

***ENVIRONMENTAL MITIGATION ALTERNATIVES FOR  
TRANSPORTATION PROJECTS IN CONNECTICUT***

**STUDY BRIEFING  
SEPTEMBER 30, 2010**

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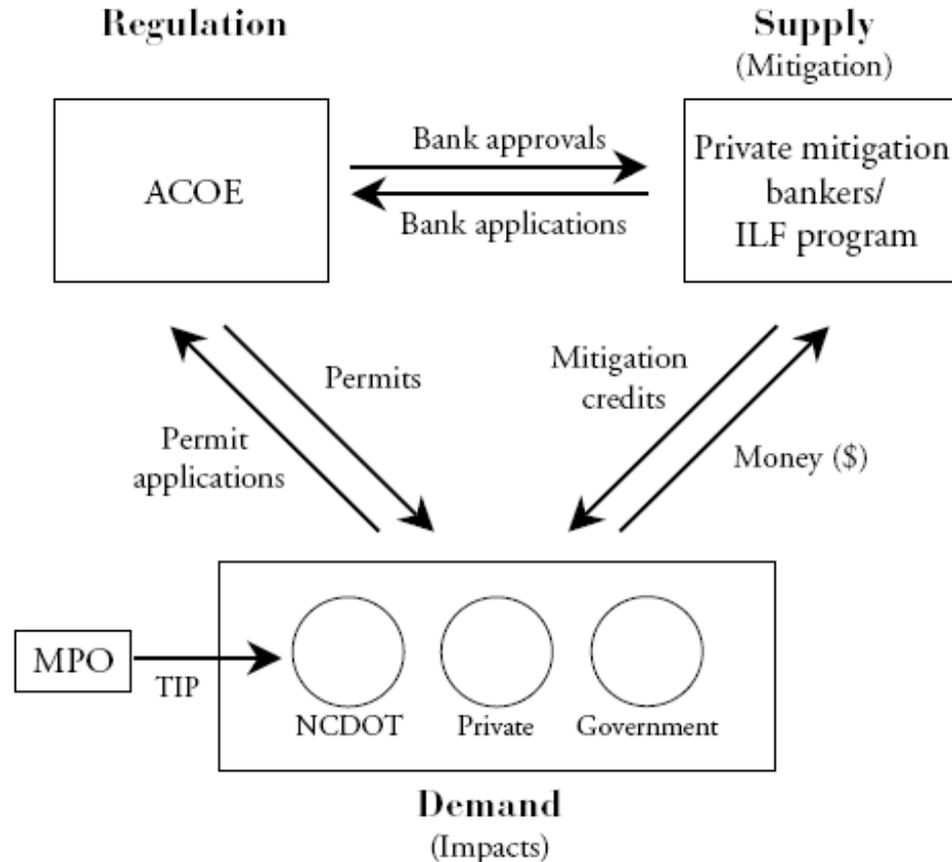
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# Study Background

## ➤ Compensatory Mitigation Mechanisms



**Objective:** assess the potential for ConnDOT to establish an EMA program for future transportation projects

# Primary Conclusion

- **ConnDOT should investigate establishing an ILF program specific for their own use. Additional actions may increase the probability for successful implementation and operation of a mitigation program**
  - **ConnDOT and DEP should develop long-range plans, including forecasting impacts, classifying watershed goals and potential service areas for the implementation of EMAs**
  - **ConnDOT should investigate the potential for legislation allowing private impacts to participate in an ILF program**

# Introduction

- **Wetlands provide ecosystem functions and ecosystem services**
  - **Water quality improvement**
  - **Flood control**
  - **Animal & plant diversity**
  - **Groundwater recharge**
  - **Fish, shrimp & plant harvesting**
  - **Carbon sequestration**



# Introduction

**In 1972, the Clean Water Act (CWA) was passed as legislation acknowledging the importance of water resources, including wetlands**

**For the first time the law required developers who impact wetlands to replace the acreage lost due to development**

# Introduction

- **Further federal legislation (40 CFR Section 230.10a) established a prioritization for developing sites near wetlands:**
  - **Avoidance**
  - **Minimization**
  - **Compensation**

# Background – Connecticut Case

## ➤ Connecticut Legislation:

### Multilayered legislative structure

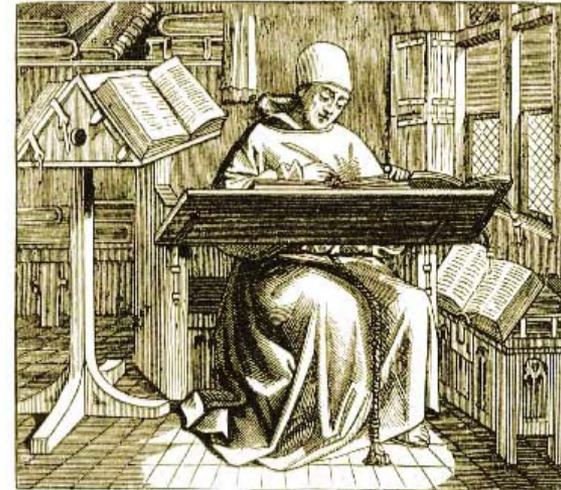
- Inland Wetlands and Watercourses Act (IWWA) passes regulatory authority of private wetland impacts to municipalities
- Projects involving state governed by DEP
- CT Supreme Court Cases:

#### Red Hill (1989):

- ✓ Inland Wetland Commissions (IWC) can accept funds
- ✓ Plan required

#### Branhaven Plaza (1999):

- ✓ A well-defined plan for how to appropriate funds is required



# Background – Compensatory Mechanisms

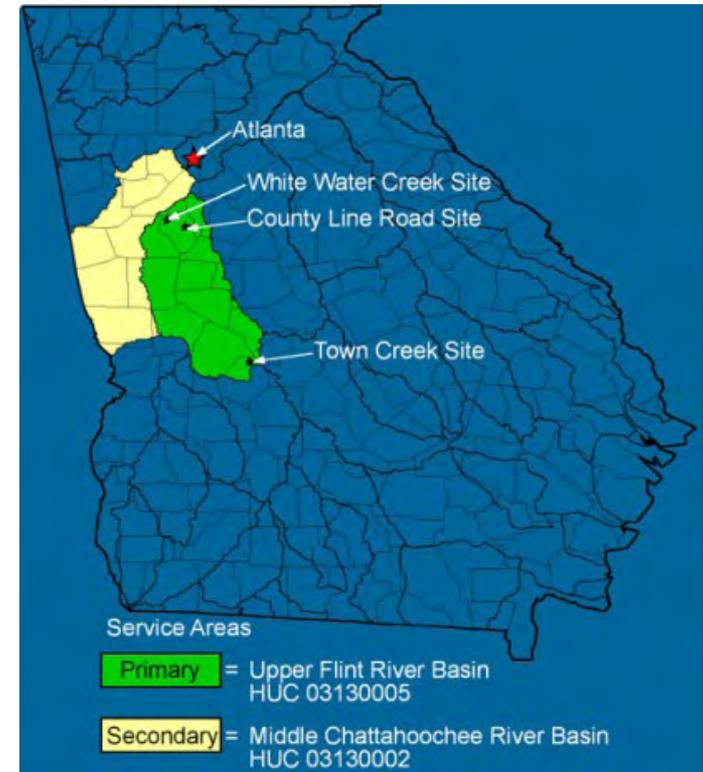
- **Permittee-Responsible Mitigation (PRM)**
- **Environmental Mitigation Alternatives (EMA)**
  - **Wetland Mitigation Banking (WB) programs**
  - **In-lieu Fee (ILF) programs**
- **United States Army Corps of Engineers (USACE) oversees EMA programs**
- **USACE guidance documents encourage use of EMA rather than PRM**

# Background – Permittee-Responsible

- **Performed on/adjacent to impact site or off-site**
- **Permittee maintains responsibility for mitigation**
- **Represents the largest yearly acreage of all compensatory mitigation mechanisms**
- **Many impacts in urban/developed areas**
- **Drawbacks:**
  - Higher costs
  - Less likelihood of successful wetland mitigation
  - Difficult to maintain/enhance ecosystem function
- **Challenges:**
  - Cost of available land
  - Lack of available land
  - Small scale of mitigation projects

# Background – Wetland Banks

- Administered by a private organization, a state agency or NGO
- Defined by watershed (HUC 8) or biophysical-region
- Permittees purchase wetland credits
- WB assumes responsibility for mitigation



# Background – Wetland Banks

## ➤ Steps for establishing a Wetland Bank

1. Prospectus must be approved by the USACE
2. Then, USACE must approve a WB instrument

### Two-parts

- a) Mitigation Plans → ecosystem function
- b) Credit release schedule → how to handle \$\$\$
  - ✓ Timetable for amount of credits
  - ✓ Based on WB program milestones
  - ✓ % of credits to be released negotiated with USACE
  - ✓ Credits cannot be released (sold) until WB instrument is approved

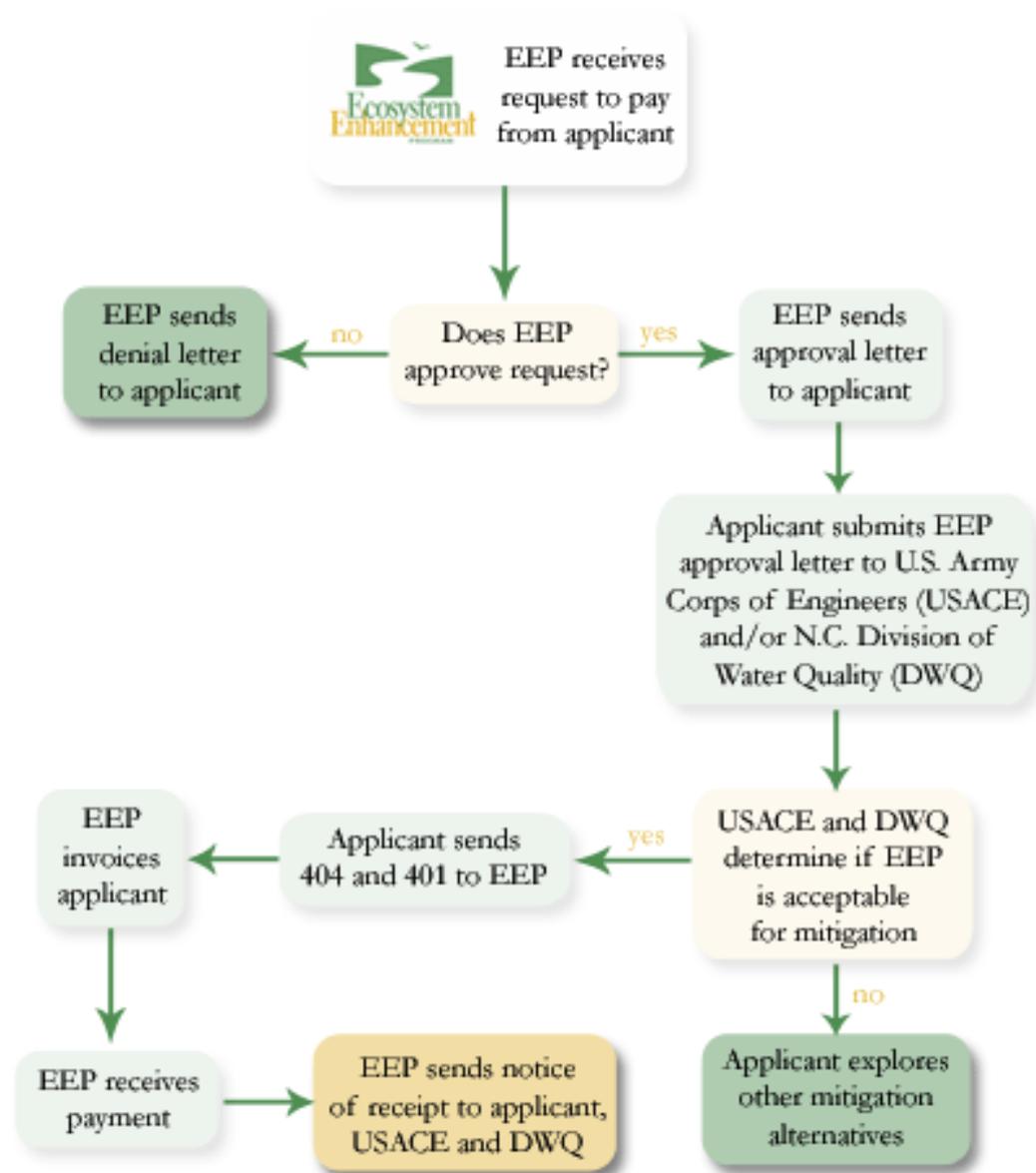
# Background – In-lieu Fee

- **Established between a regulatory agency and a third party sponsor**
  - **3<sup>RD</sup> Party: public agency or a nonprofit**
- **Permittee pays a fee to program in-lieu of mitigation**
  - **Fees generally paid ahead of actual establishment of the wetland mitigation site**
  - **Sponsor assumes mitigation responsibility**

***Primary difference between a WB and ILF is that a WB project is usually developed (or being developed) before the WB can receive money from permittees, whereas an ILF program is allowed to collect funds before project development has started***

# Background – In-lieu Fee

e.g. North Carolina  
Ecosystem  
Enhancement  
Program (EEP) ILF  
program payment  
process



# Background – In-lieu Fee

## ➤ Steps for establishing an ILF program

1. Prospectus
2. ILF Instrument

***These steps are very similar to those required for establishing a Wetland Bank, but do differ slightly***

# Comparison: WB vs. ILF

	WB	ILF
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Permittees buy credits to comply with the permit requirements from an already established mitigation site.</li> <li>• The WB sponsors provide the needed upfront capital (financial assurances) to start the mitigation project before permittees start paying for credits.</li> <li>• Usually administered by transportation agencies for their own use or by a third party (more common) which can be used by any permittee.</li> <li>• The third parties administering the WB can be state, local or resource agencies, or a private venture for profit</li> <li>• A WB instrument is the long-term action plan of the program and needs to be approved before the operation of the site begins. Additionally, the instrument must specify the financial assurances necessary to conduct and monitor mitigation projects.</li> </ul>	<ul style="list-style-type: none"> <li>• Permittees buy “advance credits,” meaning that the wetland mitigation site has not yet been built.</li> <li>• The program accrues fees paid by permittees and when enough funds have been collected consolidated mitigation projects are conducted.</li> <li>• Can only be administered by a state or resource agency or by non-governmental organization (non-for-profit).</li> <li>• The most common entities in charge of administering ILF programs include: The Nature Conservancy, state environmental protection agencies, watershed organizations.</li> <li>• An ILF instrument is the long-term action plan of the program, similar to that of a WB. However, as opposed to a WB instrument, this does not have to give details of the consolidated mitigation site or extensive financial assurances.</li> </ul>

# Benefits and Challenges of PRM & EMAs

PRM	Consolidated EMA
<ul style="list-style-type: none"> <li>• If practicable, essential to maintain ecological values directly in area impacted.</li> <li>• Keep wetlands in developed areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Economies of scale allow for a less costly, more timely, and functionally meaningful process where resources are combined into larger projects.</li> <li>• Increased expertise in consolidated mitigation projects allows for better quality wetlands as well as improve monitoring staff and techniques.</li> </ul>
<ul style="list-style-type: none"> <li>• May be too small, isolated to be meaningful ecologically</li> </ul>	<ul style="list-style-type: none"> <li>• Removes the short- and long-term responsibility from the permittee.</li> <li>• Regulating agencies may not agree on key objectives: service area, mitigation credits/ratios.</li> </ul>

# Benefits and Challenges of WB vs. ILF

WB	ILF
<ul style="list-style-type: none"><li>● <b>Reduced amount of risk because the WB site is built before or while impacts are occurring.</b></li><li>● <b>Since WB programs require large upfront capital, state agencies often have difficulties obtaining the resources.</b></li></ul>	<ul style="list-style-type: none"><li>● <b>ILF programs have a high risk and lag time between impacts occurring and mitigated because the funds are collected for some time (&lt;3 yrs) until spent on mitigation projects.</b></li><li>● <b>ILF programs provide the opportunity to conduct consolidated mitigation in areas where a WB is not available due to high start-up costs.</b></li></ul>

# Challenges of EMA

- **Inter-agency agreement**
- **Defining service area**
  - Developing coherent long-term plans
- **Establishment of**
  - Credit release schedule (WB)
  - Advance credits (ILF)
- **Multi-layered legislative systems (Municipal, state and/or federal)**
  - In Connecticut & Massachusetts municipalities have authority over wetland regulation, making it difficult to create cross-town EMAs

# Agency Survey

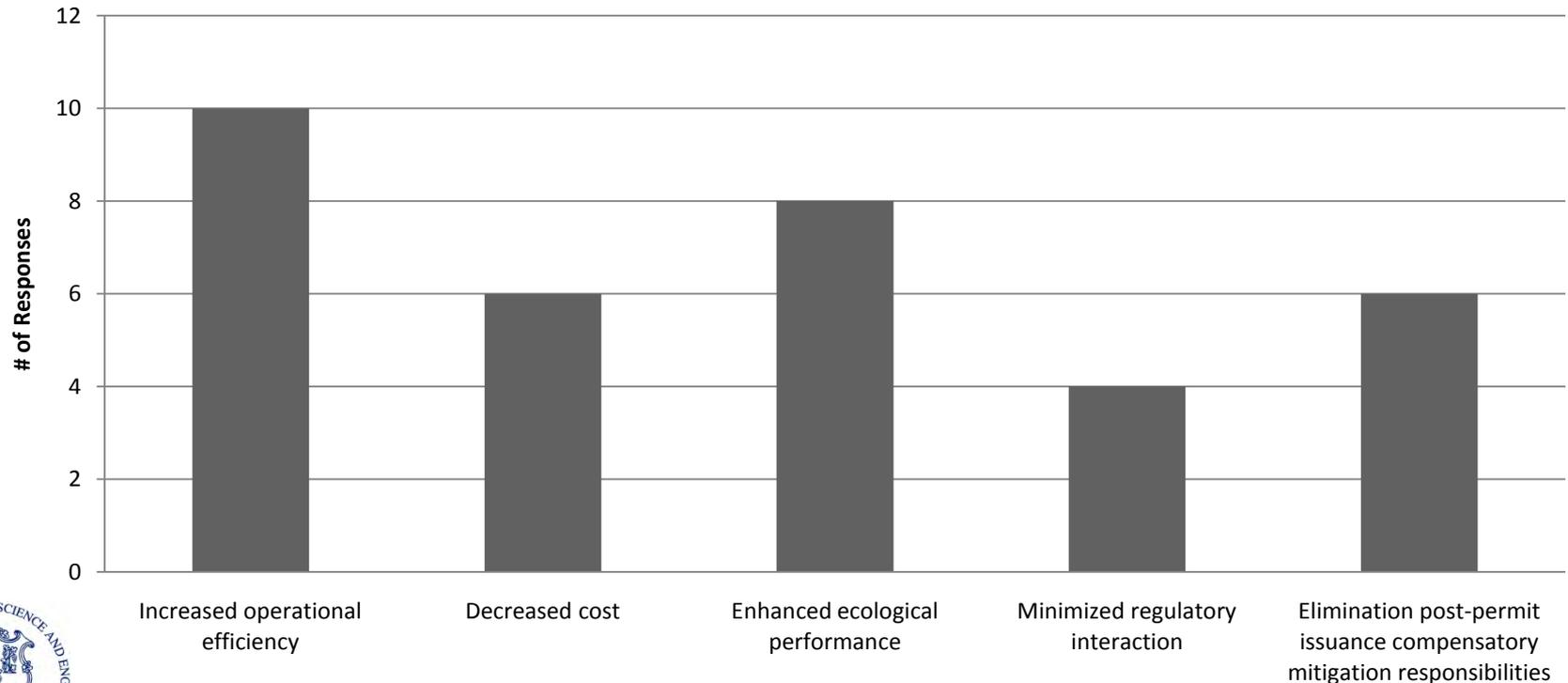
- **14 state entities from 10 states (includes Connecticut (*ConnDOT & DEP – not shown below*))**
- **1 representative from USACE-NE**

STATES	STATE TRANSPORTATION AGENCY	STATE ENVIRONMENTAL PROTECTION AGENCY	FHWA
Florida	X	X	
Illinois	X		
Massachusetts	X		
New Hampshire		X	
New York	X	X	
Ohio	X		X
Vermont	X		
Washington	X		
Wisconsin		X	

# Agency Survey (continued)

- 65% of responses said their state is currently using EMAs
- States identified the issue of multi-agency agreement when establishing EMA

What are some of the reasons for consolidated mitigation site design?



# Agency Survey (*continued*)

- **The majority (85%) of projects in other states are < 3 acres**
- **Reasons for site failure:**
  - **Poor site selection, inadequate monitoring**
- **Key challenges:**
  - **Credit assessment/evaluation**
  - **Replacement ratio agreement**
  - **Land available for mitigation**

# Regional Planning Agencies (RPA) Survey

- **Only 2 out of 15 Connecticut RPAs responded to the survey**
  - **The lack of response suggests RPAs are not aware of EMAs or EMAs are not a priority**
  - **Southwest Connecticut RPAs expressed interest and knowledge**

# Third Party Survey

- **The Nature Conservancy (TNC) and Watershed Strategies (based in Virginia) responded**
  - **Both expressed interest in Connecticut**
  - **Roadblocks**
    - ✓ **Small amount of acreage**
    - ✓ **Lack of availability of land**

# Examples of State Mitigation Practices: Maine

- In 2008 an ILF program was established in response to high costs & DOT long-term planning
  - Fees paid to Maine DEP based on biophysical regions; Only sites > 15,000 ft<sup>2</sup>
  - TNC administers the funds
  - Fees calculated based on county land assessment & estimated cost of wetland creation



- ✓ *Maine's ILF program could be used as model for Connecticut*
- ✓ *TNC is a potential candidate to administer the program*
- ✓ *Fees should be calculated using available data and land costs*

# Examples of State Mitigation Practices

## Maine (*continued*)

County	Wetland Creation/sq. ft.	Assessed Land Value/ sq. ft.	Assessed Coastal Land Value/sq. ft.
Androscoggin	3.28	0.11	N/A
Aroostook	2.74	0.01	N/A
Cumberland	3.28	0.53	1.47
Franklin	2.74	0.03	N/A
Hancock	2.74	0.13	0.22
Kennebec	3.28	0.09	0.13
Knox	3.28	0.26	0.36
Lincoln	3.28	0.23	0.43
Oxford	3.28	0.04	N/A
Penobscot	2.74	0.04	0.24
Piscataquis	2.74	0.02	N/A
Sagadahoc	3.28	0.2	0.27
Somerset	3.28	0.03	N/A
Waldo	3.28	0.06	0.16
Washington	2.74	0.02	0.04
York	3.28	0.37	1.04

$$WCF = DWI \times (WCC + ALV) \times MR$$

**WCF** – wetland compensation fee / sq. ft.

**DWI** – direct wetland impact / sq. ft.

**WCC** – wetland creation cost / sq. ft.

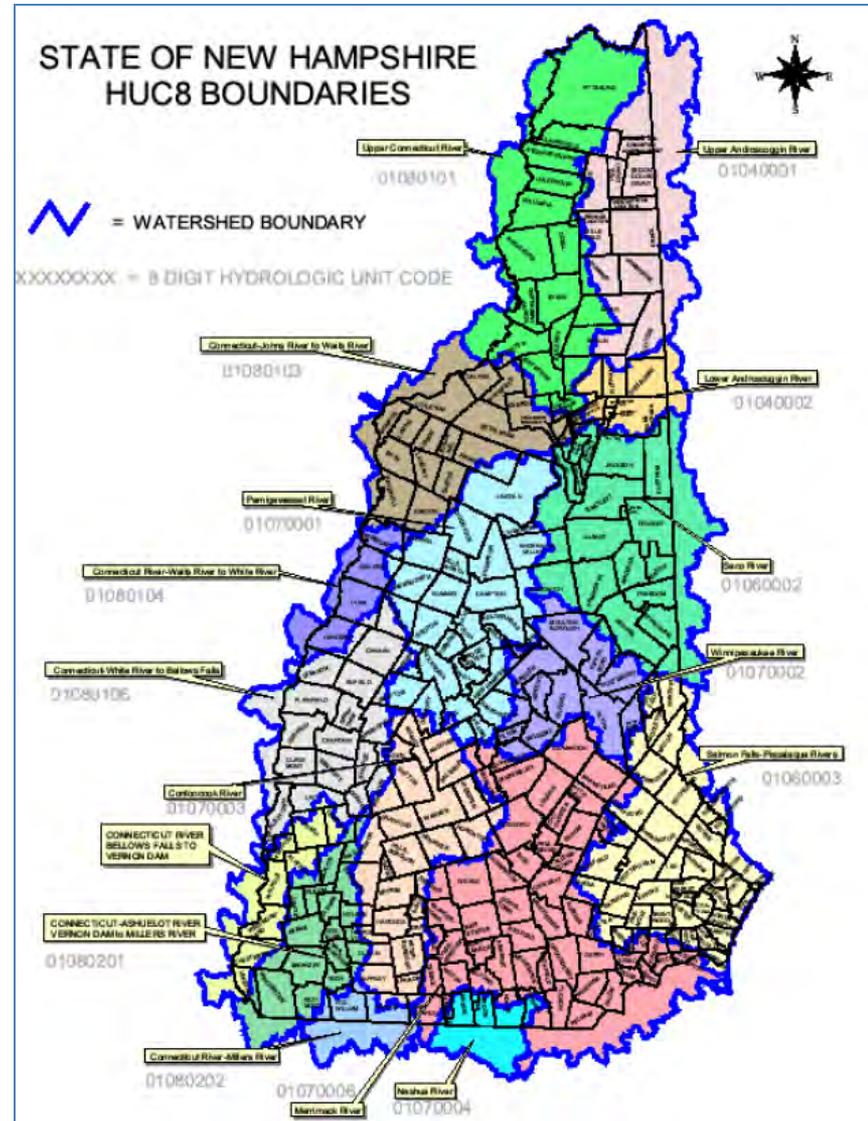
**ALV** – assessed land valuation / sq. ft.

**MR** – mitigation ratio



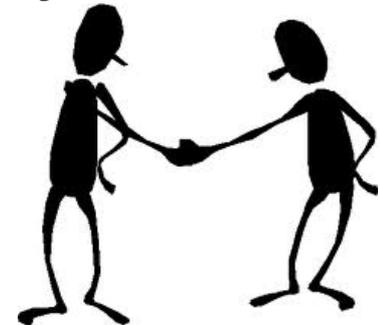
# Examples of State Mitigation Practices: New Hampshire

- Established an ILF program in 2007
- The ILF program administered by NH Department of Environmental Services (DES); \$50K grant to establish ILF provided by EPA
- ILF program collects and releases funds based on a HUC 8 defined service area



# Examples of State Mitigation Practices: New Hampshire (*continued*)

- The fee is calculated by using 3 values:
  1. Cost of mitigation
  2. Cost of land in the town where impacts occurred
  3. Overhead costs
- The collected funds are kept in accounts corresponding to each service area (HUC 8)
- When there are enough funds to be spent, a call for project proposals is issued and the best mitigation project is chosen among the competitors by an independent panel.
  - *Similar program to ME's ILF. CT should establish a program modeling NH and ME's programs.*
  - *Only 6 acres/year impacts*

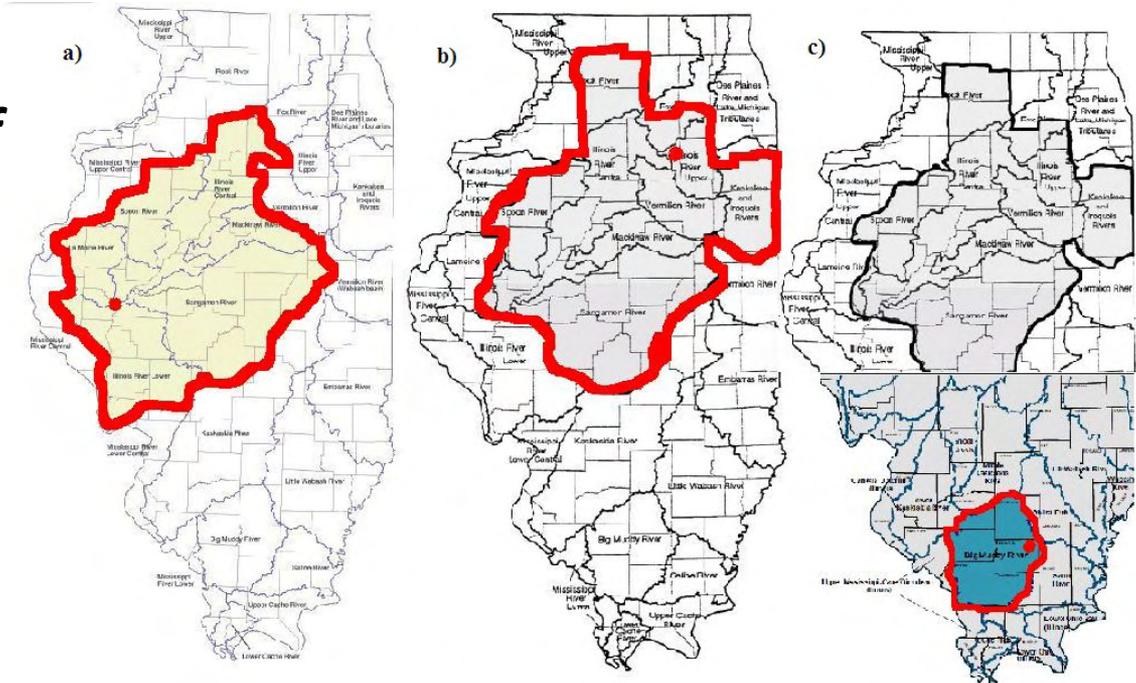


# Examples of State Mitigation Practices: Illinois

- Several mitigation options are currently in use in IL, including commercial & DOT WB, & ILF programs
- Such programs are used by state & private developers impacting wetlands

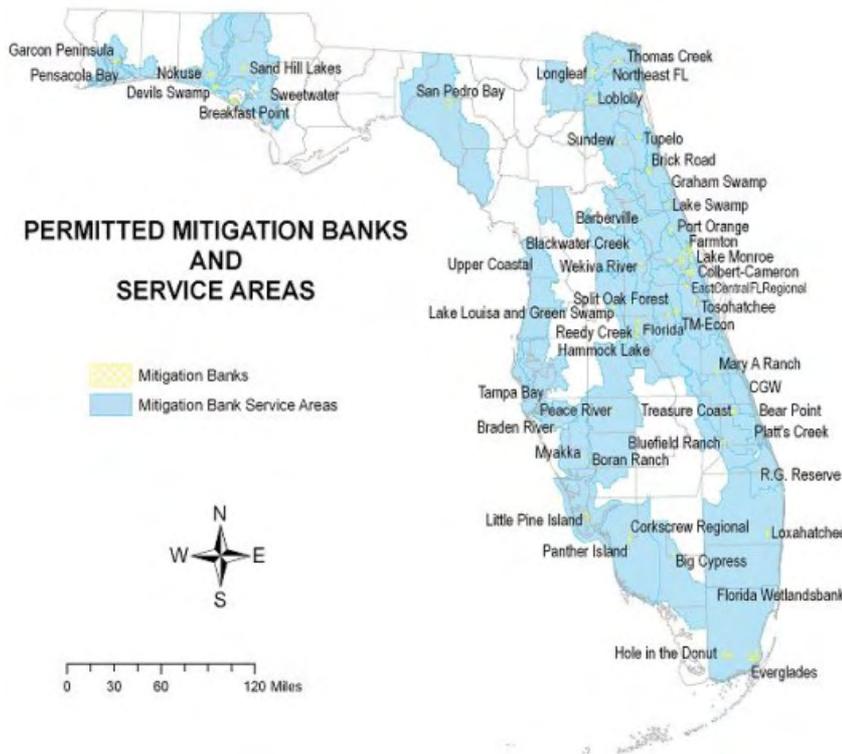
— *Availability of different types of EMAs has increased efficiency of IDOT projects*

— *Large service areas; increased ratio for outside watershed*



# Examples of State Mitigation Practices: Florida

- Water Management Districts (WMD) are responsible for conducting compensatory mitigation for DOT projects
- There are several commercial WB programs (39 according to the latest reports) & 4 ILF programs
- Service area covered by EMAs:



- *Passing responsibility of compensatory mitigation to WMD has increased DOT project performance*
- *FDOT forecasts impacts annually*
- *WMD unique situation to Florida*

# Examples of State Mitigation Practices: Others

## ➤ California

- 2<sup>nd</sup> Most EMAs in US
- Developed California Rapid Assessment Method for impacts

[\(www.CRAMwetlands.org\)](http://www.CRAMwetlands.org)

## ➤ Pennsylvania

- Compensatory fee for small impacts
- Assist private landowner

*e.g.*     *0.5 acre = \$7,500*  
          *0.05 acre = \$ 500*

# Key Findings

- **Long-range, cohesive plans should be developed for environmental watershed goals & for potential transportation impacts with regard to wetland mitigation**
- **ILF programs are a viable option to traditional PRM**
  - **ILF does not require large upfront funds needed to establish a WB, making ILF the recommended option**
  - **Increase flexibility for ConnDOT projects with respect to mitigation**

## Key Findings (2)

- **Based on basic calculations, ConnDOT impacts estimated at 3 acres/year impacts may provide sufficient funds to operate an ILF program**
  - **Ability of private impacts to buy into the program may be necessary in order to secure the necessary acreage needed to cover overhead costs**
  - **In order to include private impacts, legislation must be adopted to allow town impacts to participate in an EMA**

# Conclusions – Importance of EMAs

- **EMAs decrease construction delays & make use of economy of scale**
  - PRM has been shown to cause delays to ConnDOT projects, increasing cost
- **EMAs offer increased environmental functions associated with larger, more contiguous natural areas**
  - Can draw on expertise offering greater chance of successful mitigation
- **EMAs are crucial towards having a more flexible system**

# Conclusions – Connecticut Case

- **ConnDOT impacts may be sufficient to develop an EMA program for state transportation projects only**
- **However, amount of wetlands impacted by state agencies is not sufficient to attract investors to establish a commercial EMA program**
  - **Only current guarantee for an EMA sponsor would be credits purchased by ConnDOT and other state agencies**
  - **ConnDOT impacts (~3acres/year) fail to incentivize commercial Wetland Bank sponsors**
  - **While not currently allowed by law, providing an opportunity for mitigation of impacts from private projects to participate in a regional or statewide EMA program would increase commercial viability**
- **State law needs to be amended to allow for private participation in an EMA program**

# Conclusions – Proposed Solutions

## Considering only ConnDOT impacts for an EMA

### *Wetland Bank or In-lieu Fee program?*

- Tight state budgets make it difficult to secure sufficient startup funding to establish a WB program
- An ILF program does not require large up-front costs

*Is small ConnDOT annual estimated acreage sufficient to cover overhead expenses?*

# ILF Overhead Cost Calculations

- A basic set of calculations was performed
  - Mitigation ratio of 2:1
  - Based on programs in Maine & New Hampshire

## Per acre impacted:

1. Cost of the construction of a wetland, multiplied by the ratio: **~ \$152,000/acre**
2. Cost of land. There are 2 different estimates:
  - a) The equalized net grand list value for property by town: **~\$112,000/acre**
  - b) Based on DEP Connecticut Land Use Acquisition Program (CLAP) data: **~\$47,200/acre**
3. Overhead costs at 20%. **~ \$39,840/acre**

# Conclusions – Calculations

- Approximately **\$597,600/year** in fees will be paid to the ILF program (*assumes 3 acres*)
- Using a 20% overhead rate - the fund would receive **\$119,520/year** to cover operational costs
- 1½ staff will be required to operate the program, with an estimated cost to cover salary and benefits of approximately **\$150,000/year**
- Suggests an ILF program may be viable, even with only limited wetland impacts

***Making use of private impacts would increase the likelihood of implementing and operating a financially self-sufficient program***

# Primary Conclusion

- **ConnDOT should investigate establishing an ILF program specific for their own use. Additional actions may increase the probability for successful implementation and operation of a mitigation program.**
  - **ConnDOT and DEP should develop long-range plans, including forecasting impacts, classifying watershed goals and potential service areas for the implementation of EMAs**
  - **ConnDOT should investigate the potential for legislation allowing private impacts to participate in an ILF program**

# Recommendations: *General*

## ConnDOT & DEP should:

**Recommendation 1: Develop cohesive and cooperative long-range plans that: forecast impacts; classify watershed goals; & prioritize open space opportunities**

**Recommendation 2: Individually and collectively articulate environmental goals & objectives of specific mitigation projects in writing**

**Recommendation 3: Conduct joint meetings focused on a general discussion of wetland remediation approaches**

**Recommendation 4: Evaluate the adequacy and efficacy of wetland impact documentation**

**Recommendation 5: Work in cooperation with DECD, & other state agencies as appropriate, to identify future project development areas that will impact wetlands**

# **Recommendations:**

## ***Specific to Development of an EMA Program***

### **Recommendation 6: Identify potential service areas that could be appropriate for consolidated wetland mitigation**

- Having long-term plans in place is pre-requisite for determining classification of mitigation boundaries
- Should not be undertaken until certainty that EMA program is feasible and ready to be established

# **Recommendations:**

## ***Only if an EMA Program is Developed***

**Recommendation 7: Inform municipalities & regional entities, etc. of the opportunities provided by EMA programs – Evaluate interest in amending state law to permit towns (private impacts) to participate in regional or statewide EMA program**

**Recommendation 8: Identify potential sources of start-up financing for administrative development of a consolidated mitigation plan & instrument**

**Recommendation 9: Keep the USACE & other federal resource agencies informed on the steps discussed above**

**Recommendation 10: Develop a means to include ecosystem services in project evaluation**

**Recommendation 11: Mitigation options should be in-line with ecosystem goals established in DEP's long-term plan**

**Recommendation 12: Develop a means for long-term financing for administration of consolidated mitigation projects**

# Concluding Remarks

- EMAs have proved to be useful in other states, improving mitigation efficiency and reducing costs due to economies of scale
- EMAs potentially provide increased environmental benefits with larger, more contiguous wetland areas and increased chance of successful mitigation
- Larger, more contiguous wetlands offer potential for increased environmental services to the public
- The use of an EMAs would be highly beneficial to ConnDOT, wetland managers, developers and likely the public

# QUESTIONS

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