

CIP Project Scoring Methodology Overview

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AGENDA



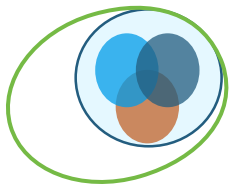
- Key Takeaways
- Project Scoring –What, Why, and When
- Project Scoring Evaluation
- Recap and Questions

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



- **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.

A screenshot of a project evaluation form for the Detroit River Interceptor (DRI) Evaluation and Rehabilitation project. The form includes the GLWA logo, project title, CIP number (222002), project status (Project Execution - Construction), class levels (Class Lvl 1: Wastewater, Class Lvl 2: Field Services, Class Lvl 3: Interceptor), lookup location (Detroit River Interceptor), and a checkbox for "Project New to CIP". It also features a list of evaluation criteria with checkboxes: Innovation, WW Master Plan, Water Master Plan Right Sizing, Redundancy (checked), NE WTP Repurposing, Linear Assets Outside of Facilities, and Predecessor Project(s). A photo of "DRI Shaft Construction" is included. The project engineer/manager is Mini Panicker, and the director is Todd King. The project score is 65.4. The form also contains sections for "Problem Statement", "Scope of Work/Project Alternatives", and "Other Important Info".

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

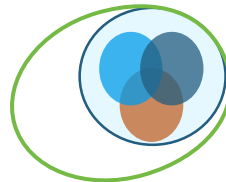
Project Score
65.4

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 the existing conditions, provide the necessary 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 damage, cracked, and exposed.

PROJECT SCORING- STEPS



CIP Delivery Team



- Project Manager-Score/Rescore

- New projects
- Future planned projects
- Active projects (procurement)
- Project execution-design & Project Delivery Method = DBB
- Projects from programs

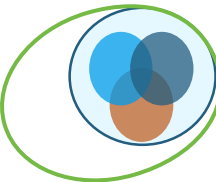
- Legacy Score

- 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

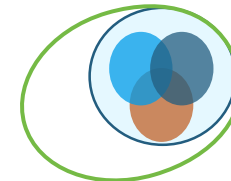


CIP Delivery Team

| # | 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



CIP Delivery Team

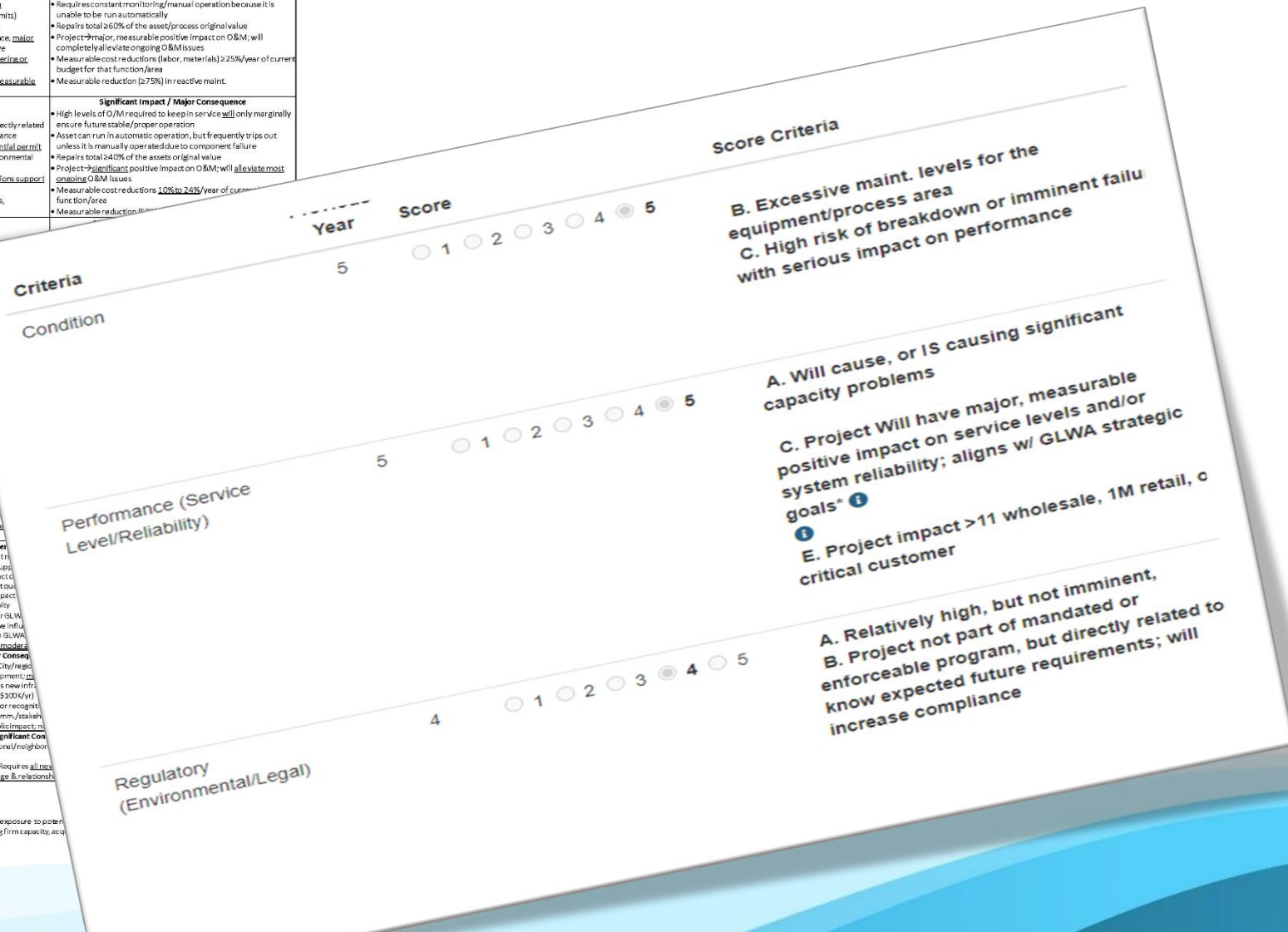
Capital Improvement Project (CIP) Scoring Quick Reference (pg 1/2)

| 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 <u>major</u> rehab needed <u>immediately</u> | Very Poor • Will cause, or is causing <u>significant</u> capacity problems • Current performance <u>unacceptable</u> , does not meet current requirements/demands; equipment <u>obsolete/extremely difficult to maintain</u> or find spare parts/repair service; Asset/process OOS 50% or more of the time; <u>Security</u> expected failures • Project → Will have <u>major, measurable</u> positive impact on service levels and/or system reliability; aligns w/ GLWA strategic goals* • Canceling project → <u>significant, consistent, ongoing, continuous</u> service interruption and/or reliability issues† • Project impact > 11 wholesale, 1M retail, or critical customer • No redundancy or feasible temporary options | Major Impact / Catastrophic Consequence • <u>Imminent risk of</u> causing Permit/reg. violations; Legal obligation; Unregulated discharges; Health risks to staff/public • Project part of a <u>mandated or otherwise enforceable program</u> • <u>Measurable</u> positive regulatory/compliance impact (CSO, permits) • Numerous <u>historical</u> evidence of permit/regulatory violations • Deferring/canceling project → <u>immediate risk</u> of non-compliance; <u>major</u> permit violations; regulatory scrutiny; sig. measurable negative environmental impact on a regional or statewide level w/ <u>lining or permanent/irreversible</u> impact on wider ecosystem • Compliance failure → <u>significant fines, enforcement actions, measurable</u> environmental impact | Major Impact / Catastrophic Consequence • Unsustainable levels of O/M required to keep in service that <u>will still not</u> ensure future stable/proper operation • Requires constant monitoring/manual operation because it is unable to be run automatically • Repairs total ≥ 60% 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 <u>high level of maintenance</u> to remain operational • Shows <u>abnormal wear</u> and is likely to cause <u>significant performance deterioration</u> 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 <u>significant</u> 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 <u>serious</u> inconveniences and business impacts for affected customers; impact 6-10 wholesale, 100K retail, critical customers • Limited redundancy | Significant Impact or Major Consequence • Relatively high, but not <u>imminent</u> , risk of [score 5 bullet 1] • Project <u>not</u> part of mandated or enforceable program, but directly related to known/expected future requirements; will increase compliance • Canceling project → risk of non-compliance in near term; <u>potential</u> permit violations; regulatory scrutiny; sig. measurable negative environmental impact to wide area • Some <u>historical</u> evidence of permit/regulatory/contract violations <u>support the decision</u> • 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, but frequently strips out unless it is manually operated due to component failure • Asset can run in automatic operation, but frequently strips out • Repairs total ≥ 40% of the assets original value • Project → significant positive impact on O&M; will <u>alleviate most</u> ongoing O&M issues • Measurable cost reductions 10% to 25%/year of current function/area • Measurable reduction (≥ 75%) in reactive maint. |
| 3 | Moderate • Asset has < 50% of its design service life remaining • Functionally <u>sound and acceptable</u> ; signs of normal wear • May have <u>minor failures</u> or <u>diminished efficiency</u> ; some performance deterioration • <u>Moderate</u> renewal or rehab needed in short term | Moderate • Generally meets design needs; moderate risk of near failure • Performance acceptable; not • Equipment/process is out to • Project → moderate positive improvements impact 1 wh • Some likelihood for <u>notice</u> retail, but no critical customer • Low redundancy in the area | Moderate Impact or Moderate Consequence • Moderate risk of causing future [score 5 bullet 1] | |

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 <u>major & measurable</u> positive impact on staff or public H&S including working conditions, use and exposure to hazardous materials, exposure to potential accidents • Likely to address <u>major</u> hazard issues or concerns • Canceling project → continue posing sig. employee/public H&S issues with <u>increased</u> potential for serious injury/death, & major safety/reg. violations Significant Impact / Major Consequence • High probability of catastrophic failure and safety/health/env. issues probable within 2-5 years • Project → <u>significant</u> positive impact on staff/public H&S; Likely to address <u>significant</u> hazard issues or concerns • Canceling project → continue to pose significant staff/public safety/hazard issues, <u>some</u> 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 <u>minor</u> hazard issues or concerns • Canceling project → pose limited-moderate staff/public safety/health issues, <u>some</u> potential for minor injury/regulatory violations Low Impact / Minor Consequence • Low chance of failure occurring; failure easily mitigated w/ no safety/health/env. impacts • Project → <u>limited</u> positive impact on staff/public H&S; No major staff or hazard issues or concerns addressed • Canceling project → unlikely to impact staff/public H&S |
| 3 | Minimal Impact / Insignificant Consequence • No failure reasonably expected to occur • Project → <u>minimal</u> positive impact on staff/public H&S; No major hazard issues/concerns to address • Staff/public safety/hazard issues not a concern |

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



CIP SCORING METHODOLOGY

Equation



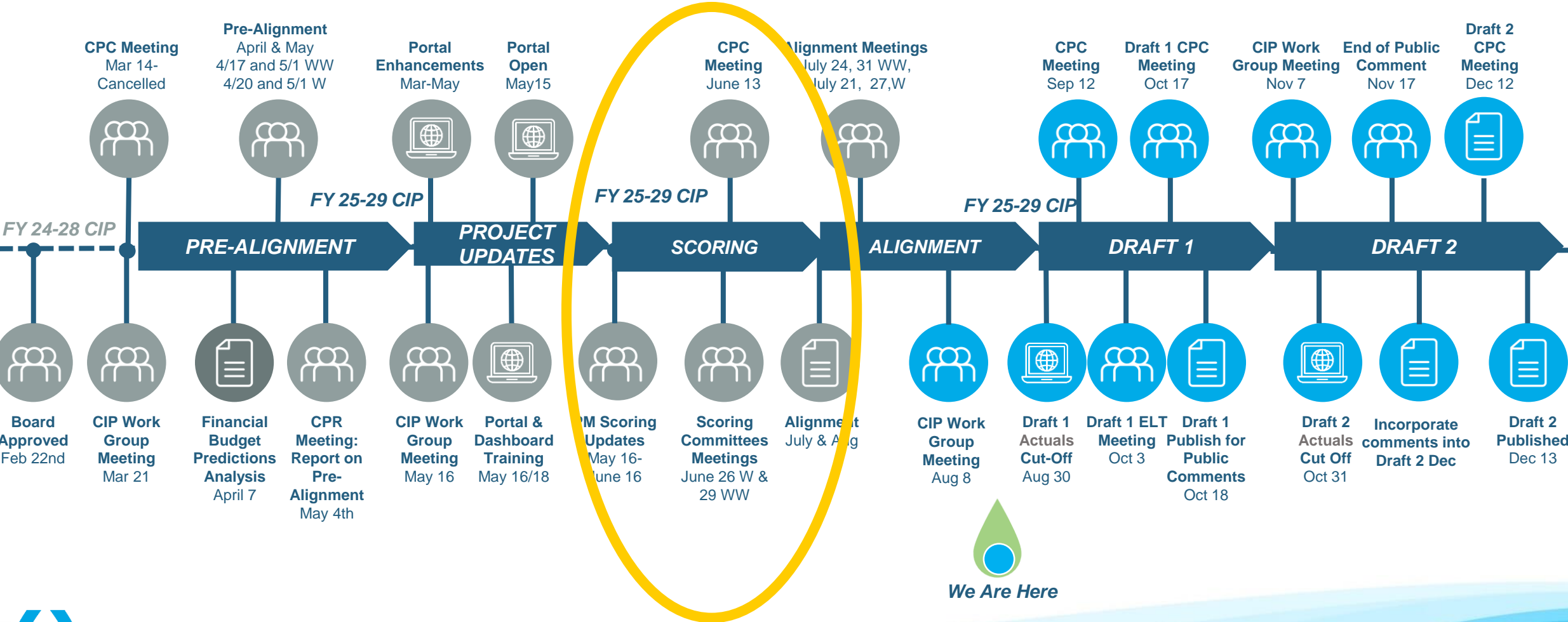
A two-step prioritization process accomplished with one equation:

- 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.

$$= \left\{ 70 * \max \left(\left[\left(\frac{Criterion_1 Score}{5} \right) * \left(\frac{Criterion_1 Weight}{18\%} \right) \right], \left[\left(\frac{Criterion_2 Score}{5} \right) * \left(\frac{Criterion_2 Weight}{18\%} \right) \right], \dots \right) \right\} + \left\{ 30 * \sum \left(\frac{Criterion Score}{5} * Criterion Weight \right) \right\}$$

| Category | CIP NO. | Regulatory (Environmental/L egal) | 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 |

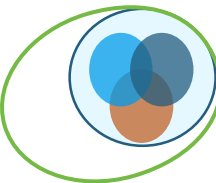
FY 25-29 CIP ROADMAP-SCORING PHASE



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

PROJECT SCORING- REVIEW COMMITTEE

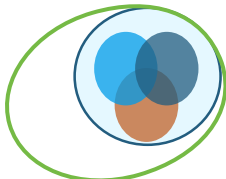
- All New Projects
- +/- 10 variance from previous score



CIP Delivery Team

| 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. G repair/renov |
| 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



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))

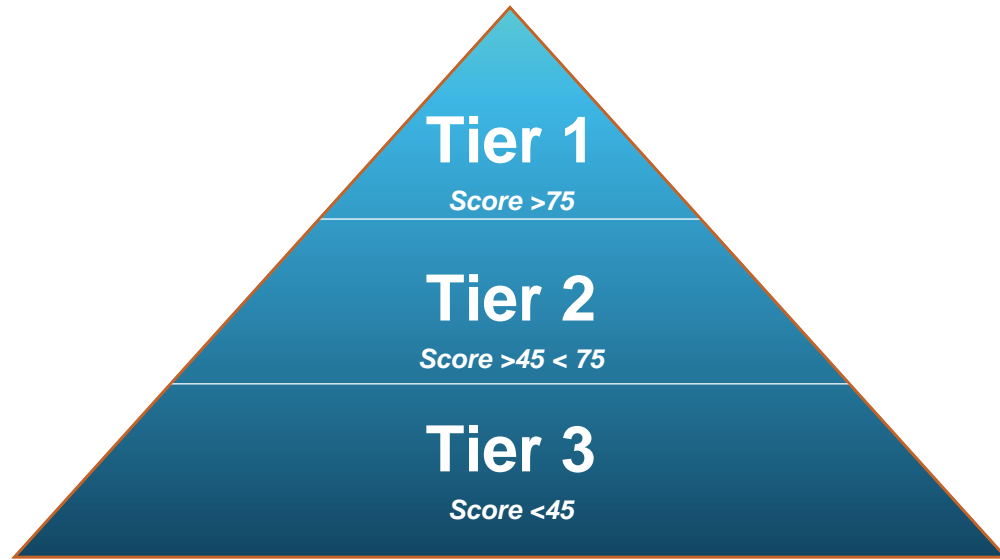
Review Committee Weighted Score: 82.4

| 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



CIP Delivery Team



CIP TIERED APPROACH

• Holistic Decision Factors

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

Tier 1

Score >75

Tier 2

Score >45 < 75

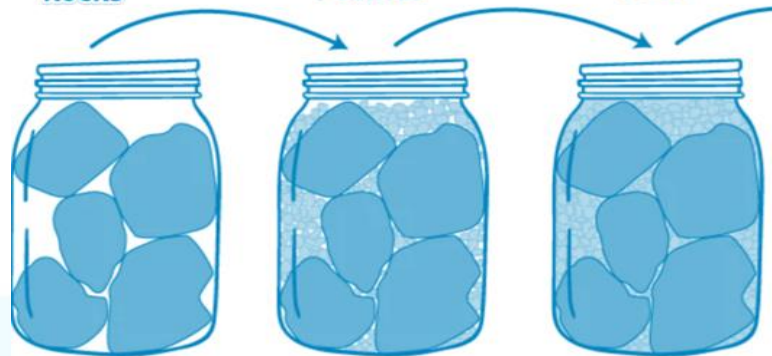
Tier 3

Score <45

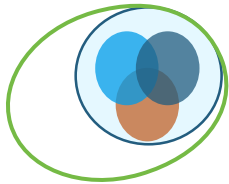
Rocks

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

Director: Tim Kuhns

Project Score

37.2

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:

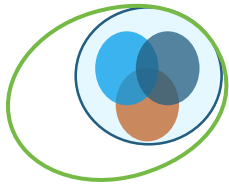
This work will be included with the overall Jefferson Avenue Streetscape project. GLWA will cost share for their portion of the work associated with the 48-inch transmission main replacement.

• 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



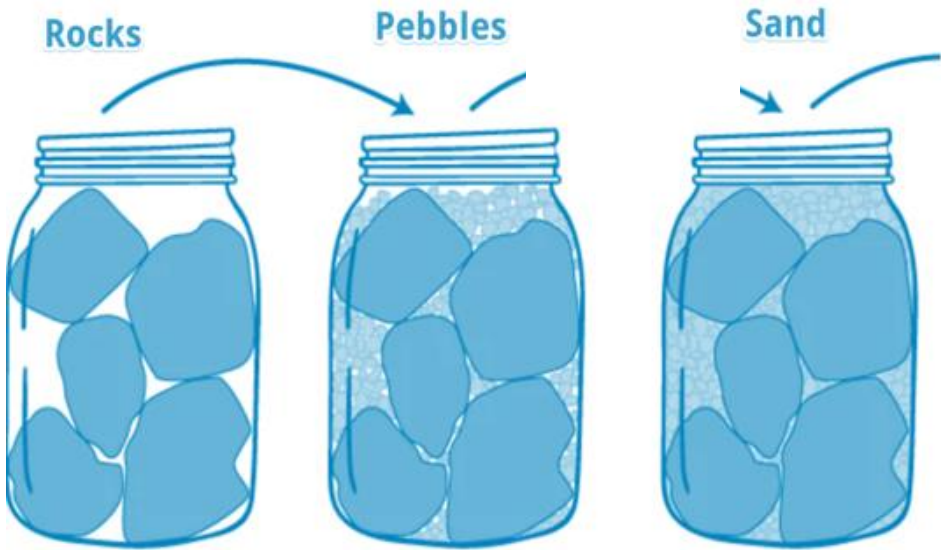
• Holistic Decision Factors

- 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

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

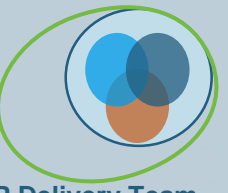


SCORING KEY TAKEAWAYS RECAP

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- 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