

ADAPTING TO MORE WATER

In the National Capital Region



Jessica Grannis

Climate Impacts Symposium – May 21, 2012
Metropolitan Washington Council of Governments

GEORGETOWN CLIMATE CENTER
A Leading Resource for State and Federal Policy

GCC's Assistance to State and Local Governments

Question	GCC Work Product
What are our options?	<ul style="list-style-type: none">• Sea Level Rise Tool Kit• Urban Heat Tool Kit• Adaptation Clearinghouse
How do we legally implement a policy?	<ul style="list-style-type: none">• Model SLR overlay zone
Is a policy consistent with other federal laws?	<ul style="list-style-type: none">• Analysis Army Corps permitting• Analysis National Flood Insurance Program
Do we have the resources?	<ul style="list-style-type: none">• Federal programs for adaptation

GCC's Assistance to State and Local Governments

Question	GCC Resource
What are our options?	<ul style="list-style-type: none">• Sea Level Rise Tool Kit• Urban Heat Tool Kit• Adaptation Clearinghouse
How do we legally implement a policy?	<ul style="list-style-type: none">• Model SLR Zoning Ordinance



sea-level rise toolkit



What are my options?

Sea-Level Rise Tool Kit

What are our options?

- Accommodate
- Protect
- Retreat

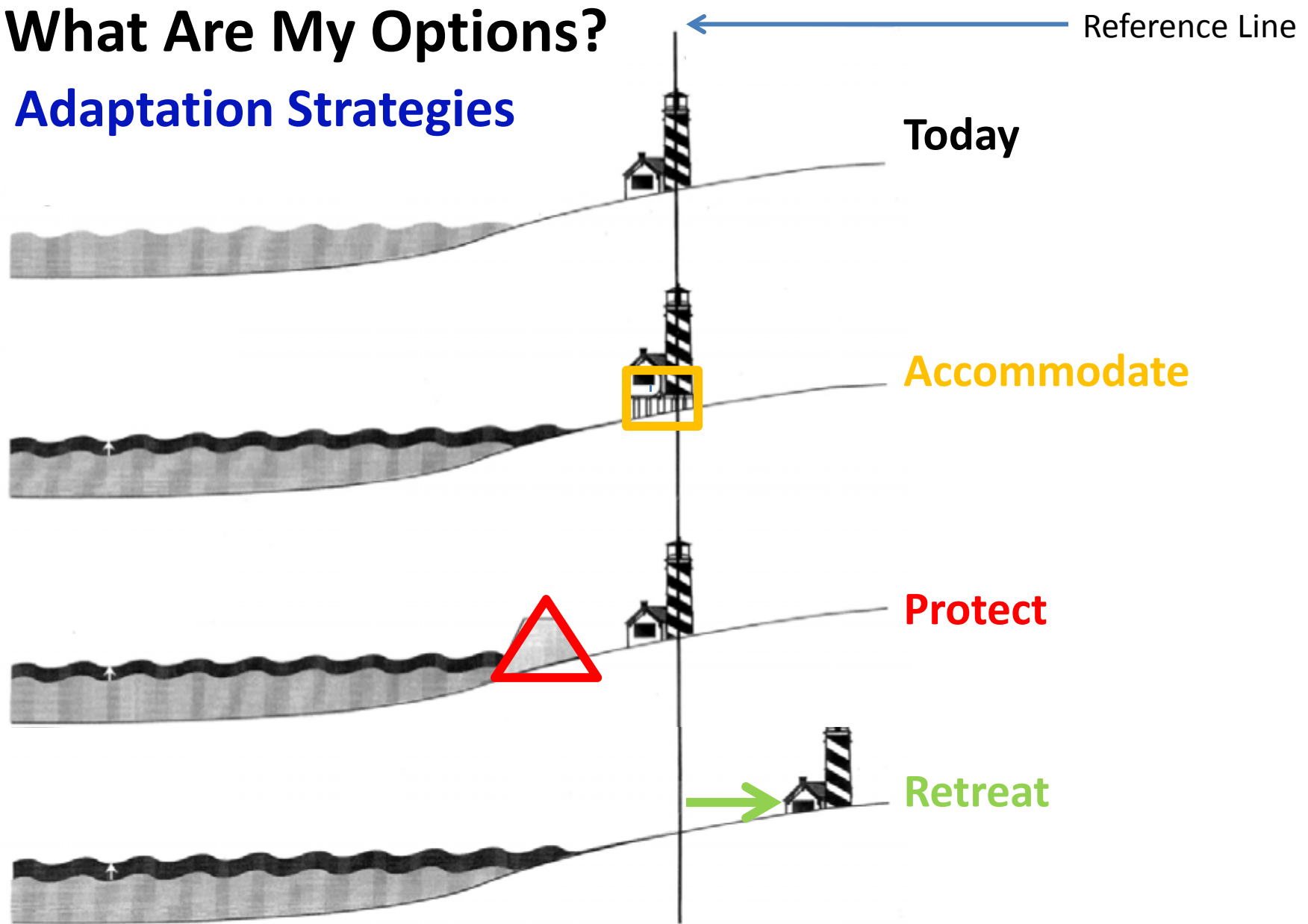
How do we choose?

- By power
- By type of land use
- By tradeoffs



What Are My Options?

Adaptation Strategies



Adaptation Strategies



Accommodate



Protect



Retreat

How do we choose?

Types of Powers

- Land-Use Plans
- Regulations
- Incentives
- Investments



How do we choose?

Type of lands at risk



Natural
Resources



Future
Development



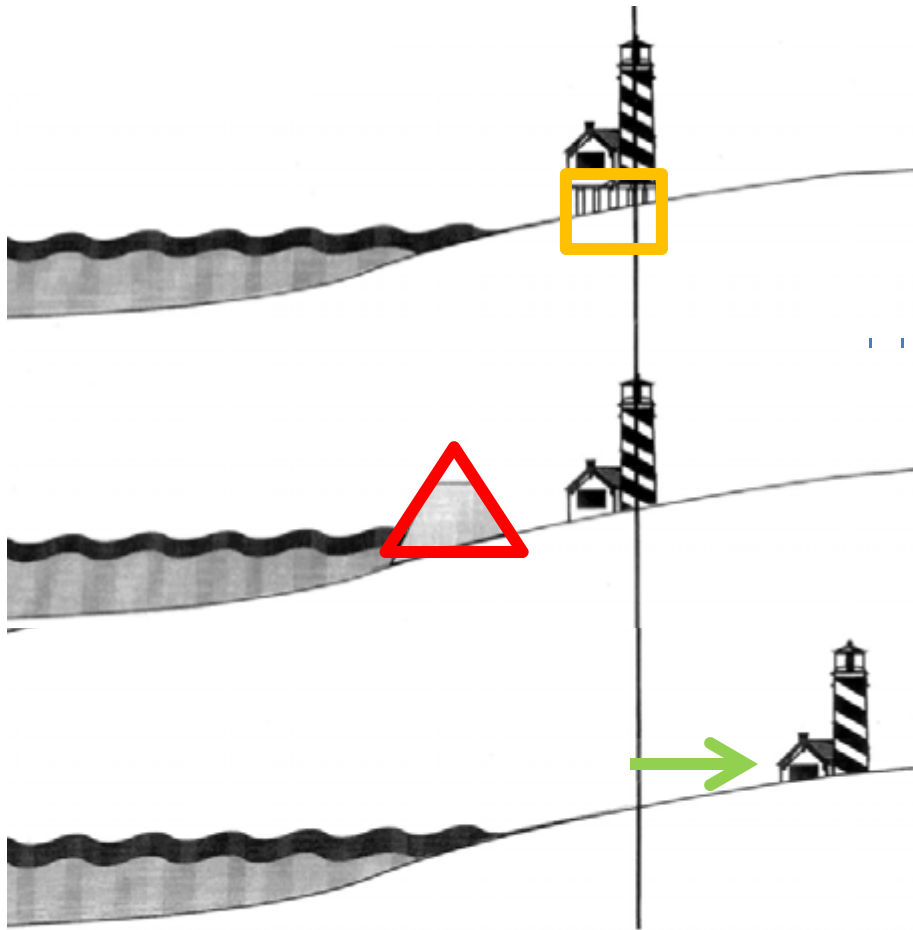
Existing
Development



Critical
Facilities

The Good News:

We have tools!



Accommodate

- Flood-proofing requirements
- Elevation requirements
- Setbacks
- Buffers

Protect

- Hard-armoring permits
- Soft-armoring requirements

Retreat

- Rebuilding restrictions
- Removal requirements
- Conservation easements
- Acquisitions
- Capital Improvement Plans
- Rolling easements
- Real estate disclosures

Planning

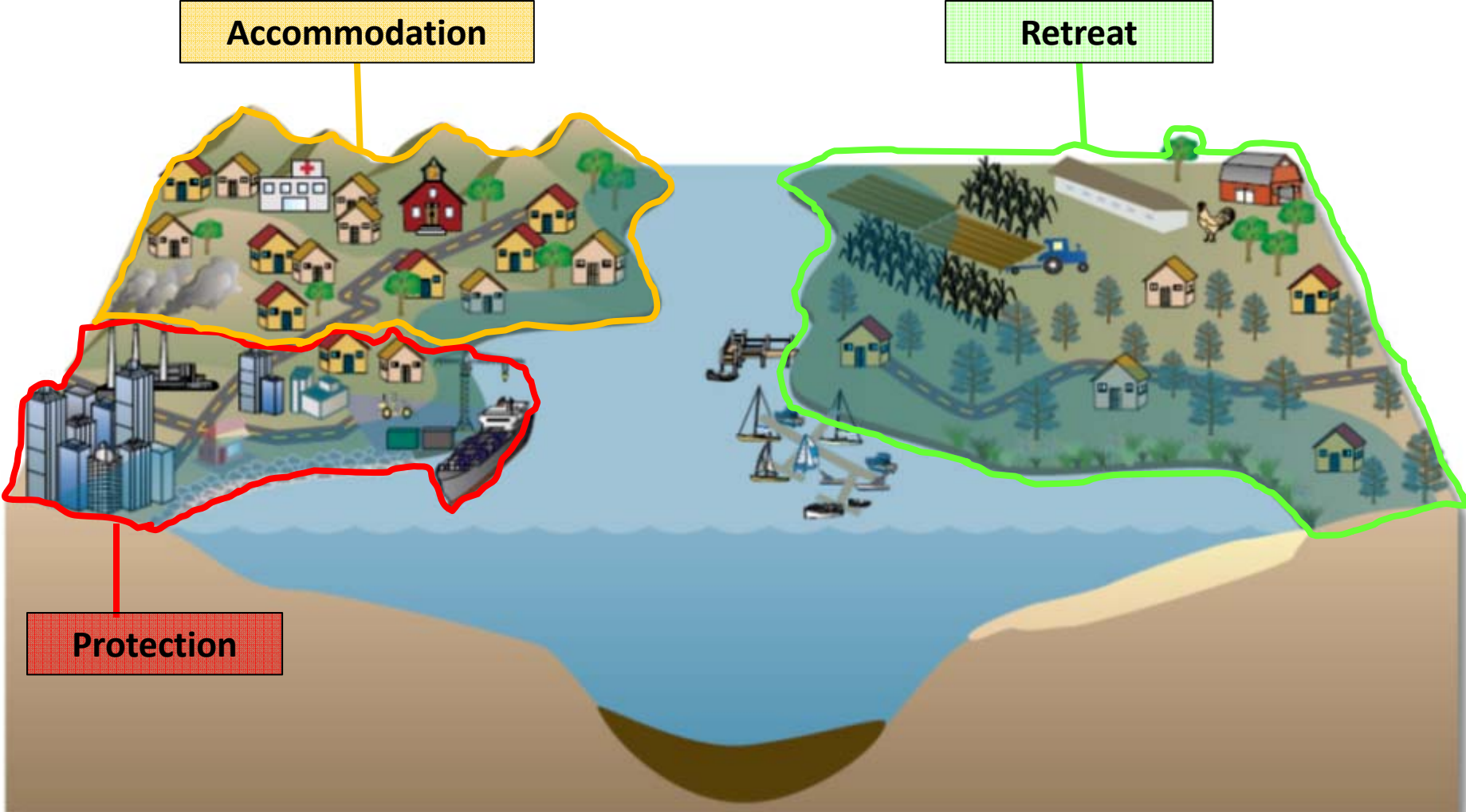
Tools

- Comprehensive plans
- Hazard mitigation plans
- Capital improvement plans / transportation plans

Examples

- Virginia Beach, VA
- King County, WA
- Lewes, DE
- FHWA pilots—Cape Cod, NJ, San Francisco, WA, HI

Planning: Establish Adaptation Goals

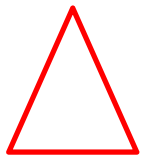


Regulations

Tools



- Flood-proofing
- Elevation / freeboard
- Setbacks / Buffers



- Hard-armoring permitting
- Design standards for armoring
- Mitigation standards for armoring



- Soft-armoring permitting
- Limits on septic
- Downzoning
- Rebuilding restrictions

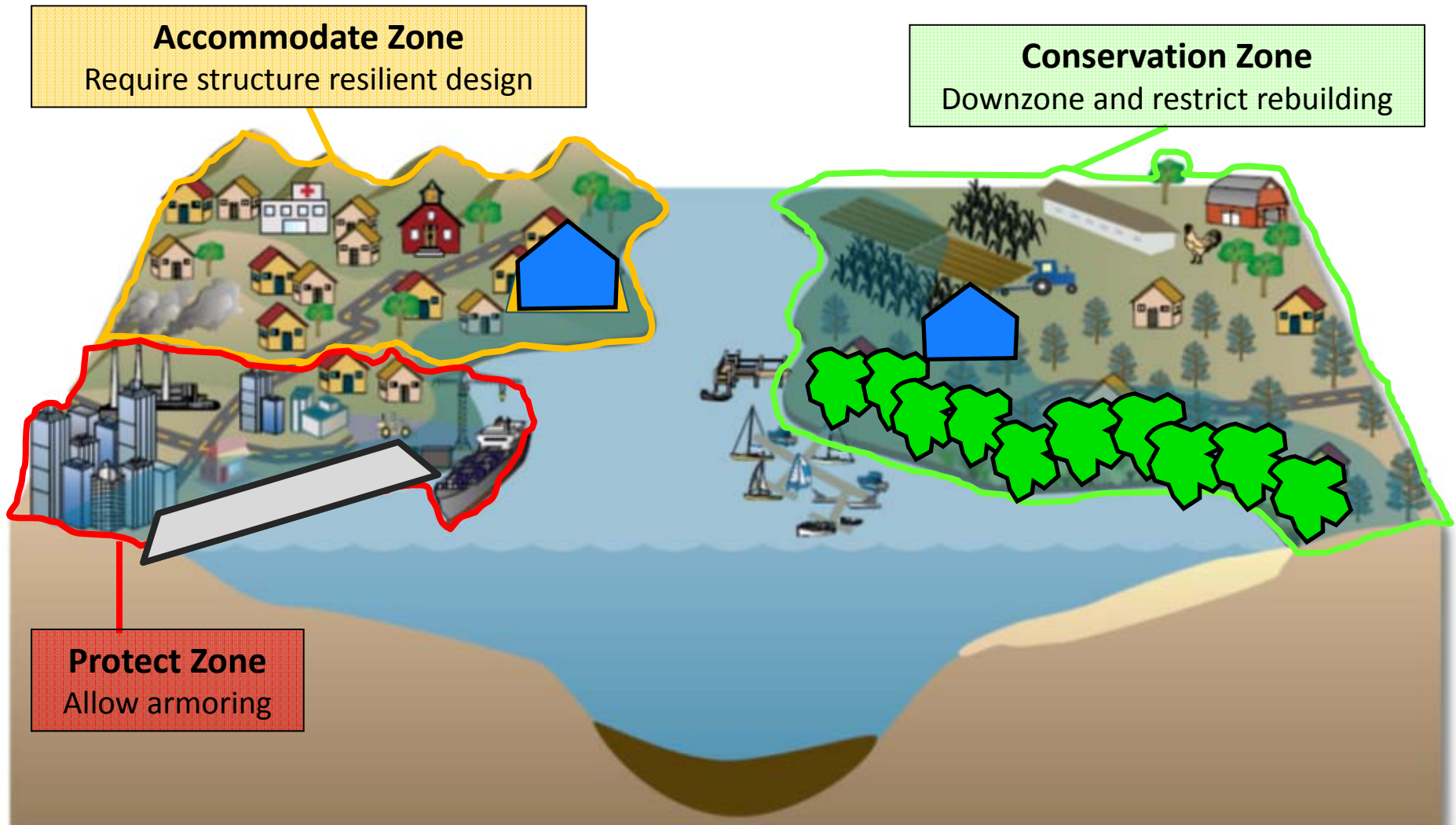
Examples

- Community Rating System
- Kauai, HI
- MD Critical Areas Act

- ACE SLR guidelines


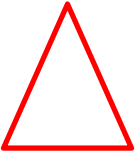

- MD Living Shorelines Protection Act
- ME Beach Act

Maryland: Model SLR Ordinance

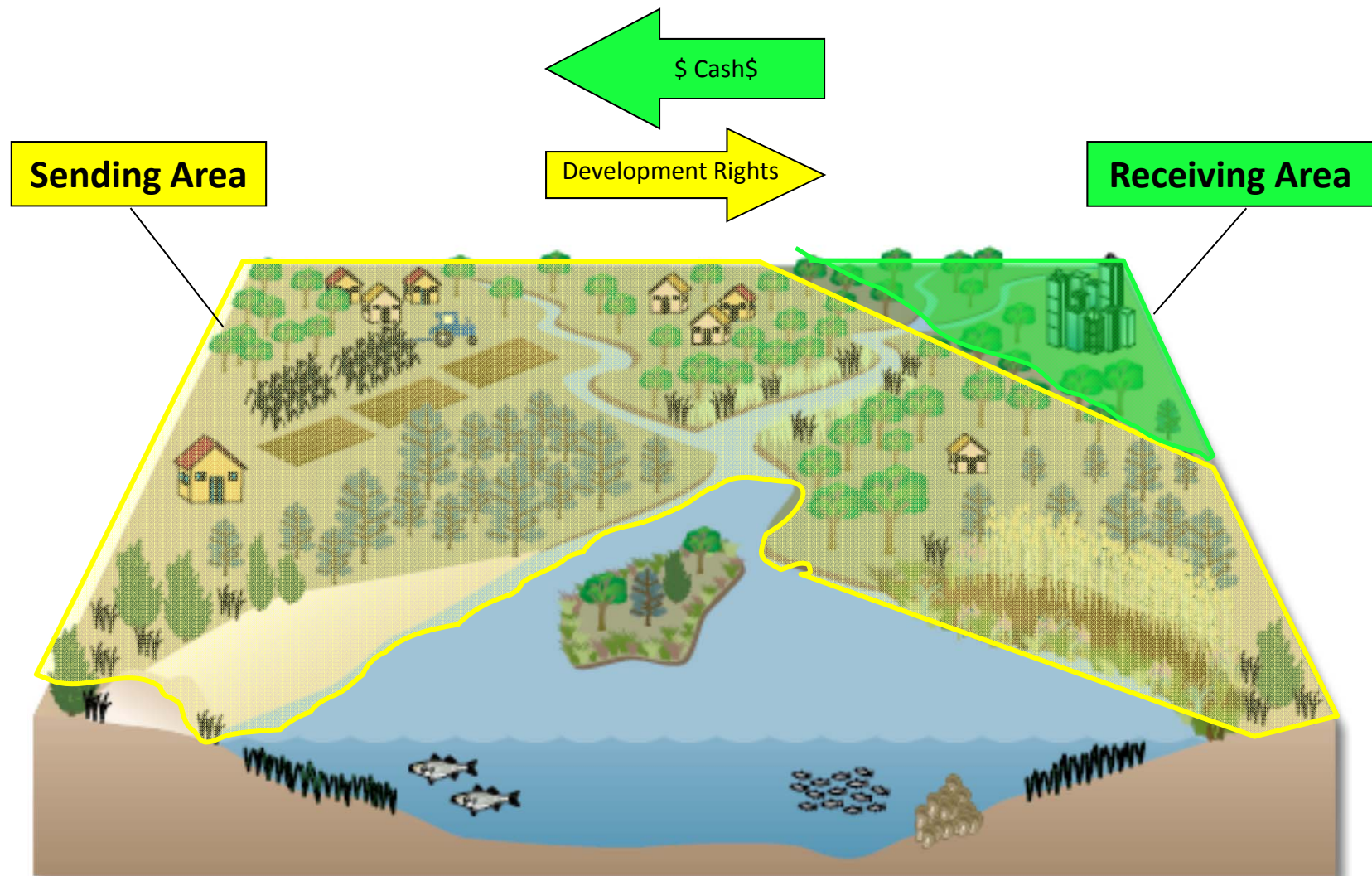


Graphic adapted from ian

Incentives

	Tools	Examples
	<ul style="list-style-type: none">• Tax incentives, rebates or credits for retrofits• Siting incentives• Fast-track permitting	<ul style="list-style-type: none">• Hull, MA
	<ul style="list-style-type: none">• Streamlined permitting	<ul style="list-style-type: none">• MD Living Shorelines Act
	<ul style="list-style-type: none">• Real estate disclosures• TDCs• Conservation easements• Density bonuses• Cluster development	<ul style="list-style-type: none">• CA hazards disclosure• Montgomery County, MD• VA conservation easements tax credits

Transfer Development Rights

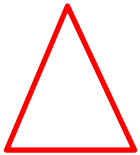


Investments

Tools



- Elevate public facilities
- Acquisitions / easements
- Beach nourishment



- Funding for regional protection projects



- Buyouts and acquisitions
- Limit public expenditures
- Relocate infrastructure

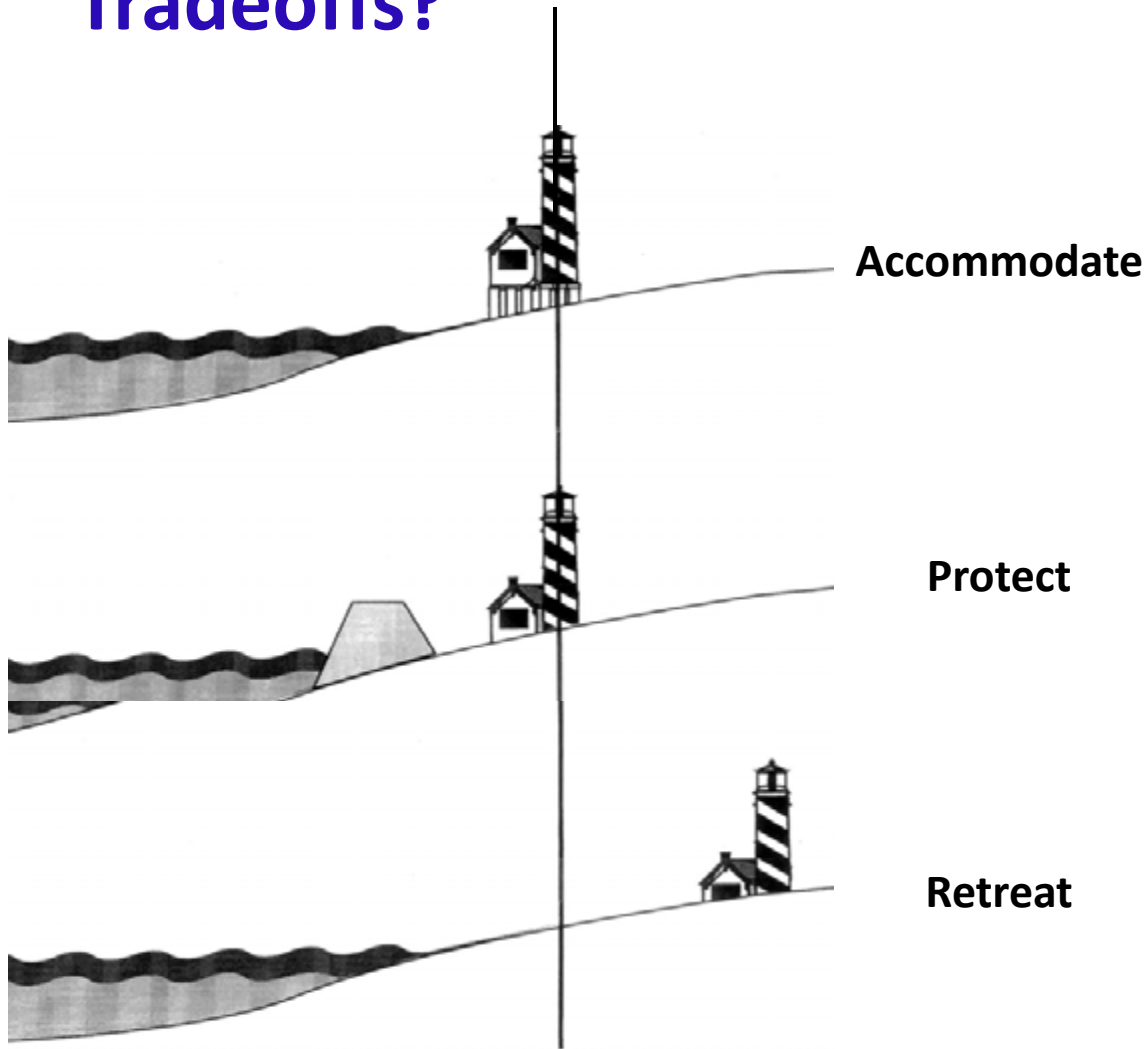
Examples

- LA, Hwy 10
- CA Coastal Conservancy guidelines
- CA Sediment Management Work Group
- ACE's SAGE program
- Reroute of Hwy 1 in CA
- Pacifica, CA managed retreat





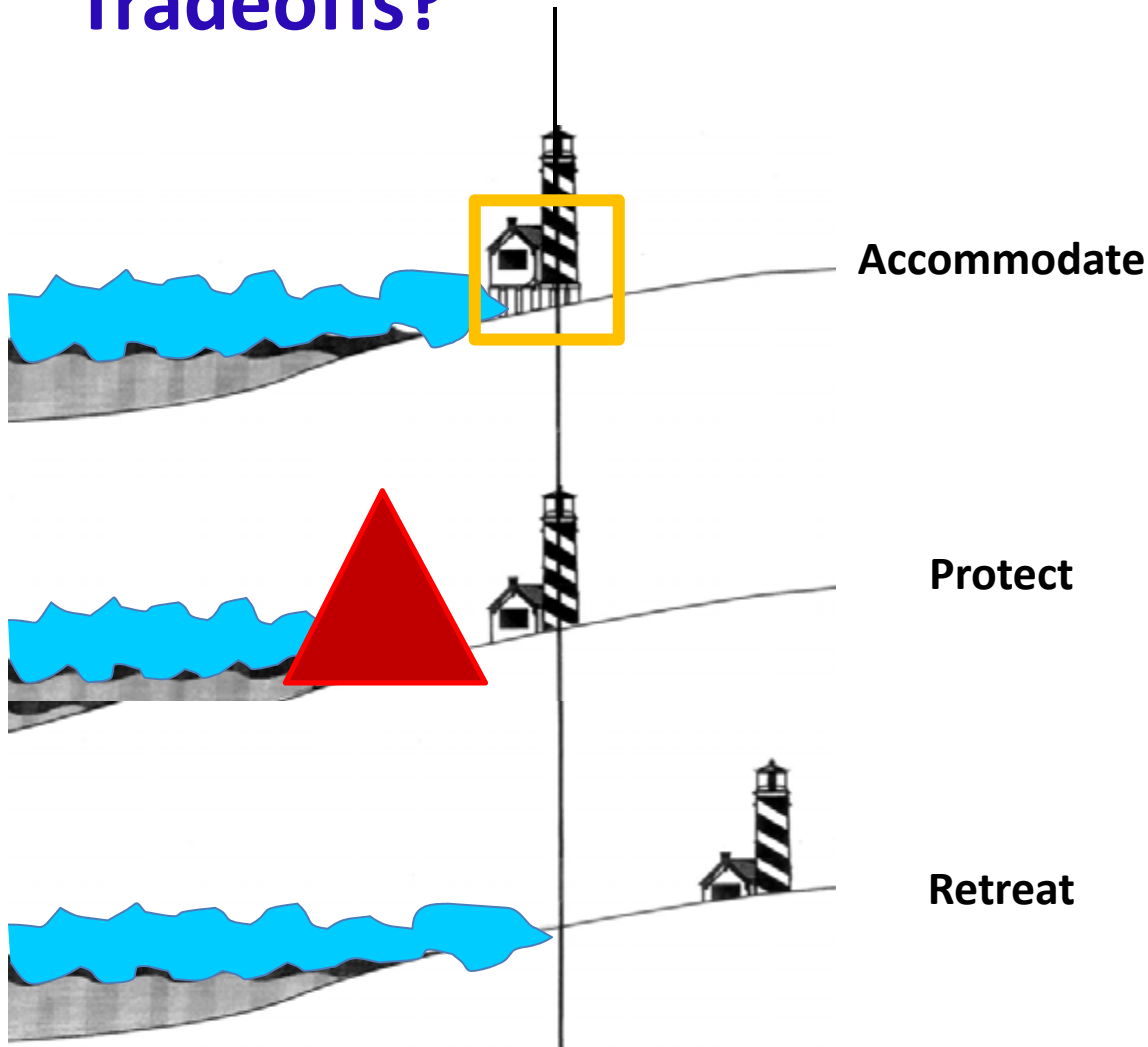
Choosing Between Options: Tradeoffs?



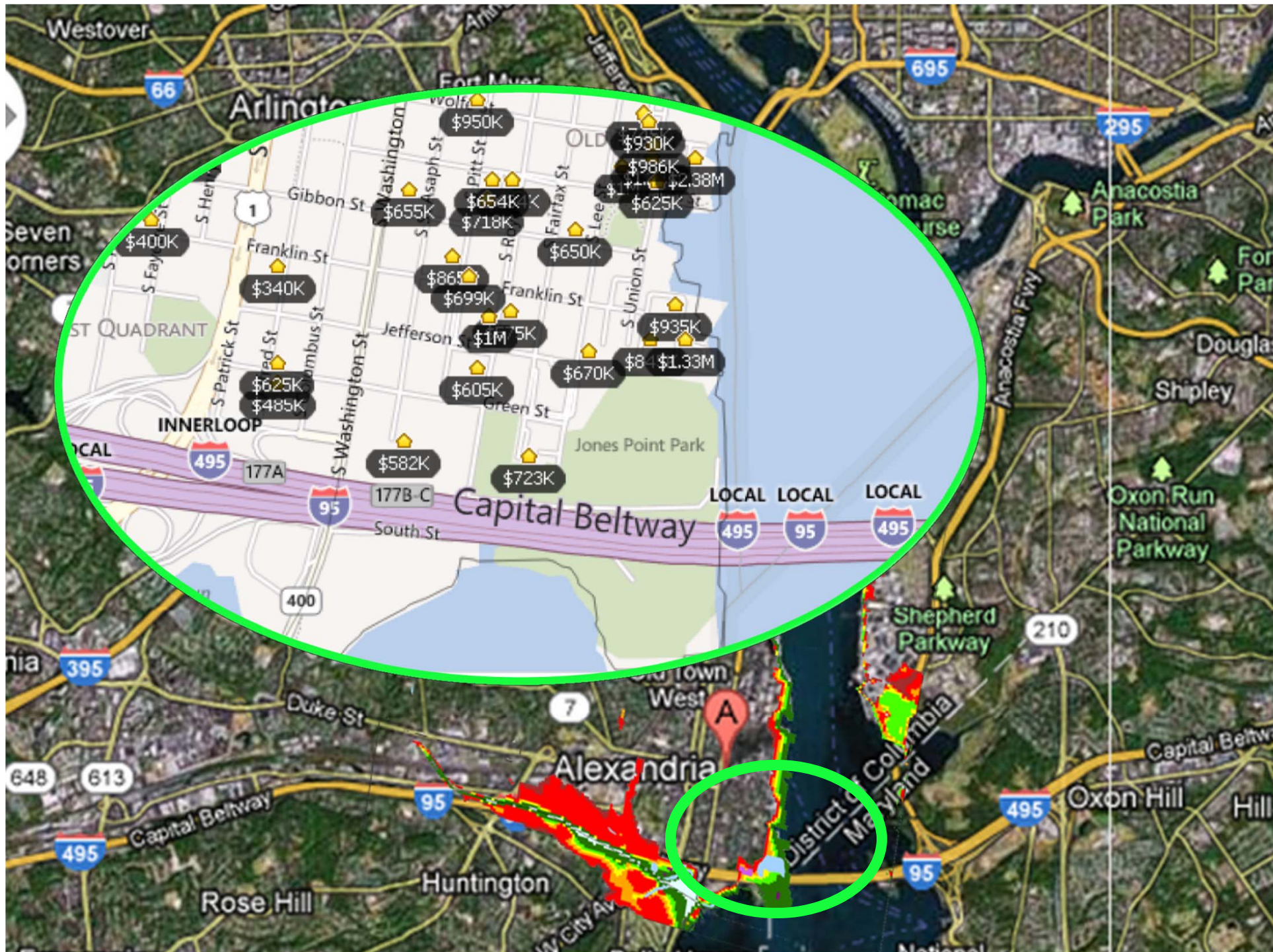
Year 1

	Social	Environ.	Economic
Accommodate	~	~	~
Protect	~	!	~
Retreat	!	+	!

Choosing Between Options: Tradeoffs?



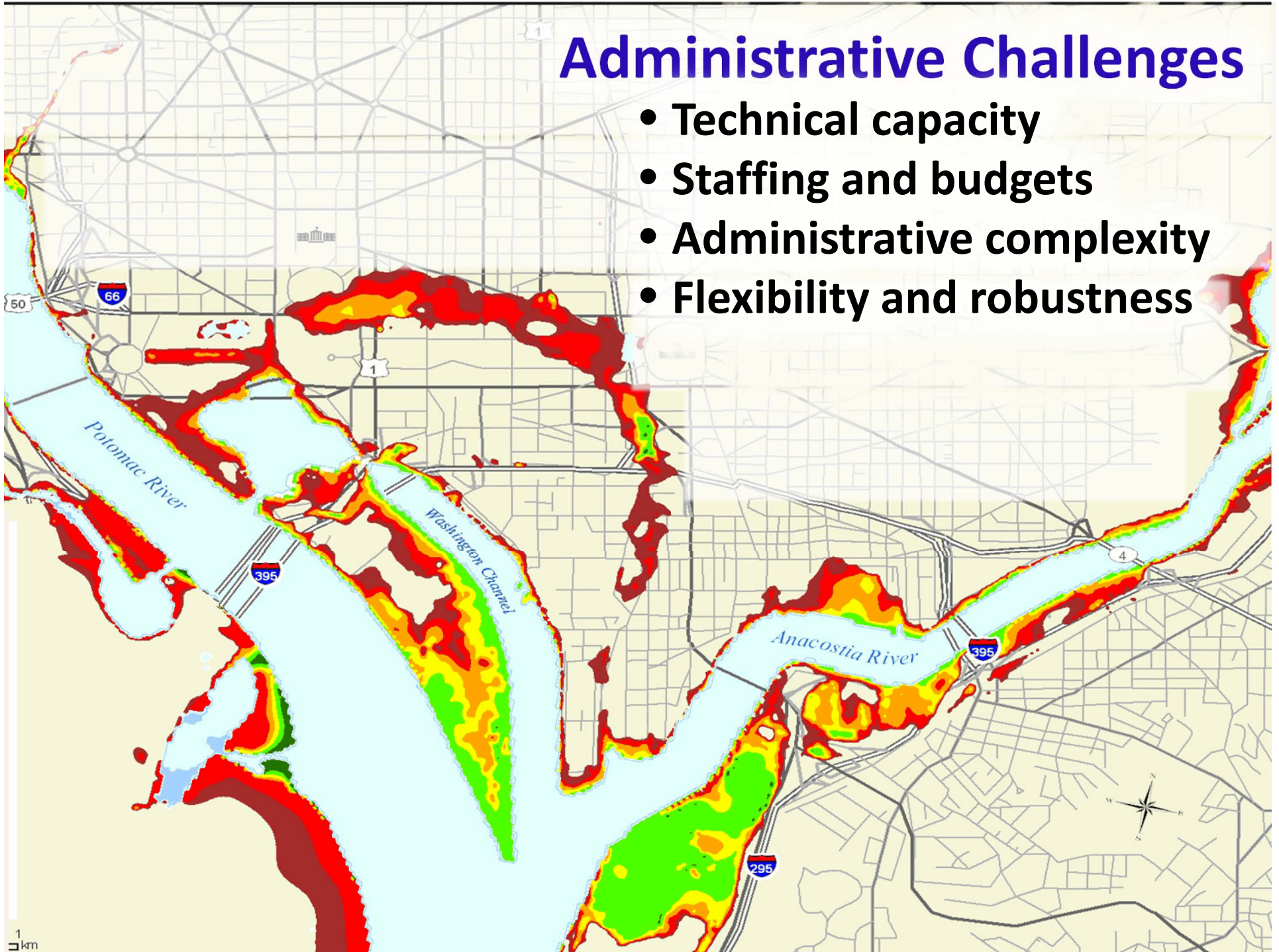
	Year 1	Year 100	
	Social	Environ.	Economic
Accommodate	?	~	?
Protect	?	!	?
Retreat	!	+	?





Administrative Challenges

- Technical capacity
- Staffing and budgets
- Administrative complexity
- Flexibility and robustness



Legal Feasibility

Question	Analysis
Authority?	<ul style="list-style-type: none">• Local authority to zone and plan• State agency role
State laws?	<ul style="list-style-type: none">• Coastal act• Floodplain requirements• Wetlands regulations• Historic preservation
Federal laws?	<ul style="list-style-type: none">• National Flood Insurance Program• Clean Water Act• Americans with Disabilities Act
Constitutional?	<ul style="list-style-type: none">• Takings• Substantive due process

Charting a course forward

Doing Now?	Could Do?	Barriers?
Shoreline management	<ul style="list-style-type: none">• Regulate shoreline armoring• Require mitigation	Authority?
Floodplain / hazards management	<ul style="list-style-type: none">• Downzone• Increase freeboard• Extend regulated floodplain	Takings, grandfathered rights?
Stormwater management	<ul style="list-style-type: none">• Fees• Green infrastructure	Authority?



urban heat toolkit



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What are my options?

Urban Heat Tool Kit

Audience	Local Planners
Heat adaptation methods	<ul style="list-style-type: none">• Green roofs• Cool roofs• Cool pavements• Urban forestry
Analysis of options	<ul style="list-style-type: none">• By power• By type of land use• By tradeoffs

Heat Tool Kit: Balancing Tradeoffs



Natural Environment

- Cool winters
- Storm water
- Reduce emissions



Structural Environment

- Steep sloped roofs
- Structural support



Administration

- Cost
- Vulnerable populations



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In October 2009, President Obama signed Executive Order 13514, Federal Leadership in Environmental and Energy Performance, which sets sustainability goals for Federal agencies and focuses on...



Recently Added Resources

Climate Change Hits Home: Adaptation Strategies for the San Francisco Bay Area
The San Francisco Planning and Urban Research Association (SPUR) promotes "good planning and more..."

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SECURE Water Act Section 9503(c) - Reclamation Climate Change and Water, Report to Congress, 2011

This report is prepared in fulfillment of the

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Urban Heat

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Coasts



Public Health



Transportation



Water

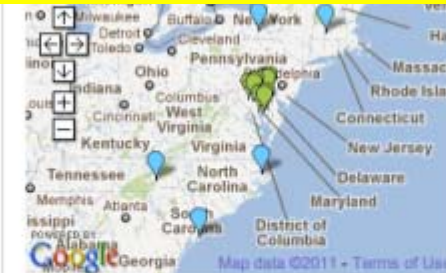
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The Adaptation Clearinghouse

Other Key Features:

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Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use

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» **Jessica Grannis**

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Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use

The Adaptation Tool Kit explores 18 different land-use tools that can be used to preemptively respond to the threats posed by sea-level rise to both public and private coastal development and infrastructure, and strives to assist governments in determining which tools to employ to meet their... more

Coastal Inundation Toolkit

The Coastal Inundation Toolkit was developed by the Digital Coast Partnership Group to help communities understand and address coastal inundation issues - where water covers what is normally dry land. Information and resources are organized into 5 stages: understanding coastal inundation,... more

Contact

Related Organization

Supervising Attorney at
Harrison Institute

Share a Resource

» Resource Type: Assessment - Economic Policy Response/Recommendations

Publication Date: October 31, 2011

Website: http://www.georgetownclimate.org/sites/default/files/Adaptation_Tool_Kit_SLR.pdf

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A map of the Fort Washington area in Pennsylvania, showing flood zones and infrastructure. The map includes labels for 'Temple Hills', 'Oxon', and 'Fort Washington'. Two red lines represent major roads or rail lines. Flood zones are color-coded: purple for the highest risk areas and orange for moderate risk areas. Two sets of red numbers are overlaid on the map: '5.4/9.9/15.3/21.6' and '5.3/9.6/14.9/21.9'.

How to Adapt

- What are our options?
- How do we implement?
- Is it legal?
- How do we fund?



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<http://www.georgetownclimate.org/adaptation>