

HOW TO NAVIGATE THE CIP

2023 - 2027



1.1. KEY FEATURES

PROJECT STATUS DESCRIPTION

To determine a particular project’s progress within the CIP, a status is assigned to each project within the CIP. The project status designation provides a high-level understanding of the progress. Projects are often divided into multiple phases or categories based upon the contract type. As such, each phase of a multi-phase project will have its own status and contract number. Descriptions of each status are provided in Table 1 below. Projects that have been newly introduced into the CIP this year have been designed as “New to the CIP” based upon a checkmark within the Business Case Evaluation.

Table 1. Project Status Descriptions

PROJECT STATUS	DESCRIPTION
Future Planned – Within 5 Year Plan	The project is planned to begin within the 5 Year CIP Plan.
Future Planned – Ten-Year CIP	The project is planned to begin within the 10 Year CIP Outlook.
Active – Pre-Procurement – Design	A scope of work or RFP is being developed.
Active – Procurement – Design	Out for Solicitation of Bids.
Active – Procurement – Negotiation Phase – Design	The intended Consultant has been selected and is in negotiations.
Active – Procurement – Board Approved – Design	A project over \$1,000,000 requires Board Approval to execute the contract.
Project Execution – Design	The project’s contract has been executed.
Active – Pre-Procurement – Construction	A scope of work or RFB is being developed.
Active – Procurement – Construction	Solicitation of Bids is underway.

Active – Procurement – Negotiation Phase – Construction	The intended low bid Contractor has been selected and is in negotiations.
Active – Procurement – Board Approved – Construction	A project over \$1,000,000 requires Board Approval to execute the contract.
Project Execution – Construction	The project’s contract has been executed.
Pending Close-out	Project that has an assigned BS&A Project Number, a Notice to Start Work has been issued, has projected expenditures for the current fiscal year equal to \$100,000 or less - with no future projected expenditures and has reached substantial completion.
Closed	Project that has been officially completed.
Reclassified	Project that has been merged into the scope of work of an existing project.
Cancelled	Project that has been completely cancelled and removed from the CIP.

PHASE CATEGORIES

Projects are broken up into several phases related to how the project will be delivered and managed. Categories may be grouped to align with work to be performed within each individual phase. Individual categories are identified and named below. Several categories may exist for each phase In this case, the assumption is the same vendor, under one contract, will be performing multiple categories of the overall project. The current project categories are identified below.

- S Study
- D Design
- C Construction
- CA Construction Assistance
- DB Design and Build
- DBA Design Build Assistance
- CM Construction Management
- PM Project Management
- TBD To Be Determined

CIP TYPES

CIP types are necessary to distinguish the differences in intent of how a CIP item is to be used. This CIP contains two primary CIP types: Projects and Programs. A typical project that has a specific scope and timeframe is considered a project. Whereas programs do not have specifically developed scopes and typically extend over many years. Last year there was an additional CIP type,. Table 2 defines each CI

newly established programs develop consistent schedules, requirements and history over time. Although not typically identified in the CIP future years projected expenses, these programs will typically be funded in perpetuity.

1.2. REPORT FORMAT

The 2023-2027 CIP format maintains the consistent layout of the 2022-2026 CIP document .

VARYING DEGREES OF PROJECT DETAIL

Within the document, projects and programs are portrayed in varying degrees of detail that should meet the needs of most readers. Projects can be viewed in the basic line item format that provides general information about the project and the projected expenditures. Within this format, projects have been rolled up by their major category of Water, Wastewater and Centralized Services, and totals are provided. Projects have also been identified separately within each category to provide the reader more information on the type and amount of each project within a specific service area. One-page summaries of each project gives the reader more detail of the project phases, purpose, scope of work and potential challenges. Finally, for greater detail on each project, the BCE documents are provided in Appendix A, B and C.

REVISED PROJECT CATEGORIES & NUMBERING

The revised categorization methodology and numbering and sequencing of CIP projects and programs introduced in the 2018-2022 CIP is continued in the 2023-2027 CIP. The project characterization is extremely beneficial to align CIP project budgets by managing business area cost centers. In addition, these directly align with costs centers in the operating budget within GLWA’s financial system.

As in the FY 2019-2023 CIP, projects within programs are assigned a CIP number within that program This is required within the BS&A Financial system to accurately track and report expenses incurred. In the FY 2023-2027 CIP, these project “carve outs” are identified as individual projects under the programs.

This numbering is based on the “smart” numbering system as identified In Table 3 on the following page.

GENERAL PURPOSE

The General Purpose category within Project Category 2 and Project Category 3 in Table 3 are necessary to identify projects that cross over multiple project categories. Projects that are not specifically attributed to one particular area will be identified here.

PROGRAMS

Programs consist of the replacement and/or rehabilitation of specific capital asset(s) on an ongoing or reoccurring basis. The program scope and/or projected expenses may vary from year-to-year, depending on the needs identified within the program. Although not typically identified in the CIP future years projected expenses, these programs will typically be funded in perpetuity. The numbering structure of the “Program” category is slightly different i to allow up to 99 separate

Table 2. CIP Types

CIP TYPE	DESCRIPTION
Project	A "Project" consists of the replacement and/or rehabilitation of specific capital assets within a finite timeframe and scope.
Program	A "Program" consists of the replacement and/or rehabilitation of specific capital assets on an ongoing or reoccurring basis. The program scope and/or projected expenses may vary from year-to-year depending on the needs identified within the program and as

projects to be attributable to each program. These projects identified under a parent program will be issued a CIP number and will be identified as a project under the parent program.

Table 3. Capital Project/General Ledger Account Numbering Protocol - Six Numeric Digits (4th Segment of GL String)

DIGIT 1	DIGIT 1 + DIGIT 2	DIGIT 1 + DIGIT 2 + DIGIT 3 (+ DIGIT 4)	DIGITS 4 - 6 / DIGITS 5 - 6	
PROJECT CATEGORY 1	PROJECT CATEGORY 2	PROJECT CATEGORY 3	NUMBER 000-999 / NUMBER 00-99	
1XX - Water	11X - Water Treatment Plants & Facilities	111 - Lake Huron		
		112 - Northeast		
		113 - Southwest		
		114 - Springwells		
		115 - Water Works Park		
		116 - General Purpose		
		12X - Field Services	121 - General Purpose	
			122 - Transmission System	
		13X - Systems Control Center	131 - General Purpose	
			132 - Pump Stations & Reservoirs	
		14X - Water Quality	141 - General Purpose	
		15X - Metering	151 - General Purpose	
		16X - General Purpose	161 - General Purpose	
17X - Programs	1701 - Programs			
2XX - Wastewater	21X - Water Resource Recovery Facility	211 - Primary Treatment		
		212 - Secondary Treatment & Disinfection		
		213 - Residuals Management		
		214 - Industrial Waste Control		
		215 - CSO RTB & SDF		
		216 - General Purpose		
		22X - Field Services	221 - General Purpose	
			222 - Interceptor	
		23X - Systems Control Center	231 - General Purpose	
			232 - Pump Stations	



233 - In System Devices (Dams, ISD's)

24X - Metering	241 - General Purpose
25X - General Purpose	251 - General Purpose
26X - Programs	2601 - Programs
27X - CSO Facilities	270 - Multiple CSO facilities
	271 - Puritan Fenkell
	272 - Seven Mile
	273 - Hubbell Southfield
	274 - Leib
	275 - St. Aubin
	276 - Conner Creek
	277 - Baby Creek
	278 - Oakwood
	279 - Belle Isle
3XX - Central Services	311 - General Purpose
31X - Information Technology	312 - Service Desk
	313 - Infrastructure
	314 - Enterprise Applications
	315 - Business Applications
	316 - Security
	317 - Project Management Office
32X - Fleet	321 - General Purpose
33X - Facilities	331 - General Purpose
34X - Security	341 - General Purpose
35X - Energy Management	351 - General Purpose
36X - Engineering	361 - General Purpose
37X - General Purpose	371 - General Purpose
38X - Programs	3801 - Programs

CIP AND BUSINESS UNIT OVERVIEW

To understand the full extent of the Water and Wastewater Systems under the responsibility of GLWA, sections are included to provide an overview of the services provided and infrastructure maintained within each category. While the information is not all-inclusive, it does contain a substantial amount of reference information that will help the reader familiarize themselves with the capital assets and responsibilities of each business unit. As the CIP document evolves annually, these sections will be continuously updated to provide a great source of reference material related to the GLWA infrastructure.

PROJECT RISK MATRIX

Project risks are identified specifically related to their Probability of Failure (PoF) and Consequence of Failure (CoF) and portrayed on an overall Risk Matrix. The overall criteria remain unchanged, however, to show each project on the risk matrix, the eight criteria used in the project prioritization framework are designated as either a PoF or CoF primary risk driver. The designation of PoF and CoF to each criterion as primary risk driver is shown in Table 4.

After each criterion is scored for each project, the weighted PoF and CoF factors have been calculated. This provides a 1 to 5 vertical axis value for probability of failure and a 1 to 5 horizontal axis value for the consequence of failure. This point is plotted with the other projects to show its relative position compared to others within the matrix. A sample of the matrix is shown in Figure 1.

This provides the varying audiences additional information related to the overall project risk as it relates to its consequence and probability of failure.

Table 4. Risk Criteria.

	Criteria	Primary Risk Driver
1	Condition	Probability
2	Performance (Service Level / Reliability)	Probability
3	Regulatory (Environmental/Legal)	Consequence
4	O&M	Probability
5	Public Health & Safety	Consequence
6	Public Benefit	Consequence
7	Financial	Consequence
8	Efficiency & Innovation	Consequence

RISK MATRIX

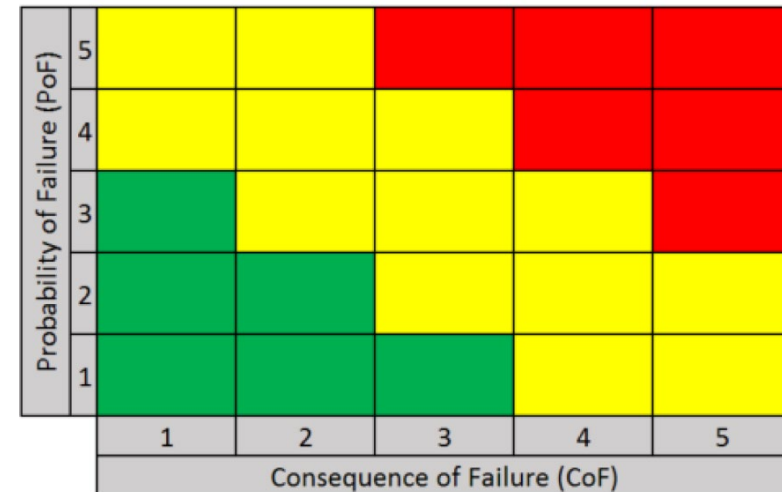


Figure 1. Risk Matrix.

COST ESTIMATION CLASSIFICATIONS

This cost estimate rating gives the reader an idea of whether the cost estimate is a ballpark-level estimate, generally for work projected in the out years, or a higher-confidence estimate, such as for work projected to start sooner or already under contract.

GLWA has adopted the American Association of Cost Engineering (AACE) International system for classifying cost estimates. This standardized method for classifying project phases will be very beneficial in managing expectations related to the accuracy of the associated procurement contracts.

Table 5. AACE Cost Estimate Classes

ESTIMATE CLASS	PROJECT DEFINITION	END USAGE	METHOD	AVERAGE EXPECTED ACCURACY RANGE	
Class 5	0% to 2%	Screening or feasibility	Judgement, trend analysis, parametric	120%	-60%
Class 4	1% to 15%	Concept study or feasibility	More parametric, expert opinion, trend analysis	85%	-43%
Class 3	10% to 40%	Budget authorization or control	Combinations (detailed, unit cost, activity-based + class 4 & 5 methods)	40%	-20%
Class 2	30% to 70%	Control or bid/tender	Primarily deterministic	20%	-10%
Class 1	50% to 100%	Check estimate or bid/tender	Deterministic	10%	-5%

INNOVATION, MASTER PLAN, REDUNDANCY & NE WTP RELATED PROJECTS

Several areas of interest have been identified and can be seen in Chapter 2. These areas are:

- **Innovation:** Projects that may have a possibility at utilizing an innovative solution or process.
- **Master Plan:** Projects that have incorporated the 2015 Water Master Plan recommendations to “Right-Size” infrastructure to allow for future capital cost avoidance by derating the water supply system.
- **Redundancy:** Projects that have a direct impact to improving system redundancy.
- **NE WTP Repurposing:** Projects necessary to meet the 2015 Water Master Plan recommendations to repurpose the Northeast Water Treatment Plant to allow for future capital cost avoidance.

PROGRAM PROJECTS

Projects that were performed under programs were identified by the CIP group and issued a CIP number. These projects have been derived from the outcome of their parent program. The CIP number associated with these projects is numerically relevant to the parent CIP number. To better portray this relationship in the CIP, these projects are identified as projects under the parent CIP program.

PROJECT YEAR-TO-YEAR COMPARISON

To compare a project’s projected expenses from one year to the next, comparison tables have been included in each project summary and BCE.

This also allows the reader to identify how the project schedule may have changed from year-to-year. Project Managers’ and Engineers’ description of the change is typically also included at the project level.

Total Project Expenses (in \$1,000s) Comparison to Prior Year CIP

CIP Version	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
2018			1,000	3,000	1,600				0	5,600
2019	0		251	3,919	1,187	0	0	0	0	5,357

Description of CIP Changes: moved construction start to FY2019, added GLWA costs, changed project delivery from DBB to DB

PROJECT SCHEDULE

A significant benefit for stakeholders associated with GLWA’s CIP process is related to the information provided for project scheduling. Starting with the 2019 CIP, most projects have been scheduled to show the high-level tasks of Scope Development, Procurement, Project Execution and Project Closeout. This information is beneficial to GLWA’s Procurement Group to determine overall procurement needs and resources, as well as, for the engineering work areas to manage project delivery. Finally, this schedule provides the vendor community with an estimate of timing related to projects they may be interested in pursuing.

Phase Tasks and Dates

Phase Category	Design and Build			
Budget	Task Name	Start Date	Duration	End Date
Water	Scope Development	1/22/2018	100	5/2/2018
Future Planned Start	Procurement	7/1/2018	220	2/6/2019
NA	Project Execution	2/6/2019	750	2/25/2021
	Project Closeout	2/25/2021	90	5/26/2021