Integrated Planning in Action

Permitting Authority Toolkit
Module 3: Incorporating

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Rodney Cook, Sr Park capacity relief project in Atlanta, Georgia. Photo courtesy of J. Cory Rayburn.

The Integrated Planning Permitting Authority Toolkit consists of three modules, each designed to help permitting authority staff promote and support integrated planning for National Pollutant Discharge Elimination System (NPDES) permittees. The modules have been designed to lead permitting authority staff along the path to incorporating integrated plans in permits. The modules are not fact sheets composed of narrative guidance; rather, they should be used as hubs for information on process steps, tools, resources, successful examples, and recommendations. You should select and use modules based upon where you are on the integrated planning continuum.

This module—**Incorporating**—will help you learn how to review permittees' integrated plans and use them when developing permits. This module does not discuss all permit development considerations, rather it discusses only those that would change or emerge due to the incorporation of integrated plan schedules or outcomes. The Module 3 workbook is a spreadsheet tool designed to help permitting staff coordinate activities and review integrated plans to incorporate into one or more NPDES permits. The workbook includes five different tools in the form of recordkeeping logs, checklists, or schedules. The tools are designed to help permitting authorities facilitate an integrated plan review as part of the permit renewal process, determine if the plan contains all of the information necessary to inform the permit development, and align the integrated plan outcomes with permit requirements, permit issuance, and compliance schedules.

Determine who needs to review the plan and develop a review schedule.

The permitting authority team that has collaborated with the permittee through their integrated planning process should work together on a strategy for reviewing the submitted plan. It is likely that more than one permit writer will need to review the plan (e.g., a wastewater permit writer and a stormwater permit writer). Permit writing staff may need to include enforcement staff, economists, or staff with relevant modeling expertise to ensure the plan is thoroughly reviewed in its entirety.

Permitting Authority Staff	Incorporating Role
Permitting staff management	Ensure resources are available to adequately review the integrated plan and encourage communication between permit writers and other staff.
Wastewater technical staff	Communicate among themselves to ensure the plan adequately addresses all permit obligations. Coordinate review of various sections of the plan and facilitate implementation in one or more permit(s).
Stormwater technical staff	
CSO technical staff	
Enforcement staff	Work with permitting staff to ensure that the plan is consistent with any enforcement requirements.
Modeling staff	Review model selection, inputs, and outputs to ensure that project selection and anticipated outcomes are reasonable.
Economists	Review economic analyses included in the plan.
Non-Permitting Authority Partners	**Incorporating Role**
Communications staff	Provide guidance on public input as required for permit issuance.
EPA headquarters and regional staff	Support the permitting authority in integrated planning efforts and represent EPA interests.

Incorporating an integrated plan into permit(s) may be a new process for the permitting authority, so you should plan for plenty of time to review and interpret the plan, then develop permit requirements that support or require desired plan outcomes.

Discussing some topics with the permittee before permit development—for example, whether the permittee is seeking separate permits or one integrated permit—may make the review process more efficient.

If the integrated plan outcomes will be incorporated into more than one permit, permitting authority staff will need to coordinate how and when to incorporate requirements into existing permits. For example, you may need to decide whether it is more appropriate to roll in requirements as permits expire or to reopen all affected permits and incorporate requirements at the same time.

The administrative timeline in the Module 3 workbook can help you to create a timetable for key administrative milestones during the plan review/permit issuance process. The activity log is a checklist that will help you keep track of plan review and evaluation activities.

Review the plan for completeness.

Early in the review process, you should check that the plan meets all six elements of the Integrated Planning Framework. Each element is essential for an effective plan that will help the permittee achieve long-term water quality outcomes and community benefits.

The plan completeness summary in the Module 3 workbook can help you determine if all elements are comprehensively addressed and identify data or information that may be missing.

It may be helpful to ask the permittee for a presentation that gives an overview of the plan and describes the process outlined in the plan. An integrated plan may contain information that you are not used to evaluating in the permit development process. This presentation can help the permittee distill the plan into key points and set the stage for your review.

Review plan objectives, analyses, and outcomes.

Using information gathered and developed in accordance with Elements 1 through 3 of the Integrated Planning Framework, the permittee should have set goals and objectives, as well as strategies for achieving them, and these should be described in the integrated plan. Then, following Element 4, the permittee should have used and documented a process for identifying project alternatives, setting and prioritizing criteria for evaluating those alternatives, and applying those criteria to choose the alternative that best meets water quality goals and other community priorities. This process should also be described in the plan. EPA's Augmented Alternatives Analysis, described in Making the Right Choices for Your Utility: Using Community Priorities and Sustainability Criteria for Water Infrastructure Decision-Making, is one decision-making method permittees can use.

If you are satisfied the process was thorough and complete, you should then confirm that the goals and objectives outlined in the plan align with any compliance requirements that are present within any applicable permits or enforcement mechanisms.

Term	Definition	Examples	
Goal	A broad, qualitative statement of *desired achievements*	Reduce the amount of untreated sewage going into waterways to improve water quality	Improve water quality through treatment of stormwater discharged through the MS4

Term	Definition	Examples	
Objective	A specific, *measurable statement* of what will be done to achieve goals within a particular time frame	Reduce the discharged CSO volume by 95 percent by 2040	Meet total suspended solids load reduction of 1000 pounds per year
Strategy	A general approach or method: *how* the permittee plans to achieve objectives and resolve issues	Eliminate connected roof drains to reduce inflow, install green infrastructure to retain runoff, build underground storage	Install green infrastructure (e.g., bioretention ponds, sand filters, rain gardens) to filter pollutants
Criteria	Measures or considerations used to evaluate alternatives	Gallons of reduced CSO discharges	Reduction of total suspended solids in pounds per year
Alternatives	Specific infrastructure investments or operational changes within a strategy (i.e., projects, programs)	Disconnect all roof drains within the downtown sector and direct water to tree boxes or bioswale	Install two ponds in municipal parks for an annual reduction of 500 pounds of total suspended solids each annually

Determine if the proposed alternative will meet or exceed Clean Water Act requirements.

Although integrated planning can be used to re-sequence projects and provide secondary benefits, the primary goal must be to meet water quality and compliance objectives. In addition to ensuring the plan is complete, you will need to review its water quality objectives and anticipated outcomes to ensure it meets this primary goal.

The adequacy summary in the Module 3 workbook can help you track compliance schedules and permit requirements alongside integrated planning outcomes (including schedule) to ensure all are met. It can also help you determine which parts of the permit or other compliance mechanisms the plan will impact.

Seattle, Washington, developed an integrated plan to make water quality improvements beyond what the CSO projects required by the city's long term control plan alone would achieve. During the integrated planning process, Seattle identified and ranked potential stormwater projects, comparing them to the lowest-ranking CSO projects based on water quality impacts and other community benefits. The resulting integrated plan featured three stormwater projects that modeling showed would remove larger quantities of pollutants than the CSO projects alone. This projection proved to be correct. A 2018 expanded stormwater arterial street sweeping project removed nearly 60 tons of total suspended solids and 90 pounds of phosphorus—about 90 times more total suspended solids and 4.5 times more phosphorus as the six deferred CSO projects.

Note that if a water quality standard variance has been approved for the permittee and/or the waterbody, you must consider the interim requirements of the variance while determining whether alternatives will meet Clean Water Act requirements. For more information on water quality standard variances, visit: https://www.epa.gov/wqs-tech/water-quality-standards-variances.

Permittees may use publicly available tools to estimate reductions achieved by stormwater best management practices (BMPs) and/or hydrologic tools to model water quality outcomes of the proposed projects. The table below provides basic descriptions of some of these models.

Tool	Description	Inputs	Considerations
Stormwater BMP Tools			
EPA's Storm Water Management Model (SWMM)	Watershed-scale continuous-simulation rainfall-runoff, pollutant loading, and hydraulic model; quantifies runoff volume and pollutant load reduction benefits of BMPs and conventional stormwater infrastructure	Meteorological data, land surface characteristics (e.g., impervious area, soil characteristics), drainage network characteristics, BMP characteristics	Pollutant loadings need calibration to local conditions Not set up for regional scales
EPA's National Stormwater Calculator	Estimates the annual amount of rainwater and frequency of runoff from a specific site based on local soil conditions, land cover, and historical rainfall records	Land cover, green infrastructure practices for the site	This site-level analysis can only be used for sites smaller than 12 acres
EPA's Watershed Management Optimization Support Tool	Helps users identify least-cost solutions to meet water quality criteria for lakes or streams/rivers, pollutant loading targets, and/or minimization of CSOs	Baseline hydrology data, BMP characteristics, land use, water use and demand, water supply sources	Requires runoff and recharge rate inputs from other watershed or hydrologic models Built for minimizing costs and focusing on water quality and quantity issues

EPA's Visualizing Ecosystems for Land Management Assessment	Helps regional planners and land managers quantify the effectiveness of natural and engineered green infrastructure management practices for reducing sources of nutrients and contaminants in streams, estuaries, and groundwater	Drainage area characteristics, BMP characteristics, pollutant load reduction targets; riparian buffers, cover crops, constructed wetlands	Can be difficult to navigate the model (technical), but results are useful and implementable
Hydrologic Tools			
U.S. Department of Agriculture Natural Resource Conservation Service's Technical Release 55 (TR-55)	Estimates runoff and peak discharges in small watersheds	Drainage area, land use, design storm amounts and distribution, time of concentration	Does not model water quality
Tool	**Description**	**Inputs**	**Considerations**
U.S. Army Corps of Engineers' Hydrologic Engineering Center's River Analysis System (HEC-RAS)	Performs sediment transport modeling and riverine water quality analyses for dissolved nitrogen, dissolved phosphorus, algae, dissolved oxygen, and carbonaceous biological oxygen demand	Stream geometry data, flow data, water quality data, water temperature, dispersion coefficients	Only applicable to river flow

When interpreting the outputs of a water quality outcomes model, consider:

- Are input data representative, reasonable, and recent?
- Do inputs (e.g., land use, precipitation) reflect current local conditions?
- Are conditions expected to change within the planning period? If so, does the model reflect future conditions such as climate change impacts?
- Are assumptions documented, transparent, and reasonable?
- Has a sensitivity or uncertainty analysis been done? If so, has it reported an acceptable range?

RESOURCES:

- EPA's Watershed Management Optimization Support Tool training videos.
- EPA's surface water quality modeling training.
- EPA's Green Infrastructure Modeling Toolkit.
- The U.S. Department of Agriculture's Hydrology Training Module: TR-55 Microcomputer Program.
- The U.S. Army Corps of Engineers' HEC-RAS documentation.

Determine whether the proposed alternative will provide additional environmental or health benefits to the permittee's community.

In addition to meeting water quality goals, integrated planning can result in other environmental or health benefits for the community. These may include:

- Extending the projected supply of current water resources through water reuse.
- Improving resiliency to flood events.
- Creating recreational green space by utilizing green infrastructure.
- Supporting communities with environmental justice concerns.

RESOURCES:

- *Planning for Sustainability: A Handbook for Water and Wastewater Utilities*
- *Making the Right Choices for Your Utility: Using Community Priorities and Sustainability Criteria for Water Infrastructure Decision-Making*

Evaluate the integrated plan's financial strategy and capability assessment data and outcomes.

A community can consider its financial capability and options when selecting alternatives and developing associated implementation schedules. The financial strategy and capability assessment should ensure investments are sufficiently funded, operated, maintained, and replaced over time.

Consistent with EPA's recommendation in the *Clean Water Act Financial Capability Assessment Guidance*, permitting authorities could encourage communities to submit additional documentation for consideration that would create a more accurate and complete picture of their financial capability.

When reviewing the financial strategy and capability assessment outcomes and documentation during permit development, you should ensure that the data used is appropriate and any assumptions are transparent.

The Missouri Department of Natural Resources conducts financial capability assessments for permittees as part of its permit renewal process to determine the financial impacts of permit requirements. The state created a financial questionnaire for communities and uses data from the U.S. Census Bureau's American Community Survey to update tools annually.

RESOURCES:

- EPA's Clean Water Act Financial Capability Assessment Guidance (the 2023 FCA Guidance).
- EPA's *Financial Capability Assessment Framework for Municipal Clean Water Act Requirements* (the 2014 FCA Framework).

Communicate any questions/concerns to the permittee.

It may take more time to review an integrated plan and implement it into a permit than the typical permit development process, so it's important to communicate with the permittee early and often. Once you have reviewed the plan, you may have questions or concerns about certain elements of it. Make sure to coordinate questions from other staff who have reviewed the plan, such as permit writers or modeling experts. Refer to Module 2 for more information on how to effectively collaborate with permittees.

Taking notes during meetings and sharing a summary of discussion topics and outcomes can help you make sure that you and the permittee are on the same page. This will help everyone involved have a clear, shared understanding of the action items and timelines, and thus ensure that any updates or back-and-forth happens quickly.

Coordinate plan review and permit development activities.

When working with multiple permitting authority staff, it is important to coordinate roles and responsibilities. This can help you ensure that you have accounted for all plan elements and permit and/or other compliance documents and provided all necessary supporting information.

As a reminder, the activity log in the Module 3 workbook is designed to help you keep track of this coordination and document review activities.

The Virginia Department of Environmental Quality had initial meetings about integrated planning with the City of Richmond in 2013. Between then and 2017, Richmond continuously communicated with the permitting authority and a multitude of stakeholders on the development of the plan and draft permit. Richmond submitted its integrated plan along with a draft permit application in June 2017. The permit application was submitted in January 2018 and Virginia's first integrated permit was issued in October 2018.

Develop permit requirements that account for the permittee's integrated planning proposed alternative as appropriate.

The permit can require implementation of the proposed alternative by referencing required projects, water quality or quantity targets, or compliance schedules. For example, where a WQS variance applies to the permittee, the permit terms and conditions must reflect the requirements of the WQS variance, including any proposed alternatives or activities. If no changes to the permit requirements are needed, based on the proposed alternative, the special conditions or supplemental information sections of the permit can still acknowledge that the permitting authority and the permittee agreed on the plan. Referencing the plan documents your agreement on a set of long-term water quality projects.

> "The permittee shall continue to implement a program for maintenance and repair of its collection system according to the City's Integrated Management Plan, which was adopted by the Columbia City Council, Resolution 198-18 and acknowledged by the Department in a letter dated March 21, 2019."
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> —*Columbia, Missouri, special conditions permit language*

The integrated planning outcomes may have to align with multiple regulatory schedules including those established by enforcement orders or total maximum daily load wasteload allocations. Since this alignment requires more coordination than a typical permit, it is important to keep track of the applicable schedules and ensure the plan still meets the individual requirements.

In addition, when reviewing an integrated plan to determine if a schedule extension is appropriate, consider whether the permittee has taken steps to address community impacts and consider disproportionate burdens. You should also consider non-financial metrics and environmental and public health considerations that may affect the appropriate length or sequencing of a compliance schedule.

Ultimately, the goal should still be to complete the most environmentally beneficial projects as early as possible.

As a reminder, schedules of compliance in permits are required to meet water quality standards as soon as possible per Clean Water Act section 301(b)(1)(C) and in the NPDES regulations found at 40 Code of Federal Regulations (CFR) 122.47. A permit incorporating an integrated plan may include a schedule of compliance that may be implemented over more than one permit term if it is authorized by the state water quality standards and meets 40 CFR 122.47. For water-quality-based effluent limitations implemented in permits, a compliance schedule must include an enforceable final effluent limitation and a date for its achievement (within the timeframe allowed by the permitting authority).

If the compliance schedule(s) necessary to incorporate the integrated plan schedule or outcomes extend beyond the five-year permit term, they should be incorporated in an appropriate enforceable mechanism. Watch how the Kansas Department of Health and Environment used both permitting and enforcement tools to implement Johnson County's integrated plan.

EPA's Integrated Planning Roundtable with State Permitting Authorities: Compliance Schedules

RESOURCES:

- EPA's *Compliance Schedules for Water Quality-Based Effluent Limitations in National Pollutant Discharge Elimination System Permits*.
- EPA's *National Pollutant Discharge Elimination System Permit Writer's Manual*, Section 9.1.3.

Develop monitoring and reporting requirements that reflect implemented elements of the integrated plan.

The permit will need to include monitoring and reporting requirements that give the permitting authority certainty that the integrated plan project(s) implemented in the permit are progressing as planned and achieving the anticipated water quality benefits and other outcomes. It may be more efficient to consolidate reporting requirements across multiple permits into a single annual report. Each permit would refer to this report requirement and require a summary of specific items (e.g., project status, plan updates). The single annual report would allow the permitting authority to monitor progress of the plan as a whole, ensure that projects are achieving anticipated water quality benefits across multiple discharge sources, and avoid duplication of effort for both permitting authority and permittee staff.

> "The City will provide the Department with an implementation progress report annually, by November 28th, for the previous City fiscal year. The report shall be submitted to the Missouri Department of Natural Resources, Water Protection Program. The report will include the following:

1. Implementation activities performed during the prior year;
2. Any proposed updates to the Integrated Management Plan; and
3. Implementation activities planned for the following year. ”

—Columbia, Missouri, permit language

“ The permit combining the combined sewer system and MS4 annual reports did help to reduce…reporting redundancy and also encourages communication between staff from those two facilities. ”

—Adam Eller, Virginia Department of Environmental Quality

You may want to require that permittees make their integrated plans and any revisions publicly available. This will raise awareness about the adaptive nature of the integrated planning process and the benefits that can be realized during implementation.

Columbus, Ohio, maintains a “Blueprint Columbus” website that includes the final integrated plan. The website also features an interactive map with project locations, background information for the public, and other resources.

Include integrated planning documentation in the administrative record.

Items to incorporate in the administrative record that specifically pertain to the integrated plan include:

- Final integrated plan.
- Records of correspondence with the permittee about the plan.
- Summaries of meetings with the permittee about the plan.

In addition, it may be helpful to reference the following within the permit’s fact sheet:

- Assumptions and models used in the plan.
- Discussion of how the alternative analysis or financial strategy and capability assessment factored into the compliance schedule, if applicable.

As a reminder, the administrative record associated with a permit—possibly including an integrated plan—must be publicly available.