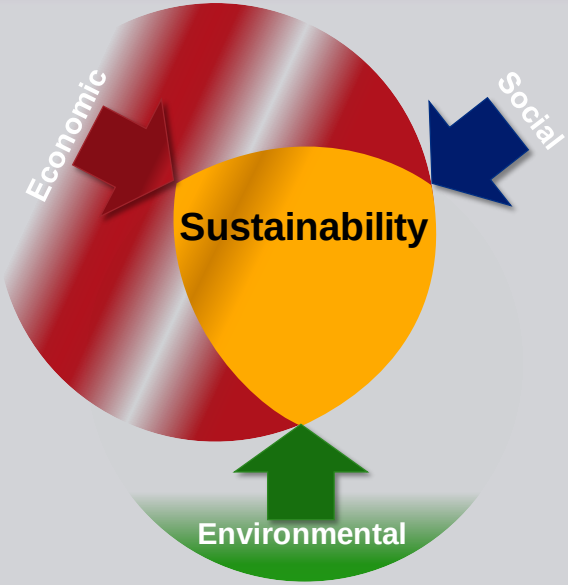
PARSONS

Master Sustainability and Energy Planning

Foundations of a Master Sustainability Plan

- Conservation and management
  - Electricity
  - Natural gas and other fossil fuels
  - Water
- Process efficiency
  - Transportation and vehicle use
  - Operational practices
- Environmental impact mitigation
  - Recycling and waste hauling programs
  - Indoor air quality



Foundations of a Master Sustainability Plan (cont'd.)

- Improving sustainable yield
  - Making the best use of existing non-renewable resources while reducing waste
- Maximizing use of renewable resources
  - Renewable energy
  - Rapidly renewable materials
- Design and construction using sustainable practices
  - CHPS

    (Collaborative for High Performance Schools)
  - LEED
  - Green Building Codes

Elements of Sustainability Planning

Waste Management

- Recycling programs
  - Corrugated (cash value)
  - Plain paper and other materials
  - Utilize centralized composting facilities where available

Transportation

- Fleet vehicle fuel choices
- Hybrid, electric, or ultra low emissions vehicles
- Fleet vehicle or delivery truck route management

Energy Management/Electricity and Natural Gas

- Install renewable energy resources to offset site loads
  - Solar to generate electricity
  - Solar hot water heating
- Energy optimization through virtual modeling of:
  - HVAC
  - Lighting
  - Computer rooms
- Lighting (T-8, T-5, induction, daylight and LED)
- HVAC retrofits
- Choose your own utility service provider for electricity and natural gas (where available)

Environmental

- Reduction of toxics
- Indoor air quality review and management
- Daylight utilization

Water

- Recycled water in irrigation
- Smart irrigation controllers
- Waste water management
- Stormwater runoff management

Food Services

- Food waste management
- Food packaging
  - Recyclable
  - With recycled content
  - Compostable
  - Eliminate/minimize Styrofoam

Procurement

- Purchasing locally produced materials
- Materials with less packaging
- Materials that are recyclable
- Supplies and furnishings with high percentages of recycled content

Master Energy Planning

- As consumers become not only users of energy, but also generators of energy, and creators of new types of energy loads, a new paradigm must be considered with new implications for:

- New Construction

- Modernizations

- Retrofits

Building a Master Sustainability Program – Process

Planning

- Review your current operations and processes
- Develop a set of options for review and acceptance
- Prepare and present LCCAs and LCAs for selected options
- Pinpoint specific potential projects to achieve improvement

Recommendations

- Provide a summary report of all recommendations for:
  - Operational improvements
  - Retrofit projects
  - Procurement strategies

Program Implementation

As the owner's representative, manage the completion of projects and oversee the implementation of programs as approved by the owner

Prepare Benchmarking

- Conduct survey of organizational operations in key performance indicators (KPI) (e.g. energy usage)
- Develop comparisons with other similar facilities locally, regionally and nationally
- Prepare a carbon footprint assessment and tracking system

Establish Goals

- Develop challenging but achievable goals to improve sustainable practices
- Typical examples would be:
  - Reduce energy and water usage 10%
  - Implement an integrated pest management plan by a date certain.
  - Eliminate cleaning products with high VOC content by a targeted date.

Progress Reporting

- Project completion updates
- Utility usage and cost savings
- Carbon footprint assessment and tracking

Interested Parties

- Schools
  - K-12
  - Community Colleges
  - Universities
- Healthcare
- Biotech Industries
- Cities
- Counties
- States
- Federal Government
- Foreign Countries

Benefits of Developing a Master Sustainability Plan

- Generates immediate and long-term expense savings
- Identifies aging or obsolete equipment and operational processes to:
  - Improve long-term service reliability and reduce maintenance costs
  - Improve equipment and systems operational efficiencies
- Reduces carbon footprint
- Demonstrates organization's commitment to environmental and Green programs
- Enables communication of the program to the public
- Improvement of indoor air quality and reduction of toxics