8 Section Eight – Affordability and Financial Capability Assessment

8.1 Introduction

One of the greatest challenges in funding a LTCP is to fund the program in such a way to not cause undue hardship on the citizens and industry in the area. There are numerous requirements for the LTCP set by the EPA and IDEM that can make this type of project the most expensive public works project that any community can undertake. Currently, there is no LTCP-specific grant availability. Although some loan money is available from State Revolving Funds (SRF), these funds cannot be guaranteed. Therefore, individual communities are responsible for providing funding for these projects for themselves. To assist in this process, the planning team utilized the services of the city's financial advisor, H.J. Umbaugh and Associates.

IDEM and the EPA have set forth specific guidelines for determining affordability of a LTCP. The goal of these guidelines is to determine what measures can be taken by a community without causing undue hardship, currently or in the future, for the community or the residents.

The affordability analysis focuses on many financial and socio-economic issues including:

- Median household income
- Total annual wastewater and CSO costs as a percent of the median household income
- Fixed service costs in addition to wastewater and CSO costs that affect affordability
- Sewer utility rate as a percent of the median household income
- Overall net debt of the Sanitary District as a percent of full market property value
- The Sanitary District's current bond rating and term of current bonded indebtedness
- The Sanitary District's ability to assume more debt
- Property tax revenues as a percent of full market property value
- Property tax collection rate
- Sanitary District unemployment rate

• Availability of grants and loans

8.2 Determining What Residents Can Afford

IDEM recommends an approach similar to the EPA CSO LTCP Implementation Schedule to conduct the affordability analysis and develop the implementation schedule. IDEM provides a two-phase approach to determining the financial capability of a community. The first phase considers the impact of wastewater and CSO controls on individual households in the community and results in a Wastewater Cost Per Household Indicator (The WW_{CPHI}). The second phase examines the debt, socioeconomic and financial conditions of the community itself and determines the Socio-Economic Indicator. This indicator demonstrates the widespread nature of the economic and social impact of the LTCP. These two indicators are then entered into a Financial Capability Matrix to determine the overall financial burden placed on the community and individual households to implement the CSO control program.

8.2.1 Phase 1: Calculation of the Wastewater Cost Per Household Indicator

IDEM specifies that the initial step in the analysis involves determining a benchmark that relates the LTCP costs and current wastewater treatment (WWT) costs to the CSO municipality's representative Median Household Income (MHI) on an annualized basis. This benchmark is called the Wastewater Cost per Household Indicator, or WW_{CPHI}. It is defined as follows:

$$\textbf{The } WW_{CPHI} = \frac{\text{Annualized LTCP and Existing Wastewater Costs Per Household}}{\text{Annualized Median Household Income}} \times 100$$

The WW_{CPHI} is analyzed to determine the impact on individual households in the service area as shown in Table 8.2-1.

Table 8.2-1
Financial Impact Based on WWCPHI

Financial Impact	WW_{CPHI} (CPH as % MHI)
Low	Less than 1% of MHI
Medium	1.0% - 2.0% of MHI
High	Greater than 2% of MHI

IDEM specifies that for a "Medium" result, more detail is necessary to complete the affordability assessment and that additional socio-economic factors will be considered. If the WWCPHI is greater than 2% of MHI, the socio-economic impacts will be considered widespread.

For the Terre Haute Sanitary District, the WWCPH1 equation was solved for a WWCPH1 of 2.0%, which resulted in a residential rate of $63.50. The current operation and maintenance expenses, current debt, projected WWT operation and maintenance costs and projected WWT debt service were subtracted from this figure. This results in a total monthly availability of $14.86 per month for the CSO project. This amount was annualized and multiplied by the number of residential households to determine an annual amount available for CSO projects from residents. That amount was then divided by the residential share of costs to determine an annual amount available for CSO projects from all customers. Operation and Maintenance costs were then removed and a total Capital Improvement Project (CIP) dollar amount was established for both a traditional bond at 5.5%, 20 years and an SRF loan at 4.5%, 20 years (Table 8.2-2).

Table 8.2-2
2% Equivalent Affordable Capital Costs

	Traditional Bond (5.5%, 20 years)	SRF Loan (4.5%, 20 years)
Median Household Income ("MHI")	$38,100	$38,100
Municipal Affordability Screener ("MAS")	2%	2%
MAS Applied to MHI	$762.00	$762.00
Monthly Equivalent Residential MAS Rate	$63.50	$63.50
Less:		
Amount allocated to current operation and maintenance expenses	$13.27	$13.27
Amount allocated to current debt service	$15.23	$15.23
Amount allocated to projected WWT operation and maintenance expenses	$6.82	$6.82
Amount allocated to projected WWT debt service	$13.32	$13.32
Sub-Total	$48.64	$48.64
Amount available for CSO project	$14.86	$14.86
Annual dollar amount available for CSO project costs from residents	$5,046,500	$5,046,500
Annual dollar amount available for CSO project costs from all customers	$10,299,000	$10,299,000
Reduce by allocation to operation and maintenance costs	$3,373,800	$3,373,800
Total CIP dollar amount available for CSO project cost	$82,755,000	$90,080,000

The WWCPHI, or the Municipal Affordability Screener (MAS), enabled the service area to determine the level at which total CIP dollars would trigger the 2% Wastewater Cost Per Household Indicator. For the service area of the Terre Haute Sanitary District, the 2% threshold would be reached at $82,755,000 for a traditional 20-year bond at 5.5% and $90,080,000 for SRF funding for 20 years at 4.5% (Table 8.2-2).

Based on the analysis in Table 8.2-2, it became clear that the recommended CIP would exceed the 2% threshold, which means that the financial impact will be considered "high". This is demonstrated in Table 8.2-3, which calculates the WW CPHI based on the recommended CIP. With total estimated CSO CIP costs of $120,040,900, the monthly WW CPHI was $69.58 assuming

traditional bonding and $67.99 for SRF funding, both of which exceed the $63.50 established at the 2.0% threshold (Table 8.2-3).

Table 8.2-3
Cost per Household Based on the Recommended Project

Current WWT Costs:	Traditional Bonding	SRF Program	Line Number from EPA CPH Worksheet
Annual operations and maintenance - Sanitary District	$1,092,400	$1,092,400	
Annual operations and maintenance - Wastewater Utility	$7,992,300	$7,992,300	
Sub-Total	$9,084,700	$9,084,700	100
Annual special taxing district debt service - Sanitary District	$7,721,600	$7,721,600	
Annual revenue bond debt service	$2,044,200	$2,044,200	
Sub-Total	$9,765,800	$9,765,800	101
Total Current WWT Costs:	$18,850,500	$18,850,500	102
Projected WWT and CSO Costs (Current Dollars): (1)			
Estimated annual operations and maintenance (excluding depreciation)	$9,195,500	$8,909,700	103
Annual debt service (principal and interest)	$19,274,700	$18,458,100	104
Total Projected WWT and CSO Costs:	$28,470,200	$27,367,800	105
Total Current and Projected WWT and CSO Annual Costs	$47,320,700	$46,218,300	106
Residential share of WWT and CSO annual costs	$23,627,900	$23,087,700	107
Total number of households in service area	28,300	28,300	108
Annual WWT and CSO cost per household	$834.91	$815.82	109
EPA method estimated combined monthly WWT and CSO cost per household indicator	$69.58	$67.99	
Assumptions:			
Interest rate	5.50%	4.50%	
Payback period (years)	20	20	
Total estimated CSO CIP costs	$120,040,900	$120,040,900	

(1) Includes Phases II and III of the WWTF upgrades.

The following sections show how the figures needed to determine the capital costs available based on a 2.0 WWCPHI were determined. The city's financial advisors, *H.J.* Umbaugh and Associates, provided these calculations.

8.2.1.1 Median Household Income

The first step in determining the Wastewater Cost Per Household Indicator is to develop the Annualized Median Household Income (MHI) for the service area. EPA Guidance documents suggest two methods for calculating the MHI: averaging and weighting.

The averaging method uses the most recent MHI available from the U.S. Census Bureau. The Consumer Price Index (CPI) adjustment factor is applied to each year since the last census data to establish a MHI in today's dollars. MHI figures for the City of Terre Haute and Vigo County were adjusted based on the CPI adjustment figures to determine the MHI of each sector.

The weighting method establishes a weighted MHI for the Terre Haute Sanitary District based on the share of total households that are customers within the City of Terre Haute and the rest of Vigo County.

For the service area encompassing the Terre Haute Sanitary District, the Adjusted Median Household Income was calculated to be $38,100 (Table 8.2-4).

Table 8.2-4
Median Household Income and Residential Indicator

	City of Terre Haute	Vigo County
Median Household Income (MHI)		
2000 Census (1999 data)	$28,018	$33,184
Adjustment factor:		
CPI Nov. '10/Jan. '00 (218.803/168.8)	1.30	1.30
MHI adjusted to November, 2010	$36,423	$43,139
Number of residential households	21,225	7,075
Sub-Totals	$773,078,175	$305,208,425
Combined Total		$1,078,286,600
Total number of residential households		28,300
Weighted average MHI for District		$38,100

	Traditional Bond (5.5%, 20 years)	SRF Loan (4.5%, 20 years)
Annual WWT and CSO control cost per household (CPH)	$834.91	$815.82
Adjusted MHI	$38,100	$38,100
Annual Wastewater and CSO control cost per household as a percent of adjusted median household income (CPH as % MHI)	2.19%	2.14%

8.2.1.2 Cost Per Household

EPA guidance is followed to determine the Cost Per Household (CPH) by adding current WWT and projected WWT and CSO control costs. Next, the residential share of total WWT and CSO costs is calculated. Finally, the CPH is found by dividing the residential share of the WWT and CSO costs by the number of households in the service area.

Current WWT Costs: The EPA defines current WWT costs as current annual wastewater operating and maintenance expenses (excluding depreciation) plus current annual debt service (principal + interest). This procedure fairly represents cash expenses for current WWT operations. Expenses for funded depreciation, capital replacement funds or other types of capital reserve funds are not included in current WWT costs because they represent a type of savings account rather than an actual operation and maintenance expense.

Projected Additional WWT and CSO costs: Projected costs for various levels of CSO control were developed in Section 7.2, of this report. For purposes of calculating the cost per household, we have used the recommended alternative, with an estimated CIP of $120,040,900. In addition, there are current plans for wastewater treatment facility upgrades that are being included in the projected costs as well.

The Terre Haute Sanitary District would like to use SRF funds to finance CSO controls at a lower interest rate of 4.5%. Availability of SRF funds is not guaranteed though so projected capital improvement availability was also determined using the community's current bond interest rate of 5.5%.

Residential Share of Total WWT and CSO costs: The EPA guidance suggests computing the residential share of total cost by multiplying the percent of total wastewater flow including infiltration and inflow attributable to residential users by the total costs.

$$\text{Residential Share of Costs} = \text{Total Costs} \times \frac{\text{Residential Water Flow}}{\text{Total Wastewater Flow}}$$

The flow breakdown of residential and commercial wastewater usage is given in Table 8.2-5. It was determined that 49% of the usage is based on residential usage.

Table 8.2-5
Water Usage

	Consumption (100 Cubic Feet)		Number of Users	
Residential	1,800,258	49%	28,300	98%
Other	1,895,004	51%	711	2%
Total Flow	3,695,262	100%	29,011	100%

Note: If the flow of tax-exempt users is excluded, then the residential consumption percentage for the Sanitary District is 54%.

Total Annual WWT and CSO Cost Per Household (CPH): The CPH is calculated by dividing the residential share of WWT and CSO annual costs by the number of households served by the system.

$$\text{Annual Cost per Household} = \frac{\text{Residential Share of Cost}}{\text{Number of Households Served}}$$

For the Terre Haute Sanitary District service area, the CPH household was found to be $834.91 using traditional bonding and $812.82 using SRF funding. The monthly CPH was then calculated by dividing that by 12 months, which resulted in $69.58 and 67.99 respectively. Table 8.2-2 shows the traditional EPA method for determining the CPH.

8.2.2 Phase 2: Socio-Economic Indicators Matrix (SEIM)

The second phase of financial capability assessment involves determining the Socio-Economic Indicator for the Terre Haute Sanitary District. The indicators for the Terre Haute Sanitary District are summarized in the Socio-Economic Indicators Matrix (Table 8.2-8).

For each given indicator, the Terre Haute Sanitary District was evaluated and given a score of three (strong), two (mid-range) or one (weak) according to the following IDEM standards:

- Bond Rating: The bond rating is identified for the CSO municipality's utility, which may be based on ratepayers, property taxpayers or a combination of these bases.

  Weak: BB-D (S&P) or Ba-C (Moody's)

  Mid-Range: BBB (S&P) or Baa (Moody's)

  Strong: AAA-A (S&P) or Aaa-A (Moody's)

• Overall Net Debt as a Percent of Full Market Property Value: Overall net debt is debt repaid by property taxes in the permittee's service area. It excludes debt which is repaid by special user fees. It includes the debt issued directly by the local jurisdiction and debt of overlapping entities, such as school districts.

Weak: Above 5%

Mid-Range: 2%-5%

Strong: Below 2%

- Average Unemployment Rate:

  Weak: More than one percentage point above the National Average

  Mid-Range: + or – one percentage point of National Average

  Strong: More than one percentage point below the National Average

- Median Household Income: All incomes within the municipality's service area should be represented. The MHI for the service area is compared to the National MHI.

  Weak: More than 25% below National MHI

  Mid-Range: + or – 25% of the National MHI

  Strong: More than 25% above National MHI

- Property Tax Collection Rate:

  Weak: Below 94%

  Mid-Range: 94% - 98%

  Strong: Above 98%

- Property Tax Revenue as a Percent of Full Market Property Value

  Weak: Above 4%

  Mid-Range: 2% - 4%

  Strong: Below 2%

The Socio-Economic Indicator was then found by calculating an average of those six indicators to determine the level of financial burden on the Terre Haute Sanitary District as a whole. The six individual indicators for the Terre Haute Sanitary District are summarized in the following sections.

8.2.2.1 Bond Rating

According to Moody's Investor Service, Inc., the Sanitary District has a current bond rating

of Aa2. The rating on the Sanitary District Bonds of 2006, which were insured, was an Aaa, with an underlying rating of A 1. Each of these bond ratings are considered Strong.

8.2.2.2 Overall Net Debt as a Percent of Full Market Property Value

Overall net debt is debt that is repaid by property taxes in the service area. Table 8.2-6 shows the District's property tax supported debt, including underlying debt, as a percentage of full market property value in the Terre Haute Sanitary District. This indicator provides a measure of the debt burden on residents within the permittee's service area and measures the ability of local governmental jurisdictions to issue additional debt. Terre Haute Sanitary District receives a Mid-Range rating for this indicator since the calculated percentage is 2.97%.

Table 8.2-6
Overall Net Debt as a Percentage of Market Value of Real Property for Terre Haute Sanitary District

Current overall net debt Property tax supported debt including underlying debt	$73,735,810
Full market property value	$2,481,925,867
Overall net debt as a percent of full market value	2.97%

8.2.2.3 Unemployment Rate

The Indiana Business Research Center provided the unemployment rate of 10.4% for Vigo County. It was then compared to the national unemployment rate of 9.3% for the same time period. Vigo County was given a Weak rating because its unemployment rate was more than one percentage point above the national rate.

8.2.2.4 Median Household Income

Median Household Income (MHI) is defined as the median amount of total income dollars received per household during a calendar year in a given area. It serves as an indicator of a community's overall earning capacity.

Median Household Income for the service area was determined during Phase 1 (Table 8.2-4). The service area MHI is then compared to the adjusted national MHI. The service area was given a rating of Weak since its MHI is more than 25% below the national adjusted MHI.

8.2.2.5 Property Tax Revenues as a Percent of Full Market Property Value

This indicator can be referred to as the "property tax burden" since it indicates the funding capacity available to support debt based on the wealth of the community. The percentage of revenue generated as compared to full market value of property in the Terre Haute Sanitary District is 3.15% as shown in Table 8.2-7. This percentage gives the Terre Haute Sanitary District a Mid-Range score for this indicator.

Table 8.2-7
Property Tax Revenue as a Percent of Full Market Property Value

Property tax revenues in Terre Haute Sanitary District for collection year 2010	$78,068,495
Full market property value	$2,481,925,867
Property tax revenue as a percent of full market property value	3.15%

8.2.2.6 Property Tax Collection Rate

The property tax collection indicator shows the efficiency of the tax collection system and the acceptability of tax levels to the residents. The property rate collection rate for the Terre Haute Sanitary District as reported by Vigo County for the year 2009 was 94.47% giving the District a Mid-Range rating for this indicator.

8.2.2.7 Analyzing Permittees Socio-Economic Indicators

The second phase indicators are compared to national benchmarks to form an overall assessment of the service area's financial capability and its affect on implementation schedules in the long-term CSO control plan. Table 8.2-8 summarizes the indicators and averages them to determine the overall Socio-Economic Indicator.

Table 8.2-8
Socio-Economic Indicators Matrix

Indicator	Actual Value	Rating	Score
Bond rating	Aa2	Strong	3
Overall net debt as a percent of full market property value	2.97%	Mid-Range	2
Unemployment rate	10.40%	Weak	1
Median household income	$38,100	Weak	1
Property tax revenue as a percent of full market property values	3.15%	Mid-Range	2
Property tax revenue collection rate	95.47%	Mid-Range	2
Net Financial Capability Indicator		Mid-Range	1.83

8.2.3 Financial Capability Assessment Summary

The results of the Residential Indicator and the Socio-Economic Indicators analyses are combined in the Financial Capability Matrix to evaluate the level of financial burden the CSO controls may impose on the Terre Haute Sanitary District service area.

Table 8.2-9
Financial Capability Matrix

		Residential Indicator (Cost Per Household as % of MHI)		
		Low (Below 1.0%)	Mid-Range (Between 1.0% and 2.0%)	High (Above 2.0%)
Permittees Socio-Economic Indicators Score	Weak (Below 1.5)	Medium Burden	High Burden	High Burden
	Mid-Range (Between 1.5 and 2.5)	Low Burden	Medium Burden	High Burden
	Strong (Above 2.5)	Low Burden	Low Burden	Medium Burden

The Wastewater Cost Per Household Indicator of 2.14 to 2.19 and the Socio-Economic Indicator of 1.83 determine the Terre Haute Sanitary District service area to show a High Burden to enact

CSO controls (Table 8.2-9). This result 1S used to develop an implementation schedule as outlined in the EPA CSO guidelines.

8.3 Financial Consideration on the Development of the CSOLTCP Implementation Schedule

Chapter 10 of this CSOLTCP outlines the detailed aspects of the recommended plan as well as the presentation of the implementation and phasing schedule for this plan.

There are many factors that enter into the determination of how long of a period of time should be allocated for the improvements recommended for combined sewer overflow reduction in Terre Haute to be completed. These factors include:

8.3.1 Environmental

The longer a plan takes to implement the longer a higher level of annual overflows will occur.

8.3.2 New Technology Considerations

If newer CSO reduction technologies are to be considered, there must be adequate to pilot test and fully monitor the results of those reduction technologies before any large scale implementation. This is certainly the case in CSO basins 009 and 010 where the recommended plan includes consideration of green infrastructure reduction facilities.

8.3.3 Other Major Sewer and Wastewater Treatment Facility Planned Improvements

The Terre Haute Sanitary District and City Board of Works have many other aspects of the sewer utility to design, build and fund over the next 20 years which will have scheduling and financial impact on any planned and programmed improvements in the combined sewer overflow long term control plan. Some are interconnected, such as the upgrading of the Cities wastewater treatment facilities sustained peak flow improvements and the recommended improvements for the CSOLTCP.

8.3.4 Available Low Interest Loan or Grant Funding

As section 8.2.1 indicated, financing at traditional bonding resulted in a slightly higher future residential sewer rate impact than utilizing the SRF program for financing. Should even more

federal funding be provided in the future to Indiana communities in the form of grants for forgivable loans, the sewer rate impact could be lowered and the remaining phases to be financed be advanced in the implementation timeframe.

8.3.5 Public Acceptance and Affordability

The financial impact of the recommended plan on the sewer customers of Terre Haute is considered "High". This should allow for a lengthy period of implementation in order to spread the resulting sewer rate increases over as long of a time as possible to allow for greater public acceptance of the more incremental increases to their monthly sewer rates.

8.3.6 Recommended Length of the Implementation Schedule for the Terre Haute CSOLTCP

Based upon all of the reasons noted in this chapter, the length of the implementation schedule period for the recommended plan will be *20* years. Chapter 10 includes more details on the scheduling and phasing of the recommended plan.

During the 20-year time period, the City will continue its efforts to reduce wet-weather flow through green infrastructure projects. If those projects will result in attainment of the target level of control within the 20-year time period, then no further time will be needed or requested. If, though, it appears that the target level of control cannot be achieved without additional or larger "gray" infrastructure, particularly storage tanks near 009/010, then the City may request additional time beyond the 20-year timeframe. If so, IDEM will seriously consider that request, and if IDEM determines that the additional time is needed, then the parties would amend the State Judicial Agreement, the LTCP and the permit to specify additional time.