



Statement of Qualifications and Services



TerraLogic Sustainable Solutions Mission Statement

Provide personalized and collaborative consulting services to our clients by incorporating new, innovative and cost effective ways of assessing and addressing transportation-environmental challenges. We create sustainable solutions that focus on quality of life issues such as environmental protection and enhancement, community and cultural connectivity and economic viability. We strive to bring our nation's transportation to a higher level by integrating sustainable principles into the overall transportation process. We are a consulting firm that will help pass on a better environment to the next generation.

TerraLogic Sustainable Solutions Overview

TerraLogic is a unique and innovative environmental consulting firm that integrates sustainability principles and concepts into civil and environmental engineering programs and projects. We provide a wide range of sustainable consulting services for federal, state and local government agencies, and private industry.

We look at our client's needs and challenges differently by taking a holistic approach that considers economics, the environment and the well-being of our communities and society. We see sustainability as a proactive, cost effective and responsible way to manage natural resources on a local, regional and global scale.

Our consulting services focus on the integration of sustainable ideas and concepts into six core service areas:

1. Environmental Transportation Consulting
2. Environmental Management for Construction and Design/Build Projects
3. Sustainability Program Development
4. Environmental Transportation Maintenance/Rest Area Management
5. Green House Gas/Carbon Management
6. Water Quality Consulting

Our goal is to make your environmental management life easier and more successful by helping you meet your company's environmental and sustainability needs in a cost efficient way. Being flexible and responsive to our clients' needs is TerraLogic's main focus. We develop environmental teams to fit your project and who will develop a working relationship with you throughout the project.

Art Hirsch is the owner of TerraLogic and is both an environmental engineer and scientist with over 30 years of environmental and transportation consulting experience. He is able to use his LEED AP accreditation with his environmental consulting background to develop unique sustainable approaches to programs and projects that will conserve limited natural resources,

protect the environment, and complement the needs of local communities, while meeting the needs of the client.

TerraLogic Core Service Areas Overview

Environmental Transportation Consulting

TerraLogic provides our transportation customers with a full range of environmental consulting services throughout the life cycle of the project, from the transportation-planning phase all the way to project construction/demolition and system operation/maintenance. TerraLogic is able to provide clients with insight into the DOT transportation process and the complexities of the NEPA process. We offer full service technical and management support during the development of Environmental Impact Statements/Environmental Assessments and Design/Build Projects. We support proactive public involvement and education on transportation projects that could impact their quality of life. We provide regulatory compliance and CDOT specification/guidance consulting to construction projects that must follow NEPA based design requirements for impact avoidance, minimization and mitigation. We develop environmental permits, perform field inspections and support design and construction engineers throughout the project.

We are very cost effective in comparison our competition that are large, expensive and impersonal environmental consulting firms; we use the services of experts who are specific to the client's environmental needs. TerraLogic's sustainability approach and experience is a critical differentiator from other transportation consultants. We focus upon resource management that is cost effective and environmentally friendly. TerraLogic allows the client to focus on the engineering aspects of the project and not worry about the sometimes complex environmental requirements and risk- that is our job.

Sustainability Program Development

Many organizations do sustainable actions to save energy, reduce solid waste, improve the environment and enhance their public image. Many organizations do these sustainable actions in an unplanned and spontaneous way that is not efficient and cost effective. TerraLogic provides our clients with comprehensive sustainability programs that fit their specific needs and environmental ethic. Sustainability is more than energy reduction; it is based upon the efficient use and reuse of natural resources with minimal impact to the environment and community. For local governments, TerraLogic uses an inventory approach that identifies and quantifies existing sustainable resources prior to the development of an overall program and implementation plan; we emphasize community education and outreach. For private industries, we work closely with company management and employees to determine their needs and understand their sustainability philosophy. We develop simple, yet comprehensive programs that work. Our sustainable programs are cost effective to clients by reducing their solid waste generation, conserving resources, improving employee participation and enhancing their company's public image.

Environmental Management for Construction and Design/Build Projects

Environmental management for construction/design-build projects provides an important function in compliance to federal state and local regulations and NEPA mitigation requirements. Many states require the development of environmental compliance manuals and matrices to ensure all NEPA mitigation requirements will be fulfilled. TerraLogic is able to coordinate with design engineers and construction managers on how to reduce environmental impacts thus resulting in reduce environmental mitigation costs. Effective resource

management is key to TerraLogic's approach in material recycling/reuse; reduce fossil fuel consumption, water quality management, and wildlife protection. We provide the technical consulting support necessary for environmental permitting, impact analysis, mitigation and monitoring.

Environmental Transportation Maintenance/Rest Area Management

TerraLogic is at the forefront in developing sustainable highway maintenance and rest area design and operational practices. Rest areas are an important safety feature for highway systems and provide a great public relations benefit; however many rest areas are inefficient in terms of natural resource consumption and financial management. TerraLogic provides site assessments and feasibility studies to DOTs or performance based contractors to make their rest areas more *cost effective* and sustainable to operate.

Our focus areas for rest areas are energy conservation and alternative energy assessment, water usage and conservation; solid and sanitary waste management, water efficient-native landscaping, stormwater management, environmental compliance, protection and enhancement, public private partnership opportunities and public outreach.

Green House Gas/Carbon Management

We will develop a carbon/greenhouse gas (ghg) management plan that will fit your regulatory needs, reduces environmental risks and complements your environmental philosophy. We identify and reduce our client's environmental risks associated with carbon and ghg emissions, and environmental impacts. We meet our client's carbon/ghg management needs by establishing baseline conditions, developing approaches to reduce emissions, and recommending appropriate carbon emission reporting that is in the best interest of the client. A carbon/ghg management plan saves our clients money, reduces emissions and provides our clients important information about current and future operating costs. We generate stakeholder reports that address green house gas emissions and long term environmental risks. TerraLogic believes it is best to be proactive and not reactive in today's economic and environmental climate.

Water Quality Consulting

TerraLogic specializes in the development of storm water management programs to protect local water resources. Pollution prevention is the most cost effective approach in managing storm water as opposed to spending financial resources on downstream, structural best management practices that are expensive to build and maintain. TerraLogic will take the pollution prevention concepts from the EPA Municipal Separate Storm Sewer System (MS4) Program and incorporate them into a watershed-based approach. This approach is cost effective to municipalities within watershed systems and protects their most valuable resources. We emphasize the use of innovative best management practices such as Low Impact Development (LID) designs to reduce stormwater flows and pollutant loading into receiving streams. We develop watershed based sediment control action plans for highway systems that have cut/fill slopes and use traction sand. He develops source control approaches that are more cost effective and water quality protective.

Consulting Services Provided

Environmental Transportation Consulting

- Design Build Environmental Management
- Sustainable Transportation Planning, Impact/Mitigation Actions
- Sustainable Construction and Operation and Maintenance Practices
- Public Involvement and Outreach
- Environmental Assessments and Categorical Exclusions (NEPA)
- Public Private Partnerships Coordination
- Environmental Impact Statements (NEPA)
- Construction Regulatory Compliance/Design-Build
- Water Quality/Storm Water Management
- Environmental Corridor Optimization Planning
- Employee Awareness and Training
- Sediment Control Action Plans

Sustainability Program Development

- Municipal Governments/Local Organizations
- State Agencies
- Private Industry
- Public Involvement and Outreach
- Consulting and Construction Firms
- Life Cycle Analysis
- Resource Management
- Sustainability Rating System Development

Environmental Management for Construction and Design/Build Projects

- Environmental Plan Documentation Development/Implementation
- Sustainability Plan/Green Construction Development
- Material Recycling/Reuse Program
- Field Environmental Compliance Audits
- Public Involvement and Outreach
- Permit acquisition
- Stormwater Management Compliance
- Idling/Greenhouse Gas Emission Management
- Impact Mitigation and Monitoring
- Contractor Training

Environmental Transportation Maintenance/Rest Area Management

- Full Service Assessment Capabilities (Assessment Through Design/Build)
- Energy Consulting
- Water Conservation
- Solid Waste/Recycling-Reuse Management
- Right of Way Analysis for Alternative Energy Generation
- Sanitary Waste Management
- Landscaping
- Environmental Compliance
- Public Outreach and Education
- Public Private Partnership Outreach and Opportunities

Water Quality Consulting

- MS4 Stormwater Permitting and Program Development
- Watershed Based Stormwater and Surface Water Management
- Low Impact Development
- Drinking Water Source Protection
- Erosion Control Management
- Watershed Assessments

Green House Gas/Carbon Management

- Green House Gas/Carbon Reporting
- Life Cycle Analysis toward Carbon Neutrality
- Stakeholder Reports
- Supply Chain Sustainability Analysis
- Emission Reduction Strategies
- Employee Awareness and Training

Arthur Hirsch - Owner, TerraLogic Sustainable Solutions



Art Hirsch has more than 30 years of environmental project management and technical consulting experience; 15 years in the environmental and transportation field. He has a unique understanding and perspective of environmental problems based upon his training and experience as both an environmental engineer and an environmental scientist. He received a Bachelor of Science degree from Michigan State University in Fisheries and Wildlife and a Master of Science degree in Environmental Engineering from the University of Colorado-Boulder. He has supported numerous federal, state and local agencies in the areas of sustainability consulting, design build environmental management, stormwater/water quality and hazardous waste management.

Art Hirsch has a wide range of environmental experience and expertise. His technical expertise in the area of water quality includes storm water and water quality management and watershed investigations. He is an expert in the area of storm water and water quality impacts from transportation operations. He managed a statewide MS4 water quality program for the Colorado Department of Transportation (CDOT) and performed watershed impact studies at the Eisenhower Tunnel and Vail Pass. He was the primary water quality consultant for the Colorado Department of Transportation-Region 1 and was instrumental in the development of a total maximum daily loading (TMDL) assessment on Interstate 70 (Straight Creek), the first TMDL related to a transportation system in the Intermountain West.

He has managed several multi-disciplinary projects that involved NEPA environmental impact statements, environmental assessments and categorical exclusions. He managed the environmental impact assessments (EIS) for large and controversial EIS transportation projects such as the CDOT Northwest Corridor EIS. He has experience working with both the CDOT and Federal Highway Administration officials on NEPA and water quality related projects.

Art Hirsch has taken his wide range of environmental consulting experience and has integrated those approaches and concepts into the new field of transportation sustainability consulting. He believes that protecting and enhancing the environment and community is an integral part of a project's decision-making process. He is able to integrate the sustainability elements of the environment, culture and economics into projects so that they are in harmony with the environment and are cost effective. As a LEED Accredited Professional for New Construction and Major Renovations, he provides clients environmental sustainability services that allow them to reduce environmental impacts, conserve natural resources, reduce greenhouse gas emissions and protect water quality. He is an expert in the area of sustainable rest area design and operations and sustainability rating systems.