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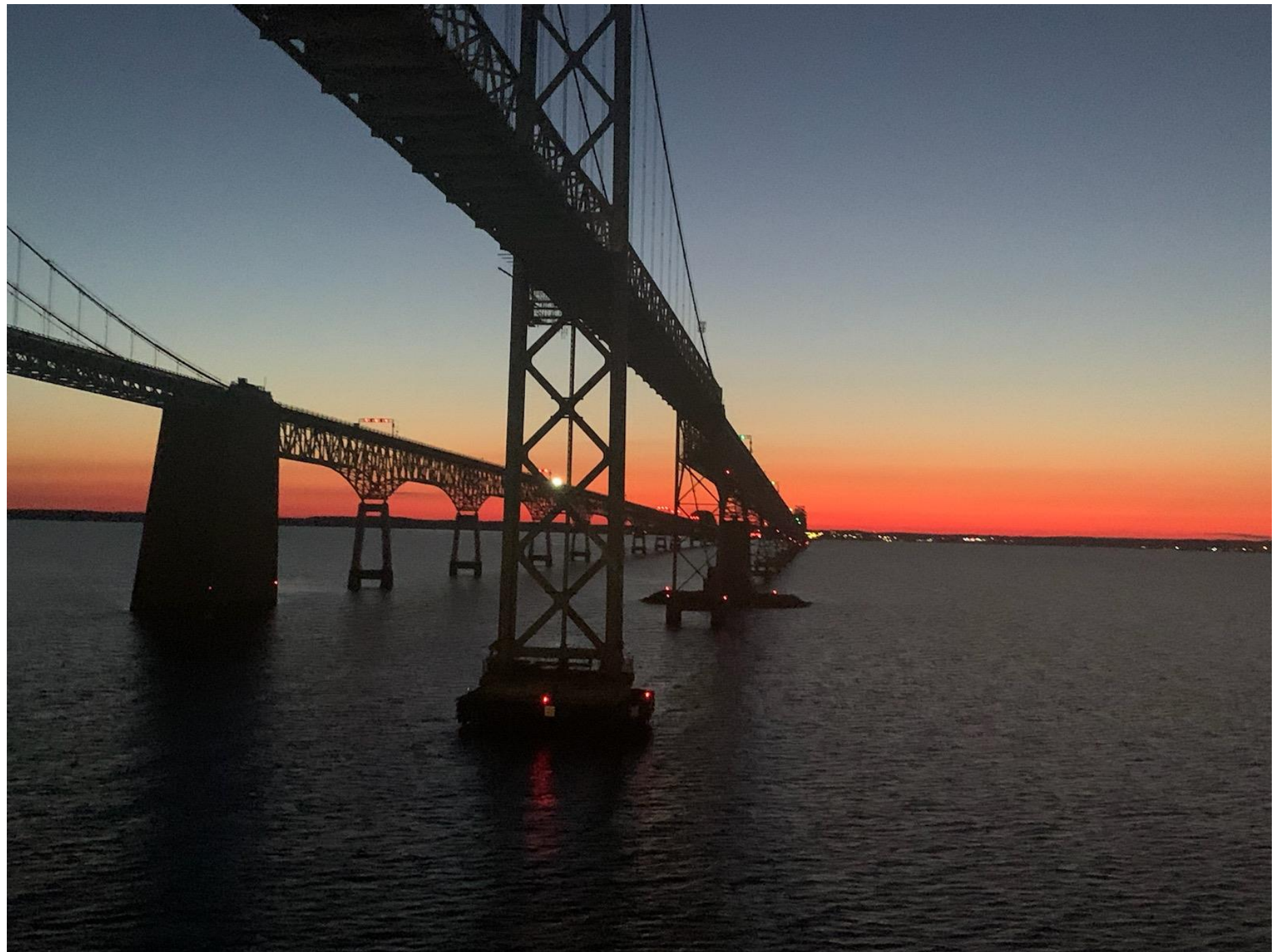
Coast Smart and Resiliency Using 100 year + 3 feet

MAFSM Spring Conference

June 2020

Dave Guignet, State NFIP Coordinator

Maryland Department of the Environment



100 year + 3 feet - What is It ?

Data Layer Tied to (Coastal) 100 year + 3ft floodplain elevations that illustrates:

- **Risk via Vertical Proximity to Floodplain**
- **Increased Community Awareness Outside FP**
- **Resiliency / Use 1 and 2 Above to Consider Need for Insurance (NC / Texas / and LA)**
- **Promote Adoption of Higher Standards**
- **Indication of Future Limits of FP when Sea-Level Increases by 3 feet**



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100 year + 3 feet – Why Necessary ?

Consistency / Coordination / Integration

- **Screening Layer for Evaluating Resiliency on State Projects**
- **State Revising Coast Smart Council Guidelines**
- **Opportunity to Coordinate State Coast Smart Process to State and Local FEMA Regulations !**
- **Promote Awareness and Adoption of Higher Standards**
- **Address Future Conditions of Floodplain Elevations / Assumes 1 to 1 or (sic) 3 to 3 on Sea Level Rise**



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Brief History of Coast Smart Council

- Maryland Coast Smart Council, **established** by the Maryland General Assembly **in 2014** for the purposes of adopting specific Coast Smart siting and design criteria to address impacts associated with sea level rise and coastal flooding on future capital projects.
- [Maryland HB 615: Coast Smart Council Law | Adaptation ...](#)
- **May 05, 2014** - The Coast Smart Council law ensures Maryland follows standards to **make safe and fiscally-wise investments when building or updating State agency structures located in vulnerable coastal areas**. The law does not affect schools, roads or local government projects, only structures built by State agencies.



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Make up of Coast Smart Council

- **DNR Secretary Chair**
- **DNR, MDE, MEMA, Dept. of General Services, MDoT, Dept. of Planning, Critical Area Commission, UMCES, State Treasurer, Local Government Rep., Public and Nonprofit Group Rep. (ESLC), and Others...**



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Coast Smart Council ...

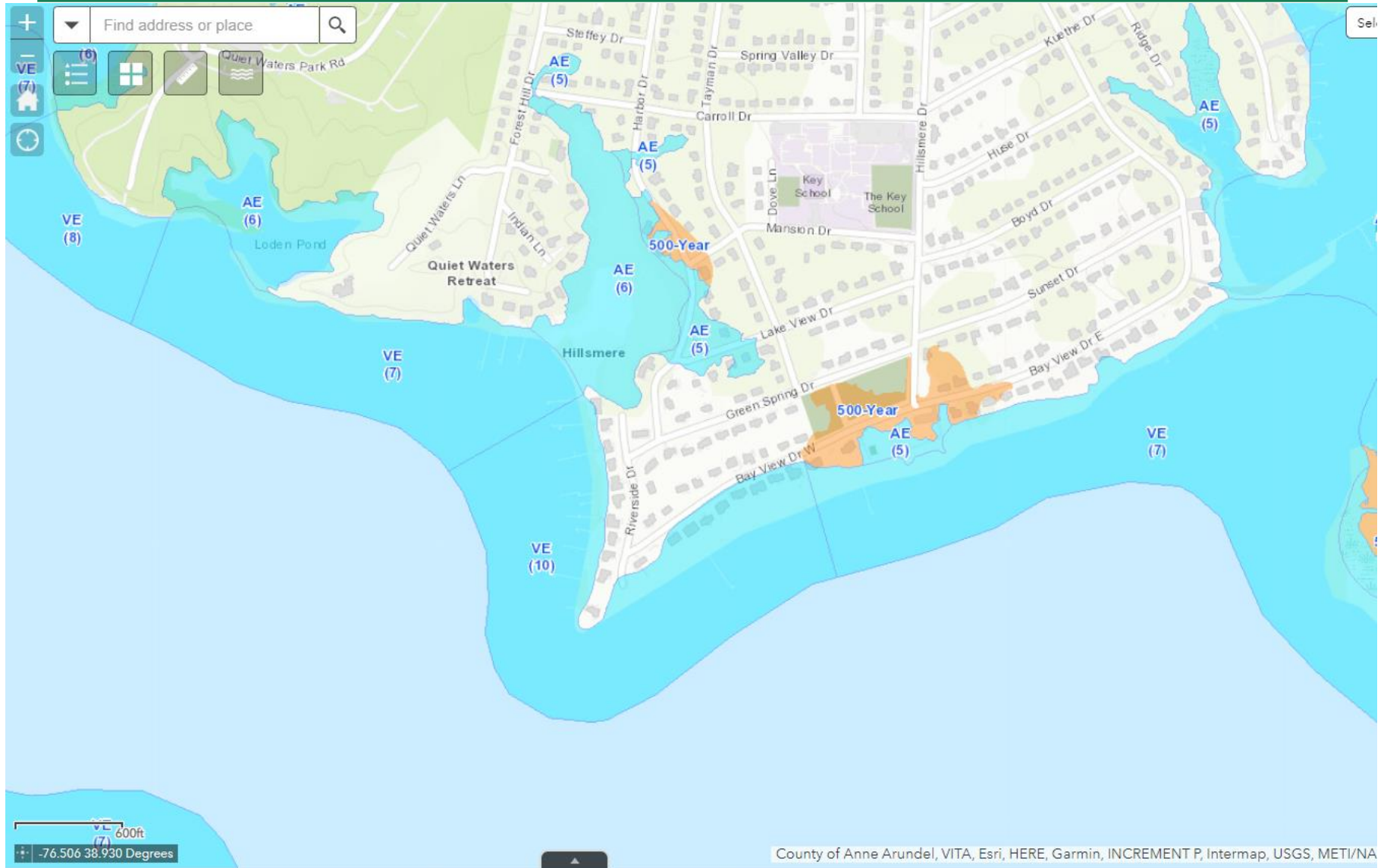
Reduce Risk & Increase Resiliency

- **Existing / Current CS - Guidelines Use:**
 - FEMA Regulations (for Electrical and Mechanical)
 - Freeboard (2 foot Governors EO in 2012)
 - **Category 2 Storm Surge (passed in 2018) / 3 feet**
- **Current guidelines Are Undergoing an Update**
 - Replace the Category 2 Requirement with a 100 year + 3 foot layer

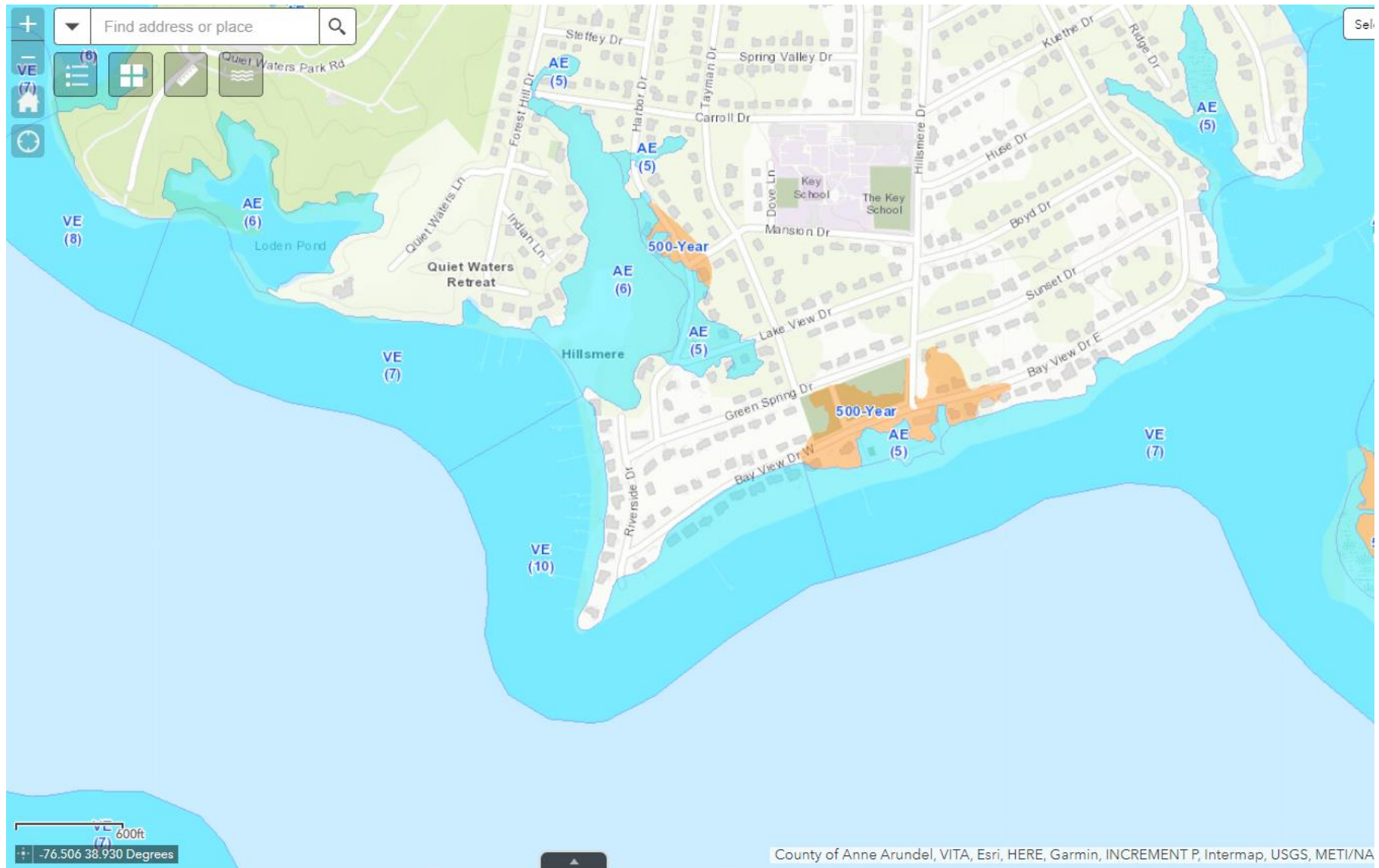


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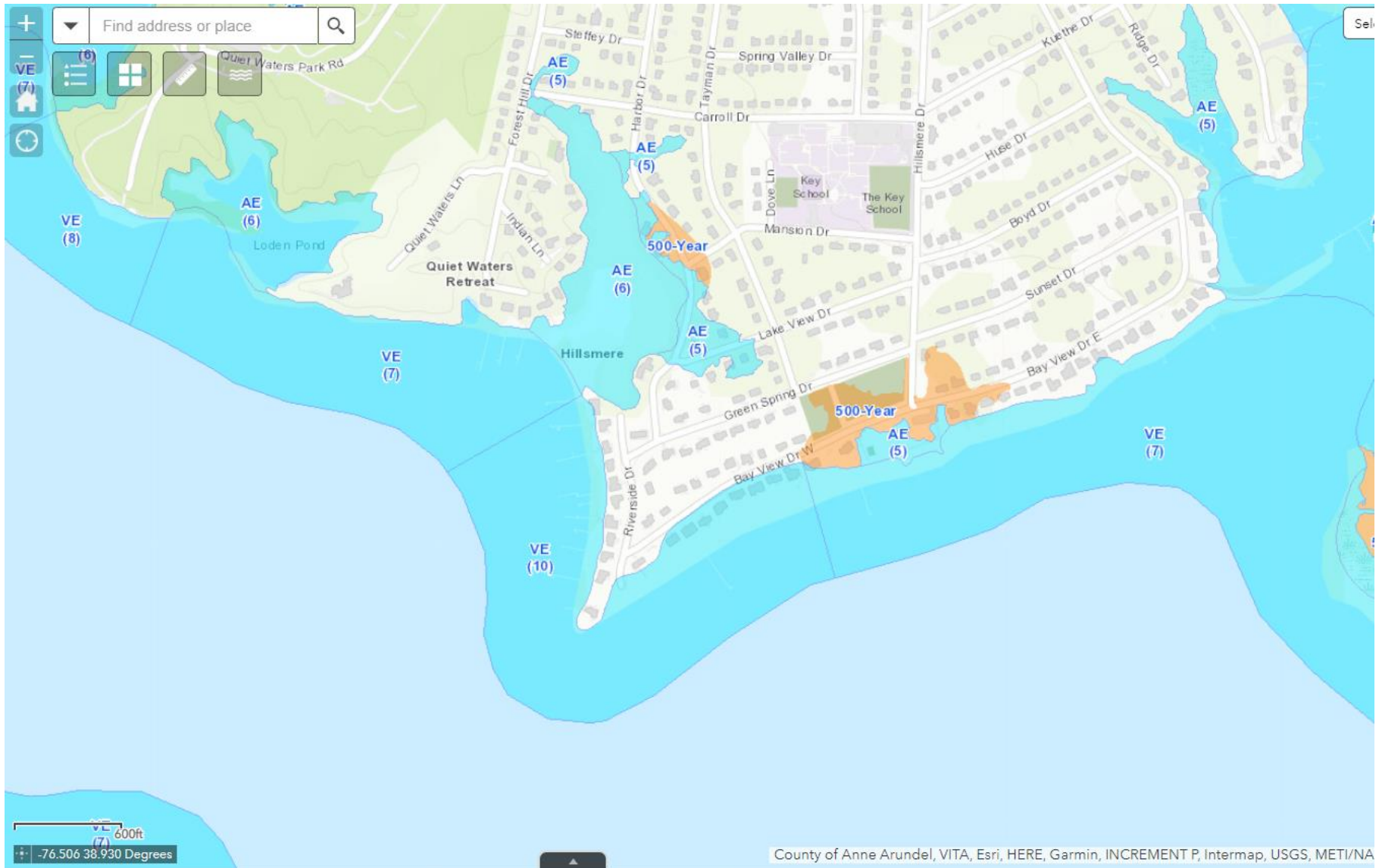
State and Local Building Codes Related to Floodplain Regulations Only Apply in the FEMA Floodplain / So - Resiliency Only in FP



Floodplain Regulations Are Adopted via a Community's Floodplain Ordinance (State does not enforce building codes !)



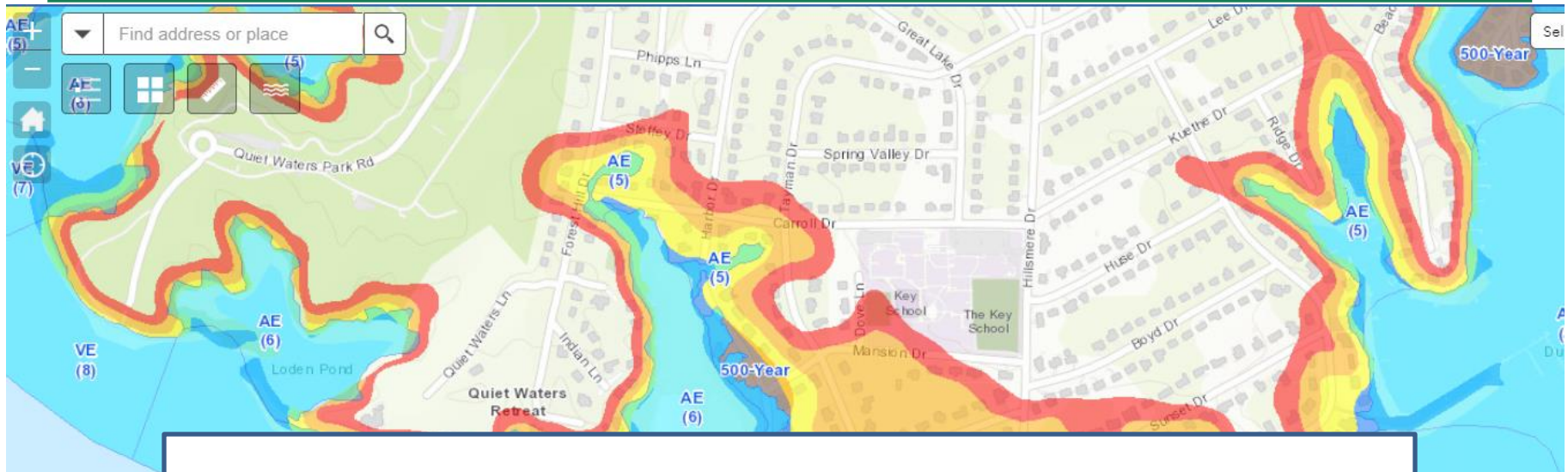
Which means Everything Stops at the Edge of the Floodplain !



Do We Have Any Data that Suggests Storms Don't Stop at FEMA Limits ? (Hurricane Storm Surge Maps Beyond FP)

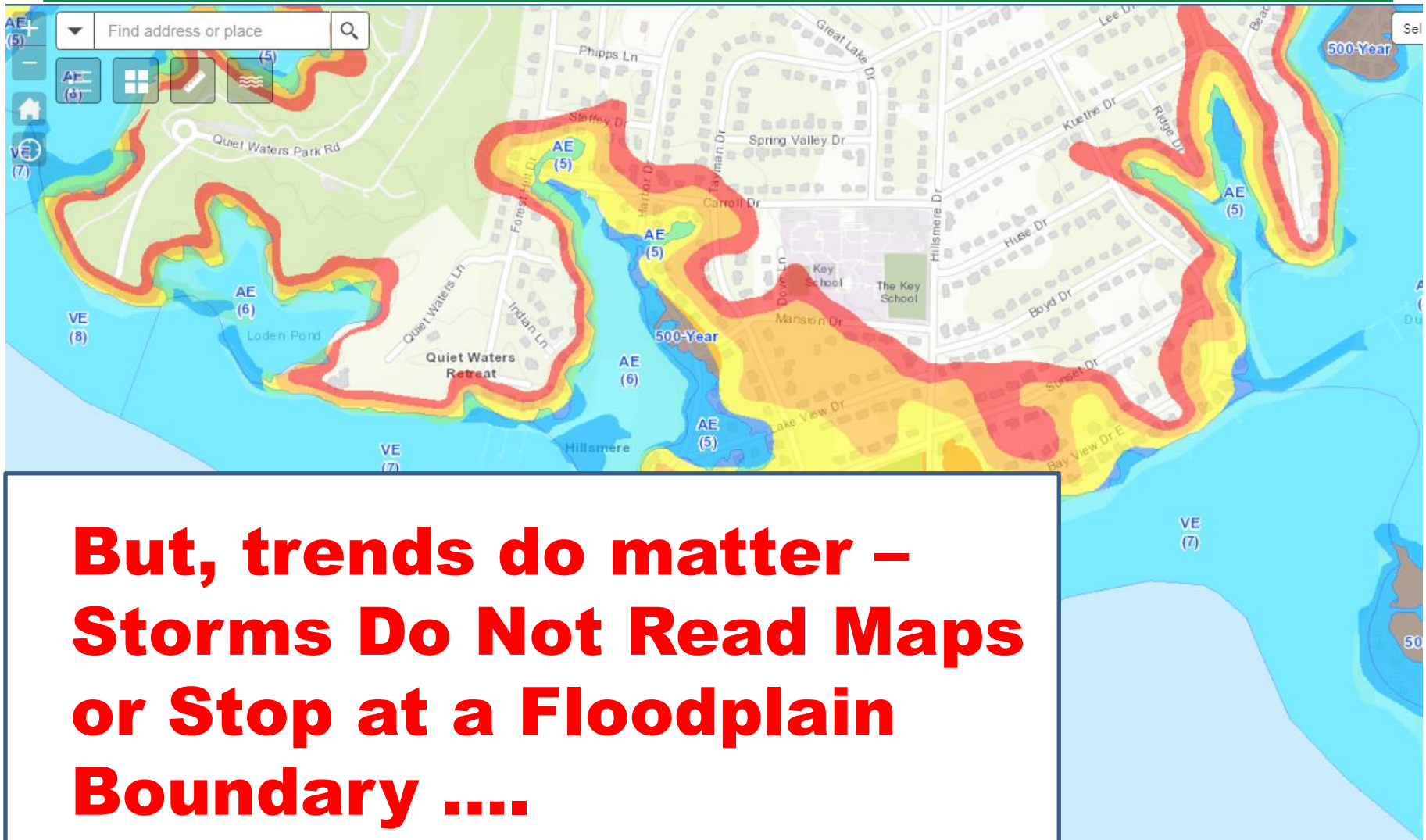


Category 1: Blue / Cat. 2: Yellow Category 3: Orange / Cat 4: Red



Caution: Elevation Data used for FEMA Maps, Local DEMs, and NOAA Data – May Not Match Data Sources

Category 1: Blue / Cat. 2: Yellow Category 3: Orange / Cat 4: Red



State & Many Communities Have Enacted a Freeboard as a Factor of Safety

Community Floodplain Codes

- Higher Standards – 1, 2, or 3 foot (Freeboard)

And / By Default ...

Resiliency !



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Category 1: Blue / Cat. 2: Yellow
Category 3: Orange / Cat 4: Red

**Since, Most Floodplain
Regulations Stop at FEMA Limit !**

**How Can You Address Resiliency
Outside the Floodplain ? ...**
(Historically) Higher Standards

The State of Maryland has the same idea – Higher Standards Offer Protection

- **Governor's 2012 Executive Order that Requires a 2-foot Freeboard for State Buildings in a Floodplain**
* **3 foot for critical facility**



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Coast Smart Standards Also Include..

Additional Coast Smart Guideline were passed in 2018 ...

- **Category 2 Storm Surge Requirement:**
Elevate State Buildings 3 foot above the ground
anywhere in a Category 2 Storm Surge Area
- **Update in 2020 Determined Cat. 2 Criteria
Created Issues** with Identifying What Elevation to
Use, Not Easily to Follow, and the Process Was Not
Tied to FEMA Regs. & Elevations that State
Agencies and Locals Already Use and are Familiar
With. **Impacts Screening, Design, and Siting
Guidelines**



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Proposed Updates for 2020 Coast Smart Guidelines Include...

- **2020 Update Would Establish an Elevation By Linking Guidelines to FEMA standards that State Agencies and Locals Already Use**
- **Replace the Category 2 Storm Surge definition with a 100 year + 3 foot Requirement for All State Funded Projects Above \$ 500 K**
- **Note: 100 + 3 limit was virtually identical to Category 2 limit**



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Coming July 2020 / Or Soon After ...

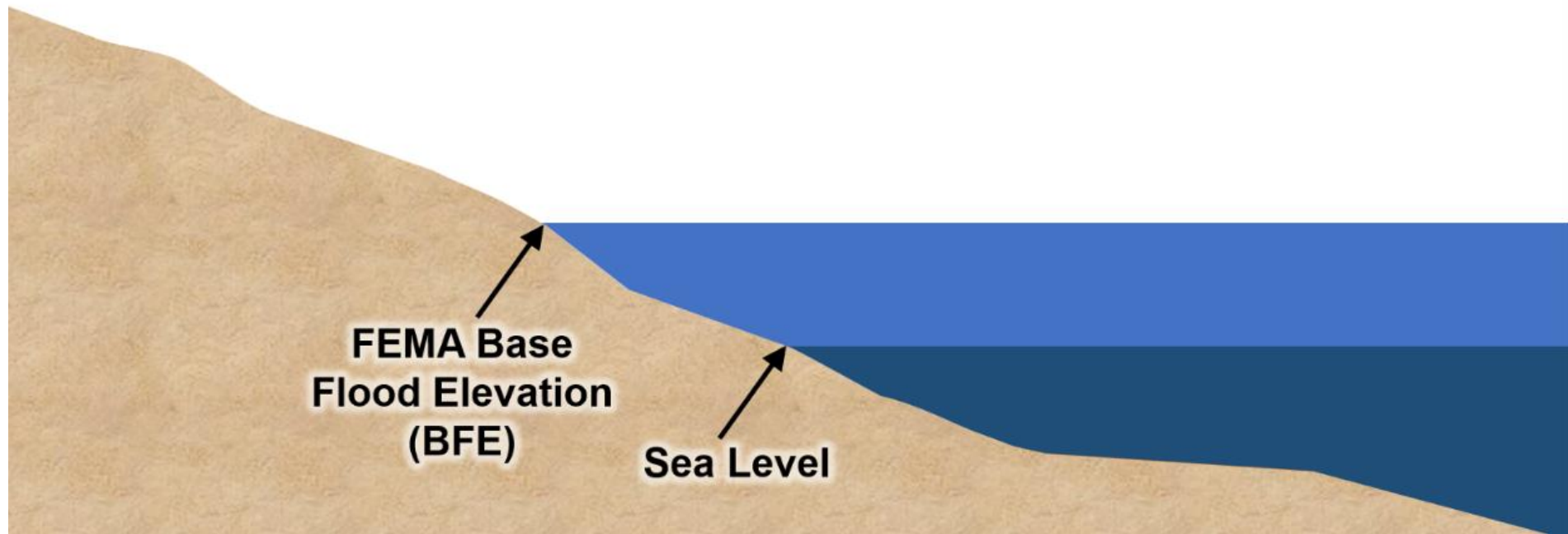
Coast Smart

Existing Conditions

- Land
- Sea Level
- FEMA 100 year Floodplain

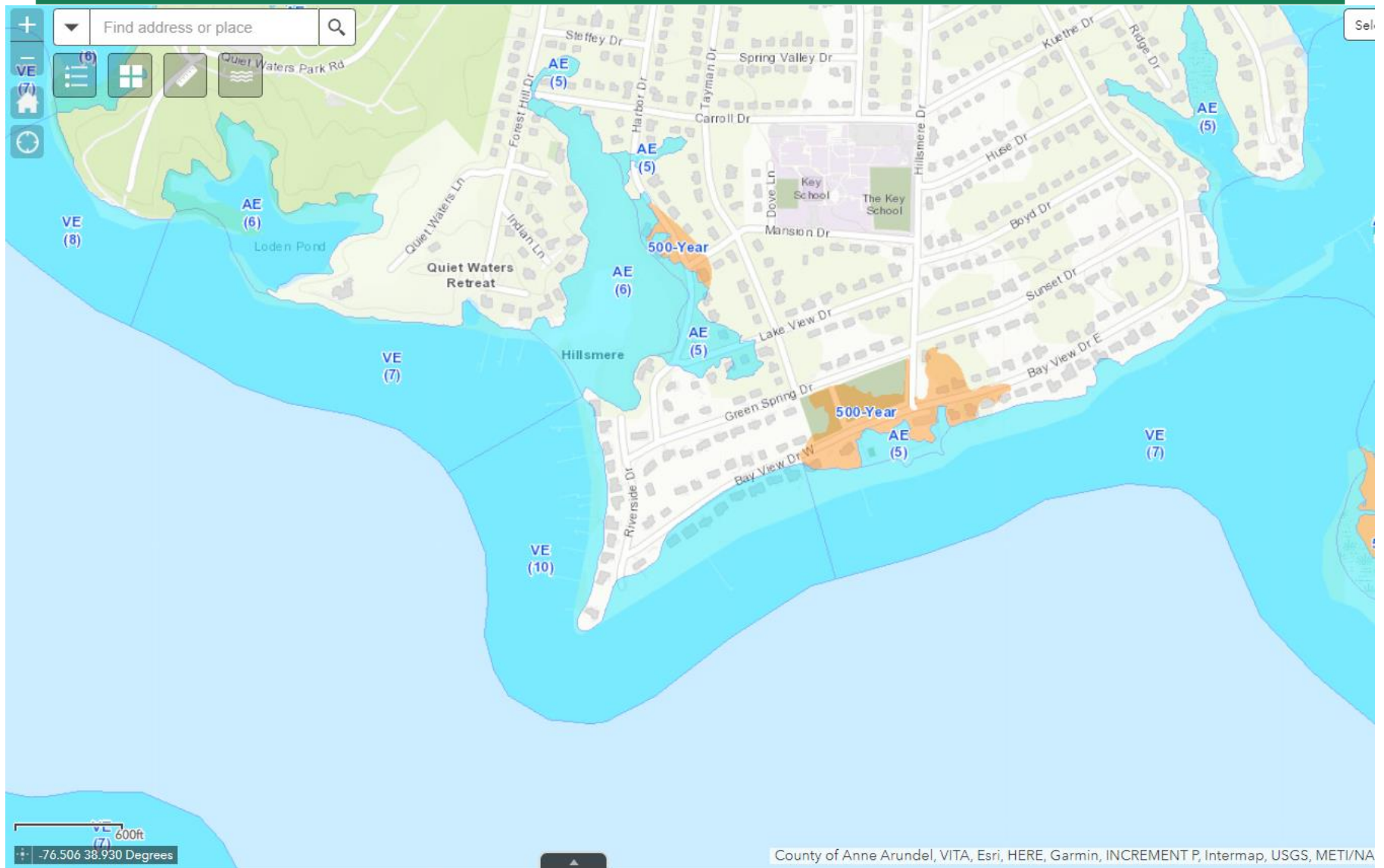
FEMA Base
Flood Elevation
(BFE)

Sea Level



Current Tools:

Plan View of FEMA Floodplain



Current Tools:

Profile View of FEMA Floodplain

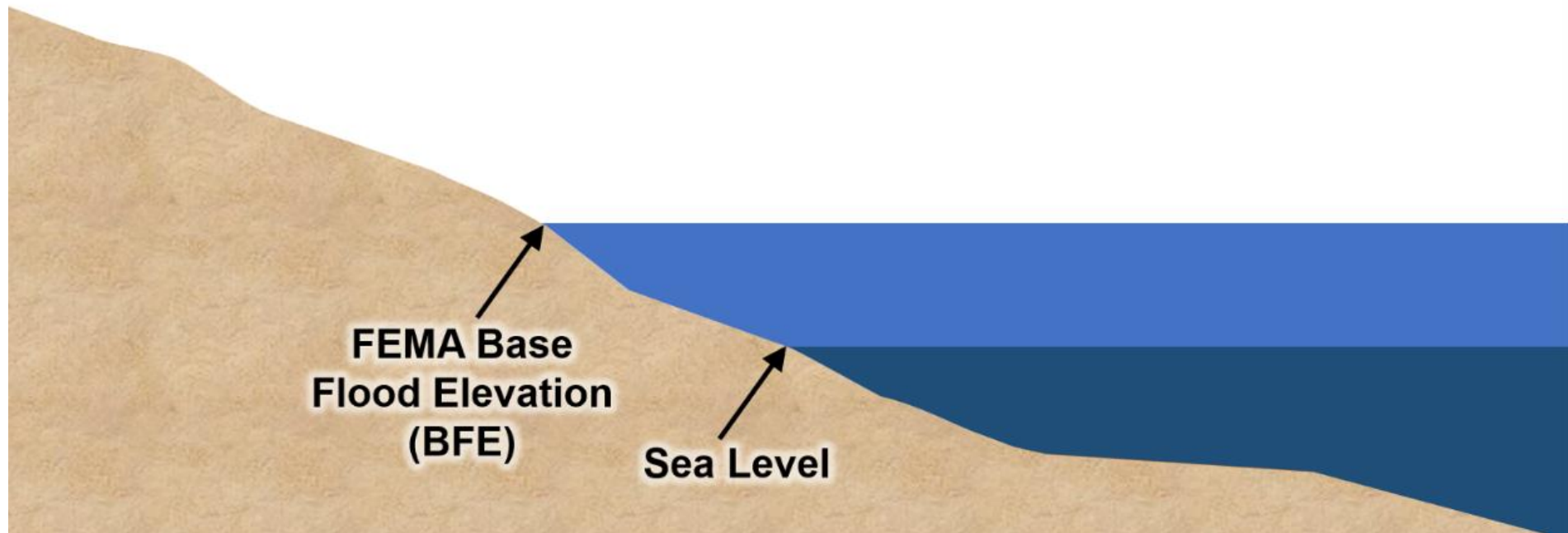
Coast Smart

Existing Conditions

- Land
- Sea Level
- FEMA 100 year Floodplain

FEMA Base
Flood Elevation
(BFE)

Sea Level



Which means we (State and Locals) currently only regulate land in the FEMA floodplain (yellow arrows)

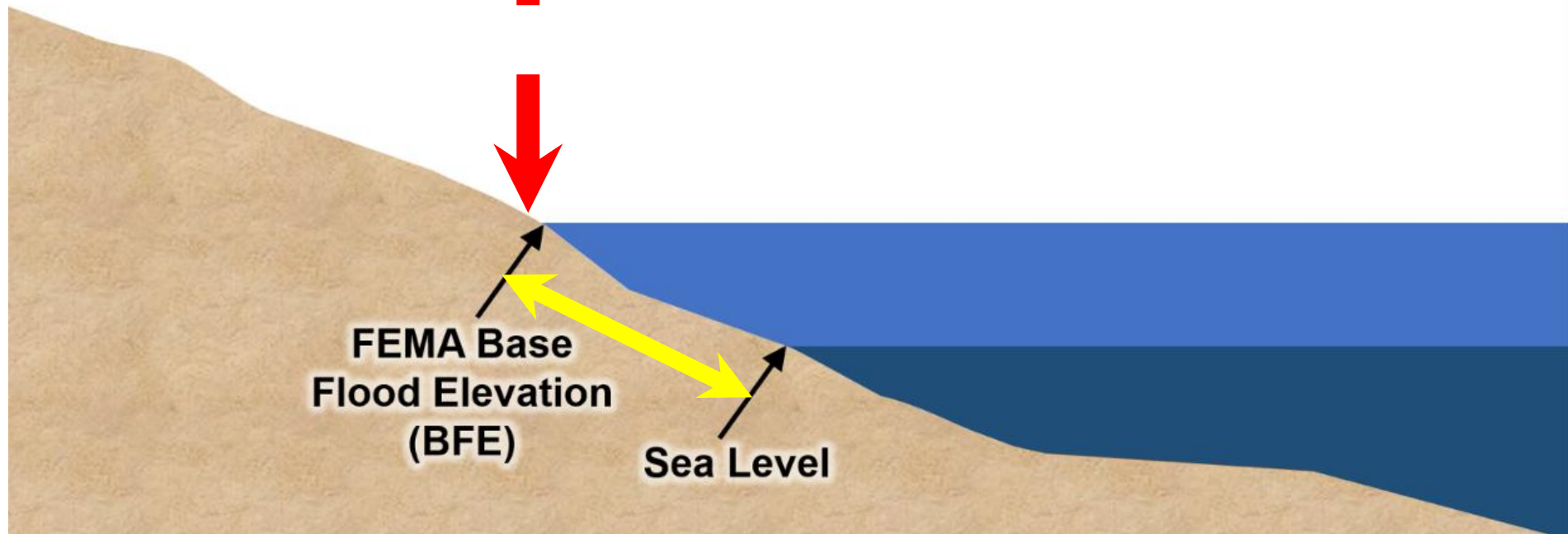
**Current
Limit of
Floodplain
Regulations**

**Coast Smart
Existing Conditions**

- Land
- Sea Level
- FEMA 100 year Floodplain

FEMA Base
Flood Elevation
(BFE)

Sea Level



State and Many Communities / Have a Freeboard Requirement of (1, 2, or 3 feet)

**Current
Limit of
Floodplain
Regulations**

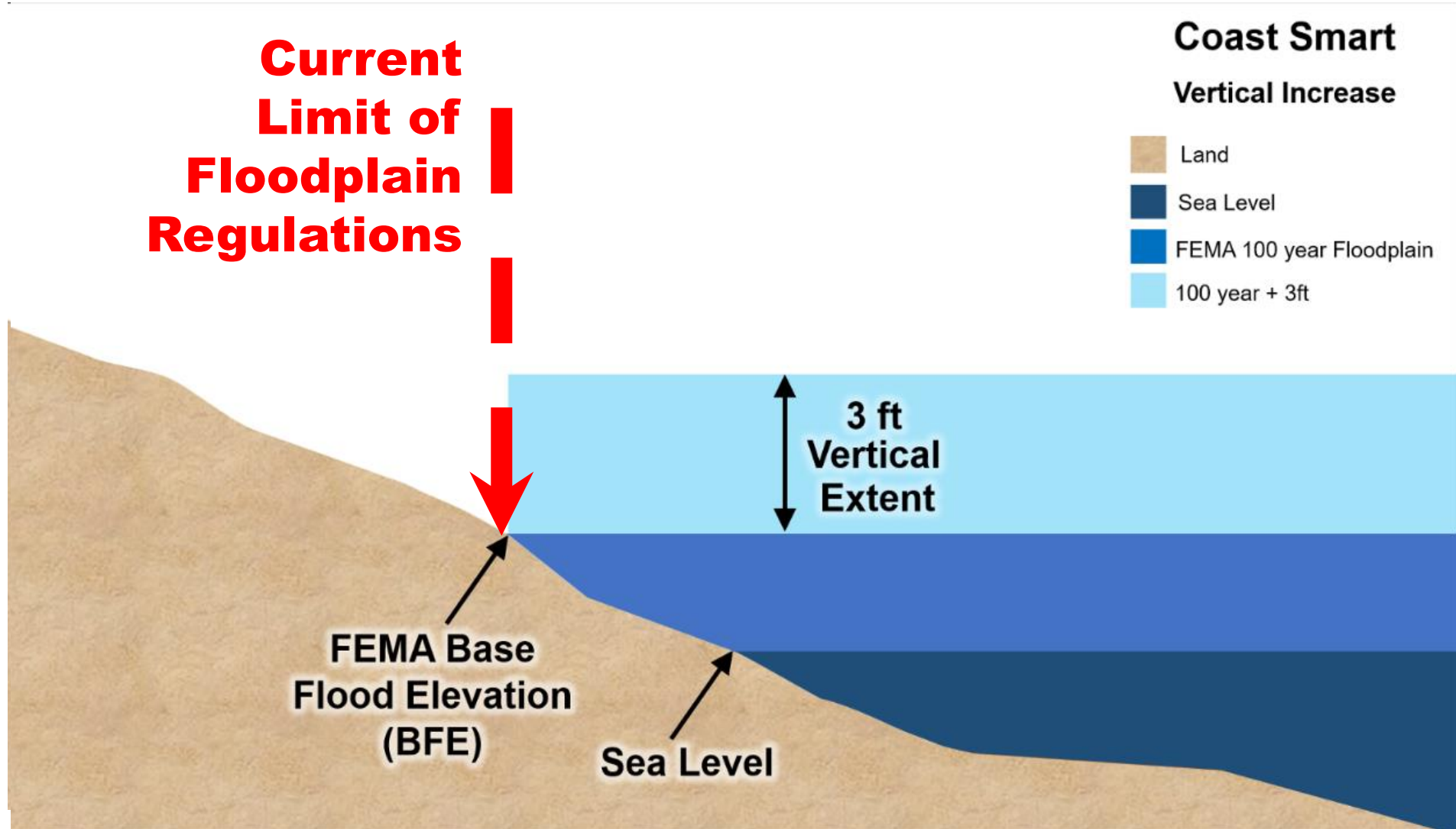
**Coast Smart
Vertical Increase**

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

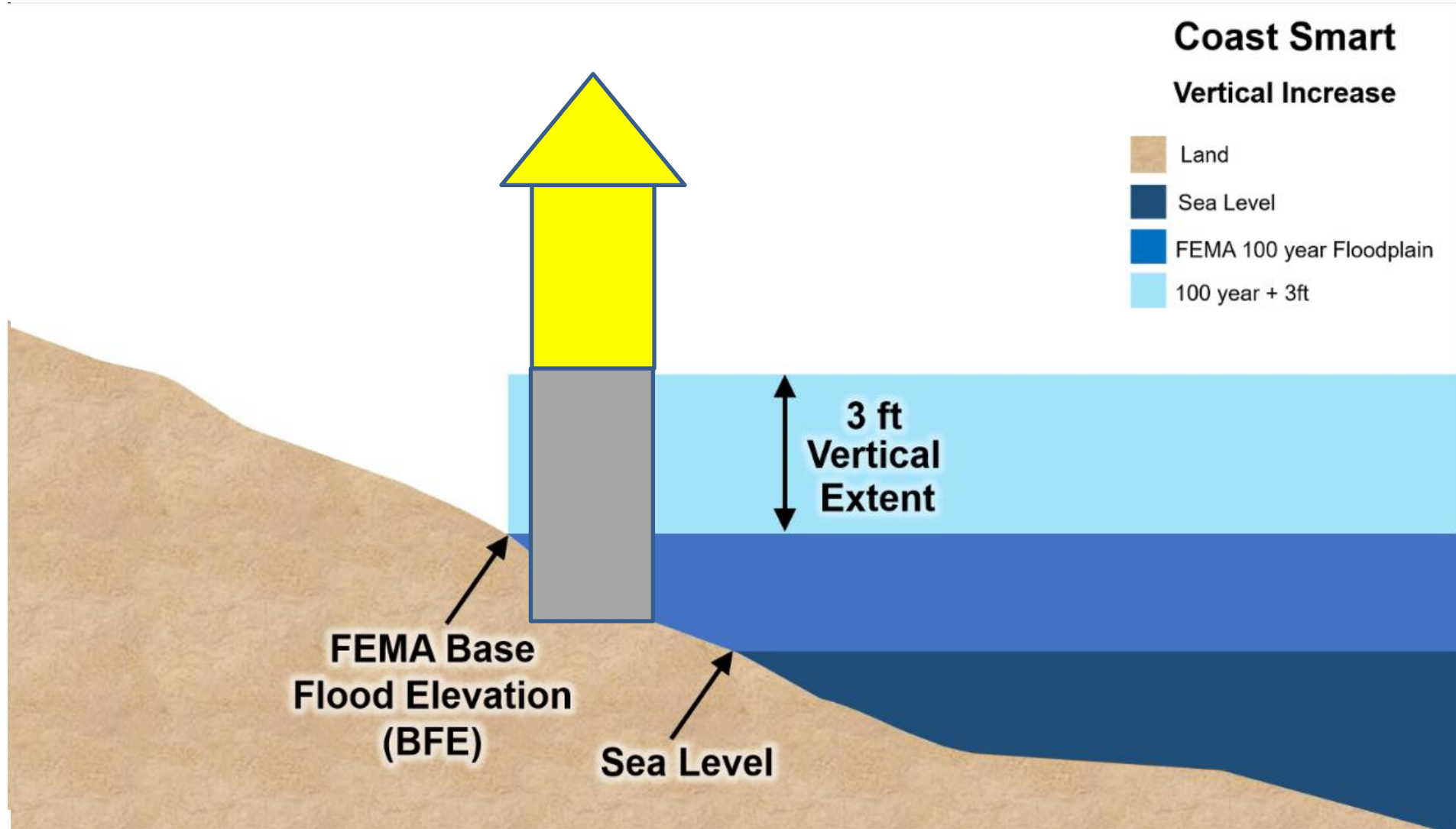
3 ft
Vertical
Extent

FEMA Base
Flood Elevation
(BFE)

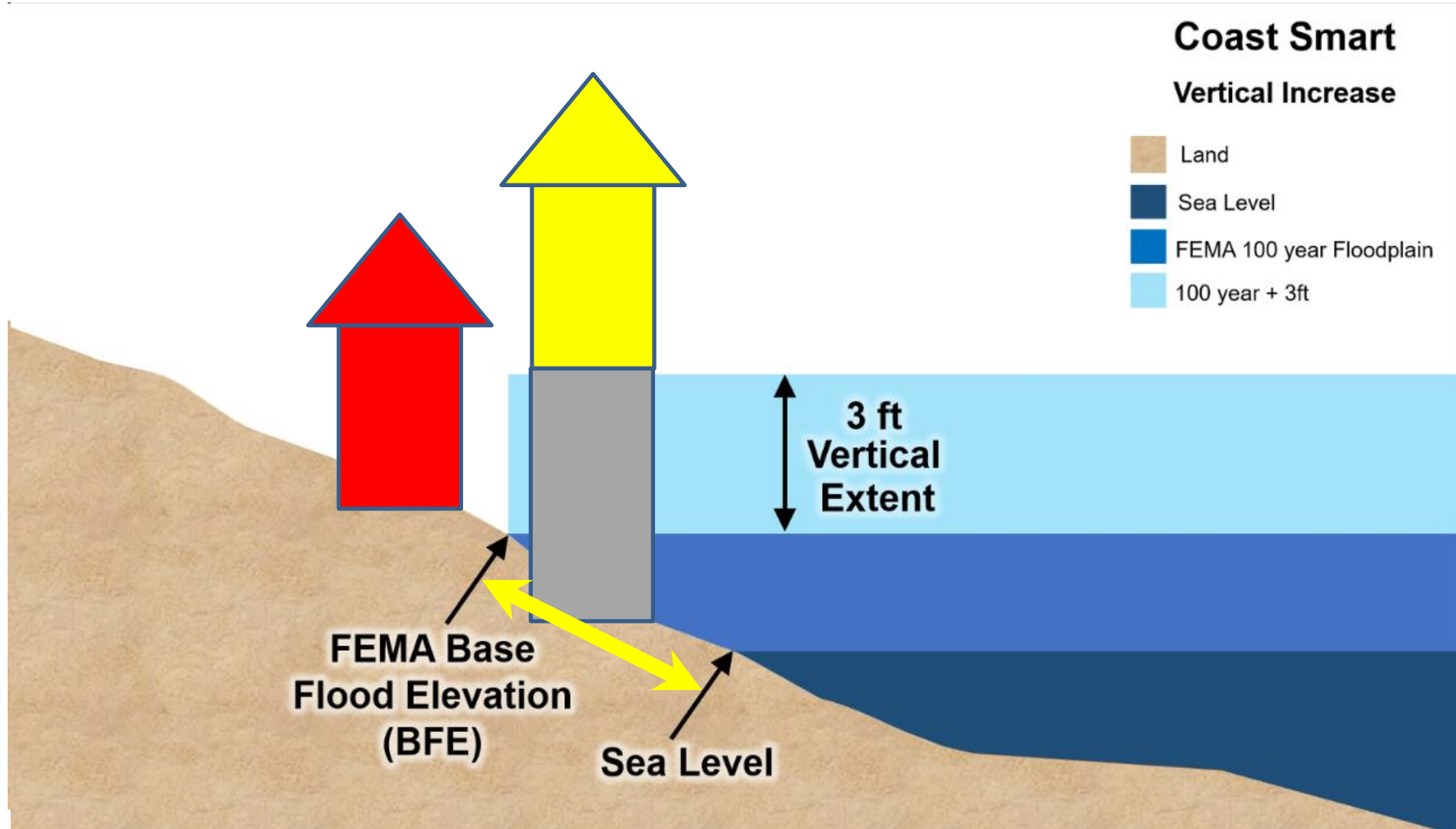
Sea Level



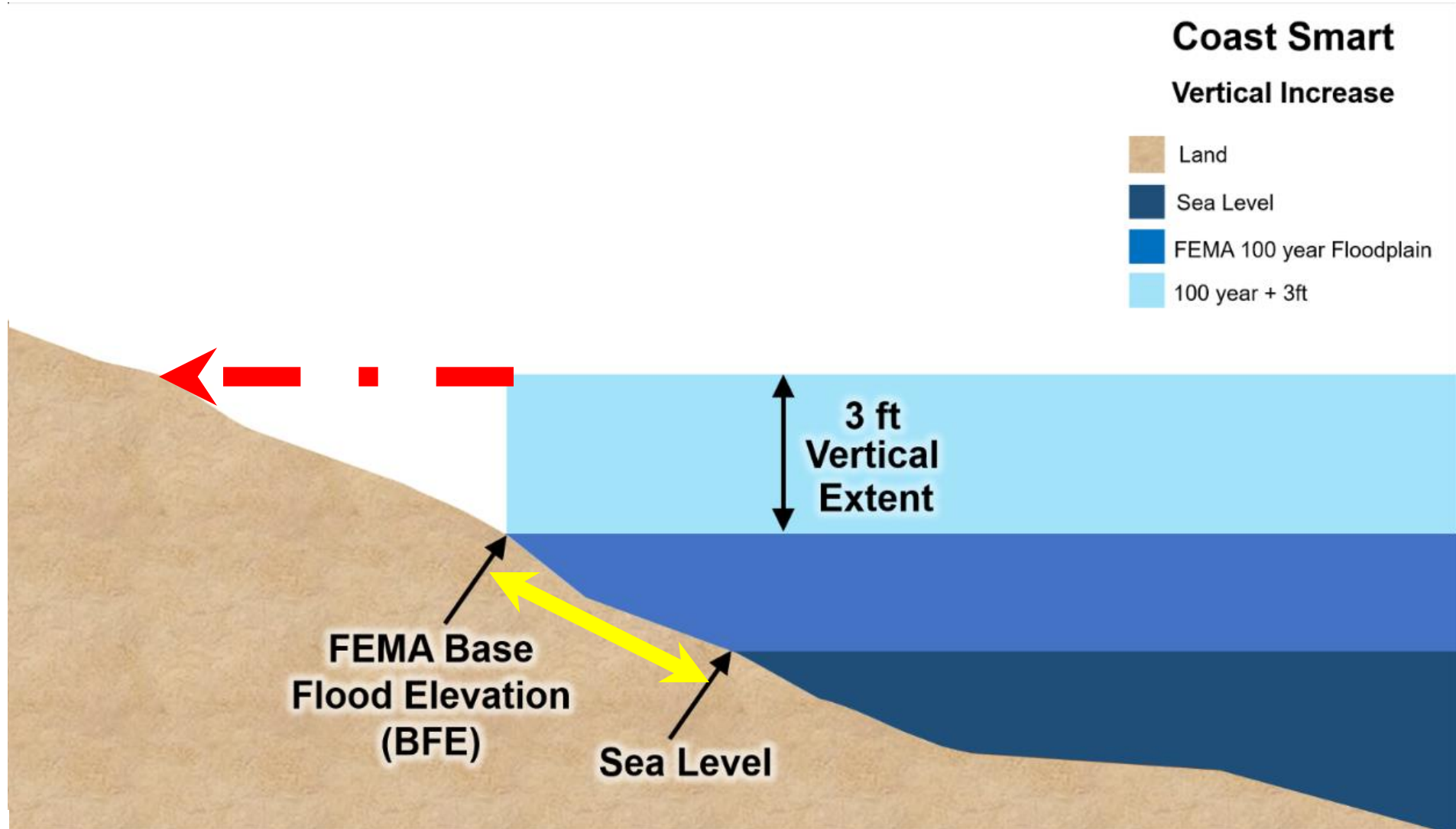
Building Requirements Or Higher Standards / State Or Local Codes: Buildings Elevated Above Freeboard



How Consistent Are These Regs ?



Proposed in 2020... State Projects (Identify and Look Beyond the Floodplain)



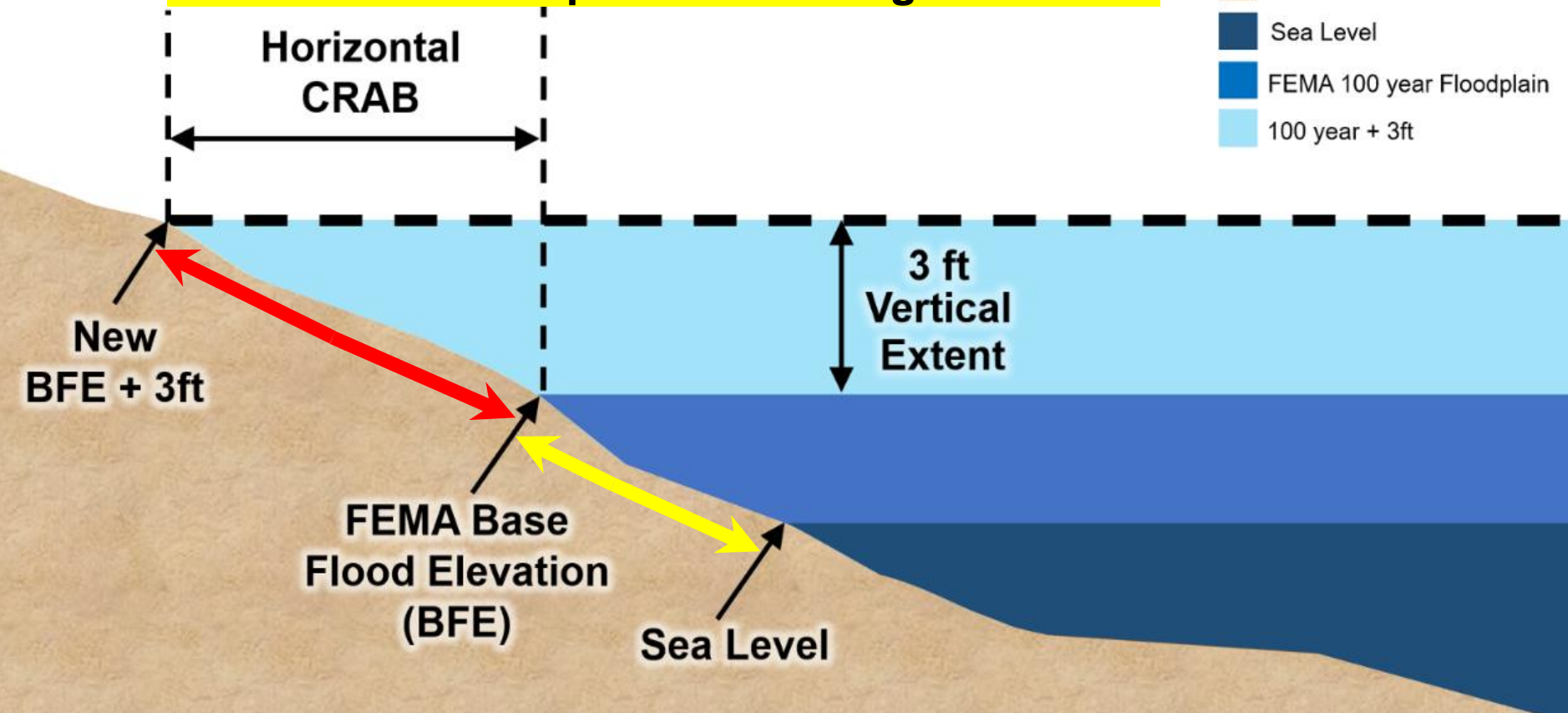
Currently Creating CRAB Diagrams StoryMap, and 100 year + 3 layer (All in Production...)

State will use CRAB for State Projects / Locals
Can Use CRAB Boundary to Illustrate and
Demonstrate Resiliency

Note: No Local Requirement to Regulate CRAB

Coast Smart
Climate Ready Action
Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

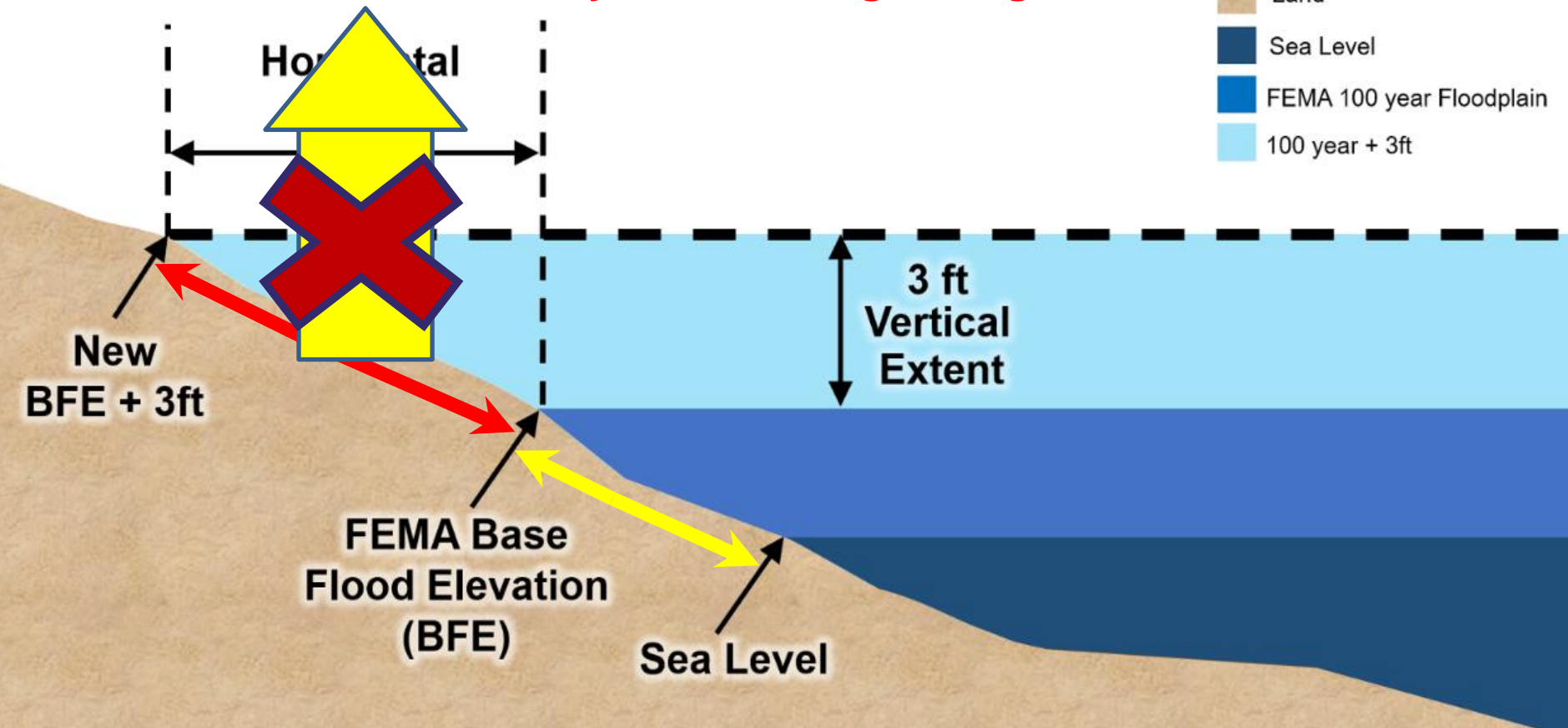


State Coast Smart Guidelines: Address Resiliency on State Funded Construction in Wider CRAB Area

State will use CRAB for State Projects / Locals
Can Use CRAB Boundary to Illustrate and
Demonstrate Resiliency Without Regulating It

Coast Smart
Climate Ready Action
Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

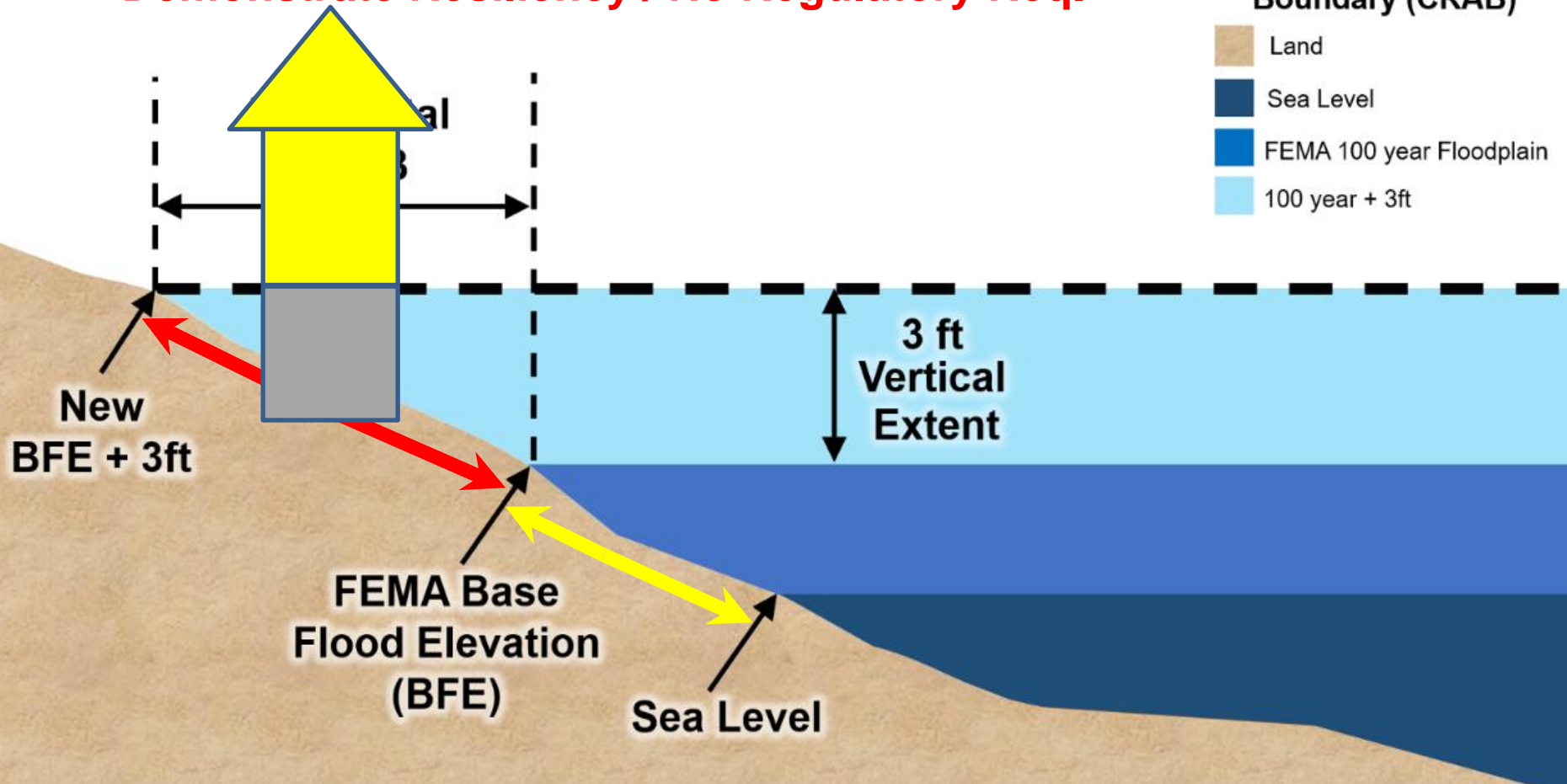


State Coast Smart Guidelines: Address Resiliency on State Funded Construction in Wider CRAB Area

State will use CRAB for State Projects / Locals
Can Use CRAB Boundary to Illustrate and
Demonstrate Resiliency / No Regulatory Req.

Coast Smart Climate Ready Action Boundary (CRAB)

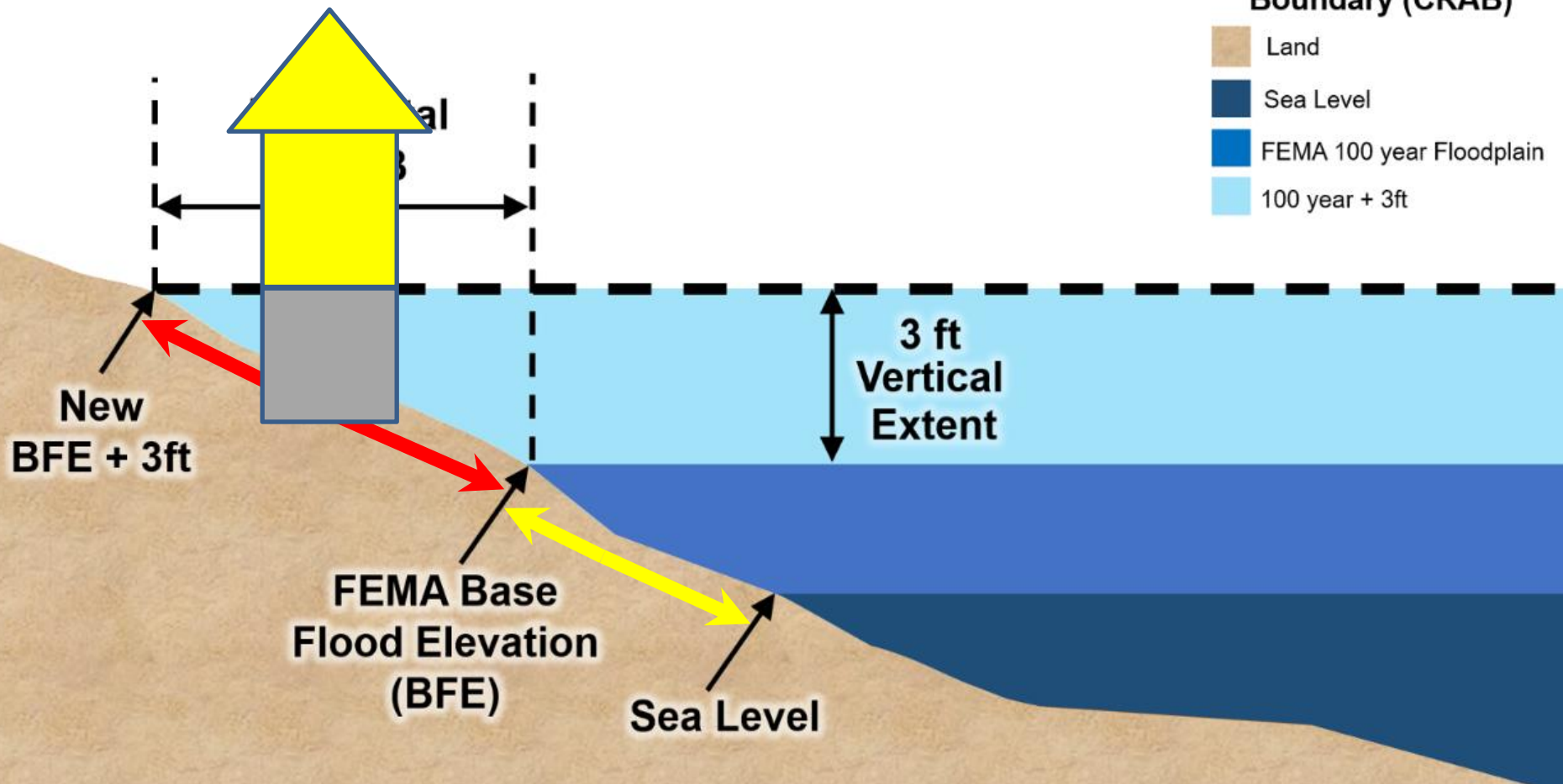
- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft



What are Benefits of Using CRAB ... If a Community Chooses to Regulate It

Coast Smart Climate Ready Action Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

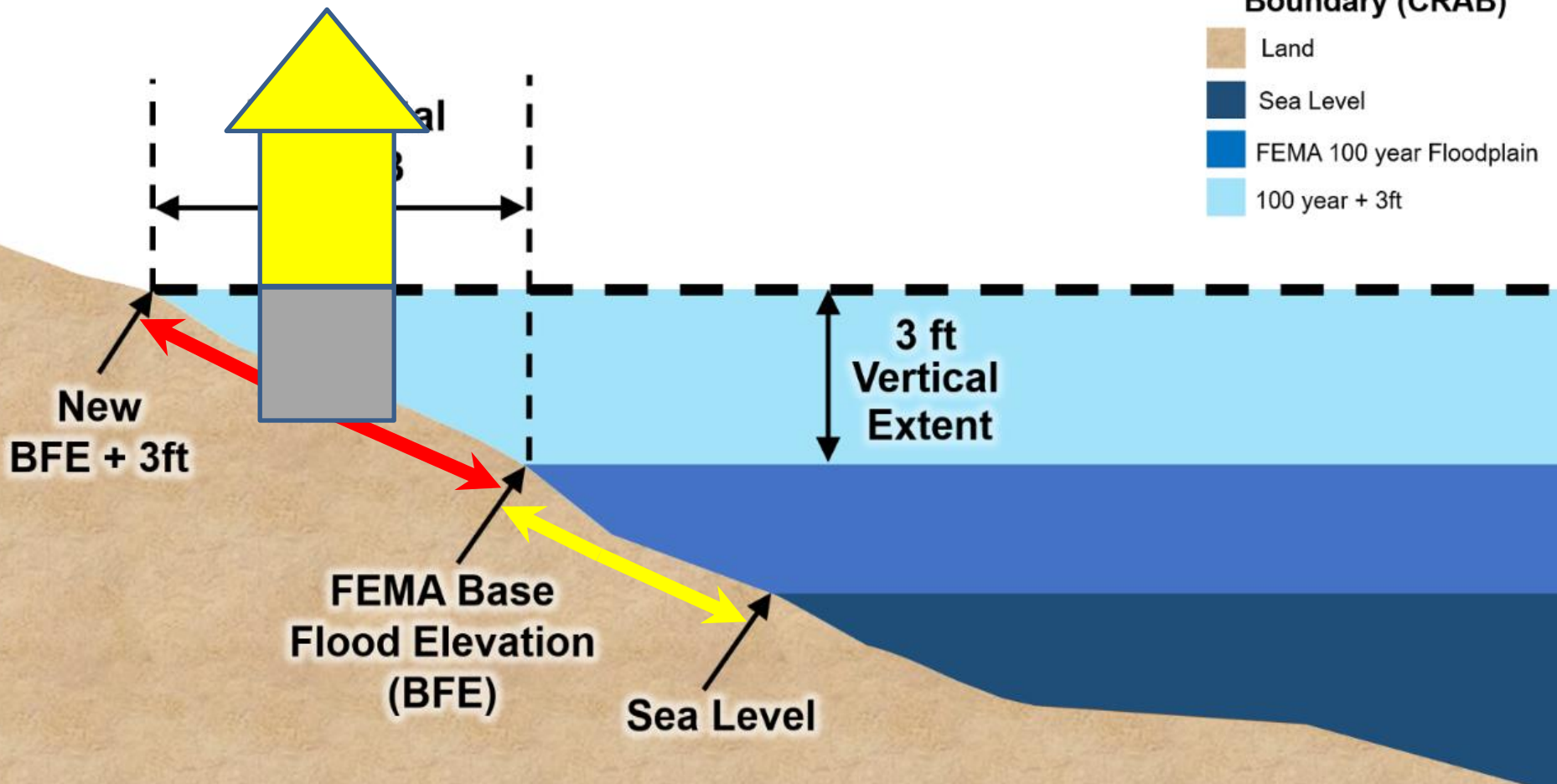


What are Benefits of Using CRAB ...

Lower Flood Insurance (Now and Later)

Coast Smart Climate Ready Action Boundary (CRAB)

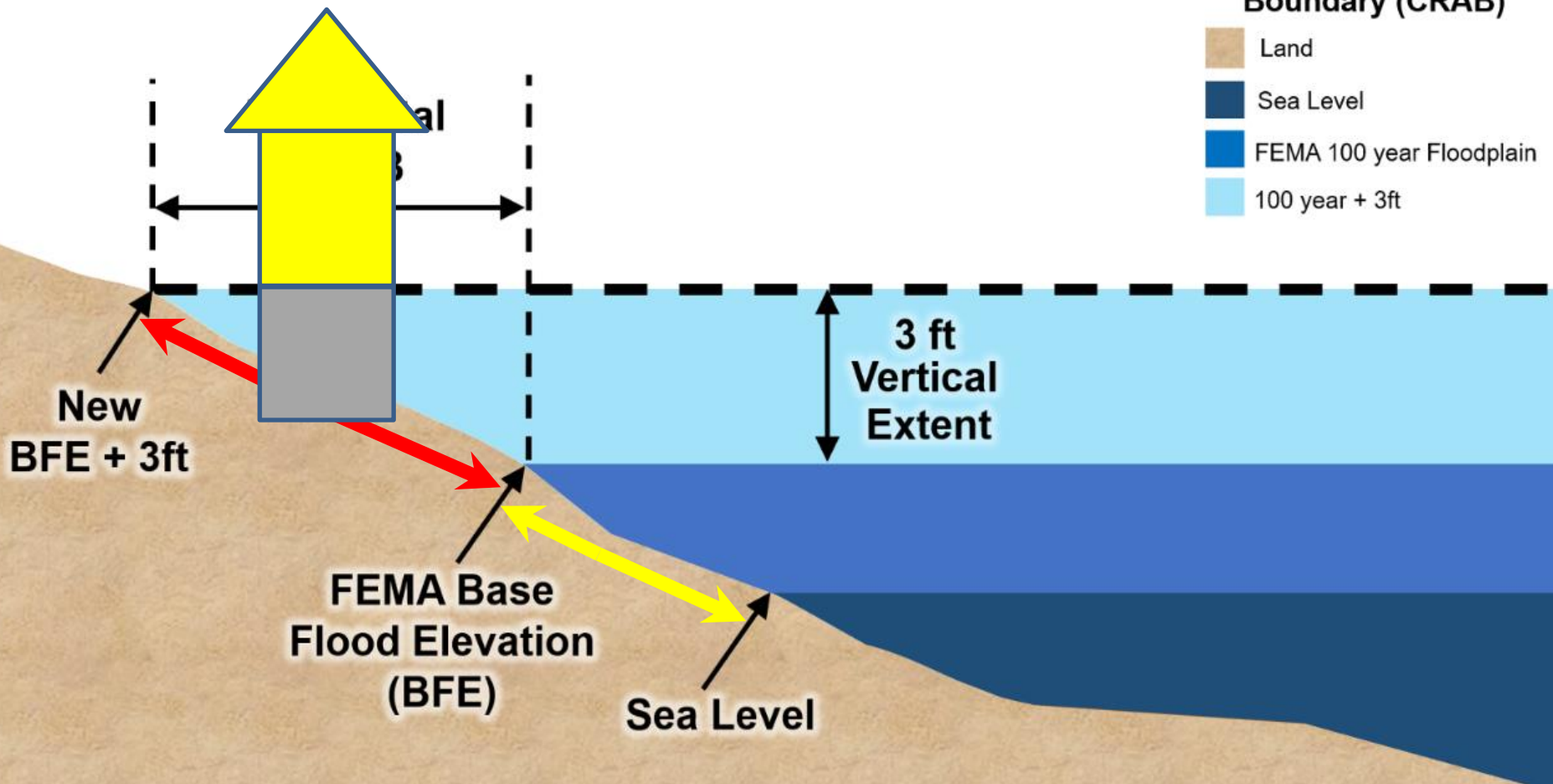
- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft



What are Benefits of Using CRAB ... Better Community Bond Rating

Coast Smart Climate Ready Action Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

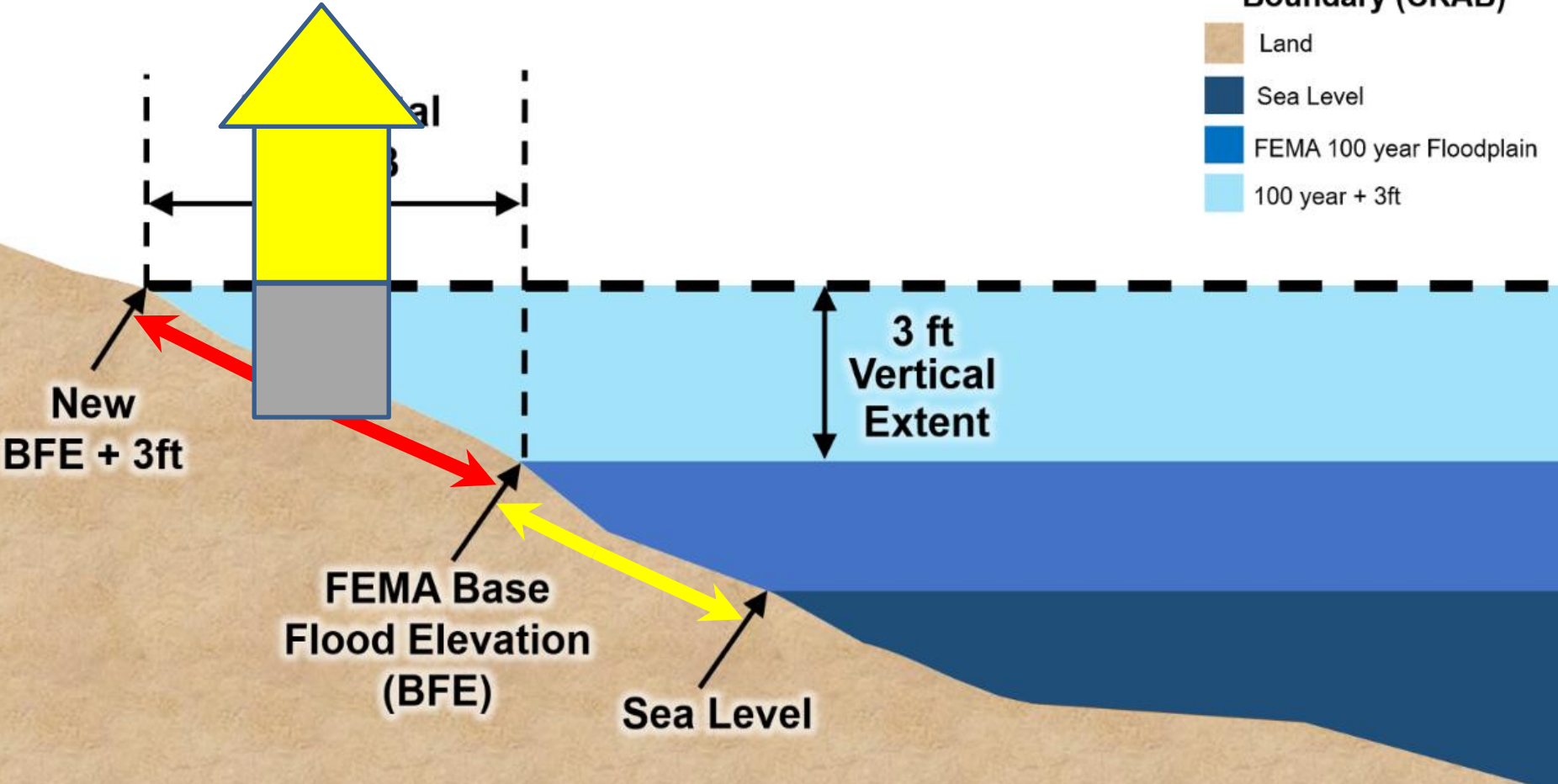


What are Benefits of Using CRAB ...

Consistency With FP Regulations (In + Out)

Coast Smart Climate Ready Action Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft

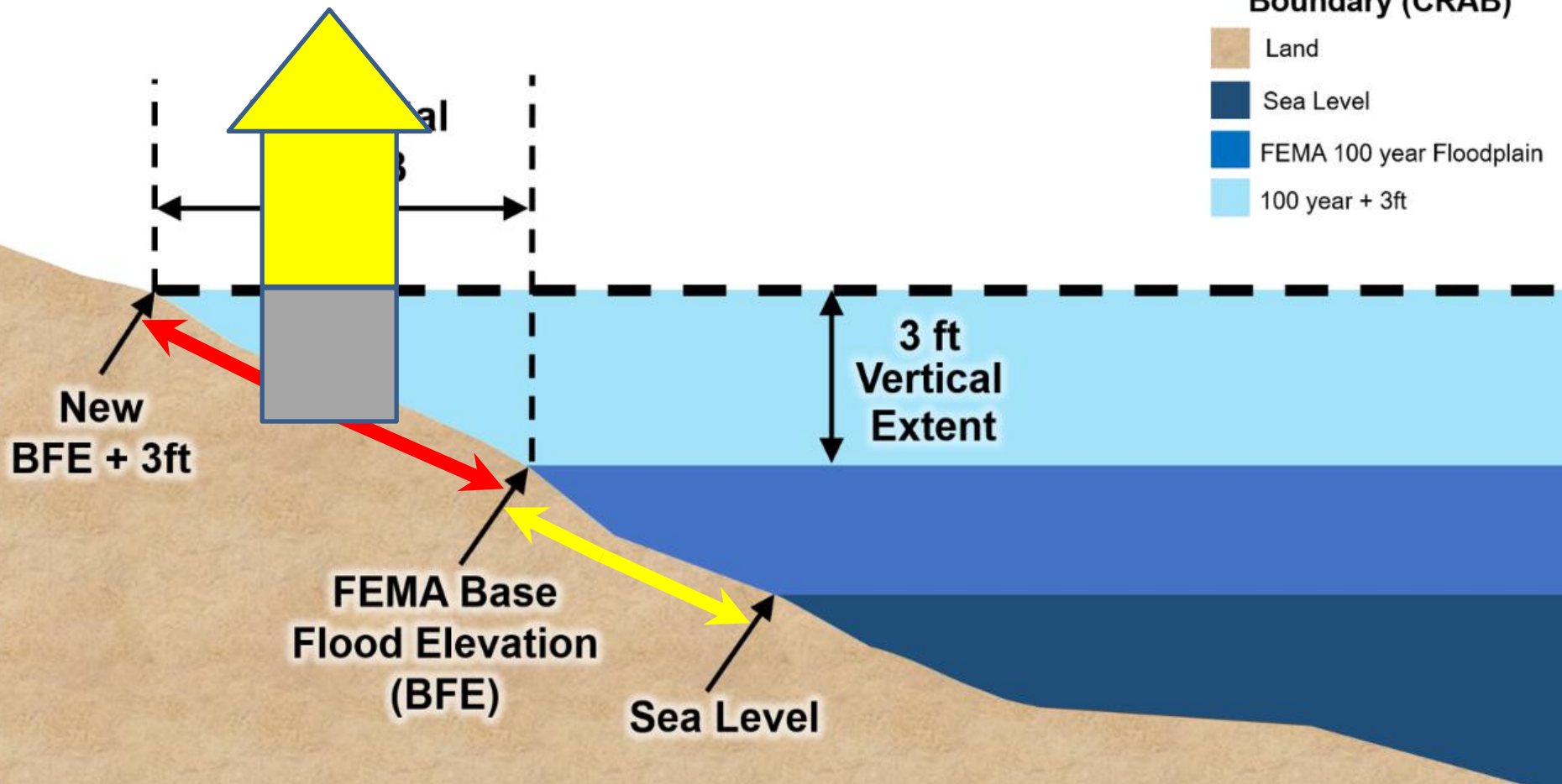


What are Benefits of Using CRAB ...

Safer More Resilient Community

Coast Smart Climate Ready Action Boundary (CRAB)

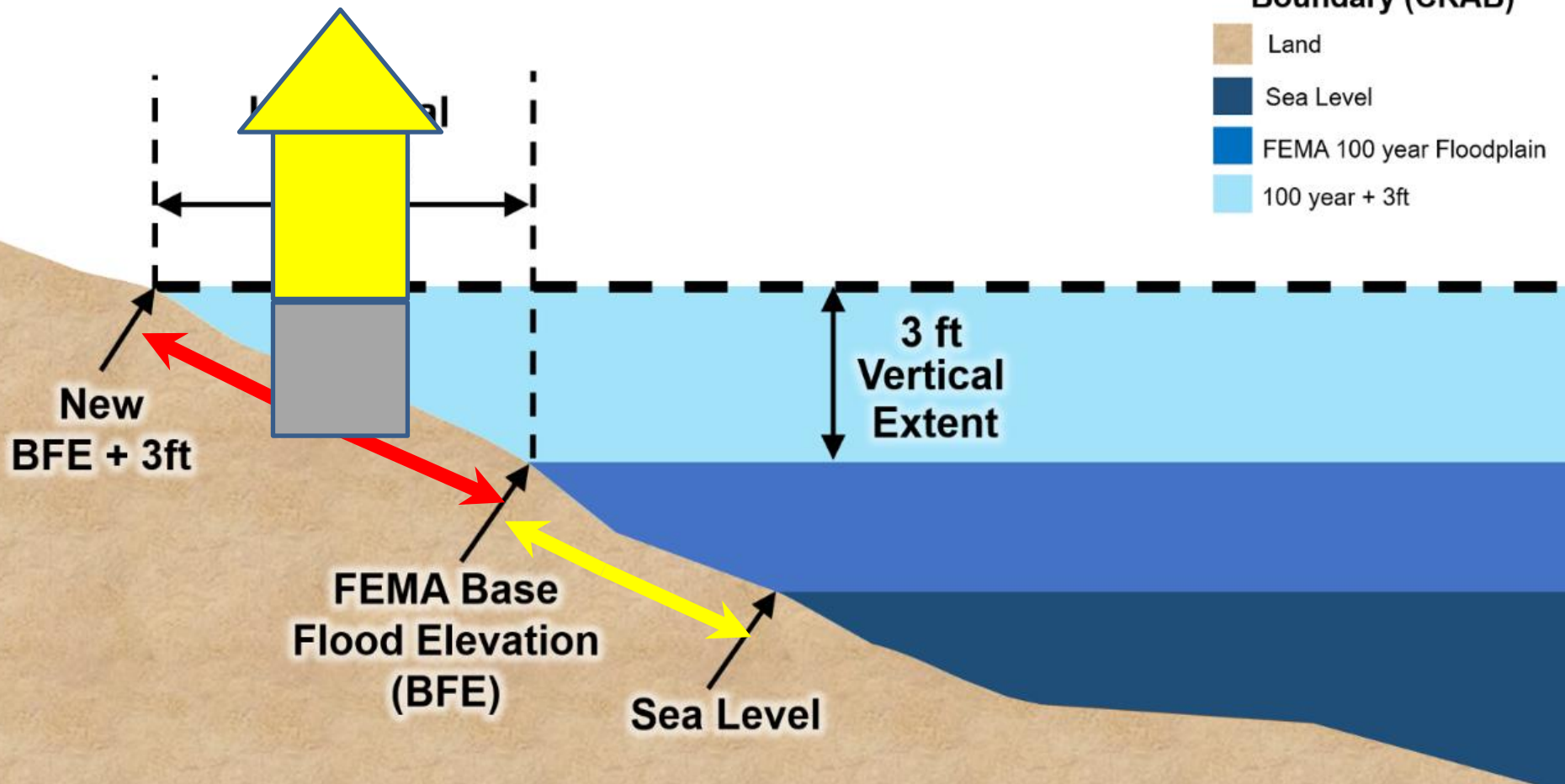
- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft



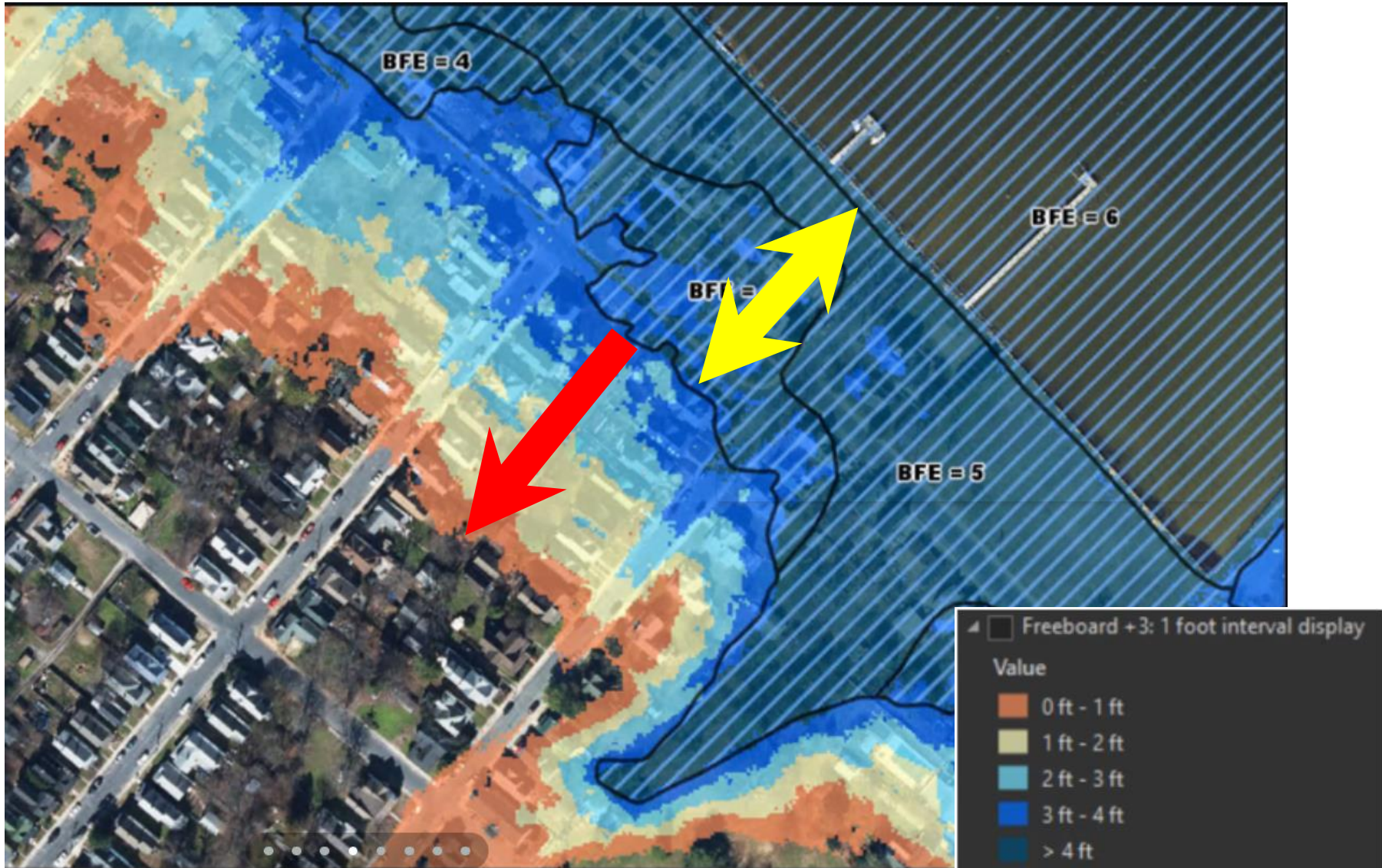
NFIP Still Recommends Flood Insurance !!!

Coast Smart Climate Ready Action Boundary (CRAB)

- Land
- Sea Level
- FEMA 100 year Floodplain
- 100 year + 3ft



What Does the CRAB Look Like In Plan View on a Map ... (Currently In Production)



Current View of CRAB Available at...

Story Map

<https://storymaps.arcgis.com/stories/bd1ab6827c77457a9c6aec5ca1eb4af2>



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Story Map View of CRAB



Freeboard +3 Feet



Anne Arundel County - Coastal Neighborhood - Aerial Map

[Click the arrow on the right to explore data layers](#)



Story Map View of CRAB

Effective Floodplain
Base Flood Elevation
(BFE) labeled

FEMA Effective Floodplain



VE
BFE = 8

VE
BFE = 7

VE
BFE = 10

VE
BFE = 10

AE
BFE = 6

AE
BFE = 5

AE
BFE = 5

AE
BFE = 5

VE
BFE = 7



Story Map View of CRAB

Freeboard +3
with floodplain

FEMA Effective Floodplain



Freeboard + 3: Building Boundaries

Value

- 1 Foot Depth
- 2 Foot Depth
- 3 Foot Depth

BFE = 7

AE
BFE = 6

AE
BFE = 5

AE
BFE = 5

VE
BFE = 7

VE
BFE = 10

VE
BFE = 10

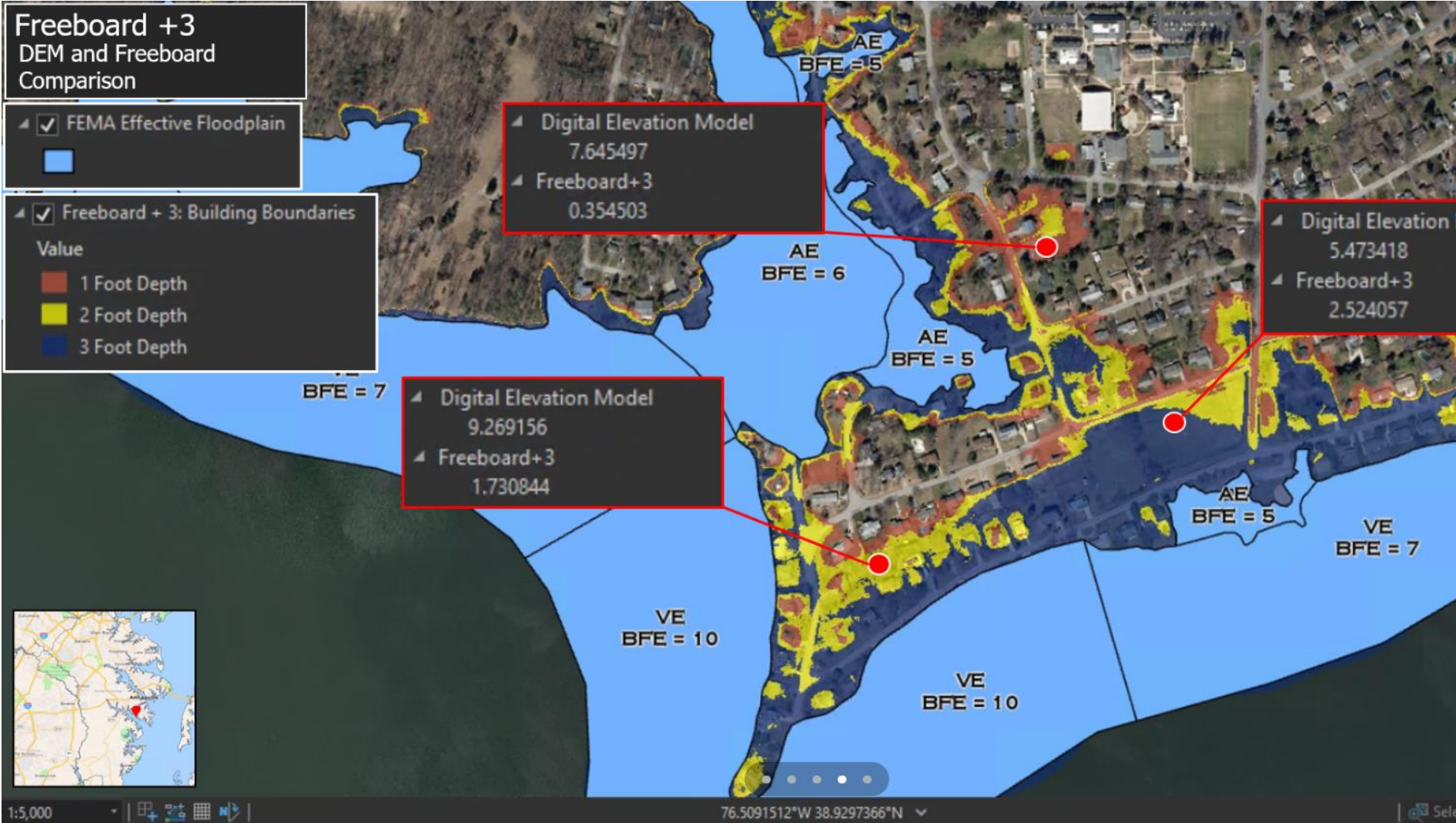


1:5,000

76.5091512°W 38.9297366°N



Story Map View of CRAB

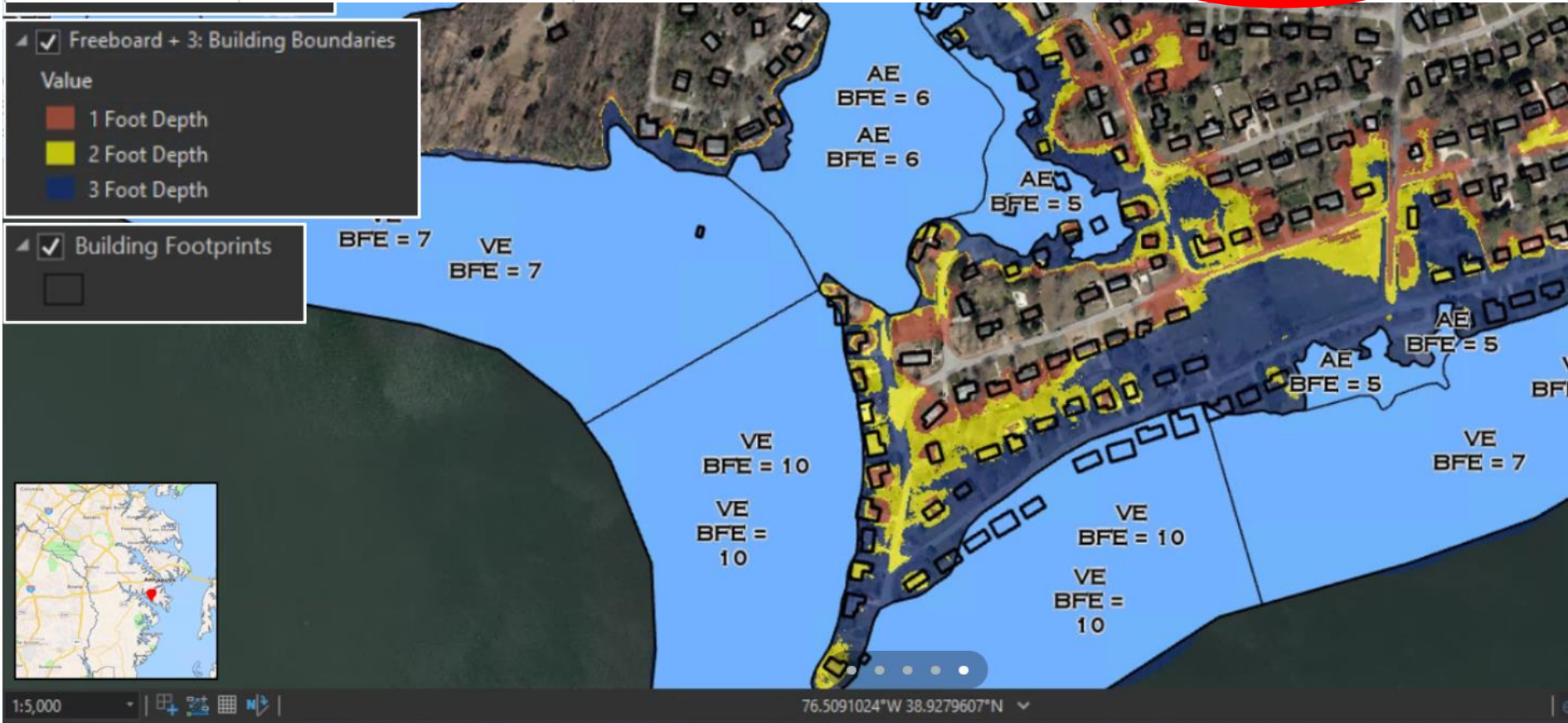


Story Map View of CRAB



fx # of Buildings in the floodplain (All A zones & V zones in 100 year effective floodplain within the county)

A	B	C	D	E	F
County	# of Buildings in the floodplain (All A zones & V zones in 100 year effective floodplain within the county)	# of Buildings in Freeboard +3	Additional Buildings captured as a result of the Freeboard +3 Analysis	% increase	
Anne Arundel	2,738	9,160	6,422	235%	
Talbot	1,305	6,913	5,608	430%	



Schedule

- **Coast Smart Regs Targeted for July 1, 2020 (But More Likely by Fall)**
- **Coastal 100 year + 3 completed by July 1st**
- **Deliver Product for Coast Smart Screening to DNR and State Agencies (if needed)**
- **Complete QA / QC by mid July**
- **Complete Edits / Establish Web Site for Hosting / and Publish Public Facing Data by mid August**



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Questions / Comments / Suggestions ..

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