# Community-enabled Life-cycle Analysis of Stormwater Infrastructure Costs

## eRAMS

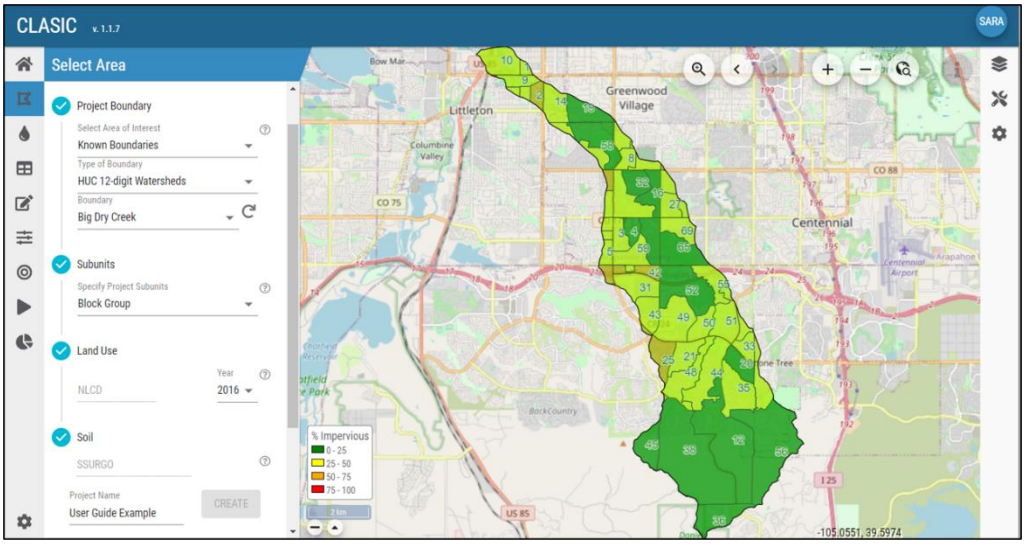
The **Environmental Resource Assessment and Management System (eRAMS)** is an open source technology that provides cloud-based software solutions as online services and a platform for development and deployment of online tools.

Version control and platform requirements are often barriers to widespread adoption of new technologies.

We develop platform independent software to access analytical and "big" data management systems. eRAMS streamlines access to publicly available databases and simplifies workflows.

Our software holistically integrates data and models to comprehensively assess water, land, energy and other linked systems.

Our services are used to assist with strategic and tactical decision making for sustainable management of land, water, energy and other connected resources.




The **Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC)** tool is a screening tool utilizing a lifecycle cost framework to support stormwater infrastructure decisions on extent and combinations of green, hybrid green-gray and gray infrastructure practices. The tool is hosted on the novel eRAMS platform which includes a geographical information system (GIS) interface and interacts with national databases to upload data for the modeled area.

Users can create scenarios of stormwater control measures including climate and land use projections to assess lifecycle costs, performance, and co-benefits associated with those scenarios. The CLASIC tool is designed for screening combinations of practices but is not intended for optimization of designs

CLASIC was developed by grantees from the Water Research Foundation, Colorado State University, Witchita State University, the University of Maryland – College Park and the University of Utah under US Environmental Protection Agency's National Priorities: Life Cycle Costs of Water Infrastructure Alternatives (2015) Award and National Science Foundation's Sustainability Research Network (2015) Award.

## CATENA ANALYTICS

Catena Analytics provides powerful platforms for building accessible and scalable analytical tools and simulation models that can be accessed via desktop or mobile devices.

Our **Environmental Resource Assessment and Management System (eRAMS)** and **Cloud Services Integration Platform (CSIP)** present several options for developing collaborative projects and integrating geospatial data, analytics, and modeling engines.

### ACCESSIBLE

Your documents, data and tools can be accessed from commonly used web-browsers on mobile or desktop devices.

### SCALABLE

Our sophisticated distributed storage and computing techniques provide the scalability and availability necessary to serve a broad range of needs.

### SECURE

We provide state-of-the-art data protection solutions and instant access to digital resources using a secure user account.

# Key Features

The GIS-interfaced **Community-enabled Lifecycle Analysis of Stormwater Infrastructure Costs (CLASIC)** tool enables users to assess scenarios of storwmater infrastructure via functional unit analysis for robust decision making based on preferences to evaluate regulatory compliance, runoff volume reduction, water quality, social and environmental benefits and life-cycle costs. Users can couple financial decisions with holistic consideration of benefits as well as conduct analysis from the neighborhood to watershed scale. More information is available at: https://erams.com/catena/tools/urban-planning/clasic/

## DATA

The CLASIC tool fetches live data from the following publicly available datasets:

- USGS National Land Cover Dataset (NLCD)
- Natural Resources Conservation Service Soil Survey Geographic Database (SSURGO)
- EPA Better Assessment Science Integrating Point and Non-Point Sources (BASINS)

## RESULTS

Three categories of outputs are provided by the CLASIC tool:

- **Life Cycle Cost** – Structured to provide feasibility level municipal budget estimates over time for a variety of SCM construction and maintenance costs.
- **Performance** – Performance of scenarios is estimated in terms of hydrology (e.g. peak runoff and volume reduction) and pollutant load reduction.
- **Co-Benefits** – Analysis is informed via multi-criteria decision analysis (MCDA) output. The MCDA provides quantitative output to compare co-benefits across scenarios of technology selection.

These three components of outputs are intended to work in tandem to inform decisions on scenarios. When a user views outputs, they have the option to create new scenarios based on knowledge gained from the previous scenario outputs.

# System Requirements

A modern web-browser is required to connect and run the web-tool. Browser options include: Google Chrome v.69, Mozilla Firefox v.62, Safari v.11.1, and Microsoft Edge v.17. ***Note: the CLASIC tool is not compatible with Internet Explorer.***

CATENA ANALYTICS

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