	$5,550,000	$0	$18,080,000
Grant	$9,230,000	$1,210,000	$3,880,000	$0	$14,320,000
Greene	$2,450,000	$280,000	$4,390,000	$0	$7,110,000
Hamilton	$46,310,000	$2,700,000	$41,440,000	$0	$90,460,000
Hancock	$6,060,000	$1,290,000	$2,800,000	$0	$10,140,000
Harrison	$0	$2,630,000	$1,750,000	$0	$4,390,000
Hendricks	$3,300,000	$1,290,000	$6,220,000	$500,000	$11,310,000
Henry	$1,820,000	$730,000	$0	$0	$2,550,000
Howard	$0	$0	$1,360,000	$0	$1,360,000
Huntington	$5,130,000	$3,580,000	$5,810,000	$0	$14,520,000
Jackson	$3,030,000	$0	$1,240,000	$0	$4,260,000
Jasper	$5,350,000	$1,510,000	$2,240,000	$0	$9,100,000

Table 9. Local public drinking water investments by county, 2005–2014 (2014 dollars rounded to ten thousands) (continued)

County	Water treatment plants	Water tanks	Water lines	Water supply dams/reservoirs	TOTAL drinking water needs
Jay	$2,870,000	$0	$2,070,000	$0	$4,940,000
Jefferson	$3,600,000	$90,000	$2,660,000	$0	$6,350,000
Jennings	$3,080,000	$0	$1,650,000	$0	$4,730,000
Johnson	$9,080,000	$3,810,000	$16,220,000	$0	$29,110,000
Knox	$500,000	$350,000	$3,270,000	$0	$4,120,000
Kosciusko	$3,280,000	$0	$4,050,000	$0	$7,330,000
LaGrange	$2,280,000	$1,050,000	$4,270,000	$0	$7,600,000
Lake	$59,210,000	$12,100,000	$54,030,000	$0	$125,340,000
LaPorte	$10,140,000	$650,000	$14,150,000	$0	$24,940,000
Lawrence	$0	$1,530,000	$910,000	$0	$2,440,000
Madison	$8,340,000	$4,410,000	$2,610,000	$0	$15,360,000
Marion	$12,530,000	$2,180,000	$14,270,000	$330,000	$29,310,000
Marshall	$3,070,000	$720,000	$1,370,000	$0	$5,160,000
Martin	$260,000	$0	$1,140,000	$0	$1,410,000
Miami	$0	$1,110,000	$0	$0	$1,110,000
Monroe	$25,410,000	$270,000	$11,440,000	$0	$37,120,000
Montgomery	$3,280,000	$550,000	$1,430,000	$0	$5,270,000
Morgan	$1,390,000	$7,870,000	$5,440,000	$0	$14,700,000
Newton	$0	$640,000	$10,220,000	$0	$10,860,000
Noble	$6,200,000	$1,620,000	$3,060,000	$0	$10,880,000
Ohio	$0	$220,000	$0	$0	$220,000
Orange	$5,050,000	$180,000	$2,270,000	$0	$7,500,000
Owen	$0	$520,000	$490,000	$380,000	$1,390,000
Parke	$460,000	$1,210,000	$1,520,000	$0	$3,190,000
Perry	$910,000	$210,000	$1,150,000	$0	$2,270,000
Pike	$940,000	$0	$2,220,000	$0	$3,160,000
Porter	$0	$1,090,000	$4,460,000	$0	$5,560,000
Posey	$1,090,000	$0	$80,000	$0	$1,170,000
Pulaski	$0	$0	$640,000	$0	$640,000
Putnam	$330,000	$0	$2,130,000	$0	$2,460,000
Randolph	$790,000	$590,000	$990,000	$0	$2,370,000
Ripley	$5,920,000	$2,630,000	$1,970,000	$0	$10,520,000
Rush	$2,490,000	$780,000	$5,150,000	$0	$8,430,000
St. Joseph	$5,090,000	$0	$8,850,000	$0	$13,940,000
Scott	$3,070,000	$0	$2,550,000	$0	$5,610,000
Shelby	$0	$0	$660,000	$0	$660,000
Spencer	$6,890,000	$1,200,000	$2,040,000	$1,780,000	$11,920,000
Starke	$770,000	$170,000	$0	$0	$930,000
Steuben	$3,020,000	$1,400,000	$1,000,000	$0	$5,420,000
Sullivan	$210,000	$0	$530,000	$0	$750,000
Switzerland	$10,890,000	$1,440,000	$1,380,000	$0	$13,710,000
Tippecanoe	$3,890,000	$380,000	$7,890,000	$0	$12,150,000
Tipton	$6,110,000	$780,000	$3,770,000	$0	$10,660,000
Union	$0	$0	$770,000	$0	$770,000
Vanderburgh	$15,660,000	$2,860,000	$21,230,000	$0	$39,740,000
Vermillion	$980,000	$0	$3,340,000	$0	$4,320,000
Vigo	$3,770,000	$0	$9,310,000	$0	$13,080,000
Wabash	$4,300,000	$1,000,000	$740,000	$0	$6,040,000

Table 9. Local public drinking water investments by county, 2005–2014 (2014 dollars rounded to ten thousands) (continued)

County	Water treatment plants	Water tanks	Water lines	Water supply dams/reservoirs	TOTAL drinking water needs
Warren	$0	$0	$360,000	$0	$360,000
Warrick	$12,270,000	$5,270,000	$11,650,000	$0	$29,180,000
Washington	$2,980,000	$0	$1,130,000	$0	$4,120,000
Wayne	$1,690,000	$230,000	$2,160,000	$270,000	$4,350,000
Wells	$0	$0	$2,910,000	$0	$2,910,000
White	$7,190,000	$0	$270,000	$0	$7,460,000
Whitley	$18,880,000	$1,720,000	$320,000	$0	$20,920,000

Source: Dodge Data & Analytics, Construction Starts Information

Table 10. Local public wastewater and storm structures investments, 2005–2014 (in 2014 dollars rounded to ten thousands)

County	Sewage treatment	Sanitary sewers	Total sanitary sewers	Storm sewers/flood control	Total sanitary sewer and stormwater infrastructure
All counties	$1,774,600,000	$1,025,760,000	$2,800,360,000	$633,610,000	$3,433,980,000
Adams	$15,570,000	$4,210,000	$19,780,000	$4,120,000	$23,890,000
Allen	$99,000,000	$104,390,000	$203,400,000	$58,990,000	$262,380,000
Bartholomew	$69,570,000	$11,630,000	$81,200,000	$1,910,000	$83,110,000
Benton	$600,000	$0	$600,000	$630,000	$1,230,000
Blackford	$3,310,000	$540,000	$3,850,000	$350,000	$4,200,000
Boone	$34,490,000	$3,890,000	$38,380,000	$6,080,000	$44,470,000
Brown	$4,440,000	$0	$4,440,000	$1,020,000	$5,460,000
Carroll	$2,840,000	$870,000	$3,710,000	$0	$3,710,000
Cass	$2,020,000	$5,720,000	$7,740,000	$1,950,000	$9,690,000
Clark	$86,800,000	$26,100,000	$112,900,000	$11,130,000	$124,020,000
Clay	$7,580,000	$1,440,000	$9,020,000	$1,180,000	$10,200,000
Clinton	$2,840,000	$590,000	$3,430,000	$2,830,000	$6,260,000
Crawford	$2,680,000	$0	$2,680,000	$850,000	$3,540,000
Daviess	$36,450,000	$2,500,000	$38,950,000	$420,000	$39,370,000
Dearborn	$48,770,000	$2,160,000	$50,930,000	$4,740,000	$55,670,000
Decatur	$19,690,000	$10,480,000	$30,170,000	$4,430,000	$34,600,000
DeKalb	$31,120,000	$5,780,000	$36,900,000	$1,050,000	$37,950,000
Delaware	$36,470,000	$10,170,000	$46,650,000	$5,310,000	$51,960,000
Dubois	$8,660,000	$1,000,000	$9,670,000	$2,660,000	$12,330,000
Elkhart	$54,260,000	$16,900,000	$71,160,000	$7,010,000	$78,170,000
Fayette	$0	$0	$0	$2,100,000	$2,100,000
Floyd	$15,000,000	$7,410,000	$22,410,000	$4,610,000	$27,020,000
Fountain	$750,000	$1,400,000	$2,150,000	$1,170,000	$3,320,000
Franklin	$2,530,000	$2,930,000	$5,460,000	$1,150,000	$6,610,000
Fulton	$7,520,000	$4,210,000	$11,730,000	$3,070,000	$14,800,000
Gibson	$9,590,000	$3,680,000	$13,270,000	$1,260,000	$14,540,000
Grant	$15,380,000	$2,990,000	$18,370,000	$2,630,000	$21,000,000
Greene	$9,300,000	$1,150,000	$10,450,000	$1,200,000	$11,650,000
Hamilton	$71,790,000	$52,280,000	$124,070,000	$37,860,000	$161,930,000
Hancock	$3,180,000	$13,010,000	$16,190,000	$9,120,000	$25,300,000
Harrison	$8,120,000	$880,000	$9,000,000	$800,000	$9,800,000
Hendricks	$38,360,000	$15,530,000	$53,900,000	$10,040,000	$63,940,000
Henry	$6,790,000	$6,070,000	$12,860,000	$7,050,000	$19,910,000

Table 10. Local public wastewater and storm structures investments, 2005–2014 (in 2014 dollars rounded to ten thousands) (continued)

County	Sewage treatment	Sanitary sewers	Total sanitary sewers	Storm sewers/flood control	Total sanitary sewer and stormwater infrastructure
Howard	$23,340,000	$6,560,000	$29,900,000	$6,160,000	$36,050,000
Huntington	$22,840,000	$19,050,000	$41,890,000	$2,570,000	$44,470,000
Jackson	$7,180,000	$3,990,000	$11,170,000	$4,090,000	$15,260,000
Jasper	$5,960,000	$4,020,000	$9,980,000	$1,160,000	$11,140,000
Jay	$1,720,000	$7,960,000	$9,670,000	$2,390,000	$12,070,000
Jefferson	$6,430,000	$920,000	$7,350,000	$1,060,000	$8,410,000
Jennings	$8,560,000	$11,860,000	$20,410,000	$750,000	$21,170,000
Johnson	$14,400,000	$4,390,000	$18,790,000	$2,070,000	$20,860,000
Knox	$11,180,000	$8,700,000	$19,870,000	$1,780,000	$21,660,000
Kosciusko	$11,190,000	$5,270,000	$16,470,000	$3,110,000	$19,580,000
LaGrange	$2,280,000	$4,690,000	$6,970,000	$0	$6,970,000
LaPorte	$16,370,000	$7,200,000	$23,570,000	$11,880,000	$35,450,000
Lake	$65,570,000	$28,970,000	$94,540,000	$42,320,000	$136,860,000
Lawrence	$2,470,000	$3,000,000	$5,460,000	$910,000	$6,380,000
Madison	$41,030,000	$18,370,000	$59,400,000	$12,280,000	$71,670,000
Marion	$196,800,000	$243,210,000	$440,010,000	$112,550,000	$552,560,000
Marshall	$3,090,000	$8,540,000	$11,640,000	$3,270,000	$14,900,000
Martin	$0	$2,430,000	$2,430,000	$430,000	$2,860,000
Miami	$12,540,000	$4,660,000	$17,210,000	$470,000	$17,670,000
Monroe	$12,660,000	$4,560,000	$17,220,000	$9,180,000	$26,410,000
Montgomery	$12,940,000	$2,010,000	$14,950,000	$3,430,000	$18,370,000
Morgan	$27,170,000	$2,650,000	$29,820,000	$970,000	$30,800,000
Newton	$0	$1,920,000	$1,920,000	$1,260,000	$3,170,000
Noble	$7,330,000	$9,290,000	$16,610,000	$1,610,000	$18,230,000
Ohio	$8,820,000	$0	$8,820,000	$0	$8,820,000
Orange	$3,000,000	$1,970,000	$4,960,000	$80,000	$5,040,000
Owen	$0	$1,500,000	$1,500,000	$1,550,000	$3,050,000
Parke	$4,900,000	$3,690,000	$8,600,000	$260,000	$8,850,000
Perry	$9,850,000	$750,000	$10,600,000	$3,210,000	$13,810,000
Pike	$220,000	$1,070,000	$1,290,000	$200,000	$1,500,000
Porter	$27,860,000	$12,860,000	$40,720,000	$20,430,000	$61,150,000
Posey	$6,600,000	$8,140,000	$14,740,000	$950,000	$15,690,000
Pulaski	$2,180,000	$870,000	$3,050,000	$6,140,000	$9,190,000
Putnam	$4,090,000	$950,000	$5,040,000	$1,170,000	$6,210,000
Randolph	$560,000	$1,960,000	$2,520,000	$1,970,000	$4,490,000
Ripley	$2,680,000	$2,540,000	$5,210,000	$2,040,000	$7,250,000
Rush	$6,450,000	$330,000	$6,770,000	$1,280,000	$8,060,000
St. Joseph	$27,200,000	$66,600,000	$93,810,000	$63,230,000	$157,040,000
Scott	$10,900,000	$550,000	$11,450,000	$450,000	$11,900,000
Shelby	$8,200,000	$7,130,000	$15,330,000	$2,890,000	$18,220,000
Spencer	$5,510,000	$5,160,000	$10,670,000	$1,420,000	$12,090,000
Starke	$820,000	$0	$820,000	$2,170,000	$2,990,000
Steuben	$1,950,000	$6,960,000	$8,910,000	$220,000	$9,130,000
Sullivan	$9,300,000	$5,330,000	$14,630,000	$590,000	$15,220,000
Switzerland	$870,000	$1,010,000	$1,880,000	$1,400,000	$3,280,000
Tippecanoe	$56,060,000	$18,980,000	$75,040,000	$17,070,000	$92,110,000
Tipton	$7,370,000	$0	$7,370,000	$610,000	$7,980,000

Table 10. Local public wastewater and storm structures investments, 2005–2014 (in 2014 dollars rounded to ten thousands) (continued)

County	Sewage treatment	Sanitary sewers	Total sanitary sewers	Storm sewers/flood control	Total sanitary sewer and stormwater infrastructure
Union	$7,160,000	$1,700,000	$8,870,000	$0	$8,870,000
Vanderburgh	$49,350,000	$45,670,000	$95,020,000	$41,120,000	$136,140,000
Vermillion	$4,770,000	$5,020,000	$9,800,000	$1,100,000	$10,900,000
Vigo	$144,150,000	$32,970,000	$177,120,000	$12,610,000	$189,730,000
Wabash	$8,780,000	$9,290,000	$18,070,000	$2,760,000	$20,830,000
Warren	$390,000	$0	$390,000	$0	$390,000
Warrick	$29,210,000	$8,170,000	$37,380,000	$3,090,000	$40,480,000
Washington	$0	$2,490,000	$2,490,000	$950,000	$3,440,000
Wayne	$14,630,000	$25,540,000	$40,170,000	$2,120,000	$42,290,000
Wells	$5,210,000	$540,000	$5,750,000	$610,000	$6,350,000
White	$25,850,000	$10,460,000	$36,310,000	$13,550,000	$49,860,000
Whitley	$11,160,000	$1,420,000	$12,590,000	$1,930,000	$14,520,000

Source: Dodge Data & Analytics, Construction Starts Information (2015)

Drinking Water and Wastewater State Revolving Fund Loan Programs

The Indiana Finance Authority State Revolving Fund (SRF) Loan Programs provide low-interest loans to local authorities—counties, cities, towns, regional sewer and water districts, conservancy districts, and water authorities—to meet wastewater, stormwater, and drinking water infrastructure needs. Publicly- and privately-owned community water systems and noncommunity water systems also are eligible for the Drinking Water SRF Loan Program. SRF loans have a 20-year term at fixed interest rates that depend on the community's median household income and utility user rates. In July 2016, all program interest rates were 2 percent (Indiana State Revolving Fund Loan Program, 2016).

The vast majority of the assistance the SRF programs provide is through access to low interest capital. The Indiana wastewater SRF program made its first loan in 1991. By June 30, 2014, the program had provided assistance, mostly through loans with a cumulative value of $3 billion (nominal dollars). The Indiana drinking water SRF program made its first loan in 1998. By June 30, 2014, the program had provided assistance, mostly through loans with a cumulative value of $578 million (nominal dollars). Between 2005 and 2014, the SRF Program provided $2 billion (in 2014 dollars) in wastewater loans (Table 11). The SRF program provided $369 million in drinking water loans during this same period (Table 12). Starting in 2009, there has been additional subsidization through principal forgiveness ("grant funding") available.[1] Approximately $115 million (in 2014 dollars) and $48 million (in 2014 dollars) in principal forgiven were provided to communities for wastewater and drinking water infrastructure, respectively. The loan and "grant" investments outlined above include assistance provided under the American Recovery and Reinvestment Act in 2009 and 2010 (U.S. Environmental Protection Agency, 2015a; U.S. Environmental Protection Agency, 2015b).

[1] Formally, "additional subsidization" in the SRF program can be given in the form of principal forgiveness, negative interest rate loans, and grants. To date, the Indiana program has provided additional subsidization in the form of principal forgiveness. All of these forms of subsidization are commonly referred to as "grants."

Table 11. CWSRF Assistance, Reporting Years 2005–2014 (2014 dollars)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10 Year Totals
Wastewater treatment (§212)											
Secondary Treatment (Category I)	$17,565,472	$18,039,189	$10,626,350	$38,607,770	$92,079,919	$121,657,237	$21,220,238	$43,637,804	$24,515,659	$25,298,130	$413,247,768
Advanced Treatment (Category II)	$96,827,610	$164,884,639	$27,885,789	$40,191,499	$0	$11,534,717	$21,540,276	$15,656,000	$135,426,420	$705,993	$514,652,942
Infiltration/Inflow (Category IIIA)	$4,058,215	$3,937,697	$31,539	$3,311,580	$924,345	$25,619,231	$7,770,000	$9,703,424	$5,435,704	$2,200,000	$62,991,737
Sewer System Rehabilitation (Category IIIB)	$14,096,319	$42,705,972	$4,362,630	$17,108,710	$789,504	$27,805,312	$1,874,093	$3,684,053	$27,905,045	$6,482,647	$146,814,284
New Collector Sewers (Category IVA)	$47,889,927	$40,834,404	$40,897,581	$40,295,347	$4,495,575	$30,046,320	$9,520,350	$4,242,570	$7,086,203	$1,827,833	$227,136,110
New Interceptors (Category IVB)	$1,583,821	$10,883,262	$11,866,787	$2,139,905	$10,577,657	$5,104,841	$0	$722,442	$21,168,060	$330,797	$64,377,571
CSO Correction (Category V)	$46,214,163	$28,889,480	$36,239,865	$18,861,589	$7,705,500	$176,444,024	$70,353,822	$66,508,388	$79,235,312	$52,040,000	$582,492,141
Storm Sewers (Category VI)	$274,786	$0	$0	$0	$0	$0	$1,562,190	$0	$0	$0	$1,836,976
Total Wastewater Treatment (§212)	$228,510,313	$310,174,642	$131,910,540	$160,516,400	$116,572,500	$398,211,682	$133,840,968	$144,154,680	$300,772,403	$88,885,400	$2,013,549,528
Nonpoint source (§319)											
Urban (Category VII-D, excludes decentralized systems)	$0	$57,367	$0	$0	$0	$587,946	$0	$0	$0	$0	$645,313
Ground Water - Unknown Source (Category VII-E)	$0	$1,308,570	$0	$0	$0	$0	$0	$0	$0	$0	$1,308,570
Brownfields (Category VII-I)	$0	$0	$0	$0	$0	$11,201,930	$679,572	$0	$8,058,000	$0	$19,939,502
Individualized/Decentralized Sewage Treatment (Category VII-L)	$0	$0	$0	$0	$0	$0	$0	$0	$1,801,417	$0	$1,801,417
Total Nonpoint Source (§319)	$0	$1,365,938	$0	$0	$0	$11,789,876	$679,572	$0	$9,859,417	$0	$23,694,802
Total annual assistance provided	$228,510,313	$311,540,580	$177,510,540	$160,516,400	$116,572,500	$410,001,558	$134,520,540	$144,154,680	$310,631,820	$88,885,400	$2,082,844,330

Notes:
1. The program year is July 1– June 30.
2. Includes 2009 and 2010 American Recovery and Reinvestment Act of 2009 assistance.
3. Only categories with assistance are included in this table.

Source: U.S. Environmental Protection Agency, 2014 Clean Water State Revolving Fund National Information Management System Reports – Indiana (2015a)

Table 12. DWSRF Assistance, Reporting Years 2005–2014 (2014 dollars)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10 Year Total
Planning and design only	$0	$993,927	$0	$0	$0	$142,858	$0	$9,989,970	$0	$0	$11,126,754
Construction											
Treatment	$5,741,570	$11,198,133	$39,884,729	$7,506,777	$14,206,892	$49,522,576	$21,788,058	$34,413,121	$9,511,690	$2,713,745	$196,487,290
Transmission & Distribution	$4,205,604	$18,609,716	$16,655,175	$7,987,273	$7,753,603	$16,015,539	$11,683,500	$13,749,746	$17,324,401	$9,769,304	$123,753,861
Source	$1,478,689	$2,340,784	$2,640,091	$2,842,642	$754,411	$2,411,992	$1,523,784	$1,729,808	$8,071,362	$560,516	$24,354,079
Storage	$5,067,647	$2,653,017	$10,904,925	$5,882,008	$2,622,055	$16,807,881	$5,572,313	$617,096	$1,301,191	$1,711,836	$53,139,968
Purchase of Systems	$0	$424,113	$0	$0	$4,673,900	$1,853,000	$1,050,000	$0	$739,837	$0	$8,740,850
Other	$0	$0	$0	$0	$0	$0	$0	$0	$411,060	$0	$411,060
Total annual assistance provided	$16,493,510	$36,219,690	$70,084,920	$24,218,700	$30,010,860	$86,753,846	$41,617,655	$60,499,740	$37,359,540	$14,755,401	$418,013,862

Notes:
1. The program year is July 1 –June 30.
2. Includes 2009 and 2010 American Recovery and Reinvestment Act of 2009 assistance.
3. Only categories with assistance are included in this table.

Source: U.S. Environmental Protection Agency, 2014 Drinking Water State Revolving Fund National Information Management System Reports – Indiana (2015b)

Table 13. OCRA Wastewater and Drinking Water Program & Stormwater Improvements Program grants PY 2005–2014 (2014 dollars)

	Infrastructure feasibility studies	Drinking water	Wastewater	Stormwater
2006	$503,017	$9,033,293	$10,424,117	$1,220,670
2007	$540,398	$6,088,054	$8,322,005	$3,282,280
2008	$1,056,842	$4,618,102	$8,301,589	$2,289,259
2009	$827,782	$3,089,727	$7,646,855	$3,934,105
2010	$573,759	$3,908,398	$6,759,645	$4,786,557
2011	$443,416	$6,606,385		
2012	*	$12,373,285		
2013	*	$5,589,220		
2014	*	$8,181,743		$2,900,000

Notes:
1. The program year is July 1 – June 30.
2. Grants are available only to non-entitlement communities.
3. In some cases, grant dollars were not documented by type of infrastructure or separately from other planning grants.

Source: BBC Research and Consulting, State of Indiana Consolidated Annual Performance and Evaluation Report (2006-2014)

Table 14. USDA RD infrastructure grant and loan obligations PY 2005–2014 (2014 dollars)

	Planning	CSO			New Sewer			Existing sewer			Drinking water			All		
Year	Grant Only	Loan	Grant	Total	Loan	Grant	Total	Loan	Grant	Total	Loan	Grant	Total	Loan	Grant	Total
2005	$11,250	$0	$0	$	7,988,000	$3,281,500	$11,269,500	$3,625,000	$39,500	$3,664,500	$12,555,250	$130,000	$12,685,250	$24,168,250	$3,462,250	$27,630,500
2006	$11,776	$0	$0	$0	$5,188,000	$5,968,000	$11,156,000	$2,462,000	$1,504,765	$3,966,765	$9,459,000	$1,379,118	$10,838,118	$17,109,000	$8,863,659	$25,972,659
2007	$15,000	$0	$0	$0	$19,233,000	$3,525,000	$22,758,000	$3,631,000	$746,000	$4,377,000	$1,664,000	$485,000	$2,149,000	$24,528,000	$4,771,000	$29,299,000
2008	$15,000	$0	$0	$0	$12,342,000	$2,720,695	$15,062,695	$1,430,000	$864,000	$2,294,000	$21,684,400	$4,795,653	$26,480,053	$35,456,400	$8,395,349	$43,851,749
2009	$50,700	$0	$0	$0	$21,625,000	$17,960,832	$39,585,832	$4,690,000	$1,253,700	$5,943,700	$24,172,800	$4,434,450	$28,607,250	$50,487,800	$23,699,682	$74,187,482
2010	$0	$2,144,000	$0	$2,144,000	$25,123,000	$10,089,239	$35,212,239	$28,832,000	$4,206,400	$33,038,400	$14,142,200	$6,752,912	$20,895,112	$70,241,200	$21,048,551	$91,289,751
2011	$18,000	$0	$0	$0	$901,000	$1,346,750	$2,247,750	$8,671,000	$4,608,100	$13,279,100	$11,947,700	$1,779,000	$13,726,700	$21,519,700	$7,751,850	$29,271,550
2012	$54,375	$0	$0	$0	$4,745,000	$7,168,900	$11,913,900	$15,370,000	$1,135,000	$16,505,000	$5,292,000	$150,000	$5,442,000	$25,407,000	$8,508,275	$33,915,275
2013	$28,500	$0	$0	$0	$3,722,000	$4,396,074	$8,118,074	$100,000	$0	$100,000	$3,729,000	$147,000	3,876,000	$7,551,000	$4,571,574	$12,122,574
2014	$52,500	$20,971,000	$21,989,000	$42,960,000	$2,264,000	$7,020,000	$9,284,000	$0	$448,000	$448,000	$11,189,000	$1,901,000	$13,090,000	34,424,000	31,410,500	$65,834,500
All years	$257,101	$23,115,000	$21,989,000	$45,104,000	$103,131,000	$63,476,990	$166,607,990	$68,811,000	$14,805,465	$83,616,465	$115,835,350	$21,954,134	$137,789,484	310,892,350	122,482,689	$433,375,039

Note: The program year is October 1–September 30

Source: U.S. Department of Agriculture Rural Development - Indiana, infrastructure loan and grant obligations

Table 15. Water and wastewater capital needs, investments, and funding gap 2015–2034

	Low	High
20-Year Water and Wastewater Capital Needs	$15,614,340,000	$17,520,270,000
10-Year Water and Wastewater Investments	$4,541,060,000	
20-Year Water and Wastewater Investments	$9,082,120,000	
20-Year Funding Gap	$6,519,960,000	$8,462,970,000
20-Year Funding Gap	326,000,000	423,150,000

CDBG Wastewater and Drinking Water Program & Stormwater Improvements Program

The Indiana Office of Community and Rural Affairs (OCRA) provides grant funding through federal Community Development Block Grant (CDBG) dollars, to non-entitlement counties, cities, and towns. Approximately half of the annual allocation is reserved for drinking water, wastewater, and stormwater infrastructure needs. A 20 percent grant match is required from local funds and all proposed projects must benefit and area or clientele whose population is at least 51 percent low-to-moderate income. Under this program currently, grants up to $700,000 are available for low-to-moderate income areas and projects that serve long-term community planning and development. Between 2006 and 2014, OCRA granted $119 million for wastewater, stormwater, and drinking water infrastructure (Table 13).

Water and Waste Disposal Loan & Grant Programs

USDA RD provides long-term, low interest loans and grants to local governments and nonprofits representing rural areas and towns with fewer than 10,000 population to meet drinking water, wastewater, stormwater, and solid waste infrastructure needs. USDA RD loans have up to a 40-year term at fixed interest rates that are based on project need and median household income for the area served. For the July 2016 quarter, interest rates for this program were 2.750% for market rate, 2.25% for the intermediate rate, and 1.625% for the poverty rate (R. Owen, personal communication, June 15, 2016). Between 2005 and 2014, the program obligated $195 million for loans and granted $100 million for CSO and sewer improvements. For drinking water, the program obligated $116 million for loans and granted $22 million (Table 14).

Water and wastewater funding gap

Likely, Indiana will have significant unmet needs over the next 20 years. The 20-year needs estimated here are $15.6 to $17.5 billion. If water and wastewater infrastructure spending continues at the levels documented for 2005–2014 using the Dodge data, $9.1 billion in investments will be made over the next 20 years. This leaves a potential 20-year funding gap of $6.5 to $8.5 billion (Table 15) and an annual 20-year funding gap of $326M to $423M.

Conclusions & Next Steps

Indiana will need significant additional funding to meet community water and wastewater infrastructure needs over the next 20 years. Ultimately, much of the infrastructure will be paid for with user charges. Utilities must be encouraged to set user rates that allow them to address capital depreciation, operations and maintenance, and other needs. Asset management is important for utilities of all sizes in maximizing the benefit of existing resources. Utilities must know the assets they own and the condition of those assets to manage them and to make good choices about repair and replacement.

Even with good management, some communities will not be able to afford their infrastructure needs because of low customer incomes and/or relatively expensive project costs due to a limited number of customers and distance from other communities. Currently, communities have access to limited grant funding and interest rate subsidies. SRF, OCRA, USDA RD, and others do everything they can to find additional resources and to wring the most utility out of available resources. However, to serve the most challenged communities additional grant funds and low-or-no interest loans are needed. In addition to more funding support, Indiana must institutionalize the maintenance of existing septic systems and the availability of additional low cost infrastructure solutions.

Updating the needs estimates regularly will be important to keeping water infrastructure issues visible to state policymakers. In the very short term, the research team is working with the Rural Community Action Program (RCAP) to update the *Unsewered Communities Survey*. These estimates will be used to update the septic remediation needs. The team also will explore additional methodologies for estimating stormwater needs and will work with communities to collect these needs. Estimates by type also should be updated as new estimates become available through subsequent DWNS, CWNS, and other efforts.

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Appendix A:
Health Department Survey

Wastewater Needs in Indiana
Onsite Wastewater Treatment Systems, Part I

The Indiana Advisory Commission on Intergovernmental Relations, staffed by the IU Public Policy Institute (IU PPI), is conducting an analysis of water and wastewater funding needs. IACIR and IU PPI have partnered with the Indiana Association of Regional Councils to complete this important work. We are contacting you for your help in estimating the number of failing septic systems and the cost of correcting them. **Your responses are critical to documenting Indiana's financial needs for water infrastructure. More specifically, this information will be used to estimate wastewater funding needs for the CDBG 5-year Consolidated Plan being prepared by the Indiana Office of Community and Rural Affairs and to support other state discussions about these important infrastructure needs.** You will receive a second part of the survey later this spring.

For Part I, please complete the questions on Pages 3 and 4 based on the conditions in your county and your professional expertise. Please return the survey by email or fax **by March 23, 2015** to:

Jamie Palmer, AICP
IU Public Policy Institute
317/261-3046
317/261-3050 (fax)
jlpalmer@iupui.edu

If you have questions, you can contact Jamie Palmer at the IU Public Policy Institute (see contact information above) or any the Regional Planning Organizations listed below. These organizations may check in with you throughout the survey period.

- Economic Development Coalition of Southwest Indiana (Gibson, Posey, Warrick, and Vanderburgh counties), 812/423-2020, dbennett@southwestindiana.org
- East Central Indiana Regional Planning District, Inc. (Blackford, Delaware, Grant, and Jay counties), 765/254-0116, pprice@ecirpd.org
- Indiana 15 Regional Planning Commission (Crawford, Dubois, Orange, Perry, Pike, and Spencer counties), 812/367-8455, lisa@ind15rpc.org
- Kankakee - Iroquois Regional Planning Commission (Benton, Carroll, Jasper, Newton, Pulaski, Starke, Warren, White counties), 219/253-6658, ebuswell@urhere.net
- Madison County Council of Governments (Madison, parts of Delaware, and parts of Hancock counties), 765/641-9482, mccog@mccog.net
- Michiana Area Council of Governments (Elkhart, Kosciusko, Marshall, and St. Joseph counties), 574/287-1829, jturnwald@macog.com
- North Central Indiana Regional Planning Council (Cass, Fulton, Howard, Miami, and Tipton counties), 765/469.7297, sray@ncirpc.com
- Northeastern Indiana Regional Coordinating Council (Adams, Allen, DeKalb, and Wells counties), 260/449-7309, dan.avery@co.allen.in.us
- Northwestern Indiana Regional Planning Commission (Lake, LaPorte, and Porter counties), 219/763-6060, twarner@nirpc.org
- Region III-A Economic Development District & RPC (Huntington, LaGrange, Noble, Steuben, Wabash, and Whitley counties), 260/347-4714, jgrossman@region3a.org
- River Hills Economic Development District & RPC (Clark, Floyd, Harrison, Scott, and Washington counties), 812/288-4624, jsaegesser@riverhills.cc

- Southeastern Indiana Regional Planning Commission (Dearborn, Decatur, Franklin, Jefferson, Jennings, Ohio, Ripley, Shelby, Switzerland counties), 812/689-5505, susan.craig@sirpc.org
- Southern Indiana Economic Development Commission (Daviess, Greene, Knox, Lawrence, and Martin counties), 812/295-3707, gejones@sidc.cc
- West Central Indiana Economic Development District (Clay, Parke, Putnam, Sullivan, Vermillion, and Vigo counties), 812/238-1561, rhinsenkamp@westcentralin.com

Wastewater Needs in Indiana
Onsite Wastewater Treatment Systems, Part I

Please answer the following questions. We have provided a response matrix on Page 4 to assist you in completing this task.

1. Provide the name of your county in the right upper corner of Pages 3 and 4.
2. Indicate the name, phone number, and email of the contact completing the survey.
   Name _____ Phone _____
   Email _____
3. Estimate the number of septic systems in your county _____
4. Estimate the number of failing septic systems in **the unincorporated area** within your county including septic systems failing according to the ISDH definition of a failing septic system and non-systems (i.e., pipe to drain or stream)(use matrix).

   410 IAC 6-8.3-33 "Residential on-site sewage system failure" defined

   Sec. 33. "Residential on-site sewage system failure" means a residential on-site sewage system that exhibits one (1) or more of the following:

   (1) The on-site sewage system refuses to accept sewage at the rate of design application thereby interfering with the normal use of residential plumbing fixtures.

   (2) Effluent discharge exceeds the absorptive capacity of the soil, resulting in ponding, seepage, or other discharge of the effluent to the ground surface or to surface waters.

   (3) Effluent is discharged from the on-site sewage system causing contamination of a potable water supply, ground water, or surface waters.

   A failed residential on-site sewage system is a health hazard.

5. Please list any **incorporated areas** that currently have failing septic systems including septic systems failing according to the ISDH definition of a failing septic systems and non-systems (i.e., pipe to drain or stream) (use matrix).
6. Estimate total number of failing septic systems **in the incorporated areas** identified above (use matrix).
7. Please identify the most likely remedy for failing septic systems **in unincorporated and identified incorporated areas** (use matrix)
   a. Replace with a traditional septic system
   b. Replace with a mound, wetlands, etc. system
   c. Install sewers
8. Estimate the cost per remedy for each area (use matrix).

Wastewater Needs in Indiana
Onsite Wastewater Treatment Systems, Part I

Area	Community Name	# of Failing Septic Systems	Remedy	Estimated Cost for Remedy per System
Unincorporated	XXXXXXXXXXXXX			
Unincorporated	XXXXXXXXXXXXX			
Unincorporated	XXXXXXXXXXXXX			
Incorporated				
Incorporated				
Incorporated				
Incorporated				
Incorporated				
Incorporated				