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THE STATE UNIVERSITY OF NEW JERSEY

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APA NJ

Communicating about Flood Risks to Real Estate Market Segments in Coastal New Jersey: Project Findings

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Sea Grant
NJ Sea Grant Consortium

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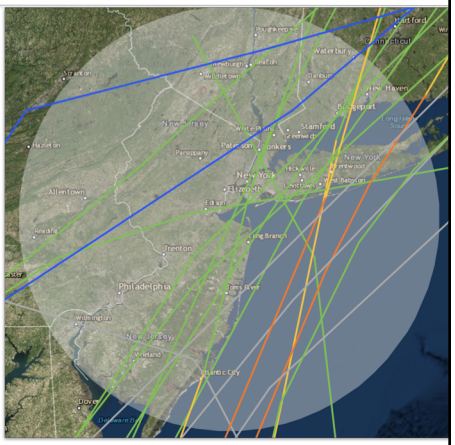
Overview

- Flood risk communication challenge: *"Demand-pull" not "Science-push" perspective*
- Mixed-methods study in NJ: *focus groups, expert interviews, case study, hedonic price analysis*
- Takeaways: *professional silos hinder informational flows. A number of regulatory and market-based strategies may improve outcomes.*



Tropical cyclones since 1950 from NOAA's Historical Hurricane Tracks

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Flood Risk Overview

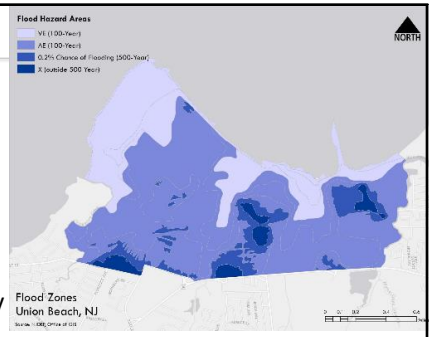
Flood Zones

- **100 year** - 1% Chance of this level of flooding
- **500 year** - 0.2% Chance

Other designations…

- **VE**: subject to high velocity water including waves
- **AE**: from VE zone to extent of 100-year flood zone
- **X**: least vulnerable to flooding

…Dictate what type of **flood insurance** is required.



Fall 2017 Bloustein Studio, Union Beach, A Case Study for Coastal Resilience

The National Flood Insurance Program (NFIP) is a national program that allows participating communities to purchase flood insurance from the federal government

Additional Risk: Sea Level Rise

Assessing New Jersey's Exposure to Sea-Level Rise and Coastal Storms: Report of the New Jersey Climate Adaptation Alliance Science and Technical Advisory Panel

2018 Coastal and Ocean Champions Award from the Urban Coast Institute

How do you interpret this table?

	Year	Central Estimate	Likely Range	1-in-20 Chance	1-in-200 Chance	1-in-1000 Chance
		50% probability SLR meets or exceeds...	*67% probability SLR is between...*	*5% probability SLR meets or exceeds...*	*0.5% probability SLR meets or exceeds...*	*0.1% probability SLR meets or exceeds...*
Within 15-year mortgage lifespan	2030	0.8 ft	0.6 – 1.0 ft	1.1 ft	1.3 ft	1.5 ft
Within 30-year mortgage lifespan	2050	1.4 ft	1.0 – 1.8 ft	2.0 ft	2.4 ft	2.8 ft
	2100 Low emissions	2.3 ft	1.7 – 3.1 ft	3.8 ft	5.9 ft	8.3 ft
Extent of lifespan of most infrastructure	2100 High emissions	3.4 ft	2.4 – 4.5 ft	5.3 ft	7.2 ft	10 ft

Seas are expected to rise 0.8 feet by 2030, 1.4 feet by 2050 and between 2.3-3.4 feet by 2100 depending on how the world decides to mitigate emissions

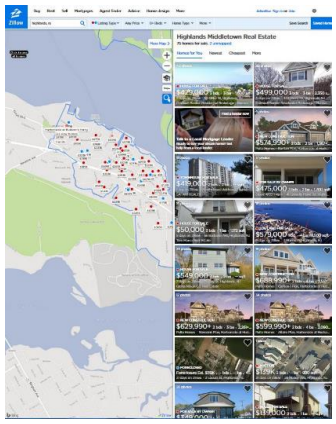
Focus Groups & Interviews

- Buyers & Sellers:
  - Asbury Park
  - Toms River
  - Union Beach
- Professionals:
  - Planners
  - Appraisers
  - Assessors
  - Realtors
- Municipal official interviews

"Some real estate market participants find it difficult to assess the vulnerability of coastal properties to storm damage," Andrews and Kopp, 2015 NJ Sea Grant

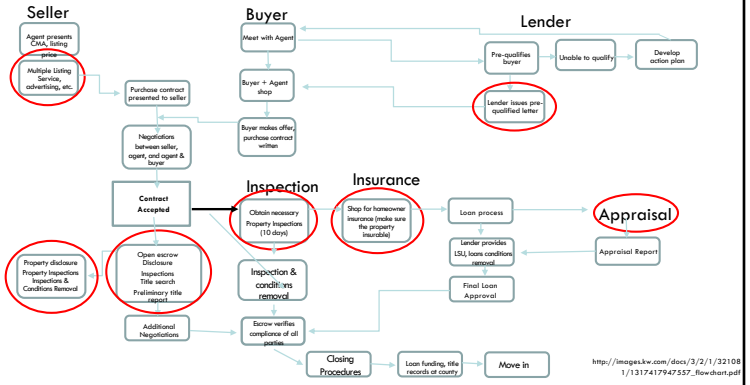
Takeaways from Buyers & Sellers

- Participants: **knowledgeable home buyers** who do not mind the risk, **buyers who misunderstand** flood risk. **Investors** who factor flood risk into pro forma and **seasonal buyers** less concerned with flooding risk, insurance costs or SLR.
- Most helpful guidance re: flood risk data? municipal officials, frequently, planning dept.
- Other POCs: realtor, contractor; sometimes provide conflicting information about flood risk and associated regulations.



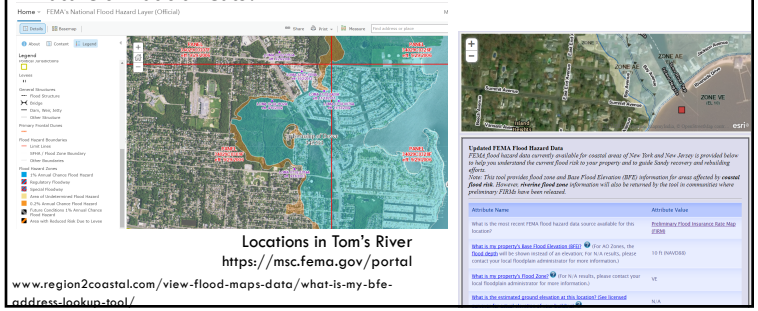
Flood Risk & Real Estate

In a flood prone area - at which points during real estate transactions do flood risk tools play a role?



Focus Groups of Practicing Professionals – Appraisers/Assessors, Realtors, Planners

- Awareness of existing data, tools -- Required to use statutory risk designations such as FEMA flood maps? Perception of them? Familiar with Community Rating System?
- Future scenarios and policy options -- Expectations for future land use planning in coastal communities? Extent of buyouts, elevation of structures, TDR, and similar tools? Future property taxes impacted by future climatic threats?



Locations in Tom's River
https://msc.fema.gov/portal

www.region2coastal.com/view-flood-maps-data/what-is-my-bfe-address-lookup-tool/

What Flood Data Sources do NJ Practicing Professionals Use?

	FEMA	MOD IV	Other Publicly Available Sites*
Realtors			X
Appraisers			X
Planners	X		
Assessors	X	X	X

* Interflood, region2coastal.com, etc

More Data Findings from NJ Practicing Professionals

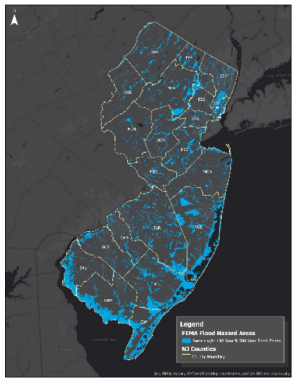
- **Realtors** are highly familiar with the National Flood Insurance Program Community Rating System (CRS); assist towns to enroll
- **Planners** emphasize relationship higher CRS rating and reduced flood insurance premiums in communications with homeowners
- **Appraisers** not familiar with CRS
- Flooding risk in the Seller Disclosure is NOT mandated in NJ, although some consider it a best practice. **Realtors** recommend buyers (or sellers) to pay $25 to MLS to obtain a flood certificate
- No flood data on MLS **(Realtors)**
- Floodplain status is secondary issue for most **Assessors**. Most real estate buyers do not ask for this information.
- Issues with MOD IV Qual Code field because it is designed to hold multiple identifiers.

Future Scenarios: Policy Challenges from NJ Practicing Professionals

- **Appraisers** hear homeowners struggling with requirements to elevate homes, absent evidence of future increased value.
- **Planners** report challenges vis-à-vis building code officials; conflicts in ordinances and different FEMA versions of maps
- Attempts to implement "green" drainage systems (e.g., bioswales, raingardens) have engendered negative responses from some developers and city engineers. **(Planners)**
- Most buyers on barrier islands, choicest water-front homes are cash buyers. Then, now, future. **(Appraisers)**
  - No mortgage → flood insurance not required.
  - Frequent floods → lower price

Linking MOD IV & Flood Hazard Data in GIS

- Time Series Data from 1989 – 2017 ~90 million records
- *Qualification Code* field has an entry for *Flood Plain*
  - Total Records with *Flood Plain* coded = 0
- **Experiment:** Link MOD IV <-> OGIS Parcels <-> Flood Hazard Data
  - Investigate development that is occurring within areas
- **Result:** 334,095 parcels, Land value = $100,755,241,297, Improvement value = $74,758,901,295



Parcels within the 100- and 500-Year FEMA Flood Hazard Areas

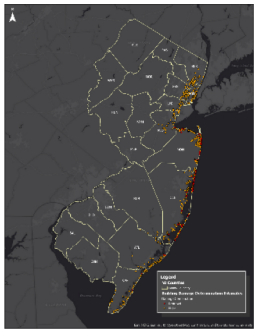
Lucas Marxen. 2018. Applications of the MOD IV Tax Record Database to Coastal Flood Exposure Hazards.

Linking MOD IV & FEMA Building Point Damage Determination Estimates: 2012 Hurricane Sandy

Valuations of Damaged Properties in Hudson, Monmouth and Ocean Counties

County/ Property Class	2011 Tot. Improvement Value	2017 Tot. Improvement Value	Change in Improvement Value
HUDSON	$173,264,900	$349,902,800	$176,637,900
2 - Residential	$75,146,500	$192,303,800	$117,157,300
4A - Commercial	$25,384,100	$69,448,500	$44,064,400
15C - Public Property	$72,734,300	$88,150,500	$15,416,200
MONMOUTH	$580,457,100	$667,849,800	$87,392,700
2 - Residential	$464,892,500	$538,612,100	$73,719,600
4A - Commercial	$65,845,000	$78,139,300	$12,294,300
15C - Public Property	$49,719,600	$51,098,400	$1,378,800
OCEAN	$282,217,200	$327,133,874	$44,916,674
2 - Residential	$258,705,400	$308,238,414	$49,533,014
4A - Commercial	$21,955,700	$18,587,660	-$3,368,040
15C - Public Property	$1,556,100	$307,800	-$1,248,300
Total	$1,035,939,200	$1,344,886,474	$308,947,274

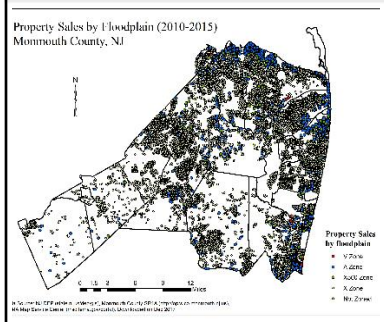
Hurricane Sandy Building Damage Estimate Locations

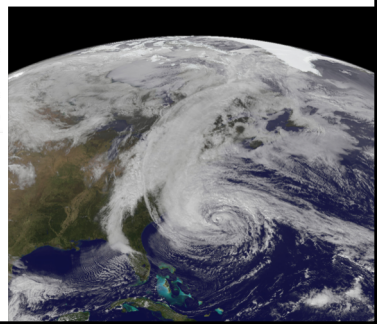


Result: Increasing valuations but local market conditions vary

Lucas Marxen. 2018. Applications of the MOD IV Tax Record Database to Coastal Flood Exposure Hazards.

Property Market Responses to Sandy





Handi Chandra Putra. 2017. *Real Property Market Responses to Coastal Flooding*. PhD dissertation. Rutgers University.

Significant Factors in the Spatial Hedonic Regression Models

Dependent Variable	Residential Property Sales Price ($)	Flood Insurance Payouts ($)
Significant Explanatory Variables (+)	Neighborhood levels of education & income, owner occupancy, gas connection, number of rooms, floor area, air conditioned, fireplace, building condition, height of building, deck, dock, pool, distance from brownfields, distance from coast	Number of rooms, floor area, air conditioned, dormers, dock, patio, ***flood plain location***
Significant Explanatory Variables (-)	Sewer connection, age of building, distance to railway station and school, flood plain location, post-Sandy sale in flood plain	Height of building, age of building, lot size, piers or pilings in foundation, basement, distance to coast, built after NFIP began ("post-FIRM")

Significance is at the p < 0.01 level

Handi Chandra Putra. 2017. *Real Property Market Responses to Coastal Flooding*. PhD dissertation. Rutgers University.

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Empirical Lessons from Sandy

- Homes in flood-prone areas sell for discounted prices relative to similar homes elsewhere.
- Learning to incorporate flood risk into the purchase price following Hurricane Sandy only took place at a significant level among owner occupants.
- More sophisticated absentee owners had already accounted for flood risk in their property valuations.
- Flood risk discount disappeared after 3 years.

T&M Associates

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Main Reasons for Real Estate Choices Today

Main reason for choice of present home	Owner	Renter	Main reason for choice of present neighborhood	Owner	Renter
All reported reasons equal	30.5%	24.4%	All reported reasons equal	22.9%	20.1%
Financial reasons	26.5%	37.9%	Convenient to job	11.3%	20.6%
Room layout/design	11.2%	6.0%	Convenient to friends or relatives	12.1%	13.4%
Size	6.3%	7.0%	Convenient to public transportation	2.1%	2.7%
Exterior appearance	1.2%	0.4%	Convenient to amenities	0.4%	1.5%
Yard/trees/view	3.2%	1.2%	Familiarity of neighborhood	0.1%	0.3%
Quality of construction	0.9%	0.3%	Safety of neighborhood	7.0%	8.5%
Only one available	0.7%	4.5%	Looks/design of neighborhood	2.6%	3.3%
Neighborhood	6.2%	6.4%	Good schools	3.2%	1.4%
Other	3.7%	4.3%	Other public services	3.9%	5.3%
Not reported	9.6%	7.6%	House was most important consideration	21.1%	9.3%
			Other	6.5%	7.7%
			Not reported	6.9%	6.0%

Source: American Housing Survey 2013, Table C-07-AO, national sample, households that moved in previous year, accessed 6-10-15 at http://www.census.gov/programs-surveys/ahs.html

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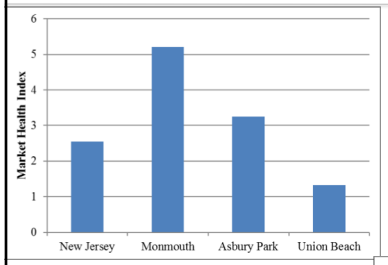
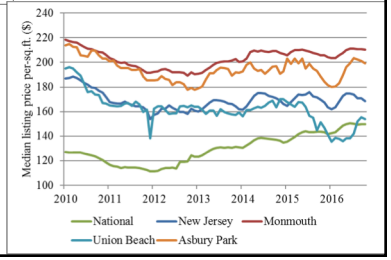
Monmouth County, New Jersey



Data Source: Zillow Research Data



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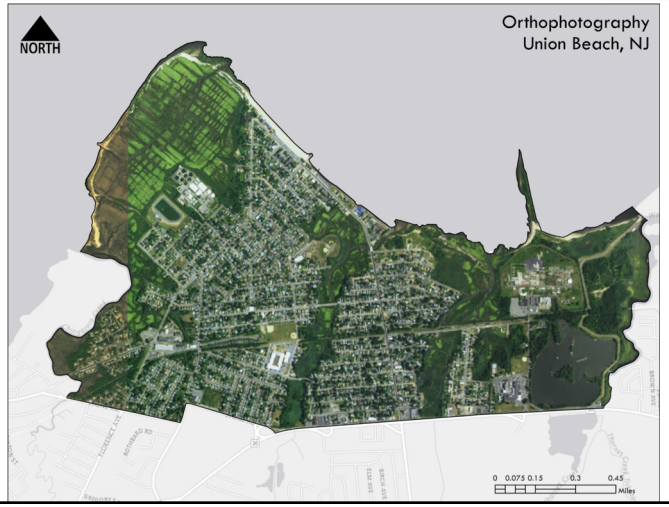
Case Study



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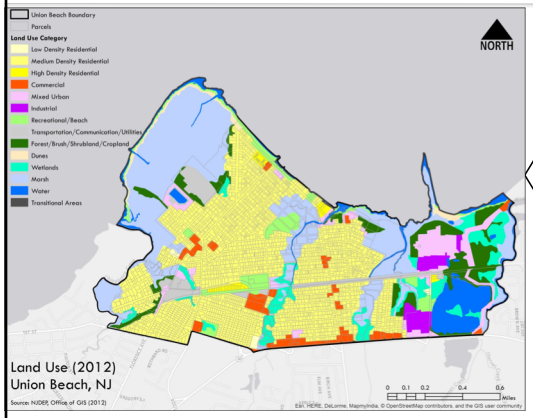
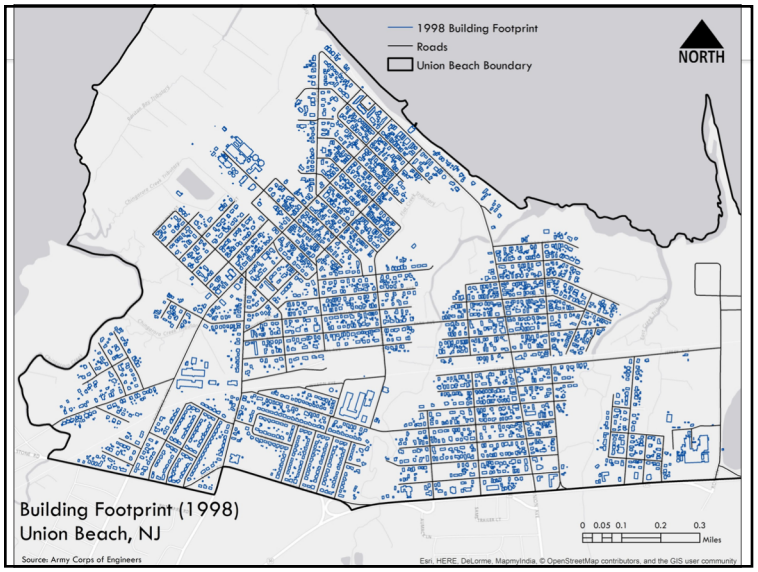
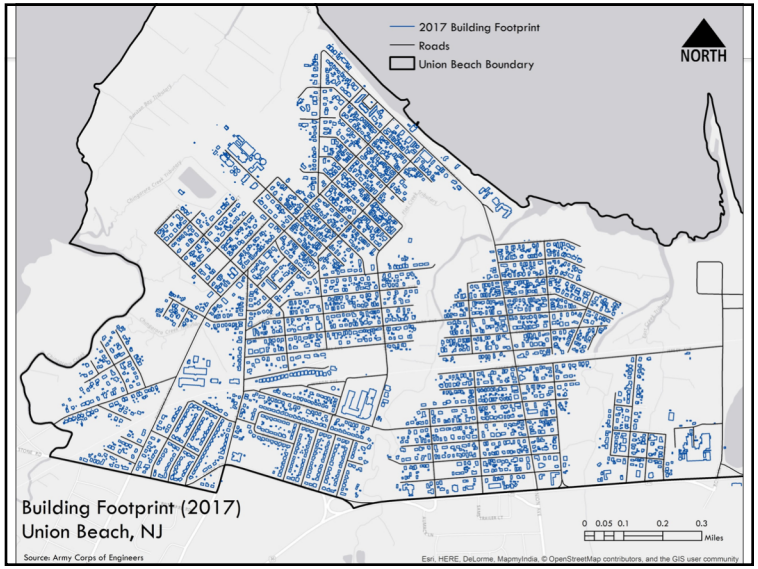
Land Use With Parcels



- Primarily Residential
- Commercial mostly along Rt. 36
- Natural Features: Marshes, Wetlands, Open Space, Natco Lake
- IFF Corporate Campus





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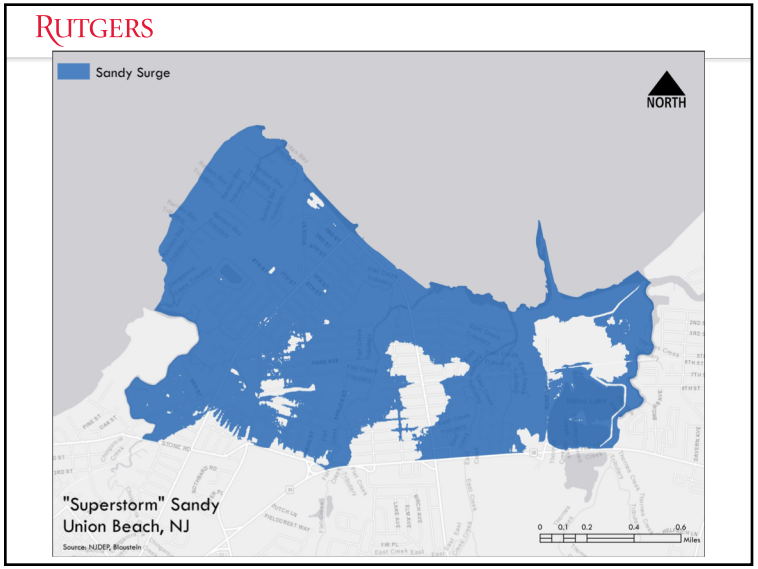
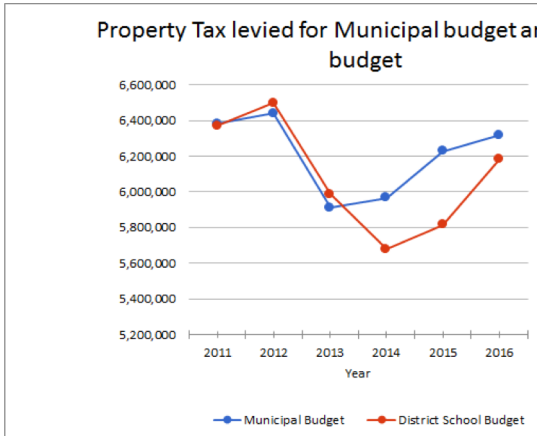
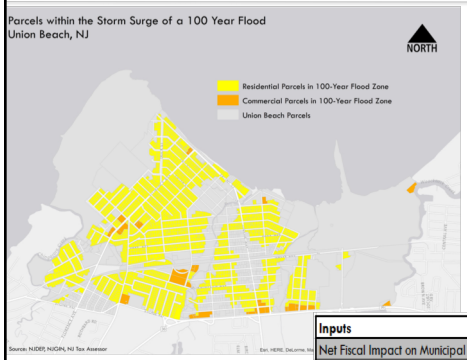


Impact on Property Taxes



The property tax levy decreased by about $600,000 after Sandy.

Fiscal Impact: 100 Year Flood



Inputs	Baseline (2016)	100 Year Flood
Net Fiscal Impact on Municipal Budget (Change)		
Change in Total Revenues	$0	-$574,095
Change in Expenditures	$0	-$1,942
Net Fiscal Impact on Municipal Budget	**$0**	**-$572,153**
Net Fiscal Impact on Municipal Budget (Absolute)		
New Total Revenues	$10,702,282	$10,128,187
New Total Expenditures	$9,507,957	$9,506,016
Net Fiscal Impact on Municipal Budget	**$1,194,324**	**$622,171**

Community Rating System (CRS)

Goal: Earn 454 more points

Goal level: 5 2,500 points

Current level: 6 2,046 points

CLASS	DISCOUNT	POINTS NEEDED
1	45%	4,500 +
2	40%	4,000 - 4,499
3	35%	3,500 - 3,999
4	30%	3,000 - 3,499
5	25%	2,500 - 2,999
6	20%	2,000 - 2,499
7	15%	1,500 - 1,999
8	10%	1,000 - 1,499
9	5%	500 - 999
10	0%	0 - 499

Municipal Level Tools

FEMA Flood Map Service Center: Welcome!

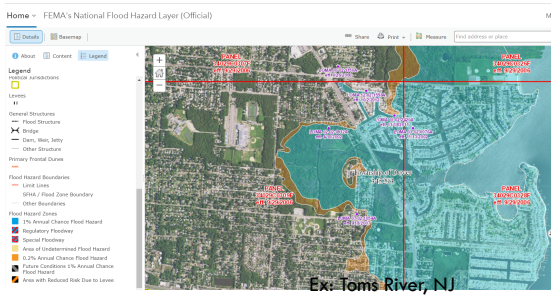
Looking for a Flood Map?

Enter an address, a place, or longitude/latitude coordinates:

Search

Two Options

1. **Current FEMA Flood Map**: tab to do a quick search with an address to see if the property in question is in or near a flood zone

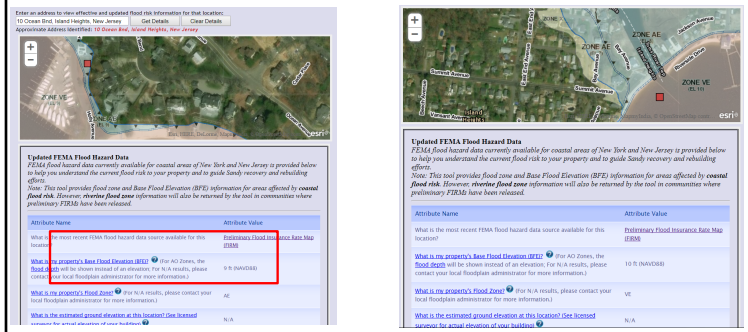


Legend shows 100-year flood zone, 500-year flood zone, and other hazard designations

https://msc.fema.gov/portal

2. Preliminary Flood Map

Second tab for more detailed and accurate map



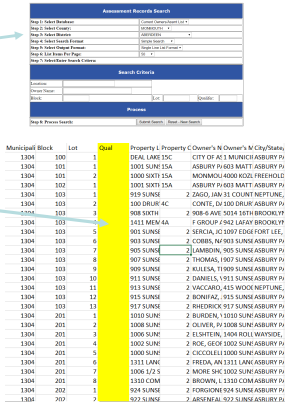
Locations in Island Heights, Toms River, NJ

www.region2coastal.com/view-flood-maps-data/what-is-my-bfe-address-lookup-tool/

Parcel Information

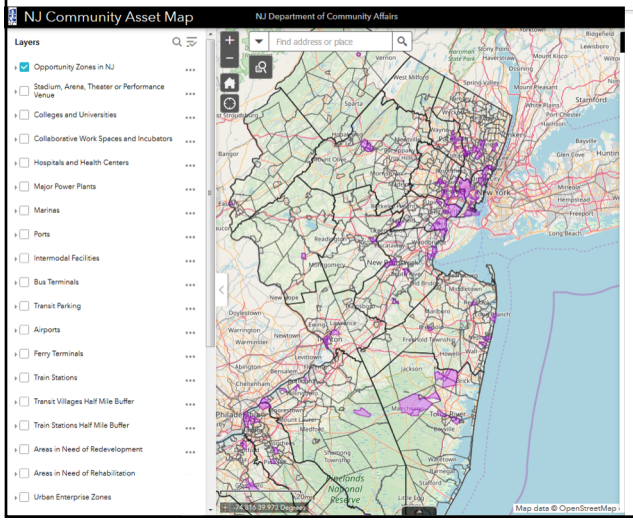
- MOD IV Statewide Parcel Value Info Database
- Qualification Code Field: A field intended for multiple uses (over 10), including a code if a parcel (or part) is in a flood plain ("FP").
- While the code was intended to be used, in practice it is not used by any municipal assessor.

- Potential: amend NJ New Residential Construction Offsite Conditions Disclosure Act
  - Disclosure through maps and data in municipal clerk's office
  - Could add flood zone to the list of disclosures and expand to resales

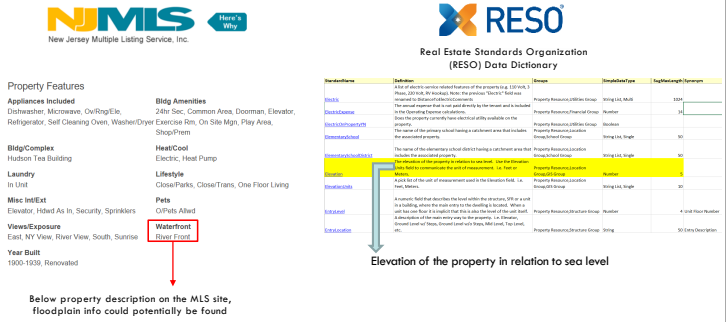


http://njactb.org/

DCA: NJ Community Asset Map



Real Estate and Flood Plain Info



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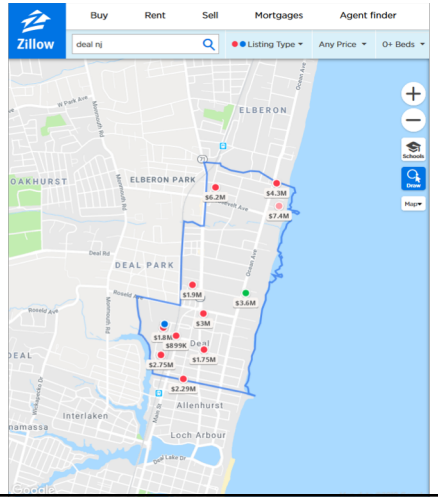
And Zillow…



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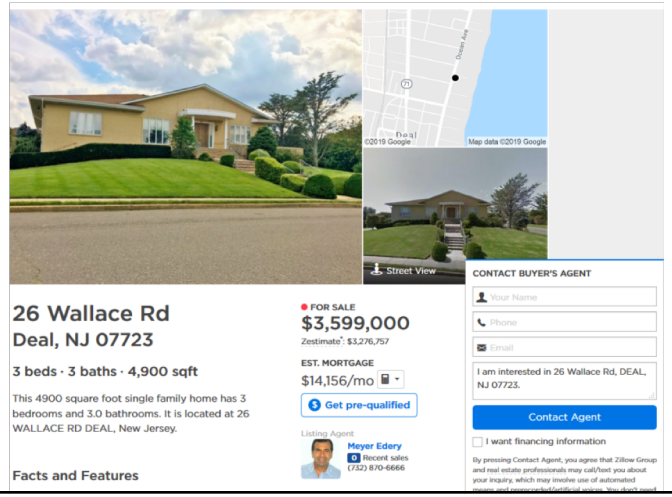

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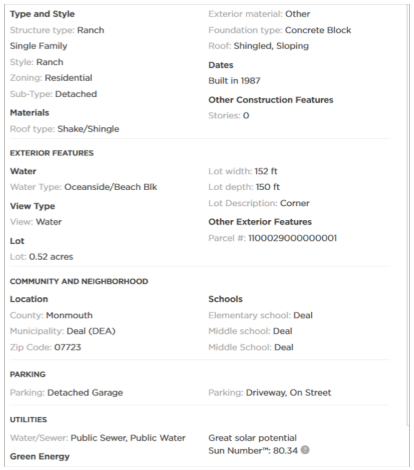

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Real Estate and Flood Risk: Conclusions

- Different parties have distinct informational needs or preferences
- Professional silos hinder informational flows
- Homes in flood-prone areas sell for discounted prices relative to similar homes elsewhere.
- Learning to incorporate flood risk into the purchase price following Hurricane Sandy only took place at a significant level among owner occupants.
- More sophisticated absentee owners had already accounted for flood risk in their property valuations.
- Flood risk discount disappeared after 3 years

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Recommendations/Next Steps

- Work with the State of NJ to standardize flood risk data and make it more accessible (e.g., as a GIS layer of NJ DCA's Community Asset Map)
- Require off-site disclosure as part of the real estate transaction
- Pilot program: work with online real estate data/search services (Zillow/Trulia) to provide link to FEMA information (enhance market signals)

Focus on the real estate transaction may not be early enough from perspective of community resilience, which stands to benefit via local zoning and design responses

- Template new zoning and design standards for vulnerable communities leveraging green building and "shelter-safe" strategies
- Work with stakeholders to enable regulatory change (such as MLUL amendments)

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Municipal Perspective

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