ENGINEERING SOLUTIONS FOR SUSTAINABILITY:
MATERIALS AND RESOURCES 3

# Toward a Circular Economy

February 18–19, 2017 | Denver, Colorado

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Session #6: Building Blocks for the Circular Economy

# *Regulatory-Ready Sustainability or Sustainability-Ready Regulators?*

**Jeff Keaton, ENV SP – ASCE Committee on Sustainability**

**Principal Engineering Geologist, Amec Foster Wheeler**

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

amec foster wheeler

# Takeaway Point

- Innovation is needed to advance the principles of sustainability
- Innovation could be stifled by standards and regulations

# Principles of Sustainability

- ASCE Policy #418
  - The role of the civil engineer in sustainable development
- Principle 1. Do the right project
- Principle 2. Do the project right

# Principle 1: Do the right project

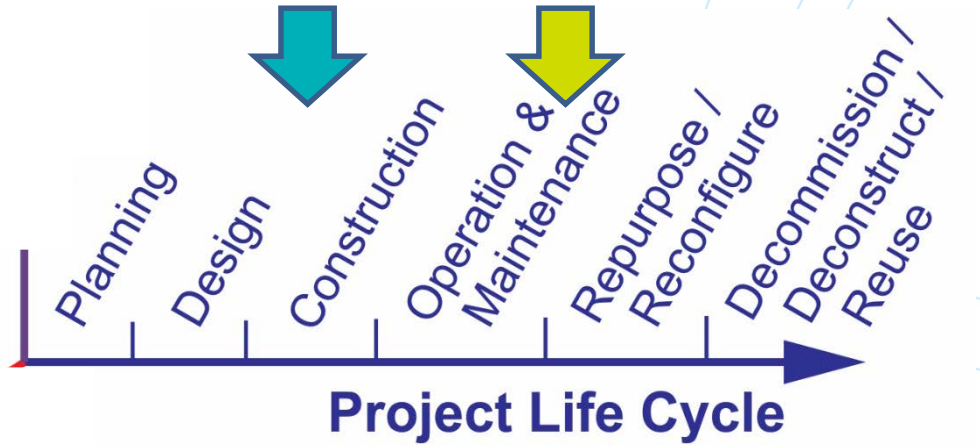
- *A proposed project's economic, environmental and social effects on each of the communities served and affected must be assessed and understood by all stakeholders before there is a decision to proceed with a project.*
- *Consider non-structural as well as structural (built) solutions to the needs being addressed.*

# Principle 2: Do the project right

- *Public understanding & acceptance of a project's economic, environmental and social costs and benefits (stakeholder engagement).*
- *To move toward conditions of sustainability, engineers must design and deliver projects that address sustainability holistically (from concept to demolition or reuse) rather than adding a variety of "green" features onto a conventional project.*

# Principle 2: Do the project right

- *2a. Perform life-cycle assessment*
- *Project participants should use rigorous life-cycle methodologies that quantify the economic, environmental and social effects of the project*



# Principle 2: Do the project right

- *2b. Use resources wisely*
- *Minimize Use of Non Renewable Resources. Sustainable development shall include progressive reductions in resource use for a given level of service and resiliency. The feasibility of restoration, or return of depleted resources, shall be evaluated by the civil engineer.*

# Principle 2: Do the project right

- *2c. Plan for resiliency*
- *Sustainability requires planning for the impact that natural and man-made disasters and changing conditions can have on economic, environmental and social resources.*

# Principle 2: Do the project right

- *2d. Validate application of principles*
- *Civil engineers must guide project development and validate the application of these principles by using metrics and rating tools such as the Envision™ Rating System for sustainable infrastructure.*

QUALITY OF LIFE
LEADERSHIP
RESOURCE ALLOCATION
NATURAL WORLD
CLIMATE AND RISK

ACEC
APWA
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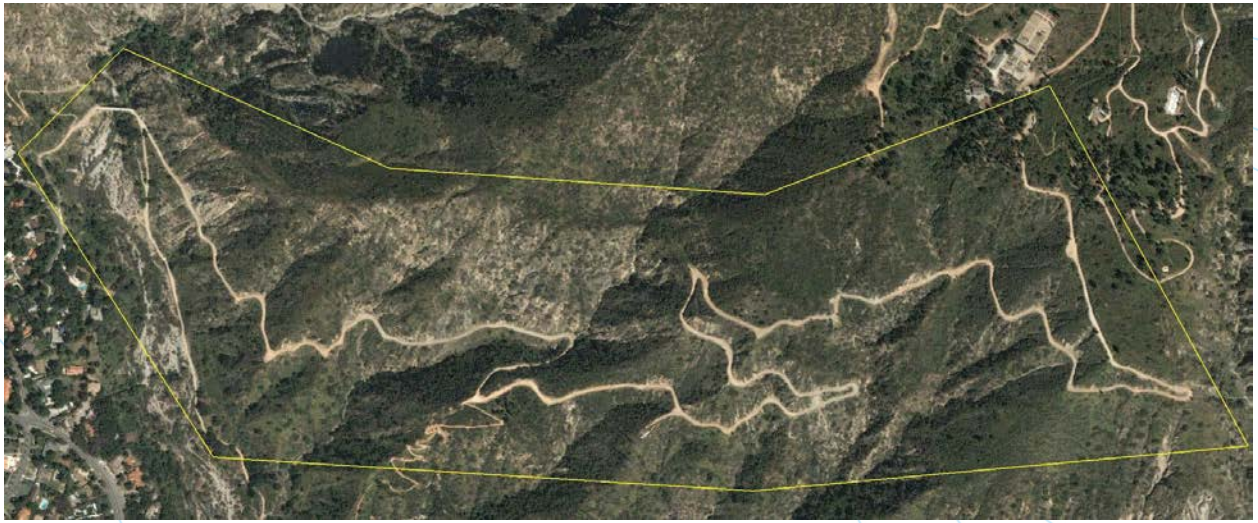
# Regulatory-Ready Sustainability

- Triple bottom line elements packaged to meet regulatory requirements

Henninger Flats
Fire Facility

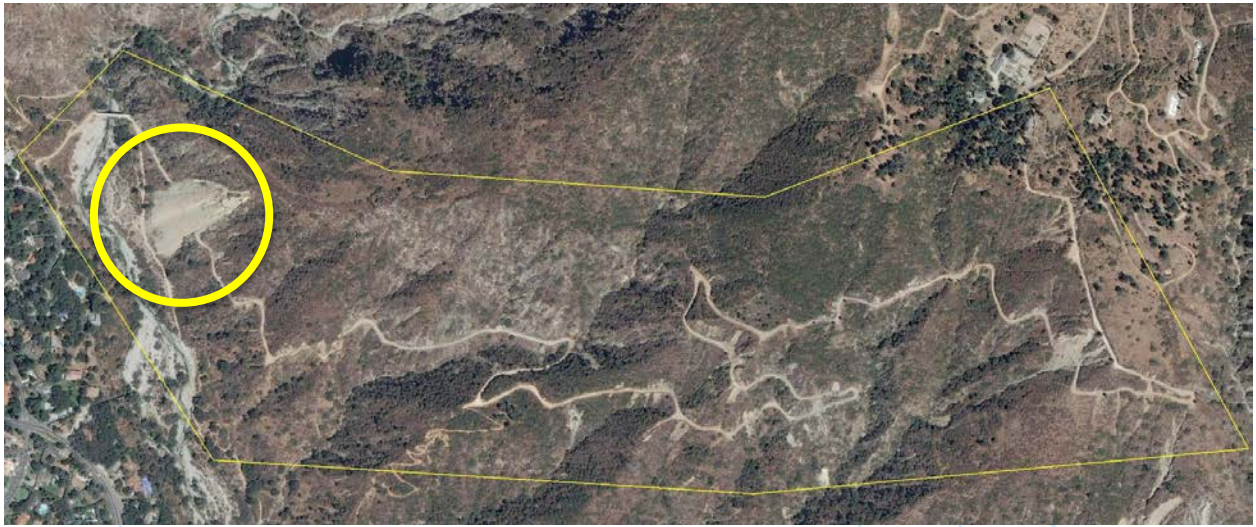


Lower Mt. Wilson Road
May 8, 2003

# Regulatory-Ready Sustainability

- Triple bottom line elements packaged to meet regulatory requirements

Henninger Flats
Fire Facility



Lower Mt. Wilson Road
Aug 23, 2005

# Regulatory-Ready Sustainability

- Triple bottom line elements packaged to meet regulatory requirements

Henninger Flats Fire Facility →

Lower Mt. Wilson Road
Oct 11, 2005


Lower Mt. Wilson Road
Jun 19, 2009

# Regulatory-Ready Sustainability

– Objective was…

Henninger Flats
Fire Facility →


Lower Mt. Wilson Road
Jun 19, 2009

# Regulatory-Ready Sustainability

– Objective was…

– Stabilize slide ?

Henninger Flats
Fire Facility →


Lower Mt. Wilson Road
Jun 19, 2009

# Regulatory-Ready Sustainability

- Objective was…
- Stabilize slide ?
- Repair road ?

Henninger Flats
Fire Facility →


Lower Mt. Wilson Road
Jun 19, 2009

# Regulatory-Ready Sustainability

- Objective was…
- Stabilize slide ?
- Repair road ?
- Restore vehicle access to fire facilities at Henninger Flats ?

ok

Henninger Flats Fire Facility →


Lower Mt. Wilson Road
Jun 19, 2009

# Sustainability-Ready Regulators

- Regulatory enforcement ready for innovations in triple bottom line elements

Olivenhain Dam
June 2003

# Sustainability-Ready Regulators

- Regulatory enforcement ready for innovations in triple bottom line elements

# Sustainability-Ready Regulators

- Regulatory enforcement ready for innovations in triple bottom line elements

*"It will slow down the review process…"*

# Takeaway Point

- Innovation is needed to advance the principles of sustainability
- Innovation could be stifled by standards and regulations
- ASCE is working on non-prescriptive consensus standards to encourage innovation

Regulators need to be engaged

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# *Regulatory-Ready Sustainability* ~~or~~ and *Sustainability-Ready Regulators !*

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