Using GIS
for NPDES Phase II
Stormwater Compliance

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What is NPDES?

- NPDES is an acronym that stands for National Pollution Discharge Elimination System.
- In response to the 1987 Amendments to the Clean Water Act (CWA), the U.S. Environmental Protection Agency (EPA) developed Phase I of the NPDES Stormwater Program in 1990.

What is NPDES?

- NPDES Phase I required permits for the discharge of stormwater to waters of the state from:
  - Medium and large municipal separate storm sewer systems (MS4s) located in incorporated places or counties with populations of 100,000 or more;
  - Eleven categories of industrial activity which includes construction activity that disturbs five or more acres of land

NPDES Phase II

The Phase II Final Rule, published in the Federal Register on December 8, 1999, requires NPDES permit coverage for stormwater discharges from:

- Certain regulated small municipal separate storm sewer systems (MS4s); and
- Construction activity disturbing between 1 and 5 acres of land (i.e., small construction activities).

NPDES Phase II
Minimum Control Measures

NPDES Phase II MS4 permits require small municipalities to develop a program to implement 6 Minimum Control Measures.

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Pollution Prevention and Good Housekeeping

GIS can be used meet the requirements of all these measures

Public Education and Outreach

- **Requirements**
  - distribute educational materials to the community

- **GIS Application**
  - Map included in flyers that shows where pollutants would flow.

Public Participation/Involvement

- **Requirement**
  - Comply with public notice requirements;

- **GIS Application**
  - Public notice residents and businesses near proposed installation of stormwater infrastructure

Illicit Discharge Detection and Elimination

Requirements

- A storm sewer system map,
- A prohibition on non-stormwater discharges,
- A plan to detect and address non-stormwater discharges,
- The education of public employees, businesses, and the general public about the hazards associated with illegal discharges

Construction Site Runoff Control

Requirements

- Require the implementation of proper erosion and sediment controls, as well as other waste controls
- Site plan review of construction plans
- Procedures for site inspection and enforcement
- Sanctions to ensure compliance
- Receive and consider information submitted by the public

GIS Application

- Construction site inspection

Post-Construction Runoff Control

Requirements

- Require the implementation of post-construction runoff controls
- Ensure adequate long-term operation and maintenance of controls;

GIS Applications

- Site Plan review and analysis
- Post-construction BMP inspection

Pollution Prevention/Good Housekeeping

Requirements

- an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations
- employee training

GIS Application

- Inventory and history of infrastructure maintenance

And the funds

- To run this program we implemented a Storm Sewer Utility that is funded by a storm sewer fee.
- Fees are based on the amount of impervious surface on a property as determined by digitizing from an aerial photo.
Finally, EPA oversight

- The State of Utah has primacy over this program and has announced they will begin auditing communities for compliance later this year. GIS can be a repository for everything they may look for in an audit.
Demonstration

- ArcGIS 9.2 with Spatial IM extension from Gateway Mapping is used to manage
  - History
  - Hyperlinks
  - Reporting
Conclusion

- GIS can be used in all 6 Minimum Control Measures set out in the NPDES Phase II Program
- Orem is looking to move forward with
  - A post-construction inspection application
  - A street sweeping history application
  - A land cover analysis
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