Further Discussion of “LEED for Bridges”

2009: Tulane Engineering Forum

Prepared by:
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Introduction

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“Unfortunately, we do not have a LEED rating system that relates to bridges, nor do we have any current plans to expand to that market.”

-- Lauren Connelly

Media and Advertising Coordinator

U.S. Green Building Council (USGBC)
Introduction

- Lack of interest on part of USGBC does not mean that we can't plan for the occasion.

- The Bridge and Transportation industry has already been a leader in the areas of energy and environmental design.

- On private side, interest is driven by business decisions.

- On public side, interest is driven by policy and funding.
Introduction

• Our focus will be on the public-sector interest in LEED-style programs.

• Background on Federal and State law.
  – Funding
  – Policy

• Include specific case studies that highlight Federal and State funding of policies:
  – Case Study 1: HOV
  – Case Study 2: Reuse Existing Structure
  – Case Study 3: Saving an endangered species

• Conclusions
Public Sector Interest in LEED-style Programs

• Background on Federal Transportation Policy and Funding:

  – Federal Transportation funding comes in the form of funding bills on a six-year cycle.
  – Most recent funding acts have lagged by 1 to 2 years after expiration of previous funding act.
  – New funding cycle comes due at end of this year.
Public Sector Interest in LEED-style Programs

• Public Law 105-59:
Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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  - Guaranteed funding for:
    - highways
    - highway safety
    - public transportation
  - Totaled $244.1 billion; SAFETEA-LU represented the largest surface transportation investment in our nation’s history.
Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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  – Both shaped the highway program to meet the Nation's changing transportation needs.

• SAFETEA-LU builds on this firm foundation
• Supplies the funds
• Refines the programmatic framework for investments needed to maintain and grow our vital transportation infrastructure.
Public Sector Interest in LEED-style Programs

• SAFETEA-LU generally adopts fundamental consideration for:
Public Sector Interest in LEED-style Programs

• SAFETEA-LU generally adopts fundamental consideration for:
  – Congestion Relief
    • One of the most difficult transportation issues facing us today
    • SAFETEA-LU gives States more flexibility to use road pricing to manage congestion
    • Promotes real-time traffic management in all States to help improve transportation security and provide better information to travelers and emergency responders.
Public Sector Interest in LEED-style Programs

- SAFETEA-LU generally adopts fundamental consideration for:
  - Efficiency
    - The Highways for LIFE pilot program
    - Advances longer-lasting highways using innovative technologies and practices
    - Speeds up the construction of efficient and safe highways and bridges.
Public Sector Interest in LEED-style Programs

• SAFETEA-LU generally adopts fundamental consideration for:
  – Environmental Stewardship
    • Retains and increases funding for environmental programs of TEA-21
    • Adds new programs focused on the environment
    • Includes a pilot program for nonmotorized transportation and Safe Routes to School.
    • Includes significant new environmental requirements for the Statewide and Metropolitan Planning process.
    • Requires Secretary to conduct wildlife vehicle collision reduction study, define best practices to Congress, and develop training courses transportation professionals
Public Sector Interest in LEED-style Programs

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    - Incorporates changes aimed at improving and streamlining the environmental process for transportation projects.
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    • Incorporates changes aimed at improving and streamlining the environmental process for transportation projects.

These changes, however, come with some additional steps and requirements for transportation agencies...
Public Sector Interest in LEED-style Programs

• Environmental requirements on transportation agencies:
  – New environmental review process for highways, transit, and multimodal projects
  – Increased authority for transportation agencies
  – But also increased responsibilities:
    • New category of "participating agencies" and notice and comment related to defining project purpose and need and determining the alternatives.
Public Sector Interest in LEED-style Programs

• Additional Environmental requirements on transportation agencies:
  – A 180-day statute of limitations is added for litigation...
    BUT...
  – It is pegged to publication of environmental actions in the Federal Register, which will require additional notices.
Public Sector Interest in LEED-style Programs

• Additional Environmental requirements on transportation agencies:
  – New delegations of authority to States
  – Includes delegation of Categorical Exclusions for all states
  – Includes a 5-state delegation of the USDOT environmental review authority under NEPA and other environmental laws.
Public Sector Interest in LEED-style Programs

• Additional Environmental requirements on transportation agencies:
  – The air quality conformity process is improved
  – Includes changes in the frequency of:
    • conformity determinations
    • conformity horizons.
Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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    • Public transportation vehicles,
    • low-emission and energy-efficient vehicles,
    • and High Occupancy Toll (HOT) vehicles (otherwise-ineligible vehicles willing to pay a toll to use the facility).
  – States are required to monitor, assess, and report on the operation of the facility to ensure that it does not become seriously degraded.
Case Study 1: HOV

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- HOV Case Study:
  - New Orleans’ High-Occupancy Vehicle Lanes
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  - Owner: Louisiana DOTD, Crescent City Connection Division;
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**CONTRACT**

THIS CONTRACT IS TO CONFIGURE THE TRANSIT LANES AND TRANSIT LANE APPROACH RAMPS FOR USE BY TRANSIT BUSES AND HIGH OCCUPANCY VEHICLES CARRYING TWO (2) OR MORE PERSONS (HOV–2) IN A REVERSIBLE, CONFIGURATION, ONE DIRECTION FOR THE A.M. TRAFFIC PEAK AND THE OPPOSITE DIRECTION FOR THE P.M. TRAFFIC PEAK
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  – Federal transit funds were used to construct the original transit structure. State funds used for HOV reconfiguration.
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- HOV Case Study:
  - Encourage anyone leaving the forum and travelling to the West Bank to use...
Case Study 1: HOV

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  - Encourage anyone leaving the forum and travelling to the West Bank to use...
    - ...if you have at least one other occupant in the car!
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    • Find out more at:
      – http://www.dotd.state.la.us/operations/cccd/bridges.asp
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Public Sector Interest in LEED-style Programs

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Public Sector Interest in LEED-style Programs

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    • Generally adopts a philosophy and language to fund facilities that carry the greatest number of passengers and vehicles.
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    - Requires that debris from demolished bridges and overpasses is made available for beneficial use by a Federal, State, or local government.
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      – “Beneficial Use” is defined within the law as: “the application of the debris for purposes of shore erosion control or stabilization, ecosystem restoration, and marine habitat creation.”
Public Sector Interest in LEED-style Programs

Credit: www.top-scubadiving.com
Public Sector Interest in LEED-style Programs

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    • Funds preservation and rehabilitation of historic structures, including relocation to a preservation site.
Case Study 2: Reuse of Existing Structure

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  – Widening the Huey P. Long Bridge
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    • By widening the existing structure rather than constructing a new river crossing:
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      – Reduce environmental impact, property takings.
      – Reduce construction cost.
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    • By widening the existing structure rather than constructing a new river crossing:
      – Reduce environmental impact, property takings.
      – Reduce construction cost.
      – Reuse existing right-of-way and traffic corridors.
Case Study 2: Reuse of Existing Structure

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    • By widening the existing structure rather than constructing a new river crossing:
      – Reuse the existing caisson (foundation)
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      – Reuse the existing concrete piers (columns)
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  – Widening the Huey P. Long Bridge
    • By widening the existing structure rather than constructing a new river crossing:
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      – Reuse the existing concrete piers (columns)
      – Reuse the existing main bridge steel trusses
Case Study 2: Reuse Existing Structure

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    • Find out more at:
      – http://www.hueypbridge.com
Case Study 2: Reuse Existing Structure

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Case Study 3: Saving an Endangered Species

- Environmental Case Study:
Case Study 3: Saving an Endangered Species

• Environmental Case Study:
  – New York State, Department of Environmental Conservation
  – Division of Fish, Wildlife and Marine Resources,
    Endangered Species Unit
Case Study 3: Saving an Endangered Species

• Environmental Case Study:
  – New York State, Department of Environmental Conservation
    – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
  – Peregrine Falcon
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Case Study 3: Saving an Endangered Species

- Environmental Case Study:
  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
  - http://www.dec.ny.gov/animals/7059.html

  “Peregrine falcons are listed as an endangered species in New York State. They were eliminated as a nesting species in the state by the early 1960’s, due mainly to pesticide (DDE) residues in their bird prey. The release of young captive bred birds from 1974-1988 helped lead to their return as a nesting species. Peregrines first returned to nest on two bridges in New York City in 1983. Two years later, in 1985, they were again nesting in the Adirondacks.”
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- Environmental Case Study:
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  - [http://www.dec.ny.gov/animals/7059.html](http://www.dec.ny.gov/animals/7059.html)

  “New York City now has probably the largest urban population of peregrine falcons anywhere, and peregrines nest on every Hudson River bridge south of Albany.”
Case Study 3: Saving an Endangered Species

• Environmental Case Study:
  – New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit

  “Peregrines currently nest on buildings or bridges in Albany, Syracuse, Rochester, Binghamton and Buffalo, with about twenty pairs present in the Adirondacks on cliffs.”
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  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
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  “Many of these sites need annual management to protect the birds during the nesting season. For example, necessary bridge maintenance work must be conducted in a manner that does not prevent the falcons from nesting successfully.”

  “Falcons do not build stick nests like most hawks and the eggs can roll off bridge girders or get broken on window ledges.”
Case Study 3: Saving an Endangered Species

- Environmental Case Study:
  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
  - [http://www.dec.ny.gov/animals/7059.html](http://www.dec.ny.gov/animals/7059.html)

  “Wooden nest boxes filled with gravel are placed at many of the sites to increase productivity. These boxes need periodic replacement.”
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- Environmental Case Study:
  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
  - [http://www.dec.ny.gov/animals/7059.html](http://www.dec.ny.gov/animals/7059.html)

Photo Credit: Dave Garnder
Case Study 3: Saving an Endangered Species

- Environmental Case Study:
  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit

Installation of nesting boxes on Dunn Memorial Bridge

Photo Credit: New York Department of Transportation
Case Study 3: Saving an Endangered Species

- Environmental Case Study:
  - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
  - [http://www.dec.ny.gov/animals/7059.html](http://www.dec.ny.gov/animals/7059.html)
  - Addition of nesting boxes on existing bridges is not onerous.
  - Addition of nesting boxes can be included on new Hudson River bridges going forward.
  - Has been great success!
  - Concept has been applied elsewhere...
Case Study 3: Saving an Endangered Species

- Environmental Case Study:
  - Connecticut Department of Transportation, P.T. Barnum Bridge

Installation of nesting boxes on P.T. Barnum Bridge

Photo Credit: Connecticut Department of Transportation
Conclusions

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- “If for no other reason, do it for the baby peregrine!”
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  – Generally doesn’t involve much more than we already have to consider; may even help solve the problem.
  – “If for no other reason, do it for the baby peregrine!”

• Additional Information:
  • http://www.fhwa.dot.gov/environment/wildlifeprotection/
  • http://www.sierraclub.org/sprawl/report02/
  • http://www.fhwa.dot.gov/safetealu/
Conclusions

Contact Information:
Dave Kanger, P.E.
email: DAKanger@modjeski.com
Conclusions

- Obligatory Cute Animal Photo...

Photo Credit: Connecticut Department of Transportation
Conclusions

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QUESTIONS?

Photo Credit: Connecticut Department of Transportation