

Further Discussion of “LEED for Bridges”



2009: Tulane Engineering Forum

Prepared by:

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New Orleans, LA

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

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 - Totaled \$244.1 billion; SAFETEA-LU represented the largest surface transportation investment in our nation's history.

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- Previous two landmark bills that brought surface transportation into the 21st century:
 - the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
 - the Transportation Equity Act for the 21st Century (TEA-21)
 - 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

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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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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 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.

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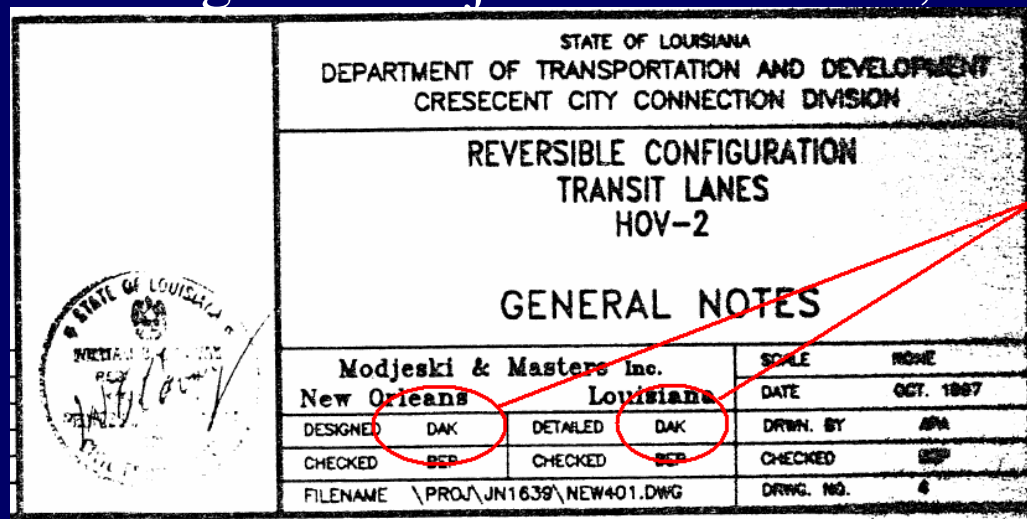
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	GENERAL NOTES			
	Modjeski & Masters Inc. New Orleans Louisiana		SCALE	AS SHOWN
	DESIGNED	DAK	DATE	OCT. 1997
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FILENAME \PROJ\JN1639\NEW401.DWG		CHECKED	BEP	
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CONTRACT

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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 - Encourage anyone leaving the forum and travelling to the West Bank to use...

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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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 - “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

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 - Funds preservation and rehabilitation of historic structures, including relocation to a preservation site.

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 - By widening the existing structure rather than constructing a new river crossing:
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 - Reduce construction cost.
 - Reuse existing right-of-way and traffic corridors.

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 - Reuse the existing concrete piers (columns)
 - Reuse the existing main bridge steel trusses

Case Study 2: Reuse Existing Structure

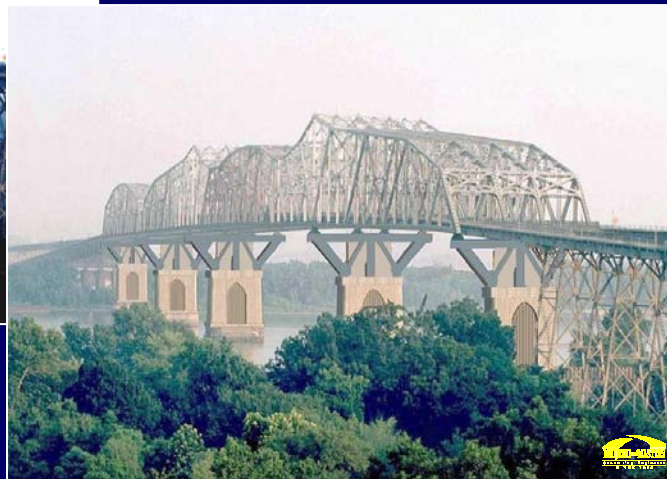
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EXISTING



**PROPOSED
WIDENING**

Case Study 3: Saving an Endangered Species

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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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 - Peregrine Falcon

Case Study 3: Saving an Endangered Species

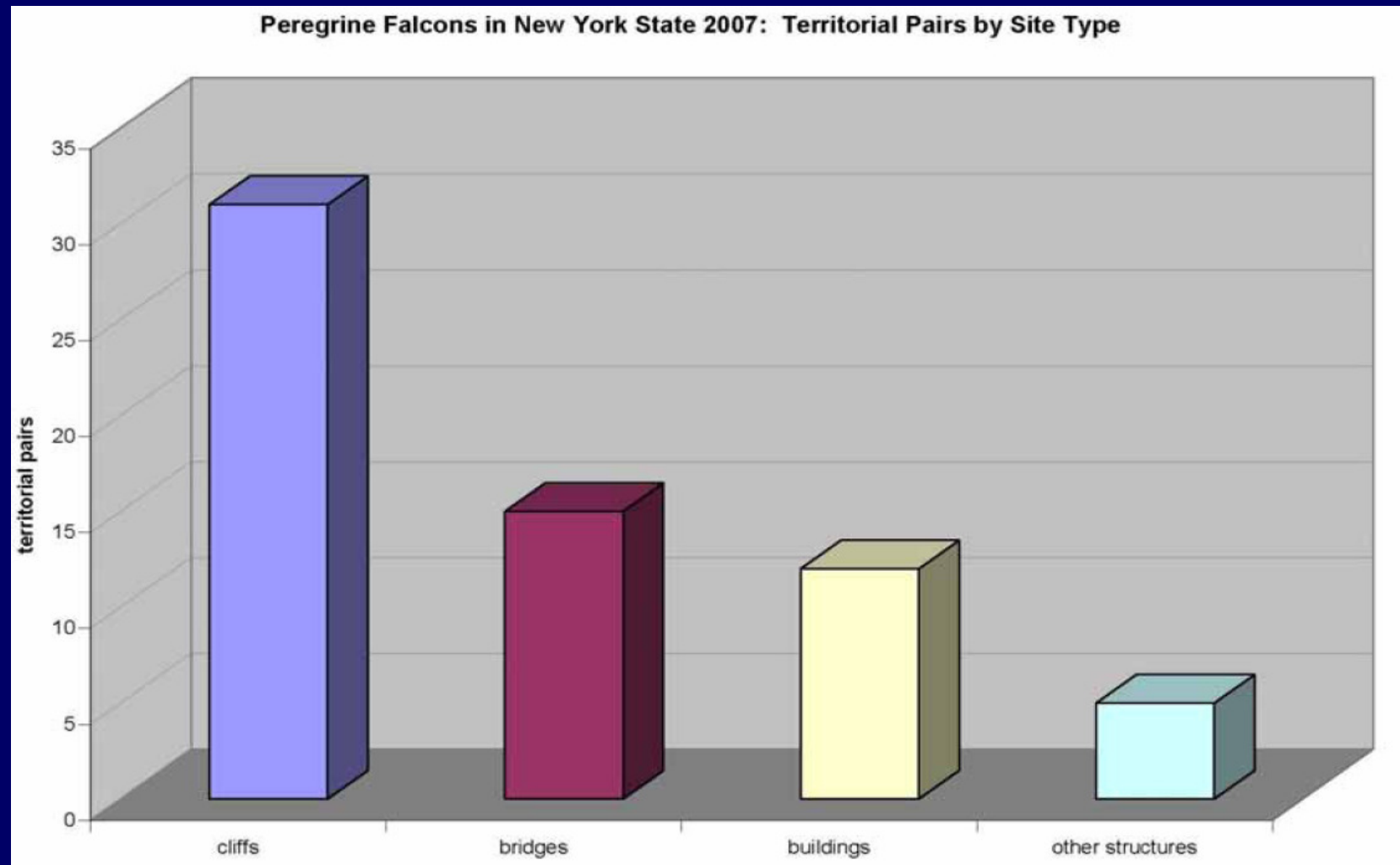
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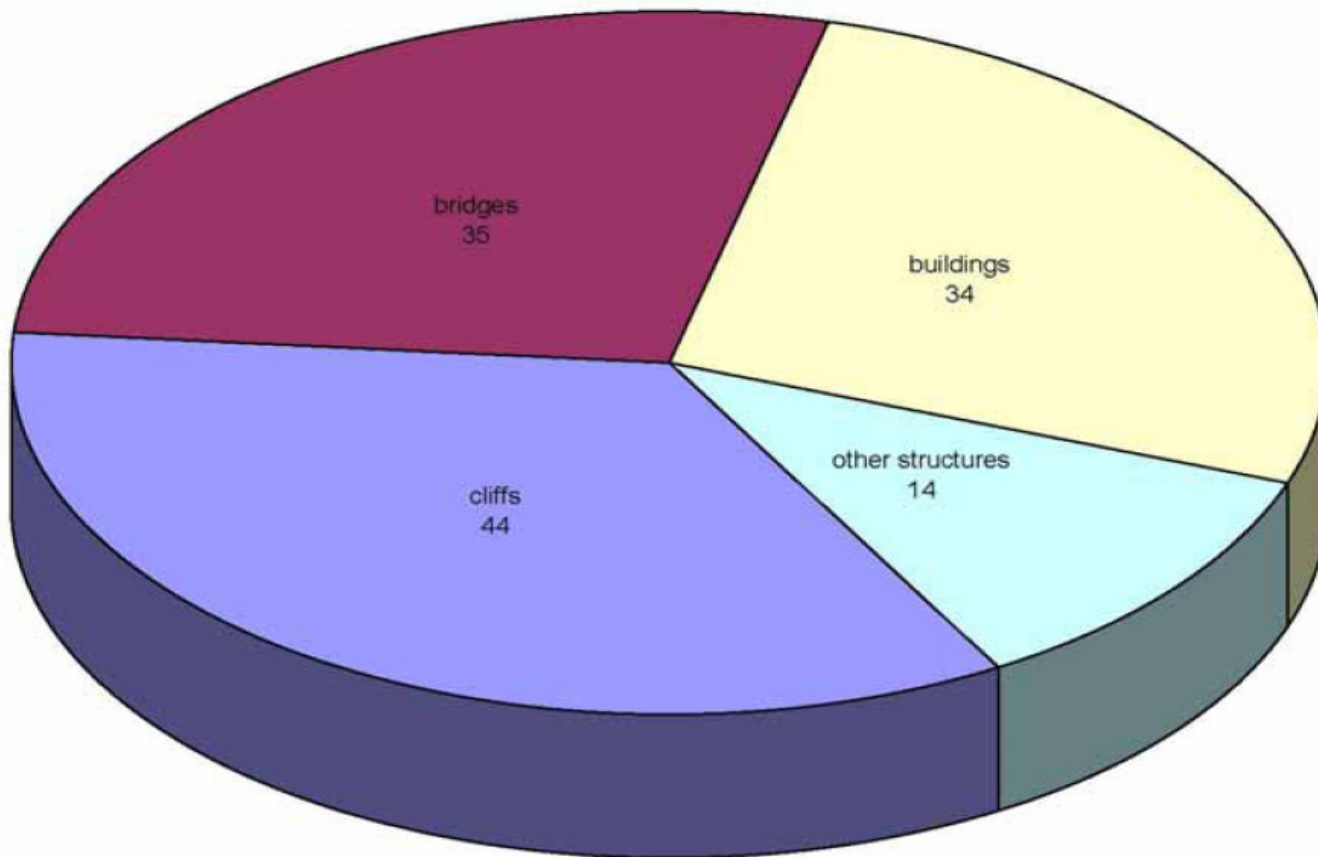
- Environmental Case Study:
 - New York State, Department of Environmental Conservation – Division of Fish, Wildlife and Marine Resources, Endangered Species Unit
 - <http://www.dec.ny.gov/animals/7059.html>
- “Peregrine falcons are listed as an endangered species in New York State. They were eliminated 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.”

Case Study 3: Saving an Endangered Species



Case Study 3: Saving an Endangered Species

Peregrine Falcons in New York State 2007: Young Produced by Site Type



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>
- “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.”

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

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

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Installation of nesting
boxes on Dunn
Memorial Bridge

Photo Credit: New York Department of Transportation

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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>
 - 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



Photo Credit: Connecticut Department of Transportation

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 - Engineers should try to accommodate energy-efficiency and environmental soundness during design.
 - 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!”

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 - Engineers should try to accommodate energy-efficiency and environmental soundness during design.
 - 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

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Conclusions

- Obligatory Cute Animal Photo...



Photo Credit: Connecticut Department of Transportation

Conclusions

- Obligatory Cute Animal Photo...

QUESTIONS?



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