

Valuing Nature's Benefits

Flood Risk Reduction
Economic and Ecological Benefits

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Association of State Floodplain Managers

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EARTH ECONOMICS

What is your planet worth?

ASFPM Mission



Mitigate the losses, costs, and human suffering caused by flooding.



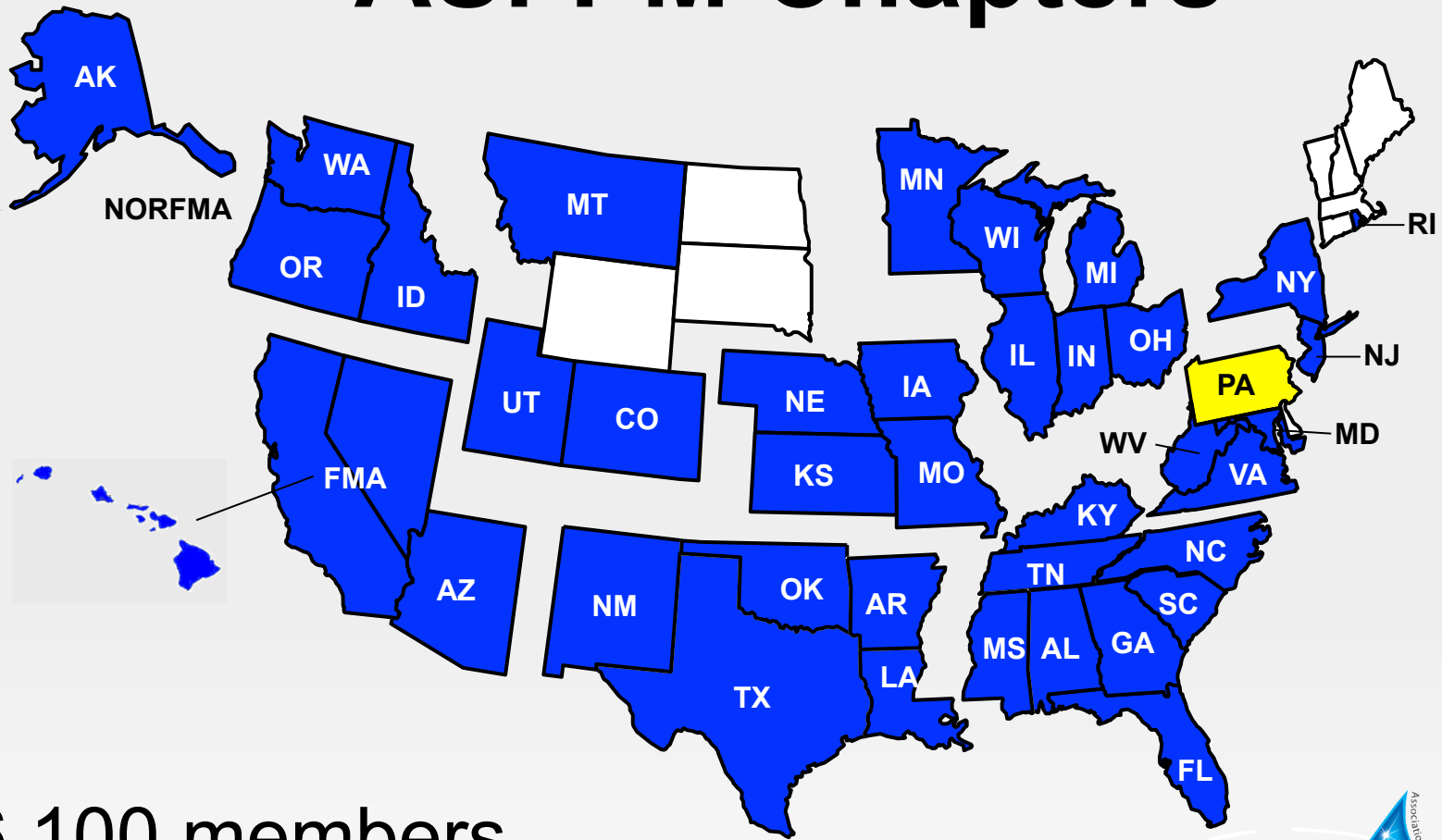
Protect the natural and beneficial functions of floodplains.

ASFPM 14 Policy Committees



1. Arid Regions
2. Coastal Issues
3. Flood Insurance
4. Flood Mitigation
5. Mapping & Engineering Standards
6. Professional Development
7. Stormwater Management
8. Floodplain Regulations
9. No Adverse Impact
10. Non-structural floodproofing
11. Natural & Beneficial Functions
12. Training & Outreach
13. International

ASFPM Chapters



16,100 members

 35 Chapters

 State Assoc. & Pending Chapters



ASFPM Mission



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Protect the natural and beneficial functions of floodplains.

Internal Projects & Activities

- Flood Mapping for the Nation
- Floodway Encroachment Standard - Cumulative Impacts Assessment
- IGCC – International Green Construction Code

ASFPM's No Adverse Impact

Activities that could adversely impact flood damage to another property or community will be allowed only to the extent that the impacts are mitigated or have been accounted for within an adopted community-based plan.



ASFPM's No Adverse Impact

- Building Blocks

 - Hazard Identification

 - Education and Outreach

 - Planning

 - Regulations and Standards

 - Mitigation Actions

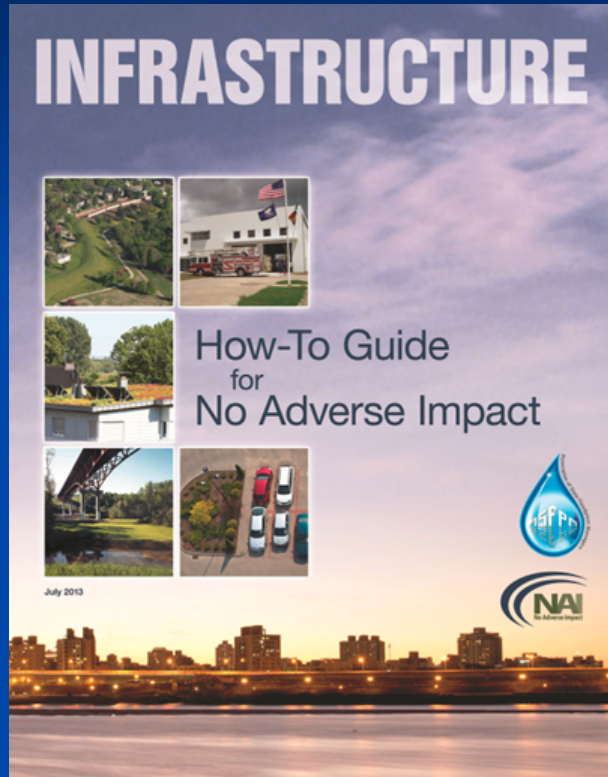
 - Infrastructure

 - Emergency Services



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NAI How-To Guides



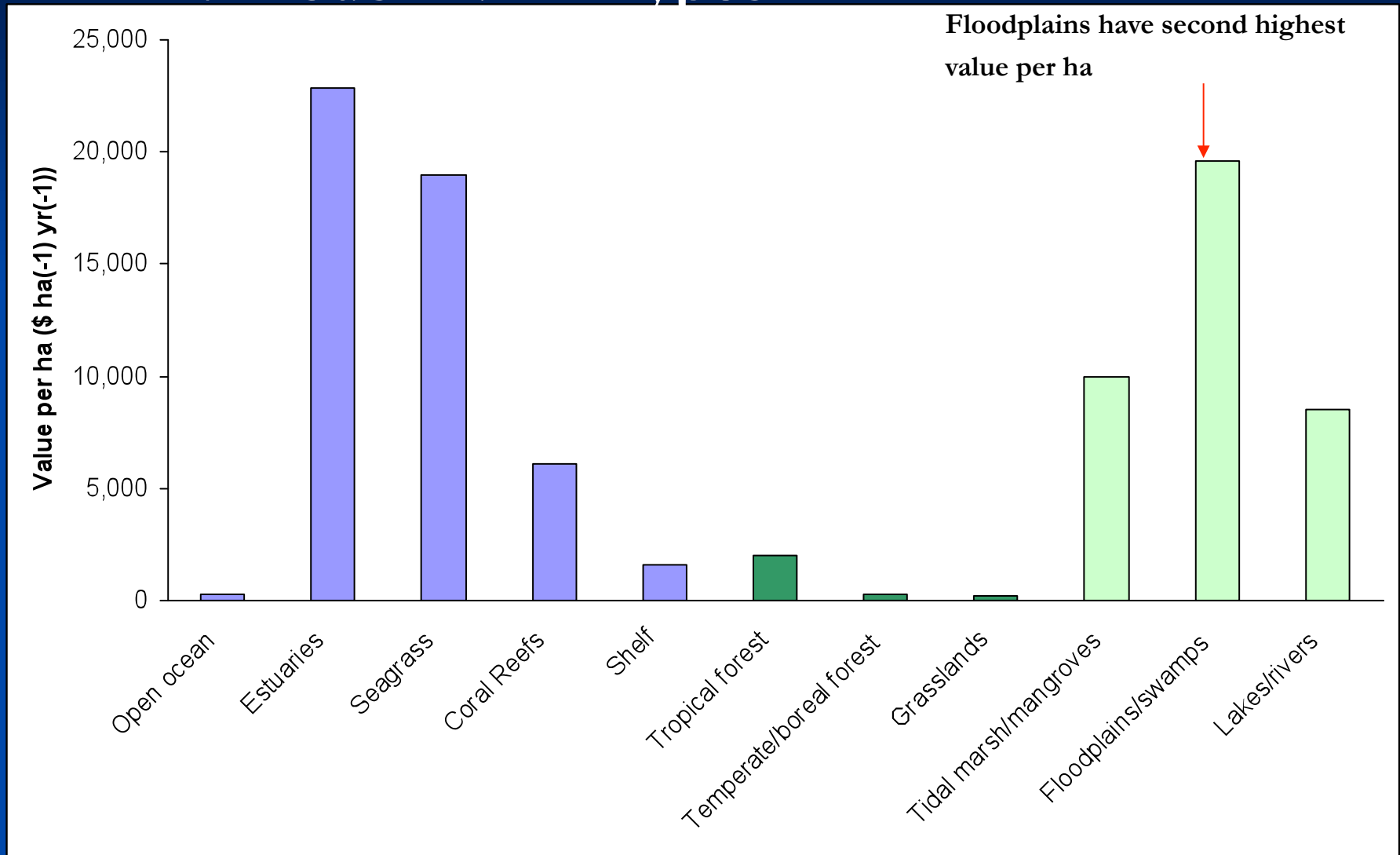
- 5 NAI level tools in each guide
- Based on 7 building blocks in NAI Toolkit
- Completed Mitigation and Infrastructure in 2013
- Will complete Planning and Education/ Outreach by October 2014
- Two additional for 2015

www.floods.org and click on the NAI button at the bottom.

Why care about floodplains?

- Multiple benefits:
 - Flood risk reduction
 - Food and economy
 - Recreation (hunting, fishing, hiking, canoeing, etc.)
 - Open space
 - Groundwater recharge
 - Water quality benefits
 - Ecological benefits (biodiversity, endangered species)

Value of ecosystem services of various habitat types



Adapted from Costanza et al. 1997

Environmental Values of Naturally Functioning Floodplains

Ecosystem Services

“...floodplains were the second ranked ecosystem type, behind only estuaries, in terms of their per-hectare value to society. Despite representing <2% of Earth's terrestrial land surface area, floodplains provide approximately 25% of all terrestrial ecosystem service benefits.”

Non-structural NAI Strategies

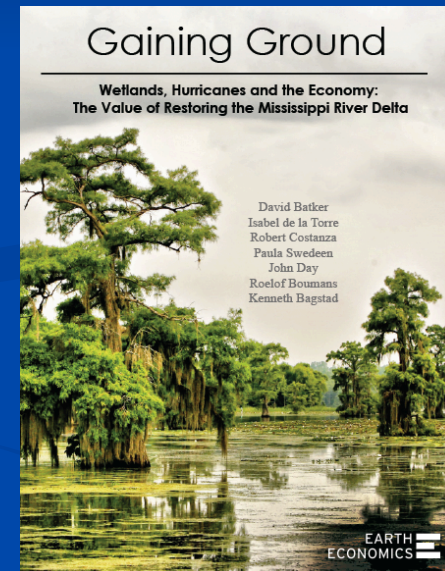
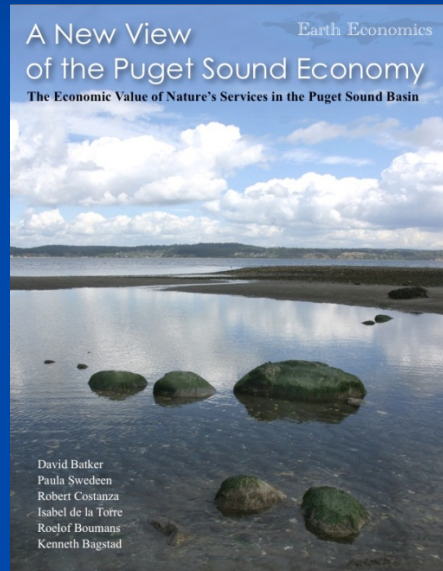
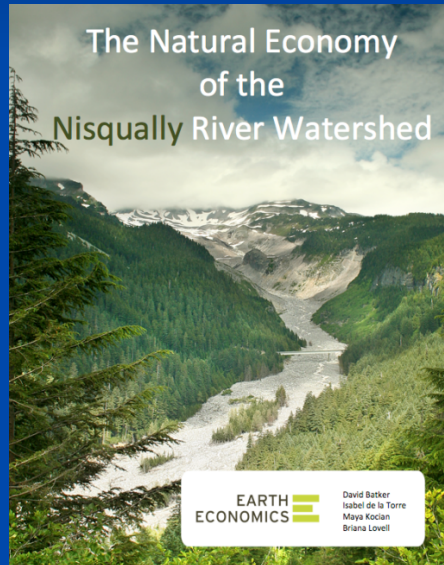
Preserve beneficial natural floodplain functions

- Utilize “green infrastructure”
- Adopt storm water regulations
- Adopt buffer zone requirements between sensitive and developed areas
- Low Impact Development (LID)
- Implement stream restoration programs

Earth Economics



501(c)3 founded in 1998



Earth Economics



Four Types of Capital



Built Capital



Social Capital



Human Capital



Natural Capital

Leveraging Capital for 21st Century Solutions



**Dams, Bulkheads,
Levees, Roads**

**Regulatory Policy,
Government**

**People,
Ideas**

Ecosystem Services

Earth Economics/ ASFPM Project

- Document current floodplain regulation, policies & mitigation actions that provide substantial economic benefits, reduce flood risks, protect public safety, and conserve critical habitats

Earth Economics/ ASFPM Project

- Develop recommendations for regulations, policies and mitigation actions that would improve the economic well-being and resiliency to flood risk of the Rock River watershed communities.
- Funding provided by the McKnight Foundation

Earth Economics/ ASFPM Project

- Test FEMA's new policy by including Environmental Benefits in FEMA's Benefit Cost Analysis for acquisition projects
- Evaluate inclusion of Environmental Benefits in FEMA's Benefit Cost Analysis for other non-structural mitigation projects
- Evaluate regional information for regionally appropriate environmental benefits



- Policy Memo: Cost Effectiveness Determinations for Acquisitions and Elevations in SFHA using Pre-Calculated Benefits, issued 8/15/13 and 10/8/13
- For acquisition, if the property is located in the SFHA per FEMA FIRM and the total cost is \$276,000 or less it is cost-effective
- For elevation, if the property is located in the SFHA per FEMA FIRM and the total cost is \$175,000 or less it is cost-effective.
- Projects containing multiple structures, the average cost of all structures must meet the criterion.

Pilot Project Areas

- Jefferson County property acquisition
- City of Portage Stormwater Management



Jefferson County Impact

- 2010 Mitigation Application included 35 structures.
- 9 had a BCR greater than 1.0
- Aggregated another 11 with BCR less than 1.0 for total of 20 properties
- Remaining 15 did not qualify
- If the pre-calculated policy had been in place we would have been able to include a total of 31 properties (only 4 were over \$276K)



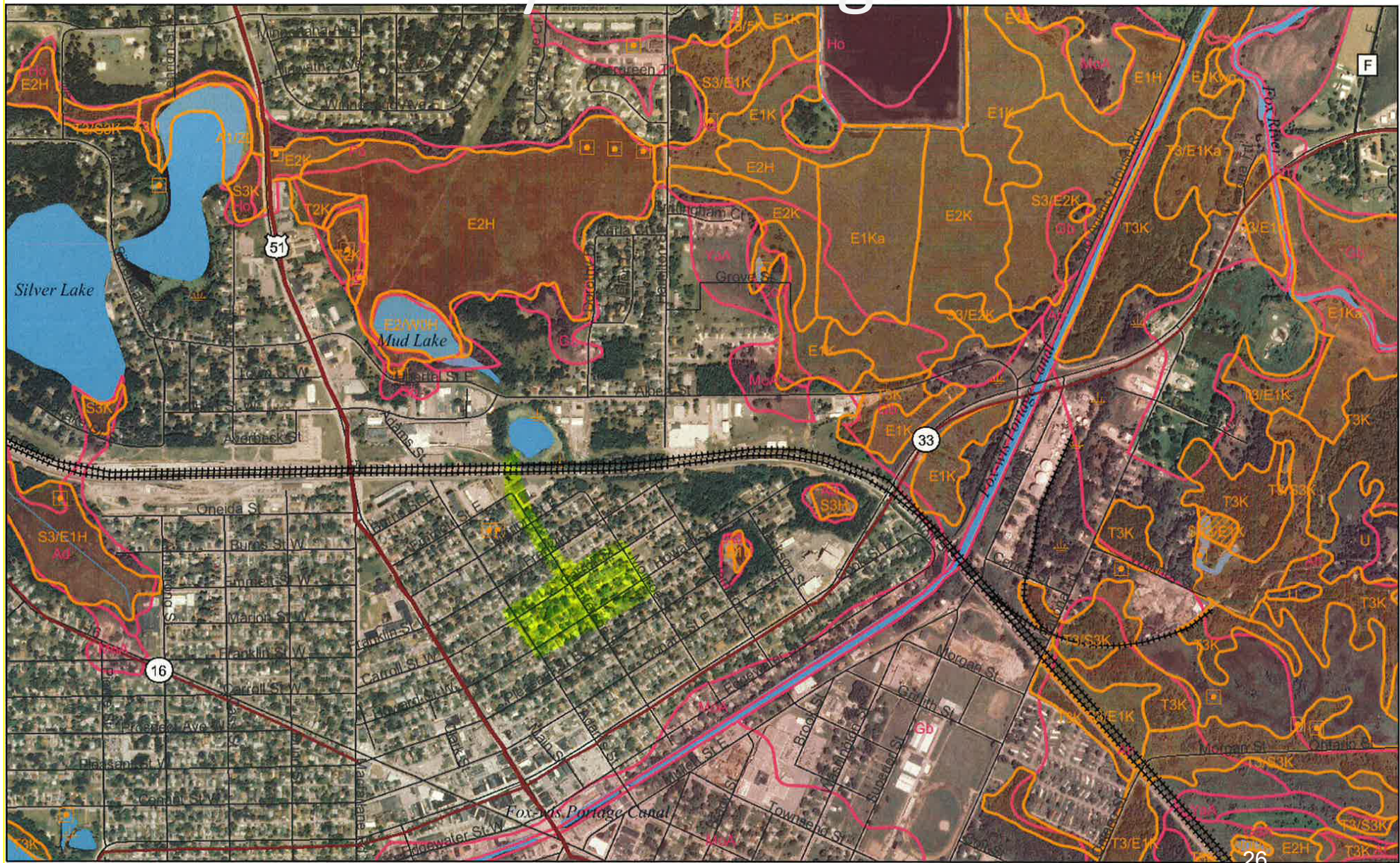
Acquisition Challenges

- Patchwork open space
- New Jersey
 - 1200 seeking buyout – not all with get it
 - NJ seeking to buy clusters
 - Some concerned that sensitive floodplain land not emphasized enough

Acquisition Challenges

- Purchased lots become community responsibility – results in increased maintenance costs
- One best practice – long-term maintenance agreements with neighbors

City of Portage





Non-structural NAI Strategies

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