Columbia Wastewater and Stormwater IMP

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Our Columbia Waters
Integrated Management Plan
Wastewater & Stormwater

Columbia Wastewater and Stormwater Integrated Management Plan

Visioning Workshop Summary

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Visioning Workshop Background

The City of Columbia, Missouri (City) is working to develop an Integrated Management Plan (IMP) for the City's wastewater and stormwater utilities. The IMP will be developed based on guidance presented in US Environmental Protection Agency's (EPA) June 2012 *Integrated Municipal Stormwater and Wastewater Planning Approach Framework*, and the Missouri Department of Natural Resources' (MDNR) *Missouri Integrated Planning Framework*. The goal of the IMP is to develop an adaptable and affordable long-term plan that addresses the City's wastewater and stormwater management needs and meets Clean Water Act requirements.

In May 2016, HDR Engineering, Inc. (HDR), and their team, which includes Geosyntec Consultants, Inc. (Geosyntec), Shockey Consulting Services, LLC (Shockey), Black and Veatch, Inc. (B&V), and TREKK Design Group, LLC (TREKK), facilitated a two-day Visioning Workshop to discuss existing and future challenges facing the City, goals and objectives of the IMP, and potential strategies to meet those goals. Workshop participants included representatives from a number of City Departments, including: City Management, Utilities Department, Columbia/Boone County Public Health and Human Services, Finance Department, Sustainability Office, Legal Department, and Community Relations. Representatives from the University of Missouri, Boone County, and the Boone County Regional Sewer District also participated.

During the two-day Workshop, the group discussed

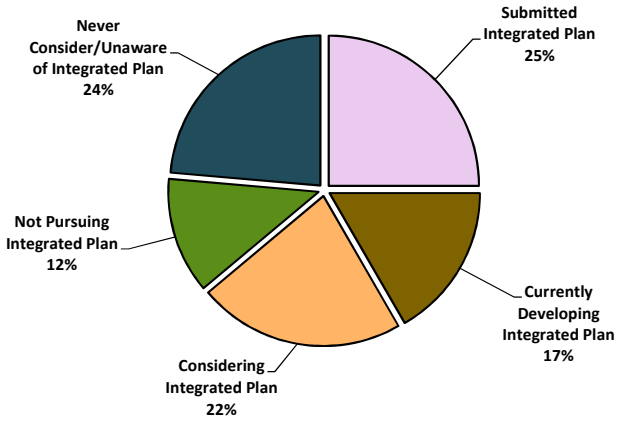
- Examples of IMP implementation across the country,
- State and federal regulatory drivers impacting the City,
- Affordabiltity concerns and strategies for accurately characterizing cost impacts on ratepayers,
- The current conditions and future expectations for the City's wastewater and stormwater systems,
- Methods commonly used to identify and prioritize wastewater and stormwater solutions during IMP development,
- Potential community outreach approaches and key stakeholder groups, and
- Goals and objectives of the IMP.

Following the Visioning Workshop, HDR and the City met individually with each member of the Columbia City Council and Mayor Treece to discuss the workshop results and confirm that the City's IMP vision best represents the diverse views, desires, and expectations of its residents. A summary of issues discussed during the Visioning Workshop and follow up meetings with Council, as well as key takeaways from the collective discussion, are included in the sections that follow. Results from the Workshop will serve as the foundation for the planning process going forward.

IMP Implementation Examples

Jeff Eger (HDR), Adrienne Nemura (Geosyntec), and Trent Stober (HDR) gave an overview of IMP activities to date both nationally and in Missouri. Jeff began by discussing integrated planning in the context of his experience as the Utility Director at Sanitation District No. 1 (SD1) of Northern Kentucky. Integrated planning is a "smart," community-driven process that allows municipalities to tailor infrastructure planning and investments to their needs and financial capability instead of the siloed, compliance-driven approach historically taken by EPA. As a result of communities like SD1 successfully using integrated planning principles to make environmental improvements and increase human health protection, EPA now supports integrated planning as a necessary and important approach to infrastructure planning.

Adrienne discussed national integrated planning progress. She began by discussing the results of a national integrated planning survey project Geosyntec is conducting for the Water Environment and Reuse Foundation. Thus far, the research has found that more than 40% of communities surveyed have submitted or are developing integrated plans. In general, these communities are pursuing integrated plans to cost-effectively address regulatory compliance requirements and affordability limitations in their communities. In some communities, roadblocks such as limited knowledge or lack of buy-in from management have prevented them from pursing integrated planning. These roadblocks are not present in Columbia.



Integrated Planning Survey Results
Courtesy of Geosyntec Consultants, Inc.

Trent presented the integrated planning process in Springfield. Springfield is the first community to pursue integrated planning in Missouri. Their plan is expansive and is designed to address all environmental issues, including water, air, and land use issue. They have been working for three years with stakeholders and experts to identify and characterize plan priorities. Springfield's process has been well-received by the regulatory agencies.

Key Workshop Discussion Takeaways

- EPA and MDNR support integrated planning. MDNR likely will recognize integrated plans in permit documents and associated Memorandums of Understanding (MOU) and adjust pemit conditions accordingly.
- MDNR permit writer turnover is a concern for the City so it will be important to get MDNR approval of the IMP. This will allow the City to be more in control of their planning and investment decisions.
- The City expects that stakeholder and community involvement will be critical to developing an effective IMP.

Regulatory Drivers

Trent Stober (HDR), Tom Wallace (Geosyntec), and David Carani (HDR) presented the existing and future state and federal regulatory drivers that will impact the City's wastewater and stormwater programs and permits. As the group explained, these drivers will influence the development, implementation, and ultimate success of the City's IMP.

Over the next five to ten years, MDNR will be implementing a number of regulation changes to improve consistency with federal requirements. These changes generally include

- New water quality requirements for small streams;
- Increasingly stringent ammonia, nutrient, and bacteria requirements for all streams, some lakes, and wetlands; and
- Additional reporting and assessment requirements for impaired waters in municipal separate storm sewer (MS4) service areas.

Summary of Regulatory Drivers Facing City of Columbia

Driver	Potential Impacts	Utility Impacted
2014 WQS Rule	- TMDLs for smaller streams - Better biological comparisons	MS4 Collection System
2017 WQS Rule	- Nutrient criteria to lakes >10 acres	MS4
2020 WQS Rule	- Eagle Bluffs water quality criteria - Stream nutrient impairments - Stringent bacteria criteria, impairments & TMDLs - Stringent ammonia criteria	MS4 WWTP Collection System
Bacteria Impairments	- Bacteria TMDLs	MS4 Collection System
Nutrient Loss Reduction Strategy	- Technology-based nutrient limits - Stormwater BMPs	WWTP MS4
Federal MS4 Remand	- Clear, specific & measureable permit requirements	MS4

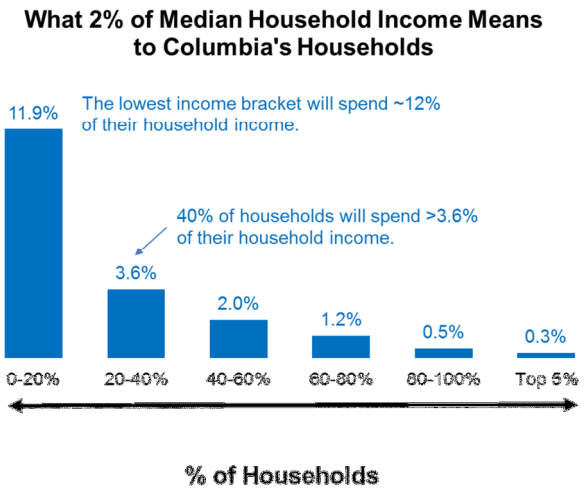
WQS – Water quality standards
TMDL – Total maximum daily load
MS4 – Municipal separate storm sewer system
WWTP – Wastewater treatment plant
BMP – Best management practice

Key Workshop Discussion Takeaways

- Regulatory uncertainty is one of the biggest challenges facing the City.
- Imminent changes to water quality criteria and discharge limit requirements in and around the Eagle Bluffs area could require substantial investments in the wastewater treatment plant (WWTP).
- New requirements in the City's MS4 permit include additional obligations in impaired watersheds.

Affordability Concerns

Adrienne Nemura (Geosyntec) discussed the role that affordability and financial capability play in the integrated planning process. As Adrienne explained, local governments are faced with the dual responsibility of addressing aging infrastructure to maintain acceptable levels of service while also planning for long-term compliance with uncertain, future regulatory requirements. These needs quickly outpace the generally limited financial resources available to many utilities, forcing the community to choose between service failures, regulatory violations, or unsustainable rate increases that strain ratepayers. Integrated planning allows communities to prioritize all of these needs in a way that is affordable to the community.



Maintaining Ratepayer Affordability is a Key IMP Goal

Thanks in part to the US Conference of Mayors, EPA is evolving on the issue of affordability. Historically, EPA considered wastewater project costs up to 2% of a community's median household income (MHI) to be affordable (up to 4.5% for water and wastewater). In Columbia, 2% of MHI is approximately $830 per year. With the introduction of the 2012 integrated planning framework and subsequent guidance, EPA has expanded on those guidelines and is open to considering other socioeconomic factors when measuring affordability. The Water Resources Development Act of 2016 (WRDA), which is moving forward in Congress, includes provisions to ensure that affordability determinations include holistic measurements of a community's socioeconomic conditions.

As Adrienne discussed, MDNR has developed a simple tool that provides a useful starting point for evaluating affordability in Columbia. However, this tool should be updated to consider not only the residential impacts of future IMP alternatives, but also the financial strength of the City's utility. Adrienne presented a number of metrics that can be evaluated to quantify these impacts as the IMP affordability tool is developed.

Key Workshop Discussion Takeaways

- Regulators have historically misapplied the 2% of MHI metric to justify requiring communities to spend more on infrastructure. Pending legislation (WRDA) encourages EPA to revisit their affordability guidelines.
- The methods for evaluating affordability are evolving away from simplistic comparisons to the MHI. New developments at the national level will ensure that future evaluations look at all relevant socioeconomic impacts.
- The City wants to ensure that the financial impacts to disadvantaged areas and residents of the community are carefully considered during IMP development.

Existing System Discussions

During the Workshop, the larger group divided into two smaller breakout sessions to discuss the existing wastewater and stormwater systems. The intent of these breakout sessions were to get general feedback about the integrated planning process and understand the specific challenges and priorities facing each of the specific programs. Trent Stober (HDR) lead the wastewater session and Eric Dove (HDR) lead the stormwater session. Takeaways from each breakout session are included below.

Key Wastewater Breakout Session Takeaways

- The wastewater utility has successfully upgraded, operated and maintained the existing facilities in a manner that keeps rates affordable. They efficiently address scheduled maintenance and work order issues and have improved their data management, inter-departmental collaboration, and customer responsiveness.
- The IMP will be successful by
    - Balancing affordability concerns with regulatory obligations,
    - Comprehensively engaging community stakeholders, and
    - Educating users on the importance and value of wastewater services.
- The highest wastewater priorities that must be considered are maintaining public health protections, meeting level of service (LOS) goals, and providing justification for dedicated funding for certain activities. Specifically, the City would like to
    - Address wet-weather issues, including basement backups, sanitary sewer overflows (SSOs), and areas with persistent inflow and infiltration (I&I) challenges;
    - Reduce capacity limitations in the existing treatment and collection systems; and
    - Develop and implement an asset management system to support system renewal efforts, including a mechanism to establish sufficient dedicated funding for these efforts.
- The greatest challenges facing the wastewater utility include
    - The lack of fuding for renewal efforts,
    - The uncertainty of future regulations, and
    - Differentiating and communicating the importance of wastwater services to the community amidst other infrastructure discussions taking place in the City.

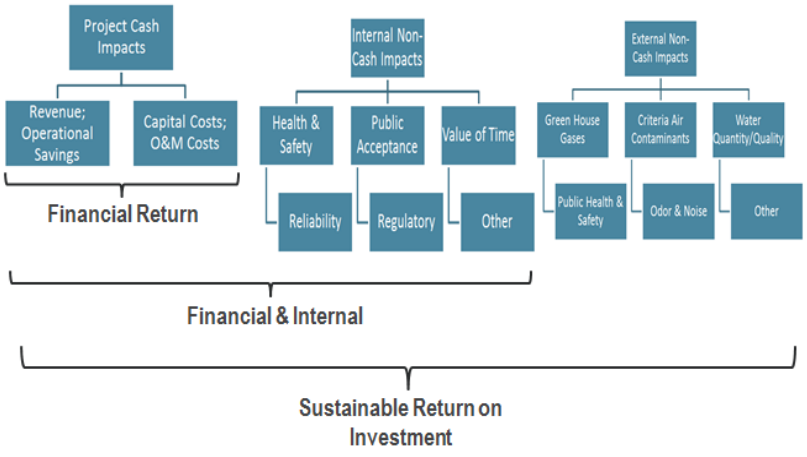
Key Stormwater Breakout Session Takeaways

- The stormwater utility successfully collaborates with other departments and implements creative projects on a limited budget. The IMP should consider and build on these successes.
- The IMP should be realistic and implementable. In other words, it must be technically-feasible, prioritized, funded, and supported by the community. Specifically, the IMP will be successful if it provides a means to
    - Implement existing projects over the next five years, and
    - Develop and fund important projects to meet long-term goals.
- Many of the stormwater utility's greatest challenges are also their highest priorities for the IMP. These include the following:
    - Prioritizing projects. Historically, projects have been reactionary in nature. The group wants to reach a point where projects that provide multiple benefits can be prioritized.

- Asset management. An asset management program would help to develop performance baselines, measure progress, justify funding, educate stakeholders on direct and indirect impacts of stormwater, and ensure that customer's LOS expectations are met.
- Funding and community education. The last funding increase was insufficient to address all of the existing needs but communicating the urgency to stakeholders is difficult.
- Coordination and planning. The City needs to develop projects to address upcoming drivers (MS4 permit, Hinkson Creek mitigation bank, etc.) but lacks a recent stormwater master plan that would help formalize those projects and effectively coordinate their implementation with other departments.

Prioritizing Alternatives

Trent Stober (HDR) presented on a variety of decision making tools that the City could use to help evaluate and prioritize wastewater and stormwater alternatives identified during the IMP process. As Trent explained, one of the challenges of any decision making process is appropriately comparing alternatives that produce both quantitative and qualitative benefits. A number of tools are available for doing these analyses and their applicability depends on the project context in which they are used. For example, simple weighting systems used as part of a multi-criteria decision analysis (MCDA) are suitable for planning level evaluations of individual projects. More complex approaches, such as the Sustainable Return on Investment (SROI) tool, are better suited for holistically monetizing the costs and benefits of a suite of projects.



Rating Systems can be Developed to Prioritize Pollution Sources and Improvement Opportunities

Trent explained that the City of Springfield is currently using the MCDA and SROI approaches as part of their integrated planning process. In Springfield, an MCDA weighting system is being used to identify and prioritize pollution sources and improvement opportunities based on input from the Environmental Priorities Task Forces. Once the MCDA process is complete, Springfield plans to use the SROI process to evaluate the impacts of selected alternatives.

Key Workshop Discussion Takeaways

- The City pointed out that the weighting and decision making processes associated with MCDA-type approaches are attractive because they are effective and easy for the public to understand.

- Community input is a big component but technical justification is important when weighting and selecting alternatives.
- The City is familiar with using the SROI process on non-sewer related projects but it is a detailed process that may or may not be too complicated for the IMP.

Community Engagement

Sheila Shockey (Shockey) lead discussions about the importance of engaging the community in the IMP. As Sheila explained, integrated planning is largely a community-driven process. Therefore, developing the appropriate key messages and communicating them in the correct format are critical for effectively gathering and considering community input. The key messages should clearly articulate issues the IMP will address and explain how the citizens will benefit from its implementation.

The group also discussed the importance of coordinating community engagement efforts with critical stakeholders, such as the Columbia Mayor, City Council, City staff, and the Columbia Water and Light Integrated Water Resource Plan (IWRP) committee to ensure that all members are informed and their time and efforts are used most efficiently. The group identified a number of other environmental, social, and business-oriented groups that could be included to get a wide variety of input in the process. Specific organizations include:

- Missouri Department of Conservation
- Audubon Society
- Missouri River Relief
- Sierra Club
- Hinkson Collaborative Adaptive Management Stakeholders
- PedNet
- Downtown Columbia Leadership Council
- Columbia Chamber of Commerce
- Lawn Care Companies
- Local Developers
- Central Missouri Community Action Center
- Churches
- Central Missouri Opportunity Council
- University of Missouri
- League of Women Voters of Columbia-Boone County
- Neighborhood Associations and Home Owners

Key Workshop Discussion Takeaways

- We will have to get community input on public health and safety concerns in addition to environmental issues.
- Outreach efforts should focus on getting high-level, value-based input from the community.
- In addition to coordinating with other existing committees, we will have to consider using a mix of electronic and traditional community outreach tools to reach a wide variety of stakeholders.

Setting Goals and Objectives

Drawing from information presented and discussed over the course of the two-day workshop, Sheila Shockey (Shockey) and Jeff Eger (HDR) facilitated group discussions to help generate a shared set of goals and objectives for the IMP. As part of the session, the group collaborated to develop the following vision statement:

> ***The stormwater and wastewater Integrated Management Plan is a community-driven, affordable infrastructure plan that enhances human health and safety, water quality, economic vitality, and environmental resources by leveraging our existing assets and implementing innovative solutions.***

The intent of the vision statement is to clearly and effectively communicate the intent and desired outcomes of the IMP to community stakeholders. This vision statement will serve as the basis for the project going forward. In addition to developing the vision statement, the group worked together to identify and prioritize a preliminary set of issues that should be addressed in the IMP. These issues will serve to initially focus IMP project activities, but may be modified based on technical input or community engagement efforts over the course of the project.

Key Workshop Discussion Takeaways

- Because the vision statement will serve as the basis for the project going forward, it should clearly establish what the IMP is, what it will do, and how it will do it.
- The group organized preliminary issues into three categories according to importance. Some of the issues included the following:
  - Tier 1 (most important) – basement backups, SSOs, I&I issues, asset management, affordability, strengthening the MS4 program, and addressing the WWTP discharge.
  - Tier 2 – green infrastructure, new and redevelopment runoff management, and getting ahead of new regulations.
  - Tier 3 (least important) – adding experienced staff, implementing controls on private property, and addressing water quality issues.

Next Steps

Input gathered during the two-day Visioning Workshop will inform all aspects of IMP development going forward. The project is currently scheduled for a targeted completion date of March 2017, but is flexible to account for changes as the project evolves. In the coming months, the project team will work with City staff to develop a Community Outreach Plan and begin compiling, analyzing, and describing existing data to better understand performance characteristics of the City's current systems.

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