Sustainability

What is it?
Should we care?
How do utilities fit in?

Gary Young, PG
Underground Imaging Technologies
Sustainability

• Sustainability is a set of environmental, economic and social conditions in which all of society has the capacity and opportunity to maintain and improve its quality of life indefinitely without degrading the quantity, quality or the availability of natural, economic and social resources

• Sustainable civil infrastructure provides environmental, economic and societal well-being, now and for the future
Demands for Sustainable Engineering

- Society needs infrastructure supporting economic, environmental and societal sustainability
- ASCE’s Code of Ethics says engineers “shall strive to comply with principles of sustainable development”
- Sustainability calls for mastery of knowledge beyond that required for professional licensure
The Engineer of 2020

The Engineer of 2020: Visions of Engineering in the New Century, National Academy of Engineering

To enhance the nation’s economic productivity and improve the quality of life worldwide, engineering education in the United States must anticipate and adapt to the dramatic changes of engineering practice. The Engineer of 2020 urges the engineering profession to recognize what engineers can build for the future through a wide range of leadership roles in industry, government, and academia not just through technical jobs.
ASCE Vision 2025 & Roadmap

• The Vision for Civil Engineering in 2025
  • Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as master:
    • planners, designers, constructors, and operators of society’s economic and social engine -- the built environment;
    • stewards of the natural environment and its resources;
    • innovators and integrators of ideas and technology across the public, private, and academic sectors;
    • managers of risk and uncertainty caused by natural events, accidents, and other threats; and
    • leaders in discussions and decisions shaping public environmental and infrastructure policy
ASCE Policy on Sustainability

Policy 418, The Role of the Civil Engineer in Sustainable Development: “sustainable development requires strengthening and broadening the education of engineers and finding innovative ways to achieve beneficial development while conserving and preserving natural resources”

Policy 488, Greenhouse Gases: “The American Society of Civil Engineers supports the following public and private sector strategies and efforts to achieve significant reductions in greenhouse gas emissions”
Owners and Public Need

- Authoritative Professional Certification in Sustainable Engineering, which will be provided by ASCE through Civil Engineering Certification, Inc.
- Authoritative Rating of Infrastructure Projects for Sustainability, which is being developed by ASCE/ACEC/APWA as the basis for a U.S. National Standard
Modules of the Course

1. Introduction: Fundamentals of Sustainable Engineering and Professional Certification in Sustainable Engineering
2. Transformational Projects: Examples of and rationale for the Transformational approach to sustainable engineering
3. Trends and Issues: economic, environmental and social concerns for sustainability
4. Earth Systems: the earth’s natural life support systems and how engineers apply principles of sustainability to preserve them
Modules of the Course

5. Five Capitals: supporting economic growth sustainably
6. Social Factors: The Community
7. Social Factors: Individual Behavior
8. Sustainability Quadrant: human development and its ecological footprint
9. Moving Toward Sustainability: addressing sustainability in infrastructure sectors
10. Project Pathway and Performance: doing the right thing and the thing right
Modules of the Course

11. Life Cycle Cost/Benefit Assessment
12. Life Cycle Environmental Assessment
13. Environmental Policies, Regulations and Innovation
14. World View for Sustainable Development
15. Delivering Sustainable Projects
16. Leadership Perspectives
17. Wrap-Up
Professional Certification in Sustainable Engineering

• The professional will be certified to provide professional services for sustainability
• The body of knowledge is that required to design and deliver sustainable infrastructure projects. It will cover the body of knowledge for ASCE’s Sustainable Infrastructure Project Rating System
• Professional licensure will be a prerequisite for certification
• Certification will require passing a written examination comparable to the P.E. exam, and continuing education
References

• ASCE Code of Ethics:
  [link](www.asce.org/AggregateContent.aspx?id=7109)

• Certification:
  [link](www.asce.org/ProgramProductLine.aspx?id=2147486190)

• Sustainability:
  [link](www.asce.org/ProgramProductLine.aspx?id=7085)

• ASCE Standards:
  [link](www.asce.org/ProgramProductLine.aspx?id=6277)
References

• American National Standards Institute (ANSI): www.ansi.org/about_anси/overview/overview.aspx?menuid=1

• Sustainable Infrastructure Project Rating: look for the latest information on the ASCE website and see www.ceequal.org for the United Kingdom prototype
Leadership in Energy and Environmental Design

Choose which LEED rating system best suits your project.

- **BD+C**: Building Design and Construction
- **ID+C**: Interior Design and Construction
- **O+M**: Building Operations and Maintenance
- **ND**: Neighborhood Development
- **HOMES**: Homes

Applies to buildings that are being newly constructed or going through a major renovation:

- New Construction
- Core and Shell
- Schools
- Retail
- Healthcare
- Data Centers
- Hospitality
- Warehouses and Distribution Centers

Need help choosing?

Register your project to begin the LEED certification process.
BUILDING TOMORROW’S INFRASTRUCTURE TODAY

THE ENVISION™ PROCESS

PROJECTS

CREDENTIALED

VERIFICATION

Latest News

AMEC announces Charter Membership

AMEC announced its ISI Charter Membership and commitment to credential 300 professionals to become Envision Sustainability Professionals (ENV SP). These credentialed professionals will be able to document sustainability accomplishments in AMEC’s client projects in conformance with the Envision rating system. details

South L.A. Wetland Park Receives Envision™ Platinum Award

The South Los Angeles Wetland Park in Los Angeles, California, has earned the Envision™ Platinum award—the highest level attainable in the ISI Envision sustainable infrastructure rating system. details


HNTB joins credentialed team

HNTB Corporation has committed to enrolling 300 employees in the Envision credentialing program. As a charter member of ISI, HNTB professionals—including urban designers, architects, civil engineers, electrical engineers and mechanical engineers—will complete the training and examination to earn the credentialed ENV SP status. details

ISI Reaches MileStone of over 1000 Credentialed ENV SPs

ISI announced today that it has reached a milestone of over 1,000 Envision Sustainability Professionals (ENV SPs) from across North America who have been credentialed in the use of the Envision sustainable infrastructure rating system. details

Platinum Envision Award for Placer County Snow Creek Restoration Project

The Snow Creek Stream environment. URL: http://www.snowcreekstream.org/about.html
Sustainability Benefits of Good Utility Mapping
Project Life Span
Benefits of Enhanced Utility Mapping

Good utility mapping has benefits in every phase of a project’s life cycle, but especially during construction:

**ECONOMIC**  
Ex: Cost savings from fewer test holes and incorrect dig sites

**SOCIETAL**  
Ex: Fewer road closures due to digging mistakes

**ENVIRONMENTAL**  
Ex: Lower carbon footprint from extra digs and extra hours of wait time by public
Link to Geo Strata Article on Sustainability

http://www.uit-systems.com
/pdf/enhanced-detection-mapping-buried-utilities.pdf
End of Slides

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