

CIP Project Scoring Methodology Overview

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AGENDA



- Key Takeaways
- Project Scoring –What, Why, and When
- Project Scoring Evaluation
- Recap and Questions

SCORING KEY TAKEAWAYS



- For consistency in project ranking, we use industry standard criteria and weighting to assign a numerical prioritization value to each project.
- All projects included the CIP are important regardless of the prioritization. The prioritization provides general comparison between projects, but other factors contribute to the project timing.
- Striving for continuous improvement – It's an evolving process! (Evaluate, Improve, and Implement)



CIP SCORING METHODOLOGY



CIP Delivery Team

- **Why Score Projects:**
 - To compare and prioritize projects to other similar projects of the same project type within the Capital Improvements Plan/Program (CIP).
- **Why Update Scoring Methodology:**
 - Every process should be evaluated periodically to verify its effectiveness and to determine if the intent is being met.
- **Goal:**
 - Consider appropriate revisions that would improve the prioritization of projects to better align project scoring with the purpose and need of the projects.

GLWA
Great Lakes Water Authority

Page 1
CIP Number: 222002

Project Title: Detroit River Interceptor (DRI) Evaluation and Rehabilitation

Project Status: Project Execution - Construction
Class Lvl 1: Wastewater
Class Lvl 2: Field Services
Class Lvl 3: Interceptor
Lookup Location: Detroit River Interceptor
 Project New to CIP:

Innovation
 WW Master Plan
 Water Master Plan Right Sizing
 Redundancy
 NE WTP Repurposing
 Linear Assets Outside of Facilities
 Predecessor Project(s)


DRI Shaft Construction

Project Engineer/Manager: Mini Panicker
Director: Todd King

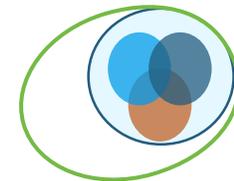
Project Score
65.4

Problem Statement:
Evaluation of the existing condition of the Detroit River Interceptor (DRI), and rehabilitation/replacement of portions based on the evaluation results are essential to optimize the transportation capacity of the GLWA collection system and to increase its service life.

Scope of Work/Project Alternatives:
Preliminary Scope of Work of the Project is as follows: Review the existing records, investigate cleaning/rehabilitation/replacement to optimize the design capacity of the collection system and to minimize the inflow and infiltration into the collection system.

Other Important Info:
Challenges: DRI may have flow control challenges for both inspection and rehabilitation. Recommendations from these inspections may reveal further need for cleaning, rehabilitation or replacement.
Project History: The installation of some of the GLWA interceptors and sewers are dated back to 1912 under various contracts. Detroit River Interceptor inspection was completed in 5 different phases and there were portions deteriorated with visible surface corrosion, cracked concrete and:

PROJECT SCORING- STEPS



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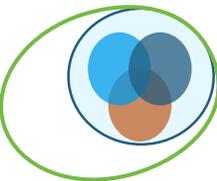


- Project Manager-Score/Rescore
 - New projects
 - Future planned projects
 - Active projects (procurement)
 - Project execution-design & Project Delivery Method = DBB
 - Projects from programs
- Legacy Score
 - Projects status – Execution Construction
 - Project status- Execution closeout
 - Project Execution Design & Project Delivery Method = CMAR, DB, or PDB

CMAR – Construction Manager At Risk | **DB** – Design Build | **DBB** – Design – Bid – Build | **PDB** – Progressive Design Build

CIP SCORING METHODOLOGY

Criteria and Weights

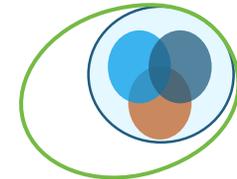


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#	CRITERIA	DESCRIPTION	SCORE	WEIGHT
1	Condition	Physical Condition as an indicator of probability of failure	1-5	12%
2	Performance Service (Level/Responsibility)	Ability to meet operational requirements	1-5	15%
3	Regulatory (Environmental/Legal)	Evaluates consequence of non-compliance	1-5	18%
4	Operations and Maintenance (O&M)	Evaluates impacts to overall O&M	1-5	11%
5	Health and Safety	Evaluates impacts to health and safety on the public and staff	1-5	18%
6	Public Benefit	Evaluates benefits to the public of completing the project	1-5	8%
7	Financial	Evaluates financial benefits of implementing the project	1-5	10%
8	Efficiency and Innovation	Addresses utilization of new technologies	1-5	8%

CIP SCORING METHODOLOGY

Scoring Reference Documentation



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Capital Improvement Project (CIP) Scoring Quick Reference (pg 1/2)

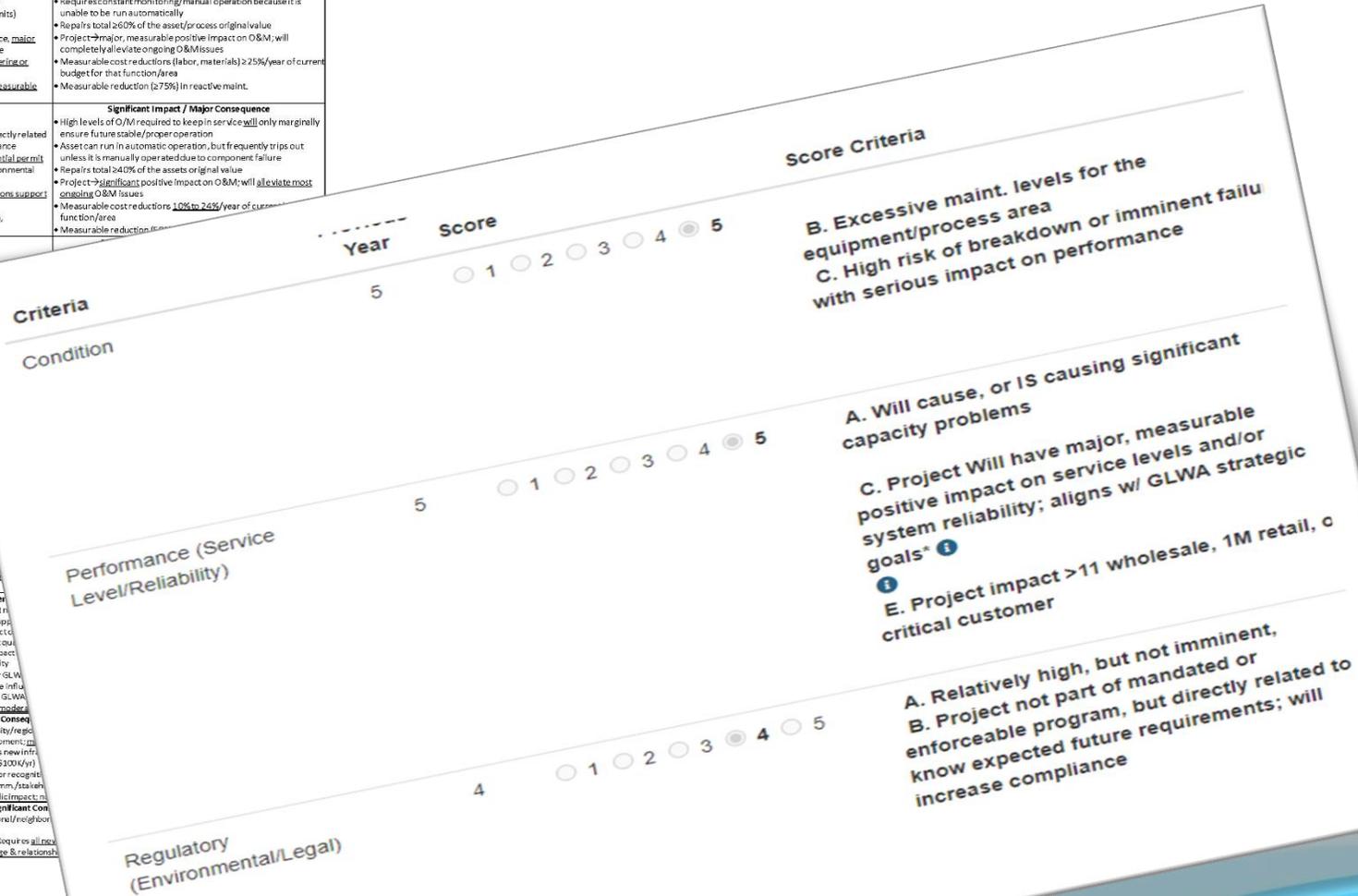
Score	1-Condition	2-Performance (Service Level/Reliability)	3-Regulatory (Environmental/Legal)	4-O&M
5	Very Poor • Asset has exceeded its design service life • Excessive maint. levels for the equipment/process area • High risk of breakdown or imminent failure with serious impact on performance • Immediate replacement or rehabilitation required • Could initiate immediate funding request/b/c "Urgent Necessity" in near term • Replace or major rehab needed immediately	Very Poor • Will cause, or is causing significant capacity problems • Current performance unacceptable, does not meet current requirements/demands; equipment obsolete/extremely difficult to maintain or find spare parts/repair service; Asset/process OOS 50% or more of the time; Recurring expected failures • Project will have major, measurable positive impact on service levels and/or system reliability; aligns w/ GLWA strategic goals* • Cancelling project → significant, persistent, ongoing service interruption and/or reliability issues† • Project impact > 11 wholesale, 1M retail, or critical customer • No redundancy or feasible temporary options	Major Impact or Catastrophic Consequence • Imminent risk of causing Permits/reg. violations; Legal obligation; Unregulated discharges; Health risks to staff/public • Project part of a mandated or otherwise enforceable program • Major positive regulatory/compliance impact (ISO, permits) • Numerous historical evidence of permit/regulatory violations • Deferring/canceling project → immediate risk of non-compliance; major permit violations; regulatory scrutiny; sig. measurable negative environmental impact on a regional or statewide level w/ lingering or permanent/irreversible impact on wider ecosystem • Compliance failure → significant fines, enforcement actions, measurable environmental impact	Major Impact / Catastrophic Consequence • Unsustainable levels of O/M required to keep in service that will still not ensure future stable/proper operation • Requires constant monitoring/manual operation because it is unable to be run automatically • Repairs total 250% of the asset/process original value • Project → major, measurable positive impact on O&M; will completely alleviate ongoing O&M issues • Measurable cost reductions (labor, materials) ≥ 25%/year of current budget for that function/area • Measurable reduction (≥ 75%) in reactive maint.
4	Poor • Asset has < 25% of its design service life remaining • Equipment/process functions but requires high level of maintenance to remain operational • Shows abnormal wear and is likely to cause significant performance deterioration in the near term • Replacement or major rehab needed in the short term	Poor • Expected performance failures under normal conditions • High risk of performance failure; doesn't meet future requirements • Equipment/process OOS 25% to 50% of the time • Project will have a significant positive impact on service levels and/or system reliability; related to GLWA strategic goals* • Not doing the project → frequent and repetitive service interruption and/or reliability issues† • Likelihood of serious inconveniences and business impacts for affected customers; impact < 10 wholesale, 100K retail, critical customers • Limited redundancy	Significant Impact or Major Consequence • Relatively high, but not imminent, risk of score 5 bullet 1 • Project not part of mandated or enforceable program, but directly related to known/expected future requirements; will increase compliance • Cancelling project → risk of non-compliance in near term; potential permit violations; regulatory scrutiny; sig. measurable negative environmental impact to wide area • Some historical evidence of permit/regulatory/contract violations support the decision • Reg compliance failure → moderate fines, enforcement actions, environmental impact	Significant Impact / Major Consequence • High levels of O/M required to keep in service will only marginally ensure future stable/proper operation • Asset can run in automatic operation, but frequently trips out unless it is manually operated due to component failure • Repairs total 340% of the assets original value • Project → significant positive impact on O&M; will alleviate most ongoing O&M issues • Measurable cost reductions 10% to 24%/year of current budget for that function/area • Measurable reduction (≥ 75%) in reactive maint.
3	Moderate • Asset has < 50% of its design service life remaining • Functionally sound and acceptable; signs of normal wear • May have minor failures or diminished efficiency; some performance deterioration • Moderate renewal or rehab needed in short term	Moderate • Generally meets design needs; moderate risk of next failure • Performance acceptable • Equipment/process is out to • Project → moderate positive impact on service levels and/or system reliability; related to GLWA strategic goals* • Some likelihood for notices re retail, but no critical customer • Low redundancy in the area	Moderate Impact or Moderate Consequence • Moderate risk of causing score 5 bullet 1	Moderate Impact / Moderate Consequence • High levels of O/M required to keep in service will only marginally ensure future stable/proper operation • Asset can run in automatic operation, but frequently trips out unless it is manually operated due to component failure • Repairs total 340% of the assets original value • Project → significant positive impact on O&M; will alleviate most ongoing O&M issues • Measurable cost reductions 10% to 24%/year of current budget for that function/area • Measurable reduction (≥ 75%) in reactive maint.
2	Fair • Asset has < 75% of its design service life remaining • Sound and well maintained; slight signs of normal wear • Delivering full efficiency; little/no performance deterioration • Only minor renewal or rehab may be needed in the near term • Could be addressed with preventative measures	• Meets all design requirements • Overall good performance; • Project → moderate to low system reliability • Equipment/process is out to • Cancelling project → potential improvements impact 1 wh • Moderate redundancy in the area	Major Impact / Catastrophic Consequence • Catastrophic failure w/ safety/health/environmental impacts imminent (2 years or less) as supported by engineering reports, studies, inspections, historical evidence, etc. • Project will have a major & measurable positive impact on staff or public H&S† including working conditions, use and exposure to hazardous materials, exposure to potential accidents • Likely to address serious hazard issues or concerns • Cancelling project → continue posing sig. employee/public H&S issues with increased potential for serious injury/health & major safety/reg. violations. Significant Impact / Major Consequence • High probability of catastrophic failure and safety/health/env. issues probable within 2-5 years • Project → significant positive impact on staff/public H&S; Likely to address significant hazard issues or concerns • Cancelling project → continue to pose significant staff/public safety/hazard issues; some potential for significant injury and significant regulatory violations (i.e. OSHA).	Major Impact / Catastrophic Consequence • Project is key part of a strategic plan • Project will have a major and measurable positive impact on staff or public H&S† including working conditions, use and exposure to hazardous materials, exposure to potential accidents • Likely to address serious hazard issues or concerns • Cancelling project → very likely could (major gov't/regulatory investigation coverage/ruling) damage to community/region
1	Good • Asset has > 75% of its design service life remaining • Fully operable well maintained; up to current standard • Little to no wear shown and no repairs outside of regular maint. • Does not impact performance, meets all expected future requirements	• Fully operable, well maintains • Consistent with current state • Meets all design requirements • Project will have low to no and/or system reliability/c • Ample redundancy in the area	Moderate Impact / Moderate Consequence • Failure not catastrophic; has moderate chance of occurring; failure may be mitigated to minimize safety/health/environmental impacts • Project → moderate positive impact on staff/public H&S† • Likely to address minor hazard issues or concerns • Cancelling project → pose limited/moderate staff/public safety/hazard issues; some potential for minor injury/regulatory violations	Significant Impact • Project key part of a strategic plan* • Supports City/regional/neighborhood growth; development; public/community through economic development; significant additional revenue/savings; utilize existing & new infrastructure • Significant, noticeable impact on the public achievement for GLWA/community/city • Cancelling project → chance to have major impact on staff/public H&S†

*GLWA strategic goals may include aligning infrastructure with demands, providing redundancy, reliability issues may include: flooding incidents, spills, backups, blockages and collapses, etc.

Capital Improvement Project (CIP)

Score	5 - Public Health & Safety (H&S)
5	Major Impact / Catastrophic Consequence • Catastrophic failure w/ safety/health/environmental impacts imminent (2 years or less) as supported by engineering reports, studies, inspections, historical evidence, etc. • Project will have a major & measurable positive impact on staff or public H&S† including working conditions, use and exposure to hazardous materials, exposure to potential accidents • Likely to address serious hazard issues or concerns • Cancelling project → continue posing sig. employee/public H&S issues with increased potential for serious injury/health & major safety/reg. violations. Significant Impact / Major Consequence • High probability of catastrophic failure and safety/health/env. issues probable within 2-5 years • Project → significant positive impact on staff/public H&S; Likely to address significant hazard issues or concerns • Cancelling project → continue to pose significant staff/public safety/hazard issues; some potential for significant injury and significant regulatory violations (i.e. OSHA).
4	Moderate Impact / Moderate Consequence • Failure not catastrophic; has moderate chance of occurring; failure may be mitigated to minimize safety/health/environmental impacts • Project → moderate positive impact on staff/public H&S† • Likely to address minor hazard issues or concerns • Cancelling project → pose limited/moderate staff/public safety/hazard issues; some potential for minor injury/regulatory violations
3	Low Impact / Minor Consequence • Low chance of failure occurring; failure easily mitigated w/ no safety/health/env. impacts • Project → limited positive impact on staff/public H&S†; No major staff or hazard issues or concerns addressed • Cancelling project → unlikely to impact staff/public H&S†
2	Minimal Impact / Insignificant Consequence • No failure reasonably expected to occur • Project → minimal/insignificant impact on staff/public H&S; No major hazard issues/concerns to address • Staff/public safety/hazard issues not a concern
1	Minimal to no impact / Insignificant Consequence • Low to moderate measurable impact on City/regional/neighborhood growth; development; public/community through economic development; significant additional revenue/savings; Require no new infrastructure • Minimal to no impact on public/GLWA image & relationships

†Staff or public health and safety includes working conditions, use and exposure to hazardous materials, exposure to potential accidents
 *GLWA strategic goals may include: aligning infrastructure with demands, providing redundancy, meeting firm capacity, etc.



CIP SCORING METHODOLOGY

Equation



CIP Delivery Team

A two-step prioritization process accomplished with one equation:

- 70% of the project score considers taking the highest weight and the highest criteria score.
 - This is needed to ensure that project high criteria scores are appropriately taken into account.
- 30% of the score considers the sum of all weights and all scores.

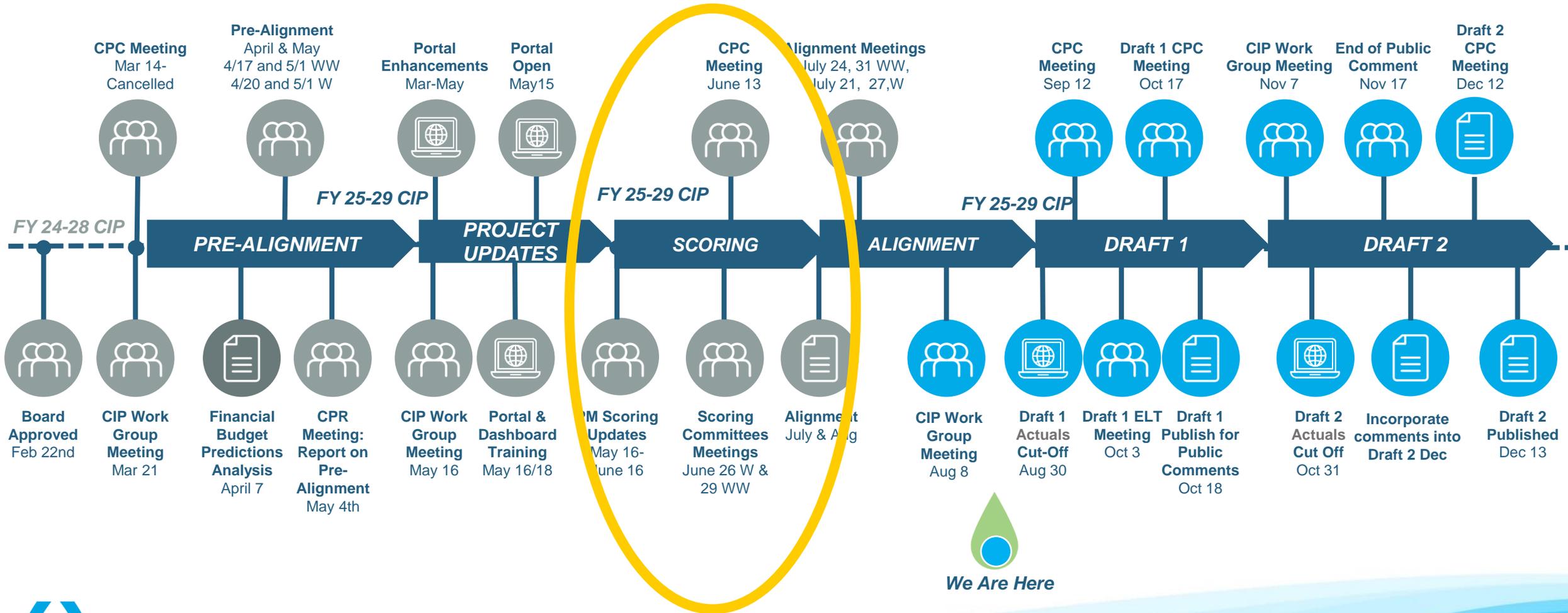
$$= \left\{ 70 * \max \left(\left[\left(\frac{\text{Criterion}_1 \text{ Score}}{5} \right) * \left(\frac{\text{Criterion}_1 \text{ Weight}}{18\%} \right) \right], \left[\left(\frac{\text{Criterion}_2 \text{ Score}}{5} \right) * \left(\frac{\text{Criterion}_2 \text{ Weight}}{18\%} \right) \right], \dots \right) \right\} + \left\{ 30 * \sum \left(\frac{\text{Criterion Score}}{5} * \text{Criterion Weight} \right) \right\}$$

Category	CIP NO.	Regulatory (Environmental/Legal)	Health & Safety	Performance (Service Level/Reliability)	Condition	O&M	Financial	Efficiency & Innovation	Public Benefit	New Score
		18%	18%	15%	12%	11%	10%	8%	8%	
Water	116002	5	5	5	5	5	2	5	1	96.3
Water	111012	5	2	4	5	4	2	4	2	91.5
Water	132014	5	4	3	2	4	3	3	3	91.2

FY 25-29 CIP ROADMAP-SCORING PHASE

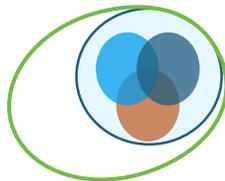


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CPC – Capital Improvement Planning | CIP – Capital Improvement Plan
 CPR – Capital Program Review | PM – Project Manager

PROJECT SCORING- REVIEW COMMITTEE

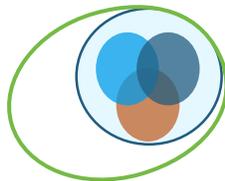


CIP Delivery Team

- All New Projects
- +/- 10 variance from previous score

Water – June 26	Wastewater – June 29
Cheryl Porter - Chief Operating Officer	Navid Mehram – Chief Operating Officer
Timothy Kuhns - Water Engineering Director	Christopher Nastally – Wastewater Engineering Director
Peter Fromm – Manager Life Cycle Project Management	Philip Kora –Manager Life Cycle Project Management
Chandan Sood –System Analytics & Metering Director	Sherri Gee – Planning Services Manager Timothy Kuhns – Water Engineering Director
Terry Daniel – Deputy Chief Operating Officer	Majid Khan – Wastewater Operations Director
Steven Dutschke – Asset Management Director	Steven Dutschke – Asset Management Director
Biren Saparia – Systems & Resiliency Director	Sal Salim – Wastewater Operating Services Director
Todd King – Field Services Director	Todd King – Field Services Director
Mark Gaworecki – Water & Sewer Utility Manager, City of Dearborn	Ed Haapala - Water & Sewer Utilities Director, West Bloomfield
Eric Kramp – Life Cycle Project Manager*	Kashmira Patel – Life Cycle Project Manager*
Michael Dunne – Life Cycle Project Manager*	Greg Marker – Lifecycle Project Manager*

PROJECT SCORING-EXAMPLE



CIP Delivery Team

Project Manager Weighted Score: 93

Criteria Name	Score	Comment
Condition	5	A. Asset has immediately breakdown
Performance (Service Level/Reliability)	5	D. Canceling and/or reliab service level performance obsolete/ext OOS 50% or significant ca
Regulatory (Environmental/Legal)	5	F. Compliance impact, E. D violations, regional or ecosystem, A Unregulated permit/regul
Operations and Maintenance	4	C. Repairs to keep in serv
Health and Safety	2	B. Project lin concerns ad
Public Benefit	3	F. Canceling relationships (\$100K-\$499
Financial	3	C. Moderate years, D. C repair/rest
Efficiency and Innovation	3	A. Project a revenue/sav

Page 1
CIP Number: 112006

Project Title: Northeast Water Treatment Plant Flocculator Replacements

Project Status: Project Execution - Construction

CIP Type: Project

Class Lvl 1: Water

Class Lvl 2: Treatment Plants and Facilities

Class Lvl 3: Northeast

Project New to CIP

Useful Life > 20 Yrs

Multiple Phases

Project Score
82.4

- Innovation
- WW Master Plan
- Water Master Plan Right Sizing
- Wet Weather Resiliency
- Redundancy
- NE WTP Repurposing
- Predecessor Project(s)
- Linear Assets Outside of Facilities
- CSO
- Pumps
- Storage
- Treatment

GLWA
Great Lakes Water Authority

Project Manager: Brian VanHall

Director: Tim Kuhns

Managing Dept.: Water Eng

Date Original Business Case Prepared: 10/1/2018

Year Project Added to CIP: 2018

CIP Budget: Water

Project Jurisdiction: City of Detroit

Lookup Location: Northeast Water Treatment Plant

Funds and Cost Center: Water - 5519-882111 (Water Treatment Plants (WTP))

Review Committee Weighted Score: 82.4

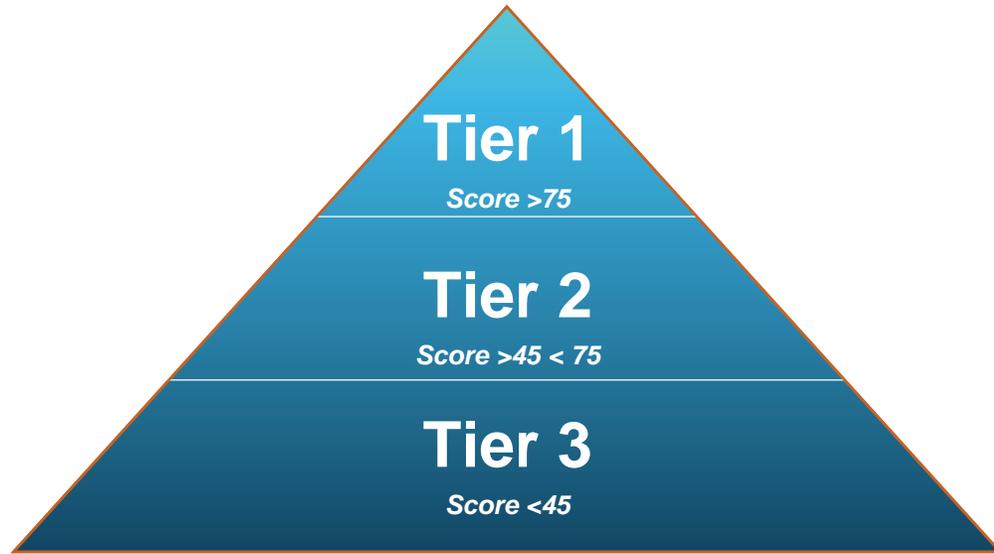
Criteria Name	Score	Comment
Condition	5	Scores carri
Performance (Service Level/Reliability)	5	Scores carri
Regulatory (Environmental/Legal)	4	Scores carri
Operations and Maintenance	4	Scores carried over from previous year
Health and Safety	4	Scores carried over from previous year
Public Benefit	2	Scores carried over from previous year
Financial	3	Scores carried over from previous year
Efficiency and Innovation	4	Scores carried over from previous year



PROJECT SCORING-EVALUATION



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• Holistic Decision Factors

- Predecessor Projects
- Delivery Flexibility
- Funding Source
- Financial Plan
- Proactive Planning
- Constructability
- Operational Considerations
- Efficient Resource Allocation
- Integrated Asset Management

CIP TIERED APPROACH

Tier 1

Score >75

Tier 2

Score >45 < 75

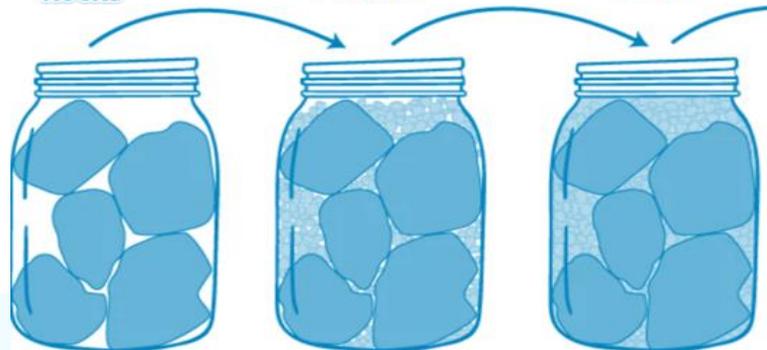
Tier 3

Score <45

Rocks

Pebbles

Sand



PROJECT SCORING EXAMPLE



CIP Delivery Team



Page 1

CIP Number: 122019

Project Title: Jefferson Main Replacement Project

Project Status: Project Execution - Design
Class Lvl 1: Water
Class Lvl 2: Field Services
Class Lvl 3: Transmission System
Lookup Location: City of Detroit
 Project New to CIP:

- Innovation
- WW Master Plan
- Water Master Plan Right Sizing
- Redundancy
- NE WTP Repurposing
- Linear Assets Outside of Facilities
- Predecessor Project(s)



Project Engineer/Manager: Timothy Kuhns

Project Score
37.2

Director: Tim Kuhns

Problem Statement:

The City of Detroit is planning on performing a complete reconstruction of Jefferson Avenue from I-375 to Alter Street in 2023. The existing GLWA 48-inch cast iron transmission main that is within Jefferson Avenue from Water Works Park to I-375 was constructed in 1915 and is beyond its service life. Given that Jefferson Avenue will be reconstructed, GLWA would like to replace the 48-inch Jefferson Main at the same time as Jefferson Avenue is being reconstructed. Replacing the Jefferson Main now...

Scope of Work/Project Alternatives:

Scope of work for this project involves replacement of approximately 17,650 linear feet of 48-inch transmission main within Jefferson Avenue from Water Works Park to I-375.

Other Important Info:

This work will be included with the overall Jefferson Avenue Streetscape project. GLWA will cost share for their portion of the work associated with the 48-inch transmission main replacement.

• Holistic Decision Factors

- Predecessor Projects
- Delivery Flexibility
- **Funding Source**
- Financial Plan
- Proactive Planning
- Constructability
- Operational Considerations
- Efficient Resource Allocation
- **Integrated Asset Management**



PROJECT SCORING EXAMPLE



CIP Delivery Team



Page 1

CIP Number: 111001

Project Title: Lake Huron Water Treatment Plant, Low-Lift, High Lift and Filter Backwash Pumping System Improvements

Project Status: Project Execution - Design

CIP Type: Project

Class Lvl 1: Water

Class Lvl 2: Treatment Plants and Facilities

Class Lvl 3: Lake Huron

Project New to CIP

Useful Life > 20 Yrs

Multiple Phases

Project Score

79.7

- Innovation
- WW Master Plan
- Water Master Plan Right Sizing
- Wet Weather Resiliency
- Redundancy
- NE WTP Repurposing
- Predecessor Project(s)
- Linear Assets Outside of Facilities
- CSO
- Pumps
- Storage
- Treatment



Representative Switchgear to be Replaced under CIP 111001



Page 1

CIP Number: 111012

Project Title: LHWTP-Flocculation Improvements

Project Status: Project Execution - Design

CIP Type: Project

Class Lvl 1: Water

Class Lvl 2: Treatment Plants and Facilities

Class Lvl 3: Lake Huron

Project New to CIP

Useful Life > 20 Yrs

Multiple Phases

Project Score

91.5

- Innovation
- WW Master Plan
- Water Master Plan Right Sizing
- Wet Weather Resiliency
- Redundancy
- NE WTP Repurposing
- Predecessor Project(s)
- Linear Assets Outside of Facilities
- CSO
- Pumps
- Storage
- Treatment



• Holistic Decision Factors

- Predecessor Projects
- Delivery Flexibility
- Funding Source
- Financial Plan
- Proactive Planning
- Constructability
- **Operational Considerations**
- Efficient Resource Allocation
- Integrated Asset Management

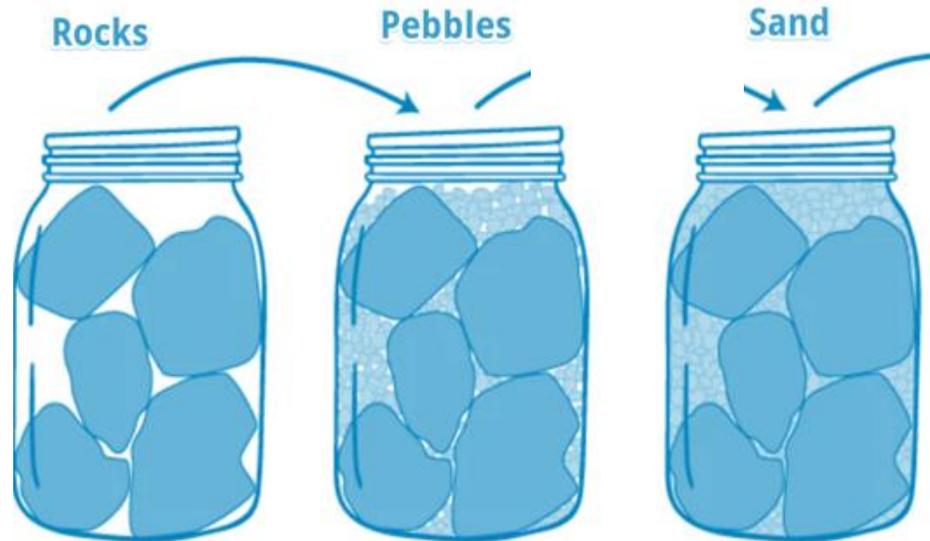


PROJECT SCORING- FY 24-28 CIP STATISTICS



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	Tier 1 <i>Score >75</i>	Tier 2 <i>Score >45 < 75</i>	Tier 3 <i>Score <45</i>
Water*	86%	10%	4%
Wastewater*	62%	37%	1%

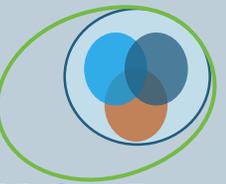


SCORING KEY TAKEAWAYS RECAP

- For consistency in project ranking, we use industry standard criteria and weighting to assign a numerical prioritization value to each project.
- All projects included the CIP are important regardless of the prioritization. The prioritization provides general comparison between projects, but other factors contribute to the project timing.
- Striving for continuous improvement – It's an evolving process! (Evaluate, Improve, and Implement)



Questions & Thank You



CIP Delivery Team