

# Two Rivers, One Future

New Jersey Fostering Regional Adaptation through Municipal Economic Scenarios (FRAMES)

## NJ FRAMES Steering Committee, Technical and Constituency Advisory Groups Workshop

Wednesday, January 9, 9:30 a.m. – 12:30 p.m.

Red Hill Activity Center

Tatum Park, Middletown, NJ 07748

### Agenda

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| 9:30 a.m. – 9:50 a.m.   | <b>Welcome, Introductions, and Project Update</b><br><i>Linda Brennen, Monmouth County</i><br><i>Kelly Pflicke, NJ DEP</i> |
| 9:50 a.m. – 10:10 a.m.  | <b>Adaptation Actions to Address Regional Risks: An Overview Presentation</b><br><i>Eric Fang, Perkins Eastman</i>         |
| 10:10 a.m. – 10:50 a.m. | <b>Digging into Adaptation Options at the Sub-Regional Level</b><br><i>Group Breakout Exercise</i>                         |
| 10:50 a.m. – 11:00 a.m. | <b>Break</b>   |
| 11:00 a.m. – 11:45 a.m. | <b>Digging into Adaptation Options at the Sub-Regional Level (cont'd)</b><br><i>Group Breakout Exercise</i>                |
| 11:45 a.m. – 12:00 p.m. | <b>Report Out</b>  |
| 12:00 p.m. – 12:25 p.m. | <b>Group Discussion on Regional Goals and Regional Adaptation Strategies</b><br><i>Eric Fang, Perkins Eastman</i>          |
| 12:25 p.m. – 12:30 p.m. | <b>Wrap-up and Next Steps</b><br><i>Kelly Pflicke, NJ DEP and Lisa Auermuller, JC NERR</i>                                 |

### Parking, Food, and Other Logistics

Guests should park (free of charge) in the front of the building. Driving directions can be found within the park brochure: [http://co.monmouth.nj.us/documents/130/tatum\\_brochure\\_june\\_2018.pdf](http://co.monmouth.nj.us/documents/130/tatum_brochure_june_2018.pdf). Note, the Red Hill Activity Center is not located specifically at 151 Red Hill Road. Please enter “Tatum Park, Red Hill Activity Center” into your GPS for the exact location.

The meeting will be held in the Heath Room and the adjoining two classrooms for breakout discussions.

Complimentary refreshments will be provided for participants by Monmouth County and Rutgers University.

### Thank You!

Thank you very much for your attendance and help at this event. The NJ FRAMES team recognizes that, in order to be here today, you took extra time out of your regular schedule. We greatly appreciate your willingness to help us and value your input.

## Attendees

Name	Title	Organization
<b>Capt. Al Modjeski</b>	Habitat Restoration Program Director	American Littoral Society
<b>Peter Blair</b>	Policy Attorney	Clean Ocean Action
<b>Kendall Keelen</b>	Policy Fellow	Clean Ocean Action
<b>Marjorie Kaplan</b>	Associate Director	Climate Institute, Rutgers University
<b>Joseph Giddings</b>	P.M.	CME Associates
<b>Kelly Pflicke</b>	Senior Planner	Department of Environmental Protection, Office of Coastal and Land Use Planning
<b>Nick Angarone</b>	Bureau Chief	Department of Environmental Protection, Office of Coastal and Land Use Planning
<b>Becky Hill</b>	Principal Environmental Specialist	Department of Environmental Protection, Office of Coastal and Land Use Planning
<b>Nicolas Poruchynsky</b>	Engineer	Fair Haven Borough
<b>Jack Heide</b>	Community Planner	Federal Emergency Management Agency Region II
<b>Lisa Auermuller</b>	Assistant Manager	Jacques Cousteau National Estuarine Research Reserve
<b>Kim Jungfer</b>	Administrator	Little Silver Borough
<b>Bethany McClanahan</b>	Manager, Coastal Resiliency and Engineering	Louis Berger
<b>Niek Veraart</b>	Vice President	Louis Berger
<b>Bryan Kiel</b>	Planner/Analyst	Louis Berger
<b>Rose Mary Florian</b>	Designer	Louis Berger
<b>Tony Mercantante</b>	Administrator	Middletown Township
<b>Bill Kastning</b>	Executive Director	Monmouth Conservation Foundation
<b>Mike Oppegaard</b>	Coordinator	Monmouth County, Office of Emergency Management
<b>Linda Brennen</b>	Supervising Planner	Monmouth County, Division of Planning
<b>Tom Herrington</b>	Associate Director	Monmouth University, Urban Coast Institute
<b>Pete Rowe</b>	Associate Director	NJ Sea Grant Consortium
<b>Dennis Blazak</b>	CPLO	NWS Earle
<b>Hank Kliem</b>	Department of Public Works	Ocean Township
<b>Tracey Berkowitz</b>	Landuse Assistant	Ocean Township
<b>Sunghwan Yoon</b>	Architect/Urban Designer	Perkins Eastman
<b>Eric Fang</b>	Principal	Perkins Eastman
<b>Glenn Carter</b>	Planning Director	Red Bank Borough
<b>Sheila Hintze</b>	Senior Manager, Operations	Riverview Medical Center
<b>David Marks</b>	Engineer	Rumson Borough
<b>Stacy Krause</b>	Research Associate	Rutgers University, Environmental Analysis and Communications Group
<b>Matt Campo</b>	Senior Research Specialist	Rutgers University, Environmental Analysis and Communications Group
<b>Dina Long</b>	Mayor	Sea Bright Borough
<b>Erik Anderson</b>	Mayor	Shrewsbury Borough
<b>Laura Kerr</b>	Research Engineer	Stevens Institute of Technology

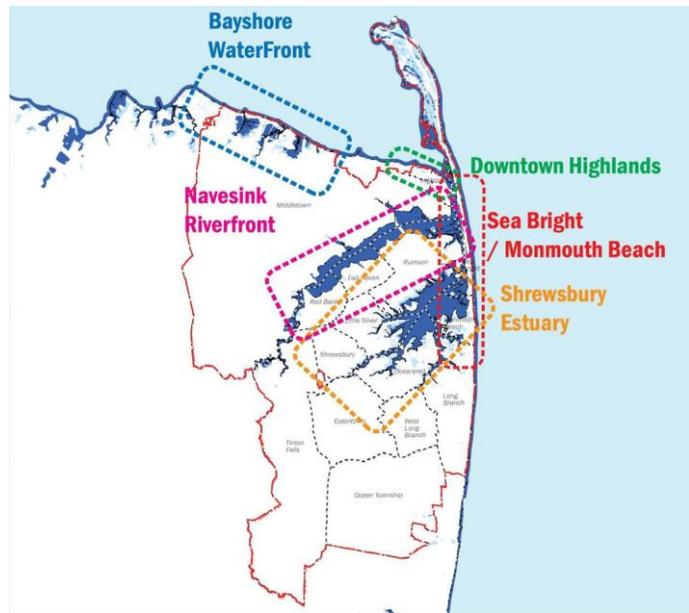
## Welcome, Introductions, and Project Update

Linda Brennen with Monmouth County welcomed everyone to the facility and provided room logistics.

Kelly Pflicke with the New Jersey Department of Environmental Protection (DEP) facilitated introductions and provided an update and overview of the NJ FRAMES project. Kelly explained that the goal of the meeting would be to get stakeholder feedback on specific adaptation actions and the spatial application of those strategies, along with broader policies and concepts, for which a regional plan could be built around. Three adaptation planning scenarios were developed by the project team to facilitate this discussion.

## Adaptation Actions to Address Regional Risks: An Overview Presentation

Eric Fang with Perkins Eastman provided an overview of the process that the project team used for developing draft adaptation planning scenarios around three themes: “living with the water,” “protecting our communities from the water,” and “moving away from the water.” Eric described how these scenarios were then applied at a sub-regional level for five key areas identified through the risk assessment: Bayshore Waterfront, Downtown Highlands, Navesink Riverfront, Shrewsbury Estuary and Sea Bright/Monmouth Beach (see image to the right). Examples of the different scenarios and related strategies were given for each sub region.



## Digging into Adaptation Options at the Sub-Regional Level

Two group breakout exercises were then facilitated across the five sub regions to discuss stakeholder feedback on proposed actions. Participants self-selected which sub region to participate in and were encouraged to rotate to a new sub region at the break. The following are summary notes from these discussions.

### Bayshore Waterfront

Facilitator(s): Rose Mary Florian, Perkins Eastman and Bryan Kiel, Louis Berger

Notetaker(s): Lisa Auermuller, Jacques Cousteau National Estuarine Research Reserve (JC NERR)

- When looking into stormwater related actions, back flow prevention devices, specifically with duck bills, are necessary to help reduce tidal flow up and into the storm drains.
- Many of the local creeks need dredging, especially post-Sandy, and help from DEP is needed to obtain permits for these types of projects. Right now, there is a sense that a project like this gets held up in permitting.
  - Beneficial reuse could be a solution for dredging and beneficial reuse of the sediment onto the marsh areas to help protect the marshes.
  - Could DEP have a proforma general permit in place so that these types of projects can be done more readily? A permit like this could be structured more like the dune and beach management plans that are done on the ocean/beach front areas.

- Could beneficial reuse help with the phragmites issues by raising up the elevation of the marshes and returning them to spartina marshes?
  - In some places so much silt is collecting that small marsh islands are forming and hindering the flow of the water.
    - Does it make sense to remove these islands? There are pros and cons.
- Because all the Two Rivers area is closed waters for shellfish, you cannot use oysters for ecologically engineered projects.
  - Oysters may settle on breakwaters naturally as is oyster spat in these areas.
  - Evidence of the vertical relief of the oyster restored areas increasing b/c the oysters are raising the level of the accretion.
  - Oyster castle project happening at Naval weapons station areas with oyster castles. They are permissible there because the onsite security acts to deter poachers.
- There is a current U.S. Army Corps of Engineers (USACE) project underway with a projected full completion by 2022. As part of this (1) pump station is already under construction by a marina. There is a 2<sup>nd</sup> pump to be built on Main street. The floodgate is completed on Port Monmouth Road and (2) more are to be completed within Middletown.
- Flood ratio ordinances are not applicable in this area b/c having vegetation requirements on properties is hard when the groundwater is already so high. Instead of this ordinance, aiming for less pervious surfaces would make more sense.
- Fishing fleet are often talking about low water at times. They are having a hard time getting out of the creeks at low tide.
- The USACE has done a Cost Benefit Analysis (CBA) for Belford and Leonardo.
  - Current USACE project is 150 million
  - House raising through USACE is too costly – 200k per house
- A Micro grid project with NWS Earle is underway.
  - Middletown submitted a proposal to the BPU to include support of many of the critical facilities along Route 36 (including the Naval Weapons Station).
  - The long-term plan is to expand the micro-grid project and supply the power along the Route 36 corridor as it is a main transportation route.
- Looking at how other places “live with the water”, the Netherlands approach is to let the water in.
  - Could something like this work here with a berm around an area and make it like an open water/lake area? Could this also be used to capture water coming down from the rivers too?
  - There is a park there adjacent to wetlands that water could be “let in there” to accommodate the water quantity. There is a similar project in the Cohansey watershed with American Littoral Society.
- In terms of “moving away from the water”, there is a question about where people would go?
  - People do not want to leave their community, especially their school system. This makes buyouts ineffective here.
  - 85% of the community is already developed. See below about more in terms of redevelopment around Belford.
  - Many of the houses in the area are being raised and will be raised in the future.
  - As an example, abandoned properties are being bought up by developers and building new raised homes and selling them for much more money.
- A redevelopment plan has already been created around Belford/the ferry terminal.

- This has already been adopted by Middletown.
- The current plan is for development (retail uses and multifamily housing and recreational uses) to occur near the parking for the ferry terminal, which means parking is going to be an issue.
- Would this change the CBA for the Belford area, especially because the new structures would not be at risk because they would be built to newer standards?
- On the flip side, property values may increase in the area.
- What about the fisherman in the area that use the Belford location?
- How does the redevelopment plan connect with some of the other areas like Route 36 that you might want to protect? For example, do you have to propose re-grading for the main street that connects Route 36 to the redevelopment area?

## Downtown Highlands

Facilitator(s): Bethany McClanahan, Louis Berger

Notetaker(s): Becky Hill, DEP

- The ferry terminal is a regional asset. If a scenario was to include methods for planned retreat over a period of time, that scenario should account for the regional need for the terminal.
- It is necessary to know what the options shown in each scenario would cost and need to understand the value that each option would provide, before being able to determine if it is a viable option.
- Options presented should include actions that can be taken in the shorter term.
- Resist structures alone present a problem because precipitation-based flooding would still occur on the landward side of the structure.
  - Even when drainage features are incorporated, there is a feeling that they do not fully serve their intended purpose. Based on the increase in the frequency of extreme rain events, and that groundwater seems to be getting higher from rising seas, resist structures seem to be even less of a viable option. This will mean that all water that accumulates on the landward side of this type of structure will now need to be constantly pumped away.
  - Residents are not protected from current every-day (flooding) events.
  - There are currently no water storage options that could be used if resist structures are put in place.
- Participants felt it would cost too much money to do anything in the area for long-term resilience. If this is the case, what can be done?
  - An idea suggested was that there need to be additional state policies put in place that provide assistance for communities/individuals to move to safer areas, but not provide assistance to rebuild.
- Community conversations about what matters most to them and a long-term plan for how they can do their best to save it is needed, if the option to stay becomes no longer viable.
  - For example, Cape May has a plan to save the history of the town (archiving) because they know it won't exist into the future.
- Over-arching theme from the discussion is the need to move away from downtown Highlands.

## Navesink Riverfront

Facilitator(s): Eric Fang, Perkins Eastman

Notetaker(s): Marjorie Kaplan, Rutgers University

- After Sandy, Fair Haven was fueling location for other areas, public works upland, but areas from Sea Bright, Rumson, and other areas came to them because they were all flooded out.
  - Hospital played role in providing power
- The towns in the area work well together but it might be good to think about blue-sky planning to determine if we can improve on preparedness procedures since it was not clear the extent to which agreements or responses are formalized and may need to be at local and/or county level.
- In emergencies, need receiving areas for continuing life services and food, clothing, shelter; i.e., places where doctors and nurses can stay and where residents discharged from hospitals can go if their homes do not have power; places where residents can park cars; places to put downed trees and debris; Need coordinated regional OEM approach on short term or weekly or monthly basis.
- The towns do have some shared services, yet consolidation is not discussed.
- Sending and receiving areas - In theory it makes sense in practice many felt it does not work between municipalities, sometimes it happens naturally, Red Bank is growing, building housing, hospital expanding. Not much vacant land available for redevelopment, may work within a municipality. Nobody has had a conversation about consolidation; a very sensitive issue. The concept of establishing a resiliency district was posited or a TDR bank in the broader region even considering this area as a receiving area for other nearby areas; however, there would need to be substantial incentives to become a receiving district.
- Priorities include NJ Transit (low elevation), the Oceanic bridge (work with the county who is reviewing concept plans for the bridge); Kryllos Bridge; access to the ferries for commutation via the ocean bridge or Sea Bright; Hospital in Red Bank is very vulnerable; Fairhaven dock and boat ramp which are used for emergency access by fire and police.
- Molly Pitcher Inn and Oyster Point Hotel important assets in the region; Red Bank has significant retail/commercial/professional offices in the region.
- Noted as important to protect was the location of the pump station owned by Two Rivers authority and sanitary lines that connect infrastructure along waterfront and four pump stations in Fairhaven.
- Oceanic Bridge: Whatever future coast guard or Federal Highway Administration (FHWA) has regarding vertical clearance on the bridge should incorporate SLR into it if it's a fixed level bridge, but if it's a movable bridge maybe not as much of the structure will be impacted by SLR.
- If coast guard requires set vertical clearance of X and we need to worry about SLR we need to adapt to that rise.
- It is common sense to have coastal construction rules, regarding for example, raising a building above a certain base flood elevation to prevent additional flooding or reconstruction floor to area ratio ordinances that require parking under homes in some areas, when ordinances can prevent flooding and there should be some variance relief for compliance.
- Are there areas where shellfish beds can be installed to reduce erosion along the Navesink and perhaps develop a coordinated approach regionally that would allow oysters or other invertebrates to be used in the area such as mussels to stabilize shorelines?

## Shrewsbury Estuary

Facilitator(s): Sunghwan Yoon, Perkins Eastman

Notetaker(s): Matt Campo, Rutgers University and Dianne Crilly, DEP

- After Sandy, there were several different types of infrastructure improvements and repairs that were easier and cheaper to do without the federal grant money. Given the funding coordination and grant management required, some towns decided to undertake projects without grants rather than spend money on the benefit-cost analysis and application processes required to obtain federal funds.
- Permitting processes and engineering for some homeowners to use natural shoreline techniques can take months and costs, in some cases, tens of thousands of dollars. Some residents are not properly maintaining their waterfront infrastructure (usually bulkhead) to be protective against current risk, let alone future risk, which creates hazards for the rest of the neighborhood.

- Approximately 90 - 95 % of waterfront land is private. We need to think about incentive programs to create more protective / natural shoreline infrastructure. Those programs might come in the form of regulatory relief or permit fee incentives if applicants are able to provide natural resource or coastal resilience benefits for themselves and their neighbors.
- Homeowners purchasing at the waterfront are usually comfortable or understand that there is some risk to their property. However, homeowners frequently do not understand the municipal emergency management risk when they expect to be rescued or municipal services to be restored shortly after a flood event.
- The market for waterfront properties in the community was nowhere what it is today 50 years ago
- Backflow preventers (e.g., gates or “duck bills”) work well for reducing tidal flooding on dry days. But when you have a storm/nor’easter, they act as a bathtub and only drain when the tide finally goes down.
- Experiencing frequent inundation of catch basins that were previously not inundated in West Park area of Rumson.
- Many of the islands in Shrewsbury River exist because at some point they were either created from dredging or nourished through dredge materials in the 1930s. There is a proposal from Monmouth Beach to nourish the Sedge Islands for protective benefit. If Monmouth Beach were the lead, it is possible other neighboring communities (such as Sea Bright, Rumson, and Ocean) would get involved as willing partners based on the cost of sending additional dredge material.
- Fort Monmouth would not be recommended as a sending area for at-risk residents in Little Silver and Rumson. Multi-million-dollar waterfront homes, environment and amenities could not be reproduced in that location.
- Recreational economy around the Shrewsbury River is the most critical economy that participants could identify. Individuals travel to public and private access points (marinas, boat ramps, etc.) using the community resources and visiting businesses before and after they spend a day on the water. This amenity, in turn, drives up the value of waterfront property and access to the river as an amenity.

### Sea Bright/Monmouth Beach

Facilitator(s): Niek Veraart, Louis Berger

Notetaker(s): Stacy Krause, Rutgers University

- Because they are prone to flooding, large condo complexes built on slabs will continue to be an issue for owners and the municipality.
- There are no incentives for towns to retreat, as new development or redevelopment will happen with bulk headed condos with small greenspaces, when they likely should not be developed at all.
- Even if storms get more intense or happen more often, or impacts from sea level rise are seen, these towns will likely adapt to become summer destinations only, if one route in and out is maintained.
- Where bulkheads exist, water comes through the storm drains creating a bathtub effect if the pumps are not kicked on soon enough or underperform.
- Post-Sandy, Sea Bright attempted to get local businesses to buy into a whole elevated business district but there was too great a fear of losing a season. The district does not have a cohesive floodproofing plan/method. An Army Corps study indicated 2 business locations where deployable flood barriers could be used, but these 2 locations are private and would need to pay for this themselves.
- Tax payer money to protect the beach clubs, a majority of which are privately owned businesses, is not preferred, as they did not miss a summer post-Sandy and can obviously afford to rebuild and/or protect themselves, especially since members are generally residents of other towns.
- A flood gate at the Highlands may protect a larger Bayshore area but the issues become money for maintenance, impacts on the ecosystem, who on the other side may be impacted (being a good

neighbor), access by boats, the aesthetic look/appeal (which is important to locals and tourists), etc. It was decided that perhaps along with other methods a flood gate may work to reduce flooding, but it alone should not be a fix-all. This could change if in the future a cost-benefit analysis determines that the price of the sea wall would be less than repairing continuous damage/loss from floods.

- A general consensus that TDR will not work for the subregion. Group said there was not only nowhere in the towns to move to, but residents did not want to move out of town, they have a personal and cultural connection to their town
- Need a cohesive business district floodproofing plan.

## Report out

Facilitators and note takers summarized takeaways from the group discussions, such as:

- Total water levels should be added to the maps
- Final scenarios would need to be a combination of all alternatives
- Some towns do not have the technical capability or the appropriate guidance on how to put together a benefit cost analyses needed to inform decision-making, some communities do, but see it as a waste of time and money to spend on administration rather than actual project activities and costs.
- Backflow preventers in low lying areas of the region, such as in the Shrewsbury sub region, can work to prevent tidal flooding but not during storm events, where they act as a bathtub and drain only when the tide goes down.
- There are inconsistent standards for bulkhead design among communities. Communities that have tried to go higher were unable to get standards that are more stringent. Recommend 9ft but residents do not want that.
- There is a need to perform a complete bulkhead inventory in Sea Bright and likely other communities in the region. Sea Bright received a grant to inventory their bulkheads, but it was limited to bulkheads on public property and to ensure public access, ADA accessibility, and multi-use areas via a boardwalk on to, etc.
- Home elevations are already happening in areas of the region (e.g. Sea Bright) and will continue to occur. Homeowners unable to elevate are left with extremely high flood insurance premiums
- Municipal land use strategies should ensure that neighbors do not negatively impact each other's investments. For example, if a hard infrastructure is installed next to a living shoreline it may negatively impact those natural areas. Ensuring cross municipal and regional coordination on land use policies is important to ensure that uses do not conflict or create negative externalities for the broader region.
- Some participants were supportive of a regionally adopted real estate disclosure policy that would go beyond minimum federal disclosure requirements. Supporters felt such a policy would level the playing field and bring awareness to new residents who are still unaware of flooding issues.
- The acceptability of strategies that encouraged "moving away from water" varied among participants of each sub region. Generally speaking, at this time, there is not widespread support for taking immediate actions to move away from the Two Rivers region. Residents have a deep connection to the local culture of living by the water and all it entails. However, there were discussions that discrete areas of the region may, over time, transition to more seasonal locations rather than host year-round residents. For example, when community tax dollars are unable to meet the demands of maintaining public infrastructure and services.

- A suite of education, technical assistance, and incentives programs are needed for the region and participating communities to adapt.
- Because the Navesink and Shrewsbury Rivers are closed waters for shellfish, you cannot use oysters for ecologically engineered projects; but there was an interest in working with all interested parties in the state to develop an approach that would allow for it.
- There was consensus among participants that there is too much sediment in all streams and channels. Groups felt that sediment could be put to good use for the benefit of the region, but it's a bureaucratic nightmare to dredge, dewater, and move the material depending on how/where it is coming from and what it is suitable for.
- Marsh restoration and the creation of marshes is not typically a function of private homeowners, however, the enhancement of nature-based features in the region could benefit homeowners.
  - There was a discussion of the need for better coordination at the state and federal levels on regional dredge material management – where there could be benefits to the use of dredge spoils to restore and create marsh areas for regional resilience benefits.
  - At a municipal or private property owner scale, setback requirements could be changed to allow for the migration of marshes. These policy changes could be paired with technical assistance and incentives for local homeowners to implement natural shoreline alternatives rather than bulkheads, which allow for migration while maintaining some protective characteristics.
  - Private waterfront homeowners have money to spend but hate spending it on an inefficient process. DEP could be very successful with incentives that leverage technical assistance, preferred permitting processes, and other "process" based incentives to transform areas that are privately held.
- After Hurricane Sandy, participants felt that it was common sense to have new coastal construction rules, which adjusted building heights to allow for raising buildings above Base Flood Elevation (BFE) to prevent additional flooding.

## Wrap-up and Next Steps

Kelly summarized next steps. The project team will work to refine the draft adaptation planning scenarios based on feedback received today and will also follow up to provide an opportunity for stakeholders to submit written feedback within the next two weeks or so. The next meeting of the advisory groups and the steering committee will be to present the costs and benefits of the scenarios and the various mitigation actions in late spring. Additional outreach with the public will follow and will be used to share and receive feedback on the scenarios. If stakeholders have comments or questions, they should not hesitate to contact the project team.

## Written Comments Received After the Meeting

Comments received after the meeting from advisory group members are included and start on page 10. Communities and organizations that provided written comments include:

Highlands Borough

New Jersey Association of Floodplain Managers (NJAFM)

NY/NJ Baykeeper

Oceanport Borough

Rumson Borough

Reference (meeting slide pg #)	Comment
	<p>The total water level mapping has been very useful for clearly illustrating the impacts of inundation. My concern is that the permanent inundation areas shown in the posters are already mapped Special Flood Hazard Areas, and that when these areas are permanently inundated the Special Flood Hazard Area will extend further inland and upland. Adaptation measures should consider addressing future flood hazards to areas not mapped in this exercise, that is, the areas that will likely be flood zones in light of two or more feet of SLR. With the study neighborhoods facing permanent inundation by 2100, there will be a need to address mitigating flood damage to properties that are not yet in today's SFHA or 500-year zones. Today's study areas may well be the location of tomorrow's flood protection infrastructure.</p> <p>In a similar vein, the permanent inundation of the barrier islands will likely expose the Study Areas to direct ocean wave action and erosive impacts far beyond that which is currently experienced. To what extent beach replenishment or other protection efforts continue (if they do) should be addressed.</p> <p>I'm concerned with the viability of increasing bulkhead heights as a mitigation/adaptation measure. Because much of the waterfront's bayfront study area is privately owned, the replacement of bulkheads is and likely will be a piecemeal process unless a group like the Army Corps steps in. One property's increased bulkhead height can help prevent wave damage to that property but does not address inundation unless the area behind the bulkhead is elevated or the line of protection provided by the bulkheads is complete and height is consistent. Communities have a difficult time replacing bulkheads through existing funding sources (i.e. FEMA grants), partially for this reason. Provisions should be made to ensure that bulkhead replacement is holistic and provides a clear level of protection.</p> <p>Coastal fill is controversial but still permitted; I believe the plan should address provisions for fill- whether it be prohibited moving forward or otherwise. Individual property owners and local governments may continue to construct buildings or streets on fill and some are doing so already. Piecemeal fill may complicate larger-scale adaptation measures. Some areas may be candidates for coastal filling owing to a concentration of assets whereas others are targeted for acquisition.</p>
	<p>Developed conceptual plan to protect 10 communities by extending the "Shrewsbury seawall" (Sea Bright?) and tie to Highlands with a dike. Mentioned that this was adopted into the County HMP and into Army Corps plans for the region. Wants to know status of that project and also wants it reflected in NJ FRAMES scenarios. <i>(Is this reflected in the Shrewsbury Estuary - Protecting our Communities from the Water scenario?)</i></p>
<p><b>Navesink Riverfront: Page 36 of 48</b></p>	<ol style="list-style-type: none"> <li>1. Rumson has two Marinas near the Oceanic Bridge. They should be identified under Economic Development category.</li> <li>2. The business district on West River Road should be identified in Rumson under the Economic Development Category. They are important to the community.</li> <li>3. Victory Park should be identified in Rumson. It is an important recreation asset to the community.</li> </ol>

<b>Navesink Riverfront:</b> <b>Page 37 of 48</b>	4. Replacement of Monmouth County Bridge S-31 (Oceanic Bridge) should consider sea level rise scenarios over the life of the structure. This should include approach roadways in both Rumson and Middletown. I defer to Monmouth County for further comment.
	5. Before we discuss elevating roadways (at least in Rumson), we need to better understand the area’s topography, stormwater drainage system, private property constraints, and environmental permitting obstacles. The streets/areas may be identified, but qualifiers need to be put in place for any recommendations. The general public will not understand the mechanics behind elevating a roadway and could demand the municipality take action on something that is unfeasible due to physical constraints or cost.
	6. Barley Point Road in Rumson is a private road that serves the Barley Point Island community. Please add an identifier that its private. It currently has an orange number 1.
	7. The Rumson Municipal Boat Launch should get an infrastructure number designation. I am working with ACOE and Monmouth University on flood proofing improvements. Email to USACE is attached. No response yet from the Corp. [See email attached to transmission of comments]
<b>Shrewsbury Estuary:</b> <b>Page 39 of 48</b>	8. What do the purple housing regions represent? I understand they are housing, but why are the regions not consistent with SFHA? Are they tied into an inundation level?
	9. The main sewer pump station for Rumson is located at the eastern end of Grant Avenue. We pump upwards of 1.9MGD of sewage to Two River Water Reclamation. I’m sure other towns have similar critical infrastructure facilities.
	10. I don’t think the Rumson Country Club should be identified as a natural Resource, let alone a park. It is a private Country Club. Maybe it could be considered Economic Development...
	11. I recommend the Sedge Island identified be revised to read “Sedge Islands” and include Gunning Island south of Rumson.
	12. Rumson Road is an evacuation route. It should be identified as an asset.
	13. The bridge labeled “Monmouth Boulevard Bridge” is actually “Pleasure Bay Bridge”. It is one of the MC bridges connecting Oceanport to Long Branch.
<b>Shrewsbury Estuary:</b> <b>Page 40 of 48</b>	14. What do the orange dots along portions of the waterfront represent?
	15. I don’t think we can include the Rumson CC in an open space/recreation plan. It is a private CC.
	16. The Sedge Islands and Gunning Island should be included in a Green Infrastructure Plan
	17. For Rumson, there aren’t any roads identified for elevation... The West Park neighborhood, Shrewsbury Drive, Oyster Bay Dr, generally anything south of Rumson Road should be included. That said, as I noted above, before we discuss elevating roadways, we need to better understand the area’s topography, stormwater drainage system, private property constraints, and environmental permitting obstacles. The streets/areas may be identified, but qualifiers need to be put in place for any recommendations. The general public will not understand the mechanics behind elevating a roadway and could demand the municipality take action on something that is unfeasible due to physical constraints or cost. I think this would hold true for Monmouth Beach, Oceanport, Little Silver... That should be vetted with those towns.
	18. Maybe elevating the roads is not the answer, maybe flood proofing with Stormwater pumping is more cost effective...

	19. Seven Bridge Road floods regularly at a number of locations. I know Little Silver is working with Monmouth County. I think the those areas should be identified.
	20. The south waterfront of Rumson is a combo of bulkheads and natural waterfront. Sections could be good candidates for a green infrastructure plan. Generally all are private residential property.
	That's about it for now. If you want to have a break-out discussion on these items, please let me know. I'd be happy to provide my insights from a technical/everyday side of things... I'd also be curious to know what other towns have to say. Some of those ideas could be helpful throughout the region.
	Great presentation-very clear. For the Bayshore plan I'd love to see as much living shoreline/green infrastructure as possible in the areas that aren't already slated for ACOE projects. Has any thought been given to outfitting walls, etc. with fish huts and other enhancement units such as rock pools? Biohabitats and Stevens has done a lot of this work. Residents along the Baykeeper often express their desire for greener options.
	Also I'm curious about retreat-I believe in some places this is the only answer. Is the Blue Acres program still a thing at DEP? I'm sort of out of the loop on that stuff.
<b>Highlands: Page 34 of 48</b>	Notes included in presentation: Under Infrastructure, added: bulkheading, improvement to the coastal evacuation route Bayside Drive, Pump/outfall improvement, replacement of current bulkheading (see map for location of infrastructure suggestions).
<b>Page 32 of 48</b>	Make sure to change all references of "Highland" to "Highlands" throughout presentation