

Economic Impact of Climate Change: Implications for Chatham

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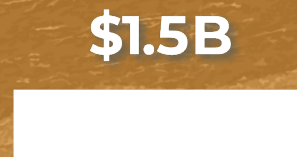
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\$50

B I L L I O N



ROAD
DAMAGE



TAX
REVENUE
LOST



BEACH
TOURISM
REDUCED



LAND
VALUE
DECREASED



BUILDING
DAMAGE

Key Findings — Costs of Not Adapting to Climate Change

Table 6. Cumulative damage by town (average of simulations; millions of 2020\$)

Town	Cumulative Damage 2021–2030 (Annual \$ Damage)	Cumulative Damage 2031–2050 (Annual \$ Damage)	Cumulative Damage 2051–2100 (Annual \$ Damage)	Cumulative \$ Damage by Town 2021–2100
Barnstable	120.66 (12.07)	295.99 (14.8)	1,695.71 (33.91)	2,112.36
Bourne	54.6 (5.46)	140.67 (7.03)	971.69 (19.43)	1,166.96
Brewster	0.83 (0.08)	2.27 (0.11)	19.74 (0.39)	22.84
Chatham	46.22 (4.62)	114.35 (5.72)	678.21 (13.56)	838.78
Totals	685.96 (68.6)	1,775.7 (88.78)	12,821.83 (256.44)	15,283.49

Table 9. Total lost tax revenue in millions of 2020\$ per time period by town

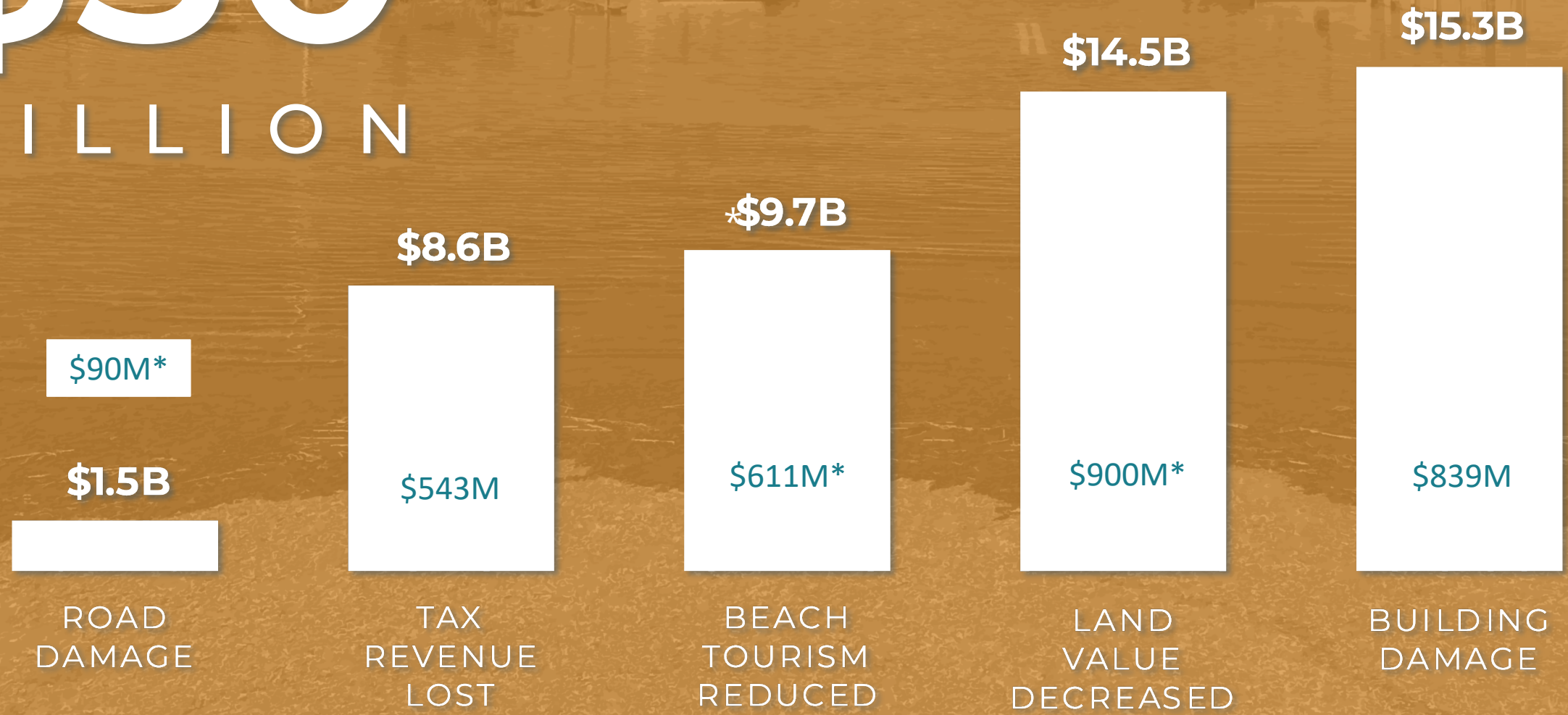
Town	2021 to 2030	2031 to 2050	2051 to 2100	Total
Barnstable	37.94	203.07	1187.48	1428.48
Bourne	20.53	97.34	617.92	735.79
Brewster	4.89	16.82	101.31	123.02
Chatham	9.48	74.89	459.04	543.41
Totals	199.48	1,136.03	7,255.48	8,590.99

\$50 BILLION

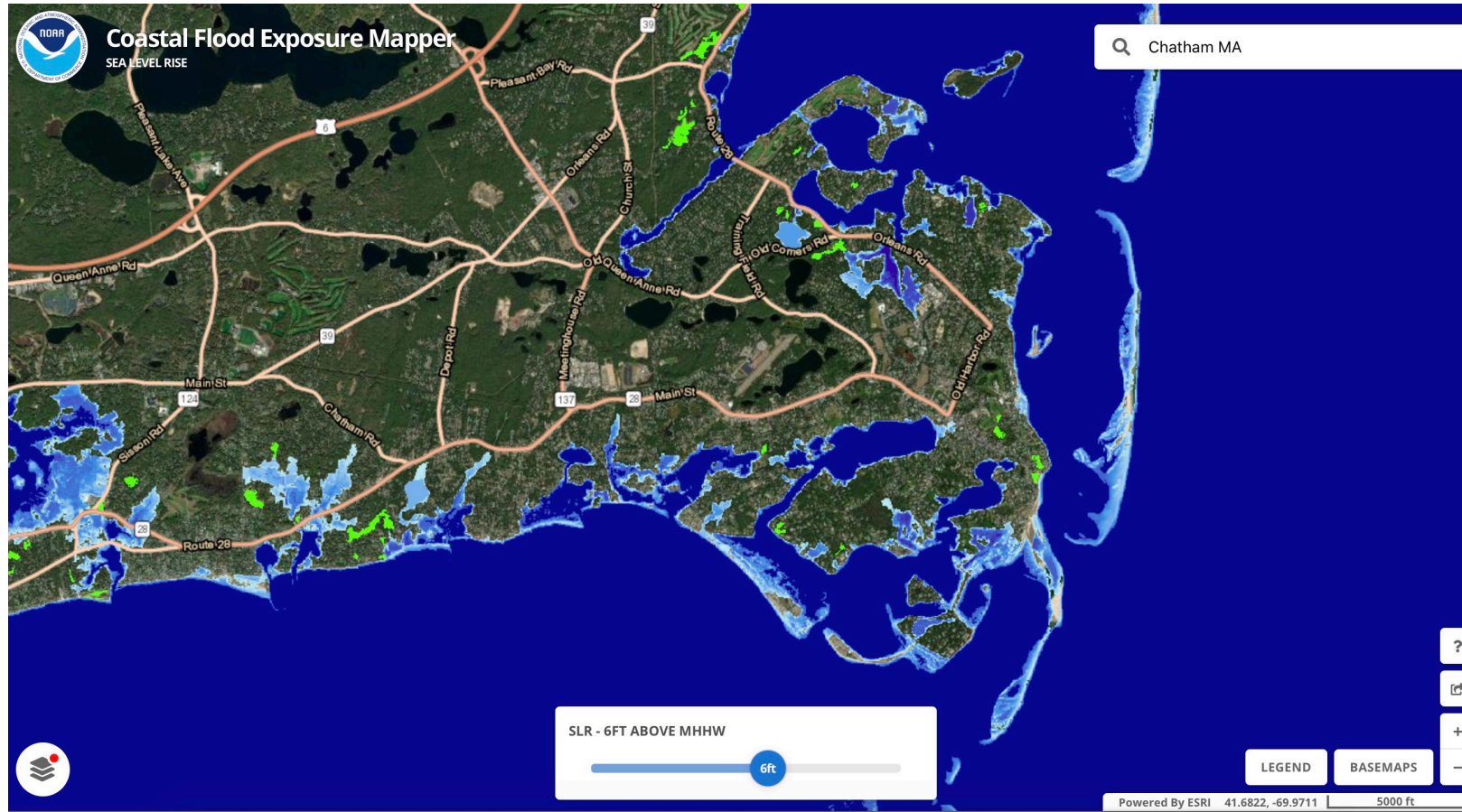
Chatham Totals

~ \$3B*

* Report does not give Chatham values
Chatham value on sheet is the
prorated tax revenue loss of 6.3%.



6' SEA LEVEL RISE IN CHATHAM: NOAA SEA LEVEL RISE VIEWER



How the Commission Calculated Cumulative Damages

Assumed Sea Rise Level values by period

Used simulation to estimate probable storm heights on top of SLR assuming one storm per year

Overlaid these two impacts on Asset Layer—GIS layer of parcels and their valuations.

Buildings at or below SLR are abandon and removed from next year's simulation

Damage from buildings flooded uses a depth damage factor to calculate % of building damaged

Sea Level Rise Projections for Cape Cod

Year	Sea Level Rise (ft)*
2030	1.20
2050	2.45
2070	4.25
2100	7.70

*ft above North American Vertical Datum of 1988 (NAVD 88)
(Massachusetts Executive Office of Energy and
Environmental Affairs, 2020)

Support Assumptions

Storm Probability Associated with Storm Tides and Probabilities

Return Period	Storm Tide (ft)*	Annual Probability
1-year storm	2.26	1
5-year storm	3.89	0.2
10-year storm	4.51	0.1
20-year storm	5.22	0.05
50-year storm	6.34	0.02
100-year storm	7.37	0.01
200-year storm	8.50	0.005

Illustration of Depth Damage Function

Depth (ft)	Damage Proportion
-2	.0573
0	.153
3	.3243
8	.5493
12	.723
16	.7685

Climate Action Plan



C A P E C O D

GOALS, STRATEGIES, ACTIONS, STEPS:
A MENU OF OPTIONS





Cape Cod Climate Action Plan Goals, Strategies, Actions and Steps

DRAFT V3

The Cape Cod Climate Action Plan will include goals, strategies, actions, and steps to be taken in implementing the plan. The following draft is based on literature review, stakeholder input, and efforts of the Cape Cod Climate Change Collaborative.

Potential Actors are identified in red square brackets after individual steps.





ADAPTATION



MITIGATION

PRIORITY MITIGATION STRATEGIES

- Reduce greenhouse gas emissions from buildings
- Increase generation and use of clean energy
- Electrify the transportation system
- Protect, conserve and restore natural ecosystems

PRIORITY ADAPTATION STRATEGIES

- Support and promote protection, conservation and restoration of natural ecosystems
- Adapt shorelines to rising seas
- Retrofit buildings within climate hazard areas
- Relocate vulnerable buildings and structures
- Address vulnerabilities in the road network

ENERGY & CLIMATE CHANGE COMMITTEE RECOMMENDATION

Authorize Energy & Climate Action Committee to:

- Interview Town Manager & key department managers and staff to identify existing mitigation and adaption strategies;
- Present this talk to all Town boards and committees; and
- Identify and assess Cape Cod Commission's recommended Climate Action strategies and actions for effectiveness and feasibility in Chatham.