



Watershed Planning and Management

LORMAN

Published on www.lorman.com - December 2017

Watershed Planning and Management / ©2017 Lorman Education Services. All Rights Reserved.

INTRODUCING

Lorman's New Approach to Continuing Education

ALL-ACCESS PASS

The All-Access Pass grants you **UNLIMITED** access to Lorman's ever-growing library of training resources:

- ✓ Unlimited Live Webinars - 120 live webinars added every month
- ✓ Unlimited OnDemand and MP3 Downloads - Over 1,500 courses available
- ✓ Videos - More than 1300 available
- ✓ Slide Decks - More than 2300 available
- ✓ White Papers
- ✓ Reports
- ✓ Articles
- ✓ ... and much more!

Join the thousands of other pass-holders that have already trusted us for their professional development by choosing the All-Access Pass.



Get Your All-Access Pass Today!

SAVE 20%

Learn more: www.lorman.com/pass/?s=special20

Use Discount Code Q7014393 and Priority Code 18536 to receive the 20% AAP discount.

*Discount cannot be combined with any other discounts.

Watershed Planning and Management

With more states passing very tough environmental protection laws and clean water regulations, developers and utility professionals are finding it increasingly complex to start new construction or planning work nationwide. While the Environmental Protection Agency has long regulated the impact of human developments on water, especially through the use of the Clean Water Act, the agency has also encouraged states across the country to develop their own, unique systems of assessment when it comes to the impact of a new development or installation on local water quality, downstream impact, and long-term pollution concerns that could result in negative effects not only for water and the environment, but for the communities that lie within the entire watershed region.

This network of guidelines, regulations, and restrictions, can be pretty hard to navigate at first. Stepping back and taking a broader view, however, reveals that most state plans share common requirements and goals when addressing the issue of water pollution and watershed management. Those developers and utility companies looking to install everything from new pavement to new pipes should be aware of these basic pillars of regulation so that they can easily supply all of the necessary information to both state and federal regulators.

State and Federal Resources: Where to Go for Greater Clarity and More Information

Watershed planning and management should generally follow the same hierarchy as the government itself, with developers first looking into the EPA's development and planning requirements and then working to fine tune their plan to meet state objectives and requirements. The Environmental Protection Agency has an entire internal department dedicated to water quality and cleanliness, and even a sub-department dedicated simply to watershed planning. At Water.EPA.Gov, developers can find a wealth of planning guides and outlines, as well as educational guide books that give insight into how studies should be conducted, repaired, and reported on, when filing for federal approval and oversight of a new development or utility installation.

State and Federal Resources: Where to Go for Greater Clarity and More Information

Watershed planning and management should generally follow the same hierarchy as the government itself, with developers first looking into the EPA's development and planning requirements and then working to fine tune their plan to meet state objectives and requirements. The Environmental Protection Agency has an entire internal department dedicated to water quality and cleanliness, and even a sub-department dedicated simply to watershed planning. At Water.EPA.Gov, developers can find a wealth of planning guides and outlines, as well as educational guide books that give insight into how studies should be conducted, repaired, and reported on, when filing for federal approval and oversight of a new development or utility installation.

With the EPA's guides fully understood, developers can proceed to their state's environmental agency. In most cases it's as simple as looking for something like the state Department of Environmental Protection. The agency's name, like its goals for statewide developments, is generally similar to the federal agency it was designed to mimic.

Developers should read through state regulations pretty carefully, as there may be some aspects of state regulations that are actually a bit stricter than federal guidelines. In fact, the leading reason that states often develop their own watershed planning programs is to enforce greater scrutiny of developments and tighter pollution regulations than even the EPA's laws would ordinarily allow.

Starting Out: Work with Local Agencies and Stakeholders

The key component of any EPA watershed management plan or its state equivalent is to show the potential impact of a new development on a specific watershed. Generally, this refers to not only the impact on local water, but also the impact of potential water contaminants on local businesses and homeowners who depend on the watershed for their drinking water and livelihood. To understand exactly how these impacts will affect homeowners and local businesses, developers need to begin by setting up a series of public meetings, private discussions with local employers, and conferences with community agencies or county government offices.

During this process, it's important to present not only the goals for the project, but any expected contaminants or ramifications from that project's completion. This often demands that an environmental impact study be completed before the project begins, but some developers may be able to use existing studies into utility work and public works that have already been conducted by state governments.

The goal of this process, as dictated by the Environmental Protection Agency's watershed planning guide, is simply to identify the key areas of concern that affect local businesses, community leaders, and residents. These areas of concern create a framework for a better development, and they give the developer a way to reach out to the community and quell any concerns they might have about the quality of their drinking water or the impact of a new development on potentially fragile marine life and local ecosystems. Any documented areas of concern expressed by anyone affected by the development should be extensively documented, making up the first part of a watershed management proposal that will be submitted to both the EPA and the state agency responsible for regulating developments statewide.

Next, Characterize and Inventory the Watershed Area

While the first part of a watershed management plan is designed to see where local leaders, residents, and businesses stand regarding a new development, the second part of this process is to determine exactly where the watershed stands. All watersheds are not created the same, and some suffer from major existing environmental damage while others remain relatively healthy and untouched. By characterizing the watershed, developers learn more about the challenges and opportunities that await them.

Essentially, a characterization of the local watershed requires a few components. Known as "inventory," these components assess everything from the watershed's boundaries to existing pollution levels and data about water flow. According to federal guidelines set out by the Environmental Protection Agency, the inventory of a local watershed should, at minimum, include the following components:

- Natural features, including the watershed's boundaries, hydrology, and the soil types of the areas in the watershed
- A survey of local land use, existing watershed management plans, population in the watershed region, and any existing land cover
- Conditions of the existing water body, including 305(b) and 303(d) reports, assessments of the watershed's source water quality, and any existing studies into water quality in the nearby area
- A survey of the existing sources of pollution that directly or indirectly affect the watershed and the water quality contained within
- Monitoring data indicative of water flow, water quality, local biology, and other factors reported on an ongoing basis by local agencies

All data pertaining to the watershed should be obtained from state and local agencies or the federal government, with eligible data often found within the EPA itself as well as virtually every other environmentally-focused agency in Washington. Private studies are treated as suspect by the Environmental Protection Agency and their inclusion is generally advised against in almost every case. If including a private study, it may be worth contact the agency and verifying that study's merits before placing it into the study results.

EPA guidelines state that the full results of all studies and inventory procedures should be placed into a standard spreadsheet for easy understanding and approval by agency employees. Alternatively, developers can place this information into a database using a program like Microsoft Access or similar.

Finally, developers need to look at the full amount of data they have collected and honestly assess whether or not that data is sufficient to fully characterize the watershed. While many of the nation's largest watersheds, from the Chesapeake to the Colorado River, are easily characterized and have access to thousands of studies, many more remote areas simply have less access to data. If the watershed cannot be properly characterized using all existing state, local, and federal data, the EPA recommends developing a sampling plan for future studies and further review.

Developers who do have access to a robust amount of data should use that information to determine any gaps in their approach to building or utility installation. They should look for links between watershed problems or impairments and local pollutants, and determine if those links might preclude their development from gaining approval. If it exacerbates an existing pollution problem in any area, for instance, a project may have to be retooled to adhere to different guidelines or compensate for that exacerbation.

Begin to Set Goals for the Watershed Management Plan

The early steps of a watershed management plan ask developers to make goals for the quality of local water and the impact of the development on local life for businesses, residents, and natural habitats. By necessity, those goals are generally rather broad and vague, mostly because developers do not yet have the data needed to pinpoint how the watershed is already affected, how it will be affected even more in the future, and how their implementation of a watershed management plan could help restore many natural features to the area over time.

The data, though, is compiled in the second step of the process and pretty clearly paints a picture of exactly what a developer needs to do in order to preserve or enhance the quality of the water in a large watershed. While an early goal might have been to protect the natural habitat, for instance, a series of studies might have shown in step two that the habitat suffers due to a specific pollutant or a local business that contributes to excessive erosion and sediment loss. These conditions are pretty major for the wildlife that depends on the watershed for their livelihood and, in the case of highly concentrated pollutants, even the residents of local communities could suffer.

With studies that pinpoint the causes of watershed degradation, developers can make better plans to restore the watershed and negate their impact on water quality and local ecology. In the case of the example above, developers might resolve to help reconstruct water features that would prevent significant erosion, and bring in sediment that instantly reverse a process that may have been going on for years or even decades. If a specific pollutant represents a problem for local water quality, the developer could make specific goals and outline approaches that will see a reduction in that pollutant. They might also propose goals and methods that would allow them to have a net negative impact on local pollution affecting water quality.

Specific goals are important, and they are the first way to begin shoring up support among state officials, local leaders, and residents who depend on the watershed for their daily lives. The next part of the process, though, involves developing targets and indicators that show how well a goal is being achieved. These indicators serve as interim goals and measurements that show the effectiveness of the plan as implemented. They also show areas of opportunity for revision or greater action.

Generally, the Environmental Protection Agency prefers that these targets and indicators work in three key ways: Environmental, social, and pragmatic. For those developers unfamiliar with how to meet these three components, a few guidelines are laid out by the agency for easy review.

Environmental Indicators

This is perhaps the most straightforward type of indicator. The EPA generally advises that a good environmental indicator closely monitors water quality and pollutant reduction, focusing on the impact of a watershed management plan on a mile-by-mile basis. Monitoring every mile of water within the watershed for negative or positive changes in pollutants or quality incrementally is a key part of any successful plan.

Social Indicators

Developers should work to bring more local residents into line with their own goals for the watershed, urging them to pledge their support for a local watershed quality improvement program or seeking to enroll them in educational courses related to water quality improvement and pollution reduction in their local area. Incremental indicators for this component would include the number of residents signed up for such programs on an ongoing basis, with the goal to increase those numbers over time and eventually near full participation.

Pragmatic Indicators

This component focuses on the practical methods used to monitor water quality and pollutants, and usually concerns the number of meters and high-tech devices installed along local waterways. More meters equates to more incremental improvement, setting a realistic goal for more comprehensive monitoring over the course of a few weeks, months, or years.

Create Pollutant Reduction and Watershed Management Goals

Finally, developers need to create goals for the specific reduction of pollutants in a watershed that their early accumulation of data indicated could be a problem over the long-term. This involves identifying specific targets for pollution levels and creating practical ways of lowering those pollutants to a level that creates a healthier quality of water overall.

Furthermore, this plan should focus on the best management strategies for accomplishing a reduction in overall pollution. It's important to consider that many watersheds nationwide are experiencing an influx of new residents and types of businesses, changing their overall character and the ways in which they are used. This should be compensated for when developing both pollution management strategies and management strategies that can help the plan's goals become a reality on or ahead of its intended timeframe.

Create a Plan for Full Implementation of the Management Program

Much of the hardest work involved in watershed management is actually complete by this point, with developers only needing to work out exactly how they'll implement their pollution reduction strategies and their management strategies for achieving each of their goals. This typically involves a few key components that will be subject to review by local residents, local agencies, and state and federal regulators.

First, it involves creating a schedule for the entire watershed management approach. Within this schedule, processes should be explained and expanded on. If the developer believes that the installation of monitoring devices should be their primary concern, and the first step in local management, they should be prepared to explain why this is the case and how long it will take to fully implement those devices.

For developers looking to neutralize existing pollution or reduce existing environmental effects on rivers, creeks, and streams, set a schedule and timetable for reducing those pollutants or performing tasks like importing sediment, removing certain types of soil, or restoring areas of the watershed to their pre-development status. Explain each step of this process, how long it will take, and why it will take that long. Regulators prefer to see very specific details about changes being made to any natural habitat.

Developers should also establish a series of milestones that will indicate the success of the project, or the lack thereof. Generally, the EPA likes to see milestones that existing in the short-term, about one to two years into the plan, as well as mid-term milestones five years from implementation and long-term milestones that are ten or more years down the road from initial implementation of the watershed management program.

Begin Implementation of the Watershed Management Plan After Approval

The hardest planning work is over, and developers can now get to their biggest task: implementation. This is where the goals, milestones, and monitoring programs really begin to take shape. Work will need to be done according to the schedule submitted to the EPA and local agencies, and developers will need to begin their social goal efforts as they seek to educate residents and businesses about the watershed and their impact on it.

Implementation, in most cases, begins between one and three years after the first step in this process, which involves meeting with community leaders to assess their initial concerns about the project. There is no specific way to determine how long a watershed management program will take to implement and see results, but many of these programs typically require between five and ten years of work, monitoring, and plan adjustment, to see results and accomplish the goals set out during the initial steps of plan development.

Always Make Sure a Federal Plan Concurs with State Regulations

While much of the planning focus will necessarily be on meeting the EPA's high standards, it's worth noting that many states do employ even stricter limits on pollutants in their watersheds and developments that might have a harmful effect on local ecology. While an EPA-approved watershed development plan is a really great milestone, developers should be mindful that the state will still require a review of their plan before it can begin implementation.

This generally means that developers research state targets, and create a plan for the EPA that meets local targets instead of federal limits. In almost every case, this is a better strategy for plan creation as it doesn't require the submission of separate plans to separate agencies, nor does it require a period of time when the plan must be revised and resubmitted, even after initial federal approval.

Be aware that some states may require additional studies to be conducted that the Environmental Protection Agency would normally not require at the federal level, and they may have strict waiting periods and mandated community meetings that the EPA also would not impose on developers at the federal level. By getting an understanding of how state regulations will affect both the watershed management planning process and the length of time it will take to commence development, those in the public works and utility industries can avoid unpleasant surprises and unexpected efficiencies that might put their project well behind schedule.

Not as Hard as it Sounds: Watershed Planning is an Easy Component of Development

Watershed planning benefits from a wealth of state and local studies that have been conducted on almost every watershed nationwide. It further benefits from the proliferation of much better technologies and practices that reduce pollution as a matter of fact. While the government's standards are pretty tough, and their degree of oversight is quite high, developers should find it rather easy to find the information and resources they need to develop a state, local, and community consensus on a new development.

As a rule, it's a good idea to always be mindful of state regulations over federal limits, and to create a singular plan that can satisfy both levels of government on its own. With careful attention to the details of local and state regulations, developers will be able to implement their plan and continue with large developments within several months or a year from the commencement of initial meetings, studies, and goal setting.

The material appearing in this website is for informational purposes only and is not legal advice. Transmission of this information is not intended to create, and receipt does not constitute, an attorney-client relationship. The information provided herein is intended only as general information which may or may not reflect the most current developments. Although these materials may be prepared by professionals, they should not be used as a substitute for professional services. If legal or other professional advice is required, the services of a professional should be sought.

The opinions or viewpoints expressed herein do not necessarily reflect those of Lorman Education Services. All materials and content were prepared by persons and/or entities other than Lorman Education Services, and said other persons and/or entities are solely responsible for their content.

Any links to other websites are not intended to be referrals or endorsements of these sites. The links provided are maintained by the respective organizations, and they are solely responsible for the content of their own sites.