

Agency-Led Technology Innovations Streamline Environmental Compliance

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“The barrier to getting an idea out to the world has never been lower. You can simply have a fabulous idea, and if you can build a website, you can have it out to the world. That simple.”

Alexis Ohanian (founder of the website reddit: “the front page of the internet”)

Most often, we tend to think of corporations and industries as the leaders in innovation. But when public agencies take the lead in being innovative it gives reason to pause and take notice. **Felsburg Holt & Ullevig (FHU)** is working with two public agencies in Nebraska that are using their websites to improve data capture procedures and streamline environmental compliance and transparency. Their efforts challenge the stereotype that public agencies are less flexible, slow to respond to market demands, or unable to accommodate existing systems with technology advances. **Nebraska Department of Roads (NDOR)** and the **City of Omaha** are leading the way by investing in technologies that promise to strategically modernize the delivery of their environmental oversight services.

NDOR carries the responsibility of overseeing the environmental review process and the delivery of environmental commitments for construction projects in eight districts State-wide. One area of environmental protection that has received increased scrutiny over the last 10 years is stormwater management on construction sites. Each project that disturbs an acre of soil or more must take measures to prevent erosion from leaving the construction site and impacting waters of the State. Even with improved design plans, specifications, and more erosion control products than ever, NDOR continues to face the challenge of preventing erosion from all of their active construction. To address the scope and scale of this stormwater problem and other related issues, FHU assisted NDOR with the creation of their own Environmental Compliance Oversight (ECO) Database.

The idea behind **ECO Database** is simple. Capture periodic inspection reports electronically instead of manually and harvest the information to resolve every finding in a timely manner. The most important concept for stormwater compliance is to document findings and to document when and how they were resolved. This has historically occurred using paper forms which left a paper trail as wide as the State and equally difficult to get your arms around. Within ECO Database, project inspectors are taken through the inspection process electronically so that each finding is tracked through the point to which it is resolved. This has not always been possible, and will go a long way to ensure NDOR continues to put its funds towards construction projects and not environmental fines due to non-compliance.

The power behind ECO Database is found in the compilation of all the data points that exist in the system. Each finding is unique, but it can be quickly associated with other data points in the system to identify problem areas and important trends that would otherwise be lost in a paper-based system. Periodic reports will provide any user of the ECO Database with summaries of average time to make corrective actions, total number of unresolved findings for a project, percentage of silt fence installations that did not meet the project specification in a given district, and so on. NDOR will also be

able to prioritize their internal compliance assistance efforts by working with Project Managers or contractors that demonstrate the need for additional education and oversight.

NDOR has begun to expand the ECO Database beyond stormwater compliance. Email notifications of construction inspection reports or of inspection reminders are built into the system which may be useful for other environmental commitments such as wetlands mitigation, 404 permit conditions, endangered species surveys, migratory bird surveys, and many others. This communication aspect can be used to keep the Project Engineer, Local Project Representative, Project Manager and even the Environmental Agencies (if necessary) abreast of important project developments during the construction project. NDOR continues to drive the ideas behind ECO Database around their procedures and is streamlining environmental compliance with each improvement of the technology.

The City of Omaha is also required to oversee stormwater compliance, but Omaha is not new to the use of digital technology to oversee stormwater permits and inspections. A web-based system has been in place for many years now, but the new requirements by the City and other Papio Partners to provide stormwater treatment on every new development and significant redevelopment projects created a new problem. A new permitting process (Post-Construction Stormwater) was being added to the existing grading permit process and some frustration had already been expressed about the accountability and transparency of the Public Improvement Plan review and approval process. Omaha asked two very important questions, “How are we going to track all of these new stormwater treatment Best Management Practices,” and “How can we integrate the permitting process with the other review processes that the City conducts.” The answers to these questions led FHU towards the development of the tracking system **Permix** (which means to mingle).

The first component of Permix was an innovative use of web-based technology that facilitates the submittal, review, comment, response, approval and tracking function of the City’s requirements. Rather than the process occurring manually or via email, applicants would upload their documents to a website for the City to review. The City would open images of each pdf and place comments directly on the page for the applicant to address. The applicant reviews the comments and addresses them accordingly in a matter of a few clicks. All information is centralized and backed up for secure storage and future reference. Projects are approved in a fraction of the time and the information about each BMP and owner is captured for other water quality purposes.

The timing of this component worked well with other needs of the City to cross reference the other two permit/review procedures. The City determined that each project could be tracked in one system if significant changes were made to how information was submitted for review. Permix became the umbrella that stood over three different modules; one for Post-Construction, one for Grading, and one for Public Improvements. A fourth module was created to facilitate construction stormwater inspections. This module was called Project Inspection Reporting and Tracking (PIRT) and is closely tied to the functionality described for NDOR previously.

Permix is close to being released as final enhancements are anticipated after user feedback is gained. The City of Omaha intends to be accountable, visible, and reliable in the review and approval of

submittals. Tying each of the processes together into one system is an important aspect of accomplishing these lofty goals. With the support and feedback of the engineering community, the end result will be a positive outcome for developers, engineers, city staff, inspectors, and the environment.