

Monroe County

Climate and Sustainability Program



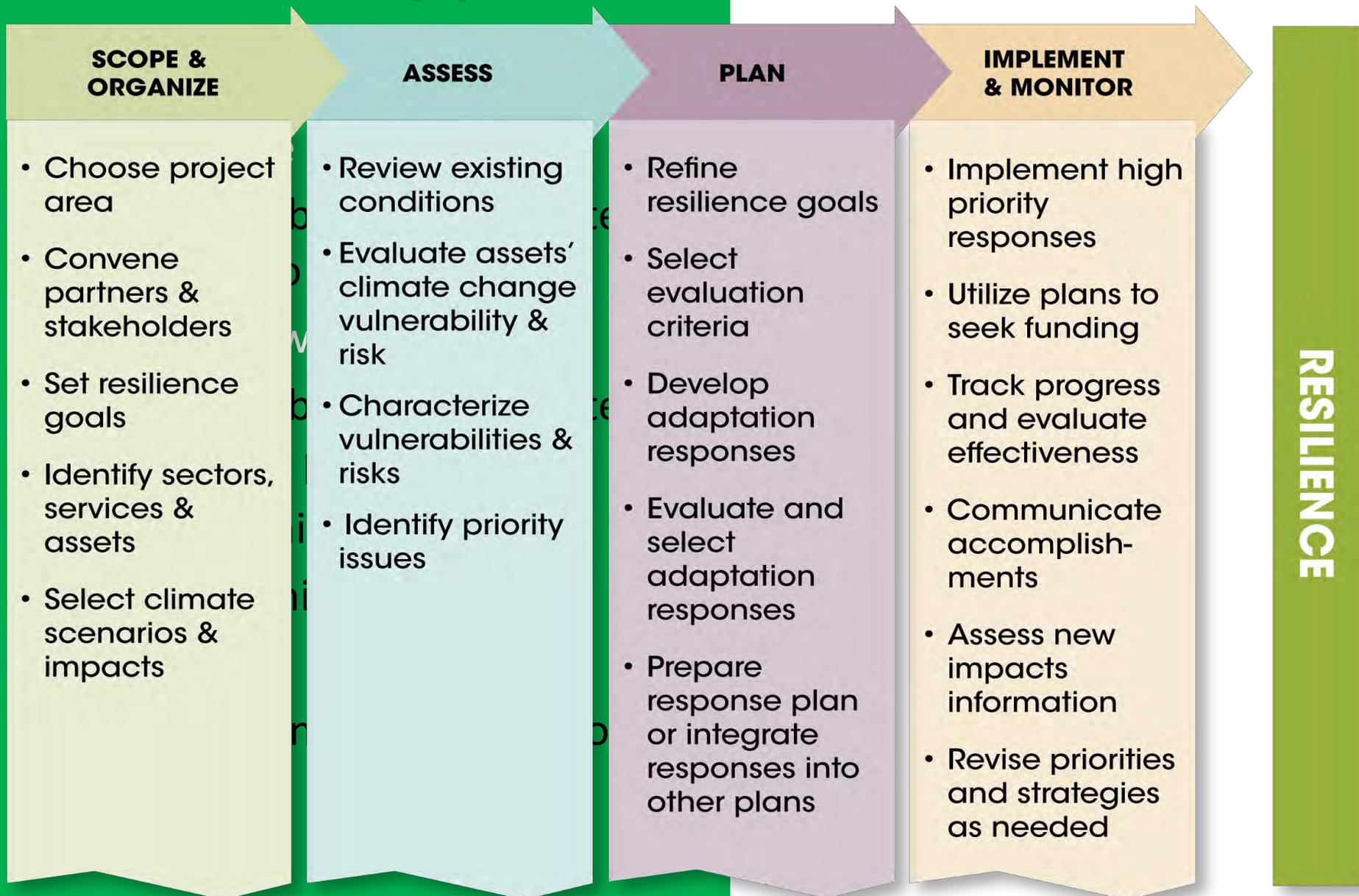
Current and Future Initiatives



“Smart” Climate Adaptation Planning in the Florida Keys?



The Real Approach



The County's Effort to Date



Monroe County Climate Action Plan

March 2013

Prepared by the Monroe County Climate Change Advisory Committee



- Hired staff to develop cohesive **Countywide sustainability program** and adopting a budget (February 2012)
- 2030 **Comprehensive Plan Update** (ongoing as part of overall Comp Plan update-2014 adoption)
 - **Energy and Climate Element**

EECBG Projects

- Estimated *electricity* saved annually
= 1,418,318 kwh
- Estimated *gasoline* saved annually
= 1,708 gallons
- Estimated *cost savings* annually
= \$179,000
- Estimated *carbon reduced* annually
= 992 metric tons

Sustainability and Climate Planning Process

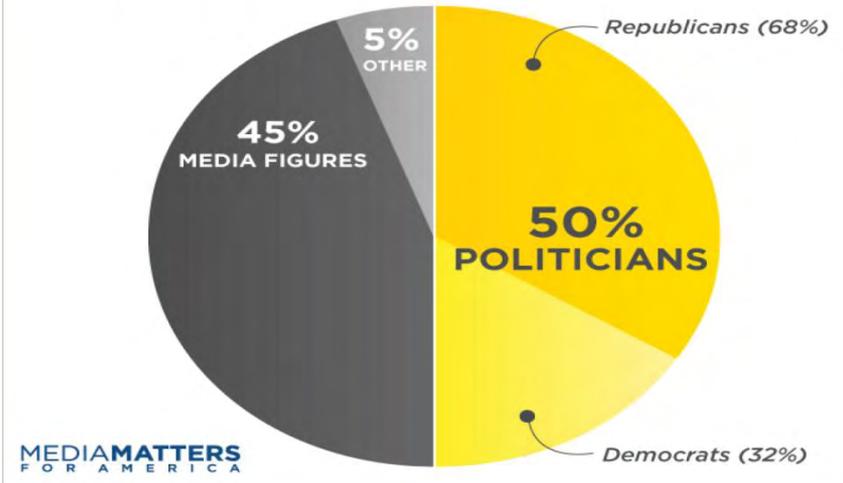
Four Tiers:

- Communications Strategy
- Update Energy Baseline
- Plan Development
- Other Strategies:
 - Use of Rating System
 - Technical modeling and support

Communications Strategies

- Community Collaboration
 - Workshops
 - Social media
 - Surveying through *Mind Mixer*
- Briefings with BOCC and Staff
- Brand the Plan

WHO DID THE SUNDAY SHOWS
HOST OR QUOTE ON CLIMATE CHANGE?
2009-2011



Scope of Work

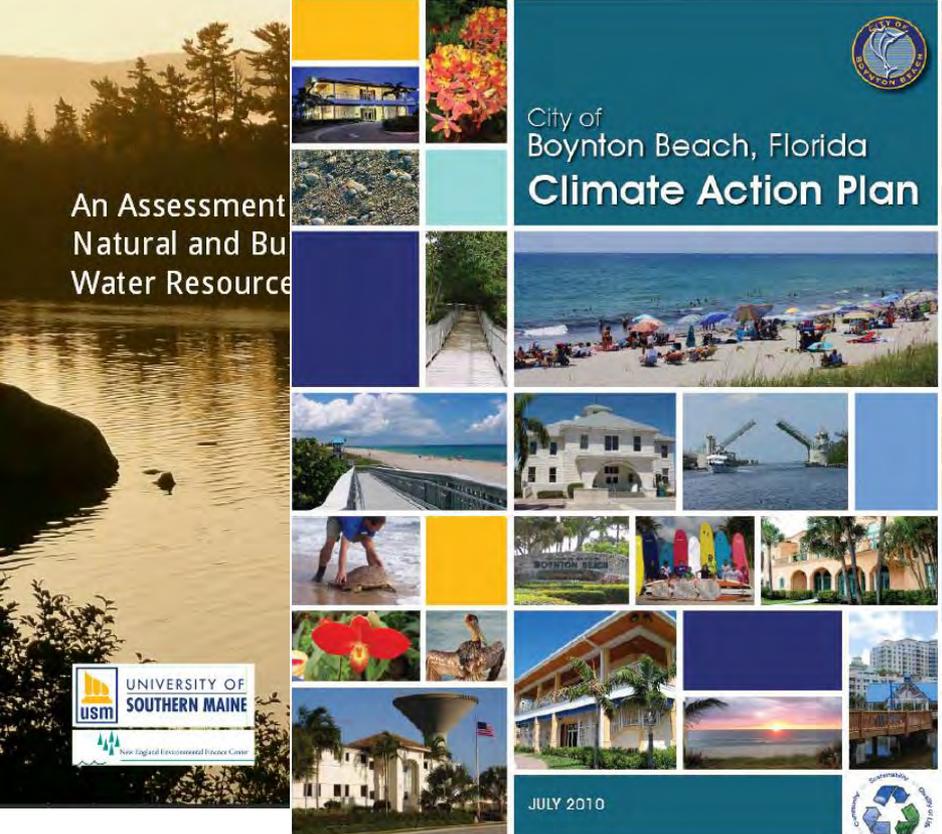
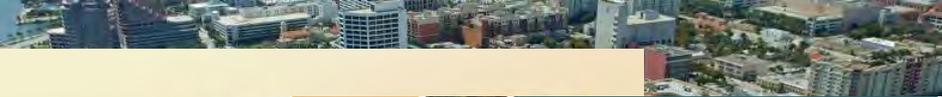
Building or Facility	Energy Expenditure
Vehicle Fleet Gasoline	487,462
KW Gato Building	203,966
KW Courthouse	145,513
Vehicle Fleet Diesel	138,990
KW Justice 530 Whitehead St.	98,224
KW Airport 3-3491 S. Roos	97,053
KW 302 Fleming rear	97,047
Marathon TERM 9400 o/s hwy	96,636
Marathon Reg 2798 o/s hwy	90,432
Street Lights County Wide KES	88,769
KW Harvey Government Center	84,523
KW Old Jail 500 Whitehead	79,215
C lights all US1	63,908
PK Government Center	62,324
PK Mainers (old) 50 High Point	60,087
All Other Electricity Purchases for Buildings and Facilities	705,106
Total	\$2,599,255

Energy Strategy

- **Baselines**
 - Existing data
 - Projects
 - Results (numerous)
- **Energy and GHG Reduction Strategy**
- **Identify & Quantify**
- **Update of Municipal Greenhouse Gas Inventory (2010)**
- **Analysis of Community Scale Emissions and Target Setting**
- **Energy and Emissions Forecasting**

Scope of Work

City of Richmond



Plan Development

- Baseline sustainability analysis
 - Data
 - Inventory of projects/programs
 - Work products generated
- Develop **focus areas** based on existing completed work and new community involvement
- Develop plans and projects within focus areas to achieve goals
- Implementation Strategy
 - How?
 - Who?
 - When?
- Monitor and track progress

Why a Rating

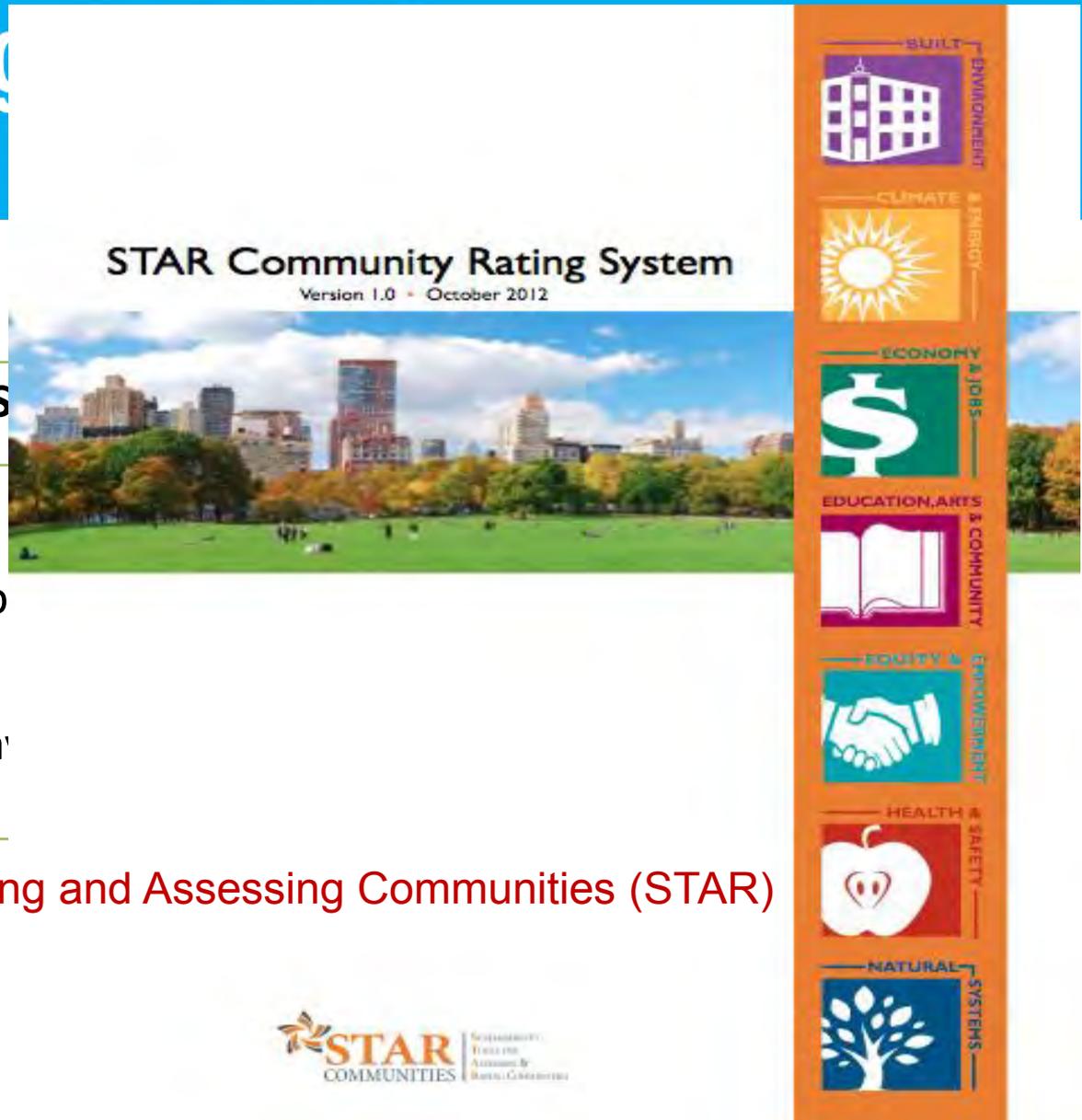
Basis for Using Rating S

Where are we today?

Where do we want to b

Are we making headwa
there?

Sustainability Tools for Rating and Assessing Communities (STAR)



Two Approaches to Technical Modeling and Support

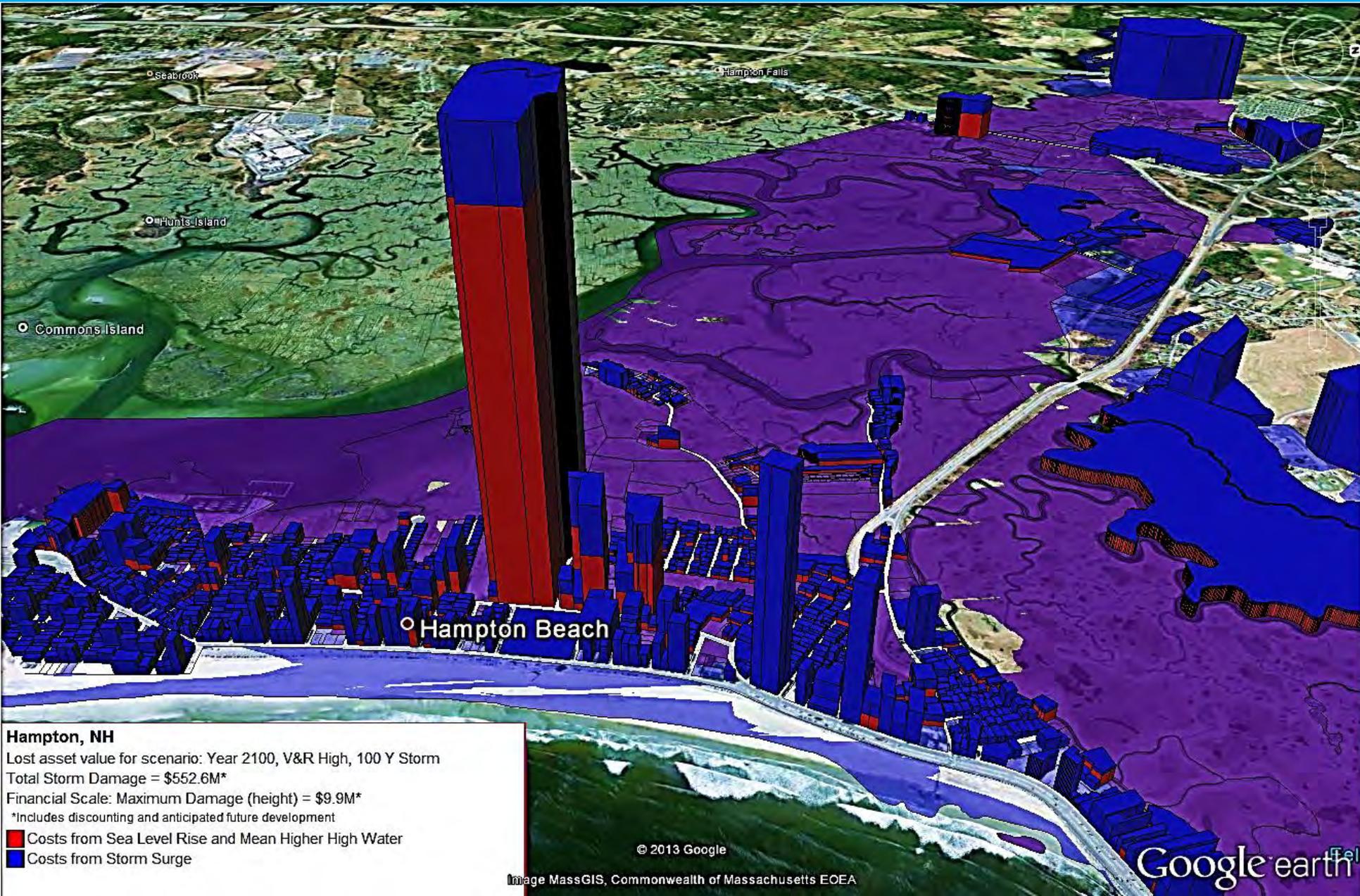
- **Community engagement:**
 - Use of **COAST Modeling** approach and Catalysis Adaptation Partners
 - **Scenario development** by Community
 - Strategies developed to **reduce risk**
 - **Economic analysis** of strategies
- **County Assets:**
 - Develop the “**hard questions**” for data collection
 - Use technical review team to run and **customize models**
 - Generate results and make **recommendations for policy and capital planning**

For Adaptation Planning: There are Only Four Options

- 1) Do nothing (usually = remain in denial)
- 2) Fortify assets
- 3) Accommodate higher water levels
- 4) Relocate assets

Coastal Adaptation to Sea level rise Tool (COAST) is a tool and approach to help evaluate costs and benefits of these options.

Example of Assets: Hampton, New Hampshire



Hampton, NH
Lost asset value for scenario: Year 2100, V&R High, 100 Y Storm
Total Storm Damage = \$552.6M*
Financial Scale: Maximum Damage (height) = \$9.9M*
*Includes discounting and anticipated future development

■ Costs from Sea Level Rise and Mean Higher High Water
■ Costs from Storm Surge

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Image MassGIS, Commonwealth of Massachusetts EOE

Google earth

Monroe County Process: COAST Modeling

- **Citizens in lower, middle and upper Keys pick and revise sea level rise and storm surge scenarios.**
- *Catalysis Adaptation Partners* produces economic impact evaluations for this set of “no action” scenarios.
- **Stakeholders** develop “action” scenarios.
- Model then shows risk reduction from those investments (in avoided costs), for 2 actions.
- **Results can be used to:**
 - Prioritize infrastructure investments
 - Support policy changes
 - **Identify new areas of opportunity for innovation in planning and finance**

Example of Resiliency Strategies: Pea Patch Island, DE (Delaware River)



Technical Approach for the County

- Step 1: Develop the list of “**questions**” to be answered
- Step 2: Examine the **available tools**- (examples next slide)
- Step 3: **Match tools** with data sets to make recommendations and answer the questions posed (see next slide)
- Step 4: Run the tools and **evaluate consistencies** and inconsistencies (look for opportunities to customize)
- Step 5: **Evaluate the data** and develop recommendations for the parameters posed such as: vulnerable areas, infrastructure retrofitting opportunities, larger policy discussions and land develop code revisions

Use of the Data and Plan

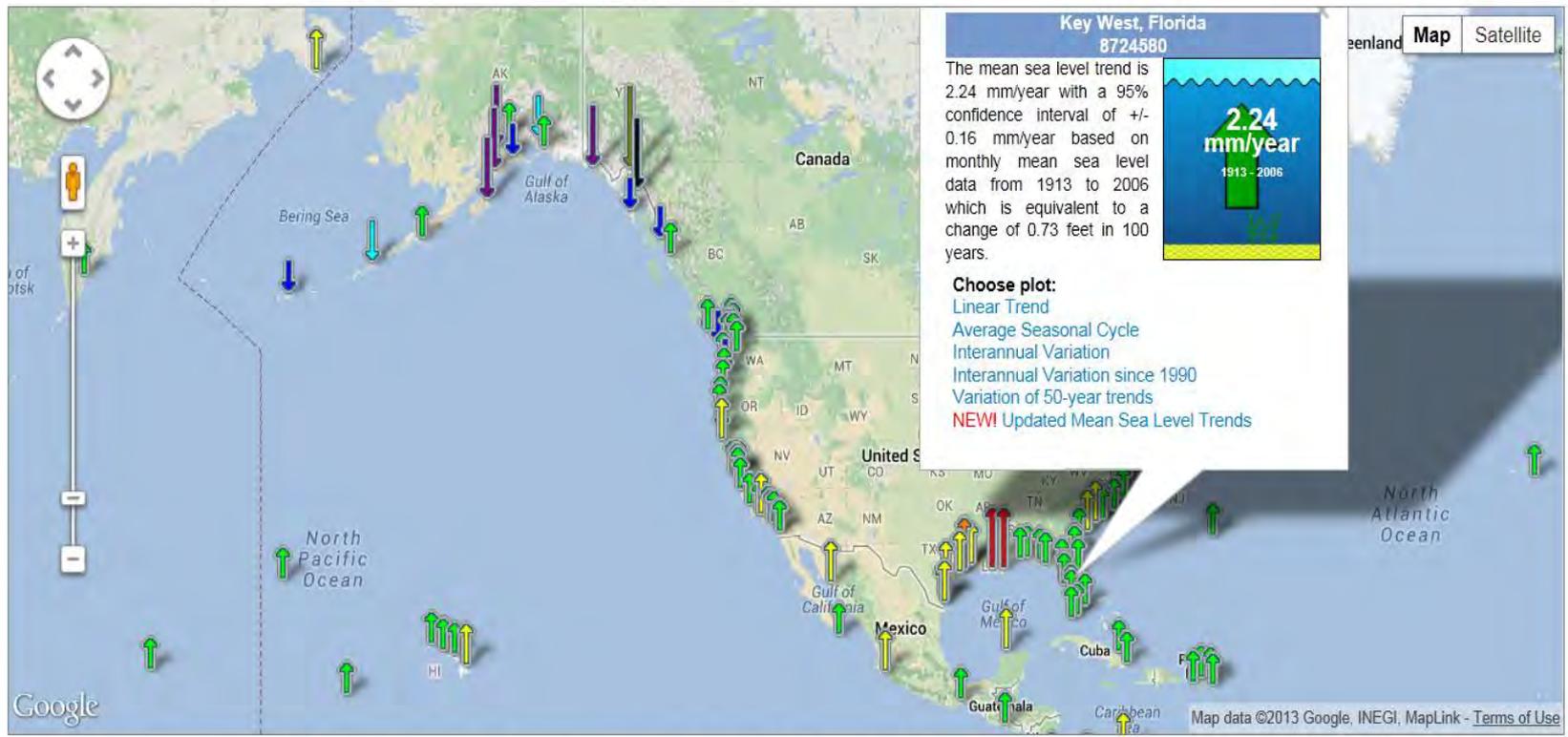
Tool	Data	Decision-Making
NOAA Sea Level Rise and Coastal Flooding Impacts Viewer	Preliminary look at SLR and coastal flooding impacts.	Establishing priorities for vulnerable infrastructure
The Nature Conservancy's Coastal Resilience 2.0	Storm surge, sea level rise, natural resources and economic assets	Identify opportunities for green infrastructure solutions
FDOT tool (Florida Sea Level Scenario Sketch Planning Tool)	Inundation and affected transportation infrastructure layers	ID transportation facilities potentially vulnerable to climate trends
U.S. Army Corps of Engineers (FEMA and NOAA) Sea-Level Change Calculator	Site-specific detail on projected flood elevations for 5-year intervals from 2010 to 2100	Additional safety margins above the FEMA best available elevation data

Expected outputs

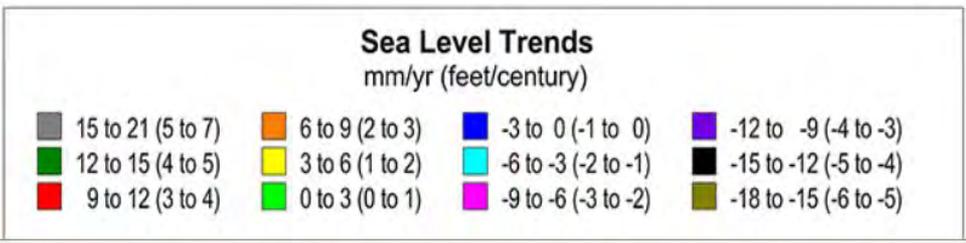
Sea Level Trends

- East Coast
- West Coast
- Gulf Coast
- Alaska
- Hawaii
- Global

View in Google Earth



The map above illustrates regional trends in sea level, with arrows representing the direction and magnitude of change. Click on an arrow to access additional information about that station.



Map Layers

Flood & Sea Level Rise

Future Habitat

+

-

Map

Home

Search

Flood & Sea Level Rise ? _ ✕

1. Select the hazard to view:

Rising Tide (MHHW)

2. Select the amount of sea level rise:

Foot Intervals

None 1-foot 2-feet 3-feet 4-feet

Storm Surge

None

Storm (Hurricane Wilma)

Layer Properties: 🔍

Opaque Transparent

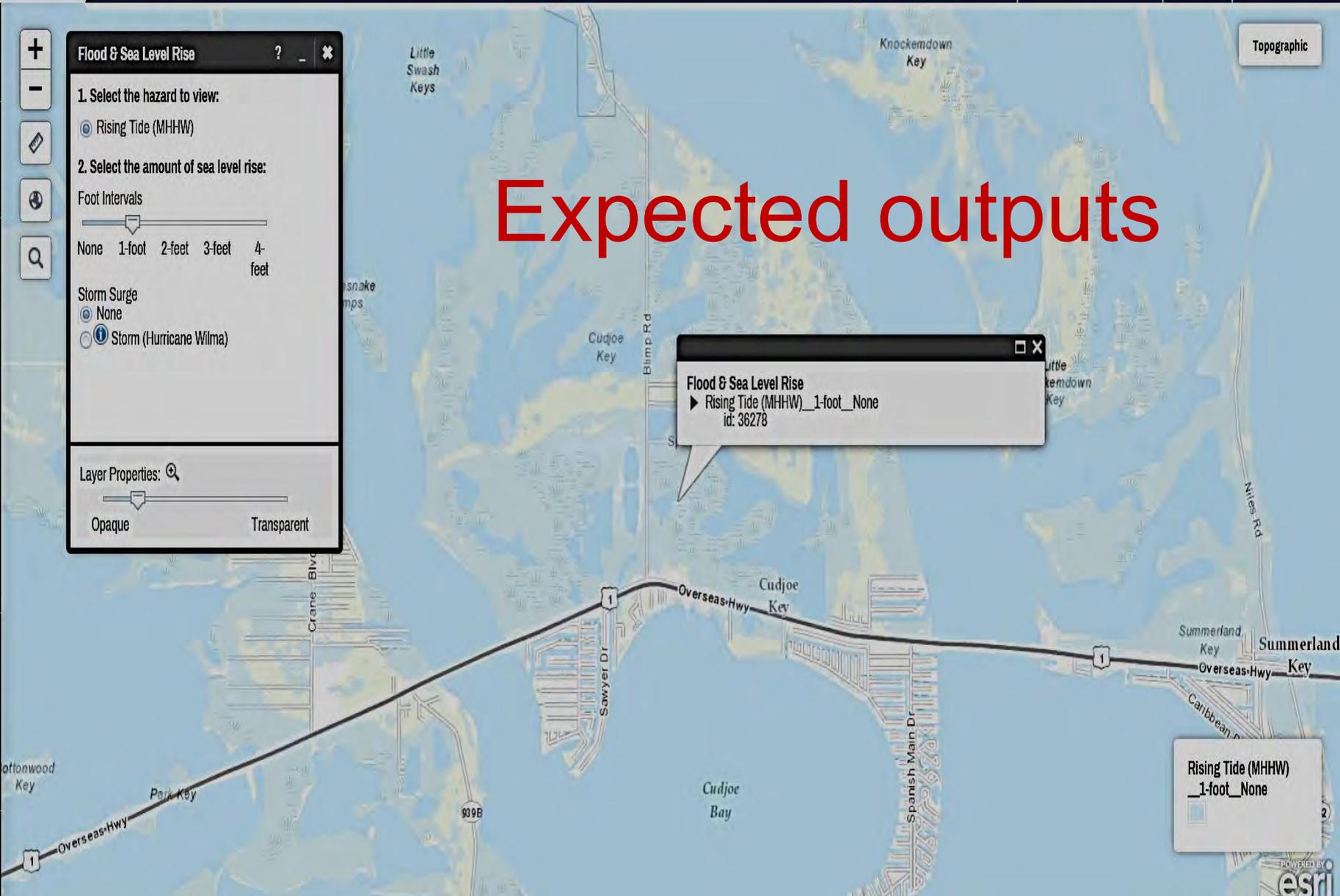
Expected outputs

Flood & Sea Level Rise

▶ Rising Tide (MHHW)_1-foot_None
id: 36278

Rising Tide (MHHW)
_1-foot_None

Legend



Topographic



**Monroe County Sustainability:
Our Future Depends on It**