



CTG's Sustainable Communities Model® (SCM)

CTG's Sustainable Communities Model® (SCM) quantifies total environmental impacts (including energy use, water use, greenhouse gas emissions, air pollution emissions, stormwater, transportation impacts, solid waste, and other factors) allowing communities to optimize planning and design decisions that result in the greatest environmental benefit for the least cost. The SCM takes a quantitative, systems-based approach towards sustainability. This enables a project's design team to "connect" each specialty's detailed analyses together to explore and optimize environmental impacts that cross disciplinary boundaries. The SCM is scalable over a wide range of community sizes, and can be applied to "communities" ranging from municipalities, to large master planned developments/re-developments, to academic and corporate campuses, down to individual buildings.

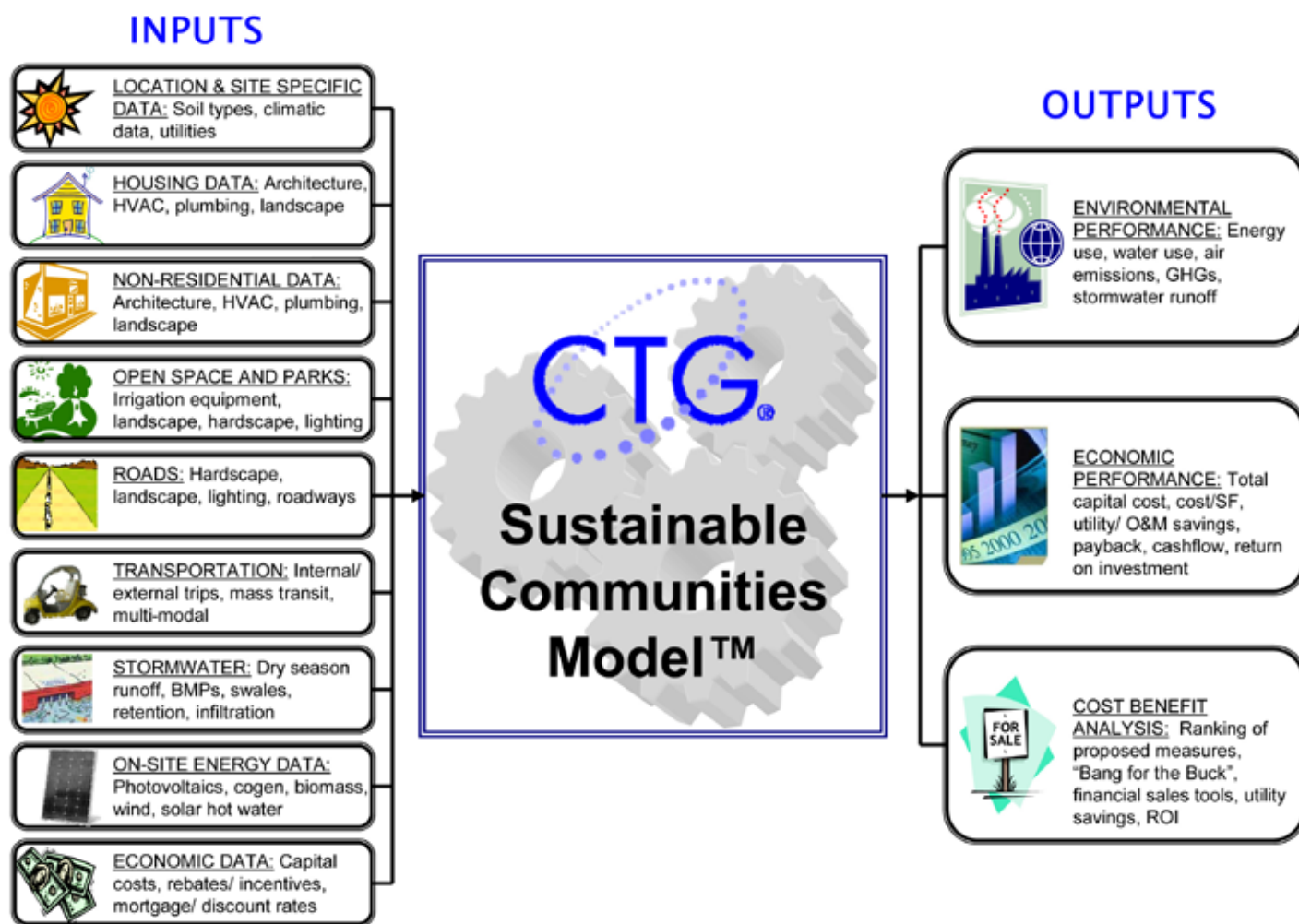


Figure 1: The SCM aggregates multiple community and building parameters as inputs and outputs environmental performance data, economic performance data and cost/benefit analyses.

[Download Presentation](#) Dr. Malcolm Lewis, "A Quantitative Approach to Optimizing Sustainable Development: CTG's Sustainable Communities Model," presentation to the California Energy Commission's 2006-2007 Integrated Energy Policy Report Committee Workshop on Land Use and Energy, 9/22/2006.

SCM Applications

Quantitative Analysis & Optimization Community Sustainability Programs

The Sustainable Communities Model® has been used to help develop cost-effective, innovative and effective sustainability programs for master planned developments to find the optimal “bang for the buck”. By quantifying the benefits of sustainability, CTG helps transform a nebulous “its good” into actual utility dollars saved, gallons of stormwater not sent to the ocean, greenhouse gas emission reductions in terms of acres of trees planted or cars removed from the road, etc. This information often provides rigorous, reproducible basis for key strategies, such as specific plans, energy master plans, and sustainability elements.

Integrated Analysis of Greenhouse Gas Emissions and Environmental Impacts

Land use decisions have significant and long-ranging implications on the emission of greenhouse gases. Greenhouse gas emissions are a cross-cutting indicator of the performance of regional plans, site designs, and buildings. The Sustainable Communities Model® helps decision makers understand the connection between emissions and other important environmental impacts, such as solid waste, water use efficiency, and stormwater runoff. This information helps identify efficient policies that yield benefits for multiple endpoints.

Assessment of Carbon Footprint and Mitigation Measures for Environmental Impact Reports

The Sustainable Communities Model® can be used to estimate greenhouse gas emissions across a range of spatial and organizational scales, from buildings to whole cities. These estimates are often called “carbon footprints” or “greenhouse gas inventories”. They provide the foundation for efforts to understand and ultimately mitigate emissions. A footprint or inventory is often used as part of a comprehensive planning process that informs the preparation of documents, such as an Environmental Impact Report or energy master plan.