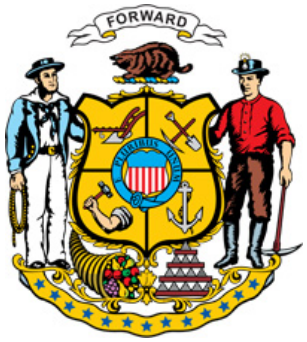

ECONOMIC IMPACT ANALYSIS

Presented to the

WISCONSIN DEPARTMENT OF ADMINISTRATION

And

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

April 24, 2015

ARCADIS
Infrastructure · Water · Environment · Buildings

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EXECUTIVE SUMMARY

The State of Wisconsin is in the process of implementing new water quality standards for phosphorus (effective December 2010) to address degradation of some of the State's waters by phosphorus pollution. In April 2014, the Wisconsin State Legislature adopted Act 378. Wisconsin Act 378 requires that the Wisconsin Department of Administration (DOA), in consultation with the Wisconsin Department of Natural Resources (DNR), make the following determination:

"Whether attaining the water quality standard for phosphorus...through compliance with water quality based effluent limitations by point sources that cannot achieve compliance without major facility upgrades is not feasible because it would cause substantial and widespread adverse social and economic impacts on a statewide basis."

This study was prepared in response to Act 378 and quantifies how planned increases in water compliance costs to meet stricter phosphorus discharge limits would impact key Wisconsin industries, municipalities and its overall economy. The State of Wisconsin intends to use this analysis to inform decision-making on the question posed in Act 378 and in requests for potential industry-level and state-level variances. This statewide analysis was primarily derived from capital and O&M costs (and related financing costs) of permit holders converted into economic impacts (jobs, gross state product) over time using a REMI model customized to the State of Wisconsin. The analysis was also informed and validated by surveys of business and municipal utilities.

To comply with the new phosphorus regulations, almost 600 Wisconsin business and municipal wastewater treatment facilities will likely need to invest in additional equipment to adequately remove a sufficient amount of phosphorus from effluent streams. These capital expenditures for industry and municipalities are estimated to amount to $3.45Billion. Given the magnitude of these costs, this study assumes that capital investments will be paid for using borrowed funds (assuming historic market interest rates projected over the 2016-2035 period**).** ***Including the cost of financing, these capital costs increase to nearly $7 Billion*** over the life of the bonds**.** Wisconsin's industries and municipalities will *also* incur operations and maintenance (**O&M) costs of $405. million annually**. Combined, annual debt service for capital and O&M expenses to meet phosphorus standards will cost Wisconsin's affected businesses and communities **over $708 million per year.** When fully realized, the cumulative impact of these additional costs are expected to **result statewide in lower Gross State Product ("GSP"), reduced wages, fewer jobs and a smaller statewide population.**

Table ES-1: Summary of Estimated Cost by Category (in Millions, 2014 Dollars)

Category	Number of Permitted Facilities in each Category	Capital Cost Estimate	O&M Cost Estimate
Municipal WWTP: Mechanical	334	$1,382	$65.3
Municipal WWTP: Lagoon	91	$185.1	$4.1
Municipal Subtotal	425	$1,567.1	$69.4
Cheese/Dairy	27	$72.5	$3.0
Aquaculture	10	$51.7	$3.2
Food Processing	14	$43.9	$1.6
NCCW/COW	59	$215.0	$20.1
Paper Mills (300 mg/l dose)	17	$325.8	$96.2
Paper Mills (1000 mg/l dose)	17	$414.4	$255.8
Paper Mills (1800 mg/l dose)	17	$448.5	$488.4
Power Plants	15	$991.3	$47.5
Other	25	$93.8	$4.9
TOTAL (with 1000 mg/l dose for Paper)	**592**	**$3,450**	**$405**
TOTAL (with 300 mg/l dose for Paper)	**592**	**$3,361**	**$246**

Municipalities represent the largest affected population of permittees and will face significant capital costs in the amount of $1.6 Billion, most of which is projected to be spent by Wisconsin's municipal wastewater treatment facilities. With interest, total expenditures increase to $2.5 Billion, with an additional $69.4 million annually for O & M costs. Three affected sectors, municipal, paper and power, will bear 86% of the projected total capital costs and account for almost 92% of the estimated annual Operations and Maintenance ("O&M") costs. Other industrial categories including food processing, cheese manufacturing, and aquaculture bear the remainder of the cost burden.

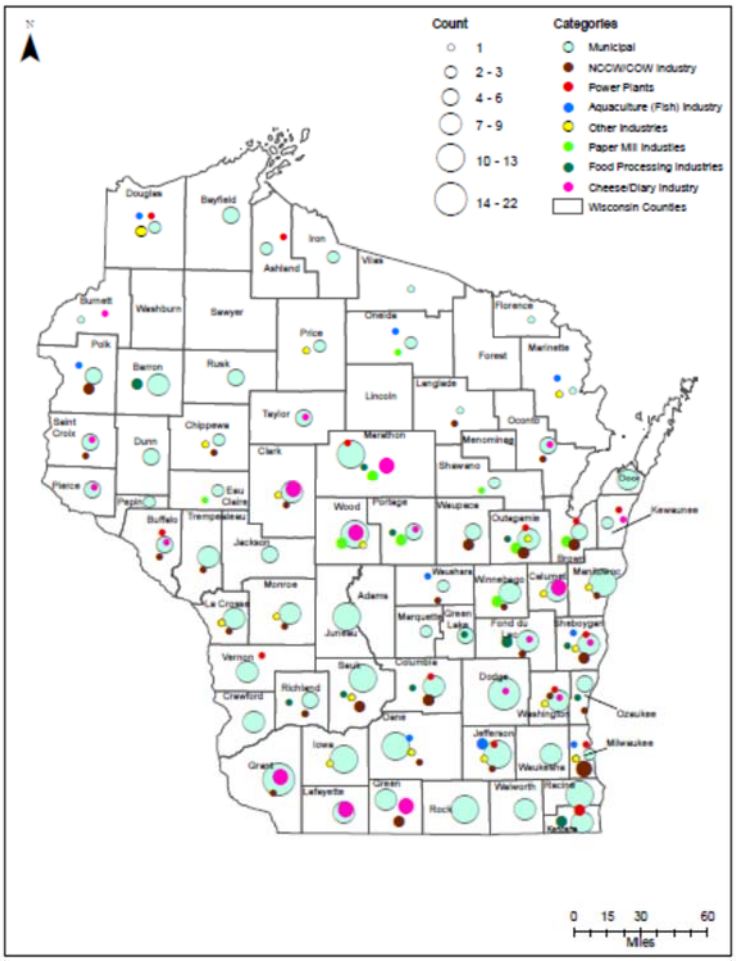
This study analyzed a number of factors including the magnitude of compliance operation and maintenance costs, in addition to economic factors including population, employment, regional disparities, and the impact on gross state product to help determine if compliance with restrictive phosphorus limitations constitutes a "substantial and widespread" social and economic impact to the State of Wisconsin. This study also included a survey of industrial and municipal wastewater facilities. A few of the findings from those surveys include:

- **Higher capital and O&M costs at Publicly Owned Treatment Works (POTW) are expected to be recovered through rate increases and surcharges.** Most POTWs indicate that they will use rate increases targeted at industrial and residential customers to recover costs.

- **Clean water compliance is a top ranking business concern in Wisconsin.** Businesses indicated that water and other environmental regulations are more likely to have a major impact on their activities than other regulations including health, safety, and employment.

- **Businesses indicate that they are likely to adjust their practices in the wake of the water quality regulations for phosphorus.** Businesses signaled that they are more likely to decrease investment (47%) and/or postpone expansion (37%) at their Wisconsin facility due to the higher costs of water quality compliance. A significant percentage of companies (42%) also indicated that they would be more likely to shift production to another state. Almost a third of all companies expected to pass higher costs onto their customers.

The map below highlights industrial and municipal Wisconsin Pollutant Discharge Elimination System (WPDES) permit locations and illustrates the finding that the cost of compliance for the new phosphorus regulations will be demonstrably felt across the entire State of Wisconsin – only six of 72 counties are projected to have no compliance costs. However, as illustrated below, *the distribution of affected industrial categories throughout Wisconsin is not uniform*, meaning regional clustering of industries may have a significant impact on the economic feasibility to comply with phosphorus limitations for categories of industries.[1]



[1] Data provided by WI DNR and reflect facility sites requiring additional capital investment for Cheese, Aquaculture, Food Processing, Municipal (POTW), Paper Mills, Power Plants and NCCW facilities.

Capital and annual O&M cost estimates were developed for the treatment process upgrades necessary for removing phosphorus from the current permit levels to the potential lower TP "total phosphorus" levels established for each WPDES-permitted discharger. The scope of the economic impact study covered WPDES permitted facilities in Wisconsin, or 755 facilities. Sites whose phosphorus limits were not impacted by the new standards will have no additional costs incurred, and were therefore excluded from further analyses. This study evaluated 592 permittees, specifically those expected to need to add phosphorus treatment technologies to meet more stringent phosphorus discharge limits. Of these, 425 were POTWs and 167 were industrial dischargers.

For both municipal and industrial facilities, nutrient removal objectives were divided into three levels:

1. >0.5 to 1 mg/L Total Phosphorus (TP),
2. >0.1 to 0.5 mg/L TP and
3. Less than or equal to 0.1 mg/L TP.

The assumed treatment process to achieve >0.5 to 1 mg/L TP was multi-point chemical precipitation of phosphorus with alum and with clarification. To achieve >0.1 to 0.5 mg/L TP, it was assumed that multi-point chemical precipitation with clarification and sand filtration was required. Multi-point chemical precipitation with clarification and dual-stage sand filtration are the processes required to achieve TP less than or equal to 0.1 mg/L. The main treatment process components required depended on the type of facility (mechanical WWTP, lagoon, or industrial). Major process components include chemical storage, chemical feed pumps, clarifier (if required), sand filters, dual-stage sand filters, and additional sludge dewatering (if required), storage and disposal.

It was assumed most industrial dischargers can achieve TP limits with the same technologies as municipal facilities, with the exception of the paper mill industry. The paper mill industry requires significantly higher chemical levels to achieve the target TP limits due to a high fraction of recalcitrant P in their waste stream. For these facilities, dosages ranging between 300 and 1,800 mg/L may be required to meet the more stringent TP limits.

In addition to direct capital costs, this study assessed the **state-level economic impacts** (jobs, wages and gross state product) of industry-level compliance costs to meet the stricter water quality standards in Wisconsin for phosphorus discharge. Industry groupings included in this study include paper, dairy, cheese, aquaculture and food processing, as well as municipal utilities, power utilities, and discharges which consist of solely non-contact cooling water (which could be from a wide range of industries). Table ES-2 illustrates the projected statewide impact of the new phosphorus regulations:

Table ES-2: Statewide Economic Impacts, 2017 and 2025

Economic Impacts	2017	2025
Total Employment (Jobs)	-1,608	-4,517
Gross State Product (Millions of Fixed 2014 Dollars)	-$177.3	-$616.6
Total Wages (Millions of Fixed 2014 Dollars)	-$68.3	-$238.3
Population (Individuals)	-2,036	-10,964

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Based on the REMI (Regional Economic Model, Inc.) economic simulations, **the full impact of these regulatory costs will be felt in 2025, when total statewide economic impacts result in a reduction of 4,517 jobs, losses of $238.3 million in wages, and $616.6 million in gross state product.** This is compared to what would be projected for the Wisconsin economy without the additional costs associated with complying with the State's water quality regulations for phosphorus. For context, the Wisconsin gross state product (GSP) is expected to be $397 Billion in 2025 (in constant 2014 dollars) with a statewide economy employing 3.8 million people. The water quality regulation is also expected to **result in 10,964 fewer Wisconsin residents in 2025** due to these sustained economic costs from the new phosphorus regulations.

As discussed in further detail below, a sensitivity analysis was performed on these numbers to determine how much the outcome changes if the costs of compliance change. This sensitivity analysis determined how the impact would change should the projected compliance costs increase by 25 percent, or decrease by 10 percent. These "over-under" estimations are common for engineering projects, and were therefore viewed as a conservative baseline for this sensitivity analysis. Applying these findings to the initial estimate of the total employment impact to Wisconsin from water compliance across all industries (4,517 jobs in 2025), this analysis demonstrated that if compliance costs increased by 25 percent (above what is used as the basis of this study), by 2025 it would cost Wisconsin an additional 1,129 jobs (totaling 5,646 jobs. Conversely, if these costs decreased by 10 percent, the projected job loss would be 4,065 Wisconsin jobs. Likewise, a 25 percent increase in the cost of compliance would result in a projected net decline of GSP of $770.8 million, while a 10 percent reduction in capital/compliance costs would lead to net GSP decline of $554.9 million.

The cost impact to municipalities and other sewer users such as residents and households was analyzed as a component of this study. The impact is limited in 2017 as costs would not yet begin to accrue; however, the impact increases substantially by 2025 as the municipal utilities incur - and pass on - costs, year-after-year, for the initial capital equipment purchases, as well as for operations and maintenance. For the purposes of modeling the economic impacts, implementation is expected to begin in 2016, but in reality, most point sources are given extended compliance schedules (7 to 9 yrs.) to comply with permit limits.

Based on the REMI economic simulations, the 2025 **total statewide economic impacts for municipal utilities** (see Table ES-3 below) include a reduction of 1,420 jobs, $47.1 million in wages, and $152.9 million in gross state product by 2025 (note that these impacts are included in the total statewide impacts shown above in Table ES-2). To put this into current context, in 2013

Wisconsin's local governments employed over 270,000 people with average annual wages of $39,407.

Table ES-3: Economic Impact from Municipal Utility Compliance

Economic Impacts	2017	2025
Total Employment (Jobs)	-821	-1,420
Gross State Product (Millions of Fixed 2014 Dollars)	-$79.5	-$152.9
Total Wages (Millions of Fixed 2014 Dollars)	-$30.7	-$47.1
Population (Individuals)	-1,292	-5,496

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The impacts on Wisconsin counties and residential customers were also assessed utilizing a financial capability assessment (FCA) type methodology regularly employed by US EPA to evaluate the impact of Clean Water regulations on affordability and household income. The average projected Cost per Customer statewide for Wisconsin was $1,033 with a range of $59 to $2,263 per year, following implementation of the additional phosphorus removal facilities. Today, there are significant disparities in Median Household Income (MHI) across Wisconsin. MHI at the county level ranges from $33,330 to $75,850, compared to the statewide MHI average of $52,413[2]. With the associated capital and financing costs of achieving stringent phosphorus limitations, 42 of Wisconsin's 72 counties had an Affordability Indicator (**cost per customer)** in excess of 2.0% of MHI (often seen as a 'high' burden under US EPA Guidance analysis); while another 25 counties measured a "mid-range" burden of between 1.0% and 2.0%, warranting further exploration of their secondary socioeconomic factors. Only 3 counties had Affordability Indicators below 1.0%, while 20 counties had cost per customer burdens *in excess of 3% of MHI*. These costs -- on top of other essential infrastructure improvements needing repair or replacement – the phosphorus regulations would impose a significant new financial challenge for communities.

Key findings include:

- Total statewide economic impacts of increased water compliance costs are likely to be significant and sustained. This study estimates that when aggregating across all discharge permits**, the total capital cost to Wisconsin utilities and businesses is likely to be approximately $6.059 Billion with about $708 million each year** (new annual debt service costs of $303 million *plus* additional O&M expenses of $405 million) over twenty (20) years. This cost burden is estimated to result in **the loss of more than 4,500 jobs, a reduction of over $600 million in GSP, and approximately $238 million in lost wages** to Wisconsin residents annually for 20 years. [See Table 3-1 "Total Cost to Industry and Municipalities" and Table 3-2 "Statewide Economic Impacts, 2017 and 2025"].

[2] Data from the U.S. Census Bureau, American Community Survey (ACS) 2009-2013 Five Year Survey.

- Sustained economic costs may have broader economic implications for Wisconsin. The direct costs of compliance have significant repercussions for the rest of the economy as increased costs in water/sewer utilities, power companies and paper (in particular) pass costs on to residents/households, and other businesses that supply or purchase those goods. This could be exhibited by large job losses in a wider range of industries (construction, retail trade, other manufacturing, etc.), as well as a reduction in Wisconsin population by approximately 11,000 fewer Wisconsin residents by 2025. The reduction in population could be significant in particular counties, and reflect a much larger economic impact.

- Municipal utilities have the largest total compliance costs, largely driven by the large number of affected POTWs (425), resulting in increased sewer costs across almost every community, household and business in Wisconsin. Because many of these costs are passed along directly to residential consumers (the largest single source of sewer revenues), the burden to municipal utilities alone is estimated to result in 5,500 fewer Wisconsin residents by 2025.

- Costs and economic impacts vary greatly by industry grouping. While the number of permits per industry is an important consideration, the estimated costs per permit are substantially higher for the paper and electric power industries holding permits (between $5 to 12 million per year per permit). This is mainly due to the larger design flows of these facilities compared to other industrial facilities. The magnitude of the projected compliance costs for power plants and paper mills is an important factor for considering the statewide impacts of phosphorus regulations for these categories.

- The largest estimated statewide economic impacts are associated with the municipal utility, paper, and power industries. The total estimated job losses by 2025 (and sustained over multiple years) for impacts associated with higher costs could vary between approximately 630 and 2,050 per year for paper industries, between 860 and 1,070 for power industries, and 1,280 and 1,770 for municipal utilities.

- The paper and power industry economic impacts are largely driven by high permit costs which also result in large GSP impacts ($100 to $240 million per year).

- Other industries, including cheese, food, and fish have a smaller number of impacted permittees and lower design flows per facility, which impacts the total magnitude of compliance costs compared to other discharge categories. Another factor that makes these categories unique is their geographic clustering in Wisconsin. Accounting for categorically-unique variables was imperative to determine the social and economic impacts of phosphorus regulations throughout Wisconsin.

- Cheese, food processing fish and other industries are estimated to sustain an additional cost of $300,000 to $550,000 per business, depending on size, which could be significant for some businesses. For example, the average establishment size for the Wisconsin food

manufacturing industry is 65 employees. Businesses of that size could face challenging cost and competitive pressures from domestic and global companies based on an extra $500,000 in costs per year.

- REMI, the economic model used in this report, is considered the most advanced and rigorous model for demonstrating how costs associated with water regulations would impact key Wisconsin industry sectors, statewide. However, the model works on default industry averages and patterned inter-industry relationships and is thus not fully aware of how corporate behavior, competition (e.g., between companies or between plants operated by the same company) and global market pressures could influence how businesses respond to higher water treatment costs. REMI does not incorporate behavioral economics or capture the vicissitudes of corporate decision-making. Therefore, it does not forecast "tipping points" for the viability of individual firms but rather industry-wide impacts due to higher costs. For example, it certainly is possible that the increased compliance costs could push an industrial facility beyond a competitive threshold that would force more severe business adjustments (e.g., plant closures) that would go beyond the impacts captured by the REMI model.

- Through surveys conducted as part of this study, businesses indicate that they are likely to adjust their practices in the wake of the water quality regulations for phosphorus. Businesses signaled that they are more likely to **decrease investment** (18 of 38 respondents) and/or **postpone expansion** (14 of 38 respondents) at their Wisconsin facility due to the higher costs of water quality compliance. A number of companies also indicated that they would be more likely to **shift production to another state** (16 of 38 respondents). The stated business response to higher compliance costs for phosphorus effluent corroborates the REMI results of this study, demonstrating the potential for lower employment and lower economic output in Wisconsin.

This study did not address water quality trading, adaptive management, non-point sources, or potential compliance costs associated with land acquisition. However, it did address two issues which, while not included as part of the REMI analysis, should be considered by the readers of this study: (1) increased costs to indirect dischargers, and (2) regional impacts. Indirect dischargers include a number of businesses among the types of industries potentially affected by the phosphorus regulations in Wisconsin, which do not have point source WPDES permits but may be impacted by the regulations. This means that they discharge either pre-treated or untreated wastewater directly to a municipality, which, as a point source with a WPDES permit, is responsible for complying with applicable phosphorus water quality-based effluent limits. Municipalities faced with increased capital costs are likely to pass costs along to their customers (industrial, commercial and residential) in the form of rate increases and/or surcharges.

Because the scope of the economic impact study directed DOA to look at point source permit holders which require major facility upgrades, the economic impact to these indirect dischargers was not able to be considered directly when the REMI analyses were conducted; nonetheless, the State received input from multiple stakeholders that the economic impact of increased utility costs to these indirect dischargers may be substantial and should be considered by DOA. This study sought to quantify that information to the extent practicable.

Finally, while a study of regional impacts would require a separate county or regional REMI analysis, data provided from the statewide analysis can be viewed from a regional perspective to draw broader conclusions about county and regional impact. For example, layering concentrations of capital costs by county with the projected per customer Affordability Indicator of over 2.0% of annual household income consumed by sewer fees, as in Figure 5-2 in Section 5, provides insight into multiple county impacts. With three exceptions, the counties that fall within the three highest capital cost per job (capital costs in excess of $2,000 per job) categories also have projected Affordability Indicators of greater than 2.0%, further evidence of the concentrated impact of the phosphorus regulations. When compared with Census Data by County, additional layers of impact are revealed.

1. INTRODUCTION

This study focused on the statewide economic impacts to business and residents of adding phosphorus treatment technologies to comply with water quality-based effluent limitations for phosphorus. By determining the costs incurred by industrial and municipal WPDES permittees to comply with effluent limits based on Wisconsin's phosphorus water quality standards and how these costs will directly and indirectly be passed through to local and state economies, this study provides information for DOA to make the determination as to whether these costs have a "substantial and widespread economic and social impact" pursuant to Wisconsin Act 378.

This economic impact analysis addresses the following points:

A. A calculation of the cost of compliance with water quality-based effluent limitations for phosphorus by point source statewide categories that cannot achieve compliance without major facility upgrades;

B. A calculation of the per household cost for water pollution control by statewide categories of publicly owned treatment works (POTW) that cannot achieve compliance with water quality based effluent limitations for phosphorus without major facility upgrades, including the projected costs of compliance with those water quality-based effluent limitations, and a calculation of the percentage of median household income that the per household cost represents; and

C. An analysis of whether the cost of compliance with water quality-based effluent limitations for phosphorus by statewide categories of non-publicly owned point sources that cannot achieve compliance without major facility upgrades would cause widespread and substantial adverse social and economic impacts on a statewide basis.

Key assumptions utilized in this study:

- The specific dates for incurring capital investments are primarily driven by the WPDES permit, and are site-specific. The study assumed for modeling purposes that construction will occur during 2016-2017, with those years selected as a representative range for most WPDES permittees based on permit issuance dates. Actual dates will differ.

- The study assumed that most or all capital costs would be financed with long-term, 20 year maturity debt. Although the terms of corporate borrowing will be driven by individual corporate credit ratings, cashflow and internal financial models, municipal debt is traditionally 20 to 30 years in maturity. Because borrowing from the Wisconsin Environmental Improvement Fund is restricted to 20 year debt, the term of all debt financings in the analysis (both corporate and municipal) used a 20 year level debt maturity structure for consistency and comparison purposes. To determine an appropriate cost of borrowing, historic interest rate data collected by the Federal Reserve Board for corporate and municipal borrowers was utilized. A rate of 5.5% was assumed for municipal borrowers and a rate of 7.0% for corporate entities. It is possible that municipalities and/or corporations may not have sufficient credit ratings to borrow at equivalent rates in the marketplace.

- For municipalities, the study assumes that POTWs will fund 10% of the capital project costs using cash or “pay go” funding. Given the magnitude of capital costs for local municipal utilities, it is likely that many if not most POTWs will not have sufficient operating cashflow and therefore be required to finance 100% of project costs. This will increase the amount financed by 10%, further adding to total cost burden for municipal utilities.

2. TECHNOLOGY EVALUATION AND CAPITAL/O&M COST DEVELOPMENT

This section addresses the first issue required of the study:

A. A calculation of the cost of compliance with water quality-based effluent limitations for phosphorus by point source statewide categories that cannot achieve compliance without major facility upgrades.

2.1 DATA COLLECTION

The incremental costs to remove additional phosphorus to comply with more stringent water quality based effluent phosphorus limitations were developed for all municipal and industrial facilities with WPDES permits in the state of Wisconsin. In total, the study initially analyzed 755 permit holders – 521 publicly owned treatment works (POTWs) and 234 industrial permit holders in seven categories. Industrial categories evaluated include: cheese, fish, food processing, paper mills, non-contact cooling water (NCCW), power plants, and 'other'[3]. Sites whose phosphorus limits were not impacted by the new standards will have no additional costs incurred, and were therefore excluded from further analyses. A total of 592 permittees were expected to need to add phosphorus treatment technologies to meet more stringent phosphorus discharge limits, and were further evaluated in this study. Of these, 425 are POTWs and 167 are industrial dischargers. Table 2-1 summarizes the number of facilities for each type of permittee.

Table 2-1 – Breakdown of Permittees Evaluated

Type of Permittee	Number of Permitted Facilities in each Category
Municipal WWTP: Mechanical	334
Municipal WWTP: Lagoon	91
Municipal Subtotal	**425**
Cheese	27
Aquaculture	10
Food Processing	14
NCCW/COW[4]	59
Paper Mills	17
Power Plants	15
Other	25
TOTAL	**592**

[3] Facilities were placed in the 'other' category if they had 10 or less facilities with similar manufacturing processes and/or discharge properties. Facilities in the 'other' category include metal finishing, airports, fire products manufacturing, greenhouses, and quarries, among other things.

[4] This category is comprised of discharges whose effluent is solely comprised of any of the following: condensate of whey (COW), noncontact cooling water (NCCW), noncontact condensates, or boiler blowdown and bleed-off.

Figure 2-1 shows a histogram of municipal facilities based on the type of facility (mechanical vs. lagoon) and design flow. Figures 2-2 and 2-3 show histograms of facilities by design flow and type of facility for industrial facilities.

Figure 2-1 – Histogram of Municipal Facilities Based on Type of Facility and Design Flow

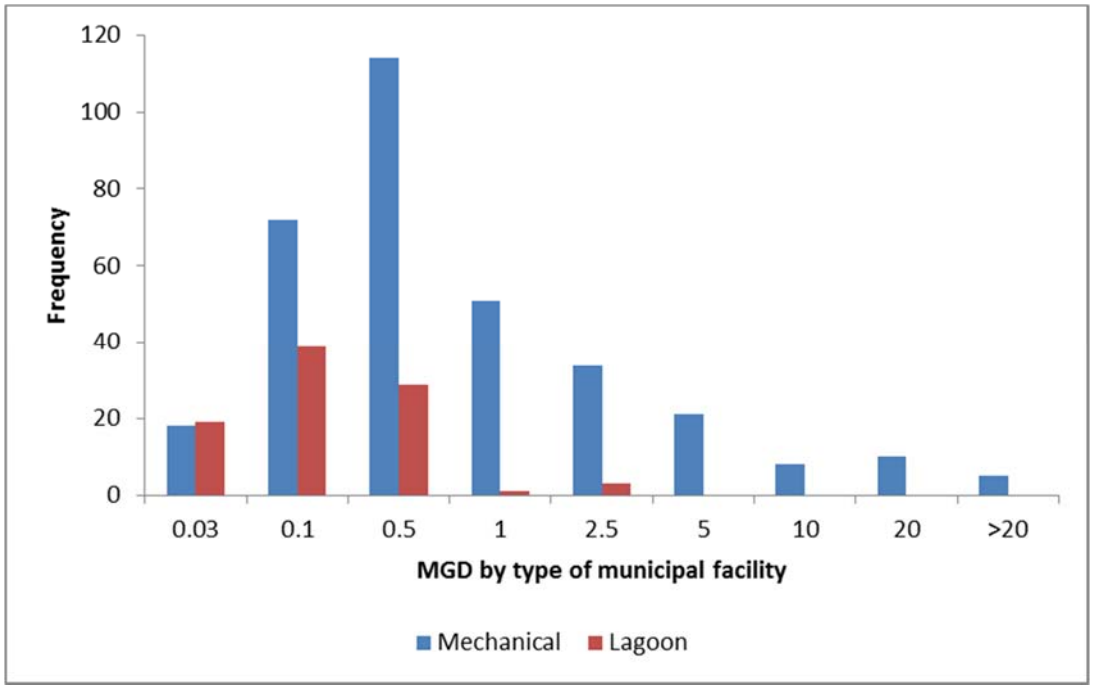


Figure 2-2 – Histogram of Industrial Facilities Based on Design Flow

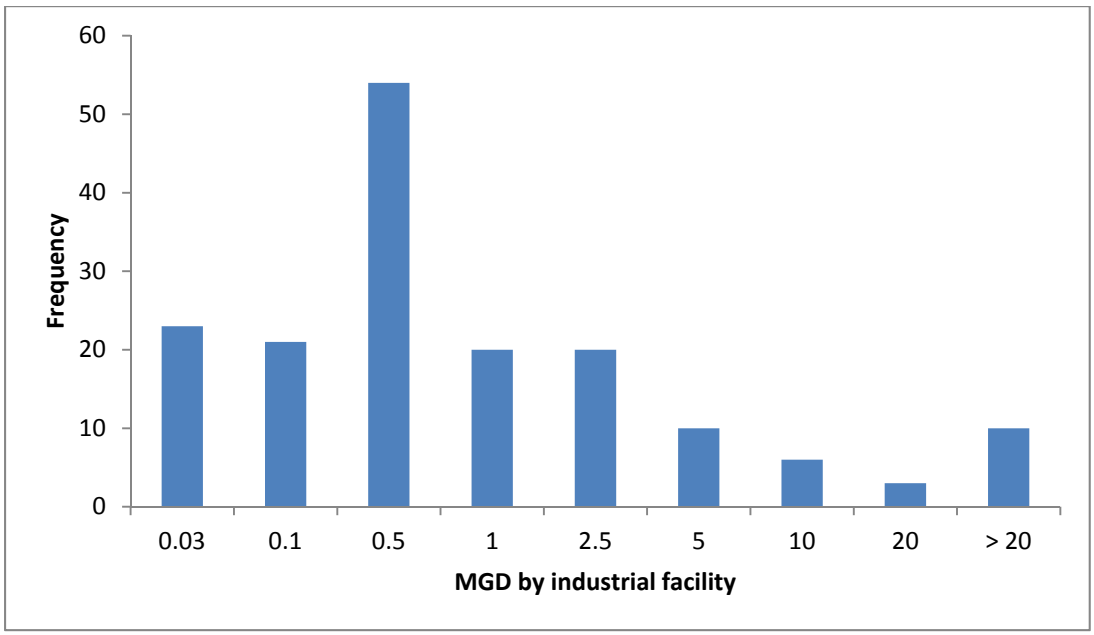
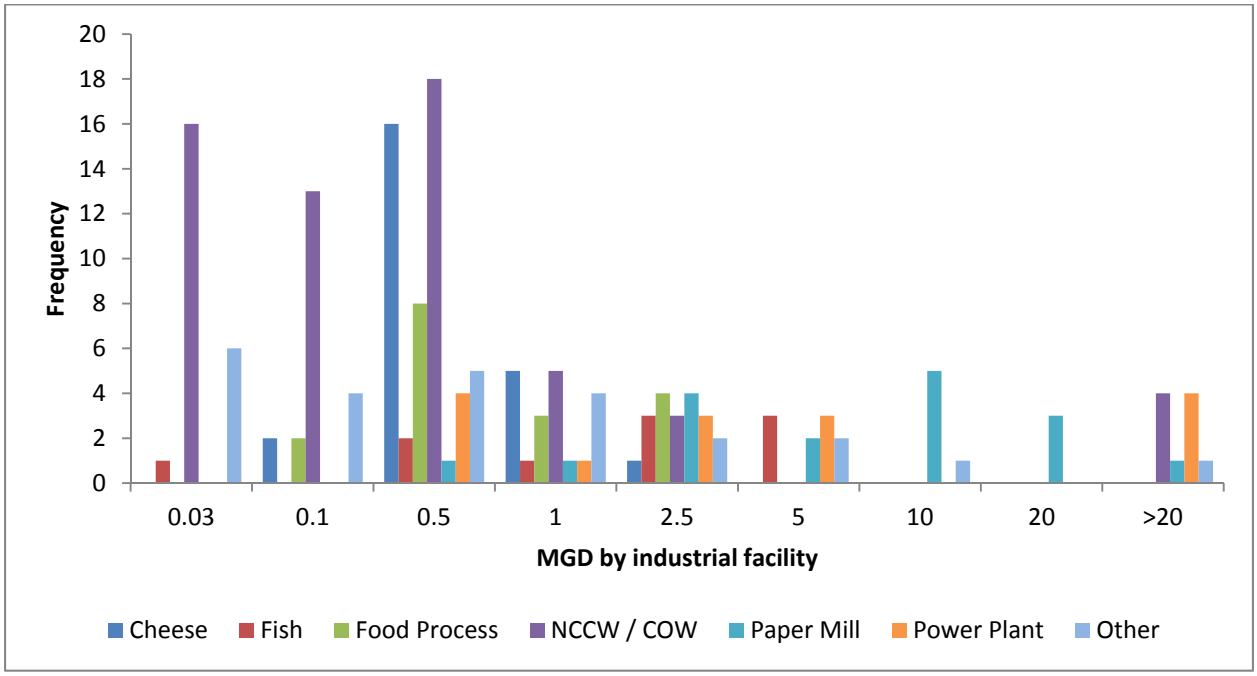


Figure 2-3 – Histogram of Industrial Facilities Based on Type of Industry and Design Flow



The majority of municipal and industrial facilities have a capacity equal to or less than 10 MGD. Approximately 81% (343 of 425) of municipal WWTPs (Figure 2-1) have a design flow of 1 MGD or less, while 71% (118 of 167) of industrial facilities (Figure 2-2) have a design flow of 1 MGD or less. The percentages increase to 96% and 93% for municipal and industrial facilities, respectively, when capacities less than or equal to 10 MGD are considered. The majority of municipal POTWs are mechanical facilities (79 percent, Figure 2-2), while the category with the largest number of facilities is the NCCW/COW (34 percent, Figure 2-3).

The distribution of facilities based on the anticipated phosphorus discharge limits are summarized in Table 2-2. See Section 2.3 below for phosphorus standards based on waterbody type.

Table 2-2 – Summary of Anticipated Six-Month TP Discharge Limits for Facilities

Number of Facilities	Effluent TP (mg/L)
20	< 0.075
344	0.075
107	0.075 - 0.2
121	>0.2

More than 360 facilities (62% of total facilities) will need to achieve a TP discharge of equal to or less than 0.075 mg/L.

2.2 LITERATURE REVIEW

Several recent studies completed by others regarding economic evaluations for phosphorus removal were reviewed to compare treatment assumptions, cost curve methodologies, and to validate the cost curves developed as part of the assessment presented in this report (see Table 2-10).

A cost curve, for the purpose of this study, is a graph of the costs of compliance with phosphorus limits as a function of effluent flow. Utilizing cost curves is a straightforward way of estimating the compliance costs for various facilities when site-specific analyses are unavailable or infeasible.

Studies considered in the literature review evaluated the impact of reduced phosphorus discharge limits for municipal wastewater treatment plants and for specific industrial sectors (Paper Mills and Cheese/Food). However, methodology varied from modeling generic treatment systems (Washington) to modeling individual facilities (Utah) to using available influent/effluent data (Wisconsin - Williams). Capital costs as well as operations and maintenance costs were developed for each report but the assumptions used varied. Refer to Appendices A and B for a detailed summary of these previous studies and the bibliography.

2.3 PHOSPHORUS REMOVAL OBJECTIVES

For this study, treatment facility upgrade requirements and associated costs were estimated for a range of prospective nutrient standards based on the proposed WQBELs for total phosphorus (TP). The State of Wisconsin established water quality criteria for TP for surface water discharges based on the type of receiving surface water (river, stream, reservoirs, and lakes) in Chapter NR 102 of the Wisconsin Administrative Code. TP water quality criteria are established as follows (from s. NR 102.06, Wis. Adm. Code).

- Rivers: 0.1 mg/L
- Streams: 0.075 mg/L
- Reservoirs: 0.03 – 0.04 mg/L depending on reservoir stratification
- Lakes: 0.015 – 0.04 mg/L depending on lake type

2.4 TECHNOLOGY SELECTION

Municipal and Industrial facilities were divided into three groups based on their final TP WQBEL:

- >0.5 to 1 mg/L
- >0.1 to 0.5 mg/L
- less than or equal to 0.1 mg/L

These ranges were chosen based on experience as to the range of TP concentration that could be reliably achieved at conventional wastewater treatment plants with multi-point metal salt

additions (chemical phosphorus removal) with final settling tanks (0.5 to 1.0 mg/L TP), with effluent filters (0.1 to 0.5 mg/L) or dual stage effluent filters (<0.1mg/L TP). The treatment process to achieve >0.5 to 1 mg/L TP is multi-point chemical precipitation of phosphorus with alum and clarification. To achieve >0.1 to 0.5 mg/L TP, multi-point chemical precipitation with clarification and sand filtration was required. The treatment process assumed to be required to achieve TP less than or equal to 0.1 mg/L consisted of multi-point chemical precipitation with clarification and dual-stage sand filtration. The main treatment process components required depended on the type of facility (mechanical WWTP, lagoon, or industrial WWTP). Major process components include chemical storage, chemical feed pumps, clarifier (if required), sand filters, dual-stage sand filters, and additional sludge dewatering (if required), storage and disposal.

Effluent TP for the current facilities were assumed to be at 1 mg/L[5]. The additional treatment equipment was sized based on removing 1 mg/L of TP for all sites regardless of their new limit. The development of cost curves that can be applied to all sites did not allow for the incorporation of site specific TP discharge information.

Biological phosphorus removal (BPR) was not reviewed as part of this study as it cannot consistently reduce phosphorus to levels less than 0.5 mg/L at all of the facilities. While incorporating BPR can reduce chemical requirements for TP removal and sludge production, the applicability of BPR is often a site specific decision due to wastewater characteristics, and was not considered as part of this evaluation. This position is supported by the excerpt below from the Water Environment Federation (WEF) Manual of Practice No. 34 "Nutrient Removal" prepared by the Nutrient Removal Task Force of the WEF.

> *Enhanced biological phosphorus removal (EBPR) relies on the selection and proliferation of a specialized microbial population capable of storing orthophosphate in excess of their biological growth requirements. These organisms can sequester up to 0.38 mg P / mg VSS. The process requires an anaerobic zone followed by an aerobic zone. The anaerobic zone should not have any dissolved oxygen or oxidize nitrogen and sulfur. The presence of nitrate or dissolved oxygen in the anaerobic zone will prevent uptake of phosphorus. For facilities with combined sewers, high carryover of dissolved oxygen in the raw wastewater and primary effluent is of concern.*
>
> *Another key factor is the amount of readily biodegradable BOD (rbBOD) available in the anaerobic zone, thus the concentration of rbBOD to ortho-P. The amount of rbBOD in municipal wastewater treatment facilities is typically affected by the sewer system configuration. Sewers with long residence time, low infiltration and inflow (I/I) and warm temperatures will generate higher concentration of rbBOD. System with colder wastewater < 15 degC, short residence time, or high I/I, especially combined sewers, will have lower rbBOD.*
>
> *Finally, site specific requirements for nitrification or total nitrogen removal can also affect the viability of performing biological phosphorus removal.*

[5] Most point source discharges in Wisconsin are currently complying with technology-based phosphorus limitations, which are typically set equal to 1 mg/L (ch.NR 217 Subchapter II, Wis. Admin. Code). For this reason, 1m/L is frequently used to help establish baseline phosphorus loads for point source discharges, and has been frequently used to help establish TMDL waste load allocations.

Only through site specific analysis and comparison versus chemical phosphorus removal can the viability and economics of phosphorus removal be determined. Thus for the purpose of this state-wide analysis, we moved forward with chemical phosphorus removal. It should also be noted that implementing BPR would increase capital costs, but could significantly decrease the operations and maintenance costs when compared to chemical precipitation alone due to the lower chemical requirements as well as generating less sludge for disposal.

2.4.1 Mechanical WWTPs

Table 2-3 summarizes the treatment processes and associated main process components which were assumed would be necessary to meet the various target TP levels for mechanical WWTPs for both municipal and industrial dischargers. It was assumed that mechanical WWTPs are generally conventional activated sludge plants with primary and secondary clarifiers. For each of the three TP treatment levels, cost curves for two design flow ranges (0 to 10 MGD and greater than 10 MGD) were developed. For each flow range, several flows were selected to develop the capital and O&M costs used to develop the curves. Curves for these two flow ranges were developed because unit costs tend to vary more significantly at the smaller capacities while unit costs tend to "flatten" out and not change as much for flows larger than about 10 MGD. Since most mechanical WWTPs in Wisconsin have a capacity less than 10 MGD, a curve with several points at the lower flow range would provide a more representative cost curve that is not "distorted" by including unit costs for larger flow capacities.

Since it was assumed that all mechanical WWTPs have clarifiers, these treatment units were not included as a required process component to achieve the TP limits.

Table 2-3 – Summary of Processes Required for Phosphorus Removal for Mechanical WWTPs

Treatment Level	Flow Ranges for Cost Curves	Costs Developed for Specific Flows	Treatment Process	Main Process Components
TP >0.5 – 1 mg/L	0 – 10 MGD	0.1 MGD 0.5 MGD 1 MGD 5 MGD 10 MGD	• Multi-point chemical precipitation	• Chemical Building • Chemical Storage • Chemical Feed System • Piping, Valves, and Appurtenances • Sludge Storage Tank • Sludge Dewatering Facility (Paper Mills)
	>10 MGD	10 MGD 20 MGD 50 MGD		
TP >0.1 – 0.5 mg/L	0 – 10 MGD	0.1 MGD 0.5 MGD 1 MGD 5 MGD	• Multi-point chemical precipitation • Sand filtration	• Filter Feed Pumps • Sand Filter • Chemical Building • Chemical Storage • Chemical Feed System

		10 MGD		• Piping, Valves, and Appurtenances • Filter Building • Filter Backwash Pumps • Sludge Storage Tank • Sludge Dewatering Facility (Paper Mills)
	>10 MGD	10 MGD 20 MGD 50 MGD		
TP ≤ 0.1 mg/L	0 – 10 MGD	0.1 MGD 0.5 MGD 1 MGD 5 MGD 10 MGD	• Multi-point chemical precipitation • Dual-stage sand filtration	• Filter Feed Pumps • Dual-Stage Sand Filters • Chemical Building • Chemical Storage • Chemical Feed System • Piping, Valves, and Appurtenances • Filter Building • Filter Backwash Pumps • Sludge Storage Tank • Sludge Dewatering Facility (Paper Mills)
	>10 MGD	10 MGD 20 MGD 50 MGD		

2.4.2 Lagoons

Table 2-4 summarizes the treatment processes and associated main process components assumed to be necessary to meet the various target TP levels for lagoon systems for both municipal and industrial dischargers. It was assumed that lagoons would require secondary clarifiers to remove the added solids generated from the chemical addition for phosphorus removal as a typical lagoon treatment system does not include separate solids removal equipment. For each of the three TP treatment levels, cost curves were developed for design flows ranging from 0 to 2 MGD. Several flows within this flow range were selected to develop the capital and O&M costs used to develop the curves.

Table 2-4 – Summary of Processes Required for Phosphorus Removal in Lagoon Systems

Treatment Level Target	Flow Ranges for Cost Curves	Costs Developed for Specific Flows	Treatment Process	Main Process Components Added for P Removal
TP >0.5 – 1 mg/L	0 – 2 MGD	0.1 MGD 0.25 MGD 1.0 MGD 2.0 MGD	• Multi-point chemical precipitation • Clarification	• Clarification Feed Pump Station • Chemical Building • Chemical Storage • Chemical Feed System • Piping, Valves, and Appurtenances • Clarifier, Mechanisms, and Pumps

				• Sludge Storage Lagoon (existing) • Sludge Dewatering Facility (Paper Mills)
TP >0.1 – 0.5 mg/L	0 – 2 MGD	0.1 MGD 0.25 MGD 1.0 MGD 2.0 MGD	• Multi-point chemical precipitation • Clarification • Sand filtration	• Clarification Feed Pump Station • Chemical Building • Chemical Storage • Chemical Feed System • Piping, Valves, and Appurtenances • Clarifier, Mechanisms, and Pumps • Sludge Storage Lagoon (existing) • Filter Building • Filter Feed Pumps • Filter Backwash Pumps • Sand Filter • Sludge Dewatering Facility (Paper Mills)
TP ≤ 0.1 mg/L	0 – 2 MGD	0.1 MGD 0.25 MGD 1.0 MGD 2.0 MGD	• Multi-point chemical precipitation • Clarification • Dual-stage sand filtration	• Clarification Feed Pump Station • Chemical Building • Chemical Storage • Chemical Feed System • Piping, Valves, and Appurtenances • Clarifier, Mechanisms, and Pumps • Sludge Storage Lagoon (existing) • Filter Building • Filter Feed Pumps • Filter Backwash Pumps • Dual-Stage Sand Filters • Sludge Dewatering Facility (Paper Mills)

2.4.3 Industrial Discharges

It was assumed industrial dischargers can achieve TP limits with the same technologies as municipal facilities with some industries requiring significantly higher chemical dosages. Based on a review of research prepared by the National Council for Air and Stream Improvement (NCASI), the paper mill industry requires significantly higher levels of chemical addition to achieve the target TP limits due to a high fraction of recalcitrant P in their waste stream. For these facilities, dosages ranging between 300 and 1,800 mg/L may be required to meet the more stringent TP limits. These dosages are 1 to 2 orders of magnitude higher than typical dosages expected for municipal WWTPs and other industries. These high dosages will result in significantly increased sludge production rates, which are assumed to be above the capacity of existing sludge handling systems already in place. As such, it is assumed the paper mills would need new sludge dewatering facilities to process the significantly higher sludge load. Other industries and municipal WWTPs were assumed to be able to process the additional sludge using existing facilities. Non-contact cooling water dischargers were estimated using the lagoon cost curves as it was assumed based on a typical lagoon system design that these sites do not have any existing solids removal system, and a clarifier would be needed.

This analysis also assumed that point source discharges that currently have multiple outfall locations would be able to reconfigure their treatment processes so that all effluent would be treated at one treatment facility. Reconfiguring costs are site-specific and, therefore, not part of this analysis. It is acknowledged that these costs may be significant in some cases.

Appendix C contains treatment schematics illustrating the general layouts of the proposed treatment equipment to be added for both mechanical and lagoon systems for the three levels of phosphorus control.

2.5 DESIGN CRITERIA

The general design criteria used for sizing the various process components of the treatment trains required to achieve the phosphorus limits described in Section 2.4 are summarized in Table 2-5. The design criteria were selected based on experience from previous projects and typical municipal treatment standard values. To meet very low TP limits, facilities must remain online during maintenance operations and must be able to treat maximum flows. Consequently, standby pumps and extra filter capacity were included in the design.

Table 2-5 – Design Criteria for Sizing Process Components

Main Process Components	Parameters
Chemical Storage Tank	15 days @ design capacity
Chemical Feed System	Required feed rate with one pump out of service
Chemical Added	Alum ($Al_2(SO_4)_3 \cdot 14H_2O$)
Chemical Solution Strength	49%
Chemical Dosage (Target Alum: Phosphate Molar Ratio)	
Primary Clarifiers	1:1
Secondary Clarifiers	2:1
Upstream of Filters	10:1

Paper Mills	300 or 1,000 mg/L (low and middle range discussed in Section 2.4)
Maximum Day Flow Peaking Factor	2:1 (facilities >1.0 MGD)
	3:1 (facilities < 1.0 MGD)
System Sizing Basis	Maximum day flow with one unit out of service
Clarifier*	900 GPD/ft^2 surface overflow rate (at design flow)
Sand Filter*	2.5 GPM/ft^2 filtration rate (at design flow)
Dual-Stage Sand Filter	2.5 GPM/ft^2 filtration rate (at design flow)
Filter Feed Pumps	Required feed rate with one pump out of service
Filter Backwash Pumps	Required feed rate with one pump out of service
Sludge Production Rate	1 lb. TSS/3 lbs. of alum added
Additional Sludge Storage	180 days
Sludge Dewatering Facility	
Polymer for Dewatering	15 lbs. polymer/ton solids
Belt Filter Press	1,000 gpd/meter of belt width

*Source: (10 State Standards) Recommended Standards for Wastewater Facilities.

2.6 COST ESTIMATE ASSUMPTIONS

Capital cost and annual operations and maintenance costs cost estimates were developed for the treatment process upgrades necessary to achieve the nutrient removal objective (i.e., incremental costs for removing phosphorus from the current permit levels to the potential lower TP levels established for each WPDES permitted discharger). Costs for major equipment were obtained from multiple vendor quotes, while other general cost components (shown in Tables 2-6 and 2-7) were estimated as percentages of the equipment cost. These percentages were developed based on previous project experience and typical industry standard values.

The costs for mobilization, site work, instrumentation and control work, electrical work, HVAC work, plumbing work, maintenance of plant operations and yard piping were estimated as percentages of the subtotal direct cost (equipment or building cost). Typical percentages were between 2 to 15 percent for each parameter. ARCADIS reviewed available design estimates for historical projects and leveraged the experience of senior design staff to set the percentages. Electrical and Instrumentation & Controls were combined into one line item. Typically, these percentages can range from 10-15% each at the planning level design phase. A conservative, composite value of 25% was chosen to account for the expectation that these systems will need to run automatically and that in some cases there will not be a robust existing system to integrate into. Contingency costs appropriate for this level of project definition (~1%) and contractor overhead & profit were added to the construction cost estimate to provide for undefined project elements and to reduce the risk for underestimation. The engineering design, inspection and administration costs were added to the estimated bid subtotal to determine the total capital cost.

The operations and maintenance cost curves were developed using the specified O&M cost parameters based on literature sources and referenced phosphorus removal studies included in Appendices A and B. Power usage was estimated using demand from the buildings housing the new treatment equipment, demand from the alum metering system and the demand from all pumps assuming 20 feet of head. The alum usage was estimated based on 1 mg/L of phosphorus being removed at the specified flow rates. Sludge production was estimated using the ratio specified in Table 2-5 for pounds of total suspended solids produced by pounds of total alum added. Sludge processing and storage was sized for 180 days of storage using the average daily flow. Sludge storage of 180 days is a municipal requirement in Wisconsin and has been applied to all categories in this analysis to allow for the development of a common cost curve. The maintenance and repair of major mechanized process equipment was estimated at 2% of the subtotal equipment cost. Operation and labor costs were estimated using the estimated number of additional labor hours that each process would require.

Cost curves, cost equations, and correlation coefficients were developed using the "power" fitting function in Microsoft Excel 2010. The compiled capital costs are consistent with the Association for the Advancement of Cost Engineering's (AACE) Class 4 estimate, where project definition is between 1% to 15% and engineering design is 1% to 5% complete. The typical purpose for this level of estimate is for conceptual studies or feasibility evaluations. No site specific information other than discharge flowrate and new permit limit was used for the estimate which would put the project definition and design level near 1%. As described by AACE, these estimates are primarily stochastic in nature – i.e., are based on inferred or statistical relationships between similar projects and /or quotes with additional factors applied. Class 4 estimates are generally prepared based on limited information without a site specific process description and thus they have a wide accuracy range, typically -30% to +50%. These estimates can successfully be used for budget estimating purposes.

Assumptions for capital and O&M costs are summarized in Table 2-6. Site specific costs were not included in this cost estimate but would affect the cost of implementation for individual facilities. Land acquisition need and associated costs can vary for each site and are not accounted for in this analysis. This analysis also assumed that point source discharges that currently have multiple outfall locations will be able to reconfigure their treatment processes so all effluent will be treated at one treatment facility. Reconfiguring costs are site-specific and, therefore, not part of this analysis. It is acknowledged that these costs may be significant in some cases.

Table 2-6 – Capital Cost Assumptions

Capital Cost Parameter	Percentage Multiplied by Value in Subtotal Column	Subtotal
Site Work	5%	Equipment Subtotal
Yard Piping	15%	Equipment Subtotal
Electrical and Instrumentation & Controls	25%	Equipment Subtotal
HVAC and Plumbing	15%	Building Cost

Site Foundation	2%	Equipment Subtotal
Maintenance of plant operations (MOPO)	5%	Equipment Subtotal
Mobilization, Bonds and Insurance	5%	Equipment Subtotal
Demobilization	2%	Equipment Subtotal
Contractor Overhead & Profit	15%	Construction Cost Subtotal
Construction Contingency	35%	Construction Cost Subtotal
Engineering and Administration	18%	Bid Cost Subtotal

Table 2-7 –O&M Cost Assumptions

O&M Cost Parameter	Unit Value
Additional labor	$45/hr.
Alum cost	$0.25/lb.
Power	$0.08/kWh
Additional solids hauling and disposal cost	$225/dry ton @20% TS for mechanical WWTPs >1 MGD $0.05/wet ton @2% TS for lagoons and mechanical WWTPs < 1 MGD
Annual equipment maintenance	2% capital cost applied to the equipment subtotal

Equipment Cost + Equipment Subtotal Percentages = Construction Cost Subtotal

Construction Cost + Construction Subtotal Percentages = Bid Cost Subtotal

Bid Cost Subtotal + Bid Cost Subtotal Percentages = Capital Cost Total

2.7 COST ESTIMATE RESULTS

The capital costs for the three phosphorus treatment levels in 2014 dollars are summarized as cost per gallons per day in Table 2-8. The itemization of the costs is presented in Appendix D. Construction costs would continue to rise over the planning period and were accounted for in the anticipated funding service. Cost estimates consist of all the items that would be constructed and/or purchased for the flow rates and plants that have been specified (see Appendix D). The direct cost of each equipment item or process area was based on vendor quoted information, estimated quantities needed, and unit prices when applicable information was necessary and available, and historical costs from recent ARCADIS projects.

The construction costs presented are a preliminary estimate of the cost and are based on ARCADIS' knowledge of the industry. As with any estimate, actual construction costs may vary. The estimated construction costs were separated by phosphorus removal level and average daily flow. The total equipment cost includes the cost for the equipment and the installation. The site piping, structures, and site work were included in the cost estimate. As stated in Section 2.6, the accuracy of the estimated conceptual costs is in the range of -30% to +50%.

Cost curves prepared as part of this study plotted against curves from other reference studies are included in Appendix E. Costs prepared for this study were compared to costs prepared for Wisconsin sites as part of other studies for general alignment.

Table 2-8 includes the total capital and O&M costs for the various discharge categories.

Table 2-8 Summary of Estimated Cost by Category (in Millions, 2014 Dollars)

Category	Capital Cost Estimate	O&M Cost Estimate
Municipal WWTP: Mechanical	$1,382	$65.3
Municipal WWTP: Lagoon	$185.1	$4.1
Municipal Subtotal	$1,567.1	$69.4
Cheese/Dairy	$72.5	$3.0
Aquaculture	$51.7	$3.2
Food Processing	$43.9	$1.6
NCCW/COW	$215.0	$20.1
Paper Mills (300 mg/l dose)	$325.8	$96.2
Paper Mills (1000 mg/l dose)	$414.4	$255.8
Paper Mills (1800 mg/l dose)	$448.5	$488.4
Power Plants	$991.3	$47.5
Other	$93.8	$4.9
TOTAL (with 1000 mg/l dose for Paper)	**$3,449,700,000**	**$405,400,000**
TOTAL (with 300 mg/l dose for Paper)	**$3,361,100,000**	**$245,800,000**

As indicated in Section 2.2, several recent studies by others regarding economic evaluations for phosphorus removal were reviewed and compared to the assessment presented in this report. Table 2-10 compares the key treatment requirements, capital cost and O&M cost components and assumptions used for this evaluation to the other studies. As seen in the following table, the treatment requirements and key capital cost components used for this study are generally consistent with those used in most of the other studies. There are, however, some studies that used different treatment technologies, cost components and assumptions, explaining the relative wide variability in cost curve ranges observed for some of the studies presented in Appendix E. It should be noted, however, that despite the wide variability in assumptions and components most cost curves developed in this study generally fall within the range of most cost curves from the other studies. Refer to Appendices A and B for a detailed summary of these previous studies and the bibliography.

Table 2-10: Comparison of Treatment Requirements, Capital and O&M Cost Assumptions for target TP levels < 0.1 mg/L

	THIS STUDY	OTHER RECENT STUDIES					
		Strand WI (2008)	Mark Williams WI (2012)	WI DNR (2012)	Washington (2011)	Utah (2010)	Montana (2012)[3]
TREATMENT REQUIREMENTS							
Enhanced Biological Phosphorus Removal			X				X
Chemical Precipitation	X	X	X	X	X	X	X
Filtration	X	X	X	X	X	X	X
KEY CAPITAL COST COMPONENTS							
Enhanced biological phosphorus removal facilities/modifications			X				X
Rapid Mix/Flocculation		X	X				X
Multi Point Chemical Precipitation System	X	X	X	X	X	X	X
Clarifiers	X[1]		X	X	X[1]	X[1]	X
Tertiary Granular Media Filters	X		X	X	X	X	X
MF/UF Membranes		X					X
NF/RO Membranes							X
Sludge storage / digestion	X	X	X		X		X
Sludge Dewatering	X[2]						X
Demolition (%)	--	--	CAPDETWorks. Assumptions Not Listed	Used Cost Curves Presented in EPA 2008 Report based on Flow	10	CPES Model Used. Assumptions Not Listed	Used 2011 WERF Study (Falk, et. al, 2011) for costs. Assumptions not listed
Site work (%)	5	5			7		
Yard Piping (%)	15	18			--		
Electrical and I&C (%)	25	15			12		
HVAC and Plumbing (%)	15	3			--		
Site Foundation (%)	2	--			--		
Maintenance of Plant Operations (%)	5	--			--		
Mobilization, Bonds and Insurance (%)	5	--			--		
Demobilization (%)	2	--			--		

Miscellaneous (%)	--	--	5		15		
Technical (%)	--	--	--		10		
Total Percent on Construction Cost	***74***	***41***	***--***	***--***	***54***	***--***	
Contractor O&P (%)	15	8	15	--	15	20	
Construction Contingency (%)	35	38	10	30	30	30	
Engineering and Administration (%)	18	--	20	--	15	20	
Legal and Admin (%)	--	--	2	--	2	10	
Inspection (%)	--	--	--	--	8		
Total Percent on Subtotal Capital Costs	***68***	***46***	***47***	***30***	***70***	***80***	
O&M COST ASSUMPTIONS							
Equipment Maintenance (%)	2	1	CAPDETWorks. Assumptions Not Listed	Used Cost Curves Presented in EPA 2008 Report based on Flow			Used 2011 WERF Study (Falk, et. al, 2011) for costs. Assumptions not listed
Additional Operator Labor	45/hour	36/hour			70/hour		
Alum cost	0.25/lb.	0.25/lb.			0.06/lb.	0.24/lb.	
Power	0.08/kWh	0.083/kWh			0.1/kWh	0.05/kWh	
Solids handling and disposal	25/wet ton	11.27/wet ton				14/wet ton	
Sludge percent Solids	1%	2%			0.80%		
Polymer usage	--	1.81/lb.			4/lb.	1.65/lb.	

3. STATEWIDE ECONOMIC IMPACT

This section primarily addresses the third issue required in the study:

> **An analysis of whether the cost of compliance with water quality-based effluent limitations for phosphorus by statewide categories of non-publicly owned point sources that cannot achieve compliance without major facility upgrades would cause widespread and substantial adverse social and economic impacts on a statewide basis.**

3.1 METHODOLOGY AND USE OF THE REMI MODEL

The purpose of the analysis in this section was to estimate the economic impacts associated with costs of compliance for stringent phosphorus limits for both publicly owned facilities (e.g., municipal wastewater utilities) as well as for selected categories of industries. This analysis utilizes the Regional Economic Models, Inc. (REMI) model of the Wisconsin economy to demonstrate the economic impacts of adhering to water quality compliance in Wisconsin by applying and adapting data provided by this study on the costs of compliance for these categories as inputs. These impacts were projected, over time, in terms of jobs by industry, gross state product (GSP), and wages. The REMI economic impact results by industry, driven by permit-level cost estimates and appropriate context for the interpretation of findings, will help provide a decision-making framework to DOA and DNR.

DATA INPUTS FOR COMPLIANCE COSTS

A key step in this economic analysis is to synthesize the cost of compliance data provided into inputs for the REMI model. The costs are assigned to four broad categories:

1. Municipal public utilities (water treatment plants) – these costs, which impact over 400 sites/permits, were allocated to a mix of industrial, public, commercial and residential users;
2. Non-contact cooling water (NCCW) – these costs were assigned to the industries holding these permits (e.g., dairy/cheese, energy, other food processing); and
3. Key industries (e.g., cheese plants, food processing, fish, paper mills, and power plants) with costs aggregated for each industry group.
4. 'Other' – In the cost estimation process, described earlier in the report, facilities were placed in the 'other' category if they had 10 or fewer facilities. Facilities in the 'other' category include metal finishing, airports, fire products manufacturing, greenhouses, and quarries, among other industries. These costs were assigned to the range of industries holding these permits.

The cost of compliance data were based on estimated compliance expenses for various types of establishments based on the amount and concentration of effluent, and the equipment needed to meet more stringent limitations. The costs cover upfront capital expenses as well as the longer-term annual increases in operations and maintenance ("O&M") required to significantly lower

phosphorus effluent in Wisconsin.[6] These data were used as the basis for estimating incremental cost increases by industry grouping at the state-level which were primarily modeled as increases in the cost of doing business. The fish industry (aquaculture farms) approach was an exception as many of Wisconsin's fish farms are government-owned. For these farms, the costs of compliance were subtracted from government spending with the logic being that if the state has to spend to bring hatcheries into compliance then there is less money available to spend on other state government activities. In addition, results from an industry and municipal utility survey conducted as part of this project also informed and helped refine the cost inputs and economic analysis. For example, the municipal survey results provided information to more accurately assign compliance costs to business and residential users.

In addition, data from a Wisconsin DNR survey of over 400 municipal utilities were used to provide the share of revenue from different sources: residential, commercial, industrial[7], government and other (largely property taxes). This data was integral for developing assumptions about how increased sewer rates due to compliance costs are likely to be shared among users. The process for allocating the municipal costs for water quality compliance into categories for use in the REMI model was based on the following:

The base allocation for municipal costs was derived from the DNR's User Charge Report spreadsheet that divides revenue into five categories, residential (55.6%), commercial (20.0%), industrial (10.0%), public (3.6%), and "other" (10.9%). The 'other' revenues were considered to be special assessments on tax revenues, such as property taxes, as well as connection and hookup fees and impact fees, so these were redistributed proportionally across all four of these categories relative to their share of the costs. From this, adjustments were made to reflect the fact that industry would account for a higher share of the compliance costs than the other categories, largely due to higher phosphorus influent loadings to the wastewater treatment plant. A survey of municipal utilities conducted as part of this study demonstrated that phosphorus treatment cost recovery would consider both flow and concentration thus underlining that industry will account for a greater share. The survey also indicated that industry accounts for 20 percent of flow. For the study, industry (i.e., manufacturing) had its share of the costs of compliance increased to 20%. Each of the other remaining categories had its share proportionally decreased in order to compensate for that shift. Industry's share of costs were then allocated by industry type for use in the REMI model based on the industry shares used for the non-contact cooling water part of the analysis.

For the commercial compliance costs, the allocation was based on remaining sectors' shares (non-manufacturing) of Wisconsin wastewater spending as derived from input-output tables housed within the REMI model. For the public sector, costs were considered a decrease in state and local government spending, as government entities' budgets would be adversely affected by higher utility costs. For the residential costs, the consumer price of water supply and sanitation

[6] Note that the potential need for additional land and associated costs to accommodate sludge was not included as a cost factor in this study. Land could potentially add significant costs for Wisconsin's businesses and municipal utilities in addition to the capital and O&M costs detailed throughout this analysis.

[7] The allocation of costs for industrial users was conducted using the same industry distribution from NCCW industries as they tend to reflect the mix of industrial indirect dischargers in Wisconsin. Commercial costs were allocated to individual non-industrial businesses based on the share of each industry's demand for water and sewer services (embedded in the REMI input-output data matrices).

was increased in REMI (as an input into the model) to reflect the rise in treatment and operation costs due to phosphorus limit compliance. The cost of housing was also increased to reflect an anticipated increase in property taxes in some municipalities to cover the increased utility costs. REMI then automatically decreases spending in other areas of the economy in order to compensate for these higher costs.

Another key assumption for the inputs to REMI was that the utilities and businesses that would need to obtain and install specialized equipment to meet discharge limits would finance those expenditures through borrowing (bonds and/or loans). In terms of inputs to the REMI economic model, this meant that costs would be spread out over time, rather than lumped into a large upfront payment. It also meant that the finance costs needed to be incorporated into the estimate of increased costs. Based on data for 20-year interest rates from the Federal Reserve, and guidance from Sycamore Advisors and the Wisconsin DOA, interest rates of 5.5 percent for municipal utilities and 7.0 percent for industries were applied to capture the financing costs[8]. Actual borrowing costs could vary dramatically, depending on the creditworthiness of the individual borrower, access to the capital markets and availability of credit in general.

These estimates were used as the basis for the set of input variables to REMI for municipal utilities (e.g., change in sewer costs to residents and businesses), NCCW (costs for the relevant industries), and each of the key industries included in this study (e.g., change in the cost of doing business). These input values include annualized capital, financing and O&M costs, and were entered into the REMI model by year from 2016 to 2035[9] to estimate the economic impacts of the higher compliance costs associated with conforming to Wisconsin's water quality laws.

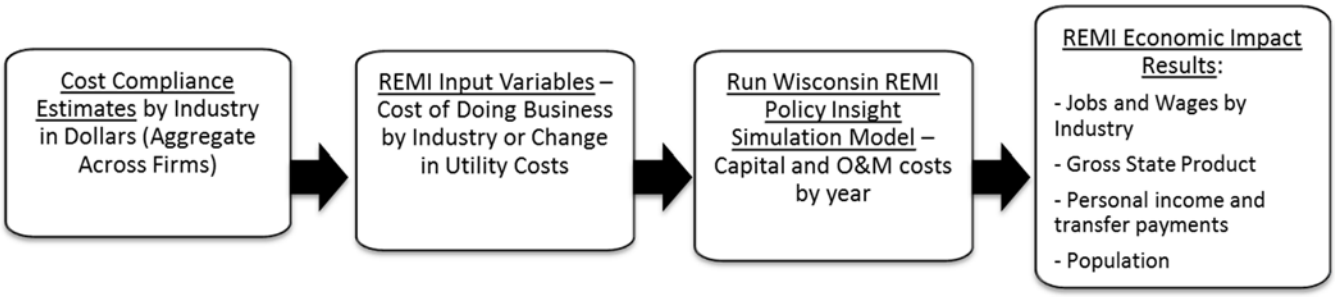
REMI Simulations to Generate Economic Impacts

The compliance costs (direct impacts), converted to appropriate economic modeling inputs, were entered into a state of Wisconsin REMI model to estimate the total economic impacts of Wisconsin's water-quality compliance laws for phosphorus. The primary REMI simulations were for: 1) public facilities; 2) NCCW permits; and 3) each of the specified industries using cost estimates by year from 2016 to 2035 (20 year analysis). This means that the analysis generated results from eight (8) REMI runs – one each for municipal utilities and NCCW and six (6) industry-specific economic impact runs. Each REMI simulation produced a wide range of output variables such as jobs by industry, gross state product, and income, among others. In addition, sensitivity testing was implemented to focus on possible variances in direct costs (described further below in this report). This flow of data analysis is summarized in Figure 3-1.

[8] Federal Reserve Board "Moody's Yield on Seasoned Corporate Bonds – All Industries, Baa (20 Year Average); "Bond Buyer General Obligation, 20 Years to Maturity, Mixed Quality, 20-Bond Municipal Bond Index," "FRB H15", accessed from website on 12/30/2014.

[9] The timeframe for incurring costs is site-specific depending on the date of permit reissuance following the promulgation of phosphorus water quality standards and the duration of phosphorus compliance schedules in WPDES permits. As a statewide analysis, site-specific timeframes could not be accounted for, so a conservative 20-year window was selected based on the phosphorus standards promulgation date, December 1, 2010.

Figure 3-1. Flowchart of REMI Model Inputs and Results



Consistent with Wisconsin's state legislative directive for this study, the analysis is focused on estimating state-level impacts. Thus, the study utilized a statewide REMI model with the most detailed industry data available from REMI (160 sectors) to be able to most accurately capture the unique attributes and supply chain dynamics of each affected Wisconsin industry. The impacts of the cost increases associated with clean water compliance will ripple through the Wisconsin economy (e.g., higher costs may translate to reduced competitiveness if businesses shift operations to lower cost locations) and are estimated by the REMI model. Unlike other static economic models, REMI incorporates the dynamic effects of the increase in compliance costs over time. The detailed results of the REMI simulations were summarized into individual tables and graphs in this report with direct and total economic (gross product, income, etc.) and jobs impacts over time (with results from 2016 to 2035).

ABOUT THE REMI MODEL

The REMI model[10] is the nation's leading time-series based economic impact simulation model and has been used over many years in Wisconsin, principally by the Wisconsin Department of Transportation (among others). The REMI model includes embedded historical economic (e.g., jobs, wages, and gross product by industry) and demographic (e.g., population) data from numerous government sources, including the U.S. Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Census Bureau.

The primary reasons REMI was selected for this project (rather than simpler, less expensive input-output models such as IMPLAN or RIMS II) are:

- The REMI model is a time-series based economic impact model meaning that the model includes annual forecast years to the year 2050 and impacts in one year can lead to changes in the economy in future years (e.g., changes in prices/costs, population migration). Given the multi-year cost implications of compliance and the likely long-term impacts, it is critical to have a model that explicitly models impacts over time (something that static input-output [I-O] models do not do).
- Environmental compliance costs will have different impacts on different industries – in other words, the relationship between costs and an industry's competitiveness (and thus

[10] More information about the REMI model can be found at www.remi.com.

production and job levels) will vary based on the mix of input costs and other factors. The REMI model is uniquely well-designed for this kind of analysis – translating cost changes into industry impacts that then affect multiple other areas of the economy. In contrast, most other, less expensive models (IMPLAN, EMSI, RIMS II) lack this capability and would require substantial, labor intensive additional economic modeling to estimate the relationship of costs to industry impacts.

- The REMI model is dynamic in the sense that changes in economic conditions lead to dynamic impacts on the rest of the economy. An example of dynamic estimation include equations that predict how decreasing employment opportunities in a key sector leads to out-migration to other states. Another example are estimates of how changes in costs can impact a broader set of supply chain industries.
- The model has an enormous database of economic data variables customized to the Wisconsin economy, including employment, wages and output by industry, gross state product, and other metrics such as labor productivity, housing costs, fuel costs, and other metrics.

INTERPRETATION OF ECONOMIC IMPACTS TO SUPPORT DECISION-MAKING

Perhaps equally important is carefully considering how best to interpret the economic impact findings by industry to inform a decision-making framework for state-level variances. This includes identifying the most relevant economic impact measures (e.g., jobs by industry, value added, and wages) and methods of displaying the results for decision-makers (e.g., GSP per permit site or percent impact of total industry output). Given the unique nature of this project in seeking to assess potential state-level, industry-wide variances, there is no existing standard method to gauge whether the economic impacts are "widespread and substantial." However, several guidance documents including EPA's "Interim Economic Guidance for Water Quality Standards (1995).[11] To guide the interpretation of economic impact results, decision-makers may wish to consider the following:

- **Direct and Total Economic Impacts** – direct economic impacts reflect the compliance costs (capital, financing and O&M) estimated for each industry grouping while total economic impacts are the broader estimated impacts to the economy, including competitiveness, as well as supply chain and multiplier effects.
    - Direct compliance costs are the "purest" measure of economic cost and vary not only by the number of permit sites but also by effluent concentration and flow. One advantage of directly estimated compliance costs is that they can be assessed by region within Wisconsin based on the geographic location of sites.
    - Total economic impacts are the best estimate of how increases in costs will affect industry production, jobs, income/wages and other similar measures. Importantly, the modeled (via REMI) economic impacts capture both the industry-specific effects (e.g., lower production levels and jobs for dairy manufacturing) but also economy-wide effects that reflect the full-range of economic implications of

[11] "Interim Economic guidance for Water Quality Standards: Workbook" was published by US EPA, Office of Water, in March 1995.

increased costs. Both direct and total impact concepts are valid as part of a decision-making framework.

- **REMI output variables –** economic impact can be represented in multiple ways in terms of concepts (jobs, sales/output, value added/GSP, wages, income) and also in terms of total impacts, industry-specific impacts, and other categories (consumption spending. The most commonly used metrics in economic impact analysis are usually jobs, GSP and income (or wages). These variable concepts are recommended for use in the assessment of impacts and they form the primary concepts presented in this report.
- **Magnitude of Costs and Economic Impacts –** A common gauge for economic impact is the total magnitude of costs, which directly reflects the compliance costs to meet tighter phosphorus discharge limitations. Compliance costs reflect multiple factors, including:
    - The number of permit sites by industry grouping (which is far and away largest for municipal utilities);
    - Concentration and water flow of discharge (which can vary by industry and within industry);
    - Equipment/investment necessary to meet limits (which varies by paper); and
    - Tolerance level for phosphorus discharge (varies by permit site).

  Given that some industry groupings inherently have many more permit sites than others, this (among other factors) will help drive the total costs of compliance and the estimated economic impacts. So, all else equal, industry groupings (and thus REMI runs) with more permit sites and higher costs per permit are much more likely to have both higher costs and larger economic impacts. It is, therefore, important to consider magnitude in the appropriate context, and compare it to appropriate baseline. For example, a $300,000 facility upgrade may be economically feasible for multimillion-dollar companies, but may be infeasible for a family-run small business.
- **Relative Costs and Economic Impacts** – another consideration is how the costs or economic impacts relate to either the number of permit sites, the size of the relevant industry, or other scalable factors. For example, an industry-level variance should take into account:
    - How severe are the costs and economic impacts to the overall health of an industry? This can be measured in terms of output/value added, wages, or jobs lost as percentage of the total industry. All of this data is available in REMI results.
    - How severe are the costs and economic impacts per permit site? It is very easy to calculate the compliance costs per site from the ARCADIS' results. Further, our analysis creates measures for total jobs lost per permit site and total GSP lost per permit site.
    - As noted, municipal utilities present a few challenges including how to assess the large number of permit sites (and thus fairly large compliance costs) to economic impacts. Since these sites cover most of the state, it is most relevant to assess this

in terms of overall state economic measures rather than industry-specific measures.

- **Sensitivity Testing** – in any kind of economic analysis of this nature, it is natural to think about the robustness of results and how sensitive they may be to individual factors. For this project, there are two primary areas of possible sensitivity that we tested:
    - Estimated compliance costs – the costs estimated are based on well-accepted practices and methods and yet there is still some uncertainty in terms of these cost estimates based on technologies, equipment and how results from a sample are extended to the full sample of permit sites. **The magnitude of costs is far and away the largest factor in the economic impact analysis**, so we ran tests with costs both lower (10%) and higher (25%) to reflect a likely future range of costs. The study team also conducted the paper industry analysis based on two different cost estimation methods to show low and high impact ranges. Given the vagaries of how capital and O&M costs may actually materialize in future years; the costs may vary further -- perhaps as much as 30 percent below the initial estimates or 50 percent higher -- per the engineering team. For the purposes of the economics sensitivity analysis, a narrower, more conservative range was selected.
    - Allocation to industries – for most industry groupings this is straight-forward with the REMI model and use of the 160 sector model (note that REMI is also available in less-detailed 23 and 70 sector models) allows for more detail and accuracy specific to sub-industries (e.g., dairy rather than generic food processing). This issue is most relevant for the municipal utilities as the allocation of costs to residential and business users (and the corresponding allocation to industries) are subject to some subjectivity and for this reason, different levels of costs allocated to industrial users were tested.

3.2 Direct Impacts and Summary Economic Impact Results

Direct Impacts (Regulatory Compliance Costs)

The regulatory compliance costs form the basis for estimating the direct impacts for Wisconsin's industries and wastewater facilities to meet more stringent water quality standards. The direct impacts include estimates of capital costs adjusted to include long-term borrowing expenses and operating and maintenance costs.

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's industries and POTWs will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by industries and POTWs, and include the costs of the various forms of specialized machinery, holding tanks, cleaning equipment, pumps, etc. The total capital costs for Wisconsin's industries and municipalities to conform to the clean water regulations for phosphorus are estimated to amount to $3.450 Billion which is expected to be spent in 2016 and

2017[12]. It is assumed that these capital costs will be paid for using borrowed funds using historic average market interest rates over the 2016-2035 period. Thus, the total capital costs associated with phosphorus water compliance, including interest, is $6.059 Billion. On an annual basis, the capital costs with interest are an estimated $302.9 million (see Table 3-1).

After the initial investment in the capital equipment needed for treating effluent to meet the new standards, Wisconsin's industries and municipalities will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $405.5 million for the state's industries and POTWs. Total annual costs, combining capital and O&M expenses, are an estimated $708 million.

These capital (including interest) and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the industries in Wisconsin as well as a cost that must be absorbed by the state's consumers. The annualized costs, as shown in Table 3-1, are used as the input values for the REMI economic impact model.

Table 3-1: Total Cost to Industry and Municipalities (in Millions, 2016-2025)

Cost	Amount
Capital Cost (Millions)	$3,449.7
Capital Cost after Interest (Millions)	$6,059.0
Annual Capital Cost with Financing	$302.9
Annual O&M Costs (Millions)	$405.5
Total Annual Cost	$708.0

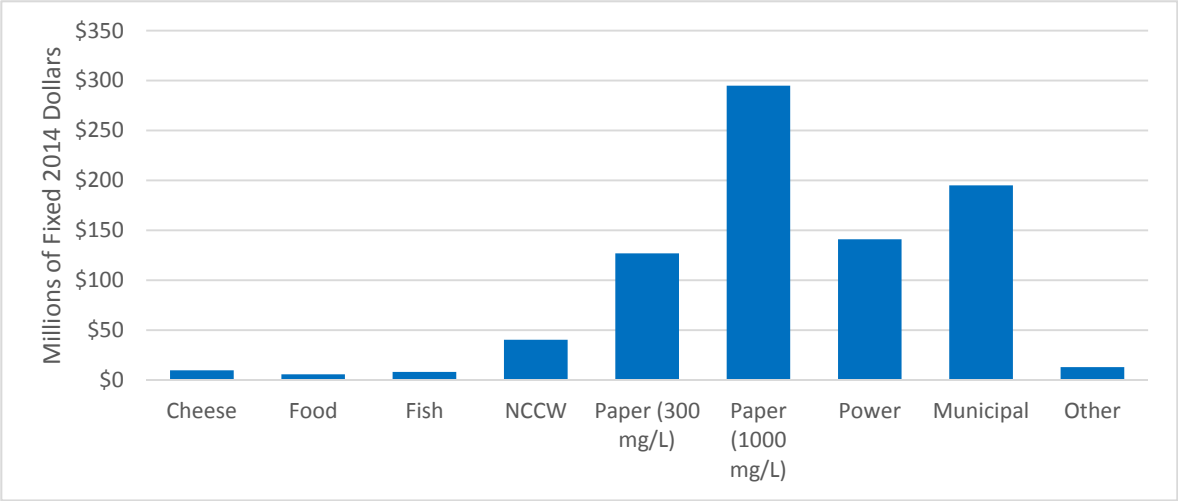
Source: Estimated compliance costs from this study. Interest rates of 5.5 percent for municipal utilities and 7.0 percent for industries were applied to capture these costs.

The annual cost of compliance varies significantly by industry (see Figure 3-2). Two industries stand out in terms of the magnitude of cost burden on a statewide basis – paper and power generation. For all discharge categories, excluding paper, the capital investment poses the most significant cost burden on facilities. The total annual cost for paper, on the other hand, is largely due to annual operation and maintenance costs, rather than capital costs. Depending on the intensity of chemical use, the annual costs to Wisconsin's paper industry will vary. A lower chemical utilization scenario (300 mg/L) would result in about $125 million in annual costs for the paper industry. As chemical use goes up to 1,000 mg/L, requiring more expensive machinery, tanks, pumps, in addition to the rising chemical expenses, the annual costs for the industry could approach $300 million. This latter instance is considered a "moderate" scenario as it is possible that chemical use could be as high as 1,800 mg/L, as noted earlier in this study. Throughout this report, the costs and economic impacts are reported for the lower (300 mg/L) and moderate (1,000 mg/L) scenarios.

[12] The timeframe for incurring costs is site-specific depending on the date of permit reissuance following the promulgation of phosphorus water quality standards and the duration of phosphorus compliance schedules in WPDES permits. As a statewide analysis, site-specific timeframes could not be accounted for. 2016-2017 represents the soonest compliance costs would be expected to be incurred for WPDES permits granted an extended compliance scheduled and issued December 1, 2010, the date phosphorus water quality standards were promulgated.

Power generation is the other industry that is expected to incur a significant capital investments as well as operations and maintenance expenses on a statewide basis. Annual costs for the power industry are estimated to be over $140 million (see Figure 3-2). Municipalities will also face significant costs but those costs will be distributed amongst residential, public, commercial, and residential customers. In total, the annual cost of compliance for municipal treatment plants is estimated to be nearly $200 million. The magnitude of annual costs estimated for cheese, food, and fish were lower than the expected treatment costs for paper and power generation. This is due to the number of permittees covered in these categories, and the smaller permitted flow of these facilities, which results in a smaller magnitude of compliance costs. The annual cost incurred by industries using non-contact cooling water ("NCCW"; water used for cooling that does not come into contact with waste materials) is about $40 million.

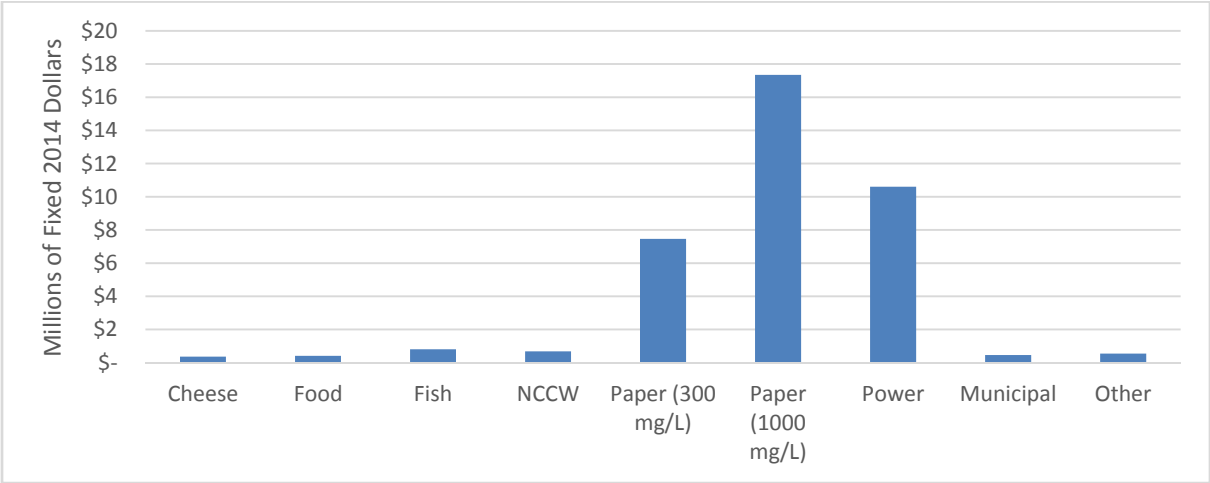
Figure 3-2: Annualized Cost by Discharge Category



Source: Compliance costs developed for this report. These costs include annual capital costs and interest as well as annual operation and maintenance costs.

The cost of compliance per permit holder follows a similar pattern (see Figure 3-3) as the total costs, with paper and power generation requiring the highest expenditures to comply with the clean water regulations. With the moderate chemical use scenario (1,000 mg/L), the annual costs per paper permit holder could reach beyond $17 million while the lower chemical usage scenario (300 mg/L) is estimated to be over $7 million per year. The annual costs per permit holder in the other industries, cheese, food, and fish are significantly lower – all in the range of $300,000 to $850,000 per year.

Figure 3-3: Annualized Cost per Permit by Discharge Category



Source: Compliance costs developed for this report. Per Capita Municipal Costs represent the total number of permittees, not just the 425 affected POTWs.

ECONOMIC IMPACTS OF PHOSPHORUS COMPLIANCE

Table 3-2 illustrates the total economic impacts of phosphorus compliance on the state of Wisconsin in 2017 and 2025. 2017 shows the smaller impacts following the initial implementation of the regulation, while 2025 represents the full impacts that might be seen following years of higher compliance costs. By applying the production cost increases to the affected industries as well as increased costs for consumers to the REMI model, the total economic impacts of the phosphorus water quality regulations in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as Wisconsin's industries and consumers accrue costs, year-after-year. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 4,517 jobs, $238.3 million in wages, and $616.6 million in gross state product. For context, the Wisconsin GSP is expected to be $397 billion in 2025 (in constant 2014 dollars) with a statewide economy employing 3.8 million people.[13] The water quality regulation is also expected to lower Wisconsin's population by 10,964 from what would be expected, about 6.1 million, without the change in 2025.

Table 3-2: Statewide Economic Impacts, 2017 and 2025

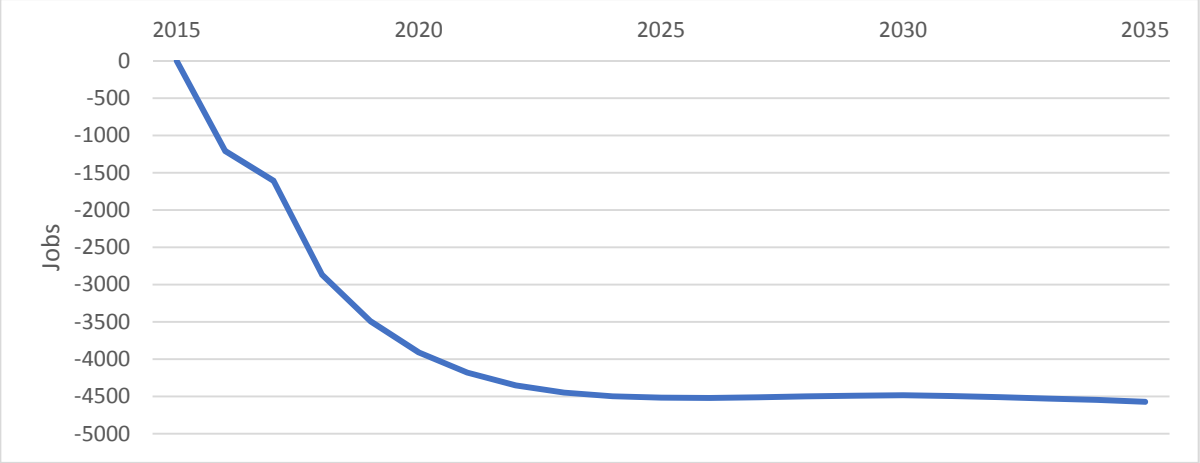
Economic Impacts	2017	2025
Total Employment (Jobs)	-1,608	-4,517
Gross State Product (Millions of Fixed 2014 Dollars)	-$177.3	-$616.6
Total Wages (Millions of Fixed 2014 Dollars)	-$68.3	-$238.3
Population (Individuals)	-2,036	-10,964

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

[13] Source: Regional Economic Models, Inc. baseline economic forecasts. Note that the definition of employment utilized by REMI includes part-time as well as full-time and also includes sole proprietorships and agriculture.

The employment impacts of the water compliance regulations associated with Wisconsin's water quality regulations for phosphorus are shown in Figure 3-4. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 4,517 jobs. Due to the multiplier effects of the higher costs associated with the phosphorus effluent regulations and how that reverberates through the Wisconsin economy, the construction industry absorbs the largest loss in jobs (-813) in 2025 (see Table 3-3). Similarly, reductions in income and population will also translate to fewer jobs in the service sector, including in retail trade (-439) and food services/drinking places (-307), and real estate (-166). In addition to these impacts lowering industry production, available disposable income, and population levels the water regulations reduce the impetus for construction which also affects intermediate suppliers to the directly affected industries.

Figure 3-4: Statewide Employment Impact



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Table 3-3: Statewide Employment Impacts (Top 5 Industries by Jobs Lost)

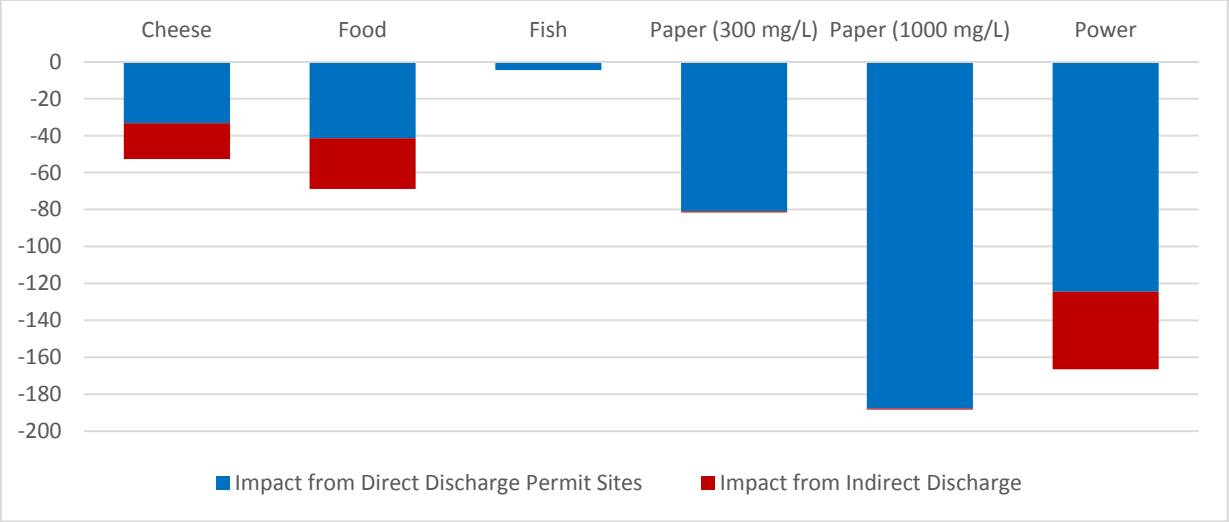
Industry	2017	2025
Construction	-429	-813
Retail trade	-168	-439
Food services and drinking places	-64	-307
Pulp, paper, and paperboard mills	-14	-188
Real estate	-97	-166

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Figure 3-5 shows the employment impact to industries due to phosphorus compliance. It captures the job impacts associated with direct discharge costs, as well as the impacts associated with indirect discharge costs which include non-contact cooling water permit holders within these selected industries as well as municipal discharge. Due to their higher costs of compliance,

the greatest jobs impacts of the water quality regulations for phosphorus are expected to fall on the paper and power generation industries.

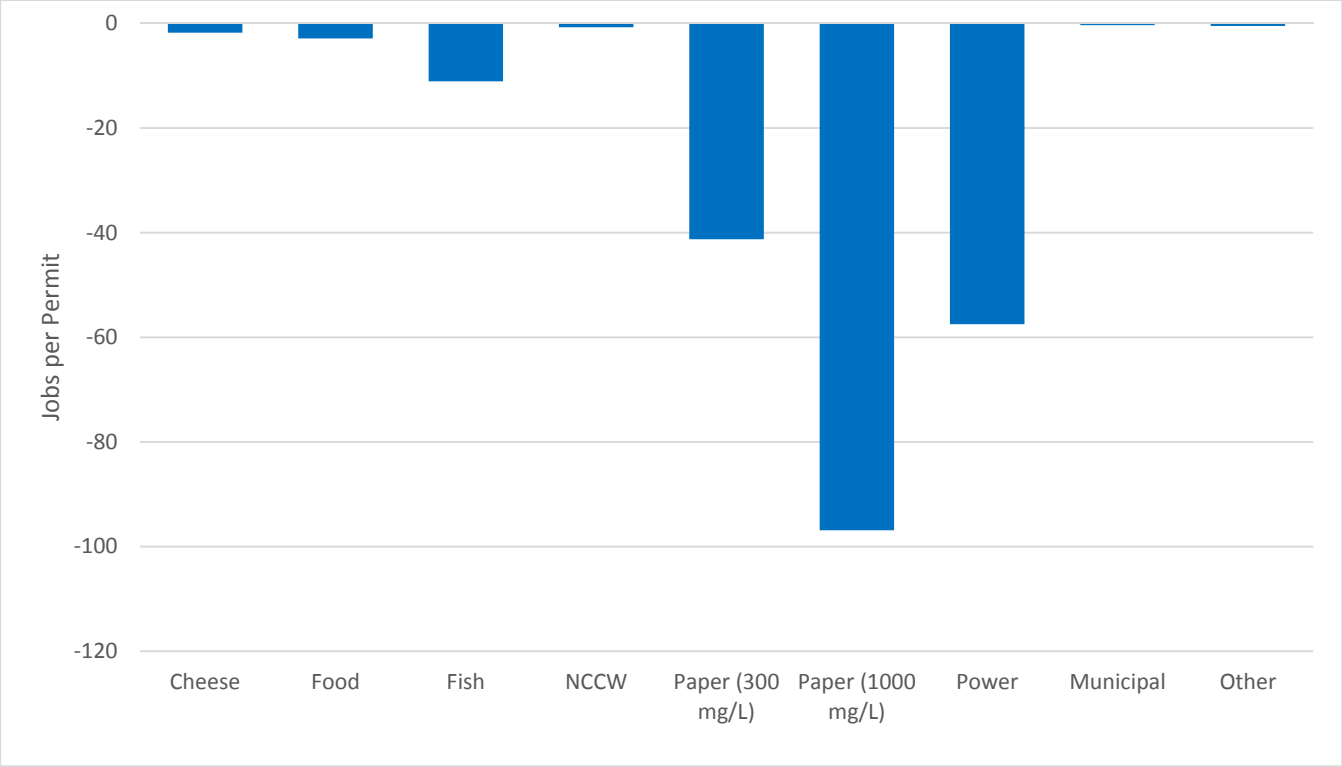
Figure 3-5: Employment Impact by Industry for Direct and Indirect Discharge, 2025



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The data in Figure 3-5 can be further broken down to approximate employment impact per facility (see Figure 3-6). Losses, including multiplier effects, are much higher for the jobs associated with the paper and power generation industries. For paper, the job loss per permit in the Wisconsin economy may approach 100 by 2025 for the scenario that includes a moderate level of chemical use. The employment impact per permit in the power generation is also comparatively high at over 50. The jobs impacts per permit in the other industries, including cheese, fish, and food are substantially lower – all less than twelve.

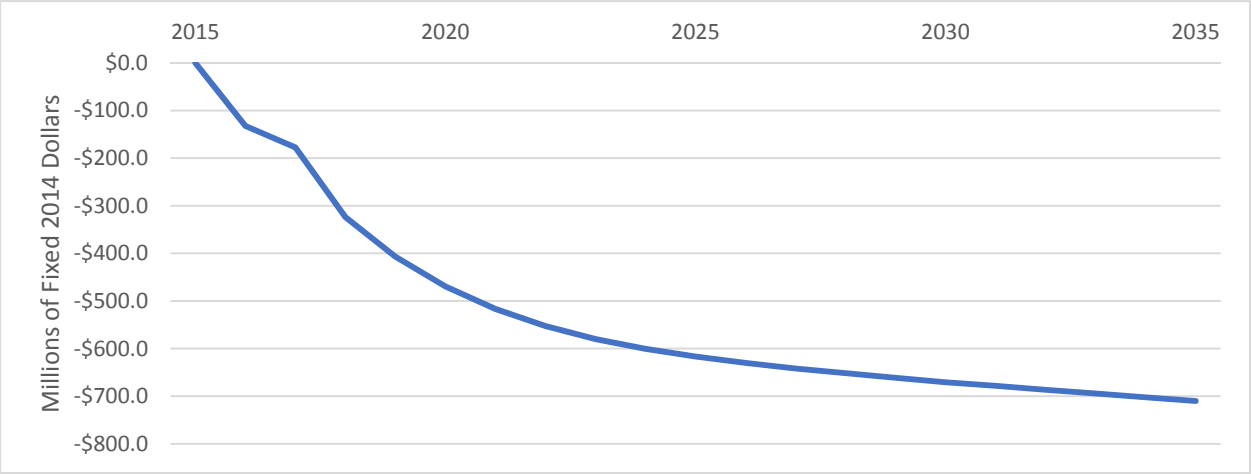
Figure 3-6: 2025 Total Employment Impacts per Permit by Category due to Costs of Compliance



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in industry expenses and consumer expenses due to water quality compliance will circulate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP (see Figure 3-7) is gradual through 2025 and is a result of industries reducing relative production levels in the state in response to higher costs and consumption declining as consumers and businesses have less money to spend. The overall effect is estimated to be a $616.6 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's industries and municipalities. The annual loss in GSP (all in constant 2014 dollars) gradually becomes greater during the 2025-2035 period. By 2035 the reduction in Wisconsin GSP is estimated to exceed $700 million compared to what it would have been without the phosphorus regulations.

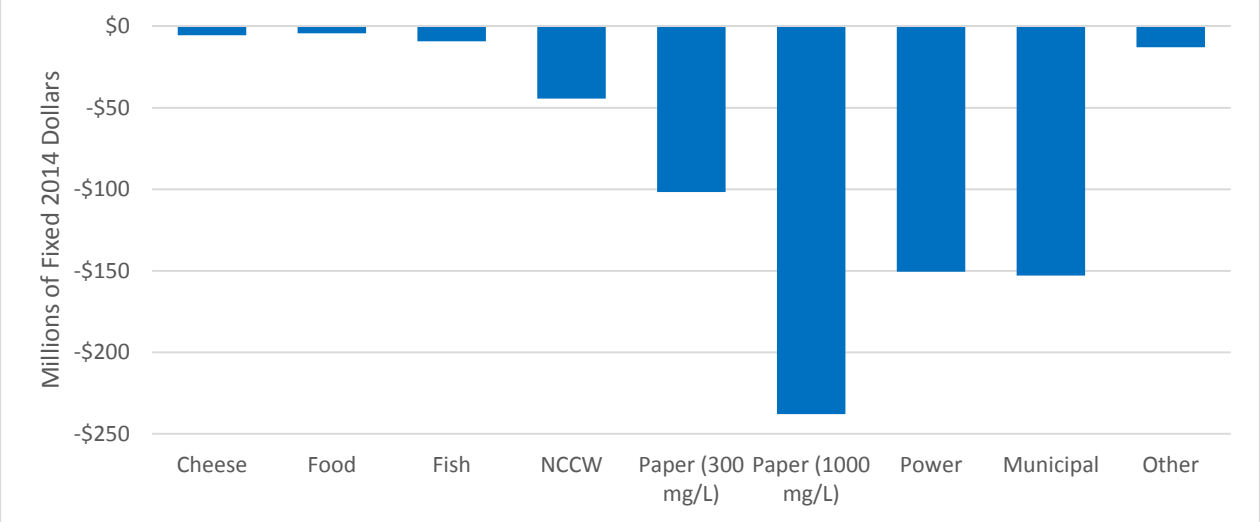
Figure 3-7: Statewide Gross State Product Impact



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The economic effects of the water regulations on the Wisconsin economy, as measured by GSP, will be greatest for those impacts related to the paper and power generation industries (see Figure 3-8). Including multiplier effects, the increased cost of water compliance will result in a reduction of Wisconsin GSP of about $240 million associated with the paper industry and over $150 million linked to the power generation industry. The higher costs for municipalities to address compliance will ultimately result in an estimated $153 million reduction in Wisconsin GSP in 2025. The GSP impacts shown in Figure 3-8 represent statewide impacts (i.e., the GSP impacts are the sum of all industries) due to water quality-induced changes that needed to be made by the specified categories (e.g., power, paper, municipal, cheese, etc.).

Figure 3-8: 2025 Gross State Product Impact by Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

3.3 Economic Impact Results by Category

Cheese/Dairy Industry

Direct Impacts (Regulatory Compliance Costs) for Cheese/Dairy Industry

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's cheese industry will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the cheese industry, and include the costs of the various forms of specialized machinery, cleaning equipment, pumps, etc. The capital costs for the cheese industry to conform to the clean water regulation are estimated to amount to $72.5 million which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the cheese industry, including interest, is $136.9 million. On an annual basis, the capital costs to the cheese industry are an estimated $6.8 million (see Table 3-4).

After the initial investment in equipment, Wisconsin cheese producers will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $3.0 million for the state's cheese industry. These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the cheese industry in Wisconsin. The annualized costs, as shown in Table 3-4, are used as the inputs for the REMI economic impact model.

Table 3-4: Cost to the Cheese Industry

Cost	Amount
Capital Cost (Millions)	$72.5
Interest Rate	7%
Capital Cost after Interest (Millions)	$136.9
Annual Capital Cost with Financing	$6.8
Annual O&M Costs (Millions)	$3.0
Total Annual Cost	$9.8

Source: Compliance costs developed for this report.

Economic Impacts of Water Quality Compliance for Cheese/Dairy Industry

Table 3-5 illustrates the economic impacts of water quality compliance for the cheese industry and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for the cheese industry to the REMI model, the total economic impacts of the water quality regulations associated with cheese producing in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the cheese industry incurs costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 49 jobs, $2.9 million in wages, and $5.4 million in gross state product.

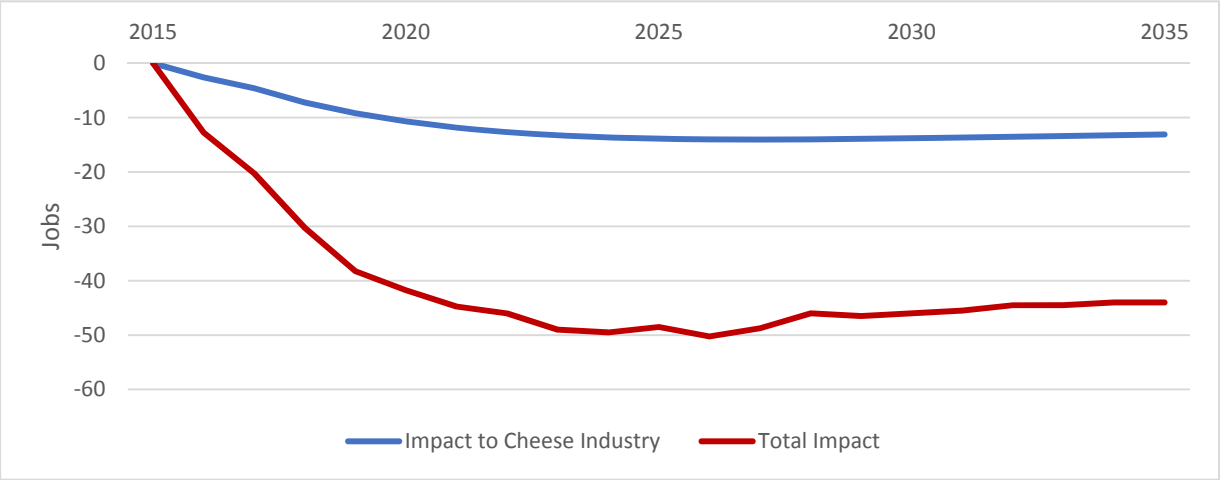
Table 3-5: Economic Impacts from Cheese Industry Compliance

Economic Impacts	2017	2025
Cheese Industry Employment (Jobs)	-5	-14
Total Employment (Jobs)	-20	-49
Gross State Product (Millions of Fixed 2014 Dollars)	-$1.9	-$5.4
Cheese Industry Wages (Millions of Fixed 2014 Dollars)	-$0.3	-$1.0
Total Wages (Millions of Fixed 2014 Dollars)	-$0.9	-$2.9
Population (Individuals)	-13	-66

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin cheese industry are shown in Figure 3-9. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 49 jobs, including 14 within the cheese industry and 35 in other Wisconsin industries.

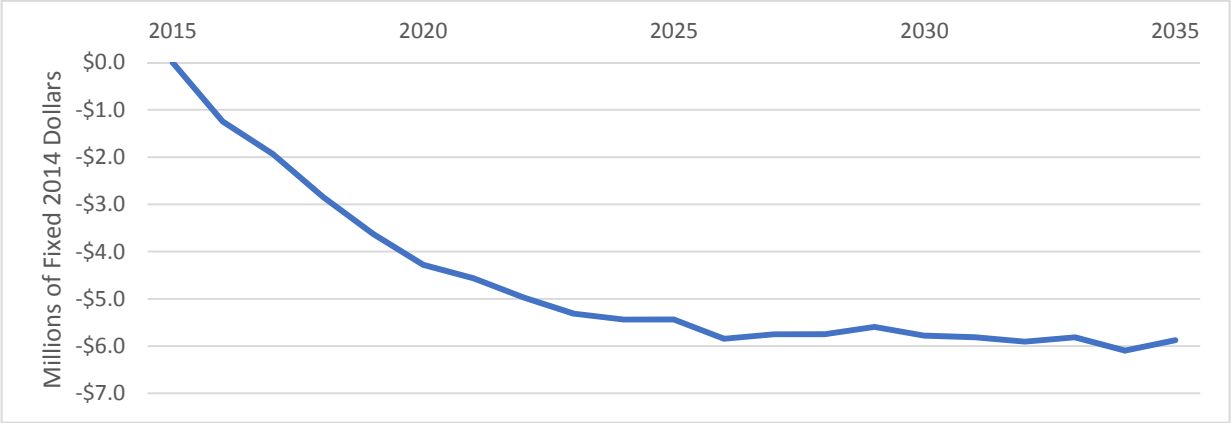
Figure 3-9: Employment Impact to the Cheese Industry and Total Impact on Wisconsin



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for the cheese industry due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result of cheesemakers reducing production in the state in response to higher costs. As the cheese industry lowers production, other industries that supply dairy or otherwise benefit from spending stemming from the industry will be impacted, contributing to the GSP decline. The overall effect is estimated to be a $5.4 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's cheese industry. The annual loss in GSP remains in the $5.5 to $6.1 million range throughout the 2025-2035 period.

Figure 3-10: Gross State Product Impact from the Cheese Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

In summary, the Wisconsin cheese industry is expected to incur annual costs of $9.8 million to comply with the state's clean water standards for phosphorus effluent. By 2025, this will result in a reduction of 14 jobs within the cheese industry and a loss of an additional 35 jobs in other industries. For context, Wisconsin's dairy manufacturing industry employed 16,500 people in 2014. Overall, the higher costs incurred by the Wisconsin cheese industry to comply with clean water standards are expected to reduce Wisconsin's GSP by $5.4 million in 2025.

FOOD PROCESSING INDUSTRY

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR THE FOOD PROCESSING INDUSTRY

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's food processing industry will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the food processing industry, and include the costs of the various forms of specialized machinery, cleaning equipment, pumps, etc. The capital costs for the food processing industry to conform to the clean water regulation are estimated to amount to $43.9 million which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the food processing industry, including interest, is $82.9 million. On an annual basis, the capital costs to the food processing industry are an estimated $4.1 million (see Table 3-6).

After the initial investment in equipment, Wisconsin food processors will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $1.6 million for the state's food processing industry. These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the food processing industry in Wisconsin. The annualized costs, as shown in Table 3-6, are used as the inputs for the REMI economic impact model.

Table 3-6: Cost to the Food Processing Industry

Cost	Amount
Capital Cost (Millions)	$43.9
Interest Rate	7%
Capital Cost after Interest (Millions)	$82.9
Annual Capital Cost with Financing	$4.1
Annual O&M Costs (Millions)	$1.6
Total Annual Cost	$5.7

Source: Compliance costs developed for this report.

ECONOMIC IMPACTS OF WATER QUALITY COMPLIANCE FOR FOOD PROCESSING INDUSTRY

Table 3-7 illustrates the economic impacts of water quality compliance for the food processing industry and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for the food processing industry to the REMI model, the total economic impacts of the water quality regulations associated with food processing in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the food processing industry incurs costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 40 jobs, $2.2 million in wages, and $4.3 million in gross state product.

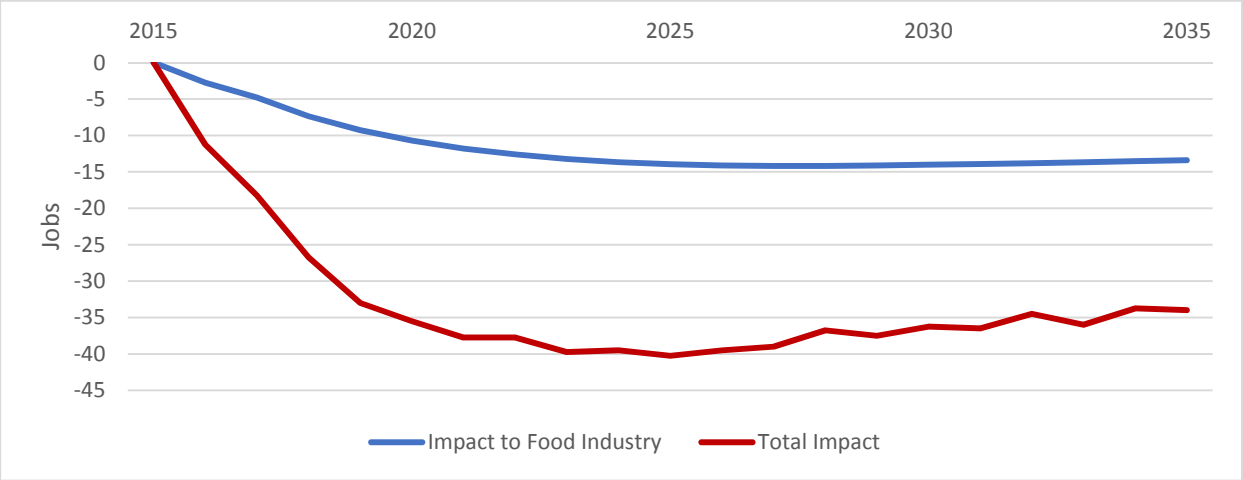
Table 3-7: Economic Impacts for Food Processing Industry Compliance

Economic Impacts	2017	2025
Food Industry Employment (Jobs)	-5	-14
Total Employment (Jobs)	-18	-40
Gross State Product (Millions of Fixed 2014 Dollars)	-$1.7	-$4.3
Food Industry Wages (Millions of Fixed 2014 Dollars)	-$0.2	-$0.8
Total Wages (Millions of Fixed 2014 Dollars)	-$0.8	-$2.2
Population (Individuals)	-14	-51

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin food processing industry are shown in Figure 3-11. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 40 jobs, including 14 within the food processing industry and 26 in other Wisconsin industries.

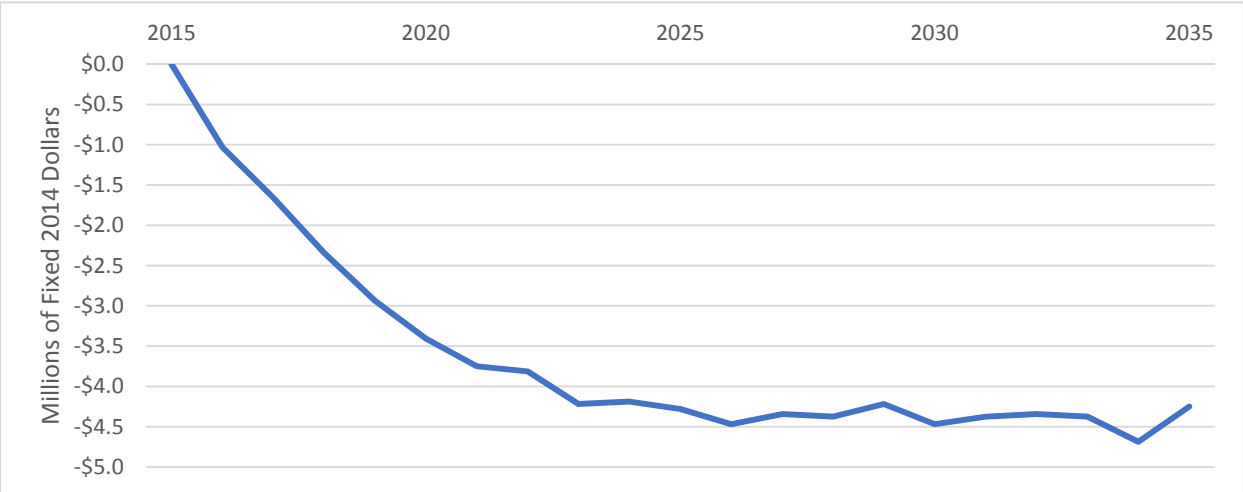
Figure 3-11: Employment Impact to the Food Processing Industry and Total Impact on Wisconsin



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for the food processing industry due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result of food processors reducing production in the state in response to higher costs. As the food processing industry lowers production, other industries that supply food or otherwise benefit from spending stemming from the industry will be impacted, contributing to the GSP decline. The overall effect is estimated to be a $4.3 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's food processing industry. The annual loss in GSP remains in the $4.0 to $5.0 million range throughout the 2025-2035 period.

Figure 3-12: Gross State Product Impact from the Food Processing Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

In summary, the Wisconsin food processing industry, excluding cheese, is expected to incur annual costs of $5.7 million to comply with the state's clean water standards for phosphorus effluent. By 2025, this will result in a reduction of 14 jobs within the food industry and a loss of an additional 26 jobs in other industries. For context, Wisconsin's food manufacturing industry employed 48,500 people (excluding dairy) in 2014. Overall, the higher costs incurred on the Wisconsin food industry to comply with clean water standards is expected to reduce Wisconsin GSP by $4.3 million in 2025.

FISH INDUSTRY

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR FISH INDUSTRY

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's fish industry will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the fish industry, and include the costs of the various forms of specialized machinery, cleaning equipment, pumps, etc. The capital costs for the fish industry to conform to the clean water regulation are estimated to amount to $51.7 million which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the fish industry, including interest, is $97.6 million. On an annual basis, the capital costs to the fish industry are an estimated $8.1 million (see Table 3-8).

After the initial investment in equipment, Wisconsin fish producers will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $3.2 million for the state's fish industry. These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the fish industry in Wisconsin. The annualized costs, as shown in Table 3-8, are used as the inputs for the REMI economic impact model.

Table 3-8: Cost to the Fish Industry

Cost	Amount
Capital Cost (Millions)	$51.7
Interest Rate	7%
Capital Cost after Interest (Millions)	$97.6
Annual Capital Cost with Financing	$4.9
Annual O&M Costs (Millions)	$3.2
Total Annual Cost	$8.1

Source: Compliance costs developed for this report.

Economic Impacts of Water Quality Compliance for the Fish Industry

Table 3- 9 illustrates the economic impacts of water quality compliance for the fish industry and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for the fish industry to the REMI model, the total economic impacts of the water quality regulations associated with the fish industry in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the fish industry incurs costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 111 jobs, $5.7 million in wages, and $9.2 million in gross state product.

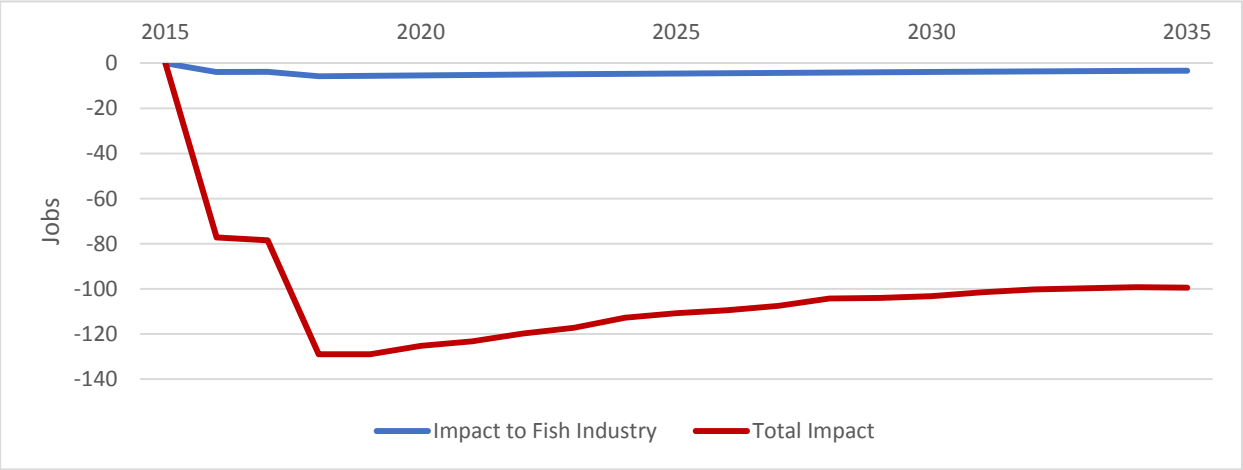
Table 3-9: Economic Impacts for Fish Industry Compliance

Economic Impacts	2017	2025
Fish Industry Employment (Jobs)	-4	-5
Total Employment (Jobs)	-79	-111
Gross State Product (Millions of Fixed 2014 Dollars)	-$5.9	-$9.2
Fish Industry Wages (Millions of Fixed 2014 Dollars)	$0.0	-$0.1
Total Wages (Millions of Fixed 2014 Dollars)	-$3.4	-$5.7
Population (Individuals)	-32	-126

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin fish industry are shown in Figure 3-13. The jobs impacts accelerate during the 2016-2020 period and then recover somewhat between 2020 and 2035. By 2025, there is a reduction of 111 jobs, including 5 within the fish industry and 96 in other Wisconsin industries.

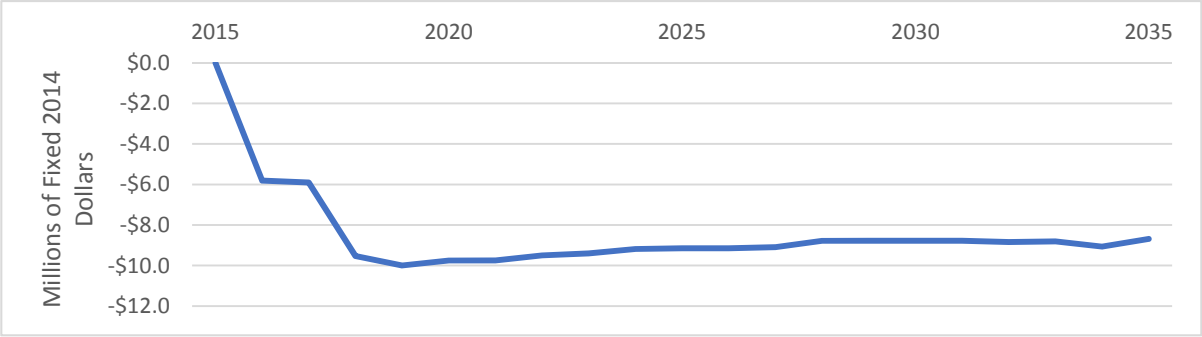
Figure 3-13: Employment Impact to the Fish Industry and Total Impact on Wisconsin



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for the fish industry due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result of fish producers reducing production in the state in response to higher costs. As the fish industry lowers production, other industries that are suppliers or otherwise benefit from spending stemming from the industry will be impacted, contributing to the GSP decline. The overall effect is estimated to be a $9.2 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's fish industry. The annual loss in GSP remains in the $8.5 to $9.5 million range throughout the 2025-2035 period.

Figure 3-14: Gross State Product Impact from the Fish Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

In summary, the Wisconsin fish industry is expected to incur annual costs of $8.1 million to comply with the state's clean water standards for phosphorus effluent. By 2025, this will result in a reduction of 5 jobs within the industry and a loss of an additional 96 jobs in other industries. Overall, the higher costs incurred on the Wisconsin fish industry to comply with clean water standards is expected to reduce Wisconsin GSP by $9.2 million in 2025.

PAPER MILLS

The exact cost of water quality compliance for Wisconsin's paper mills industry will vary depending on the intensity of chemical use in the treatment process. In order to estimate the impact of water compliance, the Donahue Institute explored two scenarios based on ARCADIS cost estimates, one assuming lower intensity chemical use (300 mg/L) and the other assuming a more intense use of chemicals (1,000 mg/L) for water treatment. While these were the two chemical use scenarios analyzed throughout this study, it is possible that chemical use may even reach 1,800 mg/L which would raise costs, and thus economic impacts, further.

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR PAPER INDUSTRY

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's paper industry will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital

costs" incurred by the paper industry, and include the costs of the various forms of specialized machinery, holding tanks, cleaning equipment, pumps, etc. The capital costs for the paper industry to conform to the clean water regulation are estimated to amount to $325.8 million under the 300 mg/L scenario and $414.4 million under the 1,000 mg/L scenario, which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the paper industry, including interest, is $615.1 million (300 mg/L scenario) and $782.4 million (1,000 mg/L scenario), respectively, depending on chemical treatment levels. On an annual basis, the capital costs to the paper industry are an estimated $30.8 and $39.1 million, respectively (see Table 3-10).

After the initial investment in equipment, Wisconsin paper producers will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $96.2 million under the 300 mg/L scenario and $255.8 million under the 1,000 mg/L scenario for the state's paper industry.

These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the paper industry in Wisconsin. The annualized costs, as shown in Table 3-10, are used as the inputs for the REMI economic impact model.

Table 3-10: Cost to the Paper Industry

Cost	300 mg/L	1000 mg/L
Capital Cost (Millions)	$326	$414
Interest Rate	7%	7%
Capital Cost after Interest (Millions)	$615.1	$782.4
Annual Capital Cost with Financing	$30.8	$39.1
Annual O&M Costs (Millions)	$96.2	$255.8
Total Annual Cost	$126.9	$294.9

Source: Compliance costs developed for this report.

ECONOMIC IMPACTS OF WATER QUALITY COMPLIANCE FOR THE PAPER INDUSTRY

Table 3-11 illustrates the economic impacts of water quality compliance for the paper industry and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for the food processing industry to the REMI model, the total economic impacts of the water quality regulations associated with the paper industry in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the paper industry incurs costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, under the 300 mg/L scenario, the 2025 total statewide economic impacts include a reduction of 702 jobs, $13.8 million in wages, and $101.6 million in gross state product. Under the 1,000 mg/L scenario, those impacts increase to a reduction of 1,647 jobs, $32.1 million in wages, and $237.9 million in gross state product.

Table 3-11: Economic Impacts for Paper Industry Compliance

Economic Impacts	300 mg/L		1000 mg/L	
	2017	2025	2017	2025
Paper Industry Employment (Jobs)	-11	-80	-14	-187
Total Employment (Jobs)	-92	-702	-119	-1,647
Gross State Product (Millions of Fixed 2014 Dollars)	-$10.8	-$101.6	-$14.1	-$237.9
Paper Industry Wages (Millions of Fixed 2014 Dollars)	-$1.3	-$13.8	-$1.7	-$32.1
Total Wages (Millions of Fixed 2014 Dollars)	-$4.9	-$48.0	-$6.4	-$112.3
Population (Individuals)	-$50	-$873	-$67	-$2,052

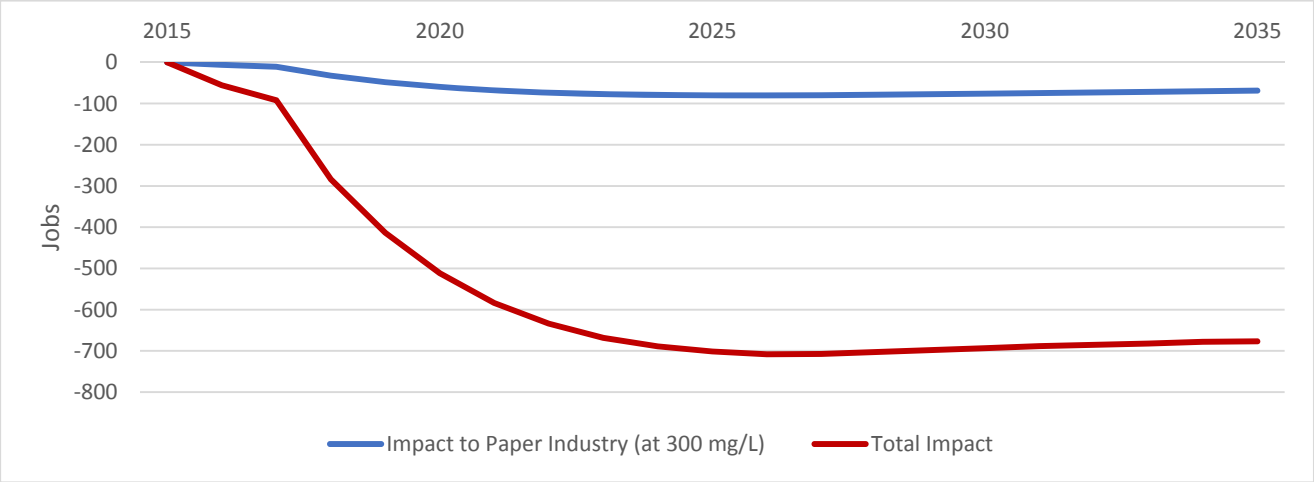
Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin paper industry are shown in Figures 3-15 and 3-16. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035.

Under the 300 mg/L scenario, by 2025, there is a reduction of 702 jobs, including 80 within the paper industry and 622 in other Wisconsin industries.

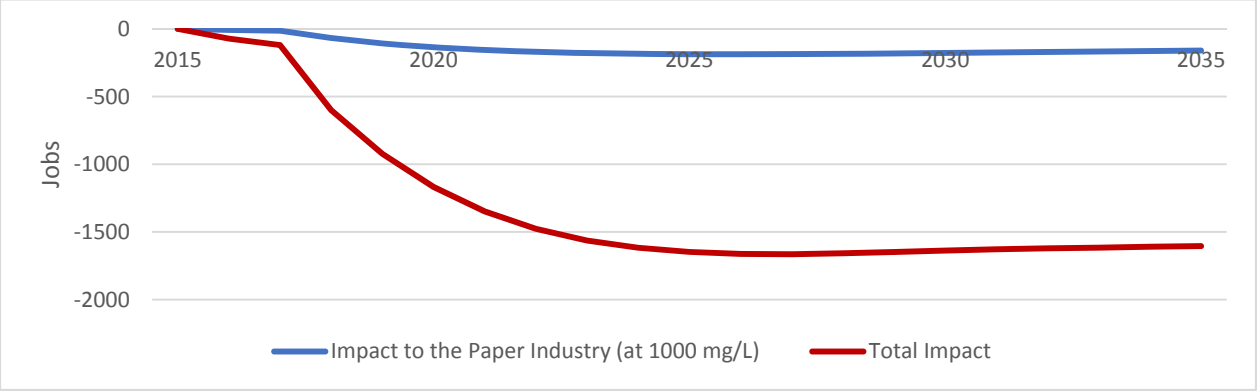
Under the 1000 mg/L scenario, by 2025, there is a reduction of 1,647 jobs, including 187 within the paper industry and 1,460 in other Wisconsin industries (e.g., construction and logging).

Figure 3-15: Employment Impact to the Paper Industry and Total Impact on Wisconsin – Low (300 mg/L) Scenario



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Figure 3-16: Employment Impact to the Paper Industry and Total Impact on Wisconsin– Moderate (1,000 mg/L) Scenario

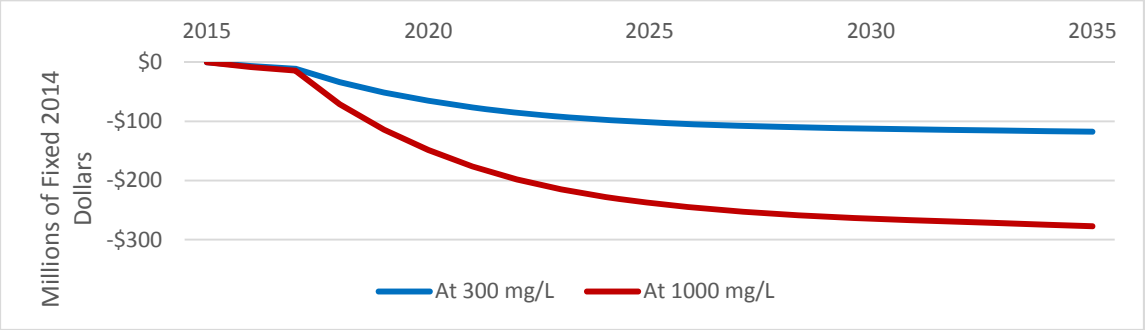


Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for the paper industry due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2035 and is a result of paper producers reducing production in the state in response to higher costs. As the paper industry lowers production, other industries that are suppliers or otherwise benefit from spending stemming from the industry will be impacted, contributing to the GSP decline. Under the 300 mg/L scenario, the overall effect is estimated to be a $101.6 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's paper industry. The annual loss in GSP continues to fall throughout the 2025-2035 period, reaching a loss of $117.5 million by 2035.

Under the 1000 mg/L scenario, the overall effect is estimated to be a $237.9 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's paper industry. The annual loss in GSP continues to fall throughout the 2025-2035 period, reaching a loss of $277.4 million by 2035.

Figure 3-17: Gross State Product Impact from the Paper Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

In summary, the Wisconsin paper industry is expected to incur annual costs, depending on chemical use, ranging from $127 million to $295 million, to comply with the state's clean water standards for phosphorus effluent. Based on the higher cost levels (indicating more chemical used to treat effluent), this will result in a reduction of up to 187 jobs within the paper industry and a loss of an additional 1,460 jobs in other industries by 2025 (note that the economic impacts would be lower if chemical use is less intense). For context, Wisconsin's paper mill industry employed 31,200 people in 2014. Overall, the costs incurred on the Wisconsin paper industry to comply with clean water standards is expected to reduce Wisconsin GSP by up to $238 million in 2025.

POWER INDUSTRY

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR POWER INDUSTRY

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's power industry will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the power industry, and include the costs of the various forms of specialized machinery, cleaning equipment, pumps, etc. The capital costs for the power industry to conform to the clean water regulation are estimated to amount to $991.3 million which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the power industry, including interest, is $1,871.5 million. On an annual basis, the capital costs to the power industry are an estimated $93.6 million (see Table 3-12).

After the initial investment in equipment, Wisconsin power producers will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $47.5 million for the state's power industry.

These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the power industry in Wisconsin. The annualized costs, as shown in Table 3-12, are used as the inputs for the REMI economic impact model.

Table 3-12: Cost to the Power Industry

Cost	Amount
Capital Cost (Millions)	$991.3
Interest Rate	7%
Capital Cost after Interest (Millions)	$1,871.5
Annual Capital Cost with Financing	$93.6
Annual O&M Costs (Millions)	$47.5
Total Annual Cost	$141.0

Source: Compliance costs developed for this report.

Economic Impacts of Water Quality Compliance for Power Industry

Table 3-13 illustrates the economic impacts of water quality compliance for the power industry and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for the power industry to the REMI model, the total economic impacts of the water quality regulations associated with power production in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the power industry incurs costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 864 jobs, $45.5 million in wages, and $150.5 million in gross state product.

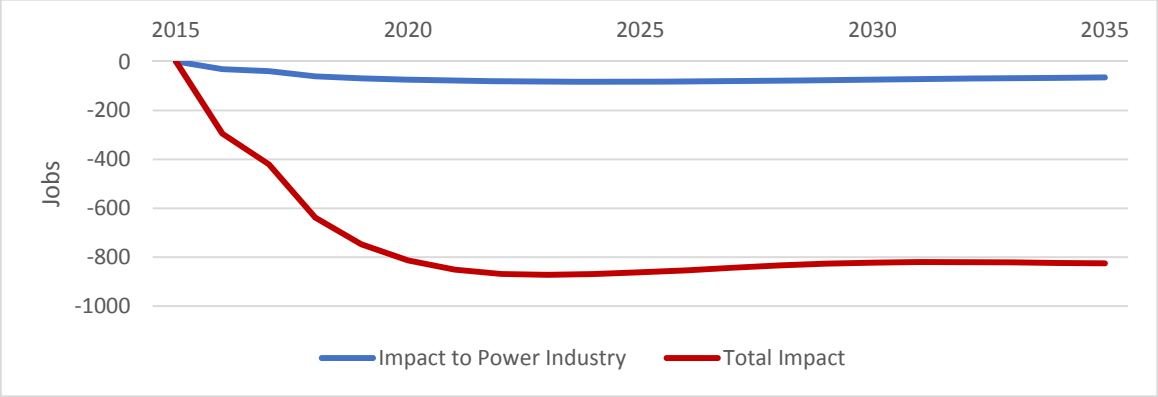
Table 3-13: Economic Impacts for Power Industry Compliance

Economic Impacts	2017	2025
Power Industry Employment (Jobs)	-40	-82
Total Employment (Jobs)	-420	-862
Gross State Product (Millions of Fixed 2014 Dollars)	-$59.7	-$150.5
Power Industry Wages (Millions of Fixed 2014 Dollars)	-$4.9	-$14.3
Total Wages (Millions of Fixed 2014 Dollars)	-$19.9	-$45.5
Population (Individuals)	-529	-2,395

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin power industry are shown in Figure 3-18. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 862 jobs, including 82 within the power industry and 780 in other Wisconsin industries.

Figure 3-18: Employment Impact to the Power Industry and to Wisconsin

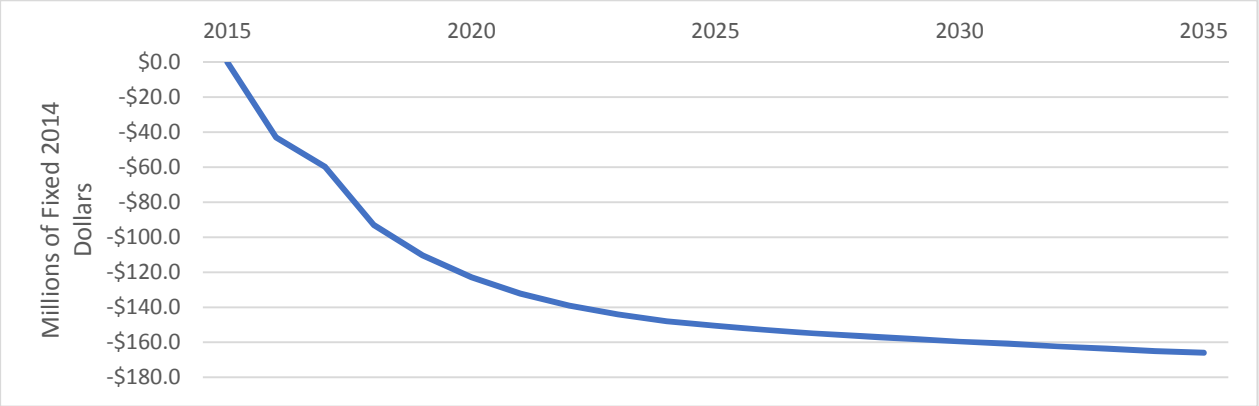


Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for the power industry due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result

of power producers reducing production in the state in response to higher costs. As the power industry lowers production, other industries that supply are suppliers or otherwise benefit from spending stemming from the industry will be impacted, contributing to the GSP decline. The overall effect is estimated to be a $150.5 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's power industry. The annual loss in GSP continues to fall throughout the 2025-2035 period, reaching a loss of $166 million by 2035.

Figure 3-19: Gross State Product Impact from the Power Industry



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

In summary, the Wisconsin power generation industry is expected to incur annual costs of $141 million to comply with the state's clean water standards for phosphorus effluent. By 2025, this will result in a reduction of 82 jobs within the power generation industry and a loss of an additional 862 jobs in other industries. For context, Wisconsin's power generation industry employed 9,900 people in 2014. Overall, the higher costs incurred on the Wisconsin power generation industry to comply with clean water standards is expected to reduce Wisconsin GSP by $156 million in 2025.

NON-CONTACT COOLING WATER

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR NCCW

Non-Contact Cooling Water (NCCW) is cooling water that does not come into contact with waste. NCCW permits are held by establishments across a wide variety of industries. In order to comply with Wisconsin's water quality regulations for phosphorus, the state's NCCW permit holders will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the NCCW permit holders, and include the costs of the various forms of specialized machinery, cleaning equipment, pumps, etc. The capital costs for the NCCW permit holders to conform to the clean water regulation are estimated to amount to $215 million which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a seven percent annual interest rate over the 2016-2035 period. Thus, the total capital costs for the NCCW permit holders, including interest, is

$405.8 million. On an annual basis, the capital costs to the NCCW permit holders are an estimated $20.3 million (see Table 3-14).

After the initial investment in equipment, Wisconsin NCCW permit holders will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $20.1 million for the state's NCCW permit holders.

These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the NCCW permit holders in Wisconsin. The annualized costs, as shown in Table 3-14, are used as the inputs for the REMI economic impact model.

Table 3-14: Cost to the NCCW Permit Holders

Cost	Amount
Capital Cost (Millions)	$215.0
Interest Rate	7%
Capital Cost after Interest (Millions)	$405.8
Annual Capital Cost with Financing	$20.3
Annual O&M Costs (Millions)	$20.1
Total Annual Cost	$40.4

Source: Compliance costs developed for this report.

ECONOMIC IMPACTS OF WATER QUALITY COMPLIANCE FOR NCCW PERMIT HOLDERS

Table 3-15 illustrates the economic impacts of water quality compliance for NCCW permit holders and the greater Wisconsin economy in 2017 and 2025. By applying the production cost increases for NCCW permit holders to the REMI model within their respected industries, the total economic impacts of the water quality regulations associated with NCCW permit holders in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as NCCW permit holders incur costs, year-after-year, for the initial capital equipment purchases as well as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 285 jobs, $9.8 million in wages, and $44.3 million in gross state product.

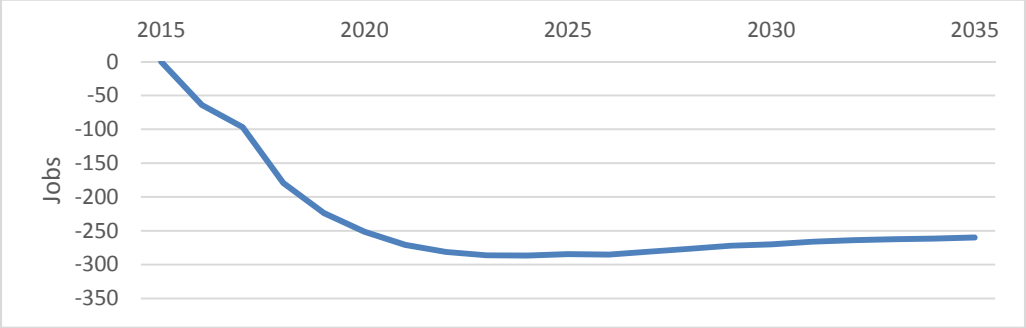
Table 3-15: Economic Impacts for NCCW Permit Holder Compliance

Economic Impacts	2017	2025
Total Employment (Jobs)	-97	-285
Gross State Product (Millions of Fixed 2014 Dollars)	-$11.4	-$44.3
Total Wages (Millions of Fixed 2014 Dollars)	-$4.7	-$17.1
Population (Individuals)	-78	-566

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with the Wisconsin NCCW permit holders are shown in Figure 3-20. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 285 jobs statewide.

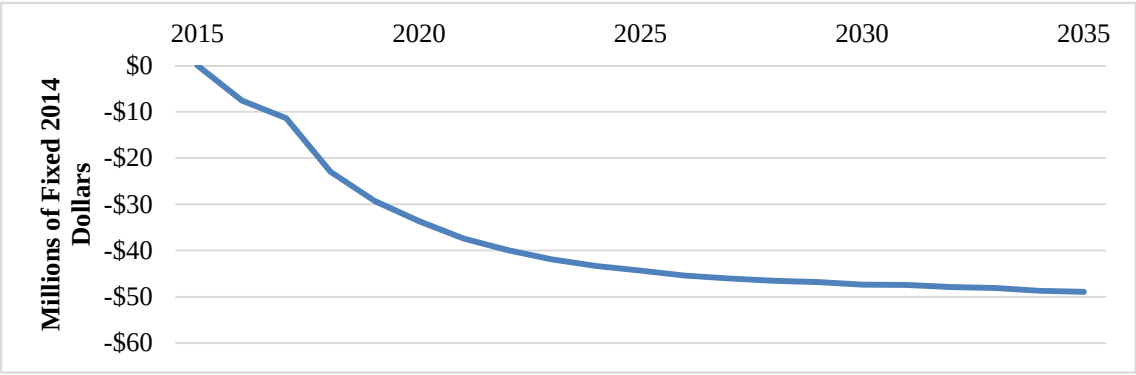
Figure 3-20: Employment Impact from an Increase in NCCW Costs



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in production costs for NCCW permit holders due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result of NCCW permit holders reducing production in the state in response to higher costs. As NCCW permit holders' lower production, other industries that are suppliers to the NCCW industries or otherwise benefit from spending stemming from the NCCW permit holders will be impacted, contributing to the GSP decline. The overall effect is estimated to be a $44.3 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's NCCW permit holders. The annual loss in GSP continues to increase throughout the 2025-2035 period, reaching a loss of $48.9 million by 2035.

Figure 3-21: Gross State Product Impact from an Increase in NCCW Costs



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

MUNICIPAL UTILITIES

DIRECT IMPACTS (REGULATORY COMPLIANCE COSTS) FOR MUNICIPAL UTILITIES

In order to comply with Wisconsin's water quality regulations for phosphorus, the state's municipal utilities will need to invest in equipment that adequately removes a sufficient amount of phosphorus from effluent. These necessary expenditures in equipment represent the "capital costs" incurred by the municipal utilities, and include the costs of the various forms of specialized machinery, holding tanks, cleaning equipment, pumps, etc. The capital costs for the municipal utilities to conform to the clean water regulation are estimated to amount to $1,567.1 million, which is expected to be spent by the industry in 2016 and 2017. It is assumed that these capital costs will be paid for using borrowed funds with a five and a half percent annual interest rate over the 2016-2035 period. Thus, the total capital cost for the municipal utilities, including interest, is $2,515.0 Billion. On an annual basis, the capital costs to the municipal utilities, including interest payments, are an estimated $125.8 million (see Table 3-16).

After the initial investment in equipment, Wisconsin's municipal utilities will also incur operations and maintenance (O&M) costs in future years. The annual O&M costs which cover such items as chemicals, filter replacements, machinery repairs, etc. are expected to be $69.4 million for the state's municipal utilities.

These capital and O&M costs form the "direct impacts" of the water quality compliance regulation and represent an increase in production costs for the municipal utilities in Wisconsin. The annualized costs, as shown in Table 3-16, are used as the inputs for the REMI economic impact model.

Table 3-16: Cost to the Municipal Utilities

Cost	Amount
Capital Cost (Millions)	$1,567.1
Interest Rate	5%
Capital Cost after Interest (Millions)	$2,515.0
Annual Capital Cost with Financing	$125.8
Annual O&M Costs (Millions)	$69.4
Total Annual Cost	$195.1

Source: Compliance costs developed for this report.

ECONOMIC IMPACTS OF WATER QUALITY COMPLIANCE FOR MUNICIPAL UTILITIES

Table 3-17 illustrates the economic impacts of water quality compliance for the Wisconsin economy in 2017 and 2025. By allocating the production cost increases for the municipal utilities across private households, industry, commercial establishments, and the public sector in the REMI model[14], the total economic impacts of the water quality regulations associated with an increase in the cost of utilities in Wisconsin are estimated. The impacts are limited in 2017 as costs have not yet begun to accrue but increase substantially by 2025 as the municipal utilities incurs, and passes on, costs, year-after-year, for the initial capital equipment purchases as well

[14] See the Methodology section for more detail.

as for operations and maintenance. Based on the REMI economic simulations, the 2025 total statewide economic impacts include a reduction of 1,420 jobs, $47.1 million in wages, and $152.9 million in gross state product.

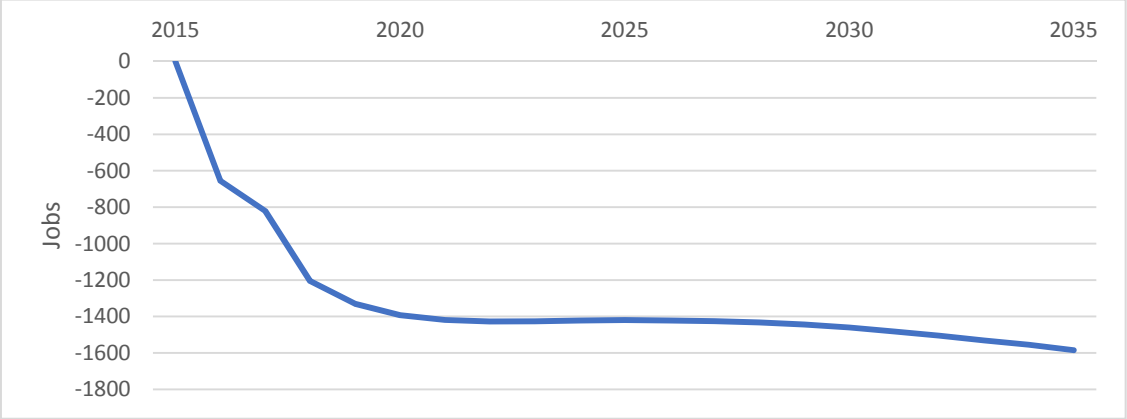
Table 3-17: Economic Impacts for Municipal Utilities Compliance

Economic Impacts	2017	2025
Total Employment (Jobs)	-821	-1,420
Gross State Product (Millions of Fixed 2014 Dollars)	-$79.5	-$152.9
Total Wages (Millions of Fixed 2014 Dollars)	-$30.7	-$47.1
Population (Individuals)	-1,292	-5,496

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The employment impacts of the water compliance regulations associated with Wisconsin's municipal utilities are shown in Figure 3-22. The jobs impacts accelerate during the 2016-2025 period and then remain roughly steady through 2035. By 2025, there is a reduction of 1,420 jobs statewide.

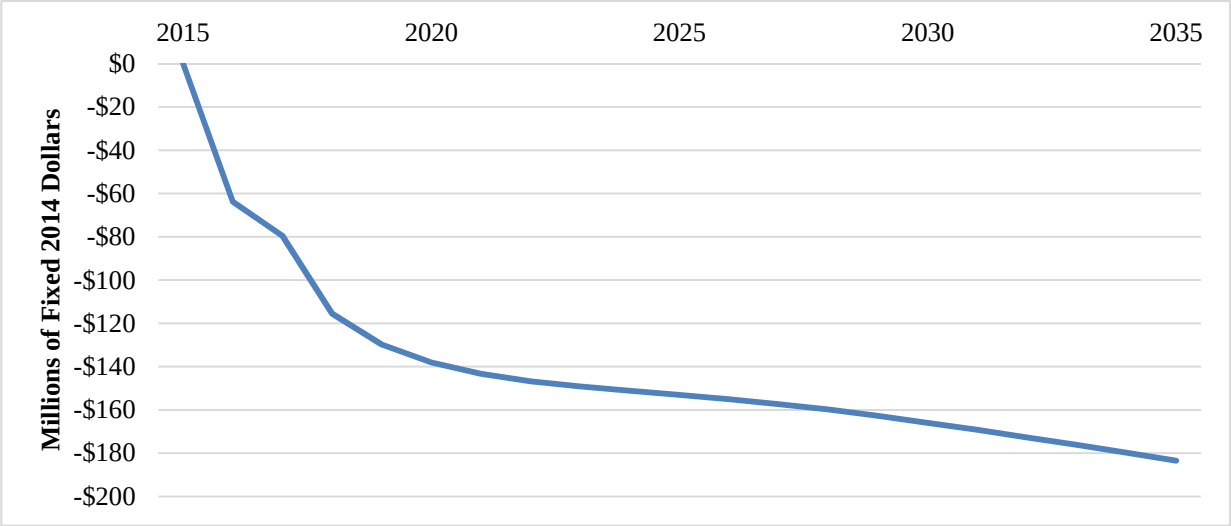
Figure 3-22: Employment Impact from an Increase in Municipal Utility Costs



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

The increase in costs across residential, industrial, commercial, and public sectors due to water quality compliance will reverberate through the Wisconsin economy and result in lower gross state product ("GSP" – the value of goods produced in the state). The decline in GSP is gradual through 2025 and is a result of higher costs being passed onto industry and consumers. The overall effect is estimated to be a $152.9 million reduction in Wisconsin GSP in 2025 compared to the levels that would have been expected without the increase in costs for water quality compliance by the state's municipal utilities. The annual reduction in GSP continues to fall throughout the 2025-2035 period, reaching a loss of $183 million by 2035.

Figure 3-23: Gross State Product Impact from an Increase in Municipal Utility Costs



Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

3.4 Sensitivity Analysis

The cost of water compliance to Wisconsin's industries is subject to some fluctuation due to economic factors such as the market price of the required equipment, chemicals, and labor, the costs of financing, and other factors. In order to understand how these changes might affect the overall impact of water compliance in Wisconsin, two additional REMI simulations were run for the industries that would incur the largest costs for water quality compliance (paper, power generation, and municipal utilities). These REMI simulations assume the costs of compliance to be 10 percent *lower* than the ARCADIS cost estimates in one scenario and 25 percent *higher* than initially estimated in the other. Given the vagaries of how capital and O&M costs may actually materialize in future years; the costs may vary further -- perhaps as much as 30 percent below the initial estimates or 50 percent higher -- per the engineering team. For the purposes of the economics sensitivity analysis, a narrower, more conservative range was selected.

The REMI analysis, based on the three industries, shows that the impacts to Wisconsin's employment and gross state product are expected to roughly scale with changes in the cost of compliance. That is, a 25 percent increase in the cost of water compliance should be accompanied by a 25 percent increase in the magnitude of the impacts to employment or gross state product, and a 10 percent decrease in the cost should be accompanied by a 10 percent decrease in the impact magnitudes. This is borne out by the results shown in Tables 3-18 and 3-19 illustrating the impacts of the original as well as high and low impacts based on increasing or lowering the respective industry costs.

Table 3-18: Employment Impacts to Selected Industries for Original, Low, and High Estimates

Scenario	Paper(300 mg/L)	Paper (1000 mg/L)	Power	Municipal
	Jobs	Jobs	Jobs	Jobs
Original	-702	-1,647	-862	-1,420
High (+25%)	-878	-2,050	-1,074	-1,774
Low (-10%)	-630	-1,499	-776	-1,280

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Table 3-19: Gross State Product Impacts to Selected Industries for Original, Low, and High Estimates

Scenario	Paper(300 mg/L)	Paper (1000 mg/L)	Power	Municipal
	Gross State Product (millions)	Gross State Product (millions)	Gross State Product (millions)	Gross State Product (millions)
Original	-$101.6	-$237.9	-$150.5	-$152.9
High (+25%)	-$127.1	-$295.9	-$187.7	-$191.2
Low (-10%)	-$91.3	-$221.6	-$135.7	-$136.1

Source: Regional Economic Models, Inc., as calculated by the University of Massachusetts Donahue Institute.

Applying these findings to the initial estimate of the total employment impact to Wisconsin from water compliance across all industries (4,517 jobs in 2025, see Table ES-2 on page 7, a 25 percent increase in the cost of compliance would cost Wisconsin an estimated additional 1,129 jobs (for a total reduction of 5,646 jobs) and a 10 percent decrease would save roughly 452 Wisconsin jobs (for a total reduction of 4,065 jobs). Likewise, given the initial total estimate of the total gross state product impact to Wisconsin (-$616.6 million in 2025, see Table ES-2), a 25 percent increase in the cost of compliance would result in another $154.1 million of gross state product lost (for a total GSP loss of $770.8 million), and a 10 percent reduction would lead to $61.6 million of gross state product being saved (for a total GSP loss of $554.9 million).

3.5 Business and Municipal Survey Results

In order to better inform the economic impact analysis, two surveys were conducted; one to Wisconsin businesses and the other to the state's publicly owned treatment works (POTWs), in November 2014. The surveys help provide additional detail concerning the need for upgrades to comply with Wisconsin's water quality regulations and how entities will respond to the increased costs of compliance. The key findings from the two surveys are summarized in this section of the analysis.

Business Survey Findings

The business survey went to companies who operate under an individual Wisconsin Pollutant Discharge Elimination System (WPDES) permit and received 82 responses, including a number of NCCW permittees which also reported being indirect dischargers. Key findings include the following:

- **Upgrades will be needed for businesses to comply with new phosphorus water quality based effluent limitations.** A majority of businesses, 83 percent, anticipate their facility will need major upgrades to comply with the new phosphorus limitations.

- **Businesses expect water rates from municipal utilities to increase.** Over half of the respondents (for those with municipal discharges) anticipate rate increases of more than 20 percent due to wastewater treatment facility upgrades.

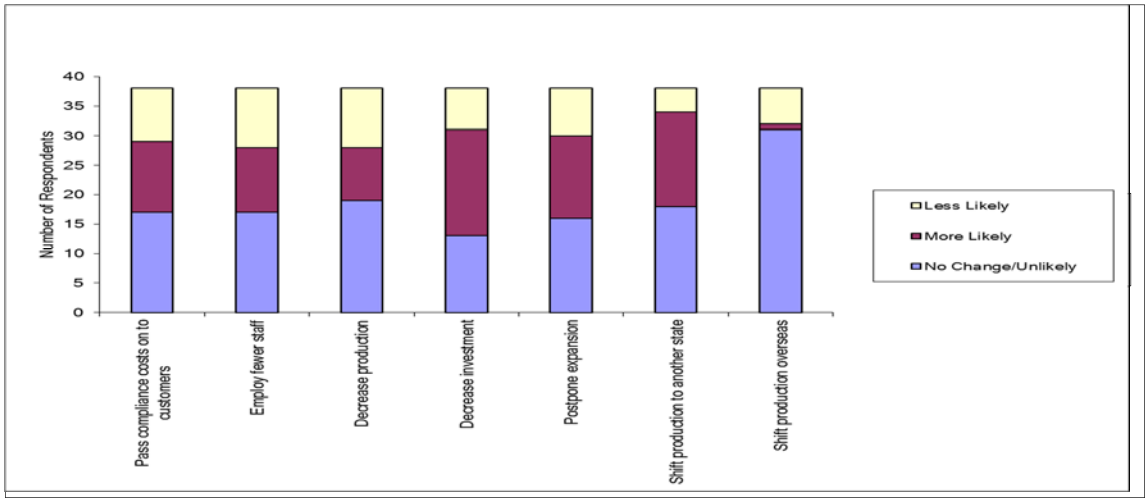
- **The recent sales/revenue performance of the respondents is generally solid.** Nearly 90 percent of the business survey respondents indicated that their sales have either grown or stayed the same over the past five years. This cross-section may be indicative of the types of businesses that are existing foundations for the Wisconsin economy and/or will guide growth.

- **Clean water compliance is a top ranking business concern in Wisconsin.** Businesses were asked to identify their top challenges in Wisconsin and water regulations emerged as the top concern. Other top issues included environmental regulations (non-water), energy/material costs, healthcare costs, workforce, and access to capital. The businesses also indicated that water and other environmental regulations are more likely to have a major impact on their activities than other regulations including health, safety, and employment.

- **Sludge from phosphorus reduction will require land spreading which is becoming more difficult to do.** Over two-fifths of respondents acknowledge that land acquisition to upgrade or expand wastewater treatment will be difficult. Additionally, there is concern that local, county, and state ordinances and regulations will hamper their ability to acquire additional land to comply with wastewater treatment. Land acquisition will add to costs and/or may constrain some companies from being able to expand at their current locations. Note that the potential need for additional land and associated costs to accommodate sludge was not included as a cost factor in this study. Land could potentially add significant costs for Wisconsin's businesses in addition to the capital and operations and maintenance costs detailed throughout this study.

- **Businesses indicate that they are likely to adjust their practices in the wake of the water quality regulations for phosphorus.** Businesses signaled that they are more likely to decrease investment and/or postpone expansion at their Wisconsin facility due to the higher costs of water quality compliance (see Figure 3-32). A number of companies also indicated that they would be more likely to shift production to another state. The business response to the higher compliance costs for phosphorus effluent also corroborates the REMI results of this study, demonstrating the potential for lower employment and lower economic output in Wisconsin.

Figure 3-32: How Will your Wisconsin Facility Respond to/Adjust to the State's Water Quality Regulations for Phosphorus?



Source: Wisconsin Water Quality Compliance for Phosphorus Business Survey conducted by the UMass Donahue Institute, November 2014.

PUBLICLY OWNED TREATMENT WORKS (POTW) SURVEY FINDINGS

A separate survey also went out to Wisconsin's publicly owned treatment works concerning how they may respond to higher water quality compliance costs. The survey generated 39 responses. Key findings include the following:

- **Upgrades will be needed for POTWs to comply with new phosphorus water quality based effluent limitations.** A majority of POTWs, 60 percent, anticipate their facility will need major upgrades to comply with the new phosphorus limitations. Only 5.1 percent indicated they would not require an upgrade with a significant number of POTWs remaining uncertain about the need for upgrades.

- **Higher capital and O&M costs at POTWs are expected to be recovered through rate increases and surcharges.** Almost 85 percent of POTWs have industrial contributors and 60 percent have a separate surcharge for industries. Most POTWs indicate that they will use rate increases earmarked to industrial and residential customers to recover costs.

- **Customer and flow levels at POTWs have remained largely stable over the past five years.** About 86 percent of the POTWs report that their customer numbers have remained stable or increased over the past five years. While the trend is mostly similar concerning flow levels, a larger percentage of POTWs, 27 percent, are indicating a decline in flow compared to only 14 percent reporting a decline in customers during the last five years.

- **The allocation of costs related to phosphorus based on flow and/or concentration is not yet certain.** A majority of respondents, 60 percent, are currently unsure of how the costs related to phosphorus compliance will be allocated. While a majority seems to have not made a decision on this, some utilities will allocate costs based on customer flow

levels while others will allocate costs based on a combination of flow levels and the concentration of phosphorus effluent.

- **The availability of land for spreading sludge is becoming more limited.** Similar to the business survey findings, 60 percent of POTW survey respondents acknowledge that land acquisition to upgrade or expand wastewater treatment will be difficult. The remaining 40 percent indicated that land is readily available to suit future needs or that they do not need to acquire additional land. *Note that the potential need for additional land and associated costs to accommodate sludge was not included as a cost factor in this study.* Land could potentially add significant costs to municipal public utilities in addition to the capital and operations and maintenance costs detailed throughout this study.

4. FINANCIAL AFFORDABILITY AND CAPACITY ASSESSMENT

This section primarily addresses the second issue required for study by Act 378:

> ***"A calculation of the per household cost for water pollution control by statewide categories of publicly owned treatment works (POTW) that cannot achieve compliance with water quality based effluent limitations for phosphorus without major facility upgrades, including the projected costs of compliance with those water quality-based effluent limitations, and a calculation of the percentage of median household income that the per household cost represents."***

4.1 FCA AND MHI BACKGROUND

The information on municipal utilities presented in Section 3 discusses the statewide economic and demographic impact of the new phosphorus regulations in terms of job losses, projected declines in wages, gross state product and population for selected industries. It also presents these same costs of compliance for municipalities both in 2014 dollars ($1.6 Billion for capital and $69.4 million for O&M) and after the cost of financing is taken into account ($2.8 Billion in total capital costs).

To further inform this data, this study evaluated the impact of environmental regulations on residents and municipal governments by analyzing both existing costs and the additional costs of compliance borne by residents on a Cost per Customer basis and as a as percentage of Median Household Income (MHI). These factors are used frequently in determining "substantial and widespread" impacts due to water quality standards implementation under EPA's "Interim Economic Guidance for Water Quality Standards (1995).[15]" We have referred to this calculation of per customer compliance costs expressed as a percentage of MHI as the "Affordability Indicator" standard, similar to traditional affordability metrics U.S. EPA has used since 1997 to assess (1) the financial ability of a municipality to pay for the capital costs of environmental improvement projects and the associated operating and maintenances costs; and (2) the financial burden the proposed projects would pose to residential households or customers of the municipal utility. Section 4 of this report will focus on the evaluating the impact these Cost per Customer and percentage of Median Household Income (MHI) calculations have on Wisconsin's communities.

A Financial Capability Analysis, or FCA, is a good starting point for this analysis. An FCA is typically a site-specific calculation for an individual community, utilized as part of the assessment of a community's ability to afford capital improvements required to comply with a Combined Sewer Overflow (CSO) Consent Decree.[16] Since 1997, the FCA Guidance document has been followed by multiple studies and publications, providing additional clarity and flexibility and recognizing that environmental objectives should be sustainable and within a local government's financial reach. US EPA has since expanded the application of an FCA type of

[15] "Interim Economic guidance for Water Quality Standards: Workbook" was published by US EPA, Office of Water, in March 1995.

[16] The "Combined Sewer Overflows - Guidance for Financial Capability Assessment and Schedule Development" ("FCA Guidance" or the "Guidance document") was first released by US EPA in March 1997.

analysis in considering other municipal Clean Water Act ("CWA") obligations, including removing a use or obtaining a variance. It also broadened the costs to include storm water and wastewater, ongoing asset or system rehabilitation plans, other CWA related capital improvement programs and collection systems and treatment facilities.

Phase I of an FCA analysis focuses on establishing the Affordability Indicator and evaluating the combined financial impact of existing wastewater costs and new environmental controls on individual customers. This indicator reflects the per customer share of current and proposed wastewater treatment costs to arrive at Cost per Household. Based on the relative percentage of median household income ("MHI") that would be consumed by estimated annual sewer bills, US EPA uses value metrics of "low", "mid-range" or "high" to indicate the level of economic burden imposed upon residential customers, with a threshold of 2% of MHI seen as a "high or unreasonable financial burden." [17]

The second phase examines the existing debt burden and capacity, socioeconomic and financial conditions of a permittee. Six factors are used to evaluate the permittees financial capacity in the Phase II (or 'secondary' analysis);

- Bond Ratings,
- Overall Net Debt as a Percent of Full Market Property Value,
- Unemployment Rate,
- Median Household Income,
- Property Tax Collection rates, and
- Property Tax revenues as a Percent of Full Market Property Value.

These metrics are then scored against relative national benchmarks that EPA has developed to quantify these factors as "weak", "mid-range" or "strong". [18] Overall, EPA has likened Phase II of the FCA to the process bond credit rating agencies would undertake to assess a utility's overall financial condition and credit capacity: in essence, a detailed review. The results of the Phase I (Affordability Indicator) and Phase II (Permittee Financial Capability Indicators) analyses are then combined in the Financial Capability Matrix to evaluate the level of financial burden that new environmental controls may impose upon the community, which might warrant adjustments to the implementation schedule. [19]

To inform this analysis, certain publications were used as sources based on their relevance to Wisconsin; "*Scoping Evaluation of Economic Impact Assessment Methodologies for Water Quality Standards* (2006)" prepared for the Montana Department of Environmental Quality; "Interim Economic Guidance for Water Quality Standards" (1995), published by US EPA, "*Technical and Economic Evaluation of Nitrogen and Phosphorus Removal at Municipal Wastewater Treatment Facilities* (2011)" prepared for the Department of Ecology, State of Washington; "*Discharger-specific Variances on a Broader Scale; Developing Credible Rationales for Variances that Apply to Multiple Dischargers* (2013)" prepared by US EPA;

[17] See 1997 CSO Guidance document for Financial Capability Assessment and Schedule Development, p.10.
[18] p.36
[19] P. 41.

"*Financial Capability Assessment Framework for Municipal Clean Water Act Requirements* (2014)", prepared by US EPA.

In their 2014 "FCA Framework", US EPA noted that additional information may be relevant to evaluating residential impacts, including:

- income distribution by quintile, geography or other category;
- information about service area poverty rates and trends, sewer and storm water rate increases ("rate shock");
- cost per household
- for low-income households to determine if the cost-to-income ratios are disproportionately high;
- historical population trends;
- debt service coverage and net debt per capita; and
- area unemployment data and trends.[20]

U.S. EPA considers both the financial impact to residential households and municipal fiscal capacity. In that same vein, this analysis seeks to evaluate the cost of the phosphorus compliance in the context of the socioeconomic circumstances of the affected Wisconsin municipalities.

4.2 CURRENT ECONOMIC CONDITIONS

To help determine total impact, it was important to review various indicators of Wisconsin's current economic conditions. Statewide "averages" for various measures of economic health may not be fully representative of the experience of a majority of 72 Wisconsin's counties. For instance, 50 of Wisconsin's 72 counties, show two or more measures of fiscal distress (see Table 4-1), while just 6 counties have average MHI of $60,000 or 14% higher than the state's average[21]. In short, income distribution is heavily skewed to a top tier of Wisconsin's counties, which in many instances represent the more urban and densely populated counties. This raises the concern that the impact of new regulations will be felt most significantly and in fact disproportionately, in Wisconsin's poorer and more rural counties.

Due to the wide disparity of economic circumstances between different areas of Wisconsin, section 4 of this study focuses on the Affordability Indicator data at the county level, in the context of regional/local economic conditions. The study utilized metrics similar to those applied by the Appalachian Regional Commission ("ARC") to determine economic distress: specifically, population trends, absolute levels of and changes in household income over a multiyear period, levels of unemployment, and relative poverty[22]. The following discussion demonstrates the disparity of economic experience across the state.

[20] "Financial Capability Assessment Framework for Municipal Clean Water Act Requirements", Memorandum from US EPA, Office of Water, dated November 24, 2014, p 5.
[21] Brown, Calumet, Columbia, Dane, Fond du Lac, Green, Iowa, Kewaunee, Marathon, Outagamie, Ozaukee, Pierce, Portage, Sheboygan, St. Croix, Washington, Waukesha and Winnebago Counties.
[22] Appalachian Regional Commission website accessed on December 30, 2014. "Source and Methodology: Distressed Designation and County Economic Status Classification System, FY2007-FY2015".

The source data in Table 4-1 is from the U.S. Census website, ACS (American Community Survey) county level data for population estimated, Average and annual Median Household Income (MHI), Unemployment rates, and Poverty levels as a percentage of population. These data sets are traditionally used by economists, credit rating agencies and other analysts to evaluate historic economic and demographic trends of a community or region either over time or at a point in time to identify fundamental trends. Declining population, an aging population, lower levels of income and education, higher levels of unemployment and poverty are all seen as signs of a community experiencing economic duress.

TABLE 4.1 CENSUS DATA BY COUNTY

County	2013 Est P	% Change from 200	MHI 2009-2013	Diference to State MH	% Differenc	2013 % Unemployed	*Unemployment vs. WI*	2013 Persons Below Poverty Level
Adams	20,480	9.85%	$ 44,897	$ (7,516)	-14.34%	7.3%	***2.6%***	10.6%
Ashland	16,016	-5.04%	$ 38,550	$ (13,863)	-26.45%	6.3%	1.6%	**18.8%**
Barron	45,676	1.59%	$ 44,054	$ (8,359)	-15.95%	5.1%	0.4%	12.8%
Bayfield	15,156	0.95%	$ 44,944	$ (7,469)	-14.25%	9.2%	***4.5%***	**13.5%**
Brown	254,586	12.26%	$ 53,119	$ 706	1.35%	4.2%	-0.5%	11.5%
Buffalo	13,357	-3.24%	$ 47,384	$ (5,029)	-9.59%	4.4%	-0.3%	12.0%
Burnett	15,333	-2.18%	$ 39,564	$ (12,849)	-24.51%	6.7%	2.0%	**17.1%**
Calumet	49,617	22.12%	$ 65,130	$ 12,717	24.26%	3.5%	-1.2%	6.4%
Chippewa	63,132	14.38%	$ 50,551	$ (1,862)	-3.55%	4.9%	0.2%	11.1%
Clark	34,615	3.15%	$ 43,276	$ (9,137)	-17.43%	4.4%	-0.3%	**14.9%**
Columbia	56,653	7.98%	$ 57,922	$ 5,509	10.51%	4.7%	0.0%	9.3%
Crawford	16,397	-4.91%	$ 42,235	$ (10,178)	-19.42%	5.6%	0.9%	12.6%
Dane	509,939	19.56%	$ 61,721	$ 9,308	17.76%	3.2%	-1.5%	12.9%
Dodge	88,344	2.85%	$ 53,075	$ 662	1.26%	5.1%	0.4%	9.0%
Door	27,896	-0.23%	$ 50,438	$ (1,975)	-3.77%	7.5%	***2.8%***	10.1%
Douglas	43,887	1.39%	$ 45,418	$ (6,995)	-13.35%	4.0%	-0.7%	**15.1%**
Dunn	44,122	10.70%	$ 48,893	$ (3,520)	-6.72%	3.9%	-0.8%	**15.7%**
Eau Claire	101,438	8.91%	$ 48,090	$ (4,323)	-8.25%	3.9%	-0.8%	**15.7%**
Florence	4,520	-11.16%	$ 47,960	$ (4,453)	-8.50%	7.3%	***2.6%***	**14.3%**
Fond du Lac	101,798	4.63%	$ 53,820	$ 1,407	2.68%	4.3%	-0.4%	9.8%
Forest	9,126	-8.96%	$ 39,963	$ (12,450)	-23.75%	7.0%	***2.3%***	**16.5%**
Grant	51,069	2.97%	$ 46,963	$ (5,450)	-10.40%	3.9%	-0.8%	**16.6%**
Green	37,090	10.23%	$ 55,584	$ 3,171	6.05%	3.8%	-0.9%	10.3%
Green Lake	18,959	-0.76%	$ 46,994	$ (5,419)	-10.34%	6.1%	1.4%	11.5%
Iowa	23,749	4.25%	$ 55,659	$ 3,246	6.19%	3.9%	-0.8%	9.8%
Iron	5,886	-14.21%	$ 39,051	$ (13,362)	-25.49%	9.4%	***4.7%***	**16.4%**
Jackson	20,644	8.08%	$ 44,149	$ (8,264)	-15.77%	5.5%	0.8%	**16.9%**
Jefferson	84,509	14.17%	$ 53,454	$ 1,041	1.99%	5.0%	0.3%	11.2%
Juneau	26,547	9.18%	$ 45,297	$ (7,116)	-13.58%	6.4%	1.7%	**13.6%**
Kenosha	167,757	12.15%	$ 54,930	$ 2,517	4.80%	5.5%	0.8%	**14.0%**
Kewaunee	20,505	1.58%	$ 53,588	$ 1,175	2.24%	4.1%	-0.6%	9.4%
La Crosse	116,713	8.96%	$ 51,339	$ (1,074)	-2.05%	3.6%	-1.1%	**14.0%**
Lafayette	16,766	3.90%	$ 49,107	$ (3,306)	-6.31%	3.6%	-1.1%	11.7%
Langlade	19,575	-5.62%	$ 42,389	$ (10,024)	-19.13%	6.4%	1.7%	**14.5%**
Lincoln	28,684	-3.23%	$ 49,021	$ (3,392)	-6.47%	5.6%	0.9%	11.1%
Manitowoc	80,654	-2.69%	$ 48,881	$ (3,532)	-6.74%	4.9%	0.2%	9.7%
Marathon	135,416	7.61%	$ 53,363	$ 950	1.81%	4.4%	-0.3%	10.9%
Marinette	41,610	-4.09%	$ 40,490	$ (11,923)	-22.75%	5.8%	1.1%	**13.2%**
Marquette	15,176	-4.14%	$ 46,077	$ (6,336)	-12.09%	6.6%	1.9%	**13.6%**
Menominee	4,317	-5.37%	$ 33,333	$ (19,080)	-36.40%	10.3%	***5.6%***	**31.4%**
Milwaukee	956,023	1.69%	$ 43,193	$ (9,220)	-17.59%	6.0%	1.3%	**21.6%**

County	2013 Est P	% Change from 20	MHI 2009-2013	Diference to State MH	% Differenc	2013 % Unemplo yed	*Unempl oymt vs. WI*	2013 Persons Below Poverty Level
Monroe	45,298	10.76%	$ 49,774	$ (2,639)	-5.04%	4.5%	-0.2%	14.4%
Oconto	37,318	1.87%	$ 51,615	$ (798)	-1.52%	5.4%	0.7%	10.2%
Oneida	35,689	-2.96%	$ 45,759	$ (6,654)	-12.70%	7.0%	2.3%	10.7%
Outagamie	180,345	12.04%	$ 58,318	$ 5,905	11.27%	4.3%	-0.4%	8.7%
Ozaukee	87,054	5.75%	$ 75,457	$ 23,044	43.97%	3.9%	-0.8%	5.2%
Pepin	7,360	2.04%	$ 47,701	$ (4,712)	-8.99%	4.0%	-0.7%	12.5%
Pierce	40,976	11.34%	$ 59,226	$ 6,813	13.00%	2.7%	-2.0%	12.4%
Polk	43,476	5.22%	$ 48,538	$ (3,875)	-7.39%	5.1%	0.4%	10.8%
Portage	70,380	4.76%	$ 50,996	$ (1,417)	-2.70%	4.4%	-0.3%	13.7%
Price	13,802	-12.77%	$ 42,644	$ (9,769)	-18.64%	4.4%	-0.3%	15.9%
Racine	195,041	3.29%	$ 54,090	$ 1,677	3.20%	6.0%	1.3%	13.3%
Richland	17,717	-1.15%	$ 45,271	$ (7,142)	-13.63%	4.0%	-0.7%	12.8%
Rock	160,739	5.54%	$ 49,435	$ (2,978)	-5.68%	5.5%	0.8%	14.3%
Rusk	14,395	-6.20%	$ 38,658	$ (13,755)	-26.24%	6.0%	1.3%	18.7%
Sauk	63,162	14.37%	$ 52,140	$ (273)	-0.52%	4.8%	0.1%	10.8%
Sawyer	16,513	1.96%	$ 39,904	$ (12,509)	-23.87%	8.0%	3.3%	18.8%
Shawano	41,643	2.41%	$ 46,559	$ (5,854)	-11.17%	5.2%	0.5%	11.5%
Sheboygan	114,922	2.02%	$ 52,920	$ 507	0.97%	4.0%	-0.7%	9.5%
St. Croix	85,930	36.06%	$ 68,426	$ 16,013	30.55%	2.8%	-1.9%	7.6%
Taylor	20,610	4.73%	$ 44,869	$ (7,544)	-14.39%	4.8%	0.1%	13.9%
Trempealeau	29,582	9.52%	$ 49,143	$ (3,270)	-6.24%	3.8%	-0.9%	11.9%
Vernon	30,329	8.10%	$ 45,488	$ (6,925)	-13.21%	4.3%	-0.4%	14.5%
Vilas	21,368	1.59%	$ 40,833	$ (11,580)	-22.09%	8.3%	3.6%	13.3%
Walworth	102,945	9.80%	$ 54,020	$ 1,607	3.07%	4.8%	0.1%	13.4%
Washburn	15,686	-2.18%	$ 41,924	$ (10,489)	-20.01%	5.8%	1.1%	13.8%
Washington	132,739	12.98%	$ 66,159	$ 13,746	26.23%	4.1%	-0.6%	6.3%
Waukesha	393,843	9.17%	$ 75,850	$ 23,437	44.72%	4.2%	-0.5%	5.4%
Waupaca	52,285	1.07%	$ 50,822	$ (1,591)	-3.04%	5.0%	0.3%	10.6%
Waushara	24,329	5.07%	$ 43,070	$ (9,343)	-17.83%	6.1%	1.4%	11.6%
Winnebago	169,541	8.15%	$ 51,010	$ (1,403)	-2.68%	4.3%	-0.4%	12.3%
Wood	73,959	-2.11%	$ 47,685	$ (4,728)	-9.02%	5.0%	0.3%	11.0%
State of Wisconsin	5,742,713	7.05%	$ 52,413.00			4.7%		13.0%

Population Growth

Comparing Census Bureau data from 2000[23] with current 2013[24] estimates, the State has seen minimal population growth in this time period, only adding a total of 378,038 people or 29,080 people per year – a +0.54% annual growth rate. From 2006 to 2013, 45 counties had lower than average State growth in population and 21 counties experienced an absolute *decline* in population:

Table 4-2 Population Growth Rate (Negative)

County	2000 Population	2013 Estimate	% growth
Iron	6,861	5,886	-14.21%
Price	15,822	13,802	-12.77%
Florence	5,088	4,520	-11.16%
Forest	10,024	9,126	-8.96%
Rusk	15,347	14,395	-6.20%
Langlade	20,740	19,575	-5.62%
Menominee	4,562	4,317	-5.37%
Ashland	16,866	16,016	-5.04%
Crawford	17,243	16,397	-4.91%
Marquette	15,832	15,176	-4.14%
Marinette	43,384	41,610	-4.09%
Buffalo	13,804	13,357	-3.24%
Lincoln	29,641	28,684	-3.23%
Oneida	36,776	35,689	-2.96%
Manitowoc	82,887	80,654	-2.69%
Washburn	16,036	15,686	-2.18%
Burnett	15,674	15,333	-2.18%
Wood	75,555	73,959	-2.11%
Richland	17,924	17,717	-1.15%
Green Lake	19,105	18,959	-0.76%
Door	27,961	27,896	-0.23%

Median Household Income (MHI)

The State of Wisconsin showed 19.7% growth in MHI from $43,791 in 2000[25] to $52,413 in the latest 2013[26] estimate from the Census Bureau. Even with this growth, the State's MHI is lower than that of the United States ($53,046). The majority of Wisconsin counties are even lower: 51 of Wisconsin's 72 counties have an MHI below the State average. Of those 51 counties, 12 counties have average household incomes more than $10,000 below the State average. The greatest discrepancy is in Menominee County, where the current MHI is $33,333 - a $19,080

[23] Factfinder.census.gov/face/tableservices/jsf/pages/productivew.xhtml?src=bkmk
[24] quickfacts.census.gov/qfd/states/55000.html

[25] Factfinder.census.gov/face/tableservices/jsf/pages/productivew.xhtml?src=bkmk
[26] quickfacts.census.gov/qfd/states/55000.html

departure from the State's MHI. This suggests that the State's wealth is largely confined to 8 counties where County MHI exceeds the State's average by more than 10% and population is 50,000 or more.

Unemployment Rate

The State is currently enjoying a better than average non-seasonal adjusted unemployment rate of 4.7%, versus the national average of 5.5%.[27] However, the State's own "Economic Outlook" indicates that the State has only "recovered around 60% of the jobs lost during the last recession" with the largest employment sector (Trade, Transportation and Utilities) having recovered only 8% of the 39,000 jobs lost.[28] Further, the report notes that the decline in the unemployment rate is "a result of moderate job gains *and the decline of the labor force between mid-2009 and late 2012" with the state not expected to return to 2007 peak employment levels until 2015*. Forty of the state's 72 counties are showing higher unemployment than the State average. Twenty-two counties have rates 2.0% higher than the State average, with the highest being Menominee County at 10.3%.

Poverty Rate

The State of Wisconsin currently has a poverty rate of 13.0%; as of 2013, the Census Bureau has determined that a family of four will be in poverty with a MHI of $23,834 or less.[29] There are currently 32 counties with poverty rates over 13%, led by Menominee County with a poverty rate of 31.4%. Milwaukee County, the most populous county in the State, has 21.6% of its residents living under the federal poverty threshold.

[27] Wisconsin County Unemployment Rates (worknet.wisconsin.gov/worknet_info/maps/pdf/uRates.pdf) 12/23/2014
[28] "*Wisconsin Economic Outlook: Winter 2014"* published by the Wisconsin Department of Revenue.
[29] Poverty Thresholds for 2013 by size of family and number of related children under 18 years. – U.S. Census Bureau

Figure 4-1

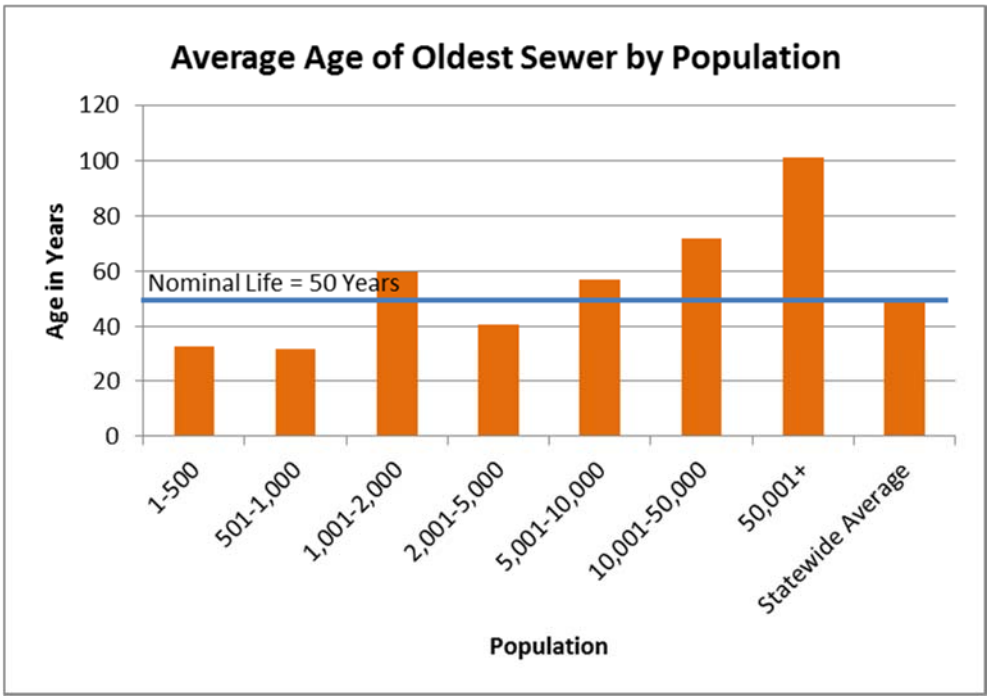
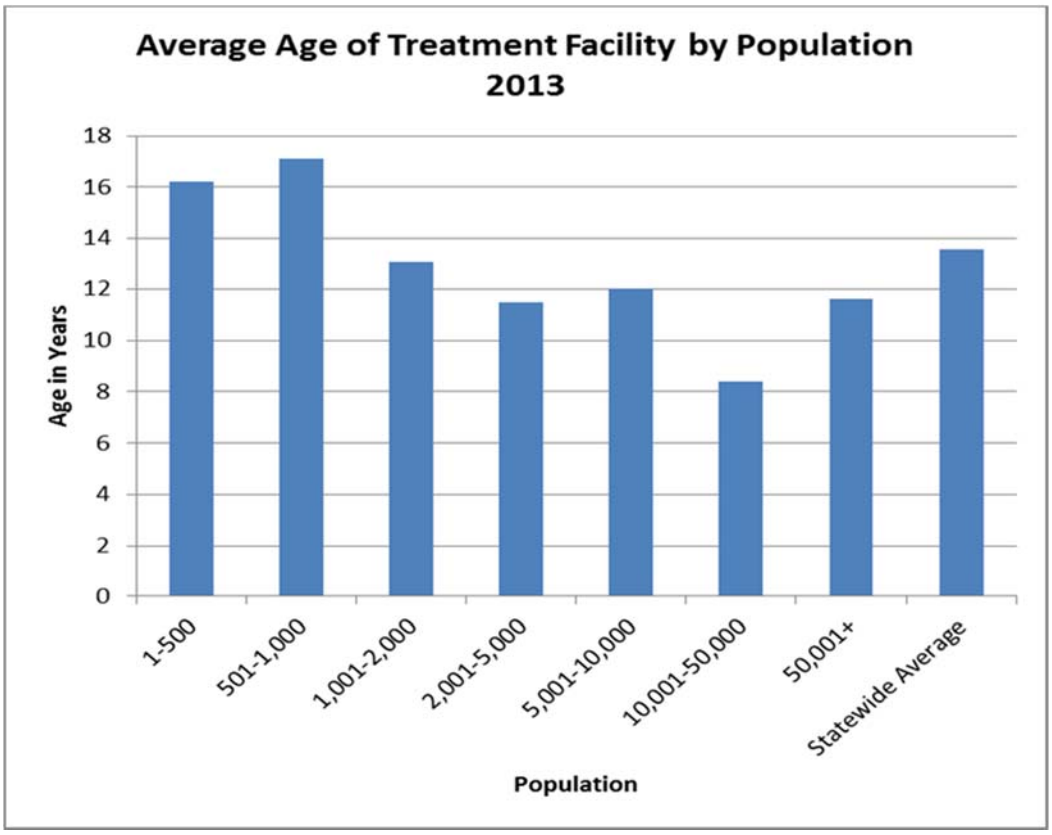
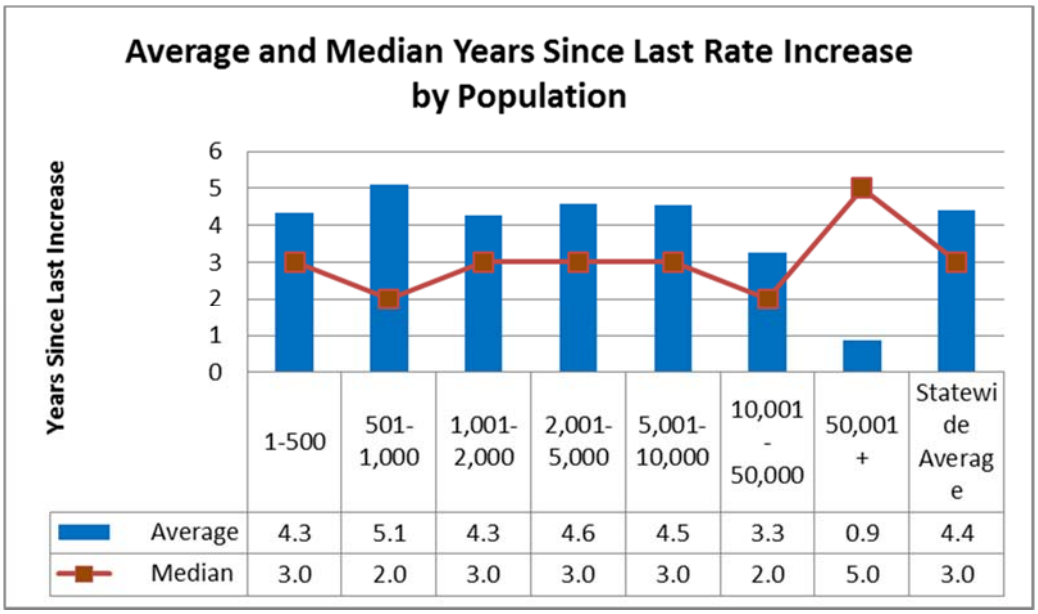


Figure 4-2



As Figure 4-2 indicates, smaller cities and towns (those with populations of less than 10,000) have the oldest average age of treatment facilities, with average life of plant in service in excess of 16 years, suggesting that many of these facilities may be entering a cycle of higher repair and replacement ("R&R") costs, absent any increased expenditures for phosphorus removal.

Figure 4-3



	1-500	501-1,000	1,001-2,000	2,001-5,000	5,001-10,000	10,001-50,000	50,001+	Statewide Average
Average	4.3	5.1	4.3	4.6	4.5	3.3	0.9	4.4
Median	3.0	2.0	3.0	3.0	3.0	2.0	5.0	3.0

Figure 4-3 provides information from DNR's User charge survey on the average number of years that have elapsed since the last sewer user fee rate increase. Not surprisingly, the State's smaller communities (those with populations of 10,000 or less) have gone four years or more without a rate increase, which given the average older age of their treatment facilities (see Figure 4-2) suggests that a rate increase – just to keep up with inflation and regular R&R costs -- may be needed, and could be sizeable.

4.3 METHODOLOGY

In contrast to the REMI model (which sought to analyze statewide economic impact), Section 4 of this study presents cost burden information by county for all affected municipal facilities. The format shown in Figure 4-4 is an example of the study's format for aggregating and presenting information for all municipal facilities located in a given county, including:

- Existing Operations and Maintenance expenses as reported in the DNR User Charge Survey report;
- Existing Annual Debt Service information, gathered from State of Wisconsin Environmental Impact Fund;
- Projected new capital facility expenditures related to phosphorus compliance costs;
- Projected annual debt service requirements in order to finance the project capital costs; and
- Projected new annual Operations and Maintenance expenses related to phosphorus compliance costs.

Data for each county is available in Appendix F.

In Figure 4-4, Example One illustrates the Cost per Customer. This data relies on fewer assumptions and produces 42 counties which have affordability indicators of greater than 2%.

Figure 4-4: Cost per Customer for Bayfield County

County	**Bayfield**	**Projected Capital Cost for Phosphorus Removal for County**	**$**	**3,344,044.23**
100	Existing Operations and Maintenance Cost		$	1,304,010.68
101	Existing Annual Debt Service		$	85,312.25
102	Subtotal (100+101)		$	1,389,322.93
	a) Inflation to the existing O & M Costs	$ 39,120.32		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 114,534.74		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	153,655.06
104	Estimated Additional Annual Debt Service, plus cash funding		$	633,277.91
105	Subtotal (103+104)		$	786,932.97
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,176,255.91
107	Customer Share of the Costs (%*106)	100.00%	$	2,176,255.91
108	Number of Customers			1550
109	**Cost Per Customer (107/108)**		**$**	**1,404.04**
201	Current MHI		$	37,811.83
202	Annual MHI Inflator			1.02662
203	Adjusted MHI (201*202)		$	38,818.30
204	Annual Cost per Customer (line 109 above)		$	1,404.04
205	**Affordability Indicator (204/203)**		**3.62%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-14.3%	
State Unemployment	4.7%	County Unemployment Rate	9.2%	
State Poverty Rate	13.0%	County Poverty Rate	13.5%	

State Indicators
Above State Avg.
Below State Avg.

Affordability Indicator
Above 2% of MHI
Between 1% and 1.99& of MHI
Below 1% of MHI

As an example, Bayfield County has:

- Total Customers :1550
- Projected Annual Cost per Customer: $1400
- Affordability Indicator : 3.62%

The FCA analysis has two components: (1) an existing base cost structure component (Line 102), and (2) an incremental project cost component resulting from the new phosphorus regulations (Line 105). In conducting a statewide assessment, there are certain inherent data limitations to the first component[30]; such that while the level of confidence in the incremental costs are high, the existing cost estimates will be more approximate and will involve several assumptions.

[30] These data limitations include incomplete information about the amount of debt outstanding and annual debt service costs for municipal wastewater utilities.

The calculation begins with an annualized total cost value for phosphorus compliance over the time period (20 years), using data on capital and O&M compliance costs developed by ARCADIS.[31] As noted previously, projected total capital costs for compliance for municipal utilities in Wisconsin are $1,567 million (without financing costs) plus annual O&M costs of $69.4 million. Capital costs were inflated from ARCADIS' base year of 2014 to the expected year of construction by the average annual rate of cost increase for the ENR data base, assuming stable construction in 2016 and 2017.

Similar to the REMI analysis, this portion of the study assumes that the majority (90%) of the capital costs will be financed using 20 year level debt structures with an interest rate of 5.5% for With the cost of financing included, total annual (capital plus O&M) compliance costs for phosphorus for Wisconsin's 425 municipalities is $350.7 million. This is the incremental cost for phosphorus treatment and compliance.

This incremental cost was added to the estimate of existing municipal utility expenses – the baseline. To develop the baseline for current operating, capital and debt service expenses, the DNR's municipal user survey data and current rates charged by the POTWs was used as a proxy for base total expenses.[32]

Adding incremental plus baseline costs gives us the cost burden for facilities in a given county of the new regulations. The method then took the cost and divided it by the number of customers provided by the DNR user charge survey or from Annual Reports filed by the utilities with the Public Service Commission of Wisconsin[33], producing the Affordability Indicators for each county.

The customer numbers shown are lower than the Census Bureau data available for households in a given county, because the study *only* includes communities within a county which are affected by the phosphorous regulations. Census Bureau ACS 2013 estimates for Median Household Income are used. The Current Median Household Income was multiplied by the county's annual average increase (2000-2010) in MHI to determine an inflated estimate of 2014 Median Household Income. This adjusted Median Household Income was divided by the Cost Per Customer to determine the percentage of the household income to arrive at the Affordability Indicator – an estimate of the financial burden placed on residential consumers of both existing costs, combined with the incremental expenses, to pay for implementation of the phosphorus standards.

Given the significant disparity of income levels across Wisconsin, there are concerns (beyond the scope of this study) that some of these lower income communities may also have less

[31] Capital Cost data for the Madison Metropolitan Sewer District (MMSD), p. 32 "Six Year Capital Projects Summary" (2015-2020) from "Proposed 2015 Operating Budget & Capital Improvements Plan" Madison Metropolitan Sewerage District, September 11, 2014.
[32] Other operating and budget data were gathered from available annual budget information published by larger sewer districts.
[33] Public Service Commission of Wisconsin, "Annual Report" information for 2013, accessed January 16, 2015. www.http:psc.wi.gov/apps40/annualreport

sophisticated technologies. The new phosphorus regulations may force a switch from a lagoon system to a more advanced treatment option, which is more expensive on a per household basis than for larger waste water treatment facilities. As a result, in evaluating a statewide approach to variances to the proposed standards, it will be critical to recognize the differential burdens across the State.

4.3.1 Assumptions

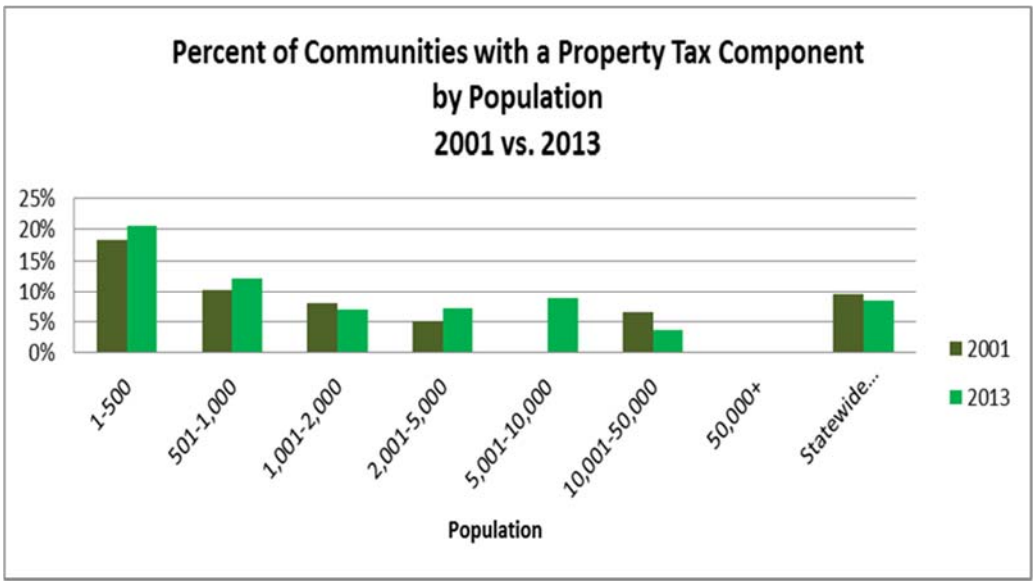
A critical assumption – and potential limitation in this analysis -- regards the amount of debt outstanding and annual debt service costs for Wisconsin's 500+ municipal utilities. Upon reviewing available bond documents, utility budgets and CAFR data, it is clear that many Wisconsin municipalities rely on property tax (or General Obligation "GO") debt -- not sewer user fees -- to fund wastewater capital improvements. For instance, as of August 2013, the City of Milwaukee had over $988 million in GO debt issued to fund sewer capital projects for the Milwaukee MSD, with projected debt service payments in 2015 of $124.3 million.[34] Other Metropolitan Sewer Districts similarly rely on GO debt or a mix of GO and revenue debt for capital funding, including Green Bay, Janesville, Lacrosse and many smaller communities. In addition, more than $869 million in outstanding municipal debt issued through the State's Environmental Improvement Fund ("EIF") program carries a local GO pledge.

As Figure 4-5[35] illustrates below, the percentage of communities that utilize property taxes to fund some portion of wastewater treatment costs by increasing property taxes has trended up since 2001. Figure 4-5 suggests that smaller communities (those with populations of under 10,000), but especially towns of less than 1,000 have a higher reliance on property taxes to pay for sewer treatment costs.

In sum, Wisconsin's communities rely heavily on debt to fund capital programs, and a complete summary of that debt was not currently available during the time frame of this study. **Readers should note that any estimate of current debt outstanding for municipal utilities will likely undercount debt as a share of current or baseline cost estimates.**

[34] p. 233, "2014 Operations & Maintenance and Capital Budgets for Milwaukee Metropolitan Sewer District".
[35] Graph

Figure 4-5



4.4 RESULTS

As noted in earlier sections of the report, because of the significant disparity in economic and demographic indicators of economic well-being amongst Wisconsin's 72 counties, it was important to evaluate the Cost per Customer and Affordability Indicator data at the county level. This is a clear case where the law of averages – i.e. aggregating data at the statewide level – results in a distorted picture with few if any of the individual components resembling the "average" results. For instance, 42 of the state's counties have an Affordability Indicator greater than 2% and only 3 counties have Affordability Indicators below approximately 1%.

This part of the study called for two data points, a Cost Per Customer calculation, and a calculation of the percentage of Median Household Income (MHI) projected to be consumed by sewer fees/costs to arrive at an Affordability Indicator or measure of financial burden on residential customers. The data is not complete to the extent that available data on Wisconsin communities' sewer user fees may not fully encompass outstanding GO debt issued to pay for existing capital improvements. With that broad caveat, the average projected Cost per Customer statewide for Wisconsin was $1,033, with a range of a low of $59 per annum (Vilas) to a high of $2,263 (Richland) per year. To put this in the context of affordability for Wisconsin's residents, the county level MHI average for the affected counties range from a low of $33,330 to a high of $75,850, compared to a statewide MHI average of $52,413.

With the associated capital and financing costs, 42 of Wisconsin's counties had an Affordability Indicator in excess of 2.0% or a 'high" burden -- with 20 counties in excess of 3.0% -- while another 25 counties measured a "mid-range" burden of between 1.0% and 2.0%, warranting further exploration of their secondary socioeconomic factors. Notably, this $348 million a year in capital costs is on top of other essential infrastructure improvements

needing repair or replacement; a substantial sum to be absorbed by Wisconsin's municipal utilities.

4.5 SENSITIVITY

This portion of the study sought to evaluate various factors that could influence the overall cost impacts to municipalities. First and foremost is the estimate of capital costs. As noted above, the compiled capital costs are consistent with the Association for the Advancement of Cost Engineering's (AACE) professional standards for cost estimates. In this study, project definition reached a "Class 4" estimate, which means engineering design was initiated and between 1% to 5% complete. The typical purpose for this level of estimate is for conceptual studies or feasibility evaluations. These estimates are primarily stochastic in nature – i.e., are based on inferred or statistical relationships between similar projects and/or quotes with additional factors applied. Class 4 estimates are generally prepared based on limited information and thus they have a wide accuracy range, typically -30% to +50%. Although representing a large range, these estimates can successfully be used for budget estimating purposes; however, for the purposes of the sensitivity analysis, a more conservative -10% to +25% cost variation, which is more consistent with variances prevalent in local construction markets for bids versus engineering estimates.

In terms of order of magnitude, a +25% construction cost increase had a marked impact on total capital and associated financing costs, increasing municipal capital expenditures from a base of $2.8 Billion to $4.3 Billion. This higher cost estimate ended up putting 47 counties above the 2.0% Affordability Indicator factor for 'high burden.' Similarly, a 10% decrease in capital costs resulted in an overall reduction in of $515 million in capital costs, bringing down the number of counties with a 'high' burden from 42 to 39.

A second factor taken into consideration was possible changes in interest rates. As demonstrated, financing costs add significantly to the cost of capital over time. Although the interest rate assumptions utilized were based on actual historic data from independent and reliable sources, the analysis tested to see what impact a +1% and -1% percentage point change in the interest rates for borrowing costs would have on total capital costs. Surprisingly, it has only a modest effect. A 1% overall change in borrowing rates (so effectively, a 20% increase) resulted in only a 7% or $220 million increase in total capital costs. This did not change the number (42) of counties meeting the 'high' burden test. Similarly, a 1% decline in borrowing rates saw a corresponding decline in total capital costs of 8% or ~$210 million but had not enough of an impact to change the number counties meeting the 2% Affordability test.

A third factor evaluated was the ability of communities to cash-fund their projects, since the cost of financing adds measurably to the baseline capital costs. Based on conversations with staff from the DOA/Office of Capital Finance, which believed most communities would have very limited resources from their annual operating budgets to pay for capital, the study started with a baseline assumption of 10% cash funding. If cash funding is increased to as high as 25%, total capital and debt costs decline to $2.62 Billion. If available cash-funding drops to 5%, capital costs would increase to $2.86 Billion.

Sensitivity Analysis							
Base Analysis, 5.50% EIF, 5.50% OMB, County MHI							
10% Cash Funded	$ 2,799,287,817.03	42	72				
	Total Capital & Debt	Counties above 2.0%	Total Counties	% of Counties	Change in Total Cost	% Change	Cost per Year
5% Cash Funded	$ 2,859,765,610.71	38	72	52.8%	$ 60,477,793.68	2.115%	$ 3,023,889.68
10% Cash Funded	$ 2,799,287,817.03	42	72	58.3%	$ -	0.000%	$ -
15% Cash Funded	$ 2,738,810,023.35	43	72	59.7%	$ (60,477,793.68)	-2.208%	$ (3,023,889.68)
20% Cash Funded	$ 2,678,332,229.68	46	72	63.9%	$ (120,955,587.35)	-4.516%	$ (6,047,779.37)
25% Cash Funded	$ 2,617,854,436.01	52	72	72.2%	$ (181,433,381.02)	-6.931%	$ (9,071,669.05)
	Total Capital & Debt	Counties above 2.0%	Total Counties	% of Counties	Change in Total Cost	% Change	Cost per Year
1% Increase in Borrowing Rate[1]	$ 3,021,565,863.37	42	72	58.3%	$ 222,278,046.34	7.356%	$ 11,113,902.32
1% Decrease in Borrowing Rate[1]	$ 2,585,611,842.64	42	72	58.3%	$ (213,675,974.39)	-8.264%	$ (10,683,798.72)
	Total Capital & Debt	Counties above 2.0%	Total Counties	% of Counties	Change in Total Cost	% Change	Cost per Year
+25% Construction Cost[1]	$ 4,315,085,828.19	47	72	65.3%	$ 1,515,798,011.16	35.128%	$ 75,789,900.56
-10% Construction Cost[1]	$ 2,284,447,068.27	39	72	54.2%	$ (514,840,748.76)	-22.537%	$ (25,742,037.44)

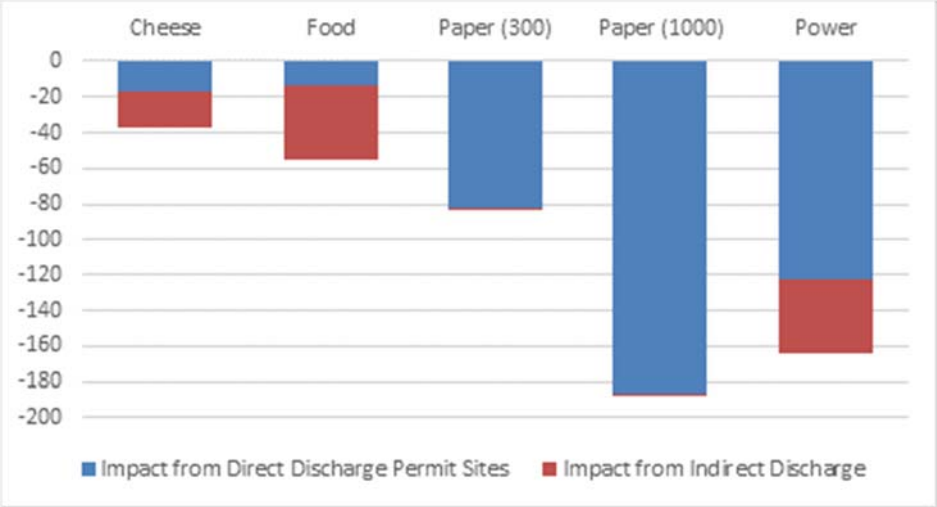
5. ADDITIONAL CONSIDERATIONS

Two important issues deserve further consideration by the readers of this study: (1) the impact to indirect dischargers, and (2) regional impacts of compliance with the new phosphorus regulation.

5.1 INDIRECT DISCHARGERS

Indirect dischargers are those businesses (of the categories included in this study) which do not have point source WPDES permits but which are likely to be impacted by the regulations. This is because they discharge either pre-treated or untreated wastewater directly to the municipality in which they are located, and the municipality, as a point source with a WPDES permit, is responsible for addressing phosphorus in the wastewater. Municipalities faced with increased capital costs are likely to pass those costs along to their customers (industrial, commercial and residential) in the form of rate increases and/or surcharges. Although the scope of this study directed DOA to look at **point source** permit holders which require facility upgrades, and the economic impact s to these indirect dischargers were not able to be considered directly when the REMI runs were conducted, the added impact to these businesses should be considered. The State received input from multiple stakeholders that the economic impact of increased utility costs to these industries may be substantial and should be considered by DOA.

Figure 5-1: Employment Impact by Industry for Direct and Indirect Discharge, 2025



Published values for untreated domestic wastewater for total phosphorus range from 4-15 mg/L. This would be for the flow that comes in to the plant which has residential, industrial, possibly storm water, and infiltration/inflow in it as well.

At the upstream end of the collection system, typical loading numbers for phosphorus for waste discharged by individuals can range from 0.006 – 0.010 lbs. P per capita per day. A typical loading without ground up kitchen waste is 0.007 lbs. P per capita per day (Table 3-12 Metcalf & Eddy 2003). At this loading rate the concentration would range from 8.4 mg/l at 100 gal/cap-d to 10.5 mg/l at 80 gal/cap-d. Thus a range of 8 to 11 mg/l from a residence is appropriate.

5.2 REGIONAL IMPACT

The focus of this economic impact study and the question posed by Act 378 was to understand whether attaining the phosphorus standards by point sources would cause "substantial and widespread" adverse social and economic impacts on a **statewide** basis; therefore as part of this report, a separate regional analysis was not conducted using the REMI model.

The county level analysis of POTWs in Section 4 of the study does not include forward-looking economic projections or modelling of the impact of these costs on local, county or regional economies over time. However, it does include an assessment of county and local historic economic and demographic data and the data does identify distinct differences in the relative well-being and economic status of Wisconsin's municipalities (see Table 4-1). Readers of this study should recognize that *the same capital costs* resulting from phosphorus regulations *will have disparate impacts in different areas of the State* based on the relative affluence of the affected community, the diversity or concentration of its economic base, and particularly the cumulative impacts when a number of factors are present in a certain area or county of the State. These cross-cutting impacts include:

- regional clustering of the affected industries and suppliers;
- magnitude of costs for capital investments made necessary by the new regulations;
- a change in technology made necessary by the required upgrades;
- communities already exhibiting levels of economic distress greater than state averages with respect to poverty, income, unemployment and population loss; and
- the impact on household income in a particular county or group of counties.

Regional analysis of statewide results

There are two ways that the overall impact can be assessed in terms of regions (counties, multi-county regions, river/watershed, etc.):

- Depending on the most relevant regional area for each industry grouping, the direct compliance costs can be allocated and aggregated to assess the costs to industry. This will largely correspond in proportion to total impacts and should provide the most accurate regional understanding of the regional distribution of effects.
- The REMI results (jobs, GSP, income, etc.) can be assessed in terms of the most impacted regions of the state. For example, if most of the paper permit sites are located in one to two regions, then most of the REMI economic impact will also be located in those regions.

Appendix H contains maps that show the distribution of the permittees across the state by category. The following map (Figure 5-2) illustrates the concentrations of capital costs in particular areas of the state, as well as the counties that have a projected Affordability Indicator of more than 2.0% of annual household income consumed by sewer fees. For communities in 36 counties, this would mean annual per customer sewer fees of more than $1,080 per year (or $90 per month on average). With three exceptions, the counties that fall within the three highest capital cost per job (capital costs in excess of $2,000 per job) categories also have projected Affordability Indicators of greater than 2.0%, further concentrating the impact of the phosphorus regulations. When compared with the data in Table 5-1, Census Data by County, additional layers of impact are revealed.

Figure 5.2: Capital Cost by County

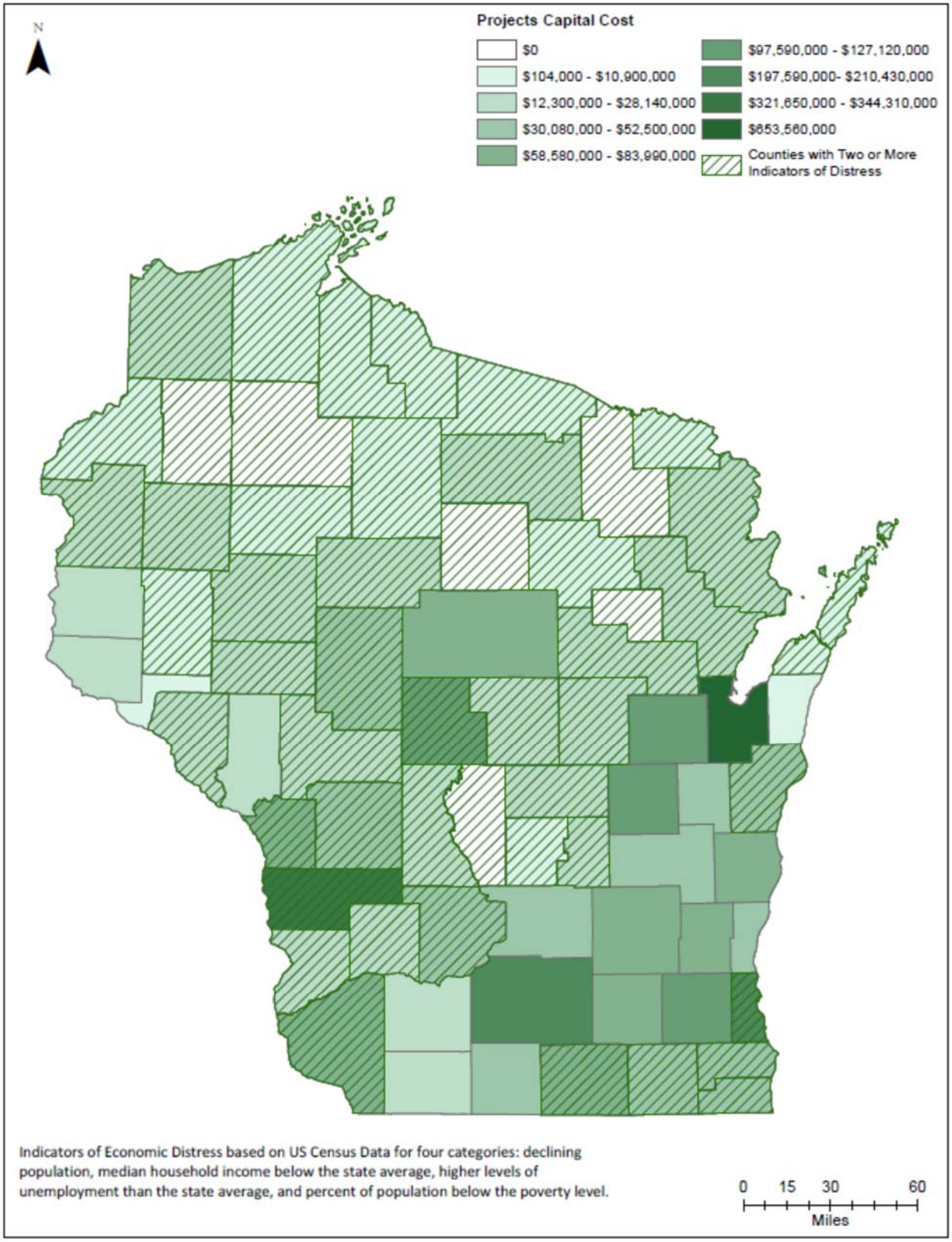


TABLE 5.1: CENSUS DATA BY COUNTY

County	2013 Est P	% Change from 200	MHI 2009-2013	Diference to State MH	% Differenc	2013 % Unemployed	***Unemployment vs. WI***	2013 Persons Below Poverty Level
Adams	20,480	9.85%	$ 44,897	$ (7,516)	-14.34%	7.3%	***2.6%***	10.6%
Ashland	16,016	-5.04%	$ 38,550	$ (13,863)	-26.45%	6.3%	1.6%	**18.8%**
Barron	45,676	1.59%	$ 44,054	$ (8,359)	-15.95%	5.1%	0.4%	12.8%
Bayfield	15,156	0.95%	$ 44,944	$ (7,469)	-14.25%	9.2%	***4.5%***	**13.5%**
Brown	254,586	12.26%	$ 53,119	$ 706	1.35%	4.2%	-0.5%	11.5%
Buffalo	13,357	-3.24%	$ 47,384	$ (5,029)	-9.59%	4.4%	-0.3%	12.0%
Burnett	15,333	-2.18%	$ 39,564	$ (12,849)	-24.51%	6.7%	2.0%	**17.1%**
Calumet	49,617	22.12%	$ 65,130	$ 12,717	24.26%	3.5%	-1.2%	6.4%
Chippewa	63,132	14.38%	$ 50,551	$ (1,862)	-3.55%	4.9%	0.2%	11.1%
Clark	34,615	3.15%	$ 43,276	$ (9,137)	-17.43%	4.4%	-0.3%	**14.9%**
Columbia	56,653	7.98%	$ 57,922	$ 5,509	10.51%	4.7%	0.0%	9.3%
Crawford	16,397	-4.91%	$ 42,235	$ (10,178)	-19.42%	5.6%	0.9%	12.6%
Dane	509,939	19.56%	$ 61,721	$ 9,308	17.76%	3.2%	-1.5%	12.9%
Dodge	88,344	2.85%	$ 53,075	$ 662	1.26%	5.1%	0.4%	9.0%
Door	27,896	-0.23%	$ 50,438	$ (1,975)	-3.77%	7.5%	***2.8%***	10.1%
Douglas	43,887	1.39%	$ 45,418	$ (6,995)	-13.35%	4.0%	-0.7%	**15.1%**
Dunn	44,122	10.70%	$ 48,893	$ (3,520)	-6.72%	3.9%	-0.8%	**15.7%**
Eau Claire	101,438	8.91%	$ 48,090	$ (4,323)	-8.25%	3.9%	-0.8%	**15.7%**
Florence	4,520	-11.16%	$ 47,960	$ (4,453)	-8.50%	7.3%	***2.6%***	**14.3%**
Fond du Lac	101,798	4.63%	$ 53,820	$ 1,407	2.68%	4.3%	-0.4%	9.8%
Forest	9,126	-8.96%	$ 39,963	$ (12,450)	-23.75%	7.0%	***2.3%***	**16.5%**
Grant	51,069	2.97%	$ 46,963	$ (5,450)	-10.40%	3.9%	-0.8%	**16.6%**
Green	37,090	10.23%	$ 55,584	$ 3,171	6.05%	3.8%	-0.9%	10.3%
Green Lake	18,959	-0.76%	$ 46,994	$ (5,419)	-10.34%	6.1%	1.4%	11.5%
Iowa	23,749	4.25%	$ 55,659	$ 3,246	6.19%	3.9%	-0.8%	9.8%
Iron	5,886	-14.21%	$ 39,051	$ (13,362)	-25.49%	9.4%	***4.7%***	**16.4%**
Jackson	20,644	8.08%	$ 44,149	$ (8,264)	-15.77%	5.5%	0.8%	**16.9%**
Jefferson	84,509	14.17%	$ 53,454	$ 1,041	1.99%	5.0%	0.3%	11.2%
Juneau	26,547	9.18%	$ 45,297	$ (7,116)	-13.58%	6.4%	1.7%	**13.6%**
Kenosha	167,757	12.15%	$ 54,930	$ 2,517	4.80%	5.5%	0.8%	**14.0%**
Kewaunee	20,505	1.58%	$ 53,588	$ 1,175	2.24%	4.1%	-0.6%	9.4%
La Crosse	116,713	8.96%	$ 51,339	$ (1,074)	-2.05%	3.6%	-1.1%	**14.0%**
Lafayette	16,766	3.90%	$ 49,107	$ (3,306)	-6.31%	3.6%	-1.1%	11.7%
Langlade	19,575	-5.62%	$ 42,389	$ (10,024)	-19.13%	6.4%	1.7%	**14.5%**
Lincoln	28,684	-3.23%	$ 49,021	$ (3,392)	-6.47%	5.6%	0.9%	11.1%
Manitowoc	80,654	-2.69%	$ 48,881	$ (3,532)	-6.74%	4.9%	0.2%	9.7%
Marathon	135,416	7.61%	$ 53,363	$ 950	1.81%	4.4%	-0.3%	10.9%
Marinette	41,610	-4.09%	$ 40,490	$ (11,923)	-22.75%	5.8%	1.1%	**13.2%**
Marquette	15,176	-4.14%	$ 46,077	$ (6,336)	-12.09%	6.6%	1.9%	**13.6%**
Menominee	4,317	-5.37%	$ 33,333	$ (19,080)	-36.40%	10.3%	***5.6%***	**31.4%**
Milwaukee	956,023	1.69%	$ 43,193	$ (9,220)	-17.59%	6.0%	1.3%	**21.6%**

TABLE 5.1: CENSUS DATA BY COUNTY

County	2013 Est P(	% Change from 200	MHI 2009-2013	Diference to State MH	% Differenc	2013 % Unemployed	***Unemployment vs. WI***	2013 Persons Below Poverty Level
Monroe	45,298	10.76%	$ 49,774	$ (2,639)	-5.04%	4.5%	-0.2%	**14.4%**
Oconto	37,318	1.87%	$ 51,615	$ (798)	-1.52%	5.4%	0.7%	10.2%
Oneida	35,689	-2.96%	$ 45,759	$ (6,654)	-12.70%	7.0%	***2.3%***	10.7%
Outagamie	180,345	12.04%	$ 58,318	$ 5,905	11.27%	4.3%	-0.4%	8.7%
Ozaukee	87,054	5.75%	$ 75,457	$ 23,044	43.97%	3.9%	-0.8%	5.2%
Pepin	7,360	2.04%	$ 47,701	$ (4,712)	-8.99%	4.0%	-0.7%	12.5%
Pierce	40,976	11.34%	$ 59,226	$ 6,813	13.00%	2.7%	-2.0%	12.4%
Polk	43,476	5.22%	$ 48,538	$ (3,875)	-7.39%	5.1%	0.4%	10.8%
Portage	70,380	4.76%	$ 50,996	$ (1,417)	-2.70%	4.4%	-0.3%	**13.7%**
Price	13,802	-12.77%	$ 42,644	$ (9,769)	-18.64%	4.4%	-0.3%	**15.9%**
Racine	195,041	3.29%	$ 54,090	$ 1,677	3.20%	6.0%	1.3%	**13.3%**
Richland	17,717	-1.15%	$ 45,271	$ (7,142)	-13.63%	4.0%	-0.7%	12.8%
Rock	160,739	5.54%	$ 49,435	$ (2,978)	-5.68%	5.5%	0.8%	**14.3%**
Rusk	14,395	-6.20%	$ 38,658	$ (13,755)	-26.24%	6.0%	1.3%	**18.7%**
Sauk	63,162	14.37%	$ 52,140	$ (273)	-0.52%	4.8%	0.1%	10.8%
Sawyer	16,513	1.96%	$ 39,904	$ (12,509)	-23.87%	8.0%	***3.3%***	**18.8%**
Shawano	41,643	2.41%	$ 46,559	$ (5,854)	-11.17%	5.2%	0.5%	11.5%
Sheboygan	114,922	2.02%	$ 52,920	$ 507	0.97%	4.0%	-0.7%	9.5%
St. Croix	85,930	36.06%	$ 68,426	$ 16,013	30.55%	2.8%	-1.9%	7.6%
Taylor	20,610	4.73%	$ 44,869	$ (7,544)	-14.39%	4.8%	0.1%	**13.9%**
Trempealeau	29,582	9.52%	$ 49,143	$ (3,270)	-6.24%	3.8%	-0.9%	11.9%
Vernon	30,329	8.10%	$ 45,488	$ (6,925)	-13.21%	4.3%	-0.4%	**14.5%**
Vilas	21,368	1.59%	$ 40,833	$ (11,580)	-22.09%	8.3%	***3.6%***	**13.3%**
Walworth	102,945	9.80%	$ 54,020	$ 1,607	3.07%	4.8%	0.1%	**13.4%**
Washburn	15,686	-2.18%	$ 41,924	$ (10,489)	-20.01%	5.8%	1.1%	**13.8%**
Washington	132,739	12.98%	$ 66,159	$ 13,746	26.23%	4.1%	-0.6%	6.3%
Waukesha	393,843	9.17%	$ 75,850	$ 23,437	44.72%	4.2%	-0.5%	5.4%
Waupaca	52,285	1.07%	$ 50,822	$ (1,591)	-3.04%	5.0%	0.3%	10.6%
Waushara	24,329	5.07%	$ 43,070	$ (9,343)	-17.83%	6.1%	1.4%	11.6%
Winnebago	169,541	8.15%	$ 51,010	$ (1,403)	-2.68%	4.3%	-0.4%	12.3%
Wood	73,959	-2.11%	$ 47,685	$ (4,728)	-9.02%	5.0%	0.3%	11.0%
State of Wisconsin	5,742,713	7.05%	$ 52,413.00			4.7%		13.0%

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GLOSSARY AND ACRONYMS

GLOSSARY

Activated sludge process: A biological wastewater treatment process in which a mixture of wastewater and biologically enriched sludge is mixed and aerated to facilitate aerobic decomposition by microbes.

Alum: Aluminum sulfate.

Enhanced biological phosphorus removal: The biological removal of phosphorus through the cultivation and wasting of bacteria that retain excess phosphorus.

Clarification: Any process or combination of processes whose primary purpose is to reduce the concentration of suspended matter in a liquid.

Clarifier: A quiescent tank in which suspended solids are removed from wastewater via gravity. It typically is equipped with a motor-driven chain-and-flight or rake mechanism to collect settled sludge and move it to a final removal point. Also called *sedimentation* or s*ettling basins.*

Compliance standards: The water-quality and bio solids-quality requirements specified in a treatment plant's NPDES permit that must be met before the effluent can be discharged and the bio solids beneficially used (or disposed).

Cost per Customer: One measure of the impact of increased water and sewer charges on a community.

Debt Service: Principal and interest payments on long-term debt.

Dewatering: A process (e.g., filter press or centrifuge) that removes a portion of the water contained in solids. Dewatering is distinguished from thickening in that the resulting dewatered cake may be handled as a solid, not a liquid.

Discharge: The release of effluent, by any means, to the environment.

Disposal (solids): The act of getting rid of solids via incineration, landfilling, surface disposal, etc.

Effluent Partially or completely treated water or wastewater flowing out of a basin or treatment plant.

Financial Capability Analysis (FCA): A site-specific calculation for an individual community, utilized as part of the assessment of a community's ability to afford capital improvements required to comply with a Combined Sewer Overflow (CSO) Consent Decree with the US Environmental Protection Agency.

Influent: Water or wastewater flowing into a basin or treatment plant.

Lagoon: An excavated basin or natural depression that contains water, wastewater, or solids.

Maximum daily peaking factor: Ratio of the maximum daily flow or constituent mass to the annual average value.

Median Household Income (MHI): One measure of a county's or state's relative wealth and economic well-being. It is a data set collected and provided by the US Census Bureau and updated on a regular basis.

Municipal wastewater treatment plant: Collectively, the buildings, processes, and equipment needed to treat municipal wastewater.

Nutrient: (1) Any substance that is assimilated by organisms to promote or facilitate their growth. (2) Nitrogen and phosphorus, when considering their potential to result in excess biological growth in the environment.

Phosphorus: A nutrient that is an essential element of all life forms.

Precipitation: (1) Any chemical reaction in which a dissolved substance becomes a solid. (2) Any form of water (e.g., rain, snow, sleet, or hail) that falls to the earth's surface.

Publicly owned treatment works (POTW): Wastewater treatment works [both treatment plant(s) and collection system] owned by a state or municipality.

Recalcitrant phosphorus: The portion of dissolved acid-hydrolysable and/or dissolved organic phosphorus fractions that cannot be effectively removed by tertiary processes and are considered non-reactive."

Residential Indicator (RI): A measure of the financial impact of sewer costs on a residential household, expressed as a percentage of Median Household Income. US EPA suggests that a Residential Indicator above 2% is a high burden level on area households.

Sand filtration: A tank or vessel filled with sand or other granular media to remove suspended solids and colloids from water or wastewater as it flows through the media.

Stakeholder: A person or group that is directly or indirectly affected by a project or operation. Stakeholders include local communities or individuals and their formal and informal representatives, national or local governmental authorities, politicians, religious leaders, civil society organizations and other groups with special interests, the academic community, industries, and businesses.

Surcharge: (1) The height of wastewater in a sewer manhole above the crown of the sewer when the sewer is flowing completely full. (2) Loads on a system that are greater than typically anticipated. (3) An extra monetary charge imposed when set quantity or quality limits are exceeded, especially on flows discharged to a wastewater collection system.

Total Phosphorous: A measure of the orthophosphate, polyphosphate and organic phosphate concentration in a sampled stream. Orthophosphate can be directly determined by colorimetric analysis. Polyphosphates and organic phosphates require a digestion step to convert the combined phosphate to the orthophosphate form to determine the total phosphorus content.

Treatment (i.e. Pretreatment): (1) The initial water or wastewater treatment process that precedes primary treatment processes. (2) The treatment of industrial wastes to reduce or alter the characteristics of pollutants before the wastes are discharged to a wastewater treatment plant.

Receiving water: A surface waterbody that receives effluent from a wastewater treatment plant.

Water Quality Standards (WQS): Regulatory limits for pollutant discharges that are established based on the receiving waterbody's designated uses, the criteria set to protect such uses, and other provisions established to avoid backsliding. These standards typically are addressed in a wastewater treatment plant's NPDES permit.

ACRONYMS USED IN THE REPORT

AACE	Advancement of Cost Engineering
ACS	American Community Survey (by US Census Bureau)
BPR	Biological Phosphorous Removal
CFR	Code of Federal Regulations
COW	Condensate of Whey
DNR	Department of Natural Resources
DOA	Department of Administration
FCA	Financial Capability Assessment
GPD/ft²	Gallons per Day per Square Foot
GPM/ft²	Gallons per Minute per Square Foot
GSP	Gross State Product
hr.	Hour
HVAC	Heating, Ventilation and Air Conditioning
I&C	Instrumentation and Controls
kWh	Kilowatt Hour
lb.	Pound
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
MHI	Median Household Income
MSD	Metropolitan Sewer District
MOPO	Maintenance of Plant Operations
NCASI	National Council for Air and Stream Improvement
NCCW	Non-Contact Cooling Water
O&M	Operation and Maintenance
O&P	Overhead and Profit
P	Phosphorous
POTW	Publicly Owned Treatment Works

ppd	Pounds Per Day
REMI	Regional Economic Model, Inc.
RI	Residential Indicator
s. NR 102.06, Wis. Adm.	Chapter NR 102 of the Wisconsin Administrative Code
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
US EPA	United States Environmental Protection Agency
WPDES	Wisconsin Pollutant Discharge Elimination System
WWTP	Wastewater Treatment Plant

APPENDICES

APPENDIX A

LITERATURE REVIEW COMPARISON TABLE
STATE STUDIES

WASHINGTON

	Details	Comments
Reference	"Technical and Economic Evaluation of Nitrogen and Phosphorus Removal and Municipal Wastewater Treatment Facilities". For Dept. of Ecology –State of Washington. Tetra Tech. June 2011.	
Facilities Considered	Municipal WWTPs	
Target P Limits	• <1.0 mg/L • <0.1 mg/L	
Proposed Treatment Processes to Meet TP Limits	• TP Limit : <1.0 mg/L o Chemical addition (Alum for P removal; magnesium hydroxide for pH control) • TP Limit: <0.1 mg/L o Chemical addition (Alum for P removal; magnesium hydroxide for pH control) -> alum addition at PC influent and after secondary clarifiers o Tertiary filters (used for all treatment facilities except MBRs)	Existing Treatment Facilities Evaluated: • Extended aeration • Conventional activated sludge • Sequencing Batch Reactor • Tricking filter, trickling filter/solids contact or RBC • Membrane bioreactor • High purity oxygen • Aerated Lagoon or Facultative lagoon
Methodology	• All existing WWTPs in state grouped by type of treatment facility and system capacity (total of 304 WWTPs). • Raw water characterized using design criteria from textbooks for influent flows and loads. These raw water characteristics were used in modelling of all 7 existing treatment types. • Biowin used to model each of the 7 existing treatment types to evaluate performance and upgrades to achieve target TP levels. Biowin model used to determine required size of upgrade process elements to achieve treatment objectives • Capdet Works v. 2.5 used to develop capital and O&M costs of existing facilities and upgraded facilities. MBR facility capital and O&M costs (not in Capdet Works) based on manufacturer quotes for 1, 10, 135 MGD. • Capital and O&M costs developed for 3 capacities for each existing treatment process type. 3 capacities covered the range of actual capacities in state for each treatment type. • Cost curve developed using estimated costs for the 3 capacities for each treatment type • Cost of additional P removal = Cost of facilities after implementing improvements – cost of existing facilities • Costs for each facility in state estimated using the cost curves, and plant	Model used to size components for each of the following existing treatment facilities: • Extended aeration • Conventional activated sludge • Sequencing Batch Reactor • Tricking filter, trickling filter/solids contact or RBC • Membrane bioreactor • High purity oxygen • Aerated Lagoon or Facultative lagoon

	Details	Comments
	capacity and type.	
Costs curves	• Cost curves presented for capital cost for additional P removal for each of the 7 treatment types for both target TP levels. Curve equation presented. • Cost curves presented for annual O&M for additional P removal for each of the 7 treatment types for both target level. Curve equation presented	• Several cost curves available; however, can only use if we group by the same type of treatment processes. • Small to moderate cost differences between different treatment types.
Assumptions	• Capital costs assumed all technology improvements necessary to achieve selected nutrient removal objective • Cost estimates assume MM flow and load conditions, include internal recycle from solid processing systems • Cost curves and equations developed using "power"curve fitting function from Excel • Class 5 estimate • Cost included additional 12%for I&C; 7% for site, structural, electrical; 10% for demolition if required • 20-year planning period for financial assessments	
Other considerations	• Costs considered the following: recycle loads, sludge production/disposal, energy consumption, chemical storage/feed and usage, footprint requirements, labor • Present costs for: o Cumulative statewide costs o Potential sewer rate impacts o Watershed wide costs for P removal	

UTAH

	Details	Comments
Reference	"Statewide Nutrient Removal Cost Impact Study". For Utah Division of Water Quality. CH2MHIll. October 2010	
Facilities Considered	Municipal WWTPs	
Target P Limits	• 1.0 mg/L • 0.1 mg/L	
Proposed Treatment Processes to Meet TP Limits	• TP Limit : 1.0 mg/L o MBRs and Oxidation Ditches → ▪ Chemical addition (Alum) as backup system o Trickling filters and hybrid systems → ▪ Chemical addition (alum) w/ dual feed points (primary and secondary clarifiers) o Activated sludge, some hybrid systems and Oxidation ditches → ▪ Add anaerobic zones for EBPR o Lagoons → ▪ Chemical addition (alum) ▪ Reactor type clarifiers • TP Limit: 0.1 mg/L o Oxidation ditch, Activated sludge, trickling filter, hybrid, MBR → ▪ Chemical addition (alum) w/ three feed points (primary and secondary clarifiers, before filters) ▪ Deep bed granular media filters o Lagoons → ▪ Chemical addition (alum) w/ two feed points (clarifier and filters) ▪ Reactor clarifiers ▪ Deep bed granular media filters	• Treatment processes modeled: o Trickling filters o TF hybrids o Oxidation ditches o Activated sludge o Membrane bioreactors
Methodology	• Looked at each of the state's 30 WWTPs and 22 lagoons • Process, service area information, 2029 projected flows/loads, O&M information, and financial data for each POTW were used to define actual existing treatment processes and performance, to establish upgrades to meet TP limits. • Used actual raw water data to characterize influent conditions for each of the WWTPs. If data was unavailable, used textbook design values for raw wastewater conditions. • Modeled each system type under three different conditions: o current process and operational data, o 2029 process and operational data o Plant design max month data • Each WWTP modeled using Pro2D tool to characterize and predict	•

	Details	Comments
	treatment plant performance. Used to determine required process and calculate sizing for treatment plant upgrades. • CPES spreadsheet tool used to calculate capital and O&M costs. • Lagoons modeled based on a model lagoon designed to treat 0.55 mgd (average of all discharging lagoons in Utah). Large lagoon in Logan, Utah modeled separately. Costs for each specific lagoon were estimated by proportioning model lagoon costs using ratio of facility-to-model facility design capacity	
Cost Curves	• No cost curves developed. • Capital and O&M costs were estimated for each individual facility and lagoons.	• May not be able to use for Wisconsin assessment because plant specific costs were developed, while Wisconsin will have several hundred WWTPs requiring a more "generic" cost estimate approach
Assumptions	• Capital costs used the following guidelines: o Major process equipment based on vendor quotes o Major equipment construction and installation costs based on recent actual project costs and builder/supplier quotes o Site work, roads, support facilities, piping, electrical, I&C based on recent experience and published cost estimating guidelines o Contractor O&P – 20% construction cost o Engineering and construction management – 20% construction cost o Legal and administration – 10% construction cost o 30% contingency • O&M Estimates o Unit costs based on data provided by each WWTP or based on average unit costs for Utah • O&M estimates included: o Energy (electrical costs) o Chemical costs o Biosolids disposal and management, including hauling, tipping use and disposal	
Other considerations	• Report presents the following: o Financial analysis on a local and aggregate basis→ ▪ 20-yr life cycle costs ▪ User charge impacts ▪ Community financial impacts o Environmental Impacts Assessment ▪ Reduction in nutrient loads from WWTPs to receiving bodies ▪ Changes in chemical usage	

	Details	Comments
	▪ Changes in biosolids production ▪ Changes in energy consumption ▪ Changes in air emissions from biosolids hauling and energy consumption.	

MONTANA

	Details	Comments
Reference	"Demonstration of Substantial and Widespread Economic Impacts to Montana That Would Result if Base Numeric Nutrient Standards had to be Met By Entities in the Private Sector In 2011/2012." Montana DEQ. December 2012	
Facilities Considered	Industrial Facilities	• Type of industrial facilities (51 total): o Metal mining o Coal mining o Electric generation o Oil and gas production o Refineries o Manufacturing (talk, silicon, cement and chemicals) o Other businesses (hot springs, train yards, health care, sugar processing, livestock, boys and girls ranch)
Target P Limits	• TP: <0.01 mg/L; <1.0 mg/L TN	• Costs developed to achieve both TP and TN limits. Specific costs for TP removal not available.
Proposed Treatment Processes to Meet TP Limits (and TN limit)	• Used Level 5 Treatment (from 2011 WERF Study) to achieve target TP and TN levels: o Primary clarifier o Activated sludge o Methanol o Alum/Polymer o Enhanced settling o Filtration o Microfiltration o Reverse Osmosis o Disinfection o Dechlorination	• Level 5: o Nitrification/denitrification, EBPR, high rate clarification, denitrification filtration, and MF/RO • Established current treatment level of existing facilities. All facilities fell in one of the following treatment levels: o Level 1: Activated sludge for BOD/TSS removal o Level 3: Nitrification/Denitrification, EBPR, Filtration o Level 4: Nitrification/Denitrification, EBPR, high rate clarification, and denitrification filtration
Methodology	• Used 2011 WERF study "Finding the Balance Between Wastewater Treatment Nutrient Removal and Sustainability, Considering Capital and Operating Costs, Energy, Air and water Quality and More" (Falk, et al. 2011) to estimate costs • Defined the current level of treatment provided at each industrial facility. Facilities with insufficient information to establish level of treatment were assumed to provide Level 3 treatment defined in WERF study. • Assumed all facilities would need to achieve level 5 treatment • Used capital cost factors ($/gpd) presented in WERF report times the	•

	Details	Comments
	facility flow to estimate cost for each level of treatment. • Used operations cost factors ($/MGD treated) presented in WERF report times the annual volume treated to estimate operating cost for each level of treatment • Cost for additional treatment = Cost for level 5 treatment facility – cost for treatment level already achieved by facility. • Additional operating cost = Operating cost for level 5 treatment facility – cost for treatment level already achieved by facility.	
Cost Curves	• No cost curves developed. • Cost factors provided for each level of treatment (i.e. $/gal for capital and $/MGD treated for operations). Costs can be estimated for any facility if flow is known.	• Level of treatment provided is significantly more stringent than those proposed for Wisconsin and may not be applicable. In addition, costs are estimated for improvements that achieve both TP and TN limits. No cost information is available for only TP removal.
Assumptions	• Only businesses with NPDES permits which may have issues with TP and TN limits wrere considered. • Treatment technology for all facilities would need to be advanced mechanical treatment plus RO • Every business must use RO on 100% of their effluent to meet target levels • The analysis looked at "plant level" data, i.e. the effects of the base criteria on the local business and not larger parent company • Costs of meeting nutrient levels will not be shifted to consumers, rather the businesses will incur the cost themselves • Used available plant data for current costs, financial information and flow. If unavailable, used US Census of Manufacturing and other sources to estimate range information for the particular industry group • Labor costs included in costs and assume to be 15 to 48% of capital costs. Labor not included in WERF study.	
Other considerations	• Report presents the following: o Estimates financial impacts to businesses o Significant impact analysis o Widespread analysis	

WISCONSIN (1)

	Details	Comments
Reference	"Cost of Phosphorus Removal at Wisconsin Publically Owned Treatment Works". For Wisconsin DNR. Mark Williams. December 2012	
Facilities Considered	Municipal WWTPs	
Target P Limits	• Based on watershed impact: o Category 1: 1.0 mg/L (no impact) o Category 2: 0.1 mg/L (for 50% of facilities) and 0.5 mg/L (for 50% of facilities o Category 3: 0.05 mg/L	• Evaluated WWTP facilities were grouped by projected effluent TP limit based on discharge location Category.
Proposed Treatment Processes to Meet TP Limits	• TP Limit = <1.0 mg/L o Activated sludge process • TP Limit = 0.5 mg/L o BPR o Multipoint chemical addition (alum) o Enhanced biosolids handling • TP limit = 0.1 mg/L o BPR o Rapid mix and flocculation o Multipoint chemical addition (alum) o Sand filtration o Enhanced biosolids handling • TP Limit = 0.05 mg/L o BPR o Rapid mix and flocculation o Multipoint chemical addition (alum) o Advanced filtration o Enhanced biosolids handling	• Several WWTPs evaluated already meet their anticipated TP limits so no upgrades are necessary.
Methodology	• Evaluated 217 of the 530 WWTPs in state. • Treatment performance evaluated using available influent/effluent data for last 5 years, system design information/description and 2022 flow projections. If not available assumed TP = 8.0 mg/L and NH3 = 28 mg/L • Capdet Works v. 2.5 used to develop capital and O&M costs of existing facilities and upgraded facilities. Capital and O&M costs developed for each of the 217 facilities. Waukesha facility used upgrade costs from 2011 Facilities Plan. • Cost of additional P removal = Cost of facilities after implementing improvements – cost of existing facilities • Cost estimate also included cost to address issues with hydraulic capacity, and/or BOD, TSS and NH4 removal to meet permit limits.	•

	Details	Comments
	• Design conditions for an upgrade assumed for the year 2022 based on population projections • Statewide TP removal costs extrapolated by multiplying the average cost of P removal for each effluent grouping by total number of discharges that fall in that effluent category	

Cost Curves	• Capital cost curves developed based on estimated costs for each facility.
	• Cost curves developed for the following for each effluent group:
	  o Capital cost vs. design influent flow
	  o Capital cost vs. design population
	  o Per capita cost vs. design population
	  o Capital cost ($/lb P removed) vs. design population
	  o Capital cost vs. Influent P loading
	• Curve equation provided for each cost curve (note: low correlation factor for several cost curves)
		• Although methodology discusses O&M costs, cost curves nor costs are presented for O&M.
		• Cost curves can be used to calculate capital costs for each TP effluent group when influent flow, population or influent P loading are known.
		• We can use these curves to estimate costs for each of the remaining WWTPs since we only need to know effluent TP category and design influent flow for each facility.

Assumptions	• Upgrades assumed to be added as retrofits to existing treatment trains. Practicality of implementing upgrades at individual WWTPs not evaluated.
	• Two facilities (Forest Junction Sanitary District + Town of Plymouth) did include complete replacement of WWTP system
	• Cost to address issues with hydraulic capacity, TSS and BOD removal were also included in the cost estimates
	• Did not consider seasonal permit limits → assumed using the most stringent effluent limits
	• Default clarifier parameters from Capdet Works changed to match Wisconsin Administrative Code requirements.
	• Lower P limits (<0.1 mg/L) required advanced filtration. However Capdet Works only has sand filters. Advanced filtration modeled by limiting hydraulic loading rate on filters
	• Solids disposal costs based on landfilling – assumed cost similar to land application
	• Sludge handling facilities assumed based on current configuration:
	  o Small systems → would expand aerobic digestion w/storage
	  o Larger systems →would expand anaerobic digestion with dewatering
	  o Very small systems → purchase sludge hauling equipment
	  o Sludge storage = 180 days
	  o Septage receiving → 1% of design average flow and 24 hour handling capacity	

Other considerations	• Estimated total statewide cost = $1.35B • O&M costs not provided. Methodology describes O&M costs but not presented in report.	

WISCONSIN (2)

	Details	Comments
Reference	"Opinions of Probable Cost for Achieving Lower Effluent Phosphorus Concentrations at Wastewater Treatment Plants in Wisconsin". For Municipal Environmental Group. Strand Associates. August 2008	
Facilities Considered	Municipal WWTPs	
Target P Limits	• 0.5 mg/L • 0.25 mg/L • 0.05 mg/L	•
Proposed Treatment Processes to Meet TP Limits	• TP Limit = 0.5 mg/L o Mechanical WWTPs ▪ Multipoint injection of chemical (alum) ▪ Expanded biosolids handling facilities o Lagoons ▪ Replace with new WWTP → • Oxidation ditch with EBPR • Multipoint chemical phosphorus removal • Biosolids management • TP Limit = 0.25 mg/L o Mechanical WWTPs ▪ Rapid mix and flocculation ▪ Advanced tertiary treatment technologies (cloth disk filtration or ballasted settling) o Lagoons ▪ Replace with new WWTP → • Oxidation ditch with EBPR • Multipoint chemical phosphorus removal • Biosolids management • Rapid mix and Flocculation • Advanced tertiary treatment technologies (cloth disk filtration or ballasted settling) • TP limit = 0.05 mg/L o Mechanical WWTPs ▪ Rapid mix and flocculation ▪ Membrane filtration o Lagoons ▪ Replace with new MBR plant	• Assumes mechanical WWTPs to be upgraded is an activated sludge or fixed film secondary treatment that already has EBPR and/or chemical phosphorus removal facilities and none have filtration.
Methodology	• Surveyed 39 facilities in state to determine current level of P removal already achieved. Facilities were grouped by type. Survey found average effluent TP =0.6 mg/L for all facilities regardless of system size, and type of treatment (BPR, BPRc, CPR)	•

	Details	Comments
	• Incremental capital costs were developed for generic WWTP facilities to reduce P from current levels (0.6 mg/L) down to target levels as a function of flows. Costs for WWTPs estimated for capacities of 0.1 MGD and 1.0 MGD MGD. Lagoon plant costs were calculated for flows of 0.1 MGD and 1.0 MGD. • Costs for 20 mgd facilities based on recent studies from Milwaukee, Madison, Green Bay and Racine • Capital cost curve developed using estimated costs for the 3 capacities for each treatment type • 20-yr PW cost curve developed using estimated costs for the 3 capacities for each treatment type • Generic costs were extrapolated to each WWTP based on design flow. Logarithmic curve fit equation used to extrapolate costs up to 20 MGD. POTWs greater than 20 MGD capacity used costs from Milwaukee, Madison, Green Bay, Racine . •	
Cost Curves	• Capital cost curves o Capital Cost vs. Target Effluent TP @ 0.1, 1.0, 20 MGD for WWTPs o Capital cost vs. target effluent TP @ 1.0 and 1.0 MGD for conversion of lagoons to WWTPs • 20-Year PW Cost curves → include both capital and O&M costs o PW Cost vs. Target Effluent TP @ 0.1, 1.0, 20 MGD for WWTPs o PW cost vs. target effluent TP @ 1.0 and 1.0 MGD for conversion of lagoons to WWTPs	•
Assumptions	• Costs developed as function of design flows. Tertiary facilities based on peak hour flows o 0.1 MGD DAF → PF = 4.0 o 1.0 MGD DAF → PF = 3.5 o 20 MGD DAF → PF = 3.0 • Costs of key equipment based on manufacturer quotes. Other equipment, structures, ancillary facilities, piping ,etc. based on costs from previous projects • O&M costs based on manufacturer numbers for key upgrades. Other ancillary equipment based on previous projects. Labor costs included in O&M numbers • Costs include: additional chemical use, sludge generation, sludge storage capacity and sludge disposal costs • Solids handling: o For 0.1 MGD facilities → assumed reed beds for sludge storage and landfill disposal o For larger facilities → liquid sludge storage with semi annual land application.	

	Details	Comments
	• Costs do not consider increased costs for additional BPR tanks, aeration tanks or digestion tanks, land acquisition • No additional sludge processing provided besides liquid storage and land application	
Other considerations	• Estimated total statewide cost = $2.9B - $4.9B • Estimated 20-yr PW statewide cost = $4.0B – $7.0B	

WISCONSIN (3)

	Details	Comments
Reference	"Phosphorus Reduction in Wisconsin Water Bodies – An Economic Impact Analysis". Wisconsin DNR. August 2012.	
Facilities Considered	Municipal WWTPs and Industrial point sources	
Target P Limits	• 0.1 mg/L	•
Proposed Treatment Processes to Meet TP Limits	• TP Limit = 0.1 mg/L o Multipoint injection of chemical (alum) o Sand Filtration	• Considered four types of dischargers: o Municipal WWTPs o Cheese makers o Paper mills o Food processors
Methodology	• Included dischargers that are likely to have to reduce P load depending on watershed; this includes all dischargers with a total P load greater than 1,200 lb/yr • Dischargers that are likely to participate in Watershed Adaptive Management (WAM) were not included in the capital costs. These facilities can reduce P loads per regulations using WAM instead of additional treatment equipment. • Used cost curves presented in "Municipal Nutrient Removal Technologies – Volume 1" Technical Report. EPA office of Management. 2008. • Flows not in the cost curves were linearly interpolated or extrapolated. • Capital and O&M costs were calculated using available three year average flow rate for each discharger • Capital costs estimated by multiplying $/MGD from cost curve with average flow capacity from each point source • O&M costs estimated by multiplying $/MG from cost curve with average flow x 365days • WAM plan costs estimated for each facility assumed to use this method by using Madison Metropolitan Sewerage District cost of $29/lb of P removed (20-yr PW). • Quantified cost benefits with reduced P loadings to water bodies. Monetized benefits calculated include: o Increased property values o Improved recreational opportunities o Avoided lake cleanup/management costs	•
Cost Curves	• Capital cost curves provided from EPA 2008 report o Capital Cost vs. Flow o O&M Cost vs. Flow	• Cost curves in EPA 2008 report developed based on 1, 5 and 10 MGD flows. •
Assumptions	• Assumed WWTP and Industrial facilities would use the same additional treatment to meet TP limit → chemical addition and sand filtration. No distinction made between WWTPs and industrial dischargers and their current treatment methods. • Variances assumed for facilities where either the receiving stream could	

	Details	Comments
	assimilate higher P levels or cost prohibitive for point sources • Assumed emitter that discharges a total P load greater than 1,200 lb/yr will need to upgrade for additional P removal • Assumed some facilities will use WAM instead of implementing equipment upgrades to reduce P loads	
Other considerations	• Estimated total statewide capital cost = $345M - $657M • Estimated PW O&M cost = $736M - $1.38B • Total Estimated PW Cost = $1.08B – $2.03B	

APPENDIX B

LITERATURE REVIEW COMPARISON TABLE
INDUSTRY STUDIES

State of Wisconsin
Environmental Economic Impact Analysis of Phosphorus Removal for Municipal and Industrial Facilities
REVIEW AND COMPARISON OF AVAILABLE PREVIOUS EVALUATIONS FOR PHOSPHORUS REMOVAL
INDUSTRIAL REPORTS

PULP AND PAPER MILLS

	Details	Comments
Reference	"Cost Considerations for Modification of Existing Pulp and Paper Wastewater Facilities to Achieve Very Low Effluent Nutrient Content". Technical Bulletin No. 1009. Prepared by National Council for Air and Stream Improvement and URS Corporation. March 2013.	
Facilities Considered	Industrial WWTPs	Facilities typically designed to removed BOD and TSS; supplemental nutrients added for biological treatment
Target P Limits	TP < 0.1 mg/L TN < 1 mg/L	
Proposed Treatment Processes to Meet TP Limits	Activated Sludge • BNR: expansion to high DO extended aeration followed by denitrifying filtration • Chemical addition with flocculation, clarifier, and dual media filtration (traveling bridge) for P removal • Additional sludge handling and disposal Aerated Stabilization Basin • BNR: extended aeration time with addition of pure oxygen followed by denitrifying filtration and secondary clarifier • Chemical addition with flocculation, tertiary clarifier, and dual media filtration (traveling bridge) for P removal • Additional sludge handling and disposal Activated Sludge → MBR • BNR: high DO MBR followed by denitrifying filtration • Chemical addition with flocculation and tertiary clarification • Additional sludge handling and disposal	20 MGD base flow was used for process design and cost estimate for upgrades "Limits of technology" for biological WWTPs at mills • Activated Sludge (0.1 – 0.3 mg/L TP, 1.5 – 3 mg/L TN) • Aerated Stabilization Basin (0.4 – 0.7 mg/L TP, 2.5 – 5 mg/L TN) Secondary effluent data used as starting point due to limited availability of secondary influent data at mills

Methodology	Cost estimates developed for capital and O&M for each upgrade for a 20 MGD facility. For treating a range of flow 5 – 40 MGD, equations were used. O&M costs were estimated by adjusting the costs for 20 MGD proportionally to flow except for labor. Labor was adjusted 0.75 times the change in flow. Except for the upgrade to MBR. Very high chemical dosages required to remove phosphorus due to high fraction of recalcitrant P. Chemical dosage range – 300 to 1,800 mg/L. No site specific details were included. Appendix includes detailed breakdown of costs	Planning level cost estimates for installation and operation of nutrient removal technologies. Assumed that supplementation of N and P reduced by 20% due to the upgrade. Cost estimates include modifications for N and P removal. Cost estimates would have to be adjusted for P removal only before cost curves could be calculated. For MBR, assumed flux of 20 gpd/ft^2 and 2 year membrane life.
Cost Curves	No cost curves were presented	
Other Considerations	Assumed sufficient land on mill property to accommodate modified and new treatment units.	

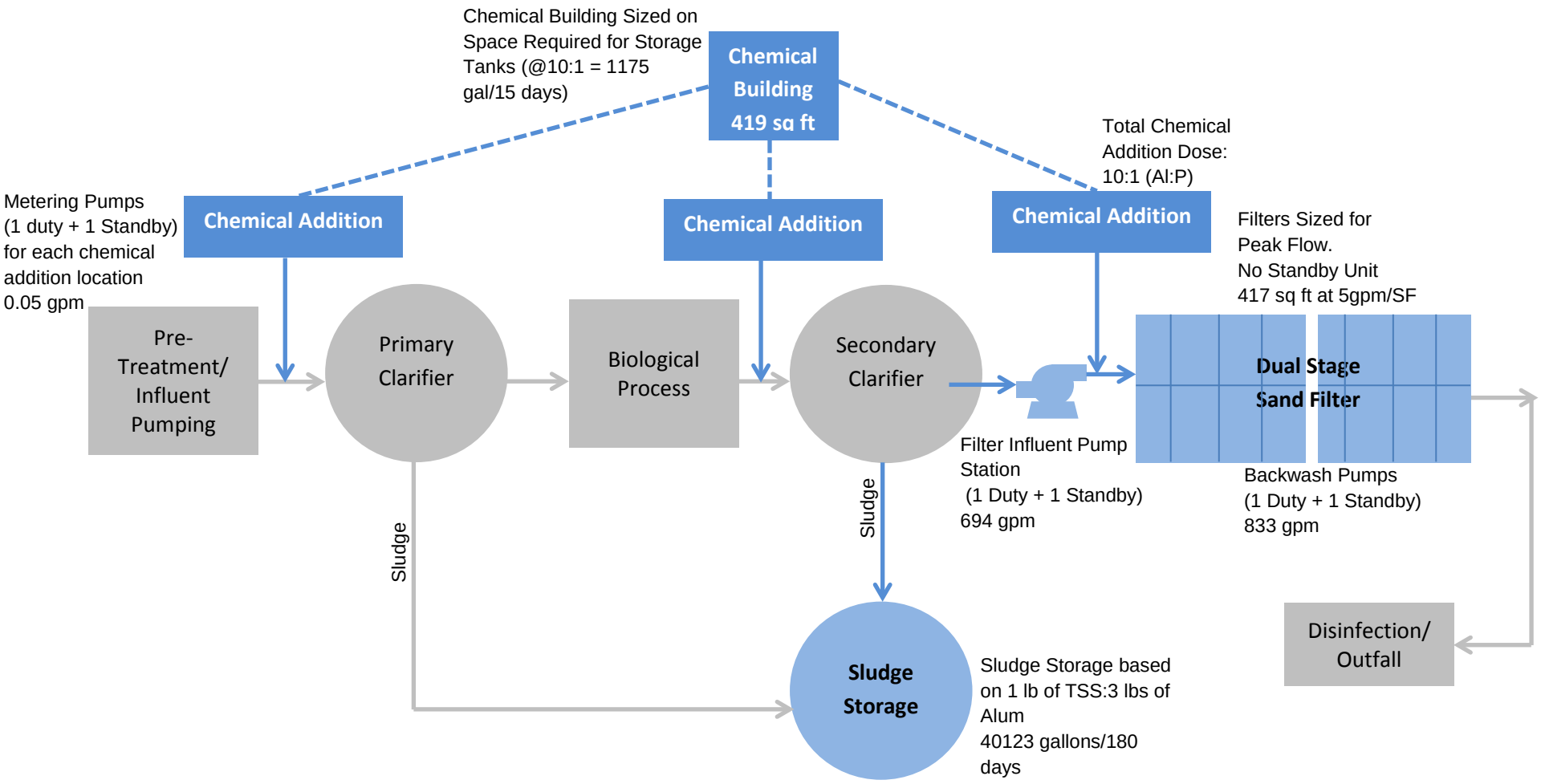
FOOD PROCESSORS

	Details	Comments
Reference	"Cost Implications for Compliance with Water Quality Based Effluent Limits for Wisconsin Food Processors". Prepared by Wisconsin Cheese Makers Association and Midwest Food Processors Association. September 2, 2014.	
Facilities Considered	Industrial WWTPs	Compliance limited to treatment plant improvements
Target P Limits	TP < 0.075 mg/L	
Proposed Treatment Processes to Meet TP Limits	Filtration technologies • Two-stage sand filtration • Ultrafiltration membrane •	Assumed that most dischargers are currently achieving 1 mg/L TP through biological or chemical precipitation followed by filtration
Methodology	Facilities will require upgraded chemical storage and feeding, in addition to filtration technology. Filtration process is added to existing facility that includes final clarifiers. • Filters are installed in a building • Filters require pumping to overcome headloss • Filters produce a backwash that requires processing Two-stage sand filtration • Stage 1: coarse sand with bed depth of 6 ft • Stage 2: finer sand with bed depth of 3 ft Ultrafiltration membrane has pore size ranging from 0.1 to 0.5 µm Cost estimate (equipment, construction, and O&M) were prepared for each system.	
Cost Curves	Cost curves were for each technology using the cost estimate and the U.S. EPA's two-stage discounting procedure found in section 8.3.2 *of Economics & Cost Analysis Support – OAQPS Economic Analysis Resource Document* (http://www.epa.gov/ttnecas1/analguid.html)	Cost curves (Capital and O&M) for both technologies for 0.03 – 2 MGD
Other Considerations	Costs considered the following: chemical storage/delivery, new building, electrical, technical services, sludge handling, membrane replacement, and other maintenance costs.	

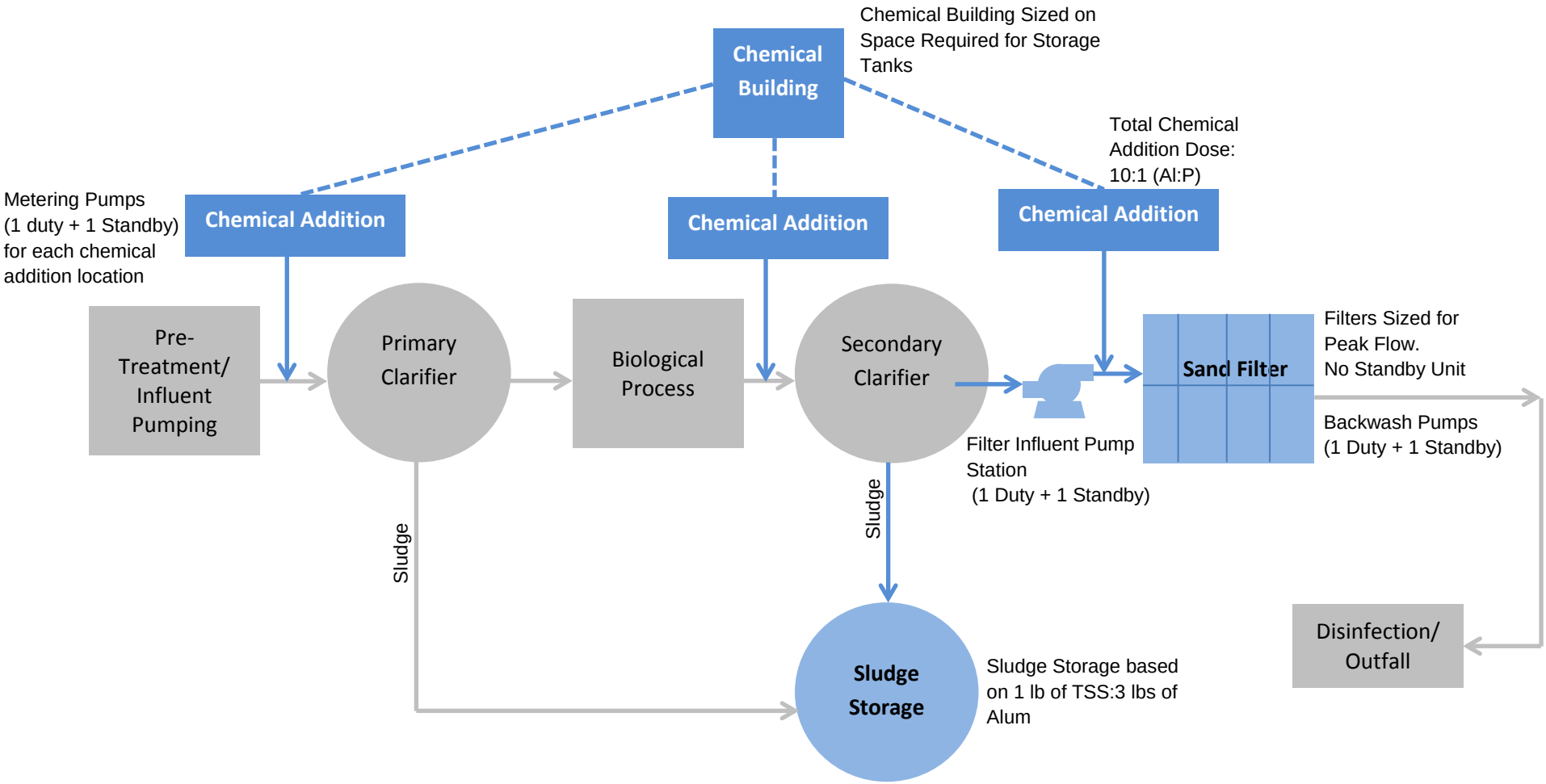
APPENDIX C

TREATMENT DIAGRAMS

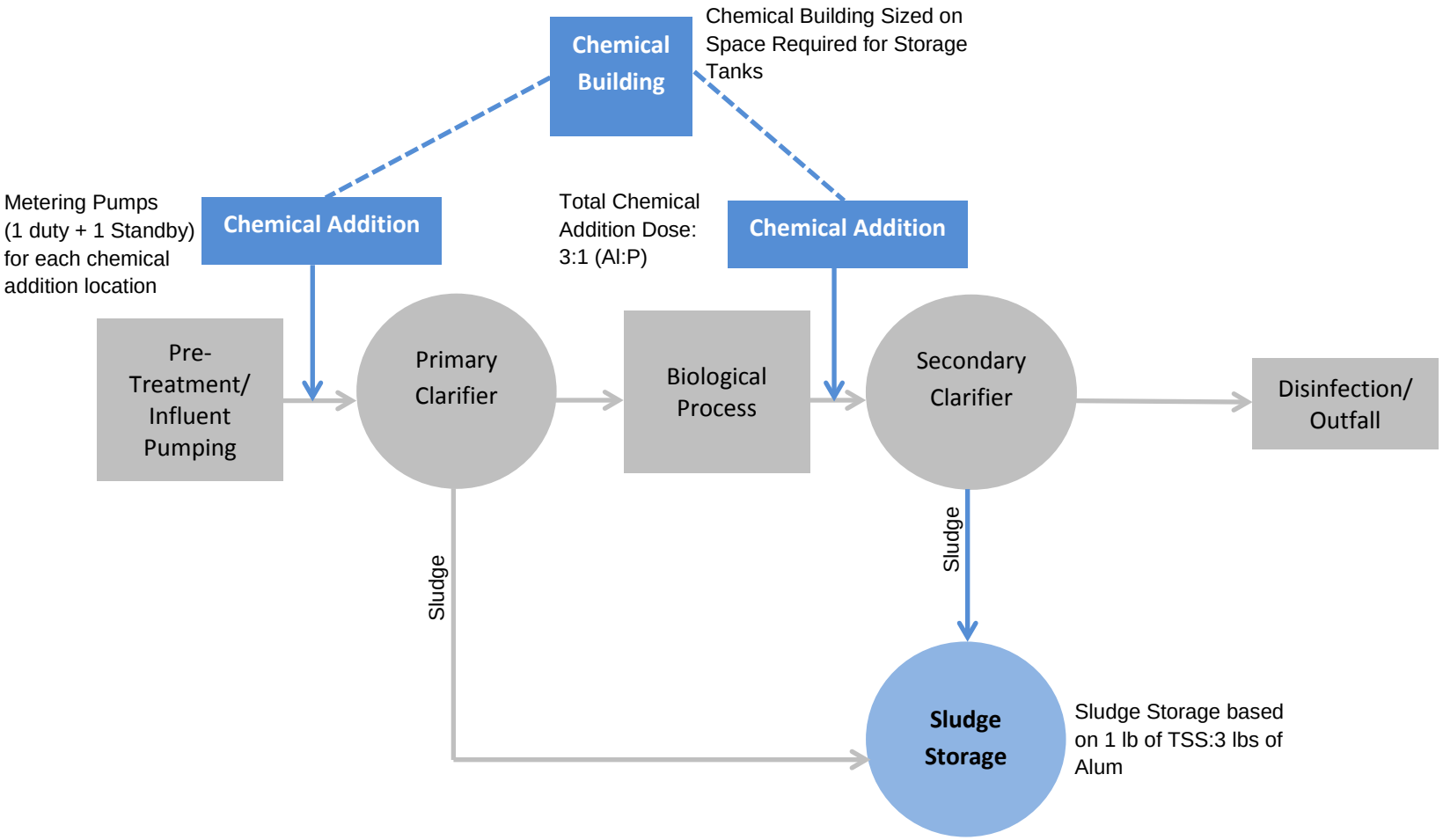
Typical Mechanical Treatment Plant
<0.1 mg/l P Annual Average Concentration – 1 MGD



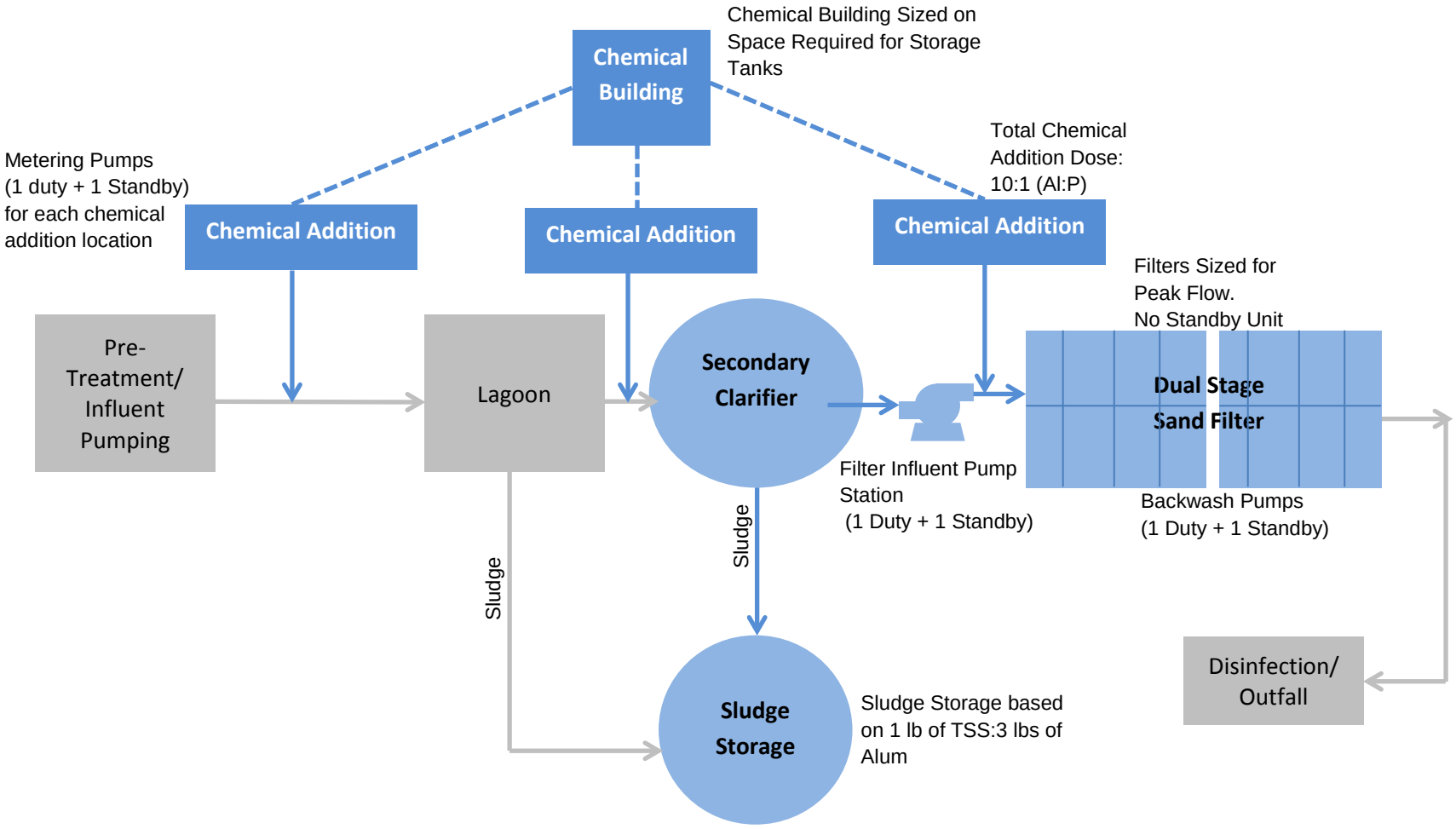
Typical Mechanical Treatment Plant
0.5 - 0.1 mg/l P Annual Average Concentration



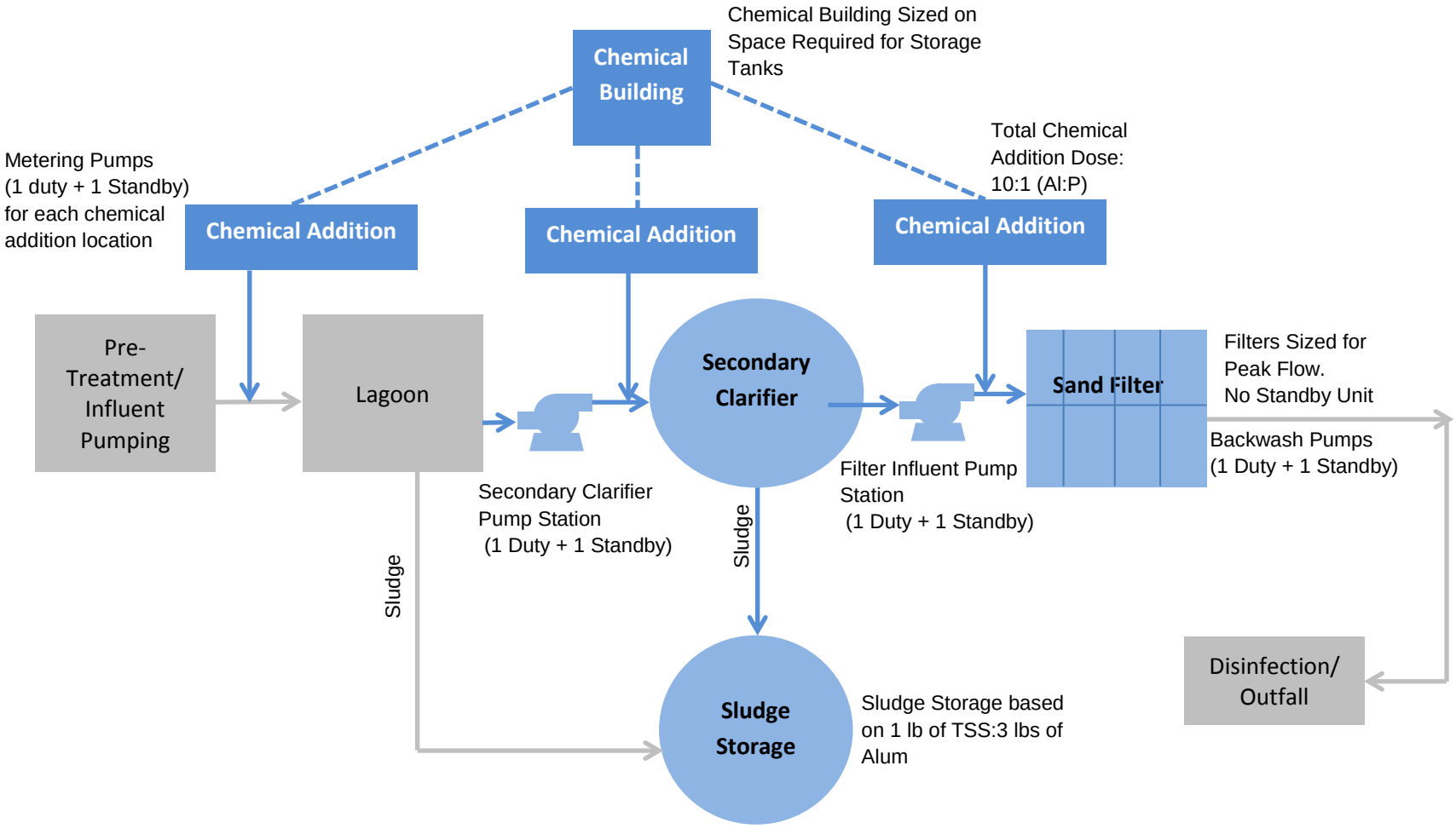
Typical Mechanical Treatment Plant
1.0 0.5 mg/l P Annual Average Concentration



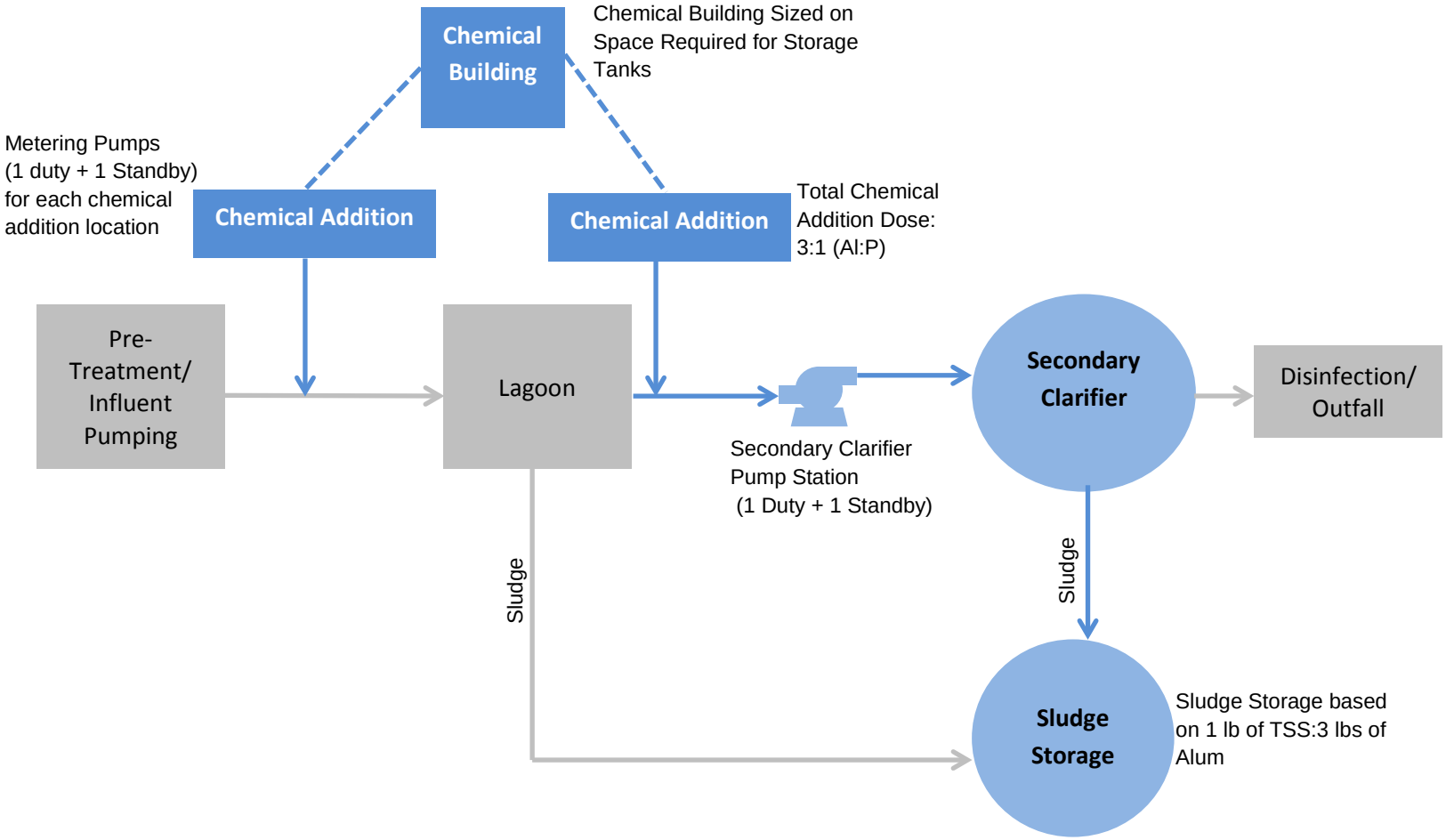
Typical Lagoon Treatment Plant
<0.1 mg/l P Annual Average Concentration



Typical Lagoon Treatment Plant
0.5 - 0.1 mg/l P Annual Average Concentration



Typical Lagoon Treatment Plant
1.0 – 0.5 mg/l P Annual Average Concentration



APPENDIX D

CAPITAL AND O&M COST ESTIMATES

Mechanical WWTP (< 0.1 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:						
Item	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Chemical Feed System								
Chemical Storage and Feed Building	$150/sq ft	$14,000	$40,000	$63,000	$192,000	$260,000	$356,000	$713,000
Chemical Storage Tanks	LS	$200	$1,000	$2,000	$7,000	$15,000	$29,000	$74,000
Metering Pumps	LS	$17,000	$19,000	$24,000	$34,000	$58,000	$92,000	$94,000
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$7,000	$10,000	$13,000	$17,000	$23,000	$30,000
Dual-Stage Sand Filters								
Dual Stage Sand Filter Building	$200/sq ft	$25,000	$125,000	$250,000	$833,333	$1,416,667	$2,833,333	$7,083,333
Filter Feed pumps	LS	$100,000	$150,000	$200,000	$310,000	$380,000	$475,000	$600,000
Backwash pumps	LS	$120,000	$180,000	$240,000	$124,000	$152,000	$190,000	$240,000
Dual Stage Filters	LS	$268,500	$450,000	$498,000	$2,376,000	$4,564,500	$9,010,500	$21,220,500
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$15,000	$50,000	$105,000	$157,500	$220,000
Filter Clearwell	LS	$6,305	$16,897	$26,862	$64,312	$110,725	$196,139	$434,197
Additional Sludge Storage								
Sludge Storage Tank	LS	$52,200	$260,797	$52,159	$260,797	$521,594	$1,062,198	$1,553,926
Equipment Cost Subtotal		**$ 618,000**	**$ 1,265,000**	**$ 1,382,000**	**$ 4,265,000**	**$ 7,601,000**	**$ 14,425,000**	**$ 32,263,000**
Sitework (5%)		$ 30,900	$ 63,250	$ 69,100	$ 213,250	$ 380,050	$ 721,250	$ 1,613,150
Yard Piping (15%)		$ 92,700	$ 189,750	$ 207,300	$ 639,750	$ 1,140,150	$ 2,163,750	$ 4,839,450
Electrical and Instrumentation (25%)		$ 154,500	$ 316,250	$ 345,500	$ 1,066,250	$ 1,900,250	$ 3,606,250	$ 8,065,750
HVAC and Plumbing (15% of Building Cost)		$ 5,850	$ 24,750	$ 46,950	$ 153,800	$ 251,500	$ 478,400	$ 1,169,450
Site Foundation (2%)		$ 12,360	$ 25,300	$ 27,640	$ 85,300	$ 152,020	$ 288,500	$ 645,260
Maintenance of plant operations (5%)		$ 30,900	$ 63,250	$ 69,100	$ 213,250	$ 380,050	$ 721,250	$ 1,613,150
Mobilization, bonds and insurance (5%)		$ 30,900	$ 63,250	$ 69,100	$ 213,250	$ 380,050	$ 721,250	$ 1,613,150
Demobilization (2%)		$ 12,360	$ 25,300	$ 27,640	$ 85,300	$ 152,020	$ 288,500	$ 645,260
Construction Cost Subtotal		**$ 989,000**	**$ 2,037,000**	**$ 2,245,000**	**$ 6,936,000**	**$ 12,338,000**	**$ 23,415,000**	**$ 52,468,000**
Contractor OH&P (15%)		$ 149,000	$ 306,000	$ 337,000	$ 1,041,000	$ 1,851,000	$ 3,513,000	$ 7,871,000
Contingencies (35%)		$ 347,000	$ 713,000	$ 786,000	$ 2,428,000	$ 4,319,000	$ 8,196,000	$ 18,364,000
Bid Cost Subtotal		**$ 1,490,000**	**$ 3,060,000**	**$ 3,370,000**	**$ 10,410,000**	**$ 18,510,000**	**$ 35,120,000**	**$ 78,700,000**
Engineering and Administration (@18%)		$ 269,000	$ 551,000	$ 607,000	$ 1,874,000	$ 3,332,000	$ 6,322,000	$ 14,166,000
CAPITAL COST TOTAL (ROUNDED)		**$ 1,760,000**	**$ 3,610,000**	**$ 3,980,000**	**$ 12,280,000**	**$ 21,840,000**	**$ 41,440,000**	**$ 92,870,000**

Mechanical WWTP (< 0.1 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:						
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Annual Power Cost	$0.08/kW-hr	$834	$3,351	$5,375	$24,471	$50,270	$111,847	$338,555
Alum Usage	$0.25/lb	$7,916	$39,582	$79,165	$395,824	$791,648	$1,583,297	$3,958,242
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$4,068	$20,340	$15,267	$76,336	$152,671	$305,343	$763,357
Equipment Maintenance (2% of equipment capital cost)	LS	$12,341	$26,241	$27,599	$85,302	$151,991	$288,515	$645,235
Additional Labor Cost	$45/hr	$18,720	$65,520	$93,600	$140,400	$187,200	$205,920	$234,000
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 44,000**	**$ 155,000**	**$ 221,000**	**$ 722,000**	**$ 1,334,000**	**$ 2,495,000**	**$ 5,939,000**

Mechanical WWTP (0.5 - 0.1 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:						
Item	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Chemical Feed System								
Chemical Storage and Feed Building	$150/sq ft	$14,000	$40,000	$63,000	$192,000	$260,000	$356,000	$713,000
Chemical Storage Tanks	LS	$200	$1,000	$2,000	$7,000	$15,000	$29,000	$74,000
Metering Pumps	LS	$17,000	$19,000	$24,000	$34,000	$58,000	$92,000	$94,000
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$7,000	$10,000	$13,000	$17,000	$23,000	$30,000
Sand Filters								
Sand Filter Building	$200/sq ft	$25,000	$125,000	$250,000	$833,333	$1,416,667	$2,833,333	$7,083,333
Filter Feed pumps	LS	$100,000	$150,000	$200,000	$310,000	$380,000	$475,000	$600,000
Backwash pumps	LS	$45,000	$67,500	$90,000	$93,000	$114,000	$142,500	$180,000
Sand Filters	LS	$175,500	$214,500	$300,000	$1,317,000	$2,485,500	$4,855,500	$11,406,000
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$15,000	$50,000	$105,000	$157,500	$220,000
Filter Clearwell	LS	$6,305	$16,897	$26,862	$64,312	$110,725	$196,139	$434,197
Additional Sludge Storage								
Sludge Storage Tank	LS	$52,200	$260,797	$52,159	$260,797	$521,594	$1,062,198	$1,553,926
Equipment Cost Subtotal		**$ 450,000**	**$ 917,000**	**$ 1,034,000**	**$ 3,175,000**	**$ 5,484,000**	**$ 10,223,000**	**$ 22,389,000**
Sitework (5%)		$ 22,500	$ 45,850	$ 51,700	$ 158,750	$ 274,200	$ 511,150	$ 1,119,450
Yard Piping (15%)		$ 67,500	$ 137,550	$ 155,100	$ 476,250	$ 822,600	$ 1,533,450	$ 3,358,350
Electrical and Instrumentation (25%)		$ 112,500	$ 229,250	$ 258,500	$ 793,750	$ 1,371,000	$ 2,555,750	$ 5,597,250
HVAC and Plumbing (15% of Building Cost)		$ 5,850	$ 24,750	$ 46,950	$ 153,800	$ 251,500	$ 478,400	$ 1,169,450
Site Foundation (2%)		$ 9,000	$ 18,340	$ 20,680	$ 63,500	$ 109,680	$ 204,460	$ 447,780
Maintenance of plant operations (5%)		$ 22,500	$ 45,850	$ 51,700	$ 158,750	$ 274,200	$ 511,150	$ 1,119,450
Mobilization, bonds and insurance (5%)		$ 22,500	$ 45,850	$ 51,700	$ 158,750	$ 274,200	$ 511,150	$ 1,119,450
Demobilization (2%)		$ 9,000	$ 18,340	$ 20,680	$ 63,500	$ 109,680	$ 204,460	$ 447,780
Construction Cost Subtotal		**$ 722,000**	**$ 1,483,000**	**$ 1,692,000**	**$ 5,203,000**	**$ 8,972,000**	**$ 16,733,000**	**$ 36,768,000**
Contractor OH&P (15%)		$ 109,000	$ 223,000	$ 254,000	$ 781,000	$ 1,346,000	$ 2,510,000	$ 5,516,000
Contingencies (35%)		$ 253,000	$ 520,000	$ 593,000	$ 1,822,000	$ 3,141,000	$ 5,857,000	$ 12,869,000
Bid Cost Subtotal		**$ 1,080,000**	**$ 2,230,000**	**$ 2,540,000**	**$ 7,810,000**	**$ 13,460,000**	**$ 25,100,000**	**$ 55,150,000**
Engineering and Administration (@18%)		$ 195,000	$ 402,000	$ 458,000	$ 1,406,000	$ 2,423,000	$ 4,518,000	$ 9,927,000
CAPITAL COST TOTAL (ROUNDED)		**$ 1,280,000**	**$ 2,630,000**	**$ 3,000,000**	**$ 9,220,000**	**$ 15,880,000**	**$ 29,620,000**	**$ 65,080,000**

Mechanical WWTP (0.5 - 0.1 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:						
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Annual Power Cost	$0.08/kW-hr	$788	$3,123	$4,919	$22,191	$45,710	$102,727	$315,755
Alum Usage	$0.25/lb	$7,916	$39,582	$79,165	$395,824	$791,648	$1,583,297	$3,958,242
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$4,068	$20,340	$15,267	$76,336	$152,671	$305,343	$763,357
Equipment Maintenance (2% of equipment capital cost)	LS	$8,981	$18,321	$20,939	$63,752	$109,651	$204,465	$447,745
Additional Labor Cost	$45/hr	$18,720	$65,520	$93,600	$140,400	$187,200	$205,920	$234,000
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 40,000**	**$ 147,000**	**$ 214,000**	**$ 699,000**	**$ 1,287,000**	**$ 2,402,000**	**$ 5,719,000**

Mechanical WWTP (1.0 - 0.5 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:						
Item	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Chemical Feed System								
Chemical Storage and Feed Building	$150/sq ft	$14,000	$48,000	$63,000	$192,000	$260,000	$178,000	$356,000
Chemical Storage Tanks	LS	$100	$0	$1,000	$2,000	$5,000	$9,000	$22,000
Metering Pumps	LS	$7,500	$8,000	$8,000	$12,000	$13,000	$15,000	$26,000
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$7,000	$10,000	$13,000	$17,000	$23,000	$30,000
Additional Sludge Storage								
Sludge Storage Tank	LS	$31,552	$157,761	$31,552	$157,761	$315,523	$631,045	$1,577,613
Equipment Cost Subtotal		**$ 60,000**	**$ 221,000**	**$ 114,000**	**$ 377,000**	**$ 611,000**	**$ 857,000**	**$ 2,012,000**
Sitework (5%)		$ 3,000	$ 11,050	$ 5,700	$ 18,850	$ 30,550	$ 42,850	$ 100,600
Yard Piping (15%)		$ 9,000	$ 33,150	$ 17,100	$ 56,550	$ 91,650	$ 128,550	$ 301,800
Electrical and Instrumentation (25%)		$ 15,000	$ 55,250	$ 28,500	$ 94,250	$ 152,750	$ 214,250	$ 503,000
HVAC and Plumbing (15% of Building Cost)		$ 2,100	$ 7,200	$ 9,450	$ 28,800	$ 39,000	$ 26,700	$ 53,400
Site Foundation (2%)		$ 1,200	$ 4,420	$ 2,280	$ 7,540	$ 12,220	$ 17,140	$ 40,240
Maintenance of plant operations (5%)		$ 3,000	$ 11,050	$ 5,700	$ 18,850	$ 30,550	$ 42,850	$ 100,600
Mobilization, bonds and insurance (5%)		$ 3,000	$ 11,050	$ 5,700	$ 18,850	$ 30,550	$ 42,850	$ 100,600
Demobilization (2%)		$ 1,200	$ 4,420	$ 2,280	$ 7,540	$ 12,220	$ 17,140	$ 40,240
Construction Cost Subtotal		**$ 98,000**	**$ 359,000**	**$ 191,000**	**$ 629,000**	**$ 1,011,000**	**$ 1,390,000**	**$ 3,253,000**
Contractor OH&P (15%)		$ 15,000	$ 54,000	$ 29,000	$ 95,000	$ 152,000	$ 209,000	$ 488,000
Contingencies (35%)		$ 35,000	$ 126,000	$ 67,000	$ 221,000	$ 354,000	$ 487,000	$ 1,139,000
Bid Cost Subtotal		**$ 150,000**	**$ 540,000**	**$ 290,000**	**$ 950,000**	**$ 1,520,000**	**$ 2,090,000**	**$ 4,880,000**
Engineering and Administration (@18%)		$ 27,000	$ 98,000	$ 53,000	$ 171,000	$ 274,000	$ 377,000	$ 879,000
CAPITAL COST TOTAL (ROUNDED)		**$ 180,000**	**$ 640,000**	**$ 340,000**	**$ 1,120,000**	**$ 1,790,000**	**$ 2,470,000**	**$ 5,760,000**

Mechanical WWTP (1.0 - 0.5 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:						
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Annual Power Cost	$0.08/kW-hr	$560	$1,983	$2,639	$10,791	$22,910	$57,127	$201,755
Alum Usage	$0.25/lb	$2,375	$11,875	$23,749	$47,499	$118,747	$237,495	$474,989
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$2,461	$12,304	$9,235	$46,177	$92,354	$184,708	$461,770
Equipment Maintenance (2% of equipment capital cost)	LS	$1,193	$4,412	$2,247	$7,530	$12,199	$17,131	$40,228
Additional Labor Cost	$45/hr	$14,040	$46,800	$65,520	$112,320	$140,400	$159,120	$187,200
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 21,000**	**$ 77,000**	**$ 103,000**	**$ 224,000**	**$ 387,000**	**$ 656,000**	**$ 1,366,000**

Lagoon WWTP (< 0.1 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:			
Item	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Chemical Feed System					
Chemical Storage and Feed Building	$150/sq ft	$13,849	$13,849	$62,858	$68,094
Chemical Storage Tanks	LS	$200	$400	$1,500	$3,000
Metering Pumps	LS	$16,957	$16,957	$23,664	$26,024
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$6,600	$9,900	$13,200
Dual-Stage Sand Filters					
Dual Stage Sand Filter Building	$200/sq ft	$25,000	$62,500	$250,000	$333,333
Filter Feed pumps	LS	$100,000	$125,000	$200,000	$250,000
Backwash pumps	LS	$120,000	$150,000	$240,000	$100,000
Dual Stage Filters	LS	$268,500	$340,500	$498,000	$870,000
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$15,000	$50,000
Filter Clearwell	LS	$6,305	$10,899	$26,862	$32,827
Additional Sludge Storage					
Sludge Storage Tank	LS	$52,200	$130,400	$52,159	$104,319
Secondary Clairifer (Lagoon Plants Only)					
Sludge Storage Tank	LS	$220,898	$280,606	$437,656	$698,370
Equipment Cost Subtotal		**$ 839,000**	**$ 1,153,000**	**$ 1,818,000**	**$ 2,550,000**
Sitework (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Yard Piping (15%)		$ 125,850	$ 172,950	$ 272,700	$ 382,500
Electrical and Instrumentation (25%)		$ 209,750	$ 288,250	$ 454,500	$ 637,500
HVAC and Plumbing (15% of Building Cost)		$ 5,827	$ 11,452	$ 46,929	$ 60,214
Site Foundation (2%)		$ 16,780	$ 23,060	$ 36,360	$ 51,000
Maintenance of plant operations (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Mobilization, bonds and insurance (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Demobilization (2%)		$ 16,780	$ 23,060	$ 36,360	$ 51,000
Construction Cost Subtotal		**$ 1,340,000**	**$ 1,845,000**	**$ 2,938,000**	**$ 4,115,000**
Contractor OH&P (15%)		$ 201,000	$ 277,000	$ 441,000	$ 618,000
Contingencies (35%)		$ 469,000	$ 646,000	$ 1,029,000	$ 1,441,000
Bid Cost Subtotal		**$ 2,010,000**	**$ 2,770,000**	**$ 4,410,000**	**$ 6,170,000**
Engineering and Administration (@18%)		$ 362,000	$ 499,000	$ 794,000	$ 1,111,000
CAPITAL COST TOTAL (ROUNDED)		**$ 2,370,000**	**$ 3,270,000**	**$ 5,200,000**	**$ 7,280,000**

Lagoon WWTP (< 0.1 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:			
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Annual Power Cost	$0.08/kW-hr	$788	$1,140	$4,857	$7,409
Alum Usage	$0.25/lb	$7,916	$19,791	$79,165	$158,330
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$4,068	$10,170	$40,680	$81,360
Equipment Maintenance (2% of equipment capital cost)	LS	$16,759	$23,054	$36,352	$50,983
Additional Labor Cost	$45/hr	$18,720	$46,800	$93,600	$131,040
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 48,000**	**$ 101,000**	**$ 255,000**	**$ 429,000**

Lagoon WWTP (0.5 - 0.1 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:			
Item	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Chemical Feed System					
Chemical Storage and Feed Building	$150/sq ft	$13,849	$13,849	$62,858	$68,094
Chemical Storage Tanks	LS	$200	$400	$1,500	$3,000
Metering Pumps	LS	$16,957	$16,957	$23,664	$26,024
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$6,600	$9,900	$13,200
Dual-Stage Sand Filters					
Dual Stage Sand Filter Building	$200/sq ft	$25,000	$62,500	$250,000	$333,333
Filter Feed pumps	LS	$100,000	$125,000	$200,000	$250,000
Backwash pumps	LS	$45,000	$56,250	$90,000	$75,000
Dual Stage Filters	LS	$175,500	$187,500	$300,000	$525,000
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$30,000	$50,000
Filter Clearwell	LS	$6,305	$10,899	$26,862	$32,827
Additional Sludge Storage					
Sludge Storage Tank	LS	$52,200	$130,400	$52,159	$104,319
Secondary Clairifer (Lagoon Plants Only)					
Sludge Storage Tank	LS	$220,898	$280,606	$437,656	$698,370
Equipment Cost Subtotal		**$ 671,000**	**$ 906,000**	**$ 1,485,000**	**$ 2,180,000**
Sitework (5%)		$ 33,550	$ 45,300	$ 74,250	$ 109,000
Yard Piping (15%)		$ 100,650	$ 135,900	$ 222,750	$ 327,000
Electrical and Instrumentation (25%)		$ 167,750	$ 226,500	$ 371,250	$ 545,000
HVAC and Plumbing (15% of Building Cost)		$ 5,827	$ 11,452	$ 46,929	$ 60,214
Site Foundation (2%)		$ 13,420	$ 18,120	$ 29,700	$ 43,600
Maintenance of plant operations (5%)		$ 33,550	$ 45,300	$ 74,250	$ 109,000
Mobilization, bonds and insurance (5%)		$ 33,550	$ 45,300	$ 74,250	$ 109,000
Demobilization (2%)		$ 13,420	$ 18,120	$ 29,700	$ 43,600
Construction Cost Subtotal		**$ 1,073,000**	**$ 1,452,000**	**$ 2,409,000**	**$ 3,527,000**
Contractor OH&P (15%)		$ 161,000	$ 218,000	$ 362,000	$ 530,000
Contingencies (35%)		$ 376,000	$ 509,000	$ 844,000	$ 1,235,000
Bid Cost Subtotal		**$ 1,610,000**	**$ 2,180,000**	**$ 3,620,000**	**$ 5,290,000**
Engineering and Administration (@18%)		$ 290,000	$ 393,000	$ 652,000	$ 953,000
CAPITAL COST TOTAL (ROUNDED)		**$ 1,900,000**	**$ 2,570,000**	**$ 4,270,000**	**$ 6,240,000**

Lagoon WWTP (0.5 - 0.1 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:			
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Annual Power Cost	$0.08/kW-hr	$788	$1,140	$4,857	$7,409
Alum Usage	$0.25/lb	$7,916	$19,791	$79,165	$158,330
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$4,068	$10,170	$40,680	$81,360
Equipment Maintenance (2% of equipment capital cost)	LS	$13,399	$18,119	$29,692	$43,583
Additional Labor Cost	$45/hr	$18,720	$46,800	$93,600	$131,040
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 45,000**	**$ 96,000**	**$ 248,000**	**$ 422,000**

Lagoon WWTP (1.0 - 0.5 mg/L TP)
Concept-Level Estimate of Capital Costs

		Design Flow:			
Item	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Chemical Feed System					
Chemical Storage and Feed Building	$150/sq ft	$13,849	$13,849	$62,858	$68,094
Chemical Storage Tanks	LS	$200	$400	$1,500	$3,000
Metering Pumps	LS	$16,957	$16,957	$23,664	$26,024
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$6,600	$9,900	$13,200
Dual-Stage Sand Filters					
Dual Stage Sand Filter Building	$200/sq ft	$25,000	$62,500	$250,000	$333,333
Filter Feed pumps	LS	$100,000	$125,000	$200,000	$250,000
Backwash pumps	LS	$120,000	$150,000	$240,000	$100,000
Dual Stage Filters	LS	$268,500	$340,500	$498,000	$870,000
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$15,000	$50,000
Filter Clearwell	LS	$6,305	$10,899	$26,862	$32,827
Additional Sludge Storage					
Sludge Storage Tank	LS	$52,200	$130,400	$52,159	$104,319
Secondary Clairifer (Lagoon Plants Only)					
Sludge Storage Tank	LS	$220,898	$280,606	$437,656	$698,370
Equipment Cost Subtotal		**$ 839,000**	**$ 1,153,000**	**$ 1,818,000**	**$ 2,550,000**
Sitework (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Yard Piping (15%)		$ 125,850	$ 172,950	$ 272,700	$ 382,500
Electrical and Instrumentation (25%)		$ 209,750	$ 288,250	$ 454,500	$ 637,500
HVAC and Plumbing (15% of Building Cost)		$ 5,827	$ 11,452	$ 46,929	$ 60,214
Site Foundation (2%)		$ 16,780	$ 23,060	$ 36,360	$ 51,000
Maintenance of plant operations (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Mobilization, bonds and insurance (5%)		$ 41,950	$ 57,650	$ 90,900	$ 127,500
Demobilization (2%)		$ 16,780	$ 23,060	$ 36,360	$ 51,000
Construction Cost Subtotal		**$ 1,340,000**	**$ 1,845,000**	**$ 2,938,000**	**$ 4,115,000**
Contractor OH&P (15%)		$ 201,000	$ 277,000	$ 441,000	$ 618,000
Contingencies (35%)		$ 469,000	$ 646,000	$ 1,029,000	$ 1,441,000
Bid Cost Subtotal		**$ 2,010,000**	**$ 2,770,000**	**$ 4,410,000**	**$ 6,170,000**
Engineering and Administration (@18%)		$ 362,000	$ 499,000	$ 794,000	$ 1,111,000
CAPITAL COST TOTAL (ROUNDED)		**$ 2,370,000**	**$ 3,270,000**	**$ 5,200,000**	**$ 7,280,000**

Lagoon WWTP (1.0 - 0.5 mg/L TP)
Concept-Level Estimate of O&M Costs

		Design Flow:			
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.25 MGD**	**1 MGD**	**2 MGD**
Annual Power Cost	$0.08/kW-hr	$788	$1,140	$4,857	$7,409
Alum Usage	$0.25/lb	$7,916	$19,791	$79,165	$158,330
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$4,068	$10,170	$40,680	$81,360
Equipment Maintenance (2% of equipment capital cost)	LS	$16,759	$23,054	$36,352	$50,983
Additional Labor Cost	$45/hr	$18,720	$46,800	$93,600	$131,040
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 48,000**	**$ 101,000**	**$ 255,000**	**$ 429,000**

Paper Mills (300 mg/l alum dose)
Concept-Level Estimate of Capital Costs

		Design Flow:						
Item	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Chemical Feed System								
Chemical Storage and Feed Building	$150/sq ft	$13,849	$48,407	$62,858	$191,650	$260,242	$556,835	$1,336,404
Chemical Storage Tanks	LS	$500	$2,200	$4,300	$21,200	$42,300	$84,600	$211,500
Metering Pumps	LS	$4,368	$4,368	$4,368	$6,384	$7,800	$8,850	$18,198
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$6,600	$9,900	$13,200	$16,500	$23,100	$29,700
Sand Filters								
Sand Filter Building	$200/sq ft	$25,000	$125,000	$250,000	$833,333	$1,416,667	$2,833,333	$7,083,333
Filter Feed pumps	LS	$100,000	$150,000	$200,000	$310,000	$380,000	$475,000	$600,000
Backwash pumps	LS	$45,000	$67,500	$90,000	$93,000	$114,000	$142,500	$180,000
Sand Filters	LS	$175,500	$214,500	$300,000	$1,317,000	$2,485,500	$4,855,500	$11,406,000
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$30,000	$62,500	$105,000	$157,500	$220,000
Filter Clearwell	LS	$6,305	$16,897	$26,862	$64,312	$110,725	$196,139	$434,197
Additional Sludge Storage								
Sludge Storage Tank	LS	$12,835	$64,173	$445,022	$868,148	$1,157,661	$1,543,722	$2,258,363
Dewatering System								
Dewatering System	LS	$335,584	$389,584	$406,424	$519,955	$749,279	$1,167,924	$1,809,326
Equipment Cost Subtotal		**$ 734,000**	**$ 1,105,000**	**$ 1,830,000**	**$ 4,301,000**	**$ 6,846,000**	**$ 12,046,000**	**$ 25,588,000**
Sitework (5%)		$ 36,700	$ 55,250	$ 91,500	$ 215,050	$ 342,300	$ 602,300	$ 1,279,400
Yard Piping (15%)		$ 110,100	$ 165,750	$ 274,500	$ 645,150	$ 1,026,900	$ 1,806,900	$ 3,838,200
Electrical and Instrumentation (25%)		$ 183,500	$ 276,250	$ 457,500	$ 1,075,250	$ 1,711,500	$ 3,011,500	$ 6,397,000
HVAC and Plumbing (15% of Building Cost)		$ 5,827	$ 26,011	$ 46,929	$ 153,748	$ 251,536	$ 508,525	$ 1,262,961
Site Foundation (2%)		$ 14,680	$ 22,100	$ 36,600	$ 86,020	$ 136,920	$ 240,920	$ 511,760
Maintenance of plant operations (5%)		$ 36,700	$ 55,250	$ 91,500	$ 215,050	$ 342,300	$ 602,300	$ 1,279,400
Mobilization, bonds and insurance (5%)		$ 36,700	$ 55,250	$ 91,500	$ 215,050	$ 342,300	$ 602,300	$ 1,279,400
Demobilization (2%)		$ 14,680	$ 22,100	$ 36,600	$ 86,020	$ 136,920	$ 240,920	$ 511,760
Construction Cost Subtotal		**$ 1,173,000**	**$ 1,783,000**	**$ 2,957,000**	**$ 6,993,000**	**$ 11,137,000**	**$ 19,662,000**	**$ 41,948,000**
Contractor OH&P (15%)		$ 176,000	$ 268,000	$ 444,000	$ 1,049,000	$ 1,671,000	$ 2,950,000	$ 6,293,000
Contingencies (35%)		$ 411,000	$ 625,000	$ 1,035,000	$ 2,448,000	$ 3,898,000	$ 6,882,000	$ 14,682,000
Bid Cost Subtotal		**$ 1,760,000**	**$ 2,680,000**	**$ 4,440,000**	**$ 10,490,000**	**$ 16,710,000**	**$ 29,490,000**	**$ 62,920,000**
Engineering and Administration (@18%)		$ 317,000	$ 483,000	$ 800,000	$ 1,889,000	$ 3,008,000	$ 5,309,000	$ 11,326,000
CAPITAL COST TOTAL (ROUNDED)		**$ 2,080,000**	**$ 3,160,000**	**$ 5,240,000**	**$ 12,380,000**	**$ 19,720,000**	**$ 34,800,000**	**$ 74,250,000**

Paper Mills (300 mg/l alum dose)
Concept-Level Estimate of O&M Costs

		Design Flow:						
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Annual Polymer Cost	$1.65/lb	$18,585	$92,925	$185,851	$929,253	$1,858,506	$3,717,011	$9,292,528
Annual Power Cost	$0.08/kW-hr	$788	$3,123	$4,919	$22,191	$45,710	$117,873	$354,956
Alum Usage	$0.25/lb	$22,831	$114,154	$228,308	$1,141,538	$2,283,075	$4,566,150	$11,415,375
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$2,221	$11,107	$22,214	$111,068	$222,137	$444,273	$1,110,683
Equipment Maintenance (2% of equipment capital cost)	LS	$14,661	$22,085	$36,595	$86,014	$136,913	$240,900	$511,740
Additional Labor Cost	$45/hr	$18,720	$65,520	$93,600	$140,400	$187,200	$205,920	$234,000
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 78,000**	**$ 309,000**	**$ 571,000**	**$ 2,430,000**	**$ 4,734,000**	**$ 9,292,000**	**$ 22,919,000**

Paper Mills (1000 mg/l alum dose)
Concept-Level Estimate of Capital Costs

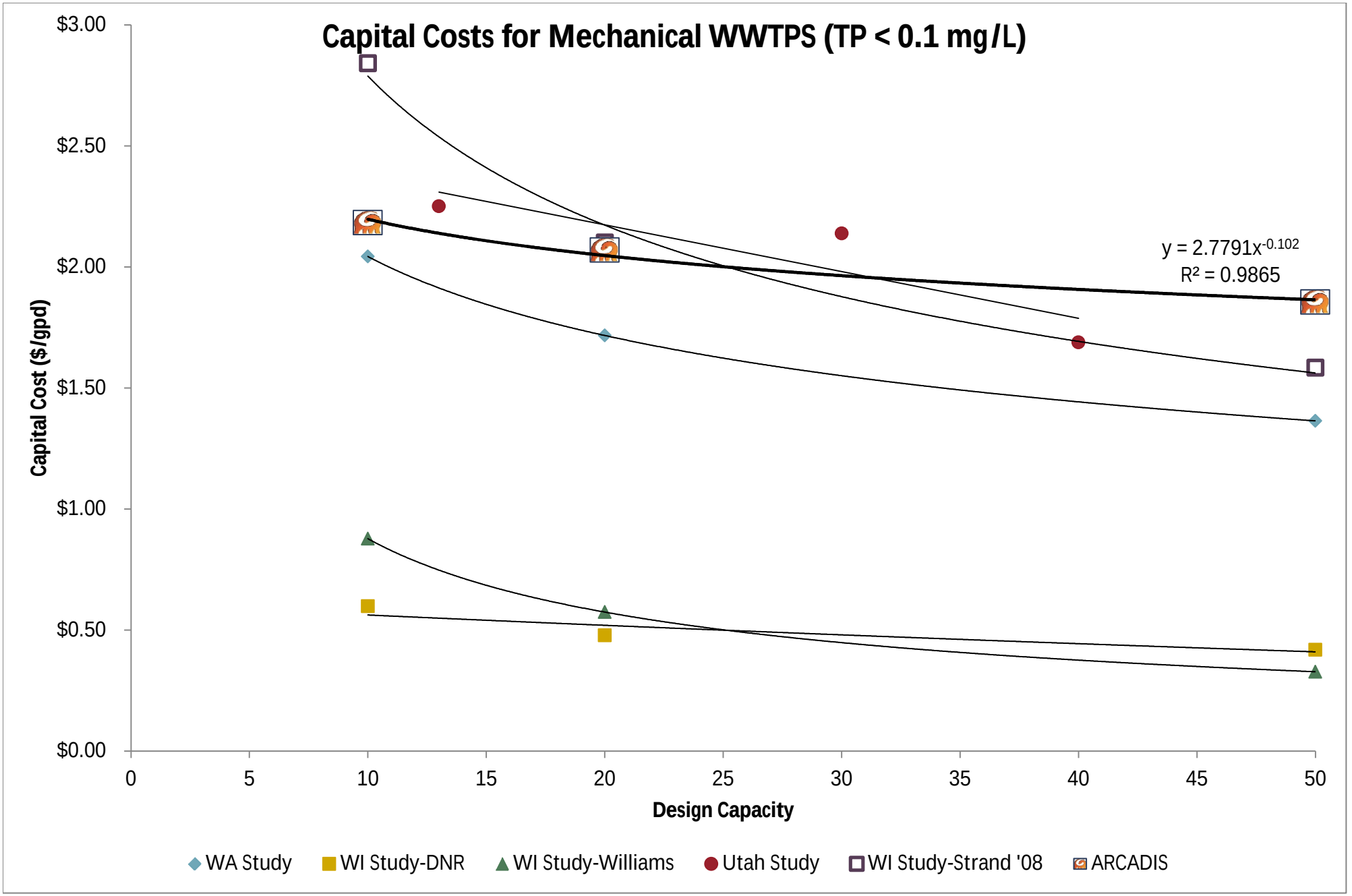
		Design Flow:						
Item	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Chemical Feed System								
Chemical Storage and Feed Building	$150/sq ft	$13,849	$39,820	$62,858	$191,650	$260,242	$1,425,498	$3,385,557
Chemical Storage Tanks	LS	$1,500	$7,100	$14,100	$70,500	$141,000	$282,000	$704,900
Metering Pumps	LS	$6,552	$6,552	$6,552	$9,576	$11,700	$13,275	$27,297
Miscellaneous piping, valves, and appurtenances	$66/lin ft	$6,600	$6,600	$9,900	$13,200	$16,500	$23,100	$29,700
Dual-Stage Sand Filters								
Dual Stage Sand Filter Building	$200/sq ft	$25,000	$125,000	$250,000	$833,333	$1,416,667	$2,833,333	$7,083,333
Filter Feed pumps	LS	$100,000	$150,000	$200,000	$310,000	$380,000	$475,000	$600,000
Backwash pumps	LS	$120,000	$180,000	$240,000	$124,000	$152,000	$190,000	$240,000
Sand Filters	LS	$268,500	$498,000	$498,000	$2,376,000	$4,564,500	$9,010,500	$21,220,500
Piping, valves, and appurtenances	$150 to $450/lin ft	$7,500	$15,000	$15,000	$50,000	$105,000	$157,500	$220,000
Filter Clearwell	LS	$6,305	$16,897	$26,862	$64,312	$110,725	$196,139	$434,197
Additional Sludge Storage								
Sludge Storage Tank	LS	$37,480	$520,760	$694,425	$1,354,682	$1,806,447	$2,408,867	$3,524,013
Dewatering System								
Dewatering System	LS	$335,584	$390,284	$417,157	$532,008	$763,907	$1,421,273	$2,021,949
Equipment Cost Subtotal		**$ 929,000**	**$ 1,957,000**	**$ 2,435,000**	**$ 5,930,000**	**$ 9,729,000**	**$ 18,437,000**	**$ 39,492,000**
Sitework (5%)		$ 46,450	$ 97,850	$ 121,750	$ 296,500	$ 486,450	$ 921,850	$ 1,974,600
Yard Piping (15%)		$ 139,350	$ 293,550	$ 365,250	$ 889,500	$ 1,459,350	$ 2,765,550	$ 5,923,800
Electrical and Instrumentation (25%)		$ 232,250	$ 489,250	$ 608,750	$ 1,482,500	$ 2,432,250	$ 4,609,250	$ 9,873,000
HVAC and Plumbing (15% of Building Cost)		$ 15,727	$ 38,386	$ 61,779	$ 171,073	$ 268,861	$ 533,275	$ 1,302,561
Site Foundation (2%)		$ 18,580	$ 39,140	$ 48,700	$ 118,600	$ 194,580	$ 368,740	$ 789,840
Maintenance of plant operations (5%)		$ 46,450	$ 97,850	$ 121,750	$ 296,500	$ 486,450	$ 921,850	$ 1,974,600
Mobilization, bonds and insurance (5%)		$ 46,450	$ 97,850	$ 121,750	$ 296,500	$ 486,450	$ 921,850	$ 1,974,600
Demobilization (2%)		$ 18,580	$ 39,140	$ 48,700	$ 118,600	$ 194,580	$ 368,740	$ 789,840
Construction Cost Subtotal		**$ 1,493,000**	**$ 3,151,000**	**$ 3,934,000**	**$ 9,600,000**	**$ 15,738,000**	**$ 29,849,000**	**$ 64,095,000**
Contractor OH&P (15%)		$ 224,000	$ 473,000	$ 591,000	$ 1,440,000	$ 2,361,000	$ 4,478,000	$ 9,615,000
Contingencies (35%)		$ 523,000	$ 1,103,000	$ 1,377,000	$ 3,360,000	$ 5,509,000	$ 10,448,000	$ 22,434,000
Bid Cost Subtotal		**$ 2,240,000**	**$ 4,730,000**	**$ 5,900,000**	**$ 14,400,000**	**$ 23,610,000**	**$ 44,780,000**	**$ 96,140,000**
Engineering and Administration (@18%)		$ 404,000	$ 852,000	$ 1,062,000	$ 2,592,000	$ 4,250,000	$ 8,061,000	$ 17,306,000
CAPITAL COST TOTAL (ROUNDED)		**$ 2,640,000**	**$ 5,580,000**	**$ 6,960,000**	**$ 16,990,000**	**$ 27,860,000**	**$ 52,840,000**	**$ 113,450,000**

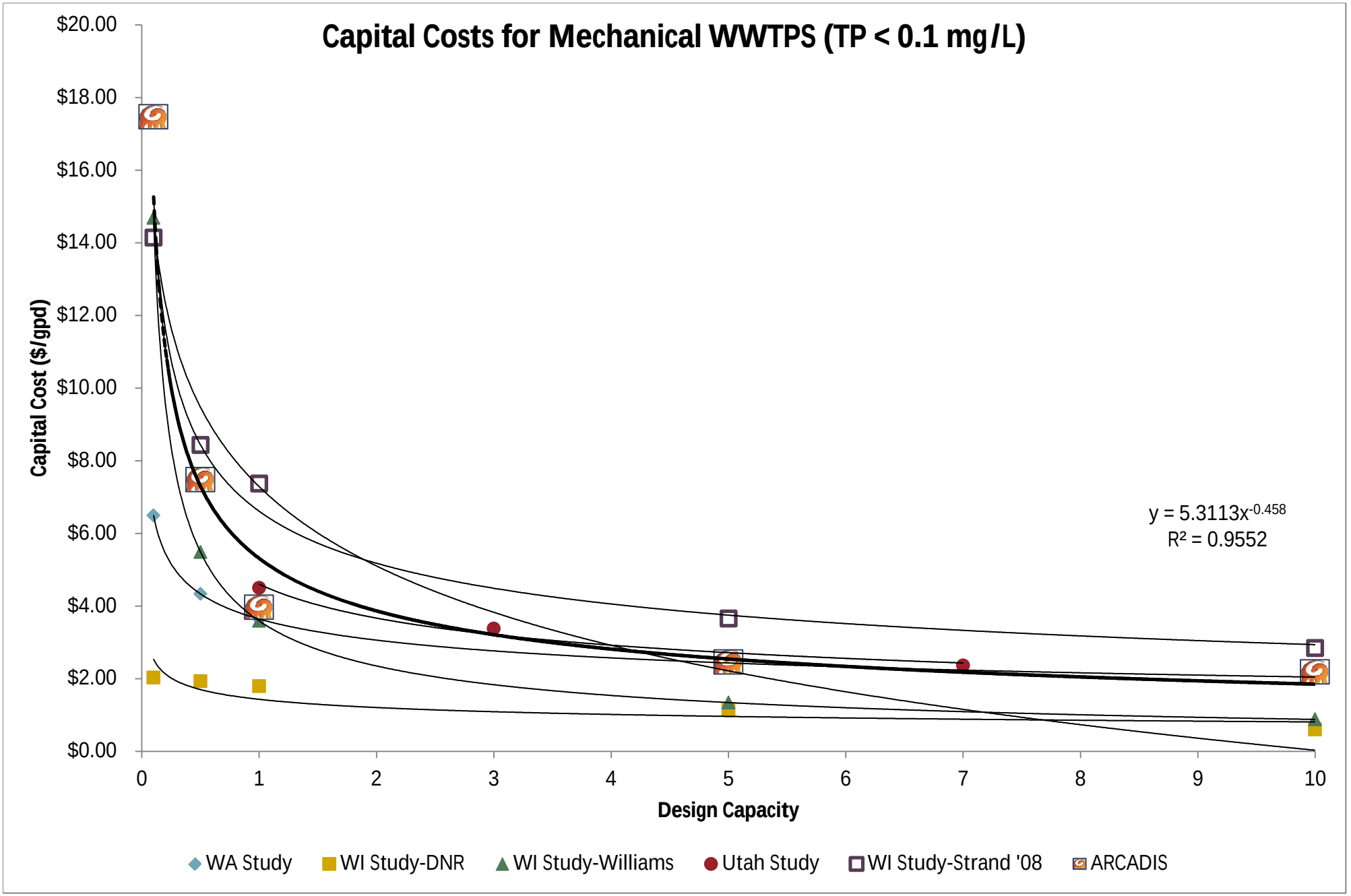
Paper Mills (1000 mg/l alum dose)
Concept-Level Estimate of O&M Costs

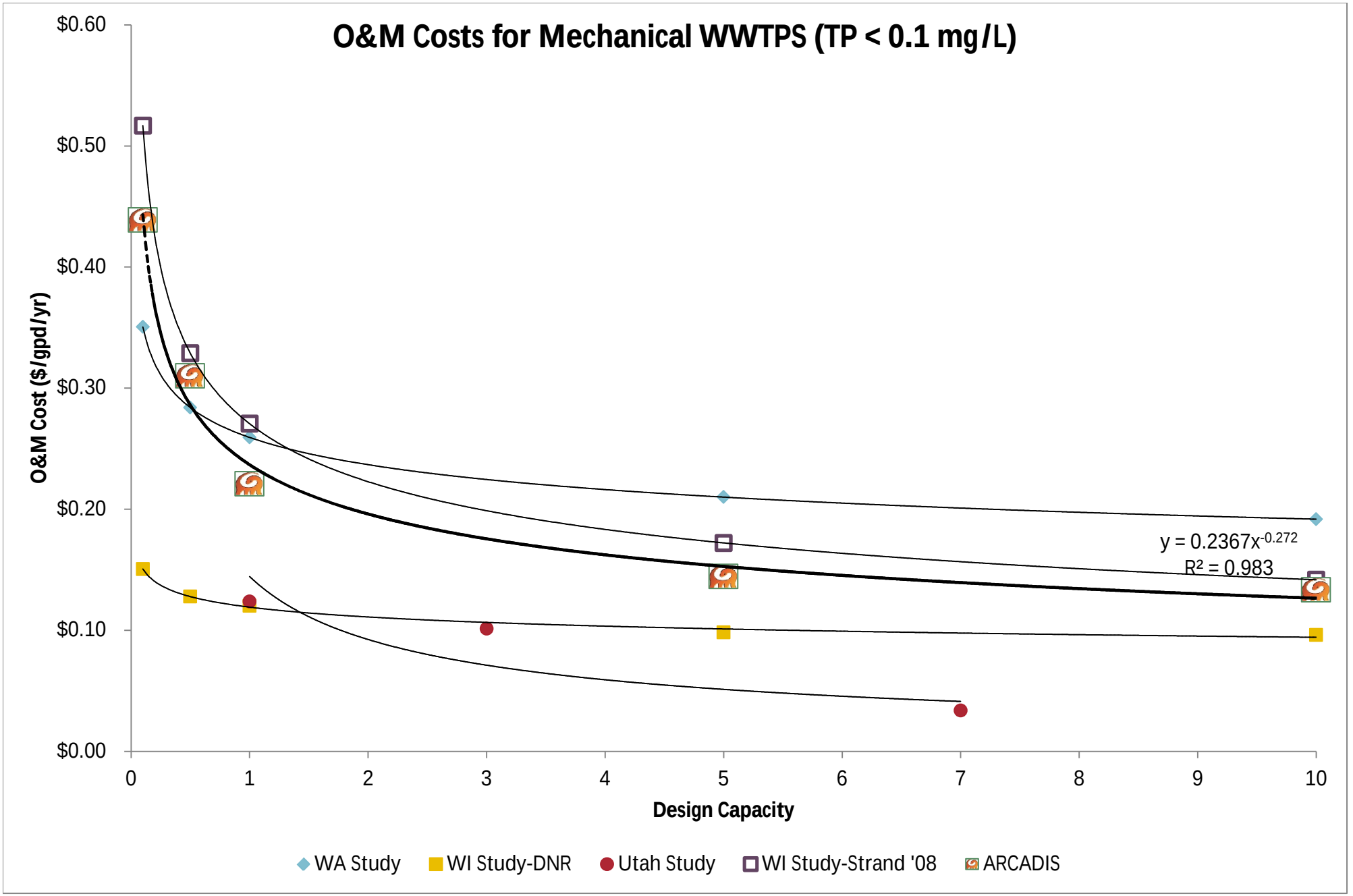
		Design Flow:						
Annual O&M Cost Items	**Unit Cost**	**0.1 MGD**	**0.5 MGD**	**1 MGD**	**5 MGD**	**10 MGD**	**20 MGD**	**50 MGD**
Annual Polymer Cost	$1.65/lb	$36,429	$182,146	$364,292	$1,821,461	$3,642,922	$7,285,844	$18,214,611
Annual Power Cost	$0.08/kW-hr	$788	$2,780	$4,919	$22,191	$45,710	$152,620	$436,922
Alum Usage	$0.25/lb	$76,103	$380,513	$761,025	$3,805,125	$7,610,250	$15,220,500	$38,051,250
Biosolids Hauling and Disposal	$0.05/2% solids ton $225/$20% solids ton	$6,487	$32,435	$64,870	$324,350	$648,699	$1,297,398	$3,243,496
Equipment Maintenance (2% of equipment capital cost)	LS	$18,577	$39,120	$48,697	$118,585	$194,574	$368,730	$789,829
Additional Labor Cost	$45/hr	$18,720	$65,520	$93,600	$140,400	$187,200	$205,920	$234,000
Subtotal Annual Additional Operations and Maintenance Costs ($/year)		**$ 157,000**	**$ 703,000**	**$ 1,337,000**	**$ 6,232,000**	**$ 12,329,000**	**$ 24,531,000**	**$ 60,970,000**

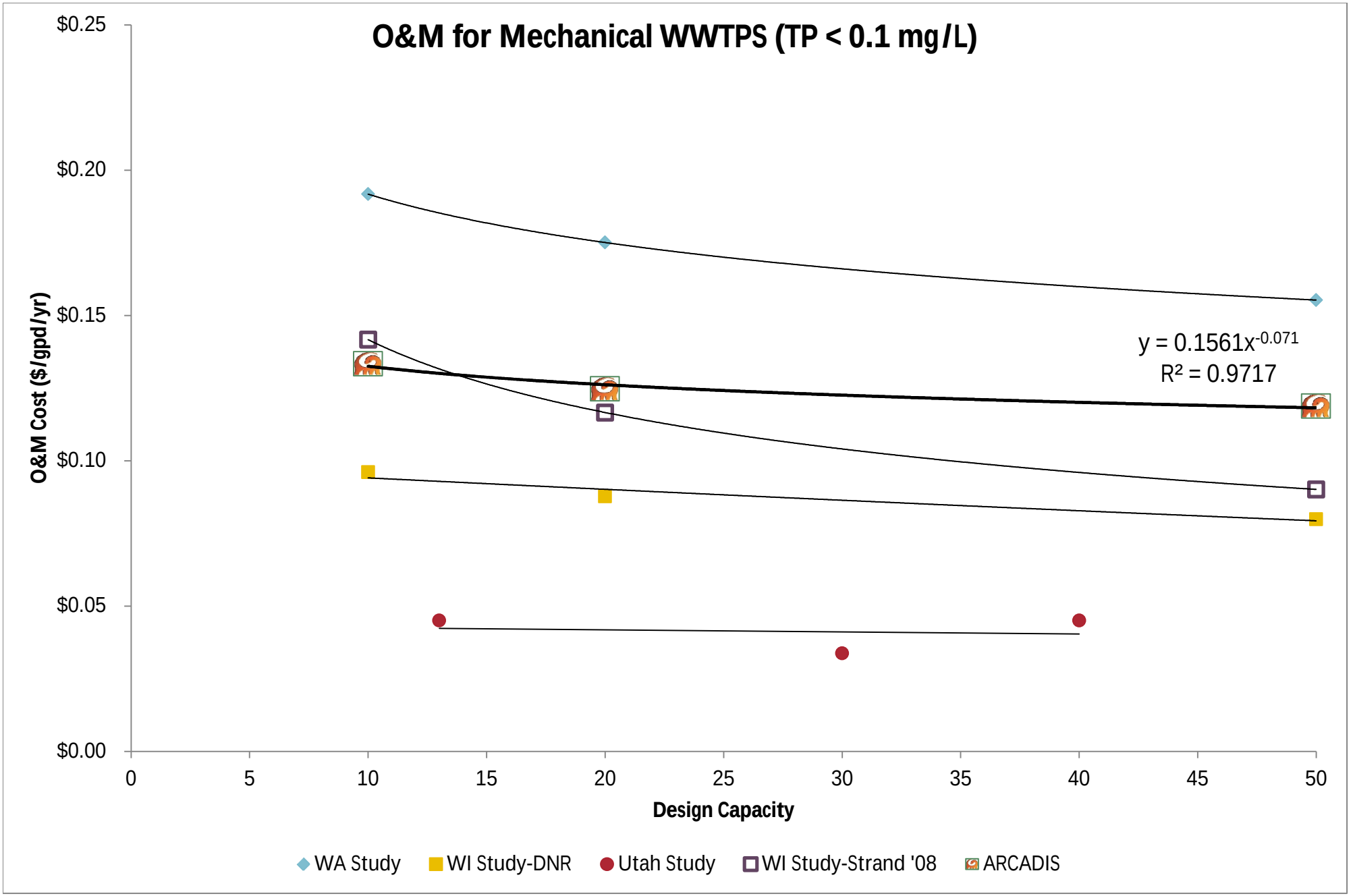
APPENDIX E

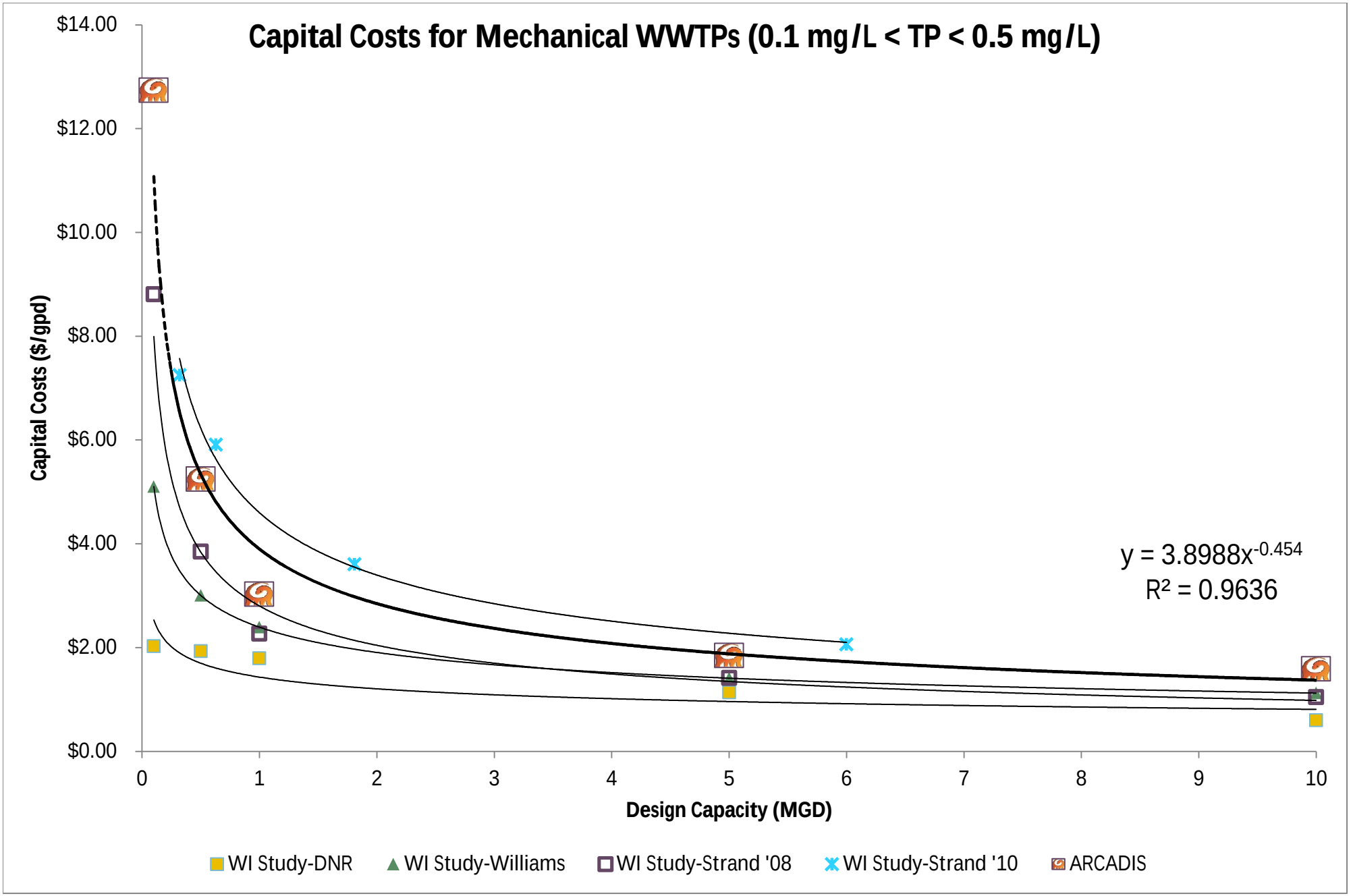
CAPITAL AND O&M COST CURVES

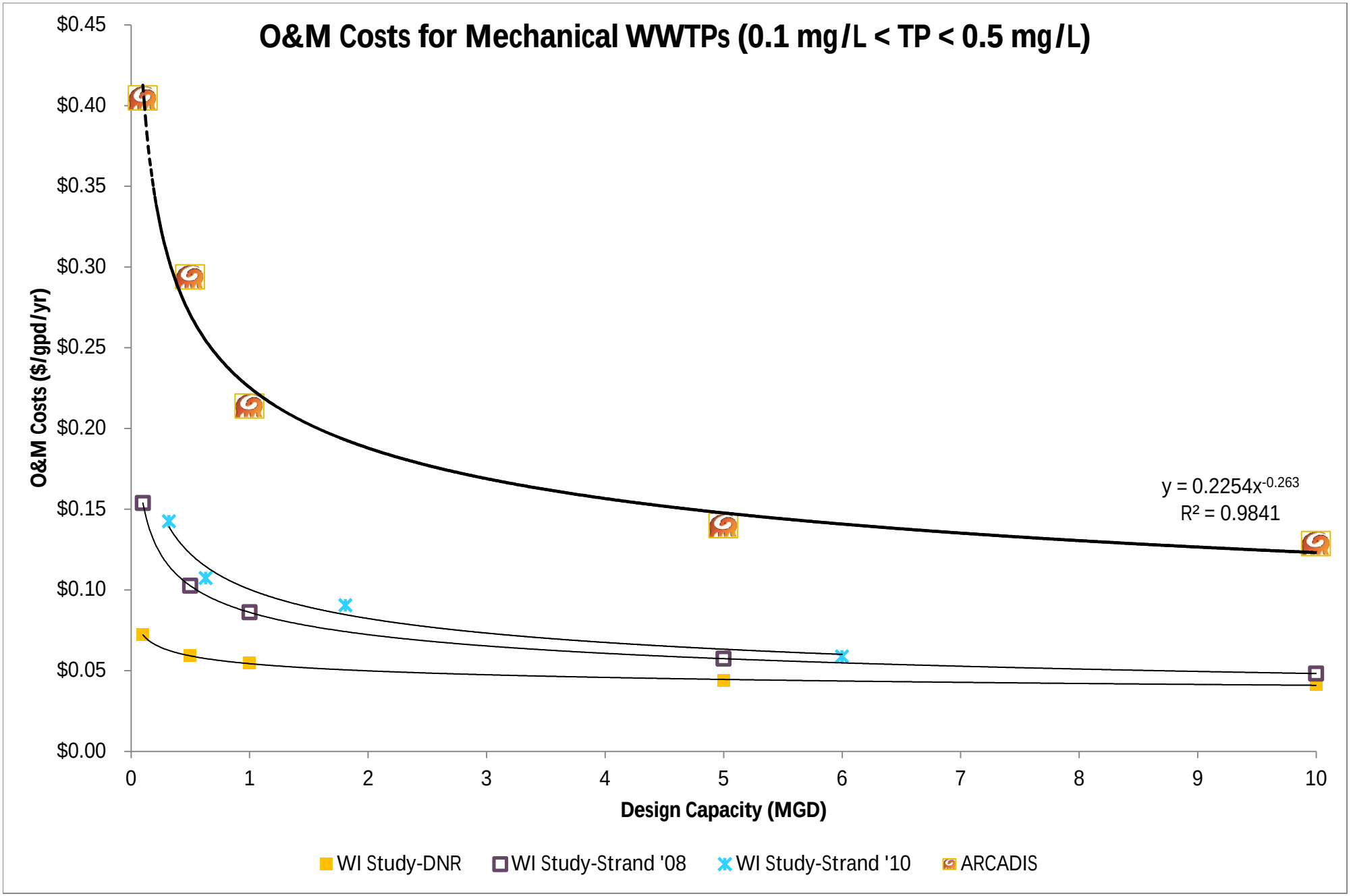

Capital Costs for Mechanical WWTPS (TP < 0.1 mg/L)
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
Capital Cost ($/gpd)
0
5
10
15
20
25
30
35
40
45
50
Design Capacity
y = 2.7791x-0.102
R² = 0.9865
WA Study
WI Study-DNR
WI Study-Williams
Utah Study
WI Study-Strand '08
ARCADIS

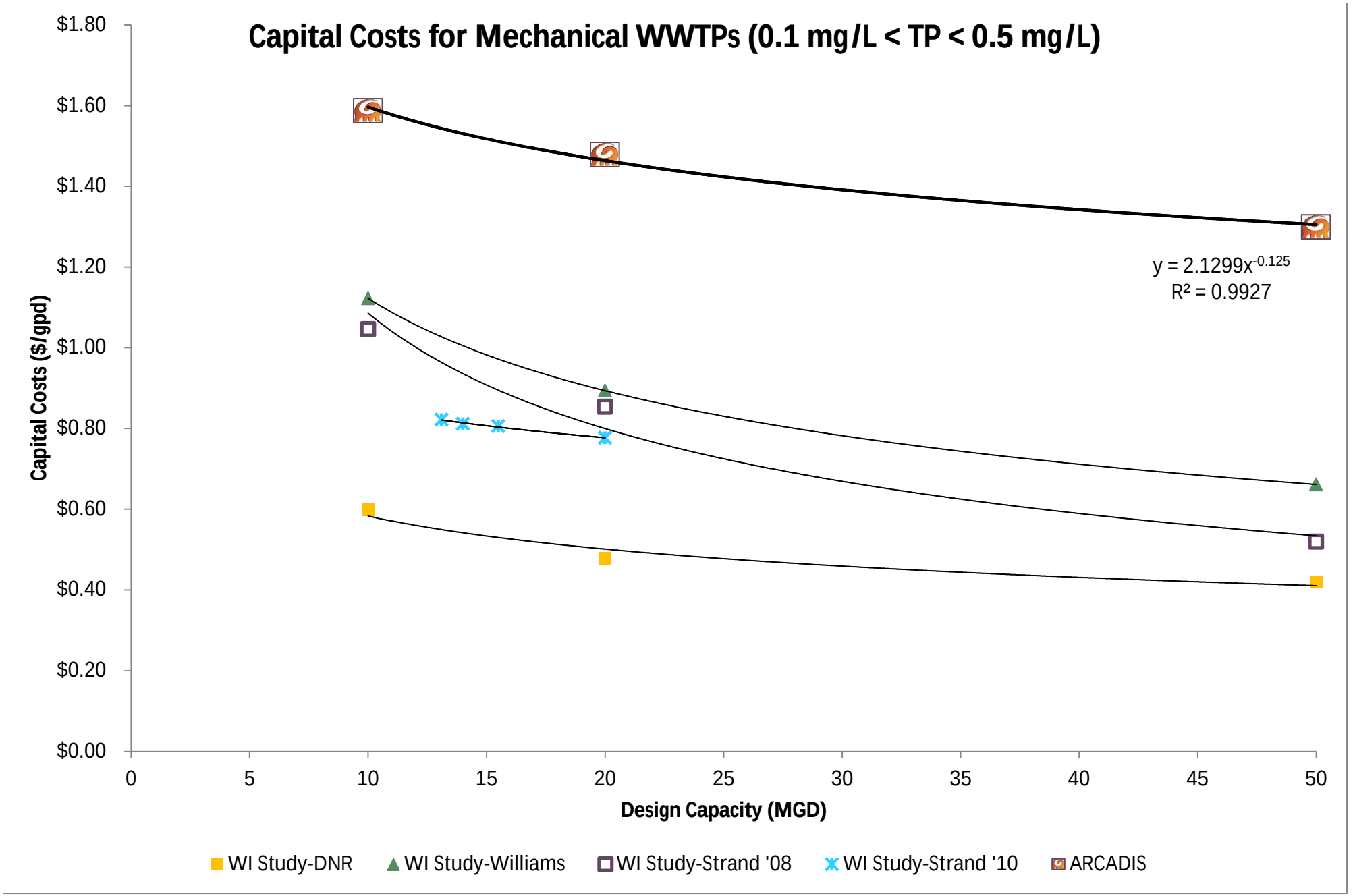

Capital Costs for Mechanical WWTPS (TP < 0.1 mg/L)
Capital Cost ($/gpd)
$20.00
$18.00
$16.00
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
0
1
2
3
4
5
6
7
8
9
10
Design Capacity
y = 5.3113x-0.458
R² = 0.9552
WA Study
WI Study-DNR
WI Study-Williams
Utah Study
WI Study-Strand '08
ARCADIS

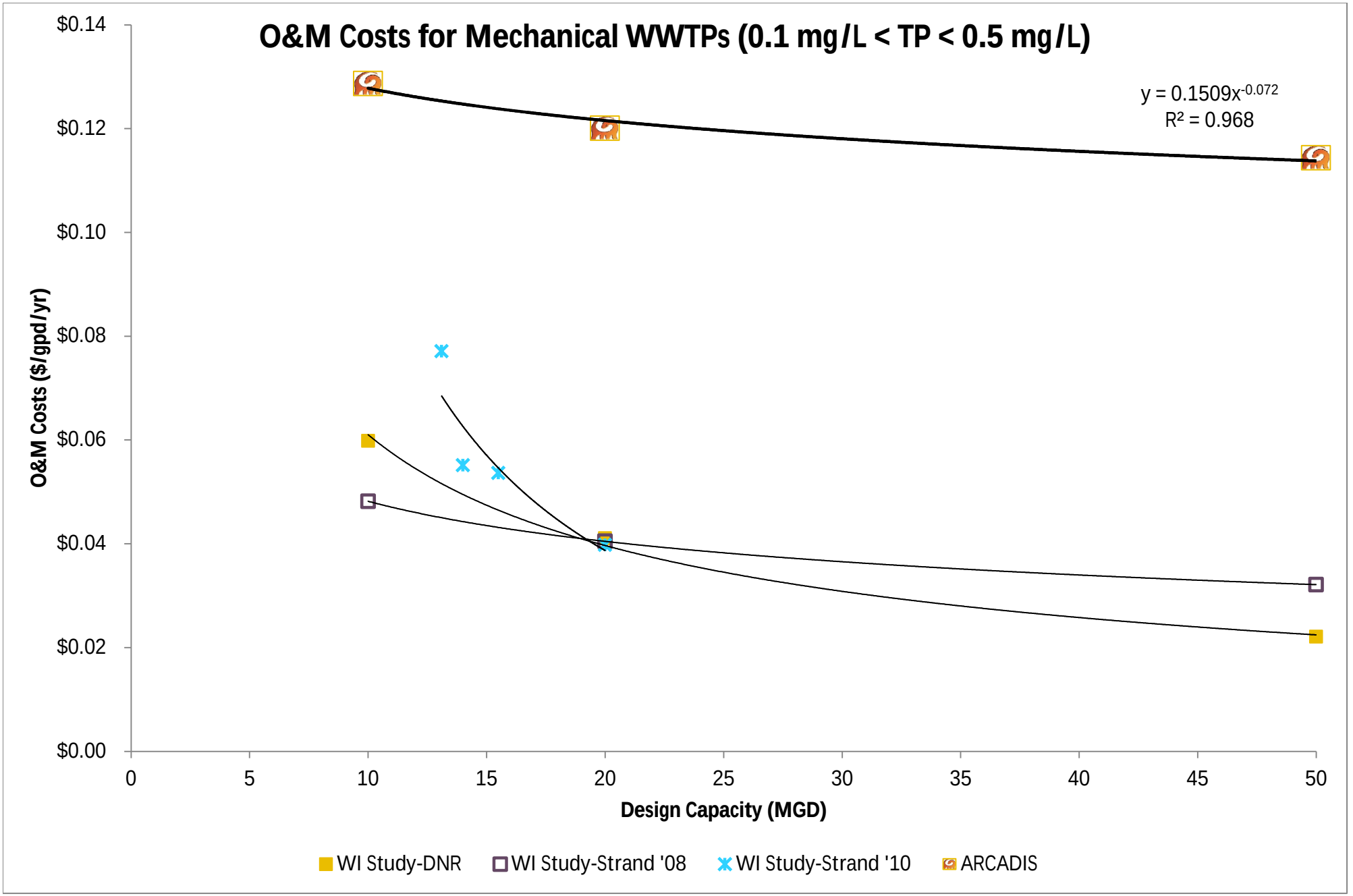

O&M Costs for Mechanical WWTPS (TP < 0.1 mg/L)
$0.60
$0.50
$0.40
$0.30
$0.20
$0.10
$0.00
O&M Cost ($/gpd/yr)
0
1
2
3
4
5
6
7
8
9
10
Design Capacity
y = 0.2367x-0.272
R² = 0.983
WA Study
WI Study-DNR
Utah Study
WI Study-Strand '08
ARCADIS

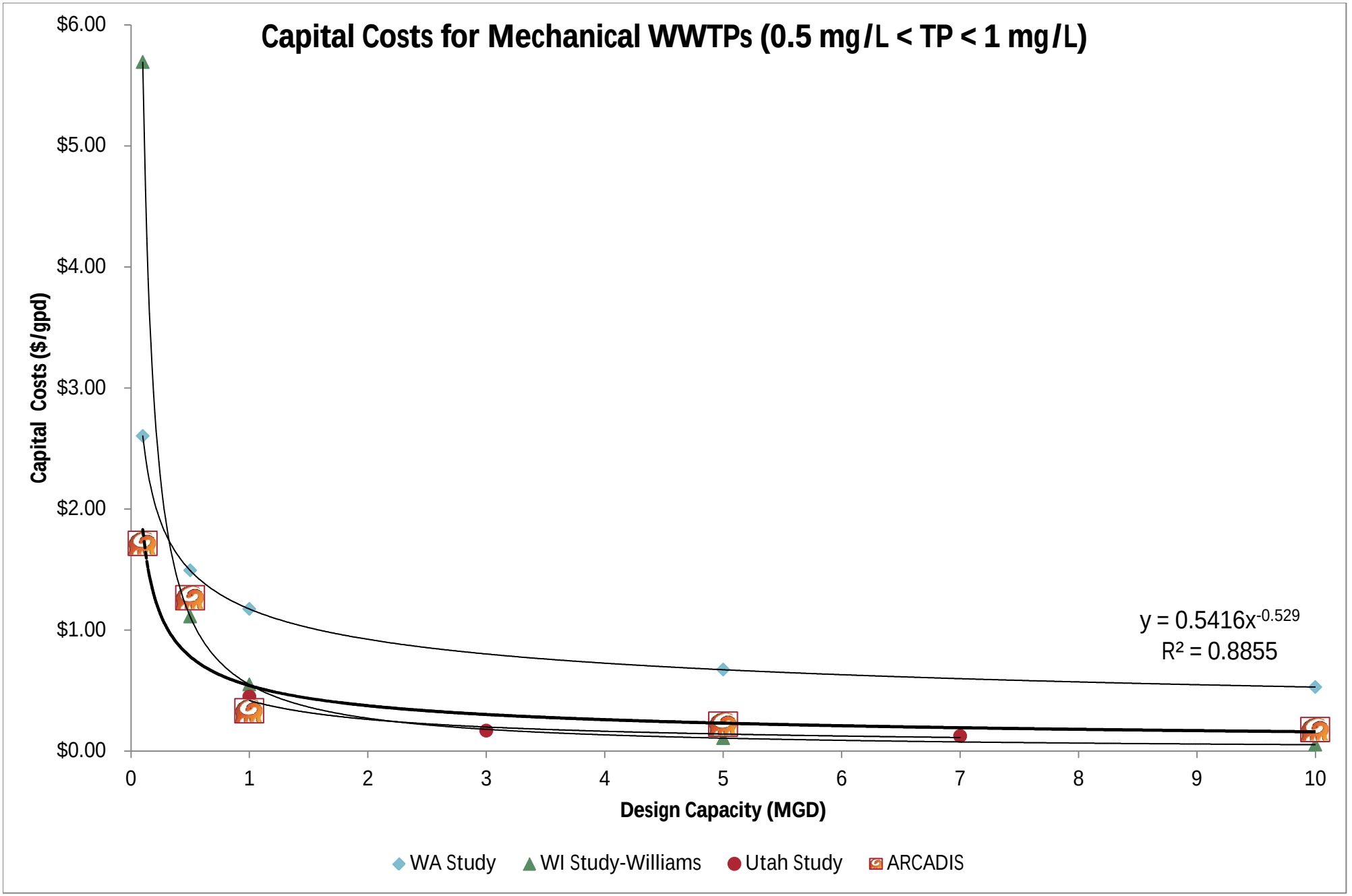

O&M for Mechanical WWTPS (TP < 0.1 mg/L)
O&M Cost ($/gpd/yr)
$0.25
$0.20
$0.15
$0.10
$0.05
$0.00
0
5
10
15
20
25
30
35
40
45
50
Design Capacity
y = 0.1561x-0.071
R² = 0.9717
WA Study
WI Study-DNR
Utah Study
WI Study-Strand '08
ARCADIS

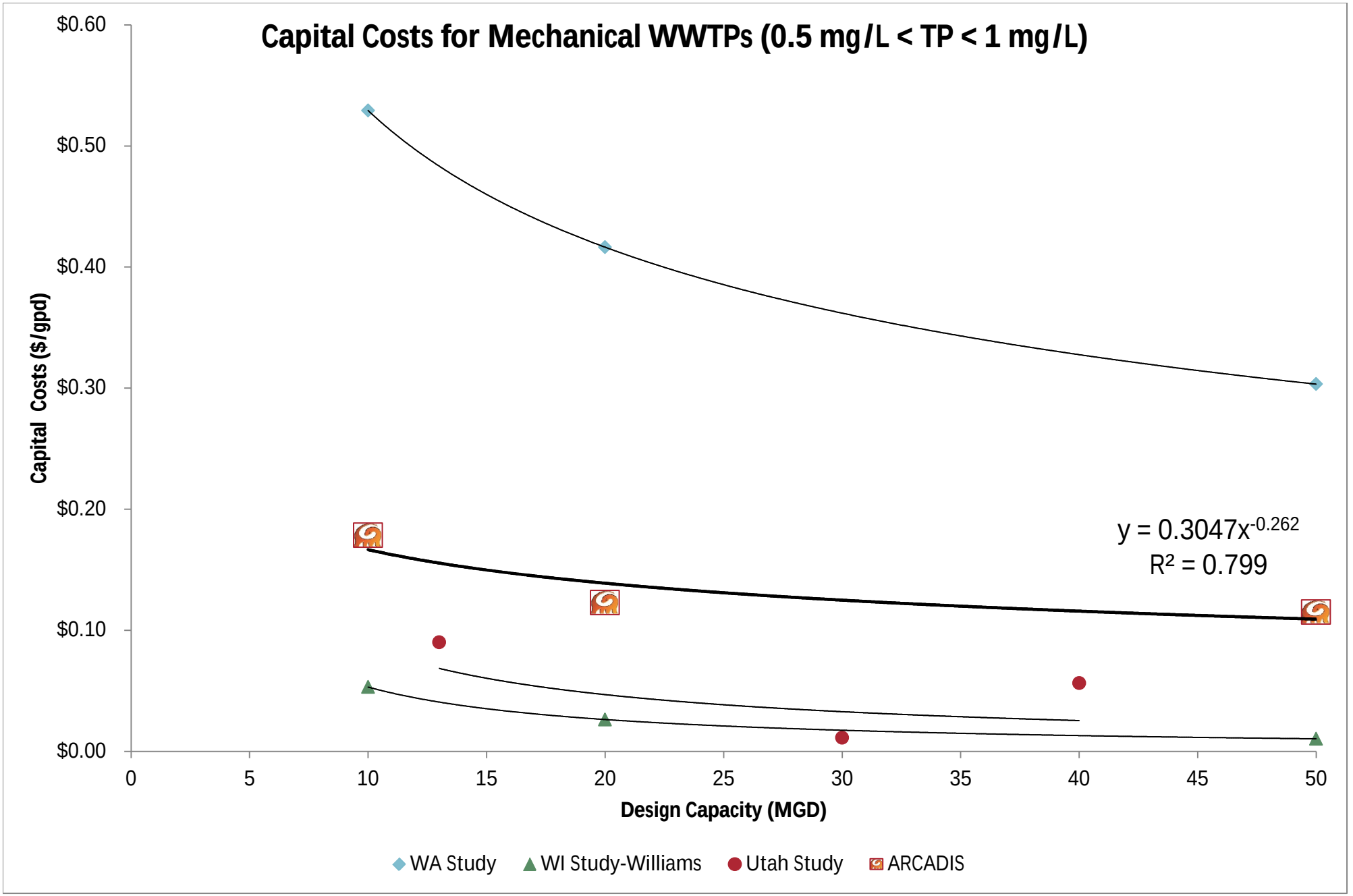

Capital Costs for Mechanical WWTPs (0.1 mg/L < TP < 0.5 mg/L)
Capital Costs ($/gpd)
$14.00
$12.00
$10.00
$8.00
$6.00
$4.00
$2.00
$0.00
0
1
2
3
4
5
6
7
8
9
10
Design Capacity (MGD)
y = 3.8988x-0.454
R² = 0.9636
WI Study-DNR
WI Study-Williams
WI Study-Strand '08
WI Study-Strand '10
ARCADIS

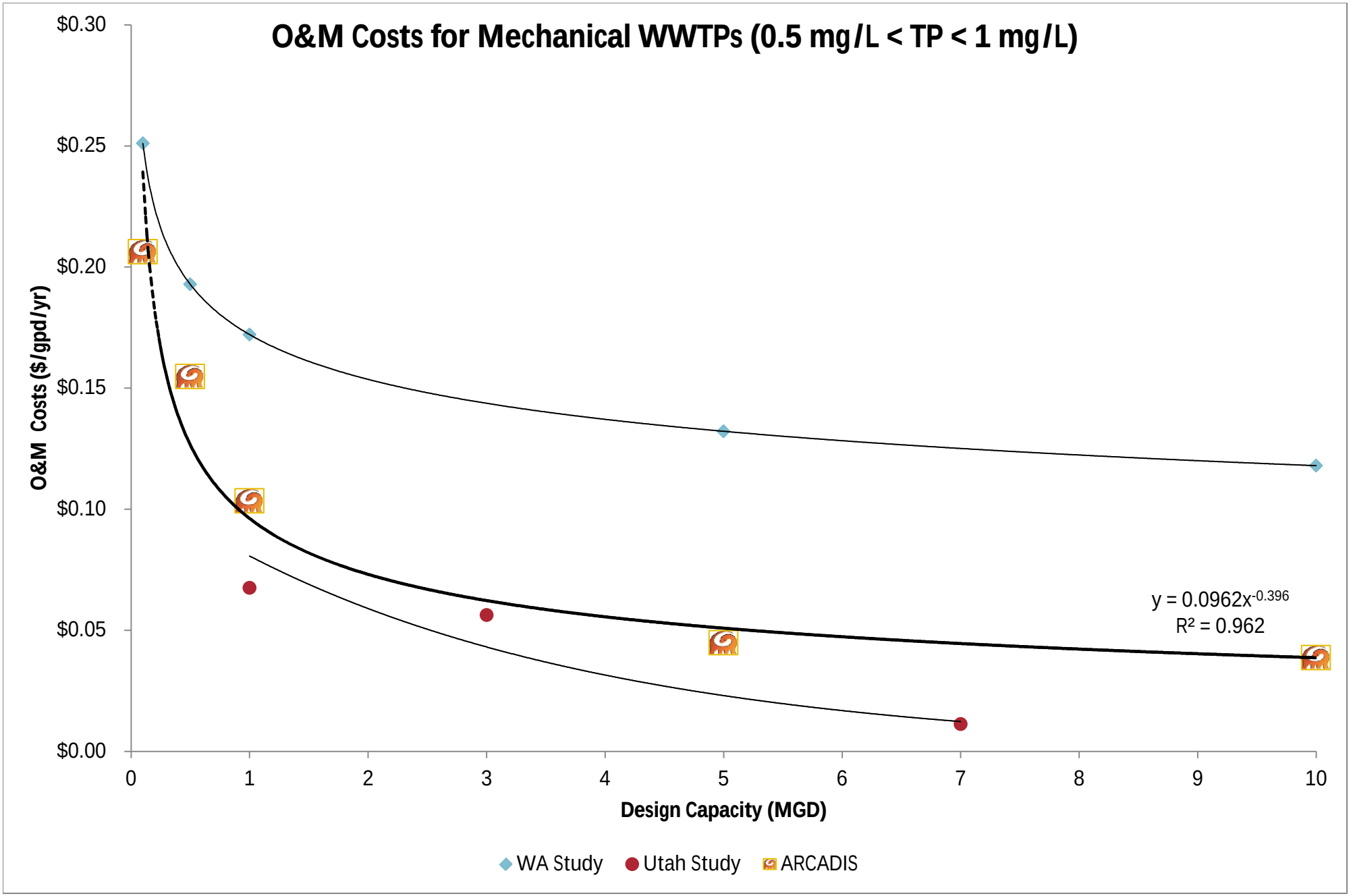

O&M Costs for Mechanical WWTPs (0.1 mg/L < TP < 0.5 mg/L)
O&M Costs ($/gpd/yr)
$0.45
$0.40
$0.35
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
$0.00
0
1
2
3
4
5
6
7
8
9
10
Design Capacity (MGD)
y = 0.2254x-0.263
R² = 0.9841
WI Study-DNR
WI Study-Strand '08
WI Study-Strand '10
ARCADIS

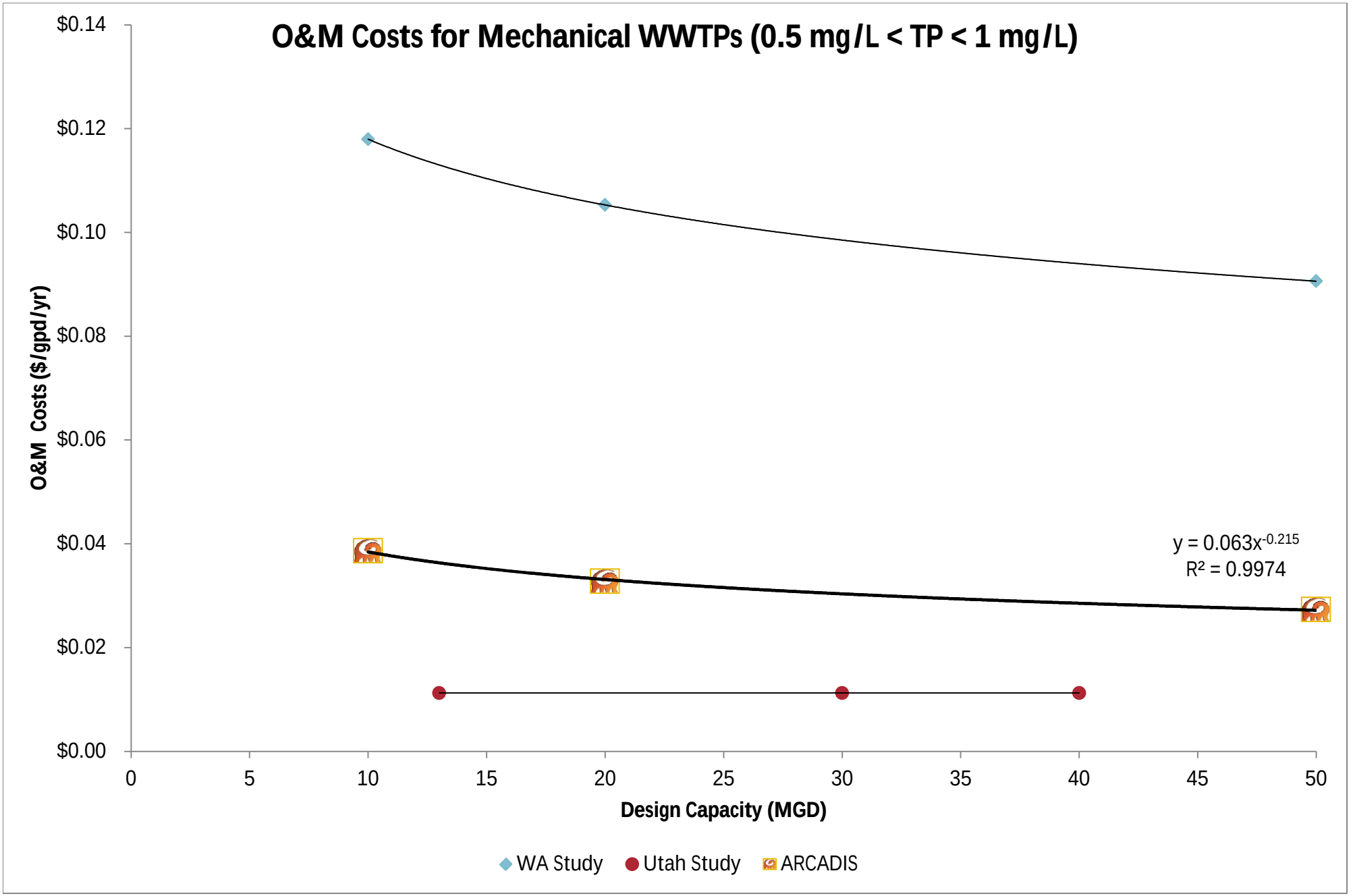

Capital Costs for Mechanical WWTPs (0.1 mg/L < TP < 0.5 mg/L)
$1.80
$1.60
$1.40
$1.20
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
Capital Costs ($/gpd)
y = 2.1299x-0.125
R² = 0.9927
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
WI Study-DNR
WI Study-Williams
WI Study-Strand '08
WI Study-Strand '10
ARCADIS

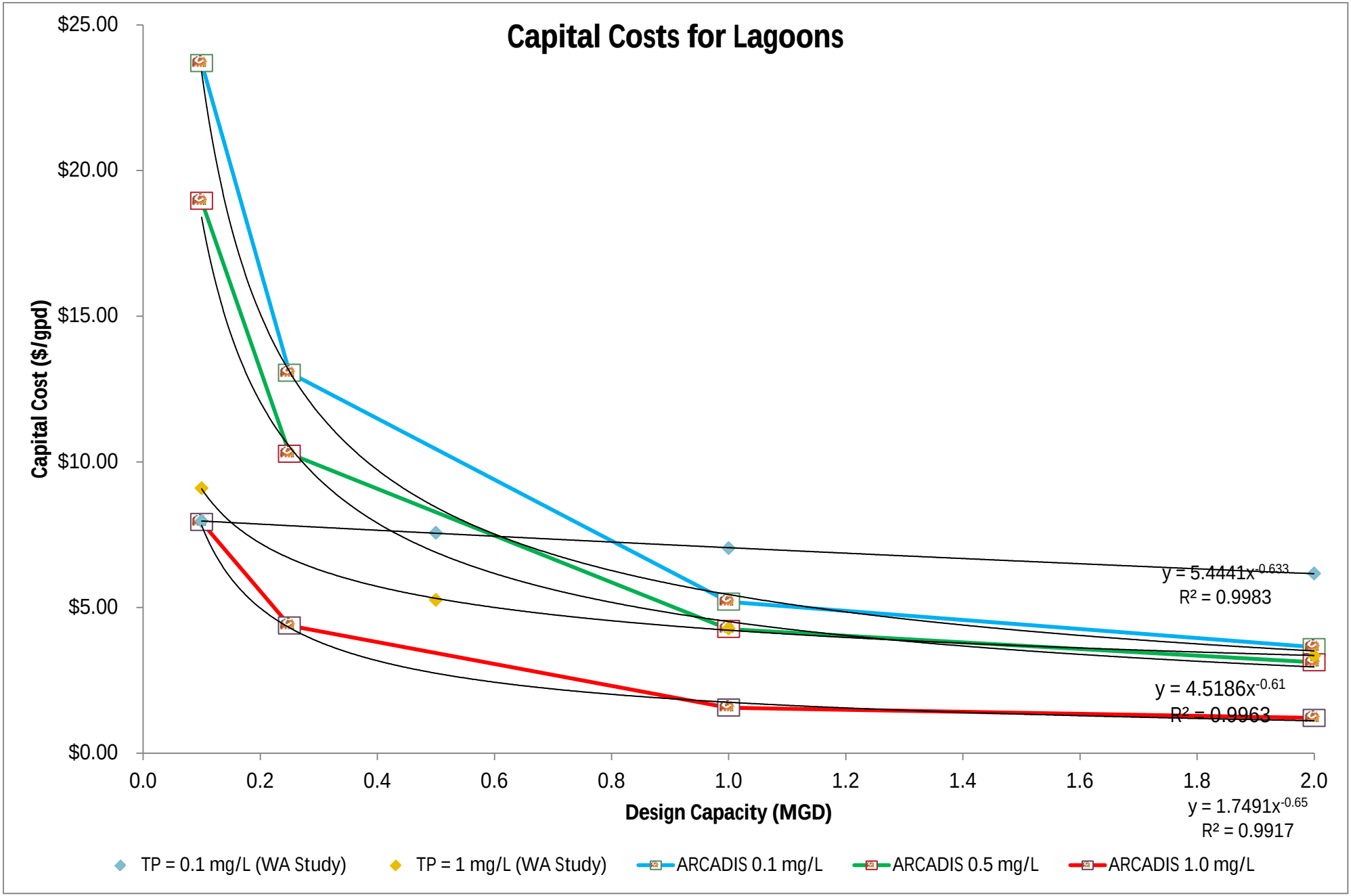

O&M Costs for Mechanical WWTPs (0.1 mg/L < TP < 0.5 mg/L)
y = 0.1509x-0.072
R² = 0.968
$0.14
$0.12
$0.10
$0.08
$0.06
$0.04
$0.02
$0.00
O&M Costs ($/gpd/yr)
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
WI Study-DNR
WI Study-Strand '08
WI Study-Strand '10
ARCADIS

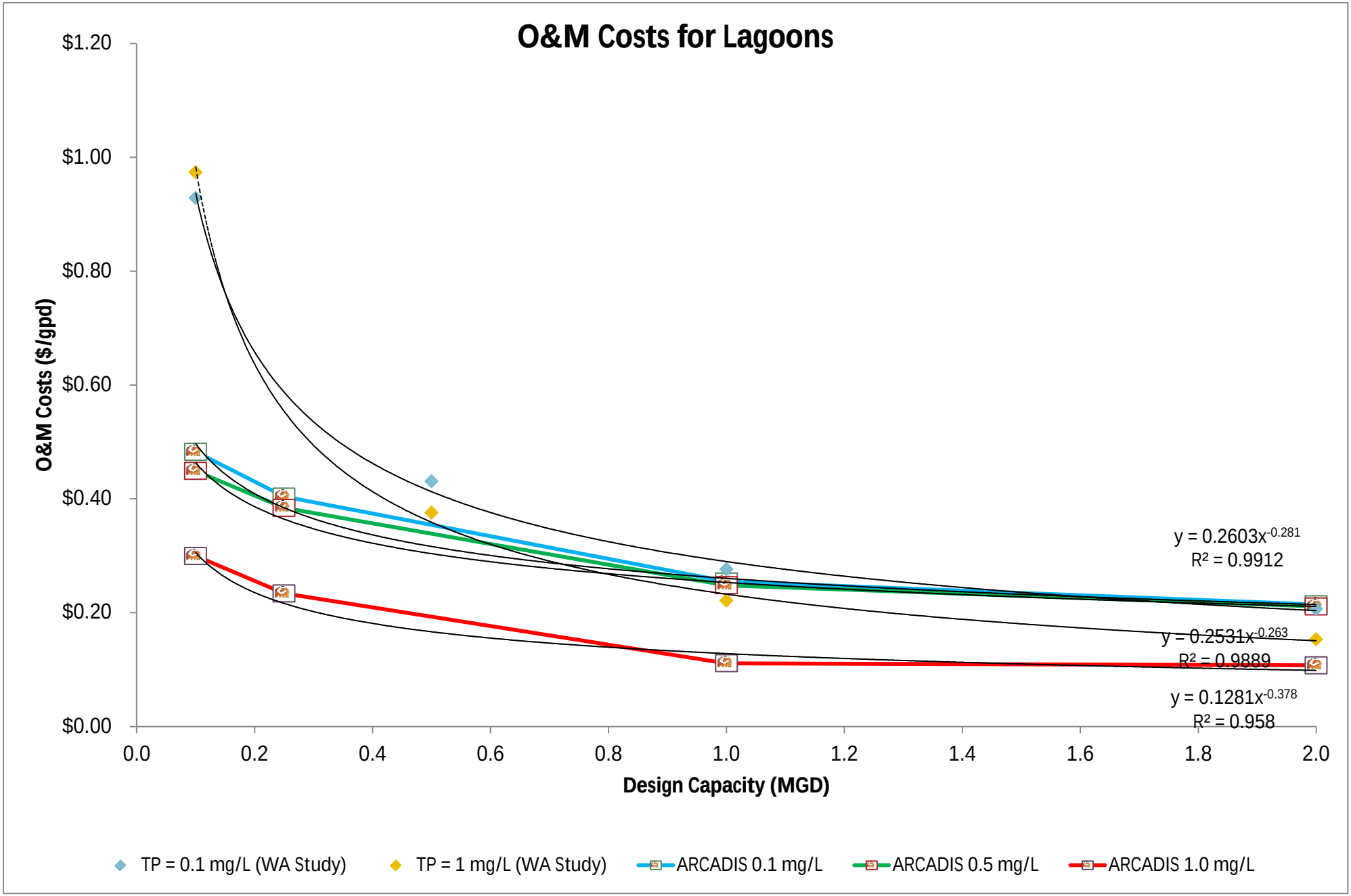

Capital Costs for Mechanical WWTPs (0.5 mg/L < TP < 1 mg/L)
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
$0.00
Capital Costs ($/gpd)
0
1
2
3
4
5
6
7
8
9
10
Design Capacity (MGD)
y = 0.5416x-0.529
R² = 0.8855
WA Study
WI Study-Williams
Utah Study
ARCADIS

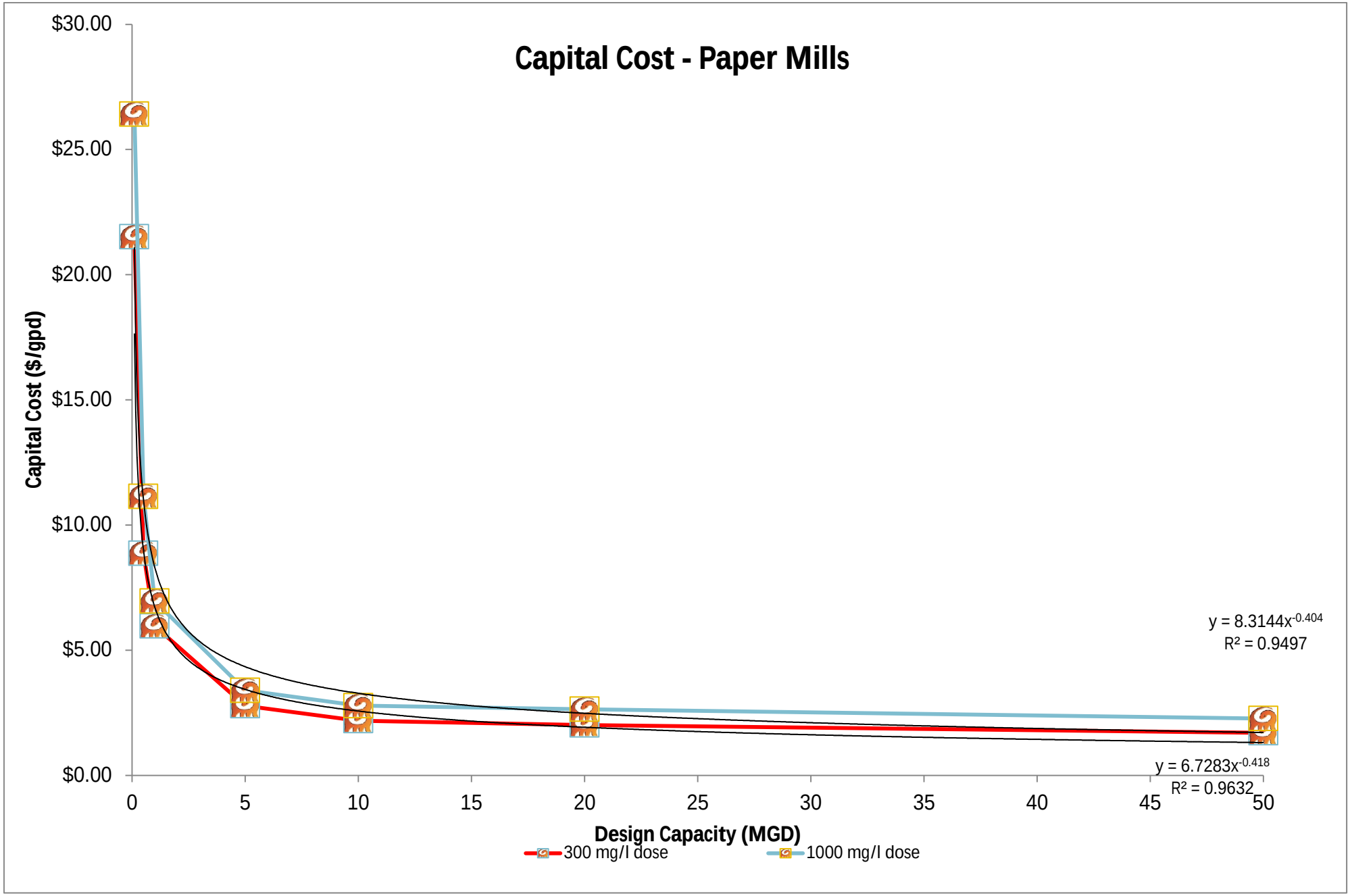

Capital Costs for Mechanical WWTPs (0.5 mg/L < TP < 1 mg/L)
Capital Costs ($/gpd)
$0.60
$0.50
$0.40
$0.30
$0.20
$0.10
$0.00
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
y = 0.3047x-0.262
R² = 0.799
WA Study
WI Study-Williams
Utah Study
ARCADIS

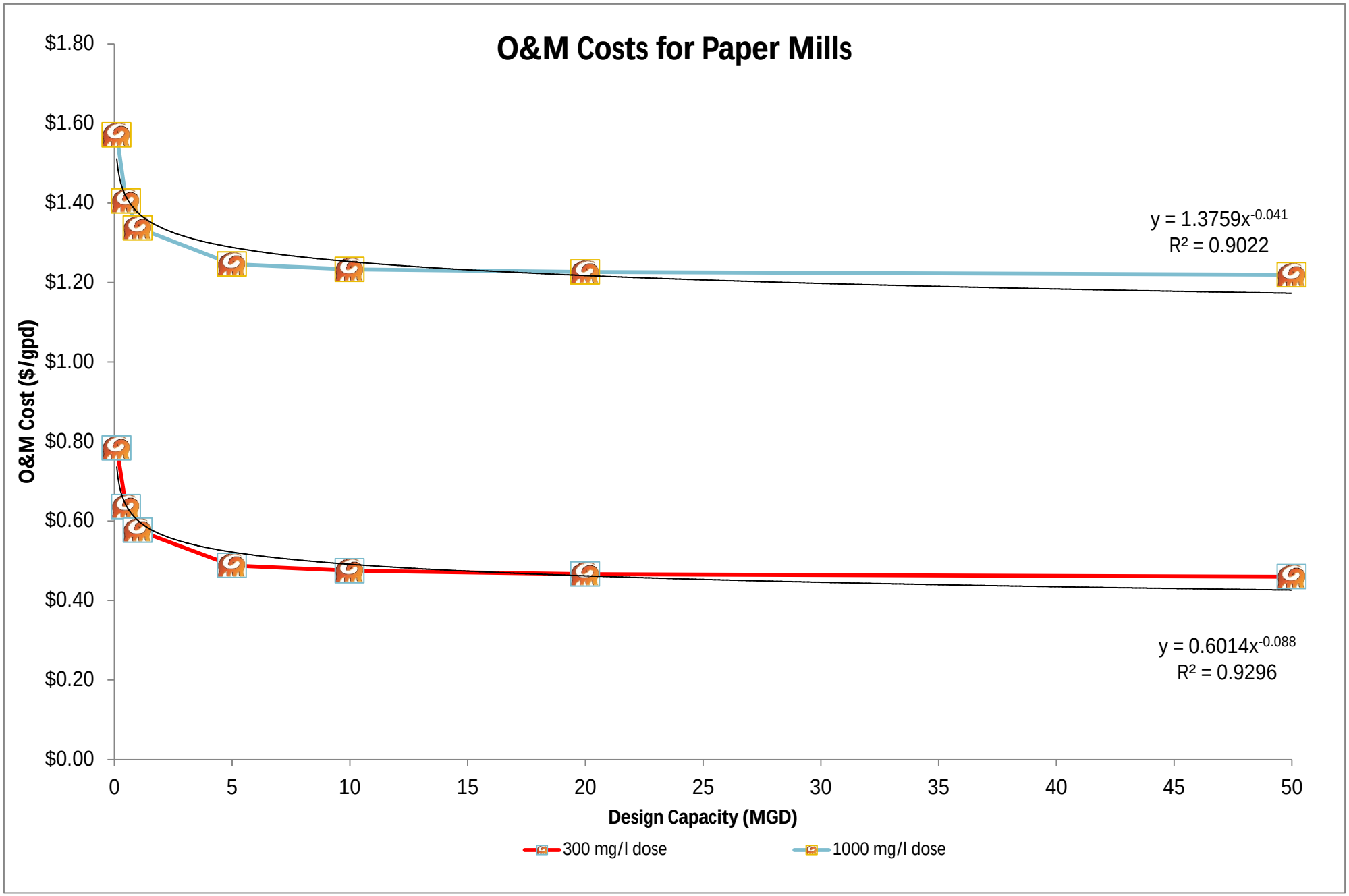

O&M Costs for Mechanical WWTPs (0.5 mg/L < TP < 1 mg/L)
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
$0.00
O&M Costs ($/gpd/yr)
0
1
2
3
4
5
6
7
8
9
10
Design Capacity (MGD)
y = 0.0962x-0.396
R² = 0.962
WA Study
Utah Study
ARCADIS


O&M Costs for Mechanical WWTPs (0.5 mg/L < TP < 1 mg/L)
O&M Costs ($/gpd/yr)
$0.14
$0.12
$0.10
$0.08
$0.06
$0.04
$0.02
$0.00
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
y = 0.063x-0.215
R² = 0.9974
WA Study
Utah Study
ARCADIS


Capital Costs for Lagoons
$25.00
$20.00
$15.00
$10.00
$5.00
$0.00
Capital Cost ($/gpd)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
Design Capacity (MGD)
y = 5.4441x-0.633
R² = 0.9983
y = 4.5186x-0.61
R² = 0.9963
y = 1.7491x-0.65
R² = 0.9917
TP = 0.1 mg/L (WA Study)
TP = 1 mg/L (WA Study)
ARCADIS 0.1 mg/L
ARCADIS 0.5 mg/L
ARCADIS 1.0 mg/L


O&M Costs for Lagoons
$1.20
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
O&M Costs ($/gpd)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
Design Capacity (MGD)
y = 0.2603x-0.281
R² = 0.9912
y = 0.2531x-0.263
R² = 0.9889
y = 0.1281x-0.378
R² = 0.958
TP = 0.1 mg/L (WA Study)
TP = 1 mg/L (WA Study)
ARCADIS 0.1 mg/L
ARCADIS 0.5 mg/L
ARCADIS 1.0 mg/L


Capital Cost - Paper Mills
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$0.00
Capital Cost ($/gpd)
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
y = 8.3144x-0.404
R² = 0.9497
y = 6.7283x-0.418
R² = 0.9632
300 mg/l dose
1000 mg/l dose


O&M Costs for Paper Mills
$1.80
$1.60
$1.40
$1.20
$1.00
$0.80
$0.60
$0.40
$0.20
$0.00
O&M Cost ($/gpd)
y = 1.3759x-0.041
R² = 0.9022
y = 0.6014x-0.088
R² = 0.9296
0
5
10
15
20
25
30
35
40
45
50
Design Capacity (MGD)
300 mg/l dose
1000 mg/l dose

APPENDIX F

COUNTY ANALYSES

Appendix F
County Analyses

Line in Customer Worksheet	108	100	101	201	103			104	105	106	107	109	202	203	205
County	Sum of Customers	Sum of Sewer Utility Budget for 2013	Sum of Max Debt Payments for 2013	Average of Median Household Income 2013	Inflationary O & M	Additional O & M for Phos Removal	Total Additional O & M	Annual Capital Debt and Cash for Phos Removal	Average Annual Cost for Phos Removal	Total New Sanitary Budget Required	Customer % of the Sanitary Charges	Cost per Customer	Yearly Change in MHI	MHI Projection	Affordability Index
Adams	872	$ 600,000	$ -	$ 34,643	$ 18,000	$ -	$ 18,000	$ -	$ -	$ 618,000	$ 618,000	$ 709	2.645%	$ 35,559	1.99%
Ashland	3,980	$ 1,871,490	$ 79,631	$ 31,964	$ 56,145	$ 129,919	$ 186,064	$ 310,765	$ 440,684	$ 2,447,950	$ 2,447,950	$ 615	1.684%	$ 32,502	1.89%
Barron	7,787	$ 3,885,266	$ 14,921	$ 39,410	$ 116,558	$ 391,444	$ 508,002	$ 2,888,475	$ 3,279,919	$ 7,296,663	$ 7,296,663	$ 937	1.399%	$ 39,961	2.34%
Bayfield	1,550	$ 1,304,011	$ 85,312	$ 37,812	$ 39,120	$ 114,535	$ 153,655	$ 633,278	$ 747,813	$ 2,176,256	$ 2,176,256	$ 1,404	2.662%	$ 38,818	3.62%
Brown	46,224	$ 32,909,977	$ 6,191,387	$ 61,088	$ 987,299	$ 4,158,123	$ 5,145,423	$ 10,114,555	$ 14,272,678	$ 54,361,342	$ 54,361,342	$ 1,176	1.105%	$ 61,763	1.90%
Buffalo	1,343	$ 601,700	$ 16,554	$ 40,105	$ 18,051	$ 186,437	$ 204,488	$ 1,801,456	$ 1,987,893	$ 2,624,197	$ 2,624,197	$ 1,954	2.106%	$ 40,950	4.77%
Burnett	816	$ 252,468	$ 22,367	$ 31,844	$ 7,574	$ 53,587	$ 61,161	$ 546,078	$ 599,665	$ 882,074	$ 882,074	$ 1,081	1.202%	$ 32,227	3.35%
Calumet	5,523	$ 3,373,642	$ 297,357	$ 57,635	$ 101,209	$ 817,996	$ 919,205	$ 4,164,195	$ 4,982,191	$ 8,754,400	$ 8,754,400	$ 1,585	1.838%	$ 58,694	2.70%
Chippewa	4,082	$ 2,135,993	$ 193,565	$ 41,573	$ 64,080	$ 319,954	$ 384,034	$ 1,924,104	$ 2,244,058	$ 4,637,696	$ 4,637,696	$ 1,136	2.128%	$ 42,458	2.68%
Clark	4,914	$ 3,046,972	$ 190,465	$ 38,588	$ 91,409	$ -	$ 91,409	$ -	$ -	$ 3,328,846	$ 3,328,846	$ 677	1.935%	$ 39,334	1.72%
Columbia	11,184	$ 7,117,907	$ 638,314	$ 48,010	$ 213,537	$ 527,417	$ 740,954	$ 2,770,315	$ 3,297,732	$ 11,267,490	$ 11,267,490	$ 1,007	2.195%	$ 49,064	2.05%
Crawford	3,122	$ 1,738,423	$ 84,092	$ 40,194	$ 52,153	$ 332,363	$ 384,516	$ 2,551,731	$ 2,884,095	$ 4,758,762	$ 4,758,762	$ 1,524	1.825%	$ 40,928	3.72%
Dane	100,025	$ 79,449,846	$ 16,063,644	$ 67,049	$ 2,383,495	$ 8,571,413	$ 10,954,908	$ 33,947,060	$ 42,518,473	$ 140,415,458	$ 140,415,458	$ 1,404	1.953%	$ 68,359	2.05%
Dodge	24,580	$ 16,928,264	$ 3,363,828	$ 49,398	$ 507,848	$ 2,218,039	$ 2,725,886	$ 10,109,018	$ 12,327,056	$ 33,126,996	$ 33,126,996	$ 1,348	1.342%	$ 50,061	2.69%
Door	7,431	$ 4,751,851	$ 69,690	$ 48,749	$ 142,556	$ 293,171	$ 435,726	$ 433,914	$ 727,084	$ 5,691,180	$ 5,691,180	$ 766	2.304%	$ 49,872	1.54%
Douglas	12,435	$ 6,118,313	$ 479,979	$ 46,735	$ 183,549	$ 476,284	$ 659,833	$ 994,832	$ 1,471,116	$ 8,252,957	$ 8,252,957	$ 664	2.226%	$ 47,776	1.39%
Dunn	5,188	$ 3,152,195	$ 982,340	$ 36,060	$ 94,566	$ 345,407	$ 439,973	$ 1,498,649	$ 1,844,056	$ 6,073,156	$ 6,073,156	$ 1,171	2.013%	$ 36,786	3.18%
Eau Claire	1,226	$ 449,181	$ -	$ 39,129	$ 13,475	$ 60,881	$ 74,357	$ 692,567	$ 753,448	$ 1,216,104	$ 1,216,104	$ 992	1.740%	$ 39,810	2.49%
Florence	270	$ 110,000		$ 22,045	$ 3,300	$ -	$ 3,300	$ -	$ -	$ 113,300	$ 113,300	$ 420	2.924%	$ 22,690	1.85%
Fond Du Lac	25,019	$ 17,438,942	$ 4,518,987	$ 51,068	$ 523,168	$ 1,639,268	$ 2,162,436	$ 8,441,404	$ 10,080,672	$ 32,561,770	$ 32,561,770	$ 1,301	1.391%	$ 51,778	2.51%
Forest	291	$ 50,000		$ 31,544	$ 1,500	$ -	$ 1,500	$ -	$ -	$ 51,500	$ 51,500	$ 177	1.907%	$ 32,146	0.55%
Grant	11,860	$ 6,242,305	$ 497,838	$ 46,200	$ 187,269	$ 1,155,247	$ 1,342,516	$ 8,253,993	$ 9,409,239	$ 16,336,651	$ 16,336,651	$ 1,377	2.268%	$ 47,248	2.92%
Green	7,447	$ 5,665,189	$ 2,181,796	$ 49,356	$ 169,956	$ 836,369	$ 1,006,325	$ 5,085,826	$ 5,922,195	$ 13,939,136	$ 13,939,136	$ 1,872	2.199%	$ 50,441	3.71%
Green Lake	4,923	$ 3,550,652	$ 182,682	$ 41,839	$ 106,520	$ 358,250	$ 464,769	$ 2,385,497	$ 2,743,747	$ 6,583,600	$ 6,583,600	$ 1,337	1.468%	$ 42,453	3.15%
Iowa	5,428	$ 1,817,313	$ 351,790	$ 48,425	$ 54,519	$ 474,519	$ 529,039	$ 3,377,226	$ 3,851,745	$ 6,075,367	$ 6,075,367	$ 1,119	2.377%	$ 49,576	2.26%
Iron	913	$ 761,104		$ 24,767	$ 22,833	$ 15,667	$ 38,500	$ 133,229	$ 148,896	$ 932,833	$ 932,833	$ 1,022	2.463%	$ 25,377	4.03%
Jackson	2,219	$ 1,875,679	$ 124,136	$ 36,347	$ 56,270	$ 266,255	$ 322,525	$ 2,409,758	$ 2,676,013	$ 4,732,098	$ 4,732,098	$ 2,132	1.369%	$ 36,845	5.79%
Jefferson	13,386	$ 8,569,245	$ 692,973	$ 56,131	$ 257,077	$ 2,019,584	$ 2,276,662	$ 8,414,352	$ 10,433,936	$ 19,953,231	$ 19,953,231	$ 1,491	1.387%	$ 56,910	2.62%
Juneau	4,378	$ 3,110,051	$ 380,668	$ 42,884	$ 93,302	$ 563,720	$ 657,021	$ 4,156,908	$ 4,720,628	$ 8,304,648	$ 8,304,648	$ 1,897	2.169%	$ 43,814	4.33%
Kenosha	45,275	$ 23,464,758	$ 2,288,880	$ 60,862	$ 703,943	$ 1,439,692	$ 2,143,634	$ 4,821,671	$ 6,261,363	$ 32,718,943	$ 32,718,943	$ 723	1.304%	$ 61,656	1.17%
Kewaunee	2,146	$ 1,510,484	$ 89,343	$ 50,298	$ 45,315	$ 265,958	$ 311,273	$ 1,604,179	$ 1,870,137	$ 3,515,279	$ 3,515,279	$ 1,638	1.714%	$ 51,160	3.20%
La Crosse	27,135	$ 11,740,323	$ 232,683	$ 54,982	$ 352,210	$ 1,548,758	$ 1,900,967	$ 10,721,759	$ 12,270,517	$ 24,595,733	$ 24,595,733	$ 906	2.313%	$ 56,254	1.61%
Lafayette	3,246	$ 2,096,683	$ 518,043	$ 41,137	$ 62,900	$ 270,771	$ 333,671	$ 2,997,063	$ 3,267,833	$ 5,945,459	$ 5,945,459	$ 1,832	2.457%	$ 42,147	4.35%
Langlade	3,039	$ 2,005,236	$ 37,420	$ 31,424	$ 60,157	$ 345,321	$ 405,478	$ 1,641,969	$ 1,987,290	$ 4,090,103	$ 4,090,103	$ 1,346	2.139%	$ 32,096	4.19%
Lincoln	4,729	$ 1,994,402	$ 14,070	$ 42,533	$ 59,832	$ -	$ 59,832	$ -	$ -	$ 2,068,304	$ 2,068,304	$ 437	1.947%	$ 43,361	1.01%
Manitowoc	21,763	$ 13,539,402	$ 2,530,998	$ 51,863	$ 406,182	$ 986,740	$ 1,392,922	$ 3,417,097	$ 4,403,837	$ 20,880,419	$ 20,880,419	$ 959	0.994%	$ 52,378	1.83%
Marathon	28,516	$ 11,531,086	$ 171,516	$ 52,354	$ 345,933	$ 765,149	$ 1,111,081	$ 5,101,651	$ 5,866,800	$ 17,915,334	$ 17,915,334	$ 628	1.396%	$ 53,085	1.18%
Marinette	4,893	$ 1,909,070	$ 101,724	$ 32,021	$ 57,272	$ 53,480	$ 110,752	$ 364,862	$ 418,342	$ 2,486,408	$ 2,486,408	$ 508	1.142%	$ 32,386	1.57%
Marquette	1,727	$ 516,381	$ 5,471	$ 41,701	$ 15,491	$ 54,496	$ 69,987	$ 523,749	$ 578,244	$ 1,115,587	$ 1,115,587	$ 646	2.223%	$ 42,628	1.52%
Menominee	1,220			$ 33,333	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	1.017%	$ 33,672	0.00%
Milwaukee	372,931	$ 197,635,242	$ 119,045,021	$ 53,894	$ 5,929,057	$ 4,826,901	$ 10,755,959	$ 3,492,409	$ 8,319,311	$ 330,928,631	$ 330,928,631	$ 887	1.028%	$ 54,449	1.63%
Monroe	7,587	$ 4,624,408	$ 375,920	$ 39,096	$ 2,863,656	$ 685,826	$ 3,549,482	$ 5,041,672	$ 5,727,498	$ 13,591,481	$ 13,591,481	$ 1,791	1.934%	$ 39,853	4.50%
Oconto	4,377	$ 1,899,484	$ 730,302	$ 49,539	$ 56,985	$ 244,270	$ 301,254	$ 924,561	$ 1,168,831	$ 3,855,601	$ 3,855,601	$ 881	1.944%	$ 50,502	1.74%
Oneida	4,929	$ 2,721,228	$ 978,336	$ 40,305	$ 81,637	$ 162,326	$ 243,962	$ 447,791	$ 610,116	$ 4,391,317	$ 4,391,317	$ 891	1.664%	$ 40,976	2.17%
Outagamie	53,112	$ 29,292,006	$ 4,295,743	$ 55,959	$ 878,760	$ 1,750,948	$ 2,629,708	$ 6,098,753	$ 7,849,701	$ 42,316,210	$ 42,316,210	$ 797	1.350%	$ 56,714	1.40%
Ozaukee	16,421	$ 8,879,188	$ 407,932	$ 62,684	$ 266,376	$ 1,538,795	$ 1,805,171	$ 6,413,734	$ 7,952,530	$ 17,506,025	$ 17,506,025	$ 1,066	1.558%	$ 63,661	1.67%
Pepin	1,228	$ 151,211	$ 3,744	$ 40,263	$ 4,536	$ 43,906	$ 48,442	$ 581,993	$ 625,898	$ 785,390	$ 785,390	$ 640	2.064%	$ 41,094	1.56%
Pierce	7,974	$ 5,082,483	$ 347,062	$ 53,542	$ 152,474	$ 290,186	$ 442,661	$ 2,250,587	$ 2,540,773	$ 8,122,793	$ 8,122,793	$ 1,019	1.502%	$ 54,346	1.87%
Polk	3,607	$ 1,580,252	$ 361,768	$ 41,930	$ 47,408	$ 261,336	$ 308,744	$ 2,202,584	$ 2,463,920	$ 4,453,347	$ 4,453,347	$ 1,235	1.374%	$ 42,506	2.90%
Portage	13,145	$ 6,335,005	$ 851,300	$ 45,074	$ 190,050	$ 388,258	$ 578,308	$ 732,147	$ 1,120,405	$ 8,496,760	$ 8,496,760	$ 646	1.328%	$ 45,672	1.42%
Price	2,377	$ 850,347	$ 122,948	$ 35,855	$ 25,510	$ 177,575	$ 203,085	$ 1,101,490	$ 1,279,065	$ 2,277,870	$ 2,277,870	$ 958	1.614%	$ 36,434	2.63%
Racine	53,100	$ 29,289,625	$ 9,297,480	$ 54,367	$ 878,689	$ 2,156,598	$ 3,035,286	$ 8,182,456	$ 10,339,054	$ 49,804,848	$ 49,804,848	$ 938	0.965%	$ 54,892	1.71%
Richland	2,364	$ 3,035,114	$ 307,102	$ 37,846	$ 91,053	$ 394,762	$ 485,816	$ 1,522,430	$ 1,917,192	$ 5,350,461	$ 5,350,461	$ 2,263	2.551%	$ 38,811	5.83%
Rock	46,843	$ 22,590,438	$ 3,767,210	$ 50,269	$ 677,713	$ 4,114,311	$ 4,792,024	$ 13,606,784	$ 17,721,095	$ 44,756,456	$ 44,756,456	$ 955	0.662%	$ 50,602	1.89%
Rusk	1,902	$ 988,745	$ 99,649	$ 28,574	$ 29,662	$ 139,738	$ 169,400	$ 1,317,427	$ 1,457,165	$ 2,575,221	$ 2,575,221	$ 1,354	1.795%	$ 29,087	4.65%
Sauk	13,911	$ 8,421,511	$ 3,023,113	$ 45,754	$ 252,645	$ 796,912	$ 1,049,558	$ 4,240,456	$ 5,037,368	$ 16,734,637	$ 16,734,637	$ 1,203	1.871%	$ 46,610	2.58%
Sawyer	104	$ 76,508		$ 30,625	$ 2,295	$ -	$ 2,295	$ -	$ -	$ 78,803	$ 78,803	$ 758	1.815%	$ 31,181	2.43%
Shawano	6,600	$ 3,613,953	$ 98,062	$ 38,106	$ 108,419	$ 221,580	$ 329,998	$ 222,404	$ 443,984	$ 4,264,417	$ 4,264,417	$ 646	1.716%	$ 38,760	1.67%
Sheboygan	28,887	$ 9,922,207	$ 1,783,725	$ 54,390	$ 297,666	$ 1,222,089	$ 1,519,755	$ 3,309,717	$ 4,531,805	$ 16,535,404	$ 16,535,404	$ 572	1.112%	$ 54,995	1.04%
St. Croix	7,786	$ 2,890,155	$ 476,119	$ 55,615	$ 86,705	$ 345,379	$ 432,083	$ 2,784,399	$ 3,129,778	$ 6,582,756	$ 6,582,756	$ 845	1.890%	$ 56,666	1.49%
Taylor	2,527	$ 2,356,607	$ 45,556	$ 37,348	$ 70,698	$ 436,567	$ 507,265	$ 2,487,988	$ 2,924,554	$ 5,397,416	$ 5,397,416	$ 2,136	1.272%	$ 37,823	5.65%
Trempealeau	4,836	$ 3,524,920	$ 257,630	$ 46,079	$ 105,748	$ 686,026	$ 791,774	$ 4,690,489	$ 5,376,515	$ 9,264,813	$ 9,264,813	$ 1,916	2.285%	$ 47,132	4.06%
Vernon	4,931	$ 1,899,419	$ 194,805	$ 41,329	$ 56,983	$ 282,571	$ 339,554	$ 2,912,523	$ 3,195,094	$ 5,346,301	$ 5,346,301	$ 1,084	2.854%	$ 42,508	2.55%
Vilas	7,012	$ 402,684	$ -	$ 34,779	$ 12,081	$ -	$ 12,081	$ -	$ -	$ 414,765	$ 414,765	$ 59	1.612%	$ 35,339	0.17%
Walworth	24,687	$ 16,984,079	$ 3,082,693	$ 51,579	$ 509,522	$ 1,616,375	$ 2,125,897	$ 7,381,594	$ 8,997,969	$ 29,574,263	$ 29,574,263	$ 1,198	1.612%	$ 52,411	2.29%
Washburn	449	$ 287,923	$ 85,859	$ 31,954	$ 8,638	$ -	$ 8,638	$ -	$ -	$ 382,419	$ 382,419	$ 852	1.288%	$ 32,365	2.63%
Washington	26,358	$ 21,744,578	$ 1,198,852	$ 58,569	$ 652,337	$ 1,911,293	$ 2,563,631	$ 9,344,612	$ 11,255,905	$ 34,851,673	$ 34,851,673	$ 1,322	1.873%	$ 59,666	2.22%
Waukesha	60,589	$ 47,580,254	$ 5,174,717	$ 71,716	$ 1,427,408	$ 4,021,940	$ 5,449,348	$ 18,480,880	$ 22,502,820	$ 76,685,199	$ 76,685,199	$ 1,266	1.231%	$ 72,599	1.74%

Appendix F
County Analyses

Line in Customer Worksheet	108	100	101	201	103			104	105	106	107	109	202	203	205
County	**Sum of Customers**	**Sum of Sewer Utility Budget for 2013**	**Sum of Max Debt Payments for 2013**	**Average of Median Household Income 2013**	**Inflationary O & M**	**Additional O & M for Phos Removal**	**Total Additional O & M**	**Annual Capital Debt and Cash for Phos Removal**	**Average Annual Cost for Phos Removal**	**Total New Sanitary Budget Required**	**Customer % of the Sanitary Charges**	**Cost per Customer**	**Yearly Change in MHI**	**MHI Projection**	**Affordability Index**
Waupaca	9,499	$ 8,974,947	$ 148,368	$ 40,683	$ 269,248	$ 515,673	$ 784,922	$ 1,365,242	$ 1,880,915	$ 11,273,478	$ 11,273,478	$ 1,187	1.593%	$ 41,331	2.87%
Waushara	1,568	$ 1,553,018	$ 38,154	$ 32,572	$ 46,591	$ 226,588	$ 273,179	$ 1,313,184	$ 1,539,772	$ 3,177,535	$ 3,177,535	$ 2,026	1.864%	$ 33,179	6.11%
Winnebago	50,330	$ 34,015,075	$ 2,321,547	$ 43,548	$ 1,020,452	$ 4,056,662	$ 5,077,115	$ 15,792,340	$ 19,849,003	$ 57,206,077	$ 57,206,077	$ 1,137	1.262%	$ 44,098	2.58%
Wood	17,147	$ 12,499,395	$ 3,895,492	$ 45,481	$ 374,982	$ 1,376,167	$ 1,751,149	$ 6,290,435	$ 7,666,602	$ 24,436,471	$ 24,436,471	$ 1,425	1.681%	$ 46,246	3.08%
Grand Total	**1,321,223**	**$ 780,887,808**	**$ 206,510,671**	**$ 47,751**	**$ 26,151,558**	**$ 66,947,770**	**$ 93,099,328**	**$ 283,766,264**	**$ 350,714,034**	**$ 1,364,264,071**	**$ 1,364,264,071**	**$ 1,033**	**1.764%**	**$ 53,338**	**1.936%**

Maximum	$ 2,263	Counties in Wisconsin	72
Minimum	$ -	Counties above 2%	42

Appendix F - County Summary of Capital and O M

County	Permit #	Permittee	Sum of Capital Cost	Sum of Annual O&M Cost	Sum of 2016 SRF	Sum of 2017 SRF	Sum of 2016 OMB	Sum of Additional Debt Service Plus Capital
Adams			$ -	$ -	$ -	$ -	$ -	$ -
Ashland			$ 1,641,006.48	$ 129,919.08	$ 13,153.64	$ 13,153.64	$ 108,703.34	$ 310,765.37
Barron			$ 15,252,684.31	$ 391,444.31	$ 122,259.32	$ 122,259.32	$ 1,010,366.36	$ 2,888,474.97
Bayfield	**0022675**	WASHBURN CITY OF	$ 318,989.01	$ 38,547.69	$ 2,556.89	$ 2,556.89	$ 21,130.43	$ 60,408.50
	0029670	PORT WING TOWN OF	$ 1,047,231.21	$ 15,951.41	$ 8,394.18	$ 8,394.18	$ 69,370.56	$ 198,319.26
	0031615	DRUMMOND SANITARY DISTRICT 1	$ 1,670,637.06	$ 35,661.53	$ 13,391.15	$ 13,391.15	$ 110,666.13	$ 316,376.66
	0063053	GREATER BAYFIELD WWTP COMMISSION	$ 307,186.95	$ 24,374.11	$ 2,462.29	$ 2,462.29	$ 20,348.64	$ 58,173.49
Bayfield Total			**$ 3,344,044.23**	**$ 114,534.74**	**$ 26,804.50**	**$ 26,804.50**	**$ 221,515.75**	**$ 633,277.91**
Brown			$ 53,410,230.60	$ 4,158,123.23	$ 428,114.72	$ 428,114.72	$ 3,537,993.65	$ 10,114,554.99
Buffalo			$ 9,512,644.78	$ 186,436.74	$ 76,249.50	$ 76,249.50	$ 630,135.40	$ 1,801,455.78
Burnett			$ 2,883,581.85	$ 53,587.24	$ 23,113.62	$ 23,113.62	$ 191,013.86	$ 546,077.91
Calumet			$ 21,989,165.97	$ 817,995.99	$ 176,256.23	$ 176,256.23	$ 1,456,603.52	$ 4,164,195.25
Chippewa			$ 10,160,291.36	$ 319,954.25	$ 81,440.77	$ 81,440.77	$ 673,036.72	$ 1,924,103.76
Clark			$ 22,684,959.86	$ 638,895.27	$ 181,833.43	$ 181,833.43	$ 1,502,694.21	$ 4,295,961.12
Columbia			$ 14,628,738.17	$ 527,416.90	$ 117,258.03	$ 117,258.03	$ 969,035.00	$ 2,770,315.25
Crawford			$ 13,474,499.57	$ 332,363.32	$ 108,006.12	$ 108,006.12	$ 892,576.07	$ 2,551,731.48
Dane			$ 179,258,533.14	$ 8,571,412.75	$ 1,436,863.62	$ 1,436,863.62	$ 11,874,420.79	$ 33,947,059.77
Dodge			$ 53,380,991.06	$ 2,218,038.56	$ 427,880.35	$ 427,880.35	$ 3,536,056.77	$ 10,109,017.75
Door			$ 2,291,294.94	$ 293,170.51	$ 18,366.09	$ 18,366.09	$ 151,779.67	$ 433,913.66
Douglas			$ 5,253,243.59	$ 476,283.88	$ 42,107.87	$ 42,107.87	$ 347,984.69	$ 994,832.27
Dunn			$ 7,913,661.40	$ 345,407.02	$ 63,432.70	$ 63,432.70	$ 524,215.74	$ 1,498,648.53
Eau Claire			$ 3,657,120.83	$ 60,881.27	$ 29,314.00	$ 29,314.00	$ 242,254.53	$ 692,566.75
Fond Du Lac			$ 44,575,104.92	$ 1,639,268.04	$ 357,295.94	$ 357,295.94	$ 2,952,738.39	$ 8,441,404.29
Forest			$ -	$ -	$ -	$ -	$ -	$ -
Grant			$ 43,585,471.30	$ 1,155,246.52	$ 349,363.44	$ 349,363.44	$ 2,887,183.21	$ 8,253,992.56
Green			$ 26,855,866.38	$ 836,368.99	$ 215,265.72	$ 215,265.72	$ 1,778,982.86	$ 5,085,825.96
Green Lake			$ 12,596,695.61	$ 358,249.54	$ 100,970.00	$ 100,970.00	$ 834,428.70	$ 2,385,497.48
Iowa			$ 17,833,550.40	$ 474,519.22	$ 142,946.50	$ 142,946.50	$ 1,181,327.76	$ 3,377,226.13
Iron			$ 703,518.18	$ 15,667.22	$ 5,639.12	$ 5,639.12	$ 46,602.36	$ 133,228.66
Jackson			$ 12,724,801.81	$ 266,255.10	$ 101,996.84	$ 101,996.84	$ 842,914.69	$ 2,409,757.57
Jefferson			$ 44,432,253.85	$ 2,019,584.18	$ 356,150.91	$ 356,150.91	$ 2,943,275.67	$ 8,414,351.89
Juneau			$ 21,950,687.21	$ 563,719.74	$ 175,947.80	$ 175,947.80	$ 1,454,054.61	$ 4,156,908.33
Kenosha			$ 25,460,990.16	$ 1,439,691.61	$ 204,084.96	$ 204,084.96	$ 1,686,583.65	$ 4,821,671.47
Kewaunee			$ 8,470,917.14	$ 265,958.00	$ 67,899.43	$ 67,899.43	$ 561,129.41	$ 1,604,178.76
La Crosse			$ 56,616,591.11	$ 1,548,757.70	$ 453,815.61	$ 453,815.61	$ 3,750,388.98	$ 10,721,759.06
Lafayette			$ 15,826,084.39	$ 270,770.71	$ 126,855.47	$ 126,855.47	$ 1,048,349.45	$ 2,997,062.53
Langlade			$ 8,670,468.83	$ 345,321.34	$ 69,498.96	$ 69,498.96	$ 574,348.09	$ 1,641,968.83
Lincoln			$ -	$ -	$ -	$ -	$ -	$ -
Manitowoc			$ 18,044,087.56	$ 986,740.41	$ 144,634.08	$ 144,634.08	$ 1,195,274.14	$ 3,417,096.57
Marathon			$ 26,939,430.17	$ 765,148.81	$ 215,935.53	$ 215,935.53	$ 1,784,518.28	$ 5,101,650.84
Marinette			$ 1,926,666.78	$ 53,479.88	$ 15,443.38	$ 15,443.38	$ 127,626.01	$ 364,862.25
Marquette			$ 2,765,671.23	$ 54,495.70	$ 22,168.50	$ 22,168.50	$ 183,203.24	$ 523,748.61
Milwaukee			$ 18,441,778.70	$ 4,826,901.43	$ 147,821.81	$ 147,821.81	$ 1,221,617.94	$ 3,492,409.27
Monroe			$ 26,622,708.70	$ 685,826.12	$ 213,396.82	$ 213,396.82	$ 1,763,538.06	$ 5,041,671.76
Oconto			$ 4,882,173.99	$ 244,269.89	$ 39,133.52	$ 39,133.52	$ 323,404.34	$ 924,561.02
Oneida			$ 2,364,572.93	$ 162,325.57	$ 18,953.46	$ 18,953.46	$ 156,633.74	$ 447,790.67
Outagamie			$ 32,204,659.13	$ 1,750,947.98	$ 258,139.47	$ 258,139.47	$ 2,133,296.91	$ 6,098,752.84
Ozaukee			$ 33,867,929.38	$ 1,538,795.25	$ 271,471.57	$ 271,471.57	$ 2,243,475.04	$ 6,413,734.41
Pepin			$ 3,073,231.07	$ 43,905.60	$ 24,633.77	$ 24,633.77	$ 203,576.58	$ 581,992.71
Pierce			$ 11,884,296.72	$ 290,186.37	$ 95,259.70	$ 95,259.70	$ 787,238.06	$ 2,250,587.04
Polk			$ 11,630,814.31	$ 261,336.01	$ 93,227.88	$ 93,227.88	$ 770,446.91	$ 2,202,583.84
Portage			$ 3,866,125.10	$ 388,257.63	$ 30,989.29	$ 30,989.29	$ 256,099.36	$ 732,146.90
Price			$ 5,816,454.07	$ 177,574.69	$ 46,622.33	$ 46,622.33	$ 385,292.81	$ 1,101,490.18

Appendix F - County Summary of Capital and O M

County	Permit #	Permittee	Sum of Capital Cost	Sum of Annual O&M Cost	Sum of 2016 SRF	Sum of 2017 SRF	Sum of 2016 OMB	Sum of Additional Debt Service Plus Capital
Racine			$ 43,207,722.34	$ 2,156,597.72	$ 346,335.56	$ 346,335.56	$ 2,862,160.41	$ 8,182,456.40
Richland			$ 8,039,240.49	$ 394,762.30	$ 64,439.29	$ 64,439.29	$ 532,534.34	$ 1,522,430.05
Rock			$ 71,851,058.51	$ 4,114,310.79	$ 575,928.91	$ 575,928.91	$ 4,759,548.61	$ 13,606,784.21
Rusk			$ 6,956,714.13	$ 139,738.12	$ 55,762.20	$ 55,762.20	$ 460,825.77	$ 1,317,426.77
Sauk			$ 22,391,861.46	$ 796,912.46	$ 179,484.07	$ 179,484.07	$ 1,483,278.82	$ 4,240,455.65
Shawano			$ 1,174,411.72	$ 221,579.58	$ 9,413.61	$ 9,413.61	$ 77,795.23	$ 222,404.06
Sheboygan			$ 17,477,064.28	$ 1,222,088.79	$ 140,089.05	$ 140,089.05	$ 1,157,713.45	$ 3,309,716.61
St. Croix			$ 14,703,107.76	$ 345,378.52	$ 117,854.14	$ 117,854.14	$ 973,961.38	$ 2,784,398.99
Taylor			$ 13,137,898.58	$ 436,566.60	$ 105,308.06	$ 105,308.06	$ 870,278.99	$ 2,487,987.72
Trempealeau			$ 24,768,276.00	$ 686,026.29	$ 198,532.44	$ 198,532.44	$ 1,640,696.97	$ 4,690,488.82
Vernon			$ 15,379,670.28	$ 282,571.37	$ 123,277.19	$ 123,277.19	$ 1,018,778.15	$ 2,912,522.92
Vilas			$ 396,947.16	$ 64,583.77	$ 3,181.77	$ 3,181.77	$ 26,294.52	$ 75,171.81
Walworth			$ 38,978,742.28	$ 1,616,374.82	$ 312,437.77	$ 312,437.77	$ 2,582,024.85	$ 7,381,593.89
Washington			$ 49,344,522.23	$ 1,911,293.40	$ 395,525.65	$ 395,525.65	$ 3,268,673.52	$ 9,344,612.03
Waukesha			$ 97,588,878.86	$ 4,021,939.91	$ 782,232.83	$ 782,232.83	$ 6,464,470.01	$ 18,480,880.35
Waupaca			$ 7,209,204.61	$ 515,673.24	$ 57,786.06	$ 57,786.06	$ 477,551.21	$ 1,365,242.12
Waushara			$ 6,934,311.70	$ 226,588.08	$ 55,582.63	$ 55,582.63	$ 459,341.79	$ 1,313,184.31
Winnebago			$ 83,391,957.34	$ 4,056,662.25	$ 668,436.07	$ 668,436.07	$ 5,524,039.36	$ 15,792,340.32
Wood			$ 33,216,840.97	$ 1,376,167.06	$ 266,252.71	$ 266,252.71	$ 2,200,345.73	$ 6,290,434.64
Grand Total			**$ 1,521,518,723.93**	**$ 67,651,249.39**	**$ 12,195,876.29**	**$ 12,195,876.29**	**$ 100,788,248.42**	**$ 288,137,396.59**

County	Adams	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	600,000.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	600,000.00
	a) Inflation to the existing O & M Costs	$ 18,000.00		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	18,000.00
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	18,000.00
106	Total Existing *plus additional cost* of Phosphorus facilities		$	618,000.00
107	Customer Share of the Costs (%*106)	100.00%	$	618,000.00
108	Number of Customers			872
109	**Cost Per Customer (107/108)**		**$**	**708.72**
201	Current MHI		$	34,643.00
202	Annual MHI Inflator			1.02645
203	Adjusted MHI (201*202)		$	35,559.44
204	Annual Cost per Customer (line 109 above)		$	708.72
205	**Affordability Indicator (204/203)**		**1.99%**	

State Population Growth Rate	0.5%	County Population Growth Rate	9.9%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-14.3%	
State Unemployment	4.7%	County Unemployment Rate	7.3%	
State Poverty Rate	13.0%	County Poverty Rate	10.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Ashland	Projected Capital Cost for Phosphorus Removal for County	$ 1,641,006.48

100	Existing Operations and Maintenance Cost		$	1,871,490.00
101	Existing Annual Debt Service		$	79,630.72
102	Subtotal (100+101)		$	1,951,120.72
	a) Inflation to the existing O & M Costs	$ 56,144.70		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 129,919.08		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	186,063.78
104	Estimated Additional Annual Debt Service, plus cash funding		$	310,765.37
105	Subtotal (103+104)		$	496,829.15
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,447,949.87
107	Customer Share of the Costs (%*106)	100.00%	$	2,447,949.87
108	Number of Customers			3980
109	**Cost Per Customer (107/108)**		**$**	**615.06**
201	Current MHI		$	31,964.00
202	Annual MHI Inflator			1.01684
203	Adjusted MHI (201*202)		$	32,502.12
204	Annual Cost per Customer (line 109 above)		$	615.06
205	**Affordability Indicator (204/203)**		**1.89%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-5.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-26.4%	
State Unemployment	4.7%	County Unemployment Rate	6.3%	
State Poverty Rate	13.0%	County Poverty Rate	18.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Barron	Projected Capital Cost for Phosphorus Removal for County	$	15,252,684.31

100	Existing Operations and Maintenance Cost		$	3,885,265.51
101	Existing Annual Debt Service		$	14,920.66
102	Subtotal (100+101)		$	3,900,186.17
	a) Inflation to the existing O & M Costs	$ 116,557.97		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 391,444.31		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	508,002.28
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,888,474.97
105	Subtotal (103+104)		$	3,396,477.24
106	Total Existing *plus additional cost* of Phosphorus facilities		$	7,296,663.42
107	Customer Share of the Costs (%*106)	100.00%	$	7,296,663.42
108	Number of Customers			7787
109	**Cost Per Customer (107/108)**		**$**	**937.06**
201	Current MHI		$	39,409.78
202	Annual MHI Inflator			1.01399
203	Adjusted MHI (201*202)		$	39,961.10
204	Annual Cost per Customer (line 109 above)		$	937.06
205	**Affordability Indicator (204/203)**		**2.34%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-15.9%	
State Unemployment	4.7%	County Unemployment Rate	5.1%	
State Poverty Rate	13.0%	County Poverty Rate	12.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Bayfield	Projected Capital Cost for Phosphorus Removal for County	$ 3,344,044.23

100	Existing Operations and Maintenance Cost		$	1,304,010.68
101	Existing Annual Debt Service		$	85,312.25
102	Subtotal (100+101)		$	1,389,322.93
	a) Inflation to the existing O & M Costs	$ 39,120.32		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 114,534.74		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	153,655.06
104	Estimated Additional Annual Debt Service, plus cash funding		$	633,277.91
105	Subtotal (103+104)		$	786,932.97
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,176,255.91
107	Customer Share of the Costs (%*106)	100.00%	$	2,176,255.91
108	Number of Customers			1550
109	**Cost Per Customer (107/108)**		**$**	**1,404.04**
201	Current MHI		$	37,811.83
202	Annual MHI Inflator			1.02662
203	Adjusted MHI (201*202)		$	38,818.30
204	Annual Cost per Customer (line 109 above)		$	1,404.04
205	**Affordability Indicator (204/203)**		**3.62%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-14.3%	
State Unemployment	4.7%	County Unemployment Rate	9.2%	
State Poverty Rate	13.0%	County Poverty Rate	13.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Brown	Projected Capital Cost for Phosphorus Removal for County	$ 53,410,230.60

100	Existing Operations and Maintenance Cost		$	32,909,977.00
101	Existing Annual Debt Service		$	6,191,386.98
102	Subtotal (100+101)		$	39,101,363.98
	a) Inflation to the existing O & M Costs	$ 987,299.31		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 4,158,123.23		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	5,145,422.54
104	Estimated Additional Annual Debt Service, plus cash funding		$	10,114,554.99
105	Subtotal (103+104)		$	15,259,977.53
106	Total Existing *plus additional cost* of Phosphorus facilities		$	54,361,341.51
107	Customer Share of the Costs (%*106)	100.00%	$	54,361,341.51
108	Number of Customers			46224
109	**Cost Per Customer (107/108)**		**$**	**1,176.05**
201	Current MHI		$	61,088.00
202	Annual MHI Inflator			1.01105
203	Adjusted MHI (201*202)		$	61,763.01
204	Annual Cost per Customer (line 109 above)		$	1,176.05
205	**Affordability Indicator (204/203)**		**1.90%**	

State Population Growth Rate	0.5%	County Population Growth Rate	12.3%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	1.3%	
State Unemployment	4.7%	County Unemployment Rate	4.2%	
State Poverty Rate	13.0%	County Poverty Rate	11.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Buffalo	Projected Capital Cost for Phosphorus Removal for County	$ 9,512,644.78

100	Existing Operations and Maintenance Cost		$ 601,700.00
101	Existing Annual Debt Service		$ 16,553.64
102	Subtotal (100+101)		$ 618,253.64
	a) Inflation to the existing O & M Costs	$ 18,051.00	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 186,436.74	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 204,487.74
104	Estimated Additional Annual Debt Service, plus cash funding		$ 1,801,455.78
105	Subtotal (103+104)		$ 2,005,943.52
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 2,624,197.16
107	Customer Share of the Costs (%*106)	100.00%	$ 2,624,197.16
108	Number of Customers		1343
109	**Cost Per Customer (107/108)**		**$ 1,954.27**
201	Current MHI		$ 40,105.33
202	Annual MHI Inflator		1.02106
203	Adjusted MHI (201*202)		$ 40,949.90
204	Annual Cost per Customer (line 109 above)		$ 1,954.27
205	**Affordability Indicator (204/203)**		**4.77%**

State Population Growth Rate	0.5%	County Population Growth Rate	-3.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-9.6%	
State Unemployment	4.7%	County Unemployment Rate	4.4%	
State Poverty Rate	13.0%	County Poverty Rate	12.0%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Burnett	Projected Capital Cost for Phosphorus Removal for County	$ 2,883,581.85

100	Existing Operations and Maintenance Cost			$ 252,468.00
101	Existing Annual Debt Service			$ 22,367.15
102	Subtotal (100+101)			$ 274,835.15
	a) Inflation to the existing O & M Costs	$ 7,574.04		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 53,587.24		
103	Estimated Additional Annual Operations & Maintenance (a+b)			$ 61,161.28
104	Estimated Additional Annual Debt Service, plus cash funding			$ 546,077.91
105	Subtotal (103+104)			$ 607,239.19
106	Total Existing *plus additional cost* of Phosphorus facilities			$ 882,074.34
107	Customer Share of the Costs (%*106)	100.00%		$ 882,074.34
108	Number of Customers			816
109	**Cost Per Customer (107/108)**			**$ 1,080.97**
201	Current MHI			$ 31,844.00
202	Annual MHI Inflator			1.01202
203	Adjusted MHI (201*202)			$ 32,226.70
204	Annual Cost per Customer (line 109 above)			$ 1,080.97
205	**Affordability Indicator (204/203)**			**3.35%**

State Population Growth Rate	0.5%		County Population Growth Rate	-2.2%
State MHI (2013 Estimate)	$ 52,413		County Delta to State MHI	-24.5%
State Unemployment	4.7%		County Unemployment Rate	6.7%
State Poverty Rate	13.0%		County Poverty Rate	17.1%

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Calumet	Projected Capital Cost for Phosphorus Removal for County	$ 21,989,165.97

100	Existing Operations and Maintenance Cost		$	3,373,642.00
101	Existing Annual Debt Service		$	297,357.08
102	Subtotal (100+101)		$	3,670,999.08
	a) Inflation to the existing O & M Costs	$ 101,209.26		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 817,995.99		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	919,205.25
104	Estimated Additional Annual Debt Service, plus cash funding		$	4,164,195.25
105	Subtotal (103+104)		$	5,083,400.50
106	Total Existing *plus additional cost* of Phosphorus facilities		$	8,754,399.57
107	Customer Share of the Costs (%*106)	100.00%	$	8,754,399.57
108	Number of Customers			5523
109	**Cost Per Customer (107/108)**		**$**	**1,585.08**
201	Current MHI		$	57,635.00
202	Annual MHI Inflator			1.01838
203	Adjusted MHI (201*202)		$	58,694.35
204	Annual Cost per Customer (line 109 above)		$	1,585.08
205	**Affordability Indicator (204/203)**		**2.70%**	

State Population Growth Rate	0.5%	County Population Growth Rate	22.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	24.3%	
State Unemployment	4.7%	County Unemployment Rate	3.5%	
State Poverty Rate	13.0%	County Poverty Rate	6.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Chippewa	Projected Capital Cost for Phosphorus Removal for County	$ 10,160,291.36

100	Existing Operations and Maintenance Cost		$	2,135,993.00
101	Existing Annual Debt Service		$	193,565.00
102	Subtotal (100+101)		$	2,329,558.00
	a) Inflation to the existing O & M Costs	$ 64,079.79		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 319,954.25		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	384,034.04
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,924,103.76
105	Subtotal (103+104)		$	2,308,137.80
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,637,695.80
107	Customer Share of the Costs (%*106)	100.00%	$	4,637,695.80
108	Number of Customers			4082
109	**Cost Per Customer (107/108)**		**$**	**1,136.13**
201	Current MHI		$	41,573.17
202	Annual MHI Inflator			1.02128
203	Adjusted MHI (201*202)		$	42,457.94
204	Annual Cost per Customer (line 109 above)		$	1,136.13
205	**Affordability Indicator (204/203)**		**2.68%**	

State Population Growth Rate	0.5%	County Population Growth Rate	14.4%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-3.6%	
State Unemployment	4.7%	County Unemployment Rate	4.9%	
State Poverty Rate	13.0%	County Poverty Rate	11.1%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Clark	Projected Capital Cost for Phosphorus Removal for County	$ 22,684,959.86

100	Existing Operations and Maintenance Cost		$	3,046,971.75
101	Existing Annual Debt Service		$	190,465.12
102	Subtotal (100+101)		$	3,237,436.88
	a) Inflation to the existing O & M Costs	$ 91,409.15		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	91,409.15
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	91,409.15
106	Total Existing *plus additional cost* of Phosphorus facilities		$	3,328,846.03
107	Customer Share of the Costs (%*106)	100.00%	$	3,328,846.03
108	Number of Customers			4914
109	**Cost Per Customer (107/108)**		**$**	**677.42**
201	Current MHI		$	38,587.50
202	Annual MHI Inflator			1.01935
203	Adjusted MHI (201*202)		$	39,334.27
204	Annual Cost per Customer (line 109 above)		$	677.42
205	**Affordability Indicator (204/203)**		**1.72%**	

State Population Growth Rate	0.5%	County Population Growth Rate	3.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-17.4%	
State Unemployment	4.7%	County Unemployment Rate	4.4%	
State Poverty Rate	13.0%	County Poverty Rate	14.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Columbia	Projected Capital Cost for Phosphorus Removal for County	$	14,628,738.17

100	Existing Operations and Maintenance Cost		$	7,117,906.68
101	Existing Annual Debt Service		$	638,314.12
102	Subtotal (100+101)		$	7,756,220.80
	a) Inflation to the existing O & M Costs	$ 213,537.20		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 527,416.90		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	740,954.10
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,770,315.25
105	Subtotal (103+104)		$	3,511,269.36
106	Total Existing *plus additional cost* of Phosphorus facilities		$	11,267,490.16
107	Customer Share of the Costs (%*106)	100.00%	$	11,267,490.16
108	Number of Customers			11184
109	**Cost Per Customer (107/108)**		**$**	**1,007.47**
201	Current MHI		$	48,010.36
202	Annual MHI Inflator			1.02195
203	Adjusted MHI (201*202)		$	49,064.11
204	Annual Cost per Customer (line 109 above)		$	1,007.47
205	**Affordability Indicator (204/203)**			**2.05%**

State Population Growth Rate	0.5%	County Population Growth Rate	8.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	10.5%	
State Unemployment	4.7%	County Unemployment Rate	4.7%	
State Poverty Rate	13.0%	County Poverty Rate	9.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Crawford	Projected Capital Cost for Phosphorus Removal for County	$	13,474,499.57

100	Existing Operations and Maintenance Cost		$	1,738,422.53
101	Existing Annual Debt Service		$	84,092.24
102	Subtotal (100+101)		$	1,822,514.77
	a) Inflation to the existing O & M Costs	$ 52,152.68		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 332,363.32		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	384,515.99
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,551,731.48
105	Subtotal (103+104)		$	2,936,247.47
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,758,762.24
107	Customer Share of the Costs (%*106)	100.00%	$	4,758,762.24
108	Number of Customers			3122
109	**Cost Per Customer (107/108)**		**$**	**1,524.36**
201	Current MHI		$	40,194.43
202	Annual MHI Inflator			1.01825
203	Adjusted MHI (201*202)		$	40,928.11
204	Annual Cost per Customer (line 109 above)		$	1,524.36
205	**Affordability Indicator (204/203)**			**3.72%**

State Population Growth Rate	0.5%	County Population Growth Rate	-4.9%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-19.4%	
State Unemployment	4.7%	County Unemployment Rate	5.6%	
State Poverty Rate	13.0%	County Poverty Rate	12.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Dane	Projected Capital Cost for Phosphorus Removal for County	$	179,258,533.14

100	Existing Operations and Maintenance Cost		$	79,449,846.00
101	Existing Annual Debt Service		$	16,063,643.92
102	Subtotal (100+101)		$	95,513,489.92
	a) Inflation to the existing O & M Costs	$ 2,383,495.38		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 8,571,412.75		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	10,954,908.13
104	Estimated Additional Annual Debt Service, plus cash funding		$	33,947,059.77
105	Subtotal (103+104)		$	44,901,967.89
106	Total Existing *plus additional cost* of Phosphorus facilities		$	140,415,457.81
107	Customer Share of the Costs (%*106)	100.00%	$	140,415,457.81
108	Number of Customers			100025
109	**Cost Per Customer (107/108)**		**$**	**1,403.80**
201	Current MHI		$	67,049.00
202	Annual MHI Inflator			1.01953
203	Adjusted MHI (201*202)		$	68,358.55
204	Annual Cost per Customer (line 109 above)		$	1,403.80
205	**Affordability Indicator (204/203)**			**2.05%**

State Population Growth Rate	0.5%	County Population Growth Rate	19.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	17.8%	
State Unemployment	4.7%	County Unemployment Rate	3.2%	
State Poverty Rate	13.0%	County Poverty Rate	12.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Dodge	Projected Capital Cost for Phosphorus Removal for County	$	53,380,991.06

100	Existing Operations and Maintenance Cost		$	16,928,263.69
101	Existing Annual Debt Service		$	3,363,827.85
102	Subtotal (100+101)		$	20,292,091.54
	a) Inflation to the existing O & M Costs	$ 507,847.91		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 2,218,038.56		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,725,886.47
104	Estimated Additional Annual Debt Service, plus cash funding		$	10,109,017.75
105	Subtotal (103+104)		$	12,834,904.23
106	Total Existing *plus additional cost* of Phosphorus facilities		$	33,126,995.77
107	Customer Share of the Costs (%*106)	100.00%	$	33,126,995.77
108	Number of Customers			24580
109	**Cost Per Customer (107/108)**		**$**	**1,347.72**
201	Current MHI		$	49,398.13
202	Annual MHI Inflator			1.01342
203	Adjusted MHI (201*202)		$	50,061.14
204	Annual Cost per Customer (line 109 above)		$	1,347.72
205	**Affordability Indicator (204/203)**			**2.69%**

State Population Growth Rate	0.5%	County Population Growth Rate	2.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	1.3%	
State Unemployment	4.7%	County Unemployment Rate	5.1%	
State Poverty Rate	13.0%	County Poverty Rate	9.0%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Door	Projected Capital Cost for Phosphorus Removal for County	$ 2,291,294.94

100	Existing Operations and Maintenance Cost		$	4,751,851.00
101	Existing Annual Debt Service		$	69,689.61
102	Subtotal (100+101)		$	4,821,540.61
	a) Inflation to the existing O & M Costs	$ 142,555.53		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 293,170.51		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	435,726.04
104	Estimated Additional Annual Debt Service, plus cash funding		$	433,913.66
105	Subtotal (103+104)		$	869,639.70
106	Total Existing *plus additional cost* of Phosphorus facilities		$	5,691,180.31
107	Customer Share of the Costs (%*106)	100.00%	$	5,691,180.31
108	Number of Customers			7431
109	**Cost Per Customer (107/108)**		**$**	**765.85**
201	Current MHI		$	48,749.20
202	Annual MHI Inflator			1.02304
203	Adjusted MHI (201*202)		$	49,872.36
204	Annual Cost per Customer (line 109 above)		$	765.85
205	**Affordability Indicator (204/203)**		**1.54%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-0.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-3.8%	
State Unemployment	4.7%	County Unemployment Rate	7.5%	
State Poverty Rate	13.0%	County Poverty Rate	10.1%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Douglas	Projected Capital Cost for Phosphorus Removal for County	$ 5,253,243.59

100	Existing Operations and Maintenance Cost		$	6,118,312.74
101	Existing Annual Debt Service		$	479,978.87
102	Subtotal (100+101)		$	6,598,291.61
	a) Inflation to the existing O & M Costs	$ 183,549.38		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 476,283.88		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	659,833.26
104	Estimated Additional Annual Debt Service, plus cash funding		$	994,832.27
105	Subtotal (103+104)		$	1,654,665.53
106	Total Existing *plus additional cost* of Phosphorus facilities		$	8,252,957.15
107	Customer Share of the Costs (%*106)	100.00%	$	8,252,957.15
108	Number of Customers			12435
109	**Cost Per Customer (107/108)**		**$**	**663.70**
201	Current MHI		$	46,735.40
202	Annual MHI Inflator			1.02226
203	Adjusted MHI (201*202)		$	47,775.56
204	Annual Cost per Customer (line 109 above)		$	663.70
205	**Affordability Indicator (204/203)**		**1.39%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.4%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-13.3%	
State Unemployment	4.7%	County Unemployment Rate	4.0%	
State Poverty Rate	13.0%	County Poverty Rate	15.1%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Dunn	Projected Capital Cost for Phosphorus Removal for County	$ 7,913,661.40

100	Existing Operations and Maintenance Cost		$	3,152,195.00
101	Existing Annual Debt Service		$	982,340.00
102	Subtotal (100+101)		$	4,134,535.00
	a) Inflation to the existing O & M Costs	$ 94,565.85		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 345,407.02		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	439,972.87
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,498,648.53
105	Subtotal (103+104)		$	1,938,621.40
106	Total Existing *plus additional cost* of Phosphorus facilities		$	6,073,156.40
107	Customer Share of the Costs (%*106)	100.00%	$	6,073,156.40
108	Number of Customers			5188
109	**Cost Per Customer (107/108)**		**$**	**1,170.62**
201	Current MHI		$	36,060.33
202	Annual MHI Inflator			1.02013
203	Adjusted MHI (201*202)		$	36,786.14
204	Annual Cost per Customer (line 109 above)		$	1,170.62
205	**Affordability Indicator (204/203)**		**3.18%**	

State Population Growth Rate	0.5%	County Population Growth Rate	10.7%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-6.7%	
State Unemployment	4.7%	County Unemployment Rate	3.9%	
State Poverty Rate	13.0%	County Poverty Rate	15.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Eau Claire	Projected Capital Cost for Phosphorus Removal for County	$ 3,657,120.83

100	Existing Operations and Maintenance Cost		$	449,181.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	449,181.00
	a) Inflation to the existing O & M Costs	$ 13,475.43		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 60,881.27		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	74,356.70
104	Estimated Additional Annual Debt Service, plus cash funding		$	692,566.75
105	Subtotal (103+104)		$	766,923.45
106	Total Existing *plus additional cost* of Phosphorus facilities		$	1,216,104.45
107	Customer Share of the Costs (%*106)	100.00%	$	1,216,104.45
108	Number of Customers			1226
109	**Cost Per Customer (107/108)**		**$**	**991.93**
201	Current MHI		$	39,129.33
202	Annual MHI Inflator			1.01740
203	Adjusted MHI (201*202)		$	39,810.16
204	Annual Cost per Customer (line 109 above)		$	991.93
205	**Affordability Indicator (204/203)**		**2.49%**	

State Population Growth Rate	0.5%	County Population Growth Rate	8.9%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-8.2%	
State Unemployment	4.7%	County Unemployment Rate	3.9%	
State Poverty Rate	13.0%	County Poverty Rate	15.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Florence	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	110,000.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	110,000.00
	a) Inflation to the existing O & M Costs	$ 3,300.00		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	3,300.00
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	3,300.00
106	Total Existing *plus additional cost* of Phosphorus facilities		$	113,300.00
107	Customer Share of the Costs (%*106)	100.00%	$	113,300.00
108	Number of Customers			270
109	**Cost Per Customer (107/108)**		**$**	**419.63**
201	Current MHI		$	22,045.00
202	Annual MHI Inflator			1.02924
203	Adjusted MHI (201*202)		$	22,689.64
204	Annual Cost per Customer (line 109 above)		$	419.63
205	**Affordability Indicator (204/203)**		**1.85%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-11.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-8.5%	
State Unemployment	4.7%	County Unemployment Rate	7.3%	
State Poverty Rate	13.0%	County Poverty Rate	14.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Fond Du Lac	Projected Capital Cost for Phosphorus Removal for County	$ 44,575,104.92

100	Existing Operations and Maintenance Cost		$	17,438,942.00
101	Existing Annual Debt Service		$	4,518,987.46
102	Subtotal (100+101)		$	21,957,929.46
	a) Inflation to the existing O & M Costs	$ 523,168.26		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,639,268.04		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,162,436.30
104	Estimated Additional Annual Debt Service, plus cash funding		$	8,441,404.29
105	Subtotal (103+104)		$	10,603,840.59
106	Total Existing *plus additional cost* of Phosphorus facilities		$	32,561,770.05
107	Customer Share of the Costs (%*106)	100.00%	$	32,561,770.05
108	Number of Customers			25019
109	**Cost Per Customer (107/108)**		**$**	**1,301.48**
201	Current MHI		$	51,067.75
202	Annual MHI Inflator			1.01391
203	Adjusted MHI (201*202)		$	51,778.11
204	Annual Cost per Customer (line 109 above)		$	1,301.48
205	**Affordability Indicator (204/203)**		**2.51%**	

State Population Growth Rate	0.5%	County Population Growth Rate	4.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	2.7%	
State Unemployment	4.7%	County Unemployment Rate	4.3%	
State Poverty Rate	13.0%	County Poverty Rate	9.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Forest	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	50,000.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	50,000.00
	a) Inflation to the existing O & M Costs	$ 1,500.00		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,500.00
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	1,500.00
106	Total Existing *plus additional cost* of Phosphorus facilities		$	51,500.00
107	Customer Share of the Costs (%*106)	100.00%	$	51,500.00
108	Number of Customers			291
109	**Cost Per Customer (107/108)**		**$**	**176.98**
201	Current MHI		$	31,544.00
202	Annual MHI Inflator			1.01907
203	Adjusted MHI (201*202)		$	32,145.63
204	Annual Cost per Customer (line 109 above)		$	176.98
205	**Affordability Indicator (204/203)**		**0.55%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-9.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-23.8%	
State Unemployment	4.7%	County Unemployment Rate	7.0%	
State Poverty Rate	13.0%	County Poverty Rate	16.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Grant	Projected Capital Cost for Phosphorus Removal for County	$	43,585,471.30

100	Existing Operations and Maintenance Cost		$	6,242,305.00
101	Existing Annual Debt Service		$	497,838.20
102	Subtotal (100+101)		$	6,740,143.20
	a) Inflation to the existing O & M Costs	$ 187,269.15		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,155,246.52		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,342,515.67
104	Estimated Additional Annual Debt Service, plus cash funding		$	8,253,992.56
105	Subtotal (103+104)		$	9,596,508.23
106	Total Existing *plus additional cost* of Phosphorus facilities		$	16,336,651.43
107	Customer Share of the Costs (%*106)	100.00%	$	16,336,651.43
108	Number of Customers			11860
109	**Cost Per Customer (107/108)**		**$**	**1,377.46**
201	Current MHI		$	46,199.65
202	Annual MHI Inflator			1.02268
203	Adjusted MHI (201*202)		$	47,247.63
204	Annual Cost per Customer (line 109 above)		$	1,377.46
205	**Affordability Indicator (204/203)**			**2.92%**

State Population Growth Rate	0.5%	County Population Growth Rate	3.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-10.4%	
State Unemployment	4.7%	County Unemployment Rate	3.9%	
State Poverty Rate	13.0%	County Poverty Rate	16.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Green Lake	Projected Capital Cost for Phosphorus Removal for County	$	12,596,695.61

100	Existing Operations and Maintenance Cost		$	3,550,652.00
101	Existing Annual Debt Service		$	182,681.55
102	Subtotal (100+101)		$	3,733,333.55
	a) Inflation to the existing O & M Costs	$ 106,519.56		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 358,249.54		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	464,769.10
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,385,497.48
105	Subtotal (103+104)		$	2,850,266.58
106	Total Existing *plus additional cost* of Phosphorus facilities		$	6,583,600.13
107	Customer Share of the Costs (%*106)	100.00%	$	6,583,600.13
108	Number of Customers			4923
109	**Cost Per Customer (107/108)**		**$**	**1,337.31**
201	Current MHI		$	41,839.00
202	Annual MHI Inflator			1.01468
203	Adjusted MHI (201*202)		$	42,453.28
204	Annual Cost per Customer (line 109 above)		$	1,337.31
205	**Affordability Indicator (204/203)**			**3.15%**

State Population Growth Rate	0.5%	County Population Growth Rate	-0.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-10.3%	
State Unemployment	4.7%	County Unemployment Rate	6.1%	
State Poverty Rate	13.0%	County Poverty Rate	11.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Green	Projected Capital Cost for Phosphorus Removal for County	$	26,855,866.38

100	Existing Operations and Maintenance Cost		$	5,665,189.00
101	Existing Annual Debt Service		$	2,181,796.24
102	Subtotal (100+101)		$	7,846,985.24
	a) Inflation to the existing O & M Costs	$ 169,955.67		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 836,368.99		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,006,324.66
104	Estimated Additional Annual Debt Service, plus cash funding		$	5,085,825.96
105	Subtotal (103+104)		$	6,092,150.62
106	Total Existing *plus additional cost* of Phosphorus facilities		$	13,939,135.86
107	Customer Share of the Costs (%*106)	100.00%	$	13,939,135.86
108	Number of Customers			7447
109	**Cost Per Customer (107/108)**		**$**	**1,871.78**
201	Current MHI		$	49,355.88
202	Annual MHI Inflator			1.02199
203	Adjusted MHI (201*202)		$	50,441.07
204	Annual Cost per Customer (line 109 above)		$	1,871.78
205	**Affordability Indicator (204/203)**		**3.71%**	

State Population Growth Rate	0.5%	County Population Growth Rate	10.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	6.1%	
State Unemployment	4.7%	County Unemployment Rate	3.8%	
State Poverty Rate	13.0%	County Poverty Rate	10.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Iowa	Projected Capital Cost for Phosphorus Removal for County	$ 17,833,550.40

100	Existing Operations and Maintenance Cost		$ 1,817,312.50
101	Existing Annual Debt Service		$ 351,790.14
102	Subtotal (100+101)		$ 2,169,102.64
	a) Inflation to the existing O & M Costs	$ 54,519.38	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 474,519.22	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 529,038.60
104	Estimated Additional Annual Debt Service, plus cash funding		$ 3,377,226.13
105	Subtotal (103+104)		$ 3,906,264.72
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 6,075,367.36
107	Customer Share of the Costs (%*106)	100.00%	$ 6,075,367.36
108	Number of Customers		5428
109	**Cost Per Customer (107/108)**		**$ 1,119.26**
201	Current MHI		$ 48,425.20
202	Annual MHI Inflator		1.02377
203	Adjusted MHI (201*202)		$ 49,576.49
204	Annual Cost per Customer (line 109 above)		$ 1,119.26
205	**Affordability Indicator (204/203)**		**2.26%**

State Population Growth Rate	0.5%	County Population Growth Rate	4.3%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	6.2%	
State Unemployment	4.7%	County Unemployment Rate	3.9%	
State Poverty Rate	13.0%	County Poverty Rate	9.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Iron	Projected Capital Cost for Phosphorus Removal for County	$	703,518.18

100	Existing Operations and Maintenance Cost		$	761,104.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	761,104.00
	a) Inflation to the existing O & M Costs	$ 22,833.12		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 15,667.22		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	38,500.34
104	Estimated Additional Annual Debt Service, plus cash funding		$	133,228.66
105	Subtotal (103+104)		$	171,729.00
106	Total Existing *plus additional cost* of Phosphorus facilities		$	932,833.00
107	Customer Share of the Costs (%*106)	100.00%	$	932,833.00
108	Number of Customers			913
109	**Cost Per Customer (107/108)**		**$**	**1,021.72**
201	Current MHI		$	24,767.00
202	Annual MHI Inflator			1.02463
203	Adjusted MHI (201*202)		$	25,377.00
204	Annual Cost per Customer (line 109 above)		$	1,021.72
205	**Affordability Indicator (204/203)**			**4.03%**

State Population Growth Rate	0.5%	County Population Growth Rate	-14.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-25.5%	
State Unemployment	4.7%	County Unemployment Rate	9.4%	
State Poverty Rate	13.0%	County Poverty Rate	16.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Jackson	Projected Capital Cost for Phosphorus Removal for County	$	12,724,801.81

100	Existing Operations and Maintenance Cost		$	1,875,678.84
101	Existing Annual Debt Service		$	124,136.00
102	Subtotal (100+101)		$	1,999,814.84
	a) Inflation to the existing O & M Costs	$ 56,270.37		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 266,255.10		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	322,525.46
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,409,757.57
105	Subtotal (103+104)		$	2,732,283.03
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,732,097.87
107	Customer Share of the Costs (%*106)	100.00%	$	4,732,097.87
108	Number of Customers			2219
109	**Cost Per Customer (107/108)**		**$**	**2,132.34**
201	Current MHI		$	36,346.83
202	Annual MHI Inflator			1.01369
203	Adjusted MHI (201*202)		$	36,844.60
204	Annual Cost per Customer (line 109 above)		$	2,132.34
205	**Affordability Indicator (204/203)**			**5.79%**

State Population Growth Rate	0.5%	County Population Growth Rate	8.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-15.8%	
State Unemployment	4.7%	County Unemployment Rate	5.5%	
State Poverty Rate	13.0%	County Poverty Rate	16.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Jefferson	Projected Capital Cost for Phosphorus Removal for County	$	44,432,253.85

100	Existing Operations and Maintenance Cost		$	8,569,244.82
101	Existing Annual Debt Service		$	692,973.15
102	Subtotal (100+101)		$	9,262,217.97
	a) Inflation to the existing O & M Costs	$ 257,077.34		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 2,019,584.18		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,276,661.52
104	Estimated Additional Annual Debt Service, plus cash funding		$	8,414,351.89
105	Subtotal (103+104)		$	10,691,013.41
106	Total Existing *plus additional cost* of Phosphorus facilities		$	19,953,231.38
107	Customer Share of the Costs (%*106)	100.00%	$	19,953,231.38
108	Number of Customers			13386
109	**Cost Per Customer (107/108)**		**$**	**1,490.65**
201	Current MHI		$	56,131.22
202	Annual MHI Inflator			1.01387
203	Adjusted MHI (201*202)		$	56,909.54
204	Annual Cost per Customer (line 109 above)		$	1,490.65
205	**Affordability Indicator (204/203)**		**2.62%**	

State Population Growth Rate	0.5%	County Population Growth Rate	14.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	2.0%	
State Unemployment	4.7%	County Unemployment Rate	5.0%	
State Poverty Rate	13.0%	County Poverty Rate	11.2%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Juneau	Projected Capital Cost for Phosphorus Removal for County	$ 21,950,687.21

100	Existing Operations and Maintenance Cost		$	3,110,050.82
101	Existing Annual Debt Service		$	380,667.58
102	Subtotal (100+101)		$	3,490,718.40
	a) Inflation to the existing O & M Costs	$ 93,301.52		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 563,719.74		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	657,021.26
104	Estimated Additional Annual Debt Service, plus cash funding		$	4,156,908.33
105	Subtotal (103+104)		$	4,813,929.60
106	Total Existing *plus additional cost* of Phosphorus facilities		$	8,304,648.00
107	Customer Share of the Costs (%*106)	100.00%	$	8,304,648.00
108	Number of Customers			4378
109	**Cost Per Customer (107/108)**		**$**	**1,896.90**
201	Current MHI		$	42,883.50
202	Annual MHI Inflator			1.02169
203	Adjusted MHI (201*202)		$	43,813.51
204	Annual Cost per Customer (line 109 above)		$	1,896.90
205	**Affordability Indicator (204/203)**		**4.33%**	

State Population Growth Rate	0.5%	County Population Growth Rate	9.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-13.6%	
State Unemployment	4.7%	County Unemployment Rate	6.4%	
State Poverty Rate	13.0%	County Poverty Rate	13.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Kenosha	Projected Capital Cost for Phosphorus Removal for County	$ 25,460,990.16

100	Existing Operations and Maintenance Cost		$ 23,464,757.50
101	Existing Annual Debt Service		$ 2,288,879.85
102	Subtotal (100+101)		$ 25,753,637.35
	a) Inflation to the existing O & M Costs	$ 703,942.73	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,439,691.61	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 2,143,634.34
104	Estimated Additional Annual Debt Service, plus cash funding		$ 4,821,671.47
105	Subtotal (103+104)		$ 6,965,305.80
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 32,718,943.15
107	Customer Share of the Costs (%*106)	100.00%	$ 32,718,943.15
108	Number of Customers		45275
109	**Cost Per Customer (107/108)**		**$ 722.66**
201	Current MHI		$ 60,862.17
202	Annual MHI Inflator		1.01304
203	Adjusted MHI (201*202)		$ 61,655.57
204	Annual Cost per Customer (line 109 above)		$ 722.66
205	**Affordability Indicator (204/203)**		**1.17%**

State Population Growth Rate	0.5%	County Population Growth Rate	12.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	4.8%	
State Unemployment	4.7%	County Unemployment Rate	5.5%	
State Poverty Rate	13.0%	County Poverty Rate	14.0%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Kewaunee	Projected Capital Cost for Phosphorus Removal for County	$ 8,470,917.14

100	Existing Operations and Maintenance Cost		$	1,510,484.26
101	Existing Annual Debt Service		$	89,343.07
102	Subtotal (100+101)		$	1,599,827.33
	a) Inflation to the existing O & M Costs	$ 45,314.53		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 265,958.00		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	311,272.52
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,604,178.76
105	Subtotal (103+104)		$	1,915,451.28
106	Total Existing *plus additional cost* of Phosphorus facilities		$	3,515,278.61
107	Customer Share of the Costs (%*106)	100.00%	$	3,515,278.61
108	Number of Customers			2146
109	**Cost Per Customer (107/108)**		**$**	**1,637.91**
201	Current MHI		$	50,298.33
202	Annual MHI Inflator			1.01714
203	Adjusted MHI (201*202)		$	51,160.37
204	Annual Cost per Customer (line 109 above)		$	1,637.91
205	**Affordability Indicator (204/203)**		**3.20%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	2.2%	
State Unemployment	4.7%	County Unemployment Rate	4.1%	
State Poverty Rate	13.0%	County Poverty Rate	9.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	La Crosse	Projected Capital Cost for Phosphorus Removal for County	$ 56,616,591.11

100	Existing Operations and Maintenance Cost		$	11,740,323.00
101	Existing Annual Debt Service		$	232,683.08
102	Subtotal (100+101)		$	11,973,006.08
	a) Inflation to the existing O & M Costs	$ 352,209.69		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,548,757.70		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,900,967.39
104	Estimated Additional Annual Debt Service, plus cash funding		$	10,721,759.06
105	Subtotal (103+104)		$	12,622,726.46
106	Total Existing *plus additional cost* of Phosphorus facilities		$	24,595,732.54
107	Customer Share of the Costs (%*106)	100.00%	$	24,595,732.54
108	Number of Customers			27135
109	**Cost Per Customer (107/108)**		**$**	**906.42**
201	Current MHI		$	54,982.25
202	Annual MHI Inflator			1.02313
203	Adjusted MHI (201*202)		$	56,253.79
204	Annual Cost per Customer (line 109 above)		$	906.42
205	**Affordability Indicator (204/203)**		**1.61%**	

State Population Growth Rate	0.5%	County Population Growth Rate	9.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-2.0%	
State Unemployment	4.7%	County Unemployment Rate	3.6%	
State Poverty Rate	13.0%	County Poverty Rate	14.0%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Lafayette	Projected Capital Cost for Phosphorus Removal for County	$	15,826,084.39

100	Existing Operations and Maintenance Cost		$	2,096,683.00
101	Existing Annual Debt Service		$	518,042.53
102	Subtotal (100+101)		$	2,614,725.53
	a) Inflation to the existing O & M Costs	$ 62,900.49		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 270,770.71		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	333,671.20
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,997,062.53
105	Subtotal (103+104)		$	3,330,733.73
106	Total Existing *plus additional cost* of Phosphorus facilities		$	5,945,459.26
107	Customer Share of the Costs (%*106)	100.00%	$	5,945,459.26
108	Number of Customers			3246
109	**Cost Per Customer (107/108)**		**$**	**1,831.63**
201	Current MHI		$	41,136.57
202	Annual MHI Inflator			1.02457
203	Adjusted MHI (201*202)		$	42,147.17
204	Annual Cost per Customer (line 109 above)		$	1,831.63
205	**Affordability Indicator (204/203)**			**4.35%**

State Population Growth Rate	0.5%	County Population Growth Rate	3.9%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-6.3%	
State Unemployment	4.7%	County Unemployment Rate	3.6%	
State Poverty Rate	13.0%	County Poverty Rate	11.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Langlade	Projected Capital Cost for Phosphorus Removal for County	$ 8,670,468.83

100	Existing Operations and Maintenance Cost		$ 2,005,236.00
101	Existing Annual Debt Service		$ 37,419.71
102	Subtotal (100+101)		$ 2,042,655.71
	a) Inflation to the existing O & M Costs	$ 60,157.08	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 345,321.34	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 405,478.42
104	Estimated Additional Annual Debt Service, plus cash funding		$ 1,641,968.83
105	Subtotal (103+104)		$ 2,047,447.25
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 4,090,102.95
107	Customer Share of the Costs (%*106)	100.00%	$ 4,090,102.95
108	Number of Customers		3039
109	**Cost Per Customer (107/108)**		**$ 1,345.87**
201	Current MHI		$ 31,423.50
202	Annual MHI Inflator		1.02139
203	Adjusted MHI (201*202)		$ 32,095.50
204	Annual Cost per Customer (line 109 above)		$ 1,345.87
205	**Affordability Indicator (204/203)**		**4.19%**

State Population Growth Rate	0.5%	County Population Growth Rate	-5.6%
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-19.1%
State Unemployment	4.7%	County Unemployment Rate	6.4%
State Poverty Rate	13.0%	County Poverty Rate	14.5%

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Lincoln	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	1,994,402.00
101	Existing Annual Debt Service		$	14,069.70
102	Subtotal (100+101)		$	2,008,471.70
	a) Inflation to the existing O & M Costs	$ 59,832.06		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	59,832.06
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	59,832.06
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,068,303.76
107	Customer Share of the Costs (%*106)	100.00%	$	2,068,303.76
108	Number of Customers			4729
109	**Cost Per Customer (107/108)**		**$**	**437.37**
201	Current MHI		$	42,533.00
202	Annual MHI Inflator			1.01947
203	Adjusted MHI (201*202)		$	43,361.06
204	Annual Cost per Customer (line 109 above)		$	437.37
205	**Affordability Indicator (204/203)**		**1.01%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-3.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-6.5%	
State Unemployment	4.7%	County Unemployment Rate	5.6%	
State Poverty Rate	13.0%	County Poverty Rate	11.1%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Manitowoc	Projected Capital Cost for Phosphorus Removal for County	$	18,044,087.56

100	Existing Operations and Maintenance Cost		$	13,539,402.00
101	Existing Annual Debt Service		$	2,530,998.05
102	Subtotal (100+101)		$	16,070,400.05
	a) Inflation to the existing O & M Costs	$ 406,182.06		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 986,740.41		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,392,922.47
104	Estimated Additional Annual Debt Service, plus cash funding		$	3,417,096.57
105	Subtotal (103+104)		$	4,810,019.04
106	Total Existing *plus additional cost* of Phosphorus facilities		$	20,880,419.09
107	Customer Share of the Costs (%*106)	100.00%	$	20,880,419.09
108	Number of Customers			21763
109	**Cost Per Customer (107/108)**		**$**	**959.44**
201	Current MHI		$	51,862.80
202	Annual MHI Inflator			1.00994
203	Adjusted MHI (201*202)		$	52,378.46
204	Annual Cost per Customer (line 109 above)		$	959.44
205	**Affordability Indicator (204/203)**		**1.83%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-2.7%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-6.7%	
State Unemployment	4.7%	County Unemployment Rate	4.9%	
State Poverty Rate	13.0%	County Poverty Rate	9.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Marathon	Projected Capital Cost for Phosphorus Removal for County	$ 26,939,430.17

100	Existing Operations and Maintenance Cost		$ 11,531,085.81
101	Existing Annual Debt Service		$ 171,516.45
102	Subtotal (100+101)		$ 11,702,602.26
	a) Inflation to the existing O & M Costs	$ 345,932.57	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 765,148.81	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 1,111,081.39
104	Estimated Additional Annual Debt Service, plus cash funding		$ 5,101,650.84
105	Subtotal (103+104)		$ 6,212,732.23
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 17,915,334.49
107	Customer Share of the Costs (%*106)	100.00%	$ 17,915,334.49
108	Number of Customers		28516
109	**Cost Per Customer (107/108)**		**$ 628.26**
201	Current MHI		$ 52,353.83
202	Annual MHI Inflator		1.01396
203	Adjusted MHI (201*202)		$ 53,084.82
204	Annual Cost per Customer (line 109 above)		$ 628.26
205	**Affordability Indicator (204/203)**		**1.18%**

State Population Growth Rate	0.5%	County Population Growth Rate	7.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	1.8%	
State Unemployment	4.7%	County Unemployment Rate	4.4%	
State Poverty Rate	13.0%	County Poverty Rate	10.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Marinette	Projected Capital Cost for Phosphorus Removal for County	$	1,926,666.78

100	Existing Operations and Maintenance Cost		$	1,909,070.00
101	Existing Annual Debt Service		$	101,723.63
102	Subtotal (100+101)		$	2,010,793.63
	a) Inflation to the existing O & M Costs	$ 57,272.10		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 53,479.88		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	110,751.98
104	Estimated Additional Annual Debt Service, plus cash funding		$	364,862.25
105	Subtotal (103+104)		$	475,614.23
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,486,407.87
107	Customer Share of the Costs (%*106)	100.00%	$	2,486,407.87
108	Number of Customers			4893
109	**Cost Per Customer (107/108)**		**$**	**508.16**
201	Current MHI		$	32,020.75
202	Annual MHI Inflator			1.01142
203	Adjusted MHI (201*202)		$	32,386.42
204	Annual Cost per Customer (line 109 above)		$	508.16
205	**Affordability Indicator (204/203)**		**1.57%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-4.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-22.7%	
State Unemployment	4.7%	County Unemployment Rate	5.8%	
State Poverty Rate	13.0%	County Poverty Rate	13.2%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Marquette	Projected Capital Cost for Phosphorus Removal for County	$ 2,765,671.23

100	Existing Operations and Maintenance Cost		$ 516,380.83
101	Existing Annual Debt Service		$ 5,470.76
102	Subtotal (100+101)		$ 521,851.59
	a) Inflation to the existing O & M Costs	$ 15,491.42	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 54,495.70	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 69,987.13
104	Estimated Additional Annual Debt Service, plus cash funding		$ 523,748.61
105	Subtotal (103+104)		$ 593,735.73
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 1,115,587.32
107	Customer Share of the Costs (%*106)	100.00%	$ 1,115,587.32
108	Number of Customers		1727
109	**Cost Per Customer (107/108)**		**$ 645.89**
201	Current MHI		$ 41,701.00
202	Annual MHI Inflator		1.02223
203	Adjusted MHI (201*202)		$ 42,628.08
204	Annual Cost per Customer (line 109 above)		$ 645.89
205	**Affordability Indicator (204/203)**		**1.52%**

State Population Growth Rate	0.5%	County Population Growth Rate	-4.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-12.1%	
State Unemployment	4.7%	County Unemployment Rate	6.6%	
State Poverty Rate	13.0%	County Poverty Rate	13.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Menominee	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	-
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	-
	a) Inflation to the existing O & M Costs	$ -		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	-
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	-
106	Total Existing *plus additional cost* of Phosphorus facilities		$	-
107	Customer Share of the Costs (%*106)	100.00%	$	-
108	Number of Customers		1220	
109	**Cost Per Customer (107/108)**		**$**	**-**
201	Current MHI		$	33,333.00
202	Annual MHI Inflator		1.01017	
203	Adjusted MHI (201*202)		$	33,672.06
204	Annual Cost per Customer (line 109 above)		$	-
205	**Affordability Indicator (204/203)**		**0.00%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-5.4%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-36.4%	
State Unemployment	4.7%	County Unemployment Rate	10.3%	
State Poverty Rate	13.0%	County Poverty Rate	31.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Milwaukee	Projected Capital Cost for Phosphorus Removal for County	$	18,441,778.70

100	Existing Operations and Maintenance Cost		$	197,635,242.00
101	Existing Annual Debt Service		$	119,045,021.18
102	Subtotal (100+101)		$	316,680,263.18
	a) Inflation to the existing O & M Costs	$ 5,929,057.26		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 4,826,901.43		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	10,755,958.69
104	Estimated Additional Annual Debt Service, plus cash funding		$	3,492,409.27
105	Subtotal (103+104)		$	14,248,367.97
106	Total Existing *plus additional cost* of Phosphorus facilities		$	330,928,631.15
107	Customer Share of the Costs (%*106)	100.00%	$	330,928,631.15
108	Number of Customers			372931
109	**Cost Per Customer (107/108)**		**$**	**887.37**
201	Current MHI		$	53,894.33
202	Annual MHI Inflator			1.01028
203	Adjusted MHI (201*202)		$	54,448.51
204	Annual Cost per Customer (line 109 above)		$	887.37
205	**Affordability Indicator (204/203)**			**1.63%**

State Population Growth Rate	0.5%	County Population Growth Rate	1.7%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-17.6%	
State Unemployment	4.7%	County Unemployment Rate	6.0%	
State Poverty Rate	13.0%	County Poverty Rate	21.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Monroe	Projected Capital Cost for Phosphorus Removal for County	$	26,622,708.70

100	Existing Operations and Maintenance Cost		$	4,624,407.65
101	Existing Annual Debt Service		$	375,919.73
102	Subtotal (100+101)		$	5,000,327.38
	a) Inflation to the existing O & M Costs	$ 2,863,655.88		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 685,826.12		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	3,549,482.00
104	Estimated Additional Annual Debt Service, plus cash funding		$	5,041,671.76
105	Subtotal (103+104)		$	8,591,153.75
106	Total Existing *plus additional cost* of Phosphorus facilities		$	13,591,481.13
107	Customer Share of the Costs (%*106)	100.00%	$	13,591,481.13
108	Number of Customers			7587
109	**Cost Per Customer (107/108)**		**$**	**1,791.42**
201	Current MHI		$	39,096.43
202	Annual MHI Inflator			1.01934
203	Adjusted MHI (201*202)		$	39,852.56
204	Annual Cost per Customer (line 109 above)		$	1,791.42
205	**Affordability Indicator (204/203)**			**4.50%**

State Population Growth Rate	0.5%	County Population Growth Rate	10.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-5.0%	
State Unemployment	4.7%	County Unemployment Rate	4.5%	
State Poverty Rate	13.0%	County Poverty Rate	14.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Oconto	Projected Capital Cost for Phosphorus Removal for County	$ 4,882,173.99

100	Existing Operations and Maintenance Cost		$	1,899,484.00
101	Existing Annual Debt Service		$	730,301.75
102	Subtotal (100+101)		$	2,629,785.75
	a) Inflation to the existing O & M Costs	$ 56,984.52		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 244,269.89		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	301,254.41
104	Estimated Additional Annual Debt Service, plus cash funding		$	924,561.02
105	Subtotal (103+104)		$	1,225,815.43
106	Total Existing *plus additional cost* of Phosphorus facilities		$	3,855,601.18
107	Customer Share of the Costs (%*106)	100.00%	$	3,855,601.18
108	Number of Customers			4377
109	**Cost Per Customer (107/108)**		**$**	**880.96**
201	Current MHI		$	49,539.00
202	Annual MHI Inflator			1.01944
203	Adjusted MHI (201*202)		$	50,502.19
204	Annual Cost per Customer (line 109 above)		$	880.96
205	**Affordability Indicator (204/203)**		**1.74%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.9%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-1.5%	
State Unemployment	4.7%	County Unemployment Rate	5.4%	
State Poverty Rate	13.0%	County Poverty Rate	10.2%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Oneida	Projected Capital Cost for Phosphorus Removal for County	$	2,364,572.93

100	Existing Operations and Maintenance Cost		$	2,721,228.00
101	Existing Annual Debt Service		$	978,335.93
102	Subtotal (100+101)		$	3,699,563.93
	a) Inflation to the existing O & M Costs	$ 81,636.84		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 162,325.57		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	243,962.41
104	Estimated Additional Annual Debt Service, plus cash funding		$	447,790.67
105	Subtotal (103+104)		$	691,753.08
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,391,317.01
107	Customer Share of the Costs (%*106)	100.00%	$	4,391,317.01
108	Number of Customers			4929
109	**Cost Per Customer (107/108)**		**$**	**890.91**
201	Current MHI		$	40,304.67
202	Annual MHI Inflator			1.01664
203	Adjusted MHI (201*202)		$	40,975.52
204	Annual Cost per Customer (line 109 above)		$	890.91
205	**Affordability Indicator (204/203)**		**2.17%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-3.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-12.7%	
State Unemployment	4.7%	County Unemployment Rate	7.0%	
State Poverty Rate	13.0%	County Poverty Rate	10.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Outagamie	Projected Capital Cost for Phosphorus Removal for County	$ 32,204,659.13

100	Existing Operations and Maintenance Cost		$ 29,292,005.82
101	Existing Annual Debt Service		$ 4,295,743.20
102	Subtotal (100+101)		$ 33,587,749.02
	a) Inflation to the existing O & M Costs	$ 878,760.17	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,750,947.98	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 2,629,708.15
104	Estimated Additional Annual Debt Service, plus cash funding		$ 6,098,752.84
105	Subtotal (103+104)		$ 8,728,460.99
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 42,316,210.01
107	Customer Share of the Costs (%*106)	100.00%	$ 42,316,210.01
108	Number of Customers		53112
109	**Cost Per Customer (107/108)**		**$ 796.74**
201	Current MHI		$ 55,959.10
202	Annual MHI Inflator		1.01350
203	Adjusted MHI (201*202)		$ 56,714.37
204	Annual Cost per Customer (line 109 above)		$ 796.74
205	**Affordability Indicator (204/203)**		**1.40%**

State Population Growth Rate	0.5%	County Population Growth Rate	12.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	11.3%	
State Unemployment	4.7%	County Unemployment Rate	4.3%	
State Poverty Rate	13.0%	County Poverty Rate	8.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Ozaukee	Projected Capital Cost for Phosphorus Removal for County	$ 33,867,929.38

100	Existing Operations and Maintenance Cost		$	8,879,188.00
101	Existing Annual Debt Service		$	407,931.71
102	Subtotal (100+101)		$	9,287,119.71
	a) Inflation to the existing O & M Costs	$ 266,375.64		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,538,795.25		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,805,170.89
104	Estimated Additional Annual Debt Service, plus cash funding		$	6,413,734.41
105	Subtotal (103+104)		$	8,218,905.31
106	Total Existing *plus additional cost* of Phosphorus facilities		$	17,506,025.02
107	Customer Share of the Costs (%*106)	100.00%	$	17,506,025.02
108	Number of Customers			16421
109	**Cost Per Customer (107/108)**		**$**	**1,066.06**
201	Current MHI		$	62,684.00
202	Annual MHI Inflator			1.01558
203	Adjusted MHI (201*202)		$	63,660.90
204	Annual Cost per Customer (line 109 above)		$	1,066.06
205	**Affordability Indicator (204/203)**		**1.67%**	

State Population Growth Rate	0.5%	County Population Growth Rate	5.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	44.0%	
State Unemployment	4.7%	County Unemployment Rate	3.9%	
State Poverty Rate	13.0%	County Poverty Rate	5.2%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Pepin	Projected Capital Cost for Phosphorus Removal for County	$ 3,073,231.07

100	Existing Operations and Maintenance Cost			$ 151,211.00
101	Existing Annual Debt Service			$ 3,744.09
102	Subtotal (100+101)			$ 154,955.09
	a) Inflation to the existing O & M Costs	$ 4,536.33		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 43,905.60		
103	Estimated Additional Annual Operations & Maintenance (a+b)			$ 48,441.93
104	Estimated Additional Annual Debt Service, plus cash funding			$ 581,992.71
105	Subtotal (103+104)			$ 630,434.64
106	Total Existing *plus additional cost* of Phosphorus facilities			$ 785,389.72
107	Customer Share of the Costs (%*106)	100.00%		$ 785,389.72
108	Number of Customers			1228
109	**Cost Per Customer (107/108)**			**$ 639.57**
201	Current MHI			$ 40,263.33
202	Annual MHI Inflator			1.02064
203	Adjusted MHI (201*202)			$ 41,094.43
204	Annual Cost per Customer (line 109 above)			$ 639.57
205	**Affordability Indicator (204/203)**			**1.56%**

State Population Growth Rate	0.5%	County Population Growth Rate	2.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-9.0%	
State Unemployment	4.7%	County Unemployment Rate	4.0%	
State Poverty Rate	13.0%	County Poverty Rate	12.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Pierce	Projected Capital Cost for Phosphorus Removal for County	$	11,884,296.72

100	Existing Operations and Maintenance Cost		$	5,082,483.00
101	Existing Annual Debt Service		$	347,062.02
102	Subtotal (100+101)		$	5,429,545.02
	a) Inflation to the existing O & M Costs	$ 152,474.49		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 290,186.37		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	442,660.86
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,250,587.04
105	Subtotal (103+104)		$	2,693,247.89
106	Total Existing *plus additional cost* of Phosphorus facilities		$	8,122,792.92
107	Customer Share of the Costs (%*106)	100.00%	$	8,122,792.92
108	Number of Customers			7974
109	**Cost Per Customer (107/108)**		**$**	**1,018.66**
201	Current MHI		$	53,542.00
202	Annual MHI Inflator			1.01502
203	Adjusted MHI (201*202)		$	54,346.17
204	Annual Cost per Customer (line 109 above)		$	1,018.66
205	**Affordability Indicator (204/203)**			**1.87%**

State Population Growth Rate	0.5%	County Population Growth Rate	11.3%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	13.0%	
State Unemployment	4.7%	County Unemployment Rate	2.7%	
State Poverty Rate	13.0%	County Poverty Rate	12.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Polk	Projected Capital Cost for Phosphorus Removal for County	$	11,630,814.31

100	Existing Operations and Maintenance Cost		$	1,580,251.98
101	Existing Annual Debt Service		$	361,767.64
102	Subtotal (100+101)		$	1,942,019.62
	a) Inflation to the existing O & M Costs	$ 47,407.56		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 261,336.01		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	308,743.57
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,202,583.84
105	Subtotal (103+104)		$	2,511,327.41
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,453,347.03
107	Customer Share of the Costs (%*106)	100.00%	$	4,453,347.03
108	Number of Customers			3607
109	**Cost Per Customer (107/108)**		**$**	**1,234.64**
201	Current MHI		$	41,930.43
202	Annual MHI Inflator			1.01374
203	Adjusted MHI (201*202)		$	42,506.47
204	Annual Cost per Customer (line 109 above)		$	1,234.64
205	**Affordability Indicator (204/203)**		**2.90%**	

State Population Growth Rate	0.5%	County Population Growth Rate	5.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-7.4%	
State Unemployment	4.7%	County Unemployment Rate	5.1%	
State Poverty Rate	13.0%	County Poverty Rate	10.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Portage	Projected Capital Cost for Phosphorus Removal for County	$ 3,866,125.10

100	Existing Operations and Maintenance Cost		$ 6,335,005.19
101	Existing Annual Debt Service		$ 851,300.26
102	Subtotal (100+101)		$ 7,186,305.45
	a) Inflation to the existing O & M Costs	$ 190,050.16	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 388,257.63	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 578,307.79
104	Estimated Additional Annual Debt Service, plus cash funding		$ 732,146.90
105	Subtotal (103+104)		$ 1,310,454.69
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 8,496,760.13
107	Customer Share of the Costs (%*106)	100.00%	$ 8,496,760.13
108	Number of Customers		13145
109	**Cost Per Customer (107/108)**		**$ 646.40**
201	Current MHI		$ 45,073.50
202	Annual MHI Inflator		1.01328
203	Adjusted MHI (201*202)		$ 45,672.19
204	Annual Cost per Customer (line 109 above)		$ 646.40
205	**Affordability Indicator (204/203)**		**1.42%**

State Population Growth Rate	0.5%	County Population Growth Rate	4.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-2.7%	
State Unemployment	4.7%	County Unemployment Rate	4.4%	
State Poverty Rate	13.0%	County Poverty Rate	13.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Price	Projected Capital Cost for Phosphorus Removal for County	$ 5,816,454.07

100	Existing Operations and Maintenance Cost		$ 850,347.00
101	Existing Annual Debt Service		$ 122,948.09
102	Subtotal (100+101)		$ 973,295.09
	a) Inflation to the existing O & M Costs	$ 25,510.41	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 177,574.69	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 203,085.10
104	Estimated Additional Annual Debt Service, plus cash funding		$ 1,101,490.18
105	Subtotal (103+104)		$ 1,304,575.28
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 2,277,870.37
107	Customer Share of the Costs (%*106)	100.00%	$ 2,277,870.37
108	Number of Customers		2377
109	**Cost Per Customer (107/108)**		**$ 958.30**
201	Current MHI		$ 35,855.25
202	Annual MHI Inflator		1.01614
203	Adjusted MHI (201*202)		$ 36,433.88
204	Annual Cost per Customer (line 109 above)		$ 958.30
205	**Affordability Indicator (204/203)**		**2.63%**

State Population Growth Rate	0.5%	County Population Growth Rate	-12.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-18.6%	
State Unemployment	4.7%	County Unemployment Rate	4.4%	
State Poverty Rate	13.0%	County Poverty Rate	15.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Racine	Projected Capital Cost for Phosphorus Removal for County	$	43,207,722.34

100	Existing Operations and Maintenance Cost		$	29,289,625.00
101	Existing Annual Debt Service		$	9,297,480.25
102	Subtotal (100+101)		$	38,587,105.25
	a) Inflation to the existing O & M Costs	$ 878,688.75		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 2,156,597.72		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	3,035,286.47
104	Estimated Additional Annual Debt Service, plus cash funding		$	8,182,456.40
105	Subtotal (103+104)		$	11,217,742.87
106	Total Existing *plus additional cost* of Phosphorus facilities		$	49,804,848.12
107	Customer Share of the Costs (%*106)	100.00%	$	49,804,848.12
108	Number of Customers			53100
109	**Cost Per Customer (107/108)**		**$**	**937.94**
201	Current MHI		$	54,366.80
202	Annual MHI Inflator			1.00965
203	Adjusted MHI (201*202)		$	54,891.61
204	Annual Cost per Customer (line 109 above)		$	937.94
205	**Affordability Indicator (204/203)**			**1.71%**

State Population Growth Rate	0.5%	County Population Growth Rate	3.3%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	3.2%	
State Unemployment	4.7%	County Unemployment Rate	6.0%	
State Poverty Rate	13.0%	County Poverty Rate	13.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Richland	Projected Capital Cost for Phosphorus Removal for County	$ 8,039,240.49

100	Existing Operations and Maintenance Cost			$ 3,035,114.00
101	Existing Annual Debt Service			$ 307,101.69
102	Subtotal (100+101)			$ 3,342,215.69
	a) Inflation to the existing O & M Costs	$ 91,053.42		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 394,762.30		
103	Estimated Additional Annual Operations & Maintenance (a+b)			$ 485,815.72
104	Estimated Additional Annual Debt Service, plus cash funding			$ 1,522,430.05
105	Subtotal (103+104)			$ 2,008,245.77
106	Total Existing *plus additional cost* of Phosphorus facilities			$ 5,350,461.45
107	Customer Share of the Costs (%*106)		100.00%	$ 5,350,461.45
108	Number of Customers			2364
109	**Cost Per Customer (107/108)**			**$ 2,263.31**
201	Current MHI			$ 37,845.50
202	Annual MHI Inflator			1.02551
203	Adjusted MHI (201*202)			$ 38,810.79
204	Annual Cost per Customer (line 109 above)			$ 2,263.31
205	**Affordability Indicator (204/203)**			**5.83%**

State Population Growth Rate	0.5%	County Population Growth Rate	-1.2%
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-13.6%
State Unemployment	4.7%	County Unemployment Rate	4.0%
State Poverty Rate	13.0%	County Poverty Rate	12.8%

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Rock	Projected Capital Cost for Phosphorus Removal for County	$	71,851,058.51

100	Existing Operations and Maintenance Cost		$	22,590,438.00
101	Existing Annual Debt Service		$	3,767,209.96
102	Subtotal (100+101)		$	26,357,647.96
	a) Inflation to the existing O & M Costs	$ 677,713.14		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 4,114,310.79		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	4,792,023.93
104	Estimated Additional Annual Debt Service, plus cash funding		$	13,606,784.21
105	Subtotal (103+104)		$	18,398,808.13
106	Total Existing *plus additional cost* of Phosphorus facilities		$	44,756,456.09
107	Customer Share of the Costs (%*106)	100.00%	$	44,756,456.09
108	Number of Customers			46843
109	**Cost Per Customer (107/108)**		**$**	**955.46**
201	Current MHI		$	50,268.89
202	Annual MHI Inflator			1.00662
203	Adjusted MHI (201*202)		$	50,601.74
204	Annual Cost per Customer (line 109 above)		$	955.46
205	**Affordability Indicator (204/203)**			**1.89%**

State Population Growth Rate	0.5%	County Population Growth Rate	5.5%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-5.7%	
State Unemployment	4.7%	County Unemployment Rate	5.5%	
State Poverty Rate	13.0%	County Poverty Rate	14.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Rusk	Projected Capital Cost for Phosphorus Removal for County	$ 6,956,714.13

100	Existing Operations and Maintenance Cost		$	988,745.00
101	Existing Annual Debt Service		$	99,649.14
102	Subtotal (100+101)		$	1,088,394.14
	a) Inflation to the existing O & M Costs	$ 29,662.35		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 139,738.12		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	169,400.47
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,317,426.77
105	Subtotal (103+104)		$	1,486,827.24
106	Total Existing *plus additional cost* of Phosphorus facilities		$	2,575,221.38
107	Customer Share of the Costs (%*106)	100.00%	$	2,575,221.38
108	Number of Customers			1902
109	**Cost Per Customer (107/108)**		**$**	**1,353.95**
201	Current MHI		$	28,573.67
202	Annual MHI Inflator			1.01795
203	Adjusted MHI (201*202)		$	29,086.56
204	Annual Cost per Customer (line 109 above)		$	1,353.95
205	**Affordability Indicator (204/203)**		**4.65%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-6.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-26.2%	
State Unemployment	4.7%	County Unemployment Rate	6.0%	
State Poverty Rate	13.0%	County Poverty Rate	18.7%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Sauk	Projected Capital Cost for Phosphorus Removal for County	$	22,391,861.46

100	Existing Operations and Maintenance Cost		$	8,421,510.66
101	Existing Annual Debt Service		$	3,023,113.20
102	Subtotal (100+101)		$	11,444,623.86
	a) Inflation to the existing O & M Costs	$ 252,645.32		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 796,912.46		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,049,557.78
104	Estimated Additional Annual Debt Service, plus cash funding		$	4,240,455.65
105	Subtotal (103+104)		$	5,290,013.43
106	Total Existing *plus additional cost* of Phosphorus facilities		$	16,734,637.29
107	Customer Share of the Costs (%*106)	100.00%	$	16,734,637.29
108	Number of Customers			13911
109	**Cost Per Customer (107/108)**		**$**	**1,203.01**
201	Current MHI		$	45,754.33
202	Annual MHI Inflator			1.01871
203	Adjusted MHI (201*202)		$	46,610.20
204	Annual Cost per Customer (line 109 above)		$	1,203.01
205	**Affordability Indicator (204/203)**			**2.58%**

State Population Growth Rate	0.5%	County Population Growth Rate	14.4%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-0.5%	
State Unemployment	4.7%	County Unemployment Rate	4.8%	
State Poverty Rate	13.0%	County Poverty Rate	10.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Sawyer	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	76,508.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	76,508.00
	a) Inflation to the existing O & M Costs	$ 2,295.24		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,295.24
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	2,295.24
106	Total Existing *plus additional cost* of Phosphorus facilities		$	78,803.24
107	Customer Share of the Costs (%*106)	100.00%	$	78,803.24
108	Number of Customers		104	
109	**Cost Per Customer (107/108)**		**$**	**757.72**
201	Current MHI		$	30,625.00
202	Annual MHI Inflator		1.01815	
203	Adjusted MHI (201*202)		$	31,180.76
204	Annual Cost per Customer (line 109 above)		$	757.72
205	**Affordability Indicator (204/203)**		**2.43%**	

State Population Growth Rate	0.5%	County Population Growth Rate	2.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-23.9%	
State Unemployment	4.7%	County Unemployment Rate	8.0%	
State Poverty Rate	13.0%	County Poverty Rate	18.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Shawano	Projected Capital Cost for Phosphorus Removal for County	$ 1,174,411.72

100	Existing Operations and Maintenance Cost		$	3,613,953.00
101	Existing Annual Debt Service		$	98,061.62
102	Subtotal (100+101)		$	3,712,014.62
	a) Inflation to the existing O & M Costs	$ 108,418.59		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 221,579.58		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	329,998.17
104	Estimated Additional Annual Debt Service, plus cash funding		$	222,404.06
105	Subtotal (103+104)		$	552,402.23
106	Total Existing *plus additional cost* of Phosphorus facilities		$	4,264,416.85
107	Customer Share of the Costs (%*106)	100.00%	$	4,264,416.85
108	Number of Customers			6600
109	**Cost Per Customer (107/108)**		**$**	**646.12**
201	Current MHI		$	38,106.20
202	Annual MHI Inflator			1.01716
203	Adjusted MHI (201*202)		$	38,759.92
204	Annual Cost per Customer (line 109 above)		$	646.12
205	**Affordability Indicator (204/203)**		**1.67%**	

State Population Growth Rate	0.5%	County Population Growth Rate	2.4%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-11.2%	
State Unemployment	4.7%	County Unemployment Rate	5.2%	
State Poverty Rate	13.0%	County Poverty Rate	11.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Sheboygan	Projected Capital Cost for Phosphorus Removal for County	$	17,477,064.28

100	Existing Operations and Maintenance Cost		$	9,922,207.00
101	Existing Annual Debt Service		$	1,783,725.15
102	Subtotal (100+101)		$	11,705,932.15
	a) Inflation to the existing O & M Costs	$ 297,666.21		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,222,088.79		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,519,755.00
104	Estimated Additional Annual Debt Service, plus cash funding		$	3,309,716.61
105	Subtotal (103+104)		$	4,829,471.61
106	Total Existing *plus additional cost* of Phosphorus facilities		$	16,535,403.77
107	Customer Share of the Costs (%*106)	100.00%	$	16,535,403.77
108	Number of Customers			28887
109	**Cost Per Customer (107/108)**		**$**	**572.42**
201	Current MHI		$	54,390.27
202	Annual MHI Inflator			1.01112
203	Adjusted MHI (201*202)		$	54,995.00
204	Annual Cost per Customer (line 109 above)		$	572.42
205	**Affordability Indicator (204/203)**			**1.04%**

State Population Growth Rate	0.5%	County Population Growth Rate	2.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	1.0%	
State Unemployment	4.7%	County Unemployment Rate	4.0%	
State Poverty Rate	13.0%	County Poverty Rate	9.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	St. Croix	Projected Capital Cost for Phosphorus Removal for County	$	14,703,107.76

100	Existing Operations and Maintenance Cost		$	2,890,155.00
101	Existing Annual Debt Service		$	476,118.70
102	Subtotal (100+101)		$	3,366,273.70
	a) Inflation to the existing O & M Costs	$ 86,704.65		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 345,378.52		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	432,083.17
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,784,398.99
105	Subtotal (103+104)		$	3,216,482.16
106	Total Existing *plus additional cost* of Phosphorus facilities		$	6,582,755.86
107	Customer Share of the Costs (%*106)	100.00%	$	6,582,755.86
108	Number of Customers			7786
109	**Cost Per Customer (107/108)**		**$**	**845.46**
201	Current MHI		$	55,615.14
202	Annual MHI Inflator			1.01890
203	Adjusted MHI (201*202)		$	56,666.25
204	Annual Cost per Customer (line 109 above)		$	845.46
205	**Affordability Indicator (204/203)**			**1.49%**

State Population Growth Rate	0.5%	County Population Growth Rate	36.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	30.6%	
State Unemployment	4.7%	County Unemployment Rate	2.8%	
State Poverty Rate	13.0%	County Poverty Rate	7.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Taylor	Projected Capital Cost for Phosphorus Removal for County	$	13,137,898.58

100	Existing Operations and Maintenance Cost		$	2,356,607.00
101	Existing Annual Debt Service		$	45,556.12
102	Subtotal (100+101)		$	2,402,163.12
	a) Inflation to the existing O & M Costs	$ 70,698.21		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 436,566.60		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	507,264.81
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,487,987.72
105	Subtotal (103+104)		$	2,995,252.53
106	Total Existing *plus additional cost* of Phosphorus facilities		$	5,397,415.65
107	Customer Share of the Costs (%*106)	100.00%	$	5,397,415.65
108	Number of Customers			2527
109	**Cost Per Customer (107/108)**		**$**	**2,135.90**
201	Current MHI		$	37,347.67
202	Annual MHI Inflator			1.01272
203	Adjusted MHI (201*202)		$	37,822.75
204	Annual Cost per Customer (line 109 above)		$	2,135.90
205	**Affordability Indicator (204/203)**			**5.65%**

State Population Growth Rate	0.5%	County Population Growth Rate	4.7%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-14.4%	
State Unemployment	4.7%	County Unemployment Rate	4.8%	
State Poverty Rate	13.0%	County Poverty Rate	13.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Trempealeau	Projected Capital Cost for Phosphorus Removal for County	$ 24,768,276.00

100	Existing Operations and Maintenance Cost		$ 3,524,920.00
101	Existing Annual Debt Service		$ 257,629.91
102	Subtotal (100+101)		$ 3,782,549.91
	a) Inflation to the existing O & M Costs	$ 105,747.60	
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 686,026.29	
103	Estimated Additional Annual Operations & Maintenance (a+b)		$ 791,773.89
104	Estimated Additional Annual Debt Service, plus cash funding		$ 4,690,488.82
105	Subtotal (103+104)		$ 5,482,262.71
106	Total Existing *plus additional cost* of Phosphorus facilities		$ 9,264,812.62
107	Customer Share of the Costs (%*106)	100.00%	$ 9,264,812.62
108	Number of Customers		4836
109	**Cost Per Customer (107/108)**		**$ 1,915.80**
201	Current MHI		$ 46,079.00
202	Annual MHI Inflator		1.02285
203	Adjusted MHI (201*202)		$ 47,131.82
204	Annual Cost per Customer (line 109 above)		$ 1,915.80
205	**Affordability Indicator (204/203)**		**4.06%**

State Population Growth Rate	0.5%	County Population Growth Rate	9.5%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-6.2%	
State Unemployment	4.7%	County Unemployment Rate	3.8%	
State Poverty Rate	13.0%	County Poverty Rate	11.9%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Vernon	Projected Capital Cost for Phosphorus Removal for County	$	15,379,670.28

100	Existing Operations and Maintenance Cost		$	1,899,419.00
101	Existing Annual Debt Service		$	194,804.87
102	Subtotal (100+101)		$	2,094,223.87
	a) Inflation to the existing O & M Costs	$ 56,982.57		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 282,571.37		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	339,553.94
104	Estimated Additional Annual Debt Service, plus cash funding		$	2,912,522.92
105	Subtotal (103+104)		$	3,252,076.85
106	Total Existing *plus additional cost* of Phosphorus facilities		$	5,346,300.73
107	Customer Share of the Costs (%*106)	100.00%	$	5,346,300.73
108	Number of Customers			4931
109	**Cost Per Customer (107/108)**		**$**	**1,084.22**
201	Current MHI		$	41,328.73
202	Annual MHI Inflator			1.02854
203	Adjusted MHI (201*202)		$	42,508.28
204	Annual Cost per Customer (line 109 above)		$	1,084.22
205	**Affordability Indicator (204/203)**		**2.55%**	

State Population Growth Rate	0.5%		County Population Growth Rate	8.1%	
State MHI (2013 Estimate)	$ 52,413		County Delta to State MHI	-13.2%	
State Unemployment	4.7%		County Unemployment Rate	4.3%	
State Poverty Rate	13.0%		County Poverty Rate	14.5%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Vilas	Projected Capital Cost for Phosphorus Removal for County	$ 396,947.16

100	Existing Operations and Maintenance Cost		$	402,684.00
101	Existing Annual Debt Service		$	-
102	Subtotal (100+101)		$	402,684.00
	a) Inflation to the existing O & M Costs	$ 12,080.52		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	12,080.52
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	12,080.52
106	Total Existing *plus additional cost* of Phosphorus facilities		$	414,764.52
107	Customer Share of the Costs (%*106)	100.00%	$	414,764.52
108	Number of Customers			7012
109	**Cost Per Customer (107/108)**		**$**	**59.15**
201	Current MHI		$	34,778.50
202	Annual MHI Inflator			1.01612
203	Adjusted MHI (201*202)		$	35,339.09
204	Annual Cost per Customer (line 109 above)		$	59.15
205	**Affordability Indicator (204/203)**		**0.17%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.6%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-22.1%	
State Unemployment	4.7%	County Unemployment Rate	8.3%	
State Poverty Rate	13.0%	County Poverty Rate	13.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Walworth	Projected Capital Cost for Phosphorus Removal for County	$	38,978,742.28

100	Existing Operations and Maintenance Cost		$	16,984,078.70
101	Existing Annual Debt Service		$	3,082,693.00
102	Subtotal (100+101)		$	20,066,771.70
	a) Inflation to the existing O & M Costs	$ 509,522.36		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,616,374.82		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,125,897.18
104	Estimated Additional Annual Debt Service, plus cash funding		$	7,381,593.89
105	Subtotal (103+104)		$	9,507,491.08
106	Total Existing *plus additional cost* of Phosphorus facilities		$	29,574,262.77
107	Customer Share of the Costs (%*106)	100.00%	$	29,574,262.77
108	Number of Customers			24687
109	**Cost Per Customer (107/108)**		**$**	**1,197.97**
201	Current MHI		$	51,579.25
202	Annual MHI Inflator			1.01612
203	Adjusted MHI (201*202)		$	52,410.64
204	Annual Cost per Customer (line 109 above)		$	1,197.97
205	**Affordability Indicator (204/203)**			**2.29%**

State Population Growth Rate	0.5%	County Population Growth Rate	9.8%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	3.1%	
State Unemployment	4.7%	County Unemployment Rate	4.8%	
State Poverty Rate	13.0%	County Poverty Rate	13.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Washburn	Projected Capital Cost for Phosphorus Removal for County	$ -

100	Existing Operations and Maintenance Cost		$	287,923.00
101	Existing Annual Debt Service		$	85,858.56
102	Subtotal (100+101)		$	373,781.56
	a) Inflation to the existing O & M Costs	$ 8,637.69		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ -		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	8,637.69
104	Estimated Additional Annual Debt Service, plus cash funding		$	-
105	Subtotal (103+104)		$	8,637.69
106	Total Existing *plus additional cost* of Phosphorus facilities		$	382,419.25
107	Customer Share of the Costs (%*106)	100.00%	$	382,419.25
108	Number of Customers			449
109	**Cost Per Customer (107/108)**		**$**	**851.71**
201	Current MHI		$	31,953.50
202	Annual MHI Inflator			1.01288
203	Adjusted MHI (201*202)		$	32,364.95
204	Annual Cost per Customer (line 109 above)		$	851.71
205	**Affordability Indicator (204/203)**		**2.63%**	

State Population Growth Rate	0.5%	County Population Growth Rate	-2.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-20.0%	
State Unemployment	4.7%	County Unemployment Rate	5.8%	
State Poverty Rate	13.0%	County Poverty Rate	13.8%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Washington	Projected Capital Cost for Phosphorus Removal for County	$ 49,344,522.23

100	Existing Operations and Maintenance Cost		$	21,744,578.00
101	Existing Annual Debt Service		$	1,198,852.31
102	Subtotal (100+101)		$	22,943,430.31
	a) Inflation to the existing O & M Costs	$ 652,337.34		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,911,293.40		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	2,563,630.74
104	Estimated Additional Annual Debt Service, plus cash funding		$	9,344,612.03
105	Subtotal (103+104)		$	11,908,242.77
106	Total Existing *plus additional cost* of Phosphorus facilities		$	34,851,673.08
107	Customer Share of the Costs (%*106)	100.00%	$	34,851,673.08
108	Number of Customers			26358
109	**Cost Per Customer (107/108)**		**$**	**1,322.24**
201	Current MHI		$	58,568.86
202	Annual MHI Inflator			1.01873
203	Adjusted MHI (201*202)		$	59,665.65
204	Annual Cost per Customer (line 109 above)		$	1,322.24
205	**Affordability Indicator (204/203)**		**2.22%**	

State Population Growth Rate	0.5%	County Population Growth Rate	13.0%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	26.2%	
State Unemployment	4.7%	County Unemployment Rate	4.1%	
State Poverty Rate	13.0%	County Poverty Rate	6.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Waukesha	Projected Capital Cost for Phosphorus Removal for County	$	97,588,878.86

100	Existing Operations and Maintenance Cost		$	47,580,254.00
101	Existing Annual Debt Service		$	5,174,717.35
102	Subtotal (100+101)		$	52,754,971.35
	a) Inflation to the existing O & M Costs	$ 1,427,407.62		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 4,021,939.91		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	5,449,347.53
104	Estimated Additional Annual Debt Service, plus cash funding		$	18,480,880.35
105	Subtotal (103+104)		$	23,930,227.88
106	Total Existing *plus additional cost* of Phosphorus facilities		$	76,685,199.23
107	Customer Share of the Costs (%*106)	100.00%	$	76,685,199.23
108	Number of Customers			60589
109	**Cost Per Customer (107/108)**		**$**	**1,265.65**
201	Current MHI		$	71,716.31
202	Annual MHI Inflator			1.01231
203	Adjusted MHI (201*202)		$	72,599.04
204	Annual Cost per Customer (line 109 above)		$	1,265.65
205	**Affordability Indicator (204/203)**		**1.74%**	

State Population Growth Rate	0.5%	County Population Growth Rate	9.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	44.7%	
State Unemployment	4.7%	County Unemployment Rate	4.2%	
State Poverty Rate	13.0%	County Poverty Rate	5.4%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Waupaca	Projected Capital Cost for Phosphorus Removal for County	$ 7,209,204.61

100	Existing Operations and Maintenance Cost		$	8,974,946.73
101	Existing Annual Debt Service		$	148,367.85
102	Subtotal (100+101)		$	9,123,314.58
	a) Inflation to the existing O & M Costs	$ 269,248.40		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 515,673.24		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	784,921.64
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,365,242.12
105	Subtotal (103+104)		$	2,150,163.76
106	Total Existing *plus additional cost* of Phosphorus facilities		$	11,273,478.34
107	Customer Share of the Costs (%*106)	100.00%	$	11,273,478.34
108	Number of Customers			9499
109	**Cost Per Customer (107/108)**		**$**	**1,186.86**
201	Current MHI		$	40,683.22
202	Annual MHI Inflator			1.01593
203	Adjusted MHI (201*202)		$	41,331.19
204	Annual Cost per Customer (line 109 above)		$	1,186.86
205	**Affordability Indicator (204/203)**		**2.87%**	

State Population Growth Rate	0.5%	County Population Growth Rate	1.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-3.0%	
State Unemployment	4.7%	County Unemployment Rate	5.0%	
State Poverty Rate	13.0%	County Poverty Rate	10.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Waushara	Projected Capital Cost for Phosphorus Removal for County	$	6,934,311.70

100	Existing Operations and Maintenance Cost		$	1,553,018.00
101	Existing Annual Debt Service		$	38,154.05
102	Subtotal (100+101)		$	1,591,172.05
	a) Inflation to the existing O & M Costs	$ 46,590.54		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 226,588.08		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	273,178.62
104	Estimated Additional Annual Debt Service, plus cash funding		$	1,313,184.31
105	Subtotal (103+104)		$	1,586,362.93
106	Total Existing *plus additional cost* of Phosphorus facilities		$	3,177,534.99
107	Customer Share of the Costs (%*106)	100.00%	$	3,177,534.99
108	Number of Customers			1568
109	**Cost Per Customer (107/108)**		**$**	**2,026.49**
201	Current MHI		$	32,572.33
202	Annual MHI Inflator			1.01864
203	Adjusted MHI (201*202)		$	33,179.40
204	Annual Cost per Customer (line 109 above)		$	2,026.49
205	**Affordability Indicator (204/203)**		**6.11%**	

State Population Growth Rate	0.5%	County Population Growth Rate	5.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-17.8%	
State Unemployment	4.7%	County Unemployment Rate	6.1%	
State Poverty Rate	13.0%	County Poverty Rate	11.6%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Winnebago	Projected Capital Cost for Phosphorus Removal for County	$	83,391,957.34

100	Existing Operations and Maintenance Cost		$	34,015,075.00
101	Existing Annual Debt Service		$	2,321,547.28
102	Subtotal (100+101)		$	36,336,622.28
	a) Inflation to the existing O & M Costs	$ 1,020,452.25		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 4,056,662.25		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	5,077,114.50
104	Estimated Additional Annual Debt Service, plus cash funding		$	15,792,340.32
105	Subtotal (103+104)		$	20,869,454.82
106	Total Existing *plus additional cost* of Phosphorus facilities		$	57,206,077.10
107	Customer Share of the Costs (%*106)	100.00%	$	57,206,077.10
108	Number of Customers			50330
109	**Cost Per Customer (107/108)**		**$**	**1,136.61**
201	Current MHI		$	43,548.25
202	Annual MHI Inflator			1.01262
203	Adjusted MHI (201*202)		$	44,097.81
204	Annual Cost per Customer (line 109 above)		$	1,136.61
205	**Affordability Indicator (204/203)**		**2.58%**	

State Population Growth Rate	0.5%	County Population Growth Rate	8.2%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-2.7%	
State Unemployment	4.7%	County Unemployment Rate	4.3%	
State Poverty Rate	13.0%	County Poverty Rate	12.3%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

County	Wood	Projected Capital Cost for Phosphorus Removal for County	$	33,216,840.97

100	Existing Operations and Maintenance Cost		$	12,499,395.00
101	Existing Annual Debt Service		$	3,895,492.09
102	Subtotal (100+101)		$	16,394,887.09
	a) Inflation to the existing O & M Costs	$ 374,981.85		
	b)Additional Operations and Maintenance for new Phosphorous Facilities	$ 1,376,167.06		
103	Estimated Additional Annual Operations & Maintenance (a+b)		$	1,751,148.91
104	Estimated Additional Annual Debt Service, plus cash funding		$	6,290,434.64
105	Subtotal (103+104)		$	8,041,583.55
106	Total Existing *plus additional cost* of Phosphorus facilities		$	24,436,470.64
107	Customer Share of the Costs (%*106)	100.00%	$	24,436,470.64
108	Number of Customers			17147
109	**Cost Per Customer (107/108)**		**$**	**1,425.12**
201	Current MHI		$	45,481.44
202	Annual MHI Inflator			1.01681
203	Adjusted MHI (201*202)		$	46,246.20
204	Annual Cost per Customer (line 109 above)		$	1,425.12
205	**Affordability Indicator (204/203)**			**3.08%**

State Population Growth Rate	0.5%	County Population Growth Rate	-2.1%	
State MHI (2013 Estimate)	$ 52,413	County Delta to State MHI	-9.0%	
State Unemployment	4.7%	County Unemployment Rate	5.0%	
State Poverty Rate	13.0%	County Poverty Rate	11.0%	

State Indicators	
	Above State Avg.
	Below State Avg.

Affordability Indicator	
	Above 2% of MHI
	Between 1% and 1.99& of MHI
	Below 1% of MHI

APPENDIX G

PROJECTED CAPITAL AND FINANCING COSTS BY PERMITTEE

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0024597	MADISON METROPOLITAN SEWERAGE DISTRICT WWTF	Rock River (lower)	Dane	$135,000,000	$6,677,450	$ 144,587,431	$ 7,229,372	$ 7,229,372	$ 130,128,688	$ 1,082,105	$ 1,082,105	$ 8,942,653	$ 25,565,606
0023787	GREEN BAY METROPOLITAN SEWERAGE DISTRICT	Fox River (lower)	Brown	$44,677,215	$3,806,055	$ 47,850,102	$ 2,392,505	$ 2,392,505	$ 43,065,092	$ 358,114	$ 358,114	$ 2,959,502	$ 8,460,741
0029581	LA CROSSE CITY	La Crosse River	La Crosse	$40,947,662	$1,165,247	$ 43,855,684	$ 2,192,784	$ 2,192,784	$ 39,470,115	$ 328,220	$ 328,220	$ 2,712,450	$ 7,754,458
0025038	OSHKOSH WASTEWATER TREATMENT PLANT	Fox River (upper)	Winnebago	$40,947,662	$1,594,524	$ 43,855,684	$ 2,192,784	$ 2,192,784	$ 39,470,115	$ 328,220	$ 328,220	$ 2,712,450	$ 7,754,458
0030350	JANESVILLE WASTEWATER UTILITY	Rock River (lower)	Rock	$33,700,303	$2,063,213	$ 36,093,632	$ 1,804,682	$ 1,804,682	$ 32,484,269	$ 270,128	$ 270,128	$ 2,232,371	$ 6,381,990
0029971	WAUKESHA CITY	Fox River	Waukesha	$29,725,362	$1,228,264	$ 31,836,398	$ 1,591,820	$ 1,591,820	$ 28,652,758	$ 238,266	$ 238,266	$ 1,969,064	$ 5,629,236
0023469	BROOKFIELD, CITY OF	Fox River	Waukesha	$26,849,077	$1,106,746	$ 28,755,845	$ 1,437,792	$ 1,437,792	$ 25,880,261	$ 215,211	$ 215,211	$ 1,778,533	$ 5,084,540
0023990	FOND DU LAC WATER POLLUTION CONTROL PLANT	Fox River (upper)	Fond Du Lac	$24,132,605	$984,062	$ 25,846,455	$ 1,292,323	$ 1,292,323	$ 23,261,809	$ 193,437	$ 193,437	$ 1,598,589	$ 4,570,109
0026085	NEENAH MENASHA SEWER COMMISSION WWTF	Fox River (lower)	Winnebago	$20,093,688	$1,349,501	$ 21,520,701	$ 1,076,035	$ 1,076,035	$ 19,368,631	$ 161,063	$ 161,063	$ 1,331,043	$ 3,805,239
0023221	APPLETON WASTEWATER TREATMENT FACILITY	Fox River (lower)	Outagamie	$18,324,066	$854,559	$ 19,625,404	$ 981,270	$ 981,270	$ 17,662,864	$ 146,878	$ 146,878	$ 1,213,820	$ 3,470,117
0023370	BELOIT WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$17,774,723	$1,396,695	$ 19,037,049	$ 951,852	$ 951,852	$ 17,133,344	$ 142,475	$ 142,475	$ 1,177,431	$ 3,366,086
0025763	WEST BEND CITY	Milwaukee River	Washington	$17,474,320	$661,157	$ 18,715,311	$ 935,766	$ 935,766	$ 16,843,780	$ 140,067	$ 140,067	$ 1,157,532	$ 3,309,197
0036820	MILWAUKEE METRO SEW DIST COMBINED	Milwaukee River	Milwaukee	$17,182,309	$4,592,789	$ 18,402,562	$ 920,128	$ 920,128	$ 16,562,306	$ 137,726	$ 137,726	$ 1,138,188	$ 3,253,897
0020559	SUSSEX WASTEWATER TREATMENT FACILITY	Fox River	Waukesha	$12,844,106	$396,329	$ 13,756,268	$ 687,813	$ 687,813	$ 12,380,642	$ 102,953	$ 102,953	$ 850,818	$ 2,432,351
0031232	HEART OF VALLEY MSD WW TRTMNT FAC	Fox River (lower)	Outagamie	$12,542,777	$803,414	$ 13,433,540	$ 671,677	$ 671,677	$ 12,090,186	$ 100,538	$ 100,538	$ 830,857	$ 2,375,287
0024686	GRAND CHUTE MENASHA WEST SEWERAGE COMMISSION	Fox River (lower)	Winnebago	$12,299,100	$810,790	$ 13,172,557	$ 658,628	$ 658,628	$ 11,855,302	$ 98,585	$ 98,585	$ 814,715	$ 2,329,140
0021024	MARSHFIELD WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$12,188,373	$533,178	$ 13,053,967	$ 652,698	$ 652,698	$ 11,748,570	$ 97,697	$ 97,697	$ 807,381	$ 2,308,171
0020478	SUN PRAIRIE WASTEWATER TREATMENT FACILITY	Rock River (lower)	Dane	$11,856,382	$581,852	$ 12,698,399	$ 634,920	$ 634,920	$ 11,428,559	$ 95,036	$ 95,036	$ 785,389	$ 2,245,301
0023345	BEAVER DAM WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$11,709,564	$667,018	$ 12,541,154	$ 627,058	$ 627,058	$ 11,287,039	$ 93,859	$ 93,859	$ 775,663	$ 2,217,497
0021181	OCONOMOWOC WASTEWATER TREATMENT PLNT	Rock River (upper)	Waukesha	$11,289,933	$651,741	$ 12,091,721	$ 604,586	$ 604,586	$ 10,882,549	$ 90,496	$ 90,496	$ 747,866	$ 2,138,029
0031461	WALWORTH COUNTY METRO	Rock River (lower)	Walworth	$11,281,179	$818,143	$ 12,082,346	$ 604,117	$ 604,117	$ 10,874,111	$ 90,425	$ 90,425	$ 747,286	$ 2,136,372
0020362	MONROE WASTEWATER TREATMENT FACILITY	Pecatonica River	Green	$10,793,596	$406,232	$ 11,560,136	$ 578,007	$ 578,007	$ 10,404,122	$ 86,517	$ 86,517	$ 714,988	$ 2,044,036
0020001	WHITEWATER WASTEWATER TREATMENT FACIL	Rock River (lower)	Walworth	$10,714,294	$368,965	$ 11,475,202	$ 573,760	$ 573,760	$ 10,327,682	$ 85,881	$ 85,881	$ 709,735	$ 2,029,018
0020192	HARTFORD WATER POLLUTION CONTROL FACILITY	Rock River (upper)	Washington	$10,634,493	$601,432	$ 11,389,733	$ 569,487	$ 569,487	$ 10,250,760	$ 85,242	$ 85,242	$ 704,449	$ 2,013,906
0022926	BURLINGTON WATER POLLUTION CONTROL	Fox River	Racine	$10,473,352	$539,398	$ 11,217,149	$ 560,857	$ 560,857	$ 10,095,434	$ 83,950	$ 83,950	$ 693,774	$ 1,983,390
0028541	WATERTOWN WASTEWATER TREATMENT FACILITY	Rock River (upper)	Jefferson	$9,591,108	$543,374	$ 10,272,249	$ 513,612	$ 513,612	$ 9,245,024	$ 76,878	$ 76,878	$ 635,333	$ 1,816,315
0020222	CEDARBURG WASTEWATER TREATMENT FACILITY	Milwaukee River	Ozaukee	$9,190,077	$444,986	$ 9,842,738	$ 492,137	$ 492,137	$ 8,858,464	$ 73,664	$ 73,664	$ 608,768	$ 1,740,370
0020371	REEDSBURG WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$9,007,413	$360,167	$ 9,647,102	$ 482,355	$ 482,355	$ 8,682,392	$ 72,200	$ 72,200	$ 596,668	$ 1,705,778
0020184	GRAFTON VILLAGE WATER & WASTEWATER UTILITY	Milwaukee River	Ozaukee	$8,727,389	$383,458	$ 9,347,190	$ 467,360	$ 467,360	$ 8,412,471	$ 69,955	$ 69,955	$ 578,119	$ 1,652,748
0028754	WESTERN RACINE COUNTY SEWERAGE DISTRICT	Fox River	Racine	$8,727,389	$284,910	$ 9,347,190	$ 467,360	$ 467,360	$ 8,412,471	$ 69,955	$ 69,955	$ 578,119	$ 1,652,748
0022144	ANTIGO CITY OF	Wisconsin River (upper)	Langlade	$8,670,469	$345,321	$ 9,286,228	$ 464,311	$ 464,311	$ 8,357,605	$ 69,499	$ 69,499	$ 574,348	$ 1,641,969
0021318	TOMAH WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Monroe	$8,302,359	$263,708	$ 8,891,976	$ 444,599	$ 444,599	$ 8,002,779	$ 66,548	$ 66,548	$ 549,964	$ 1,572,258
0020737	SPARTA WASTEWATER TREATMENT FACILITY	La Crosse River	Monroe	$8,143,178	$243,812	$ 8,721,490	$ 436,075	$ 436,075	$ 7,849,341	$ 65,272	$ 65,272	$ 539,419	$ 1,542,113
0022772	WAUPUN WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$7,960,896	$363,109	$ 8,526,262	$ 426,313	$ 426,313	$ 7,673,636	$ 63,811	$ 63,811	$ 527,345	$ 1,507,593
0020435	PLATTEVILLE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$7,837,389	$195,503	$ 8,393,985	$ 419,699	$ 419,699	$ 7,554,587	$ 62,821	$ 62,821	$ 519,163	$ 1,484,205
0025844	WISCONSIN RAPIDS WWTF	Wisconsin River (upper)	Wood	$7,774,755	$494,016	$ 8,326,903	$ 416,345	$ 416,345	$ 7,494,213	$ 62,319	$ 62,319	$ 515,014	$ 1,472,343
0020257	PRAIRIE DU CHIEN WASTEWATER TREATMENT FAC.	Bad Axe River & Coon Creek	Crawford	$7,733,197	$250,340	$ 8,282,394	$ 414,120	$ 414,120	$ 7,454,154	$ 61,986	$ 61,986	$ 512,261	$ 1,464,473
0028291	UNION GROVE VILLAGE	Root River	Racine	$7,733,197	$226,274	$ 8,282,394	$ 414,120	$ 414,120	$ 7,454,154	$ 61,986	$ 61,986	$ 512,261	$ 1,464,473
0032026	DELAFIELD HARTLAND POLLUTION CONTROL COMM	Rock River (lower)	Waukesha	$7,395,296	$339,030	$ 7,920,495	$ 396,025	$ 396,025	$ 7,128,445	$ 59,278	$ 59,278	$ 489,878	$ 1,400,483
0020681	OREGON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Dane	$7,303,962	$363,109	$ 7,822,675	$ 391,134	$ 391,134	$ 7,040,408	$ 58,546	$ 58,546	$ 483,828	$ 1,383,187
0030031	PLYMOUTH CITY UTIL COMMISSION WWTF	Sheboygan River	Sheboygan	$7,303,962	$351,288	$ 7,822,675	$ 391,134	$ 391,134	$ 7,040,408	$ 58,546	$ 58,546	$ 483,828	$ 1,383,187
0021032	RIPON WASTEWATER TREATMENT FACILITY	Fox River (upper)	Fond Du Lac	$7,303,962	$310,223	$ 7,822,675	$ 391,134	$ 391,134	$ 7,040,408	$ 58,546	$ 58,546	$ 483,828	$ 1,383,187
0023230	ARCADIA WASTEWATER TREATMENT FACILITY	Trempealeau River	Trempealeau	$7,169,117	$284,209	$ 7,678,253	$ 383,913	$ 383,913	$ 6,910,428	$ 57,465	$ 57,465	$ 474,896	$ 1,357,650
0021806	JACKSON (VILLAGE) WASTEWATER TREATMENT PLANT	Milwaukee River	Washington	$7,058,549	$270,298	$ 7,559,833	$ 377,992	$ 377,992	$ 6,803,850	$ 56,578	$ 56,578	$ 467,571	$ 1,336,712
0021555	SAUKVILLE VILLAGE SEWER UTILITY	Milwaukee River	Ozaukee	$6,866,176	$334,180	$ 7,353,798	$ 367,690	$ 367,690	$ 6,618,418	$ 55,036	$ 55,036	$ 454,828	$ 1,300,281
0031470	NORWAY TN SANITARY DISTRICT 1 WWTF	Fox River	Racine	$6,852,260	$333,271	$ 7,338,894	$ 366,945	$ 366,945	$ 6,605,005	$ 54,925	$ 54,925	$ 453,907	$ 1,297,646
0020109	RICHLAND CENTER WASTEWATER TREATMENT FAC	Wisconsin River (lower)	Richland	$6,852,260	$333,271	$ 7,338,894	$ 366,945	$ 366,945	$ 6,605,005	$ 54,925	$ 54,925	$ 453,907	$ 1,297,646
0031496	SALEM UTILITY DISTRICT	Fox River	Kenosha	$6,782,323	$265,361	$ 7,263,990	$ 363,199	$ 363,199	$ 6,537,591	$ 54,364	$ 54,364	$ 449,274	$ 1,284,401
0022489	FORT ATKINSON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Jefferson	$6,705,877	$403,013	$ 7,182,115	$ 359,106	$ 359,106	$ 6,463,903	$ 53,752	$ 53,752	$ 444,210	$ 1,269,924
0021229	BERLIN WASTEWATER TREATMENT FACILITY	Fox River (upper)	Waushara	$6,616,713	$193,834	$ 7,086,619	$ 354,331	$ 354,331	$ 6,377,957	$ 53,037	$ 53,037	$ 438,303	$ 1,253,039
0020265	MUKWONAGO WASTEWATER TREATMENT PLANT	Fox River	Waukesha	$6,616,713	$212,087	$ 7,086,619	$ 354,331	$ 354,331	$ 6,377,957	$ 53,037	$ 53,037	$ 438,303	$ 1,253,039
0020290	SLINGER WASTEWATER TREATMENT FACILITY	Rock River (upper)	Washington	$6,616,713	$183,708	$ 7,086,619	$ 354,331	$ 354,331	$ 6,377,957	$ 53,037	$ 53,037	$ 438,303	$ 1,253,039
0024333	JEFFERSON WASTEWATER TREATMENT FACILITY	Rock River (upper)	Jefferson	$6,527,614	$351,443	$ 6,991,192	$ 349,560	$ 349,560	$ 6,292,073	$ 52,323	$ 52,323	$ 432,401	$ 1,236,166
0036731	MEDFORD CITY OF	Black River	Taylor	$6,496,243	$310,223	$ 6,957,594	$ 347,880	$ 347,880	$ 6,261,834	$ 52,071	$ 52,071	$ 430,323	$ 1,230,225
0024708	MENOMONIE WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$6,349,139	$300,824	$ 6,800,043	$ 340,002	$ 340,002	$ 6,120,038	$ 50,892	$ 50,892	$ 420,579	$ 1,202,367
0020893	NEW HOLSTEIN WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$6,199,097	$291,315	$ 6,639,344	$ 331,967	$ 331,967	$ 5,975,410	$ 49,689	$ 49,689	$ 410,640	$ 1,173,953
0022420	US Army Headquarters, Fort McCoy	La Crosse River	Monroe	$6,173,791	$78,949	$ 6,612,241	$ 330,612	$ 330,612	$ 5,951,017	$ 49,487	$ 49,487	$ 408,963	$ 1,169,161
0021695	TWIN LAKES WASTEWATER TREATMENT FAC	Fox River	Kenosha	$6,122,914	$193,277	$ 6,557,751	$ 327,888	$ 327,888	$ 5,901,976	$ 49,079	$ 49,079	$ 405,593	$ 1,159,526
0022799	CHILTON WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$5,833,771	$212,804	$ 6,248,074	$ 312,404	$ 312,404	$ 5,623,267	$ 46,761	$ 46,761	$ 386,440	$ 1,104,770
0030970	WHITEHALL WASTEWATER TREATMENT FACILITY	Trempealeau River	Trempealeau	$5,820,839	$194,126	$ 6,234,224	$ 311,711	$ 311,711	$ 5,610,801	$ 46,657	$ 46,657	$ 385,583	$ 1,102,321
0024635	MAUSTON WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$5,542,460	$173,759	$ 5,936,074	$ 296,804	$ 296,804	$ 5,342,467	$ 44,426	$ 44,426	$ 367,143	$ 1,049,603
0021008	COLUMBUS WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$5,453,627	$236,700	$ 5,840,933	$ 292,047	$ 292,047	$ 5,256,839	$ 43,714	$ 43,714	$ 361,258	$ 1,032,780
0031194	LAKE MILLS WASTEWATER TREATMENT FACILITY	Rock River (upper)	Jefferson	$5,253,459	$206,675	$ 5,626,549	$ 281,327	$ 281,327	$ 5,063,894	$ 42,110	$ 42,110	$ 347,999	$ 994,873
0021245	NEW RICHMOND WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$5,253,459	$170,651	$ 5,626,549	$ 281,327	$ 281,327	$ 5,063,894	$ 42,110	$ 42,110	$ 347,999	$ 994,873
0020338	STOUGHTON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Dane	$5,124,803	$236,435	$ 5,488,757	$ 274,438	$ 274,438	$ 4,939,881	$ 41,078	$ 41,078	$ 339,477	$ 970,509
0026913	DODGEVILLE WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$5,016,494	$219,223	$ 5,372,755	$ 268,638	$ 268,638	$ 4,835,480	$ 40,210	$ 40,210	$ 332,302	$ 949,998
0020141	KIEL WASTEWATER TREATMENT FACILITY	Sheboygan River	Manitowoc	$4,900,561	$203,037	$ 5,248,589	$ 262,429	$ 262,429	$ 4,723,730	$ 39,281	$ 39,281	$ 324,622	$ 928,043
0021954	BLACK RIVER FALLS WWTF	Black River	Jackson	$4,894,395	$164,968	$ 5,241,985	$ 262,099	$ 262,099	$ 4,717,786	$ 39,231	$ 39,231	$ 324,214	$ 926,875

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0026891	BALDWIN WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	St. Croix	$4,847,939	$96,604	$ 5,192,230	$ 259,612	$ 259,612	$ 4,673,007	$ 38,859	$ 38,859	$ 321,137	$ 918,078
0023141	ABBOTSFORD WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$4,753,880	$94,913	$ 5,091,492	$ 254,575	$ 254,575	$ 4,582,342	$ 38,105	$ 38,105	$ 314,906	$ 900,265
0020397	EAST TROY WASTEWATER TREATMENT FACILITY	Fox River	Walworth	$4,738,051	$108,385	$ 5,074,538	$ 253,727	$ 253,727	$ 4,567,084	$ 37,978	$ 37,978	$ 313,857	$ 897,268
0024261	HOLMEN WASTEWATER TREATMENT FACILITY	Black River	La Crosse	$4,738,051	$143,944	$ 5,074,538	$ 253,727	$ 253,727	$ 4,567,084	$ 37,978	$ 37,978	$ 313,857	$ 897,268
0025062	PADDOCK LAKE WASTEWATER TRTMNT FAC	Fox River	Kenosha	$4,706,257	$151,141	$ 5,040,486	$ 252,024	$ 252,024	$ 4,536,437	$ 37,723	$ 37,723	$ 311,751	$ 891,247
0021733	KEWASKUM VILLAGE	Milwaukee River	Washington	$4,544,478	$132,354	$ 4,867,218	$ 243,361	$ 243,361	$ 4,380,496	$ 36,427	$ 36,427	$ 301,035	$ 860,610
0024503	LANCASTER WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$4,511,536	$190,107	$ 4,831,936	$ 241,597	$ 241,597	$ 4,348,743	$ 36,163	$ 36,163	$ 298,853	$ 854,371
0021741	DENMARK WASTEWATER TREATMENT FACILITY	Twin-Kewaunee River	Brown	$4,461,738	$142,697	$ 4,778,601	$ 238,930	$ 238,930	$ 4,300,741	$ 35,763	$ 35,763	$ 295,554	$ 844,941
0020443	BRILLION WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$4,404,726	$155,599	$ 4,717,540	$ 235,877	$ 235,877	$ 4,245,786	$ 35,306	$ 35,306	$ 291,777	$ 834,144
0049816	DANE IOWA WASTEWATER COMMISSION WWTF	Wisconsin River (lower)	Dane	$4,353,898	$117,474	$ 4,663,103	$ 233,155	$ 233,155	$ 4,196,793	$ 34,899	$ 34,899	$ 288,410	$ 824,519
0025194	RACINE WASTEWATER UTILITY	Root River	Racine	$4,289,668	$617,113	$ 4,594,312	$ 229,716	$ 229,716	$ 4,134,881	$ 34,384	$ 34,384	$ 284,156	$ 812,355
0025011	OMRO WASTEWATER TREATMENT FACILITY	Fox River (upper)	Winnebago	$4,288,787	$148,072	$ 4,593,368	$ 229,668	$ 229,668	$ 4,134,031	$ 34,377	$ 34,377	$ 284,097	$ 812,188
0020532	LOMIRA WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$4,264,588	$91,741	$ 4,567,450	$ 228,373	$ 228,373	$ 4,110,705	$ 34,183	$ 34,183	$ 282,494	$ 807,606
0022021	BRISTOL UTILITY DISTRICT 1	Fox River	Kenosha	$4,229,814	$121,920	$ 4,530,207	$ 226,510	$ 226,510	$ 4,077,186	$ 33,904	$ 33,904	$ 280,191	$ 801,020
0020389	WEST SALEM WASTEWATER TREATMENT FACILITY	La Crosse River	La Crosse	$4,163,069	$114,323	$ 4,458,722	$ 222,936	$ 222,936	$ 4,012,850	$ 33,369	$ 33,369	$ 275,770	$ 788,381
0024643	MAYVILLE WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$4,147,668	$245,035	$ 4,442,227	$ 222,111	$ 222,111	$ 3,998,005	$ 33,246	$ 33,246	$ 274,749	$ 785,464
0023353	BELGIUM WASTEWATER TREATMENT FACILITY	Sheboygan River	Ozaukee	$4,134,694	$96,122	$ 4,428,332	$ 221,417	$ 221,417	$ 3,985,499	$ 33,142	$ 33,142	$ 273,890	$ 783,007
0023981	FENNIMORE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$4,098,993	$167,132	$ 4,390,095	$ 219,505	$ 219,505	$ 3,951,085	$ 32,856	$ 32,856	$ 271,525	$ 776,246
0020575	BLOOMER WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Chippewa	$4,066,635	$108,154	$ 4,355,439	$ 217,772	$ 217,772	$ 3,919,895	$ 32,596	$ 32,596	$ 269,381	$ 770,118
0020281	MOUNT HOREB WASTEWATER TREATMENT FACILITY	Sugar River	Dane	$4,059,415	$164,968	$ 4,347,706	$ 217,385	$ 217,385	$ 3,912,935	$ 32,539	$ 32,539	$ 268,903	$ 768,751
0020800	FREDONIA MUNICIPAL SEWER AND WATER UTILITY	Milwaukee River	Ozaukee	$4,026,788	$163,190	$ 4,312,763	$ 215,638	$ 215,638	$ 3,881,487	$ 32,277	$ 32,277	$ 266,742	$ 762,572
0021903	BRODHEAD WASTEWATER TREATMENT FACILITY	Sugar River	Green	$4,015,863	$103,264	$ 4,301,062	$ 215,053	$ 215,053	$ 3,870,956	$ 32,190	$ 32,190	$ 266,018	$ 760,504
0021857	STANLEY WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Chippewa	$4,015,863	$145,807	$ 4,301,062	$ 215,053	$ 215,053	$ 3,870,956	$ 32,190	$ 32,190	$ 266,018	$ 760,504
0020940	OWEN WASTEWATER TREATMENT FACILITY	Black River	Clark	$3,980,333	$117,297	$ 4,263,008	$ 213,150	$ 213,150	$ 3,836,708	$ 31,905	$ 31,905	$ 263,665	$ 753,775
0020231	HORICON WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$3,960,856	$155,196	$ 4,242,148	$ 212,107	$ 212,107	$ 3,817,934	$ 31,749	$ 31,749	$ 262,375	$ 750,087
0021083	GENOA CITY VILLAGE	Fox River	Walworth	$3,953,473	$65,158	$ 4,234,241	$ 211,712	$ 211,712	$ 3,810,817	$ 31,689	$ 31,689	$ 261,885	$ 748,688
0026948	CAMBRIDGE OAKLAND WASTEWATER COMMISSION	Rock River (lower)	Jefferson	$3,920,104	$117,250	$ 4,198,502	$ 209,925	$ 209,925	$ 3,778,652	$ 31,422	$ 31,422	$ 259,675	$ 742,369
0020745	ALGOMA WASTEWATER TREATMENT FACILITY	Door Peninsula	Kewaunee	$3,898,800	$131,229	$ 4,175,685	$ 208,784	$ 208,784	$ 3,758,117	$ 31,251	$ 31,251	$ 258,264	$ 738,335
0026930	BELOIT TOWN WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$3,898,800	$124,107	$ 4,175,685	$ 208,784	$ 208,784	$ 3,758,117	$ 31,251	$ 31,251	$ 258,264	$ 738,335
0025631	TURTLE LAKE VILLAGE OF	Chippewa River (lower)	Barron	$3,826,126	$117,474	$ 4,097,850	$ 204,892	$ 204,892	$ 3,688,065	$ 30,669	$ 30,669	$ 253,450	$ 724,572
0022918	LODI WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Columbia	$3,810,908	$135,976	$ 4,081,551	$ 204,078	$ 204,078	$ 3,673,396	$ 30,547	$ 30,547	$ 252,442	$ 721,690
0021482	LUCK VILLAGE OF	St Croix River	Polk	$3,757,079	$125,865	$ 4,023,899	$ 201,195	$ 201,195	$ 3,621,509	$ 30,115	$ 30,115	$ 248,876	$ 711,496
0020249	GREENWOOD WASTEWATER TREATMENT FACILITY	Black River	Clark	$3,741,781	$130,422	$ 4,007,515	$ 200,376	$ 200,376	$ 3,606,764	$ 29,993	$ 29,993	$ 247,863	$ 708,599
0021521	SPENCER WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$3,726,273	$90,016	$ 3,990,905	$ 199,545	$ 199,545	$ 3,591,815	$ 29,868	$ 29,868	$ 246,835	$ 705,662
0021784	EDGAR WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$3,647,897	$97,926	$ 3,906,963	$ 195,348	$ 195,348	$ 3,516,267	$ 29,240	$ 29,240	$ 241,644	$ 690,820
0021725	GALESVILLE WASTEWATER TREATMENT PLANT	Black River	Trempealeau	$3,640,332	$66,221	$ 3,898,862	$ 194,943	$ 194,943	$ 3,508,975	$ 29,179	$ 29,179	$ 241,142	$ 689,387
0021938	WINNECONNE WASTEWATER TREATMENT FACILITY	Wolf River	Winnebago	$3,628,080	$119,260	$ 3,885,739	$ 194,287	$ 194,287	$ 3,497,165	$ 29,081	$ 29,081	$ 240,331	$ 687,067
0028703	KENOSHA WASTEWATER TREATMENT FACILITY	Root River	Kenosha	$3,619,683	$707,993	$ 3,876,746	$ 193,837	$ 193,837	$ 3,489,072	$ 29,014	$ 29,014	$ 239,775	$ 685,477
0021202	NEILLSVILLE WASTEWATER TREATMENT FACILITY	Black River	Clark	$3,600,181	$135,551	$ 3,855,859	$ 192,793	$ 192,793	$ 3,470,273	$ 28,858	$ 28,858	$ 238,483	$ 681,784
0020818	CAMPBELLSPORT WASTEWATER TREATMENT FACILITY	Milwaukee River	Fond Du Lac	$3,527,588	$88,777	$ 3,778,110	$ 188,906	$ 188,906	$ 3,400,299	$ 28,276	$ 28,276	$ 233,674	$ 668,037
0021091	POYNETTE WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Columbia	$3,527,588	$78,611	$ 3,778,110	$ 188,906	$ 188,906	$ 3,400,299	$ 28,276	$ 28,276	$ 233,674	$ 668,037
0020851	SILVER LAKE VILLAGE	Fox River	Kenosha	$3,511,284	$135,764	$ 3,760,649	$ 188,032	$ 188,032	$ 3,384,584	$ 28,145	$ 28,145	$ 232,594	$ 664,949
0028835	ROBERTS WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$3,507,198	$41,770	$ 3,756,273	$ 187,814	$ 187,814	$ 3,380,645	$ 28,112	$ 28,112	$ 232,323	$ 664,175
0049794	PELL LAKE SANITARY DISTRICT NO. 1	Fox River	Walworth	$3,486,708	$134,489	$ 3,734,327	$ 186,716	$ 186,716	$ 3,360,894	$ 27,948	$ 27,948	$ 230,966	$ 660,295
0021776	GREEN LAKE WASTEWATER TREATMENT FACILITY	Fox River (upper)	Green Lake	$3,448,277	$63,172	$ 3,693,167	$ 184,658	$ 184,658	$ 3,323,851	$ 27,640	$ 27,640	$ 228,420	$ 653,017
0020885	GRANTON WASTEWATER TREATMENT FACILITY	Black River	Clark	$3,447,650	$106,360	$ 3,692,495	$ 184,625	$ 184,625	$ 3,323,245	$ 27,635	$ 27,635	$ 228,379	$ 652,898
0031160	RANDOLPH WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$3,445,419	$93,698	$ 3,690,106	$ 184,505	$ 184,505	$ 3,321,095	$ 27,617	$ 27,617	$ 228,231	$ 652,476
0021415	RANDOM LAKE VILLAGE	Milwaukee River	Sheboygan	$3,445,419	$91,250	$ 3,690,106	$ 184,505	$ 184,505	$ 3,321,095	$ 27,617	$ 27,617	$ 228,231	$ 652,476
0022403	PRESCOTT WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pierce	$3,370,024	$116,577	$ 3,609,357	$ 180,468	$ 180,468	$ 3,248,421	$ 27,013	$ 27,013	$ 223,237	$ 638,198
0024830	MONTICELLO WASTEWATER TREATMENT FACILITY	Sugar River	Green	$3,323,240	$110,683	$ 3,559,250	$ 177,963	$ 177,963	$ 3,203,325	$ 26,638	$ 26,638	$ 220,138	$ 629,338
0022055	PRINCETON WASTEWATER TREATMENT FACILITY	Fox River (upper)	Green Lake	$3,320,636	$72,806	$ 3,556,461	$ 177,823	$ 177,823	$ 3,200,815	$ 26,617	$ 26,617	$ 219,965	$ 628,845
0020125	AMERY CITY OF	St Croix River	Polk	$3,232,342	$18,431	$ 3,461,897	$ 173,095	$ 173,095	$ 3,115,707	$ 25,909	$ 25,909	$ 214,116	$ 612,124
0023655	COLBY CITY WWTF	Wisconsin River (upper)	Marathon	$3,232,342	$86,529	$ 3,461,897	$ 173,095	$ 173,095	$ 3,115,707	$ 25,909	$ 25,909	$ 214,116	$ 612,124
0020354	CUMBERLAND CITY OF	Chippewa River (lower)	Barron	$3,232,342	$121,478	$ 3,461,897	$ 173,095	$ 173,095	$ 3,115,707	$ 25,909	$ 25,909	$ 214,116	$ 612,124
0031526	EAGLE LAKE SEWER UTILITY	Fox River	Racine	$3,232,342	$121,478	$ 3,461,897	$ 173,095	$ 173,095	$ 3,115,707	$ 25,909	$ 25,909	$ 214,116	$ 612,124
0021709	ORFORDVILLE WASTEWATER TREATMENT FACILITY	Sugar River	Rock	$3,223,573	$84,259	$ 3,452,504	$ 172,625	$ 172,625	$ 3,107,254	$ 25,839	$ 25,839	$ 213,535	$ 610,464
0021423	CASSVILLE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$3,214,783	$108,846	$ 3,443,090	$ 172,155	$ 172,155	$ 3,098,781	$ 25,768	$ 25,768	$ 212,953	$ 608,799
0020346	EDGERTON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$3,208,887	$145,467	$ 3,436,776	$ 171,839	$ 171,839	$ 3,093,099	$ 25,721	$ 25,721	$ 212,563	$ 607,683
0022161	JOHNSON CREEK WASTEWATER TREATMENT FACILITY	Rock River (upper)	Jefferson	$3,208,887	$99,563	$ 3,436,776	$ 171,839	$ 171,839	$ 3,093,099	$ 25,721	$ 25,721	$ 212,563	$ 607,683
0023744	DEERFIELD WASTEWATER TREATMENT FACILITY	Rock River (lower)	Dane	$3,201,560	$72,539	$ 3,428,928	$ 171,446	$ 171,446	$ 3,086,035	$ 25,662	$ 25,662	$ 212,077	$ 606,295
0031020	PALMYRA WASTEWATER TREATMENT FACILITY	Rock River (lower)	Jefferson	$3,174,536	$75,860	$ 3,399,985	$ 169,999	$ 169,999	$ 3,059,986	$ 25,446	$ 25,446	$ 210,287	$ 601,177
0021598	CHETEK CITY OF	Chippewa River (lower)	Barron	$3,166,070	$64,878	$ 3,390,918	$ 169,546	$ 169,546	$ 3,051,826	$ 25,378	$ 25,378	$ 209,726	$ 599,574
0020591	MONDOVI WASTEWATER TREATMENT FACILITY	Buffalo River	Buffalo	$3,166,070	$74,140	$ 3,390,918	$ 169,546	$ 169,546	$ 3,051,826	$ 25,378	$ 25,378	$ 209,726	$ 599,574
0020699	NEW LISBON WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$3,148,199	$117,474	$ 3,371,778	$ 168,589	$ 168,589	$ 3,034,600	$ 25,235	$ 25,235	$ 208,543	$ 596,190
0022039	CLINTON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$3,134,739	$53,598	$ 3,357,362	$ 167,868	$ 167,868	$ 3,021,626	$ 25,127	$ 25,127	$ 207,651	$ 593,641
0021539	PHILLIPS CITY OF	Chippewa River (upper)	Price	$3,116,716	$115,677	$ 3,338,059	$ 166,903	$ 166,903	$ 3,004,253	$ 24,982	$ 24,982	$ 206,457	$ 590,228
0024619	MARKESAN WASTEWATER TREATMENT FACILITY	Fox River (upper)	Green Lake	$3,062,111	$81,453	$ 3,279,576	$ 163,979	$ 163,979	$ 2,951,618	$ 24,545	$ 24,545	$ 202,840	$ 579,887
0021466	CLINTONVILLE WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$3,045,219	$136,828	$ 3,261,484	$ 163,074	$ 163,074	$ 2,935,336	$ 24,409	$ 24,409	$ 201,721	$ 576,688

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0021253	ELLSWORTH WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pierce	$3,043,725	$89,521	$ 3,259,884	$ 162,994	$ 162,994	$ 2,933,896	$ 24,397	$ 24,397	$ 201,622	$ 576,405
0020176	KEWAUNEE WASTEWATER TREATMENT FACILITY	Twin-Kewaunee River	Kewaunee	$3,039,114	$104,202	$ 3,254,946	$ 162,747	$ 162,747	$ 2,929,451	$ 24,360	$ 24,360	$ 201,317	$ 575,532
0021474	JUNEAU WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$3,029,500	$139,203	$ 3,244,649	$ 162,232	$ 162,232	$ 2,920,184	$ 24,283	$ 24,283	$ 200,680	$ 573,711
0024791	MINERAL POINT WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$3,020,610	$83,751	$ 3,235,128	$ 161,756	$ 161,756	$ 2,911,615	$ 24,212	$ 24,212	$ 200,091	$ 572,028
0060453	MILTON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$3,016,348	$123,695	$ 3,230,563	$ 161,528	$ 161,528	$ 2,907,507	$ 24,178	$ 24,178	$ 199,809	$ 571,220
0028053	ALLENTON SANITARY DISTRICT WWTP	Rock River (upper)	Washington	$3,015,970	$62,344	$ 3,230,158	$ 161,508	$ 161,508	$ 2,907,142	$ 24,175	$ 24,175	$ 199,783	$ 571,149
0020273	MARATHON WATER & SEWER DPT WW TREATMNT PLANT	Wisconsin River (upper)	Marathon	$3,015,970	$84,259	$ 3,230,158	$ 161,508	$ 161,508	$ 2,907,142	$ 24,175	$ 24,175	$ 199,783	$ 571,149
0023361	BELLEVILLE WASTEWATER TREATMENT FACILITY	Sugar River	Dane	$2,987,996	$109,306	$ 3,200,198	$ 160,010	$ 160,010	$ 2,880,178	$ 23,951	$ 23,951	$ 197,930	$ 565,851
0021016	DARLINGTON WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$2,959,800	$50,564	$ 3,169,999	$ 158,500	$ 158,500	$ 2,852,999	$ 23,725	$ 23,725	$ 196,063	$ 560,512
0021920	VIROQUA WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Vernon	$2,949,861	$102,439	$ 3,159,354	$ 157,968	$ 157,968	$ 2,843,419	$ 23,645	$ 23,645	$ 195,404	$ 558,630
0023272	AUGUSTA WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Eau Claire	$2,931,375	$49,641	$ 3,139,556	$ 156,978	$ 156,978	$ 2,825,600	$ 23,497	$ 23,497	$ 194,180	$ 555,129
0020788	CROSS PLAINS WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Dane	$2,931,020	$153,354	$ 3,139,175	$ 156,959	$ 156,959	$ 2,825,258	$ 23,494	$ 23,494	$ 194,156	$ 555,062
0020486	IRON RIDGE WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$2,919,078	$63,320	$ 3,126,385	$ 156,319	$ 156,319	$ 2,813,746	$ 23,398	$ 23,398	$ 193,365	$ 552,800
0025615	THORP WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Clark	$2,917,075	$62,911	$ 3,124,240	$ 156,212	$ 156,212	$ 2,811,816	$ 23,382	$ 23,382	$ 193,233	$ 552,421
0023639	CLEAR LAKE VILLAGE OF	St Croix River	Polk	$2,897,915	$76,256	$ 3,103,720	$ 155,186	$ 155,186	$ 2,793,348	$ 23,229	$ 23,229	$ 191,963	$ 548,792
0021547	POTOSI-TENNYSON SEWAGE COMMISSION WWTF	Grant-Platte	Grant	$2,897,915	$75,993	$ 3,103,720	$ 155,186	$ 155,186	$ 2,793,348	$ 23,229	$ 23,229	$ 191,963	$ 548,792
0021270	HILBERT WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$2,893,109	$66,824	$ 3,098,572	$ 154,929	$ 154,929	$ 2,788,715	$ 23,190	$ 23,190	$ 191,645	$ 547,882
0028924	SIREN VILLAGE OF	St Croix River	Burnett	$2,883,582	$53,587	$ 3,088,368	$ 154,418	$ 154,418	$ 2,779,531	$ 23,114	$ 23,114	$ 191,014	$ 546,078
0021351	DOUSMAN WASTEWATER TREATMENT FACILITY	Rock River (lower)	Waukesha	$2,868,393	$87,743	$ 3,072,100	$ 153,605	$ 153,605	$ 2,764,890	$ 22,992	$ 22,992	$ 190,008	$ 543,201
0029131	BARNEVELD WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$2,865,548	$43,856	$ 3,069,053	$ 153,453	$ 153,453	$ 2,762,148	$ 22,969	$ 22,969	$ 189,819	$ 542,663
0020494	PITTSVILLE WATER AND SEWER DEPT WWTF	Wisconsin River (upper)	Wood	$2,865,548	$61,357	$ 3,069,053	$ 153,453	$ 153,453	$ 2,762,148	$ 22,969	$ 22,969	$ 189,819	$ 542,663
0020061	NEW GLARUS WASTEWATER TREATMENT FACILITY	Sugar River	Green	$2,854,410	$125,870	$ 3,057,124	$ 152,856	$ 152,856	$ 2,751,412	$ 22,880	$ 22,880	$ 189,081	$ 540,553
0021679	HOWARDS GROVE WASTEWATER TRTMT FAC	Sheboygan River	Sheboygan	$2,839,783	$107,461	$ 3,041,459	$ 152,073	$ 152,073	$ 2,737,313	$ 22,763	$ 22,763	$ 188,113	$ 537,784
0020451	PORT EDWARDS WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$2,779,317	$96,882	$ 2,976,699	$ 148,835	$ 148,835	$ 2,679,029	$ 22,278	$ 22,278	$ 184,107	$ 526,333
0022217	CUBA CITY WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$2,765,671	$62,344	$ 2,962,084	$ 148,104	$ 148,104	$ 2,665,875	$ 22,168	$ 22,168	$ 183,203	$ 523,749
0036846	GREEN LAKE SANITARY DISTRICT	Fox River (upper)	Green Lake	$2,765,671	$140,819	$ 2,962,084	$ 148,104	$ 148,104	$ 2,665,875	$ 22,168	$ 22,168	$ 183,203	$ 523,749
0024813	MONTELLO WASTEWATER TREATMENT FACILITY	Fox River (upper)	Marquette	$2,765,671	$54,496	$ 2,962,084	$ 148,104	$ 148,104	$ 2,665,875	$ 22,168	$ 22,168	$ 183,203	$ 523,749
0031968	LITTLE SUAMICO SANITARY DISTRICT NO 1	Pensaukee River	Oconto	$2,720,261	$66,859	$ 2,913,449	$ 145,672	$ 145,672	$ 2,622,104	$ 21,805	$ 21,805	$ 180,195	$ 515,149
0030716	EDEN WASTEWATER TREATMENT FACILITY	Fox River (upper)	Fond Du Lac	$2,713,636	$71,880	$ 2,906,353	$ 145,318	$ 145,318	$ 2,615,718	$ 21,751	$ 21,751	$ 179,756	$ 513,894
0028321	SHULLSBURG WASTEWATER TREATMENT FACILITY	Grant-Platte	Lafayette	$2,710,238	$47,146	$ 2,902,714	$ 145,136	$ 145,136	$ 2,612,443	$ 21,724	$ 21,724	$ 179,531	$ 513,251
0023183	ALMENA VILLAGE OF	Chippewa River (lower)	Barron	$2,666,456	$26,643	$ 2,855,822	$ 142,791	$ 142,791	$ 2,570,240	$ 21,373	$ 21,373	$ 176,631	$ 504,960
0031500	MILAN S D WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$2,638,837	$58,834	$ 2,826,242	$ 141,312	$ 141,312	$ 2,543,618	$ 21,152	$ 21,152	$ 174,801	$ 499,729
0025411	SHEBOYGAN WASTEWATER TREATMENT PLANT	Sheboygan River	Sheboygan	$2,612,966	$619,494	$ 2,798,534	$ 139,927	$ 139,927	$ 2,518,680	$ 20,944	$ 20,944	$ 173,088	$ 494,830
0036889	WAZEE AREA WASTEWATER COMMISSION	Black River	Jackson	$2,585,831	$69,022	$ 2,769,471	$ 138,474	$ 138,474	$ 2,492,524	$ 20,727	$ 20,727	$ 171,290	$ 489,691
0021571	DORCHESTER WASTEWATER TREATMENT FACILITY	Black River	Clark	$2,560,190	$43,631	$ 2,742,009	$ 137,100	$ 137,100	$ 2,467,808	$ 20,521	$ 20,521	$ 169,592	$ 484,836
0060801	SPRING GREEN WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Sauk	$2,559,272	$88,777	$ 2,741,026	$ 137,051	$ 137,051	$ 2,466,923	$ 20,514	$ 20,514	$ 169,531	$ 484,662
0030881	WATERLOO WASTEWATER TREATMENT FACILITY	Rock River (upper)	Jefferson	$2,545,444	$126,769	$ 2,726,216	$ 136,311	$ 136,311	$ 2,453,595	$ 20,403	$ 20,403	$ 168,615	$ 482,043
0022608	SHARON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Walworth	$2,543,224	$75,993	$ 2,723,839	$ 136,192	$ 136,192	$ 2,451,455	$ 20,385	$ 20,385	$ 168,468	$ 481,623
0021199	ALBANY WASTEWATER TREATMENT FACILITY	Sugar River	Green	$2,538,003	$31,494	$ 2,718,247	$ 135,912	$ 135,912	$ 2,446,422	$ 20,344	$ 20,344	$ 168,122	$ 480,634
0030937	GILMAN VILLAGE OF	Chippewa River (lower)	Taylor	$2,538,003	$38,862	$ 2,718,247	$ 135,912	$ 135,912	$ 2,446,422	$ 20,344	$ 20,344	$ 168,122	$ 480,634
0021288	RUDOLPH WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$2,538,003	$34,844	$ 2,718,247	$ 135,912	$ 135,912	$ 2,446,422	$ 20,344	$ 20,344	$ 168,122	$ 480,634
0061646	WAUMANDEE SANITARY DISTRICT #1	Trempealeau River	Buffalo	$2,538,003	$5,432	$ 2,718,247	$ 135,912	$ 135,912	$ 2,446,422	$ 20,344	$ 20,344	$ 168,122	$ 480,634
0021831	VALDERS WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$2,532,478	$87,531	$ 2,712,329	$ 135,616	$ 135,616	$ 2,441,096	$ 20,299	$ 20,299	$ 167,756	$ 479,588
0020133	NECEDAH WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Juneau	$2,505,442	$35,912	$ 2,683,373	$ 134,169	$ 134,169	$ 2,415,036	$ 20,083	$ 20,083	$ 165,965	$ 474,468
0021342	REEDSVILLE WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$2,483,634	$73,608	$ 2,660,017	$ 133,001	$ 133,001	$ 2,394,015	$ 19,908	$ 19,908	$ 164,521	$ 470,338
0020419	BELMONT WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$2,467,172	$50,564	$ 2,642,386	$ 132,119	$ 132,119	$ 2,378,147	$ 19,776	$ 19,776	$ 163,430	$ 467,220
0020117	RIO WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Columbia	$2,461,513	$54,969	$ 2,636,325	$ 131,816	$ 131,816	$ 2,372,693	$ 19,730	$ 19,730	$ 163,055	$ 466,149
0031445	CURTISS WASTEWATER TREATMENT FACILITY	Black River	Clark	$2,437,750	$42,724	$ 2,610,874	$ 130,544	$ 130,544	$ 2,349,786	$ 19,540	$ 19,540	$ 161,481	$ 461,649
0022365	ATHENS WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$2,428,394	$40,677	$ 2,600,854	$ 130,043	$ 130,043	$ 2,340,768	$ 19,465	$ 19,465	$ 160,861	$ 459,877
0025569	STRATFORD WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$2,422,811	$61,491	$ 2,594,875	$ 129,744	$ 129,744	$ 2,335,387	$ 19,420	$ 19,420	$ 160,492	$ 458,820
0020966	TREMPEALEAU WASTEWATER TREATMENT FACILITY	Trempealeau River	Trempealeau	$2,422,811	$43,956	$ 2,594,875	$ 129,744	$ 129,744	$ 2,335,387	$ 19,420	$ 19,420	$ 160,492	$ 458,820
0020770	MARION WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$2,364,045	$78,735	$ 2,531,935	$ 126,597	$ 126,597	$ 2,278,741	$ 18,949	$ 18,949	$ 156,599	$ 447,691
0030309	VESPER WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$2,363,945	$51,840	$ 2,531,828	$ 126,591	$ 126,591	$ 2,278,645	$ 18,948	$ 18,948	$ 156,592	$ 447,672
0031038	IXONIA SANITARY DISTRICT #1 WWTF	Rock River (upper)	Jefferson	$2,349,222	$69,295	$ 2,516,060	$ 125,803	$ 125,803	$ 2,264,454	$ 18,830	$ 18,830	$ 155,617	$ 444,884
0021148	VIOLA WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Vernon	$2,338,439	$33,018	$ 2,504,511	$ 125,226	$ 125,226	$ 2,254,060	$ 18,744	$ 18,744	$ 154,903	$ 442,842
0028428	ROSENDALE WASTEWATER TREATMENT FACILITY	Fox River (upper)	Fond Du Lac	$2,314,594	$45,944	$ 2,478,972	$ 123,949	$ 123,949	$ 2,231,074	$ 18,553	$ 18,553	$ 153,323	$ 438,326
0024040	FOUNTAIN CITY WWTF	Trempealeau River	Buffalo	$2,308,780	$69,567	$ 2,472,745	$ 123,637	$ 123,637	$ 2,225,470	$ 18,506	$ 18,506	$ 152,938	$ 437,225
0024601	MANITOWOC WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$2,303,230	$345,381	$ 2,466,800	$ 123,340	$ 123,340	$ 2,220,120	$ 18,462	$ 18,462	$ 152,570	$ 436,174
0060259	WARRENS WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Monroe	$2,285,398	$27,507	$ 2,447,703	$ 122,385	$ 122,385	$ 2,202,933	$ 18,319	$ 18,319	$ 151,389	$ 432,797
0031941	LYONS SANITARY DISTRICT NO 2	Fox River	Walworth	$2,261,813	$45,242	$ 2,422,443	$ 121,122	$ 121,122	$ 2,180,199	$ 18,130	$ 18,130	$ 149,827	$ 428,331
0022322	THERESA WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$2,232,036	$54,496	$ 2,390,551	$ 119,528	$ 119,528	$ 2,151,496	$ 17,891	$ 17,891	$ 147,854	$ 422,692
0031755	JAMESTOWN SANITARY DISTRICT NO 3 WWTF	Grant-Platte	Grant	$2,231,265	$45,348	$ 2,389,725	$ 119,486	$ 119,486	$ 2,150,753	$ 17,885	$ 17,885	$ 147,803	$ 422,546
0030431	SUPERIOR VILLAGE OF	Lake Superior	Douglas	$2,221,926	$122,617	$ 2,379,723	$ 118,986	$ 118,986	$ 2,141,751	$ 17,810	$ 17,810	$ 147,185	$ 420,777
0029017	RIB LAKE VILLAGE OF	Wisconsin River (upper)	Taylor	$2,220,031	$51,481	$ 2,377,693	$ 118,885	$ 118,885	$ 2,139,924	$ 17,795	$ 17,795	$ 147,059	$ 420,418
0022195	ST NAZIANZ WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$2,220,031	$32,359	$ 2,377,693	$ 118,885	$ 118,885	$ 2,139,924	$ 17,795	$ 17,795	$ 147,059	$ 420,418
0023078	WI AIR NATIONAL GUARD	Baraboo-Lemonweir	Juneau	$2,220,031	$34,046	$ 2,377,693	$ 118,885	$ 118,885	$ 2,139,924	$ 17,795	$ 17,795	$ 147,059	$ 420,418
0020613	NEKOOSA WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$2,197,820	$95,080	$ 2,353,905	$ 117,695	$ 117,695	$ 2,118,514	$ 17,617	$ 17,617	$ 145,588	$ 416,212
0028169	KRAKOW SANITARY DISTRICT WWTF	Pensaukee River	Shawano	$2,164,413	$34,844	$ 2,318,125	$ 115,906	$ 115,906	$ 2,086,313	$ 17,349	$ 17,349	$ 143,375	$ 409,885

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0029106	MINDORO SAN DIST 1 WWTF	Black River	La Crosse	$2,154,568	$47,003	$ 2,307,581	$ 115,379	$ 115,379	$ 2,076,823	$ 17,270	$ 17,270	$ 142,723	$ 408,021
0035513	POYGAN POYSIPPI SD 1 WWTF	Wolf River	Winnebago	$2,134,641	$34,515	$ 2,286,239	$ 114,312	$ 114,312	$ 2,057,615	$ 17,110	$ 17,110	$ 141,403	$ 404,247
0020583	HILLSBORO WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Vernon	$2,128,178	$11,663	$ 2,279,317	$ 113,966	$ 113,966	$ 2,051,385	$ 17,059	$ 17,059	$ 140,974	$ 403,023
0024732	MERRILLAN WASTEWATER TREATMENT FACILITY	Black River	Jackson	$2,124,556	$37,675	$ 2,275,438	$ 113,772	$ 113,772	$ 2,047,894	$ 17,030	$ 17,030	$ 140,735	$ 402,338
0022225	ARGYLE WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$2,115,677	$24,357	$ 2,265,928	$ 113,296	$ 113,296	$ 2,039,335	$ 16,958	$ 16,958	$ 140,146	$ 400,656
0061255	BAY CITY VILLAGE	Chippewa River (lower)	Pierce	$2,083,366	$20,059	$ 2,231,323	$ 111,566	$ 111,566	$ 2,008,190	$ 16,699	$ 16,699	$ 138,006	$ 394,537
0023515	CADOTT WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Chippewa	$2,077,793	$65,993	$ 2,225,354	$ 111,268	$ 111,268	$ 2,002,819	$ 16,655	$ 16,655	$ 137,637	$ 393,482
0028304	STODDARD WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Vernon	$2,072,846	$29,766	$ 2,220,056	$ 111,003	$ 111,003	$ 1,998,050	$ 16,615	$ 16,615	$ 137,309	$ 392,545
0023817	DICKEYVILLE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$2,058,631	$36,260	$ 2,204,831	$ 110,242	$ 110,242	$ 1,984,348	$ 16,501	$ 16,501	$ 136,368	$ 389,853
0028011	NORTH FREEDOM WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$2,051,526	$28,888	$ 2,197,222	$ 109,861	$ 109,861	$ 1,977,499	$ 16,444	$ 16,444	$ 135,897	$ 388,507
0024465	LA FARGE WASTEWATER TREATMENT PLANT	Wisconsin River (lower)	Vernon	$2,045,772	$37,982	$ 2,191,059	$ 109,553	$ 109,553	$ 1,971,953	$ 16,398	$ 16,398	$ 135,516	$ 387,418
0023931	ELROY WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$2,032,844	$73,341	$ 2,177,213	$ 108,861	$ 108,861	$ 1,959,492	$ 16,294	$ 16,294	$ 134,659	$ 384,970
0022497	WRIGHTSTOWN SEWER & WATER UTILITY	Fox River (lower)	Brown	$2,027,752	$93,265	$ 2,171,758	$ 108,588	$ 108,588	$ 1,954,583	$ 16,254	$ 16,254	$ 134,322	$ 384,005
0024210	HAZEL GREEN WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$2,019,847	$35,213	$ 2,163,292	$ 108,165	$ 108,165	$ 1,946,963	$ 16,190	$ 16,190	$ 133,798	$ 382,508
0024287	INDEPENDENCE WASTEWATER TREATMENT PLANT	Trempealeau River	Trempealeau	$2,000,217	$42,000	$ 2,142,269	$ 107,113	$ 107,113	$ 1,928,042	$ 16,033	$ 16,033	$ 132,498	$ 378,791
0024201	HAWKINS VILLAGE OF	Chippewa River (upper)	Rusk	$1,963,532	$44,309	$ 2,102,978	$ 105,149	$ 105,149	$ 1,892,680	$ 15,739	$ 15,739	$ 130,068	$ 371,844
0021881	TAYLOR WASTEWATER TREATMENT FACILITY	Trempealeau River	Jackson	$1,950,483	$30,202	$ 2,089,002	$ 104,450	$ 104,450	$ 1,880,102	$ 15,634	$ 15,634	$ 129,204	$ 369,372
0022373	SPRING VALLEY WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pierce	$1,947,056	$42,983	$ 2,085,332	$ 104,267	$ 104,267	$ 1,876,799	$ 15,607	$ 15,607	$ 128,977	$ 368,723
0031224	BANGOR WASTEWATER TREATMENT FACILITY	La Crosse River	La Crosse	$1,940,324	$48,555	$ 2,078,122	$ 103,906	$ 103,906	$ 1,870,310	$ 15,553	$ 15,553	$ 128,531	$ 367,449
0030830	DALE SANITARY DISTRICT NO 1 WWTF	Wolf River	Outagamie	$1,938,687	$19,906	$ 2,076,368	$ 103,818	$ 103,818	$ 1,868,731	$ 15,540	$ 15,540	$ 128,422	$ 367,139
0022080	COLEMAN WASTEWATER TREATMENT FACILITY	Peshtigo River	Marinette	$1,926,667	$53,480	$ 2,063,495	$ 103,175	$ 103,175	$ 1,857,145	$ 15,443	$ 15,443	$ 127,626	$ 364,862
0028878	LA VALLE WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$1,902,533	$20,918	$ 2,037,647	$ 101,882	$ 101,882	$ 1,833,882	$ 15,250	$ 15,250	$ 126,027	$ 360,292
0022462	WILTON WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Monroe	$1,902,533	$31,835	$ 2,037,647	$ 101,882	$ 101,882	$ 1,833,882	$ 15,250	$ 15,250	$ 126,027	$ 360,292
0029831	YORKVILLE SEWER UTILITY DISTRICT NO 1	Root River	Racine	$1,899,513	$34,153	$ 2,034,413	$ 101,721	$ 101,721	$ 1,830,971	$ 15,226	$ 15,226	$ 125,827	$ 359,720
0036641	HATFIELD SANITARY DISTRICT	Black River	Jackson	$1,890,215	$15,063	$ 2,024,454	$ 101,223	$ 101,223	$ 1,822,008	$ 15,151	$ 15,151	$ 125,211	$ 357,959
0024678	MELROSE WASTEWATER TREATMENT FACILITY	Black River	Jackson	$1,865,154	$18,348	$ 1,997,613	$ 99,881	$ 99,881	$ 1,797,852	$ 14,950	$ 14,950	$ 123,551	$ 353,213
0029688	WONEWOC WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$1,843,916	$46,198	$ 1,974,867	$ 98,743	$ 98,743	$ 1,777,380	$ 14,780	$ 14,780	$ 122,144	$ 349,191
0022381	MILLADORE WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$1,829,794	$22,725	$ 1,959,742	$ 97,987	$ 97,987	$ 1,763,768	$ 14,667	$ 14,667	$ 121,209	$ 346,517
0025356	DEER PARK WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$1,826,436	$10,824	$ 1,956,145	$ 97,807	$ 97,807	$ 1,760,531	$ 14,640	$ 14,640	$ 120,987	$ 345,881
0024961	NORWALK WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Monroe	$1,815,580	$17,981	$ 1,944,518	$ 97,226	$ 97,226	$ 1,750,067	$ 14,553	$ 14,553	$ 120,267	$ 343,825
0030961	CHILI WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Clark	$1,813,210	$63,320	$ 1,941,980	$ 97,099	$ 97,099	$ 1,747,782	$ 14,534	$ 14,534	$ 120,110	$ 343,376
0025453	SHELDON VILLAGE OF	Chippewa River (upper)	Rusk	$1,813,210	$17,281	$ 1,941,980	$ 97,099	$ 97,099	$ 1,747,782	$ 14,534	$ 14,534	$ 120,110	$ 343,376
0035963	MOUNT CALVARY WASTEWATER TREATMENT FACILITY	Sheboygan River	Fond Du Lac	$1,794,080	$47,146	$ 1,921,492	$ 96,075	$ 96,075	$ 1,729,343	$ 14,381	$ 14,381	$ 118,843	$ 339,754
0031925	LARSEN WINCHESTER SD WWTF	Wolf River	Winnebago	$1,786,247	$169,354	$ 1,913,103	$ 95,655	$ 95,655	$ 1,721,793	$ 14,318	$ 14,318	$ 118,324	$ 338,270
0031364	LEBANON SANITARY DISTRICT #1 WWTF	Rock River (upper)	Dodge	$1,772,499	$29,020	$ 1,898,378	$ 94,919	$ 94,919	$ 1,708,541	$ 14,208	$ 14,208	$ 117,414	$ 335,667
0021105	BLANCHARDVILLE WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$1,772,360	$36,952	$ 1,898,229	$ 94,911	$ 94,911	$ 1,708,406	$ 14,207	$ 14,207	$ 117,404	$ 335,640
0029114	LOGANVILLE WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$1,744,436	$28,888	$ 1,868,323	$ 93,416	$ 93,416	$ 1,681,490	$ 13,983	$ 13,983	$ 115,555	$ 330,352
0060526	UNITY WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Clark	$1,744,436	$28,932	$ 1,868,323	$ 93,416	$ 93,416	$ 1,681,490	$ 13,983	$ 13,983	$ 115,555	$ 330,352
0036706	CLAYTON VILLAGE OF	St Croix River	Polk	$1,743,478	$40,784	$ 1,867,296	$ 93,365	$ 93,365	$ 1,680,566	$ 13,975	$ 13,975	$ 115,491	$ 330,171
0026867	ST CLOUD VILLAGE UTILITY COMMISSION	Sheboygan River	Fond Du Lac	$1,730,108	$72,806	$ 1,852,977	$ 92,649	$ 92,649	$ 1,667,679	$ 13,868	$ 13,868	$ 114,606	$ 327,639
0023523	CAMBRIA WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Columbia	$1,728,231	$187,106	$ 1,850,966	$ 92,548	$ 92,548	$ 1,665,869	$ 13,853	$ 13,853	$ 114,481	$ 327,283
0022411	AUBURNDALE WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$1,705,805	$37,297	$ 1,826,948	$ 91,347	$ 91,347	$ 1,644,253	$ 13,673	$ 13,673	$ 112,996	$ 323,037
0020672	BENTON WASTEWATER TREATMENT FACILITY	Grant-Platte	Lafayette	$1,690,715	$31,996	$ 1,810,787	$ 90,539	$ 90,539	$ 1,629,708	$ 13,552	$ 13,552	$ 111,996	$ 320,179
0024911	NEWBURG VILLAGE	Milwaukee River	Washington	$1,683,128	$50,564	$ 1,802,660	$ 90,133	$ 90,133	$ 1,622,394	$ 13,491	$ 13,491	$ 111,494	$ 318,742
0032051	BROWNTOWN WASTEWATER TREATMENT FACILITY	Pecatonica River	Green	$1,678,271	$9,495	$ 1,797,458	$ 89,873	$ 89,873	$ 1,617,713	$ 13,452	$ 13,452	$ 111,172	$ 317,822
0031615	DRUMMOND SANITARY DISTRICT 1	Lake Superior	Bayfield	$1,670,637	$35,662	$ 1,789,282	$ 89,464	$ 89,464	$ 1,610,354	$ 13,391	$ 13,391	$ 110,666	$ 316,377
0020761	WEYERHAEUSER VILLAGE OF	Chippewa River (upper)	Rusk	$1,670,637	$67,811	$ 1,789,282	$ 89,464	$ 89,464	$ 1,610,354	$ 13,391	$ 13,391	$ 110,666	$ 316,377
0028894	FORESTVILLE WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$1,662,399	$42,911	$ 1,780,459	$ 89,023	$ 89,023	$ 1,602,413	$ 13,325	$ 13,325	$ 110,120	$ 314,817
0021512	ARLINGTON WASTEWATER TREATMENT FACILITY	Rock River (lower)	Columbia	$1,660,189	$33,081	$ 1,778,092	$ 88,905	$ 88,905	$ 1,600,283	$ 13,307	$ 13,307	$ 109,974	$ 314,398
0020915	CASHTON WASTEWATER TREATMENT FACILITY	La Crosse River	Monroe	$1,660,189	$49,641	$ 1,778,092	$ 88,905	$ 88,905	$ 1,600,283	$ 13,307	$ 13,307	$ 109,974	$ 314,398
0023485	BROOKLYN WASTEWATER TREATMENT FACILITY	Sugar River	Green	$1,652,483	$49,331	$ 1,769,839	$ 88,492	$ 88,492	$ 1,592,855	$ 13,246	$ 13,246	$ 109,464	$ 312,939
0022047	WHITELAW WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$1,644,747	$42,329	$ 1,761,553	$ 88,078	$ 88,078	$ 1,585,398	$ 13,184	$ 13,184	$ 108,951	$ 311,474
0024023	FOOTVILLE WASTEWATER TREATMENT FACILITY	Rock River (lower)	Rock	$1,636,980	$38,323	$ 1,753,235	$ 87,662	$ 87,662	$ 1,577,911	$ 13,121	$ 13,121	$ 108,437	$ 310,003
0031275	HEWITT SANITARY DISTRICT WWTP	Wisconsin River (upper)	Wood	$1,636,980	$32,359	$ 1,753,235	$ 87,662	$ 87,662	$ 1,577,911	$ 13,121	$ 13,121	$ 108,437	$ 310,003
0022241	SOLDIERS GROVE WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Crawford	$1,636,980	$15,189	$ 1,753,235	$ 87,662	$ 87,662	$ 1,577,911	$ 13,121	$ 13,121	$ 108,437	$ 310,003
0031381	ASHIPPUN SANITARY DISTRICT WWTF	Rock River (upper)	Dodge	$1,627,994	$49,256	$ 1,743,611	$ 87,181	$ 87,181	$ 1,569,250	$ 13,049	$ 13,049	$ 107,841	$ 308,301
0049760	POPLAR VILLAGE OF	Lake Superior	Douglas	$1,623,514	$26,186	$ 1,738,813	$ 86,941	$ 86,941	$ 1,564,932	$ 13,013	$ 13,013	$ 107,545	$ 307,453
0028070	JUNCTION CITY WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Portage	$1,597,666	$35,213	$ 1,711,129	$ 85,556	$ 85,556	$ 1,540,016	$ 12,806	$ 12,806	$ 105,832	$ 302,558
0028461	OGEMA SANITARY DISTRICT	Chippewa River (upper)	Price	$1,590,740	$23,370	$ 1,703,711	$ 85,186	$ 85,186	$ 1,533,340	$ 12,751	$ 12,751	$ 105,374	$ 301,246
0061387	LAKELAND SANITARY DISTRICT # 1	Chippewa River (lower)	Barron	$1,573,906	$14,256	$ 1,685,682	$ 84,284	$ 84,284	$ 1,517,114	$ 12,616	$ 12,616	$ 104,258	$ 298,058
0024821	MONTFORT WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Grant	$1,565,617	$24,357	$ 1,676,804	$ 83,840	$ 83,840	$ 1,509,123	$ 12,549	$ 12,549	$ 103,709	$ 296,488
0036048	PLAIN WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Sauk	$1,565,617	$45,880	$ 1,676,804	$ 83,840	$ 83,840	$ 1,509,123	$ 12,549	$ 12,549	$ 103,709	$ 296,488
0060232	ARKANSAW WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pepin	$1,556,757	$10,824	$ 1,667,314	$ 83,366	$ 83,366	$ 1,500,583	$ 12,478	$ 12,478	$ 103,122	$ 294,811
0023566	CASCO WASTEWATER TREATMENT FACILITY	Twin-Kewaunee River	Kewaunee	$1,533,003	$30,528	$ 1,641,874	$ 82,094	$ 82,094	$ 1,477,686	$ 12,288	$ 12,288	$ 101,549	$ 290,312
0026689	FONKS HOME CENTER INC - HICKORY HAVEN	Root River	Racine	$1,524,758	$26,733	$ 1,633,043	$ 81,652	$ 81,652	$ 1,469,739	$ 12,222	$ 12,222	$ 101,003	$ 288,751
0022187	LIVINGSTON WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$1,524,758	$22,310	$ 1,633,043	$ 81,652	$ 81,652	$ 1,469,739	$ 12,222	$ 12,222	$ 101,003	$ 288,751
0036811	ONION RIVER WASTEWATER COMMISSION	Sheboygan River	Sheboygan	$1,524,758	$47,460	$ 1,633,043	$ 81,652	$ 81,652	$ 1,469,739	$ 12,222	$ 12,222	$ 101,003	$ 288,751
0030520	Sinsinawa Dominicans Inc.	Grant-Platte	Grant	$1,524,758	$21,047	$ 1,633,043	$ 81,652	$ 81,652	$ 1,469,739	$ 12,222	$ 12,222	$ 101,003	$ 288,751

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0031844	SULLIVAN TWN SANITARY DISTRICT #1 WWTF	Rock River (lower)	Jefferson	$1,524,758	$44,279	$ 1,633,043	$ 81,652	$ 81,652	$ 1,469,739	$ 12,222	$ 12,222	$ 101,003	$ 288,751
0022811	PEPIN WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pepin	$1,516,474	$33,081	$ 1,624,171	$ 81,209	$ 81,209	$ 1,461,754	$ 12,155	$ 12,155	$ 100,454	$ 287,182
0031330	HOLLANDALE WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$1,503,244	$21,912	$ 1,610,002	$ 80,500	$ 80,500	$ 1,449,002	$ 12,049	$ 12,049	$ 99,578	$ 284,677
0026352	ROCKDALE WASTEWATER TREATMENT FACILITY	Rock River (lower)	Dane	$1,503,244	$10,367	$ 1,610,002	$ 80,500	$ 80,500	$ 1,449,002	$ 12,049	$ 12,049	$ 99,578	$ 284,677
0022101	ALMA WASTEWATER TREATMENT FACILITY	Buffalo River	Buffalo	$1,499,792	$37,297	$ 1,606,305	$ 80,315	$ 80,315	$ 1,445,674	$ 12,022	$ 12,022	$ 99,349	$ 284,023
0035548	LEROY KEKOSKEE WWTF COMMISSION	Rock River (upper)	Dodge	$1,488,473	$20,485	$ 1,594,181	$ 79,709	$ 79,709	$ 1,434,763	$ 11,931	$ 11,931	$ 98,599	$ 281,879
0036790	HIGHLAND WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Iowa	$1,482,952	$41,010	$ 1,588,268	$ 79,413	$ 79,413	$ 1,429,441	$ 11,887	$ 11,887	$ 98,234	$ 280,834
0021661	READSTOWN WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Vernon	$1,474,471	$33,440	$ 1,579,185	$ 78,959	$ 78,959	$ 1,421,266	$ 11,819	$ 11,819	$ 97,672	$ 279,228
0028967	ROCKLAND WATER SEWER UTILITIES WWTF	La Crosse River	La Crosse	$1,465,660	$10,367	$ 1,569,748	$ 78,487	$ 78,487	$ 1,412,773	$ 11,748	$ 11,748	$ 97,088	$ 277,559
0021059	CONSOLIDATED KOSHKONONG SANITARY DIST WWTF	Rock River (lower)	Rock	$1,462,741	$78,171	$ 1,566,622	$ 78,331	$ 78,331	$ 1,409,960	$ 11,725	$ 11,725	$ 96,895	$ 277,006
0023400	BLOOMINGTON WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$1,457,383	$34,153	$ 1,560,884	$ 78,044	$ 78,044	$ 1,404,796	$ 11,682	$ 11,682	$ 96,540	$ 275,992
0029289	KIELER SANITARY DISTRICT NO 1 WWTF	Grant-Platte	Grant	$1,448,776	$35,213	$ 1,551,665	$ 77,583	$ 77,583	$ 1,396,499	$ 11,613	$ 11,613	$ 95,970	$ 274,362
0031780	FRIESLAND WASTEWATER TREATMENT FACILITY	Fox River (upper)	Columbia	$1,440,309	$37,675	$ 1,542,597	$ 77,130	$ 77,130	$ 1,388,337	$ 11,545	$ 11,545	$ 95,409	$ 272,758
0023922	ELMWOOD VILLAGE WWTP	Chippewa River (lower)	Pierce	$1,440,125	$21,047	$ 1,542,400	$ 77,120	$ 77,120	$ 1,388,160	$ 11,543	$ 11,543	$ 95,397	$ 272,724
0028363	SPRING GREEN GOLF CLUB SANITARY DIST #2 WWTF	Wisconsin River (lower)	Iowa	$1,431,430	$65,158	$ 1,533,088	$ 76,654	$ 76,654	$ 1,379,779	$ 11,474	$ 11,474	$ 94,821	$ 271,077
0049689	HUB ROCK SANITARY DISTRICT #1 WWTF	Wisconsin River (lower)	Richland	$1,426,334	$19,906	$ 1,527,630	$ 76,381	$ 76,381	$ 1,374,867	$ 11,433	$ 11,433	$ 94,483	$ 270,112
0060216	STETSONVILLE, VILLAGE OF	Wisconsin River (upper)	Taylor	$1,422,691	$32,721	$ 1,523,727	$ 76,186	$ 76,186	$ 1,371,354	$ 11,404	$ 11,404	$ 94,242	$ 269,422
0022268	GAYS MILLS WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Crawford	$1,413,905	$29,032	$ 1,514,318	$ 75,716	$ 75,716	$ 1,362,886	$ 11,333	$ 11,333	$ 93,660	$ 267,758
0025593	SUPERIOR SEWAGE DISPOSAL SYSTEM	Lake Superior	Douglas	$1,407,803	$327,481	$ 1,507,782	$ 75,389	$ 75,389	$ 1,357,004	$ 11,284	$ 11,284	$ 93,255	$ 266,602
0020753	ONTARIO WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Vernon	$1,405,073	$21,047	$ 1,504,859	$ 75,243	$ 75,243	$ 1,354,373	$ 11,262	$ 11,262	$ 93,075	$ 266,086
0049859	ABRAMS SANITARY DISTRICT 1	Pensaukee River	Oconto	$1,351,063	$24,759	$ 1,447,013	$ 72,351	$ 72,351	$ 1,302,312	$ 10,830	$ 10,830	$ 89,497	$ 255,857
0022276	WAUZEKA WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Crawford	$1,351,063	$22,559	$ 1,447,013	$ 72,351	$ 72,351	$ 1,302,312	$ 10,830	$ 10,830	$ 89,497	$ 255,857
0032085	HUSTLER WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$1,318,805	$8,087	$ 1,412,464	$ 70,623	$ 70,623	$ 1,271,217	$ 10,571	$ 10,571	$ 87,360	$ 249,749
0029076	ROZELLVILLE SANITARY DISTRICT NO 1	Wisconsin River (upper)	Marathon	$1,318,805	$10,168	$ 1,412,464	$ 70,623	$ 70,623	$ 1,271,217	$ 10,571	$ 10,571	$ 87,360	$ 249,749
0029041	ROCK SPRINGS WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$1,314,019	$20,189	$ 1,407,339	$ 70,367	$ 70,367	$ 1,266,605	$ 10,533	$ 10,533	$ 87,043	$ 248,842
0031658	BLUE MOUNDS WASTEWATER TREATMENT FACILITY	Pecatonica River	Dane	$1,304,620	$24,759	$ 1,397,272	$ 69,864	$ 69,864	$ 1,257,544	$ 10,457	$ 10,457	$ 86,420	$ 247,062
0031348	RIDGEWAY WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$1,304,620	$23,137	$ 1,397,272	$ 69,864	$ 69,864	$ 1,257,544	$ 10,457	$ 10,457	$ 86,420	$ 247,062
0036421	KINGSTON WASTEWATER TREATMENT FACILITY	Fox River (upper)	Green Lake	$1,295,401	$14,891	$ 1,387,397	$ 69,370	$ 69,370	$ 1,248,658	$ 10,383	$ 10,383	$ 85,810	$ 245,316
0031917	LUBLIN VILLAGE OF	Chippewa River (lower)	Taylor	$1,295,401	$36,068	$ 1,387,397	$ 69,370	$ 69,370	$ 1,248,658	$ 10,383	$ 10,383	$ 85,810	$ 245,316
0021393	STOCKBRIDGE WASTEWATER TREATMENT FACILITY	Fox River (upper)	Calumet	$1,276,072	$32,359	$ 1,366,696	$ 68,335	$ 68,335	$ 1,230,026	$ 10,228	$ 10,228	$ 84,529	$ 241,656
0061191	DODGE SANITARY DISTRICT NO 1	Trempealeau River	Trempealeau	$1,271,243	$9,698	$ 1,361,524	$ 68,076	$ 68,076	$ 1,225,372	$ 10,190	$ 10,190	$ 84,210	$ 240,742
0028819	SOUTH MILWAUKEE WASTEWATER TREAT FACILITY	Root River	Milwaukee	$1,259,470	$234,113	$ 1,348,915	$ 67,446	$ 67,446	$ 1,214,024	$ 10,095	$ 10,095	$ 83,430	$ 238,512
0028207	HOLLAND SD 1 WASTEWATER TREATMENT FACILITY	Fox River (lower)	Brown	$1,258,019	$71,317	$ 1,347,361	$ 67,368	$ 67,368	$ 1,212,625	$ 10,084	$ 10,084	$ 83,334	$ 238,237
0023892	ELEVA WASTEWATER TREATMENT FACILITY	Buffalo River	Trempealeau	$1,256,736	$34,153	$ 1,345,987	$ 67,299	$ 67,299	$ 1,211,388	$ 10,073	$ 10,073	$ 83,249	$ 237,994
0020516	KENDALL WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Monroe	$1,256,736	$29,032	$ 1,345,987	$ 67,299	$ 67,299	$ 1,211,388	$ 10,073	$ 10,073	$ 83,249	$ 237,994
0031259	OAKDALE WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Monroe	$1,256,736	$22,310	$ 1,345,987	$ 67,299	$ 67,299	$ 1,211,388	$ 10,073	$ 10,073	$ 83,249	$ 237,994
0061361	LENA WASTEWATER TREATMENT FACILITY	Oconto River	Oconto	$1,252,691	$48,683	$ 1,341,654	$ 67,083	$ 67,083	$ 1,207,489	$ 10,041	$ 10,041	$ 82,981	$ 237,228
0031551	BURNETT SANITARY DISTRICT #1 WWTF	Rock River (upper)	Dodge	$1,249,115	$23,605	$ 1,337,825	$ 66,891	$ 66,891	$ 1,204,043	$ 10,012	$ 10,012	$ 82,744	$ 236,551
0022292	SOUTH WAYNE WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$1,246,973	$17,528	$ 1,335,531	$ 66,777	$ 66,777	$ 1,201,977	$ 9,995	$ 9,995	$ 82,602	$ 236,145
0022853	THREE LAKES SANITARY DISTRICT #1	Wisconsin River (upper)	Oneida	$1,227,251	$25,159	$ 1,314,408	$ 65,720	$ 65,720	$ 1,182,967	$ 9,837	$ 9,837	$ 81,295	$ 232,410
0031267	ARPIN WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Wood	$1,217,289	$21,089	$ 1,303,738	$ 65,187	$ 65,187	$ 1,173,364	$ 9,757	$ 9,757	$ 80,635	$ 230,524
0029793	DE SOTO WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Crawford	$1,207,257	$8,523	$ 1,292,994	$ 64,650	$ 64,650	$ 1,163,695	$ 9,677	$ 9,677	$ 79,971	$ 228,624
0031186	ST JOSEPH SANITARY DISTRICT	Bad Axe River & Coon Creek	La Crosse	$1,207,257	$19,317	$ 1,292,994	$ 64,650	$ 64,650	$ 1,163,695	$ 9,677	$ 9,677	$ 79,971	$ 228,624
0036854	VALLEY RIDGE CLEAN WATER COMMISSION WWTF	Bad Axe River & Coon Creek	Crawford	$1,197,155	$17,981	$ 1,282,175	$ 64,109	$ 64,109	$ 1,153,957	$ 9,596	$ 9,596	$ 79,302	$ 226,711
0020621	ETTRICK WASTEWATER TREATMENT FACILITY	Black River	Trempealeau	$1,186,980	$11,663	$ 1,271,277	$ 63,564	$ 63,564	$ 1,144,149	$ 9,514	$ 9,514	$ 78,628	$ 224,784
0060488	LYNDON STATION WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$1,186,980	$19,317	$ 1,271,277	$ 63,564	$ 63,564	$ 1,144,149	$ 9,514	$ 9,514	$ 78,628	$ 224,784
0036536	O DELL BAY SANITARY DISTRICT 1	Wisconsin River (upper)	Juneau	$1,186,980	$31,631	$ 1,271,277	$ 63,564	$ 63,564	$ 1,144,149	$ 9,514	$ 9,514	$ 78,628	$ 224,784
0060038	SEXTONVILLE SANITARY DISTRICT #1 WWTF	Wisconsin River (lower)	Richland	$1,186,980	$61,491	$ 1,271,277	$ 63,564	$ 63,564	$ 1,144,149	$ 9,514	$ 9,514	$ 78,628	$ 224,784
0031861	AMANI SANITARY DISTRICT	St Croix River	Polk	$1,180,354	$20,026	$ 1,264,181	$ 63,209	$ 63,209	$ 1,137,763	$ 9,461	$ 9,461	$ 78,189	$ 223,529
0031411	FENWOOD WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$1,165,605	$6,966	$ 1,248,384	$ 62,419	$ 62,419	$ 1,123,546	$ 9,343	$ 9,343	$ 77,212	$ 220,736
0030627	JAMESTOWN SANITARY DISTRICT NO 2 WWTF	Grant-Platte	Grant	$1,165,605	$7,794	$ 1,248,384	$ 62,419	$ 62,419	$ 1,123,546	$ 9,343	$ 9,343	$ 77,212	$ 220,736
0021580	LINDEN WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$1,156,003	$16,607	$ 1,238,100	$ 61,905	$ 61,905	$ 1,114,290	$ 9,266	$ 9,266	$ 76,576	$ 218,918
0025585	SULLIVAN WASTEWATER TREATMENT FACILITY	Rock River (lower)	Jefferson	$1,156,003	$26,343	$ 1,238,100	$ 61,905	$ 61,905	$ 1,114,290	$ 9,266	$ 9,266	$ 76,576	$ 218,918
0031704	SAXON SANITARY DISTRICT #1	Lake Superior	Iron	$1,136,462	$43,856	$ 1,217,172	$ 60,859	$ 60,859	$ 1,095,455	$ 9,109	$ 9,109	$ 75,281	$ 215,217
0032123	FOREST JUNCTION SANITARY DISTRICT	Fox River (lower)	Calumet	$1,135,897	$24,039	$ 1,216,567	$ 60,828	$ 60,828	$ 1,094,910	$ 9,105	$ 9,105	$ 75,244	$ 215,110
0021075	PRENTICE VILLAGE OF	Chippewa River (upper)	Price	$1,108,998	$38,527	$ 1,187,757	$ 59,388	$ 59,388	$ 1,068,982	$ 8,889	$ 8,889	$ 73,462	$ 210,016
0029963	GLEN FLORA VILLAGE OF	Chippewa River (upper)	Rusk	$1,105,970	$5,933	$ 1,184,514	$ 59,226	$ 59,226	$ 1,066,062	$ 8,865	$ 8,865	$ 73,262	$ 209,443
0029572	STEVENS POINT WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Portage	$1,105,610	$192,009	$ 1,184,128	$ 59,206	$ 59,206	$ 1,065,716	$ 8,862	$ 8,862	$ 73,238	$ 209,375
0060933	PACKWAUKEE SANITARY DISTRICT NO 1	Fox River (upper)	Marquette	$1,102,751	$23,546	$ 1,181,066	$ 59,053	$ 59,053	$ 1,062,959	$ 8,839	$ 8,839	$ 73,048	$ 208,833
0022705	PATCH GROVE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$1,102,751	$17,528	$ 1,181,066	$ 59,053	$ 59,053	$ 1,062,959	$ 8,839	$ 8,839	$ 73,048	$ 208,833
0060381	GLENWOOD CITY WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	St. Croix	$1,094,511	$36,353	$ 1,172,241	$ 58,612	$ 58,612	$ 1,055,017	$ 8,773	$ 8,773	$ 72,502	$ 207,273
0031577	GIBBSVILLE SANITARY DISTRICT	Sheboygan River	Sheboygan	$1,091,838	$28,654	$ 1,169,378	$ 58,469	$ 58,469	$ 1,052,440	$ 8,752	$ 8,752	$ 72,325	$ 206,767
0036251	NORTH LAKE POYGAN S D WWTF	Wolf River	Winnebago	$1,080,832	$22,310	$ 1,157,591	$ 57,880	$ 57,880	$ 1,041,832	$ 8,664	$ 8,664	$ 71,596	$ 204,682
0035114	CRYSTAL LAKE SANITARY DISTRICT	Chippewa River (lower)	Barron	$1,073,954	$28,888	$ 1,150,224	$ 57,511	$ 57,511	$ 1,035,202	$ 8,608	$ 8,608	$ 71,141	$ 203,380
0035581	RIB MOUNTAIN METRO SEWAGE DISTRICT WWTF	Wisconsin River (upper)	Marathon	$1,073,026	$150,503	$ 1,149,230	$ 57,462	$ 57,462	$ 1,034,307	$ 8,601	$ 8,601	$ 71,079	$ 203,204
0021440	FAIRWATER WASTEWATER TREATMENT FACILITY	Fox River (upper)	Fond Du Lac	$1,058,532	$18,431	$ 1,133,707	$ 56,685	$ 56,685	$ 1,020,336	$ 8,485	$ 8,485	$ 70,119	$ 200,459
0030503	Orchard Manor	Grant-Platte	Grant	$1,047,231	$10,026	$ 1,121,603	$ 56,080	$ 56,080	$ 1,009,443	$ 8,394	$ 8,394	$ 69,371	$ 198,319
0029670	PORT WING TOWN OF	Lake Superior	Bayfield	$1,047,231	$15,951	$ 1,121,603	$ 56,080	$ 56,080	$ 1,009,443	$ 8,394	$ 8,394	$ 69,371	$ 198,319

Appendix G
Projected Capital and Financing Cost by Permittee

										Estimated Debt Service Payments			
Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	2016 EIF	2017 EIF	2016 OMB	Additional Debt Service Plus Cash
0035483	HILL POINT SANITARY DISTRICT WWTF	Baraboo-Lemonweir	Sauk	$1,040,201	$32,766	$ 1,114,074	$ 55,704	$ 55,704	$ 1,002,666	$ 8,338	$ 8,338	$ 68,905	$ 196,988
0020702	CLYMAN WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$1,024,315	$25,950	$ 1,097,060	$ 54,853	$ 54,853	$ 987,354	$ 8,210	$ 8,210	$ 67,853	$ 193,980
0029335	LAKELAND COLLEGE	Sheboygan River	Sheboygan	$1,001,723	$28,691	$ 1,072,863	$ 53,643	$ 53,643	$ 965,577	$ 8,029	$ 8,029	$ 66,356	$ 189,701
0022284	GENOA WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Vernon	$965,030	$13,217	$ 1,033,564	$ 51,678	$ 51,678	$ 930,208	$ 7,735	$ 7,735	$ 63,925	$ 182,752
0025640	UNION CENTER WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Juneau	$965,030	$23,953	$ 1,033,564	$ 51,678	$ 51,678	$ 930,208	$ 7,735	$ 7,735	$ 63,925	$ 182,752
0023418	BLUE RIVER WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Grant	$952,800	$11,127	$ 1,020,466	$ 51,023	$ 51,023	$ 918,420	$ 7,637	$ 7,637	$ 63,115	$ 180,436
0028142	HOLY FAMILY CONVENT WASTEWATER TREATMENT FAC	Manitowoc River	Manitowoc	$952,800	$15,189	$ 1,020,466	$ 51,023	$ 51,023	$ 918,420	$ 7,637	$ 7,637	$ 63,115	$ 180,436
0036030	CLARKS MILLS SANITARY DISTRICT	Manitowoc River	Manitowoc	$943,105	$5,173	$ 1,010,083	$ 50,504	$ 50,504	$ 909,074	$ 7,560	$ 7,560	$ 62,473	$ 178,600
0031372	CASCADE WASTEWATER TREATMENT FACILITY	Milwaukee River	Sheboygan	$934,901	$36,010	$ 1,001,295	$ 50,065	$ 50,065	$ 901,166	$ 7,494	$ 7,494	$ 61,930	$ 177,047
0035998	GOETZ COMPANIES INC (PORTAGE PETRO TRAVEL P)	Baraboo-Lemonweir	Columbia	$927,935	$20,620	$ 993,835	$ 49,692	$ 49,692	$ 894,451	$ 7,438	$ 7,438	$ 61,468	$ 175,727
0020907	MOUNT HOPE WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$927,935	$22,725	$ 993,835	$ 49,692	$ 49,692	$ 894,451	$ 7,438	$ 7,438	$ 61,468	$ 175,727
0029025	POTTER WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$927,935	$22,725	$ 993,835	$ 49,692	$ 49,692	$ 894,451	$ 7,438	$ 7,438	$ 61,468	$ 175,727
0020460	PORT WASHINGTON WWTP	Sheboygan River	Ozaukee	$922,805	$116,859	$ 988,341	$ 49,417	$ 49,417	$ 889,507	$ 7,397	$ 7,397	$ 61,128	$ 174,756
0026590	TWO RIVERS WASTEWATER TREATMENT FACILITY	Twin-Kewaunee River	Manitowoc	$918,588	$155,306	$ 983,824	$ 49,191	$ 49,191	$ 885,442	$ 7,363	$ 7,363	$ 60,849	$ 173,957
0030759	MADELINE SANITARY DISTRICT	Lake Superior	Ashland	$904,607	$15,636	$ 968,850	$ 48,443	$ 48,443	$ 871,965	$ 7,251	$ 7,251	$ 59,923	$ 171,310
0021113	STURGEON BAY UTILITIES WWTF	Door Peninsula	Door	$881,974	$179,785	$ 944,610	$ 47,230	$ 47,230	$ 850,149	$ 7,070	$ 7,070	$ 58,424	$ 167,024
0031801	CAZENOVIA WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$863,149	$72,270	$ 924,448	$ 46,222	$ 46,222	$ 832,003	$ 6,919	$ 6,919	$ 57,177	$ 163,459
0024139	GRATIOT WASTEWATER TREATMENT FACILITY	Pecatonica River	Lafayette	$863,149	$11,663	$ 924,448	$ 46,222	$ 46,222	$ 832,003	$ 6,919	$ 6,919	$ 57,177	$ 163,459
0029611	WI ACADEMAY WWTF	Rock River (upper)	Columbia	$863,149	$8,878	$ 924,448	$ 46,222	$ 46,222	$ 832,003	$ 6,919	$ 6,919	$ 57,177	$ 163,459
0028452	WOLF TREATMENT PLANT	Wolf River	Shawano	$854,039	$172,516	$ 914,691	$ 45,735	$ 45,735	$ 823,222	$ 6,846	$ 6,846	$ 56,573	$ 161,734
0021601	BROWNSVILLE WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$844,760	$22,720	$ 904,753	$ 45,238	$ 45,238	$ 814,277	$ 6,771	$ 6,771	$ 55,958	$ 159,976
0020605	BARABOO WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$838,588	$122,895	$ 898,142	$ 44,907	$ 44,907	$ 808,328	$ 6,722	$ 6,722	$ 55,550	$ 158,807
0031682	DOWNSVILLE SANITARY DISTRICT #1 WWTF	Chippewa River (lower)	Dunn	$822,228	$9,459	$ 880,621	$ 44,031	$ 44,031	$ 792,559	$ 6,591	$ 6,591	$ 54,466	$ 155,709
0031011	WHEATLAND ESTATES MHP	Fox River	Kenosha	$822,228	$19,317	$ 880,621	$ 44,031	$ 44,031	$ 792,559	$ 6,591	$ 6,591	$ 54,466	$ 155,709
0036773	MORRISON SANITARY DISTRICT NO 1	Manitowoc River	Brown	$815,903	$27,292	$ 873,847	$ 43,692	$ 43,692	$ 786,462	$ 6,540	$ 6,540	$ 54,047	$ 154,512
0030660	FONKS HOME CENTER, INC. - HICKORY HAVEN	Fox River	Racine	$808,200	$15,189	$ 865,597	$ 43,280	$ 43,280	$ 779,037	$ 6,478	$ 6,478	$ 53,537	$ 153,053
0025178	PRAIRIE FARM VILLAGE OF	Chippewa River (lower)	Barron	$800,146	$16,163	$ 856,970	$ 42,849	$ 42,849	$ 771,273	$ 6,414	$ 6,414	$ 53,003	$ 151,527
0031054	PLYMOUTH TOWN SANITARY DISTRICT #1 WWTF	Rock River (lower)	Rock	$793,964	$6,783	$ 850,349	$ 42,517	$ 42,517	$ 765,314	$ 6,364	$ 6,364	$ 52,594	$ 150,357
0028509	REESEVILLE WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$781,294	$30,588	$ 836,780	$ 41,839	$ 41,839	$ 753,102	$ 6,263	$ 6,263	$ 51,754	$ 147,957
0060151	AVOCA WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Iowa	$764,822	$17,981	$ 819,138	$ 40,957	$ 40,957	$ 737,225	$ 6,131	$ 6,131	$ 50,663	$ 144,838
0031950	BLENKER SHERRY SANITARY DISTRICT WWTP	Wisconsin River (upper)	Wood	$764,822	$10,582	$ 819,138	$ 40,957	$ 40,957	$ 737,225	$ 6,131	$ 6,131	$ 50,663	$ 144,838
0061051	MARIBEL WASTEWATER TREATMENT FACILITY	Twin-Kewaunee River	Manitowoc	$764,822	$18,876	$ 819,138	$ 40,957	$ 40,957	$ 737,225	$ 6,131	$ 6,131	$ 50,663	$ 144,838
0024929	NEW LONDON WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$750,695	$130,653	$ 804,008	$ 40,200	$ 40,200	$ 723,608	$ 6,017	$ 6,017	$ 49,727	$ 142,163
0030767	ASHLAND SEWAGE UTILITY	Lake Superior	Ashland	$736,400	$114,283	$ 788,697	$ 39,435	$ 39,435	$ 709,827	$ 5,903	$ 5,903	$ 48,780	$ 139,456
0036200	FAIRCHILD WASTEWATER TREATMENT FAC	Chippewa River (lower)	Eau Claire	$725,746	$11,241	$ 777,287	$ 38,864	$ 38,864	$ 699,558	$ 5,817	$ 5,817	$ 48,075	$ 137,438
0029807	LAKEVIEW NEUROLOGICAL REHAB CENTER - MIDWEST	Fox River	Racine	$719,257	$16,140	$ 770,338	$ 38,517	$ 38,517	$ 693,304	$ 5,765	$ 5,765	$ 47,645	$ 136,209
0031569	REWEY WASTEWATER TREATMENT FACILITY	Pecatonica River	Iowa	$719,257	$7,041	$ 770,338	$ 38,517	$ 38,517	$ 693,304	$ 5,765	$ 5,765	$ 47,645	$ 136,209
0028975	ROXBURY SANITARY DISTRICT #1 WWTF	Wisconsin River (lower)	Dane	$719,257	$19,317	$ 770,338	$ 38,517	$ 38,517	$ 693,304	$ 5,765	$ 5,765	$ 47,645	$ 136,209
0036285	STITZER SANITARY DISTRICT WWTF	Grant-Platte	Grant	$719,257	$7,041	$ 770,338	$ 38,517	$ 38,517	$ 693,304	$ 5,765	$ 5,765	$ 47,645	$ 136,209
0027995	PLOVER WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Portage	$714,352	$110,452	$ 765,083	$ 38,254	$ 38,254	$ 688,575	$ 5,726	$ 5,726	$ 47,320	$ 135,280
0060771	BAGLEY WASTEWATER TREATMENT FACILITY	Grant-Platte	Grant	$703,518	$13,217	$ 753,481	$ 37,674	$ 37,674	$ 678,133	$ 5,639	$ 5,639	$ 46,602	$ 133,229
0028941	KNIGHT TOWN OF	Lake Superior	Iron	$703,518	$15,667	$ 753,481	$ 37,674	$ 37,674	$ 678,133	$ 5,639	$ 5,639	$ 46,602	$ 133,229
0020044	RHINELANDER CITY OF	Wisconsin River (upper)	Oneida	$664,353	$92,671	$ 711,534	$ 35,577	$ 35,577	$ 640,381	$ 5,325	$ 5,325	$ 44,008	$ 125,812
0030490	WAUPACA WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$655,568	$107,939	$ 702,125	$ 35,106	$ 35,106	$ 631,912	$ 5,255	$ 5,255	$ 43,426	$ 124,148
0023914	ELK MOUND WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$623,376	$26,343	$ 667,647	$ 33,382	$ 33,382	$ 600,882	$ 4,997	$ 4,997	$ 41,294	$ 118,052
0031313	BETHEL CENTER WWTF	Wisconsin River (upper)	Wood	$601,947	$7,041	$ 644,696	$ 32,235	$ 32,235	$ 580,227	$ 4,825	$ 4,825	$ 39,874	$ 113,994
0020508	NICHOLS WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$595,310	$14,867	$ 637,587	$ 31,879	$ 31,879	$ 573,829	$ 4,772	$ 4,772	$ 39,434	$ 112,737
0036749	BOAZ WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Richland	$545,309	$11,127	$ 584,035	$ 29,202	$ 29,202	$ 525,632	$ 4,371	$ 4,371	$ 36,122	$ 103,268
0036447	LIME RIDGE WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Sauk	$545,309	$8,041	$ 584,035	$ 29,202	$ 29,202	$ 525,632	$ 4,371	$ 4,371	$ 36,122	$ 103,268
0021296	RIDGELAND WASTEWATER TREATMENT PLANT	Chippewa River (lower)	Dunn	$524,345	$10,744	$ 561,583	$ 28,079	$ 28,079	$ 505,425	$ 4,203	$ 4,203	$ 34,734	$ 99,298
0023698	DALLAS VILLAGE OF	Chippewa River (lower)	Barron	$487,591	$15,921	$ 522,218	$ 26,111	$ 26,111	$ 469,996	$ 3,908	$ 3,908	$ 32,299	$ 92,337
0022861	OCONTO UTILITY COMMISSION WWTF	Oconto River	Oconto	$476,813	$75,531	$ 510,675	$ 25,534	$ 25,534	$ 459,607	$ 3,822	$ 3,822	$ 31,585	$ 90,296
0022837	LAKELAND SANITARY DISTRICT	Wisconsin River (upper)	Oneida	$472,969	$44,496	$ 506,558	$ 25,328	$ 25,328	$ 455,902	$ 3,791	$ 3,791	$ 31,330	$ 89,568
0035718	CHELSEA SANITARY DISTRICT	Black River	Taylor	$460,931	$3,279	$ 493,665	$ 24,683	$ 24,683	$ 444,299	$ 3,695	$ 3,695	$ 30,533	$ 87,289
0021636	WHITING WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Portage	$448,497	$50,585	$ 480,349	$ 24,017	$ 24,017	$ 432,314	$ 3,595	$ 3,595	$ 29,709	$ 84,934
0022870	OCONTO FALLS WASTEWATER TREATMENT FACILITY	Oconto River	Oconto	$432,409	$53,197	$ 463,118	$ 23,156	$ 23,156	$ 416,806	$ 3,466	$ 3,466	$ 28,644	$ 81,887
0024627	MARSHALL WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dane	$415,619	$50,850	$ 445,136	$ 22,257	$ 22,257	$ 400,622	$ 3,331	$ 3,331	$ 27,531	$ 78,708
0032522	CONRATH VILLAGE OF	Chippewa River (upper)	Rusk	$403,366	$4,405	$ 432,012	$ 21,601	$ 21,601	$ 388,811	$ 3,233	$ 3,233	$ 26,720	$ 76,387
0022004	EAGLE RIVER CITY OF	Wisconsin River (upper)	Vilas	$396,947	$64,584	$ 425,138	$ 21,257	$ 21,257	$ 382,624	$ 3,182	$ 3,182	$ 26,295	$ 75,172
0020923	WEYAUWEGA WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$393,677	$61,518	$ 421,636	$ 21,082	$ 21,082	$ 379,472	$ 3,156	$ 3,156	$ 26,078	$ 74,553
0022896	HORTONVILLE WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$390,745	$37,480	$ 418,495	$ 20,925	$ 20,925	$ 376,646	$ 3,132	$ 3,132	$ 25,884	$ 73,997
0022110	BOSCOBEL WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Grant	$381,040	$43,035	$ 408,100	$ 20,405	$ 20,405	$ 367,290	$ 3,054	$ 3,054	$ 25,241	$ 72,159
0020842	FREEDOM SANITARY DISTRICT NO 1	Duck Creek	Outagamie	$351,762	$40,628	$ 376,743	$ 18,837	$ 18,837	$ 339,069	$ 2,820	$ 2,820	$ 23,301	$ 66,615
0022071	SISTER BAY WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$332,975	$35,281	$ 356,622	$ 17,831	$ 17,831	$ 320,960	$ 2,669	$ 2,669	$ 22,057	$ 63,057
0028444	WITTENBERG WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$320,373	$49,064	$ 343,125	$ 17,156	$ 17,156	$ 308,812	$ 2,568	$ 2,568	$ 21,222	$ 60,670
0022675	WASHBURN CITY OF	Lake Superior	Bayfield	$318,989	$38,548	$ 341,643	$ 17,082	$ 17,082	$ 307,479	$ 2,557	$ 2,557	$ 21,130	$ 60,408
0020729	REDGRANITE WASTEWATER TREATMENT FACILITY	Wolf River	Waushara	$317,599	$32,754	$ 340,154	$ 17,008	$ 17,008	$ 306,139	$ 2,546	$ 2,546	$ 21,038	$ 60,145
0035203	FISH CREEK SD1 WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$311,968	$23,212	$ 334,123	$ 16,706	$ 16,706	$ 300,711	$ 2,501	$ 2,501	$ 20,665	$ 59,079

Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0063053	GREATER BAYFIELD WWTP COMMISSION	Lake Superior	Bayfield	$307,187	$24,374	$ 329,003	$ 16,450	$ 16,450	$ 296,102	$ 2,462	$ 2,462	$ 20,349	$ 58,173
0035661	EGG HARBOR WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$281,909	$22,767	$ 301,929	$ 15,096	$ 15,096	$ 271,736	$ 2,260	$ 2,260	$ 18,674	$ 53,386
0030848	CLEVELAND WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$275,997	$28,314	$ 295,598	$ 14,780	$ 14,780	$ 266,038	$ 2,212	$ 2,212	$ 18,283	$ 52,267
0035840	BAILEYS HARBOR WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$260,845	$16,373	$ 279,370	$ 13,968	$ 13,968	$ 251,433	$ 2,091	$ 2,091	$ 17,279	$ 49,398
0031127	SHERWOOD WASTEWATER TREATMENT FACILITY	Manitowoc River	Calumet	$246,494	$35,056	$ 264,000	$ 13,200	$ 13,200	$ 237,600	$ 1,976	$ 1,976	$ 16,328	$ 46,680
0061271	EPHRAIM WASTEWATER TREATMENT FACILITY	Door Peninsula	Door	$221,624	$15,753	$ 237,364	$ 11,868	$ 11,868	$ 213,627	$ 1,776	$ 1,776	$ 14,681	$ 41,970
0022471	WALDO WASTEWATER UTILITY	Sheboygan River	Sheboygan	$183,096	$23,943	$ 196,099	$ 9,805	$ 9,805	$ 176,489	$ 1,468	$ 1,468	$ 12,129	$ 34,674
0022438	WRIGHTSTOWN SANITARY DISTRICT 1	Fox River (lower)	Brown	$169,604	$17,498	$ 181,648	$ 9,082	$ 9,082	$ 163,484	$ 1,359	$ 1,359	$ 11,235	$ 32,119
0026654	SEVASTOPOL SD NO 1 WWTF	Door Peninsula	Door	$162,875	$20,606	$ 174,442	$ 8,722	$ 8,722	$ 156,998	$ 1,306	$ 1,306	$ 10,789	$ 30,844
0021431	PLUM CITY WASTEWATER TREATMENT PLANT	Chippewa River (lower)	Pierce	$143,942	$13,346	$ 154,165	$ 7,708	$ 7,708	$ 138,748	$ 1,154	$ 1,154	$ 9,535	$ 27,259
0036765	EASTMAN WASTEWATER TREATMENT FACILITY	Wisconsin River (lower)	Crawford	$132,097	$6,719	$ 141,478	$ 7,074	$ 7,074	$ 127,331	$ 1,059	$ 1,059	$ 8,750	$ 25,016
0060500	KNAPP WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$118,918	$8,781	$ 127,364	$ 6,368	$ 6,368	$ 114,627	$ 953	$ 953	$ 7,877	$ 22,520
0029271	LOWELL WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$118,918	$8,781	$ 127,364	$ 6,368	$ 6,368	$ 114,627	$ 953	$ 953	$ 7,877	$ 22,520
0023051	LEBANON SD#2 WWTF	Rock River (upper)	Dodge	$116,080	$11,336	$ 124,324	$ 6,216	$ 6,216	$ 111,891	$ 930	$ 930	$ 7,689	$ 21,983
0060607	GREAT LAKES INVESTORS LLC WWTF	Rock River (lower)	Jefferson	$111,670	$6,982	$ 119,600	$ 5,980	$ 5,980	$ 107,640	$ 895	$ 895	$ 7,397	$ 21,147
0031852	AURORA SANITARY DISTRICT # 1	Menominee River	Florence	$103,849	$10,112	$ 111,224	$ 5,561	$ 5,561	$ 100,102	$ 832	$ 832	$ 6,879	$ 19,666
0032531	STEPHENSVILLE SANITARY DISTRICT NO 1	Wolf River	Outagamie	$93,488	$10,112	$ 100,128	$ 5,006	$ 5,006	$ 90,115	$ 749	$ 749	$ 6,193	$ 17,704
0023159	ADAMS WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Adams	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023213	AMHERST WASTEWATER TREATMENT FACILITY	Wolf River	Portage	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0026808	Amnicon Foundation	Lake Superior	Douglas	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0028061	BEAR CREEK WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0061336	BELL SANITARY DISTRICT 1	Lake Superior	Bayfield	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022691	BIRNAMWOOD WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021041	BLACK CREEK WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0028908	Bostwick Mobile Home Park	La Crosse River	La Crosse	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021237	BOWLER WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060330	BOYCEVILLE WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023442	BRANDON WASTEWATER TREATMENT FACILITY	Rock River (upper)	Fond Du Lac	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022136	BROKAW WASTEWATER TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0032492	BUTTE DES MORTS CONSOLIDATED SD 1	Fox River (upper)	Winnebago	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022829	CAROLINE SD 1 WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0061701	CATAWBA KENNAN JOINT SEWAGE COMMISSION	Chippewa River (upper)	Price	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020711	CEDAR GROVE WASTEWATER TRTMNT FACIL	Sheboygan River	Sheboygan	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0025348	CHASEBURG WASTEWATER TREATMENT FAC	Bad Axe River & Coon Creek	Vernon	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023604	CHIPPEWA FALLS WWTP	Chippewa River (lower)	Chippewa	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0032069	CLOVER SANITARY DISTRICT	Lake Superior	Bayfield	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023663	COLFAX WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020958	COON VALLEY WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Vernon	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021300	CORNELL WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Chippewa	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060372	CRIVITZ WASTEWATER TREATMENT FACILITY	Peshtigo River	Marinette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0061263	CROCKETT'S RESORT	Baraboo-Lemonweir	Juneau	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030899	DURAND WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pepin	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023850	EAU CLAIRE WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Eau Claire	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023949	EMBARRASS CLOVERLEAF LAKES SD LAGOON SYSTEM	Wolf River	Waupaca	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0025976	FALL CREEK WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Eau Claire	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020974	FERRYVILLE WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Crawford	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0036021	FONTANA WALWORTH WATER POLLUTION CONT. COMM	Rock River (lower)	Walworth	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029254	FREDERIC VILLAGE OF	St Croix River	Polk	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0026158	FREMONT ORIHULA WOLF RIVER JOINT S C	Wolf River	Waupaca	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0023787	GBMSD - DE PERE	Fox River (lower)	Brown	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022063	GILLETT WASTEWATER TREATMENT FACILITY	Oconto River	Oconto	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029599	GLIDDEN SANITARY DISTRICT	Chippewa River (upper)	Ashland	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029327	GRAND GENEVA RESORT & SPA	Fox River	Walworth	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0035131	GRAND VIEW SANITARY DISTRICT	Lake Superior	Bayfield	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060429	GRANTSBURG VILLAGE OF	St Croix River	Burnett	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022781	GRESHAM WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0024279	HUDSON WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020303	HUSTISFORD WASTEWATER TREATMENT FACILITY	Rock River (upper)	Dodge	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021717	IOLA WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0035874	KOSSUTH SANITARY DISTRICT NO. 2 WWTF	Twin-Kewaunee River	Manitowoc	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021326	LADYSMITH CITY OF	Chippewa River (upper)	Rusk	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0036374	LAKE TOMAHAWK TOWNSHIP SANITARY DISTRICT 1	Wisconsin River (upper)	Oneida	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0049841	LAKEWOOD SANITARY DISTRICT NO 1	Peshtigo River	Oconto	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0028592	LAONA SANITARY DISTRICT #1	Peshtigo River	Forest	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0032361	MAIDEN ROCK WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Pierce	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020869	MANAWA WASTEWATER TREATMENT FACILITY	Wolf River	Waupaca	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0036552	MAPLE GROVE ESTATES SD	La Crosse River	La Crosse	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

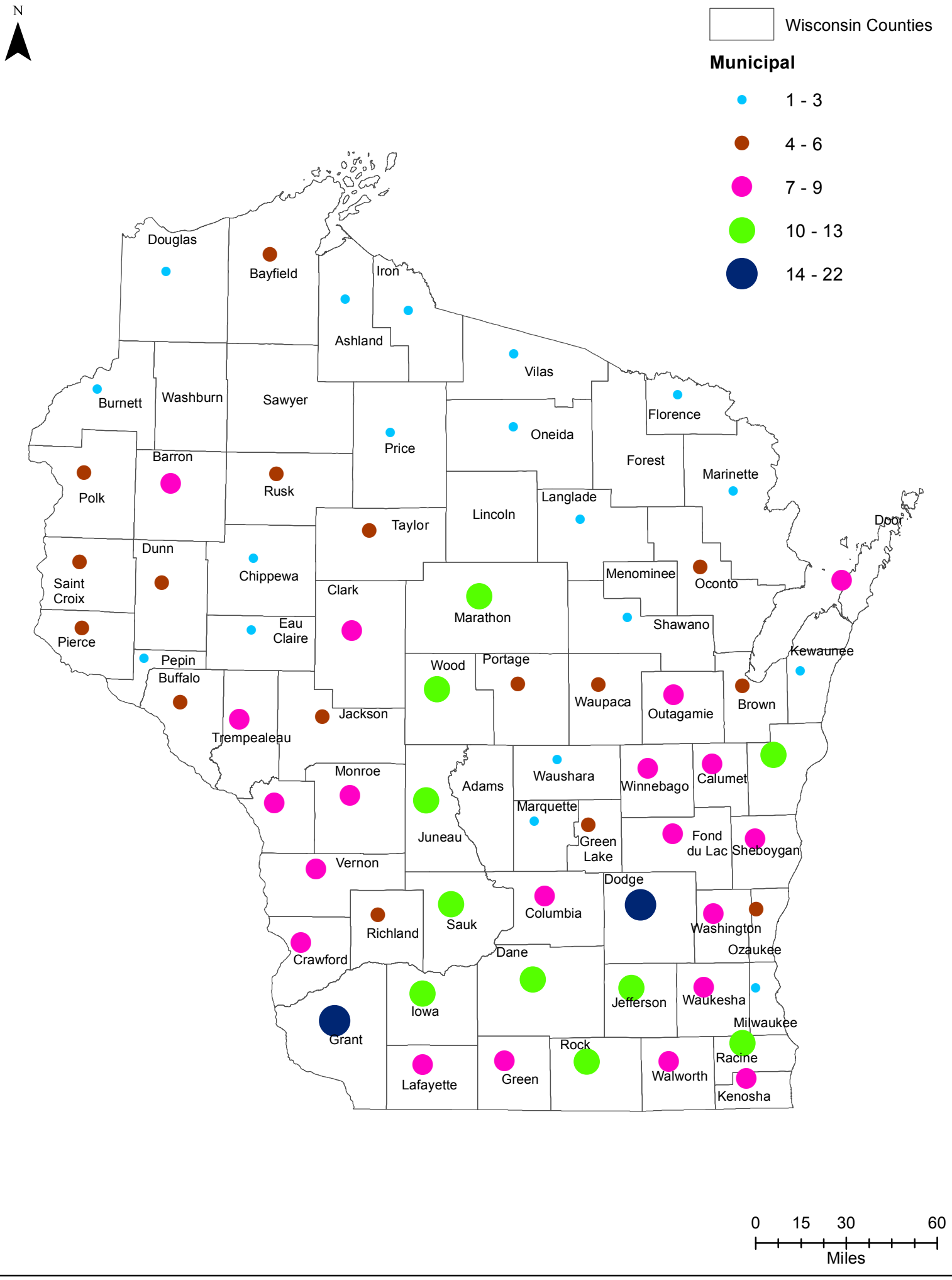
Appendix G
Projected Capital and Financing Cost by Permittee

Permit #	LetterNeededFacility	Basin	County	Capital Cost in 2014	Estimated Annual O&M Cost	2016-2017 Costs	Cash Funded 2016	Cash Funded 2017	To Bond Fund	Estimated Debt Service Payments			Additional Debt Service Plus Cash
										2016 EIF	2017 EIF	2016 OMB	
0026182	MARINETTE WASTEWATER UTILITY	Menominee River	Marinette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020311	MELLEN CITY OF	Lake Superior	Ashland	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020150	MERRILL CITY OF	Wisconsin River (upper)	Lincoln	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022306	MONTREAL CITY OF	Lake Superior	Iron	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060666	NESHKORO WASTEWATER TREATMENT FACILITY	Fox River (upper)	Marquette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029467	NIAGARA WASTEWATER TREATMENT FACILITY	Menominee River	Marinette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022233	OOSTBURG WASTEWATER TREATMENT PLANT	Sheboygan River	Sheboygan	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0025020	OSCEOLA VILLAGE OF	St Croix River	Polk	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0032077	OXFORD WASTEWATER TREATMENT FACILITY	Fox River (upper)	Marquette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029033	PARK FALLS CITY OF	Chippewa River (upper)	Price	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030651	PESHTIGO JOINT WASTEWATER TREATMENT FACILITY	Peshtigo River	Marinette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029050	PHELPS SANITARY DISTRICT #1	Wisconsin River (upper)	Vilas	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030911	Pinewood Properties - Brookview Motor Home Ct	Bad Axe River & Coon Creek	La Crosse	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020427	PORTAGE WASTEWATER TREATMENT FACILITY	Baraboo-Lemonweir	Columbia	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0031691	POY SIPPI SD WASTEWATER TREATMENT FACILITY	Wolf River	Waushara	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021865	RICE LAKE UTILITIES CITY OF	Chippewa River (lower)	Barron	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022802	ROCKLAND SD1 WASTEWATER TREATMENT FACILITY	Manitowoc River	Manitowoc	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029319	RUSSELL SANITARY DISTRICT #1 TOWN OF	Wisconsin River (upper)	Lincoln	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0035866	SCHOOL DISTRICT OF SUPERIOR	Lake Superior	Douglas	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021768	SEYMOUR WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0029718	SHAWANO COUNTY UTILITIES WWTF	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0028100	SHIOCTON WASTEWATER TREATMENT FACILITY	Wolf River	Outagamie	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0061301	SILVER LAKE SANITARY DISTRICT	Fox River (upper)	Waushara	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030252	SOMERSET WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020796	ST CROIX FALLS CITY OF	St Croix River	Polk	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060984	STAR PRAIRIE WASTEWATER TREATMENT FACILITY	St Croix River	St. Croix	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0020877	SURING WASTEWATER TREATMENT FACILITY	Oconto River	Oconto	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022349	TIGERTON WASTEWATER TREATMENT FACILITY	Wolf River	Shawano	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021946	TOMAHAWK CITY OF	Wisconsin River (upper)	Lincoln	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0026000	TONY VILLAGE OF	Chippewa River (upper)	Rusk	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022012	WABENO SANITARY DISTRICT #1	Oconto River	Forest	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0025739	WAUSAU WATER WORKS WW TREATMENT FACILITY	Wisconsin River (upper)	Marathon	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060011	WAUSAUKEE WASTEWATER TREATMENT FACILITY	Menominee River	Marinette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0028843	WEBSTER VILLAGE OF	St Croix River	Burnett	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0061107	WESTBORO SANITARY DISTRICT #1	Chippewa River (upper)	Taylor	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0021792	WESTBY WASTEWATER TREATMENT FACILITY	Bad Axe River & Coon Creek	Vernon	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022250	WESTFIELD WASTEWATER TREATMENT FACILITY	Fox River (upper)	Marquette	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060852	WHEELER WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	Dunn	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0031747	WHITECAP MOUNTAINS SANITARY DISTRICT	Lake Superior	Iron	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0031402	WI DELLS LK DELTON SEWERAGE COMMISSION WWTF	Baraboo-Lemonweir	Columbia	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030449	WI DNR COPPER FALLS STATE PARK	Lake Superior	Ashland	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0030066	WI DOC FLAMBEAU CORRECTIONAL CENTER	Chippewa River (upper)	Sawyer	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0026701	WI DOC LINCOLN HILLS SCHOOL	Wisconsin River (upper)	Lincoln	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0060071	WILD ROSE WASTEWATER TREATMENT FACILITY	Wolf River	Waushara	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0032140	WILSON WASTEWATER TREATMENT FACILITY	Chippewa River (lower)	St. Croix	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
0022357	WRIGHTSTOWN SANITARY DISTRICT 2	Fox River (lower)	Brown	$0	$0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
				$1,597,253,748	$69,374,510	$1,710,687,531	$85,534,377	$ 85,534,377	$ 1,539,618,778	$ 12,802,937	$ 12,802,937	$ 105,805,078	$ 302,479,706

SRF1 DS Costs over 20 YR	$ 256,058,750
SRF2 DS Costs over 20 Yr	$ 256,058,750
OMB DS Costs over 20 Years	$ 2,116,101,564
Total DS Costs	$ 2,628,219,064
Cash funded	$ 171,068,753
Total Cash and DS	$ 2,799,287,817

APPENDIX H

MAP OF AFFECTED SITES BY CATEGORY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Wisconsin Counties
Municipal
1 - 3
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7 - 9
10 - 13
14 - 22
Douglas
Bayfield
Iron
Ashland
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
Barron
Polk
Rusk
Taylor
Lincoln
Langlade
Door
Dunn
Saint Croix
Chippewa
Clark
Marathon
Menominee
Oconto
Pierce
Eau Claire
Shawano
Pepin
Buffalo
Wood
Portage
Kewaunee
Waupaca
Outagamie
Brown
Trempealeau
Jackson
Monroe
Adams
Waushara
Winnebago
Calumet
Juneau
Marquette
Green Lake
Fond du Lac
Sheboygan
Vernon
Dodge
Columbia
Sauk
Richland
Washington
Ozaukee
Crawford
Dane
Iowa
Jefferson
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Milwaukee
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Rock
Racine
Lafayette
Green
Walworth
Kenosha
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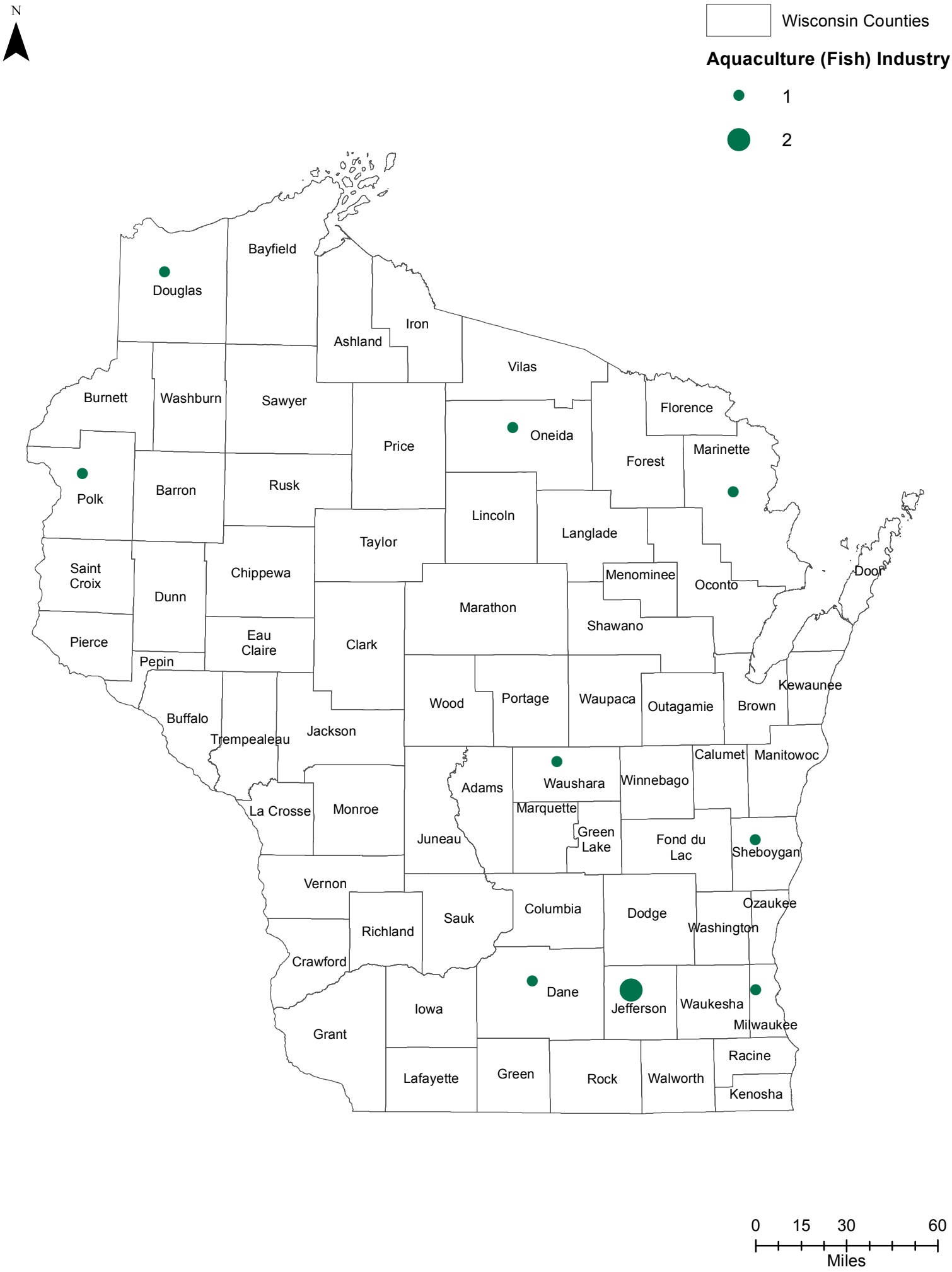
Miles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Aquaculture (Fish) Industry
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Bayfield
Douglas
Iron
Ashland
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
Polk
Barron
Rusk
Lincoln
Langlade
Oconto
Door
Taylor
Saint Croix
Dunn
Chippewa
Menominee
Marathon
Shawano
Pierce
Pepin
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Clark
Kewaunee
Wood
Portage
Waupaca
Outagamie
Brown
Buffalo
Trempealeau
Jackson
Calumet
Manitowoc
Adams
Waushara
Winnebago
La Crosse
Monroe
Marquette
Juneau
Green Lake
Fond du Lac
Sheboygan
Vernon
Columbia
Dodge
Ozaukee
Richland
Sauk
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Crawford
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Lafayette
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Walworth
Kenosha
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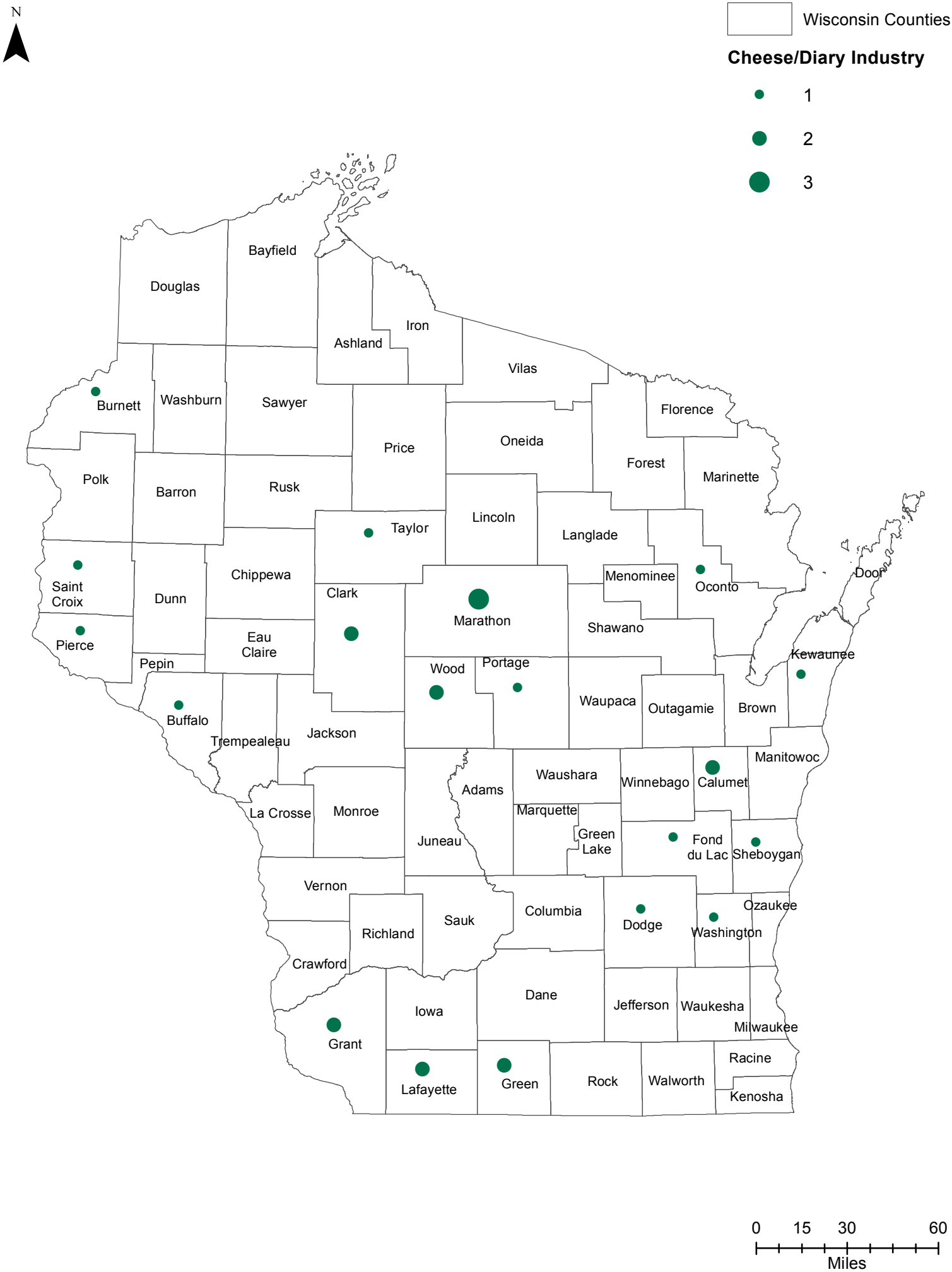
Miles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Wisconsin Counties
Cheese/Diary Industry
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Ashland
Iron
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
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Lincoln
Langlade
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Saint Croix
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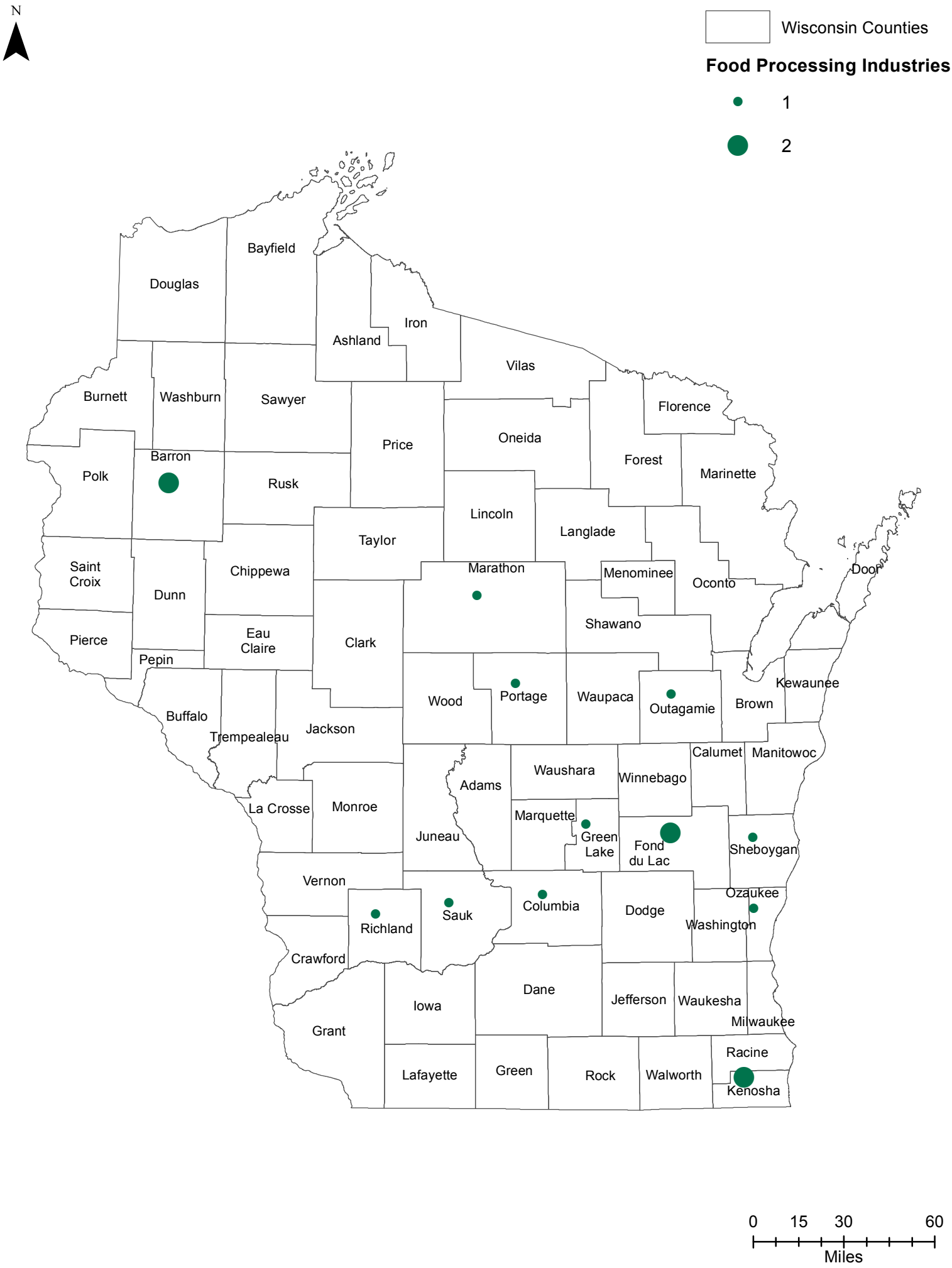
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Food Processing Industries
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Iron
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
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Lincoln
Langlade
Oconto
Door
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Saint Croix
Dunn
Chippewa
Marathon
Menominee
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Kewaunee
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Trempealeau
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Manitowoc
Waushara
Winnebago
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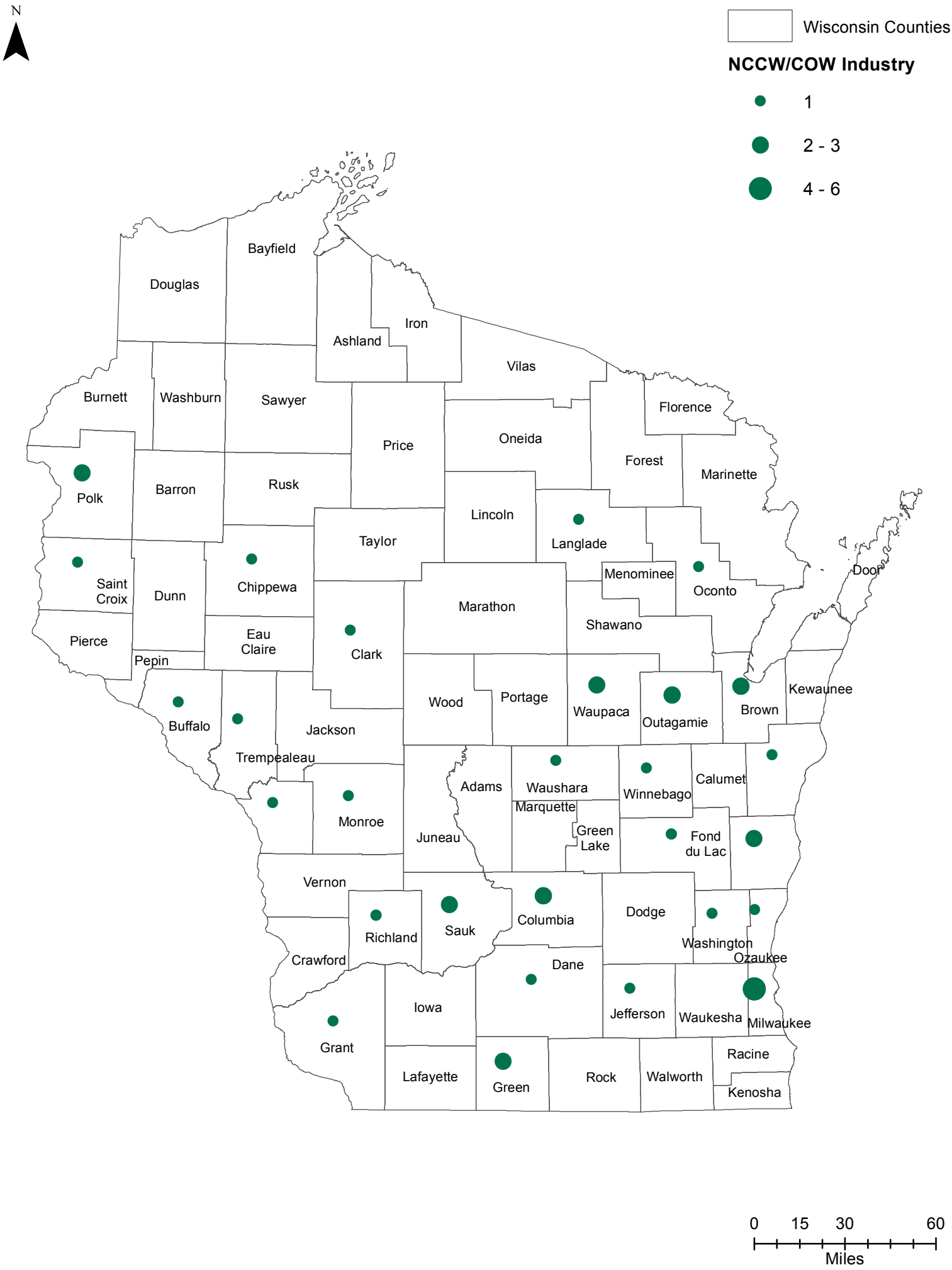
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Iron
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
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Langlade
Taylor
Saint Croix
Dunn
Chippewa
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Kewaunee
Buffalo
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Trempealeau
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Winnebago
Calumet
Marquette
Monroe
Juneau
Green Lake
Fond du Lac
Vernon
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Washington
Ozaukee
Crawford
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Racine
Kenosha
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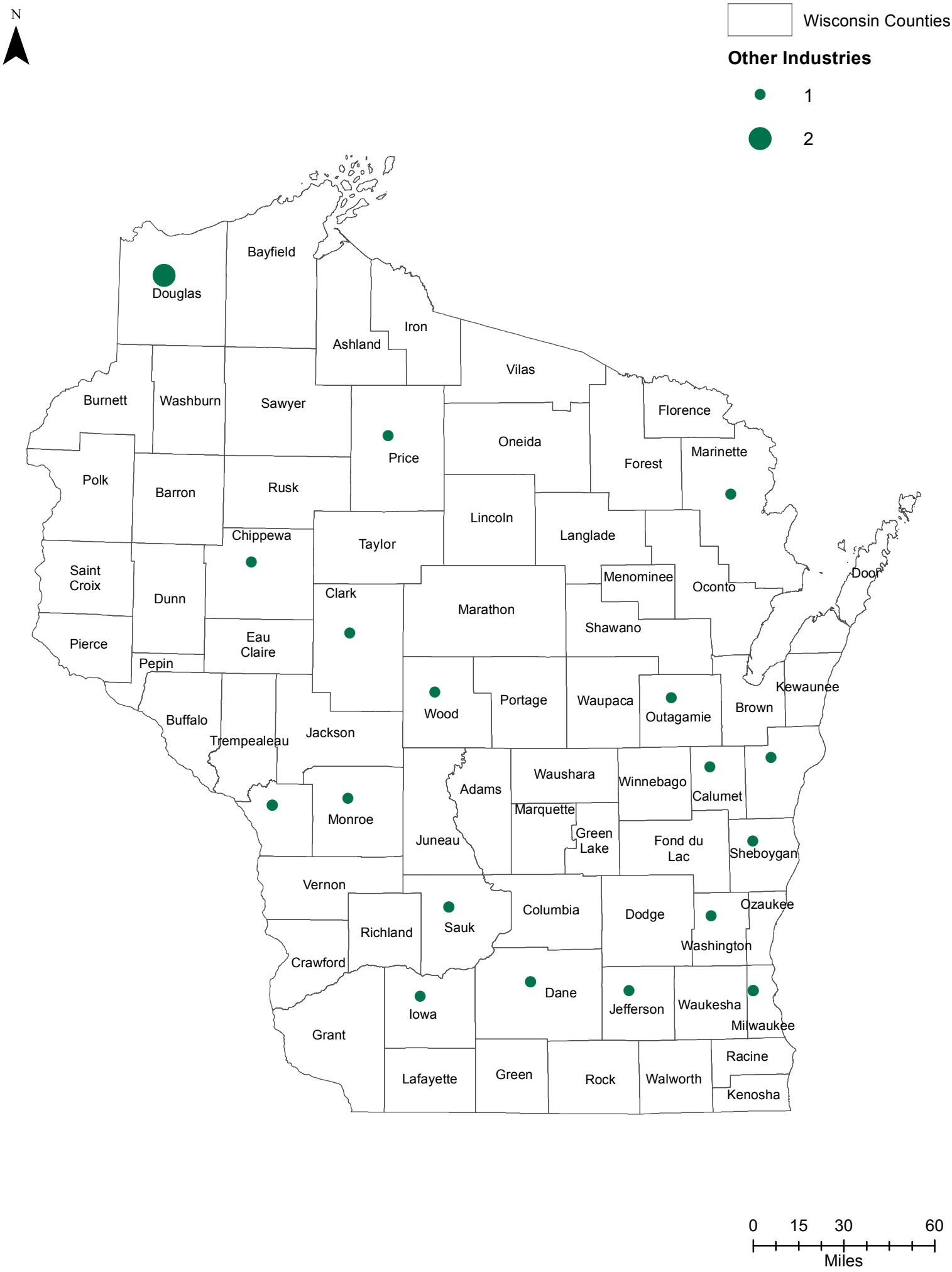
Miles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Bayfield
Ashland
Iron
Vilas
Florence
Burnett
Washburn
Sawyer
Price
Oneida
Forest
Marinette
Polk
Barron
Rusk
Lincoln
Langlade
Oconto
Door
Chippewa
Taylor
Saint Croix
Dunn
Clark
Marathon
Menominee
Shawano
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Fond du Lac
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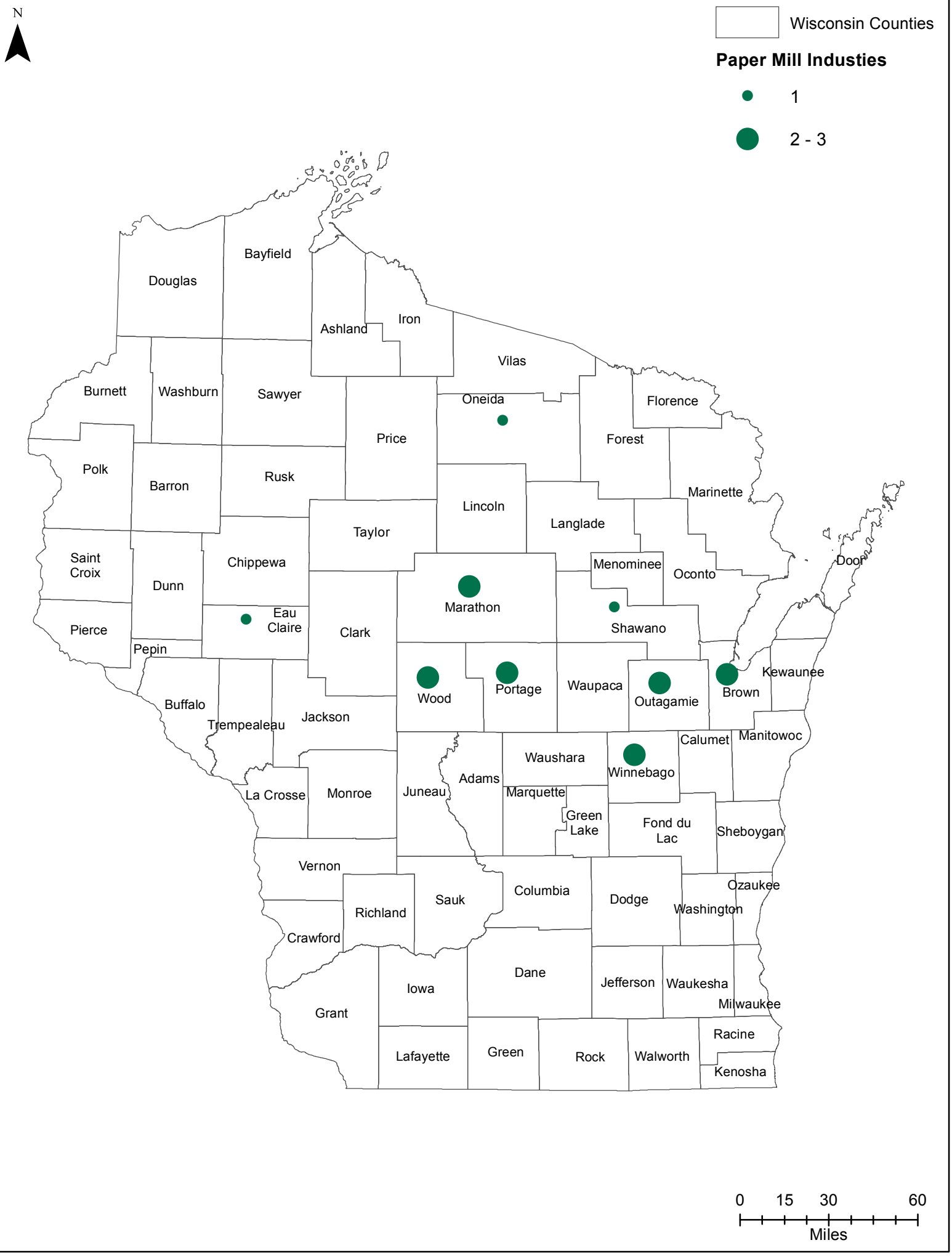
Miles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Paper Mill Industies
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Bayfield
Ashland
Iron
Vilas
Florence
Burnett
Washburn
Sawyer
Oneida
Price
Forest
Polk
Barron
Rusk
Marinette
Lincoln
Langlade
Taylor
Saint Croix
Dunn
Chippewa
Menominee
Oconto
Door
Marathon
Eau Claire
Shawano
Pierce
Pepin
Clark
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Brown
Kewaunee
Buffalo
Trempealeau
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Calumet
Manitowoc
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Winnebago
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Fond du Lac
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Kenosha
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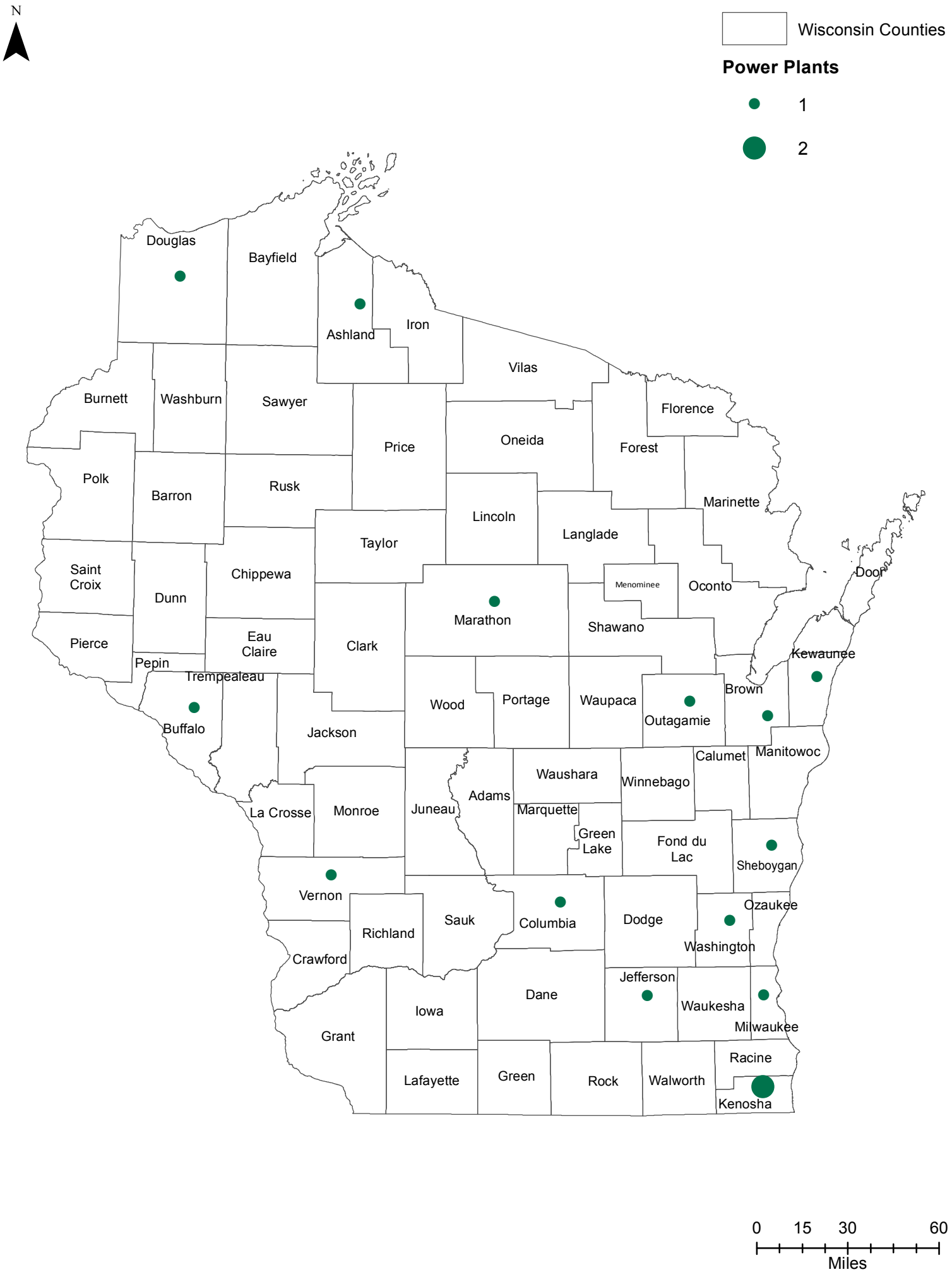
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Wisconsin Counties
Power Plants
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Vilas
Florence
Burnett
Washburn
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Price
Oneida
Forest
Polk
Barron
Rusk
Lincoln
Marinette
Taylor
Langlade
Saint Croix
Dunn
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Door
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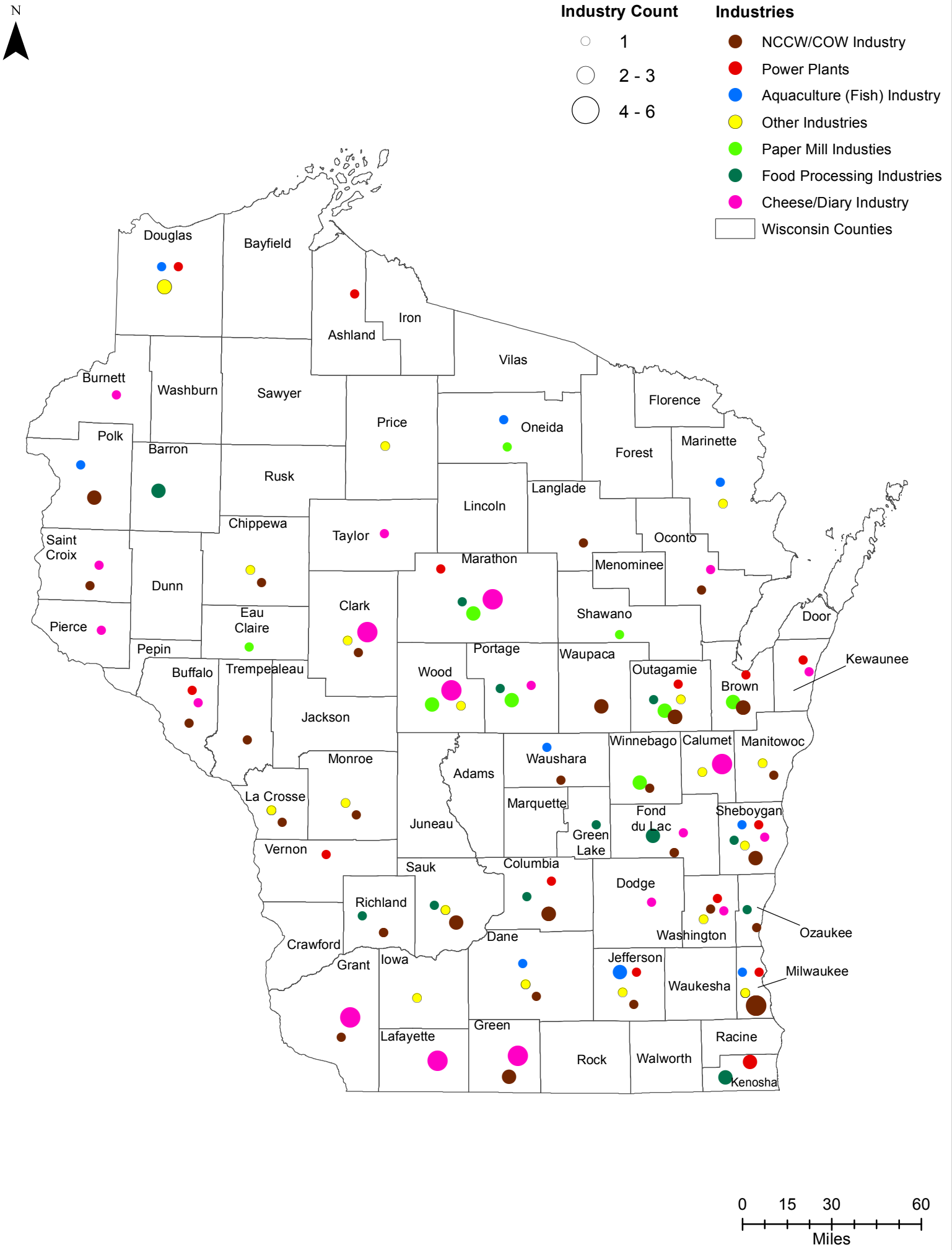
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Industry Count
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4 - 6
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NCCW/COW Industry
Power Plants
Aquaculture (Fish) Industry
Other Industries
Paper Mill Industies
Food Processing Industries
Cheese/Diary Industry
Wisconsin Counties
Douglas
Bayfield
Ashland
Iron
Vilas
Florence
Burnett
Washburn
Sawyer
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Oneida
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Outagamie
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Winnebago
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Ozaukee
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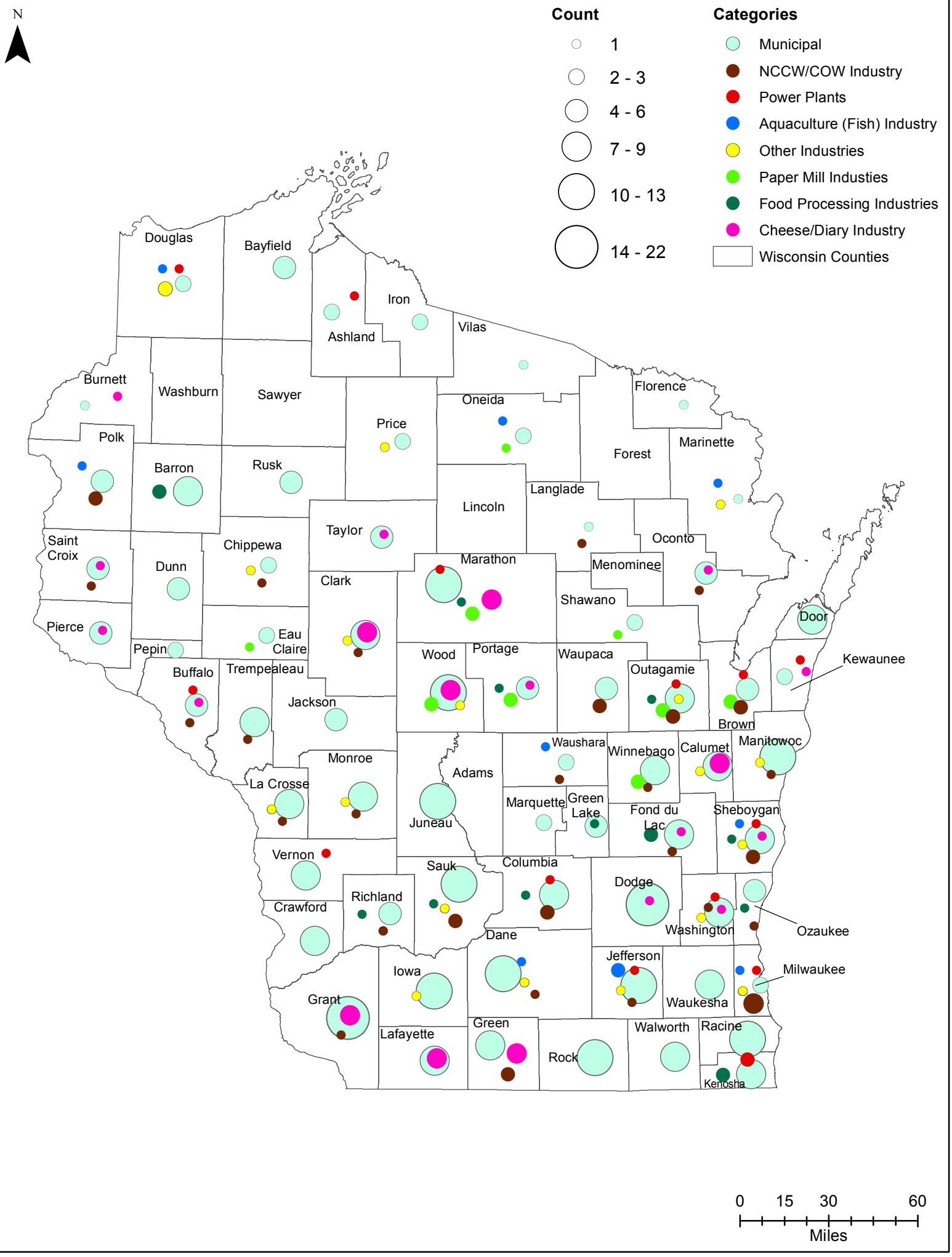
N
Count
1
2 - 3
4 - 6
7 - 9
10 - 13
14 - 22
Categories
Municipal
NCCW/COW Industry
Power Plants
Aquaculture (Fish) Industry
Other Industries
Paper Mill Industies
Food Processing Industries
Cheese/Diary Industry
Wisconsin Counties
Douglas
Bayfield
Iron
Ashland
Vilas
Florence
Burnett
Washburn
Sawyer
Oneida
Price
Forest
Marinette
Polk
Barron
Rusk
Langlade
Lincoln
Taylor
Oconto
Saint Croix
Dunn
Chippewa
Marathon
Menominee
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Shawano
Door
Pierce
Pepin
Eau Claire
Wood
Portage
Waupaca
Outagamie
Kewaunee
Buffalo
Trempealeau
Jackson
Brown
Waushara
Winnebago
Calumet
Manitowoc
Monroe
Adams
La Crosse
Marquette
Green Lake
Fond du Lac
Sheboygan
Juneau
Vernon
Sauk
Columbia
Dodge
Richland
Crawford
Washington
Ozaukee
Dane
Jefferson
Iowa
Milwaukee
Grant
Waukesha
Green
Walworth
Racine
Lafayette
Rock
Kenosha
0
15
30
60
Miles