

Squibnocket Roadway, Beach & Parking Area # 3: March 11, 2014



Tonight's Agenda

- The two previous presentations (**December 3, 2013** and **January 7, 2014**) are posted on the Town's website:
 - www.chilmarkma.gov
 - Click: **News & Announcements** link on the Home Page.
 - The complete reports and attachments from tonight's consultants – Greg Berman and Jim O'Connell are also posted under:
News & Announcements.

Tonight's Agenda

- **Two-part presentation and discussion:**
 1. Squibnocket Farm Homeowner's Association will review their plans for an elevated roadway that provides access to their homes.
 2. Review updates and consultant's assessments of the Town's beach and parking proposal.
 3. Questions & discussion.

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Part 2 – Town's Beach & Parking Proposal

- Briefly summarize how we got here and the key elements of the Town's beach and parking concept .
- Provide updates and information gathered since January 7.

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Part 2 – Town’s Beach & Parking Proposal

- Provide updates and information gathered since January 7.
- Review the consultants’ assessments, answers to questions raised thus far and recommendations for the Town’s beach and parking proposal.

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Part 2 – Town’s Beach & Parking Proposal

- Provide updates and information gathered since January 7.
- As promised, review rough budgeting cost estimates for the various elements of the Town’s beach and parking proposal.

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Part 2 – Town’s Beach & Parking Proposal

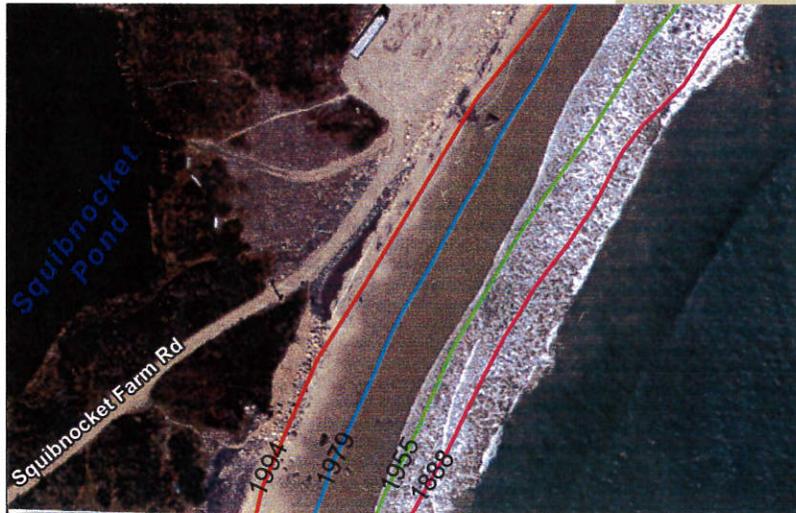
- Outline the next steps leading to the April 28, 2014 Annual Town Meeting.

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Why are we here?

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Beach Shoreline Migration 1888 - Today



How did we get here?

- 2010: Squibnocket Farm Homeowner's Association (SFHA) received an Order of Conditions to protect the most vulnerable road section at the gate near "Money Hill".
- MA. DEP issued Superseding Order of Conditions.
- 2011: Hurricane Irene.
- 2012: Hurricane Sandy.



SFHA hires engineering firm Haley & Aldrich to design a new roadway solution.

How did we get here?

- **2013:** SFHA reviewed plan for the elevated roadway modeled after the Menemsha Drive-on dock with the Selectmen.



SFHA agrees to postpone their roadway permitting and construction plans.

Selectmen form Committee with SFHA and other disciplines – to find a long-term solution for the Town Beach and Parking that complements SFHA roadway plan.

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Town Beach Problems Caused by Severe Erosion

1. How to expand the Town's Beach—in front of the parking area?
2. How to provide stable, long-term beach parking for Town residents?

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Town Beach Problems Caused by Severe Erosion

3. What to do about the severe beach erosion?
4. How to improve the long-term health of Squibnocket Pond? Determine if there is a practical exit strategy for possibly removing the revetment and re-nourishing the barrier beach.

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Town Beach Problems Caused by Severe Erosion

5. How to solve all of the Town's Squibnocket Beach problems without raising taxes to pay for it?

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How did we get here?

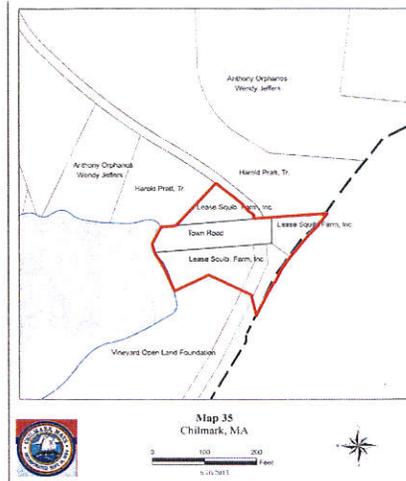
- The Committee met three times during which the current beach and parking concept was created.
- Several other options as outlined on January 7 were considered and ultimately rejected.

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The Current Proposal - Summary

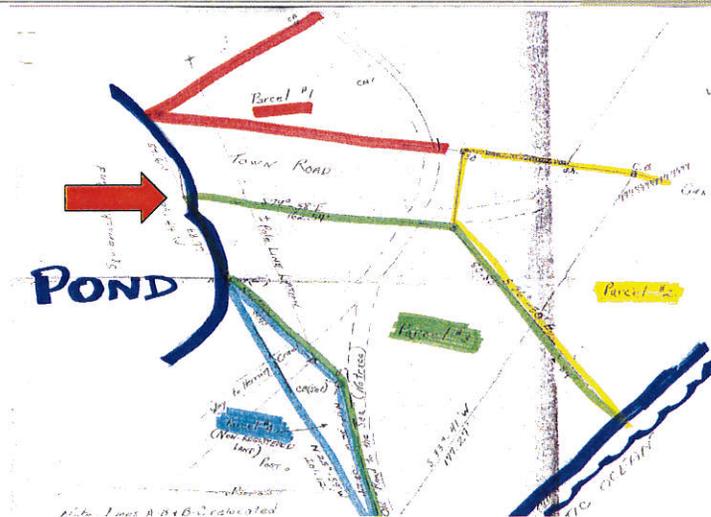
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Current Lease 1950 - 2050 Assessors Map



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1950 Survey of Leased Land (Notice Pond Shoreline)



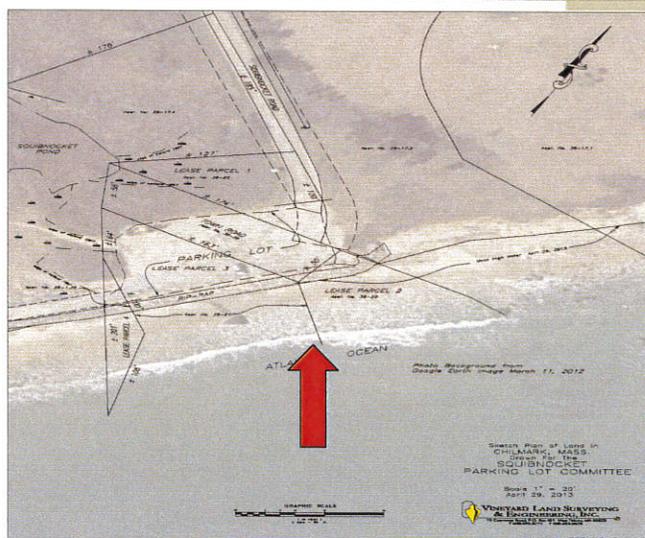
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Leased Land - Today (Notice No Pond Shoreline)



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1950 Survey of Land – Today (Notice Leased Land in Ocean)



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New Beach & Parking Area Lease 2014 - 2113

- Several alternatives as outlined in the January 7th presentation were evaluated to help solve the Town's beach and parking problems.
- The current concept on land owned by the Vineyard Open Land Foundation (VOLF) solves all of the Town's problems – expanded beach, stable parking area location, at a reasonable cost that won't increase taxes.

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New Beach & Parking Area Lease 2014 - 2113

- Re-new the lease of the existing beach and parking area, and lease 10.5-acres of additional land abutting the currently leased land in order to:
 - Expand the Town Beach shoreline (5 X larger).
 - **Current Squibnocket Beach = Approx. 280 feet**
 - **+ Additional Beach = + Approx. 1,125 feet**
 - **New Total Squib. Beach = Approx. 1,405 feet**

Source: Assessor's Map

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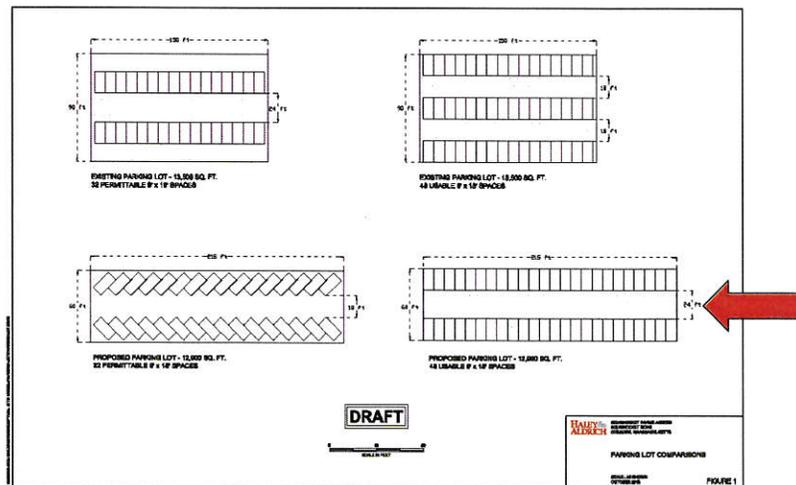
New Beach & Parking Area Lease 2014 - 2013

- **Relocate the Parking Area** – the roadway will not pass through the parking area. The new parking area will be more efficiently designed and accommodate more than the 40-car maximum for the current lot.

- The new parking area will also be on naturally protected ground.

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Parking Lot Design Options



New Beach & Parking Area Lease 2014 - 2113

- There will be native vegetation screening between the new parking area and Squibnocket Farm Rd. to the north.
- Relocate the security gate past the parking area.
- Relocate the commercial skiff (10 HP Max.) and recreational boat launch path for Squibnocket Pond access.

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Current Skiff Launch Path for Squibnocket Pond Access



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New Beach & Parking Area Lease 2014 - 2113

- Add an accessible walking path from the proposed new parking area to the shore.
- Stable and porous parking area surface.

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New Beach & Parking Area Lease 2014 - 2113

- Combine the currently leased land with the additional 10.5-acres of land abutting the current beach.
- Have a **new, 99-year lease** that expires in year **2113**,

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New Beach & Parking Area Lease 2014 - 2113

- Combine the currently leased land with the additional 10.5-acres of land abutting the current beach. Have a new, 99-year, lease that expires in year 2113,
- For a proposed rental payment of **\$400,000** to the Squibnocket Farm Homeowner's Association.

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New Beach & Parking Area Lease 2014 - 2113

- The Community Preservation Committee reviewed the proposal and voted unanimously to recommend that voters consider using **\$400,000 of existing CPA reserve funds** to pay for the new 99-year lease with **\$10,000** added for related and legal expenses.

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New Beach & Parking Area Lease Concept 2014 - 2113



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New Beach & Parking Area Illustrated Concept 2014 - 2113



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View of Total Proposed Town Beach to the Mussel Bed



Revetment and Barrier Beach Re - nourishment

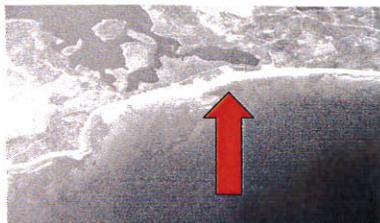
- There may be an opportunity to return the current beach to its original barrier beach state. The ocean would most likely have a natural water exchange with the wetlands and pond during significant storm events.

Revetment and Barrier Beach Re - nourishment

- The Town has hired tonight's consultants to evaluate an exit strategy and plan for removing all, part or none of the revetment and re-nourishing the barrier beach with sand.

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Squibnocket Beach - Early 1900's No Revetment



Independent Consultants Scope of Work

- Evaluate the Town's entire beach and parking proposal and its effects on the barrier beach and adjacent Squibnocket Pond.
- Review and evaluate the existing conditions land survey, published shoreline erosion data, FEMA flood data and their integration into the project.

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Independent Consultants Scope of Work

- Analyze the existing and proposed parking area locations and project the impacts of future erosion and possible sea level rise.
- Address questions and concerns raised at the December 3 and January 7 public meetings regarding the project.

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Independent Consultants Scope of Work

- Offer alternatives analysis and considerations for the current proposal.

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Independent Consultants

1. Greg Berman, PG, GISP, M.S. Geological Oceanography; Coastal Processes Specialist; Woods Hole Oceanographic Institute.
2. Jim O'Connell, M. A.
Geography/Geomorphology; Coastal Geologist & Land Use Specialist; Brant Rock, MA.

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Independent Consultants

**3. Reid Silva; PE, PLS and owner of Vineyard
Land Surveying & Engineering.**

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Greg Berman - WHOI

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Questions 1 – 3: (Erosion/Longevity, Flooding, Alternative Parking Location)

- Erosion/Longevity
Massachusetts Shoreline Change Project
-3.7'/yr still not "worst-case"

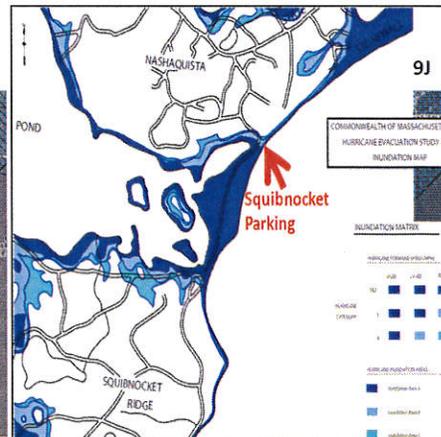
LABEL	Longterm Rate (feet/year) "Best Guess"	Longterm Rate (feet/year) Range	Shortterm Rate (feet/year) "Best Guess"	Shortterm Rate (feet/year) Range
MV-1652	-1.8	-2.5 to -1.2	-1.3	-2.9 to 0.3
MV-1653	-1.8	-2.4 to -1.3	-0.7	-2.7 to 1.3
MV-1654	-1.5	-2.0 to -0.9	-0.5	-2.8 to 1.9
MV-1655	-1.5	-2.1 to -0.9	-1.0	-3.3 to 1.3
MV-1656	-1.4	-1.9 to -0.9	-1.3	-3.2 to 0.6
MV-1657	-1.4	-1.8 to -0.9	-1.9	-2.9 to -1.0
MV-1658	-1.4	-1.8 to -1.0	-1.6	-2.5 to -0.8
MV-1659	-1.4	-1.8 to -0.9	-1.8	-3.1 to -0.5
MV-1660	-0.9	-1.3 to -0.5	-1.7	-3.7 to 0.2
MV-1661	-1.0	-1.3 to -0.6	-2.0	-3.6 to -0.5
MV-1662	-0.9	-1.1 to -0.7	-0.8	-2.3 to 0.8
MV-1663	-0.9	-1.0 to -0.7	-0.3	-1.1 to 0.5
MV-1664	-0.8	-1.0 to -0.5	0.0	-0.4 to 0.4
MV-1665	-0.2	-0.6 to 0.2	1.4	-2.3 to 5.0



Questions 1 – 3: (Erosion/Longevity, Flooding, Alternative Parking Location)

- Flooding
USACE Hurricane Evacuation Study Inundation Map
NFIP Flood Insurance Rate Maps

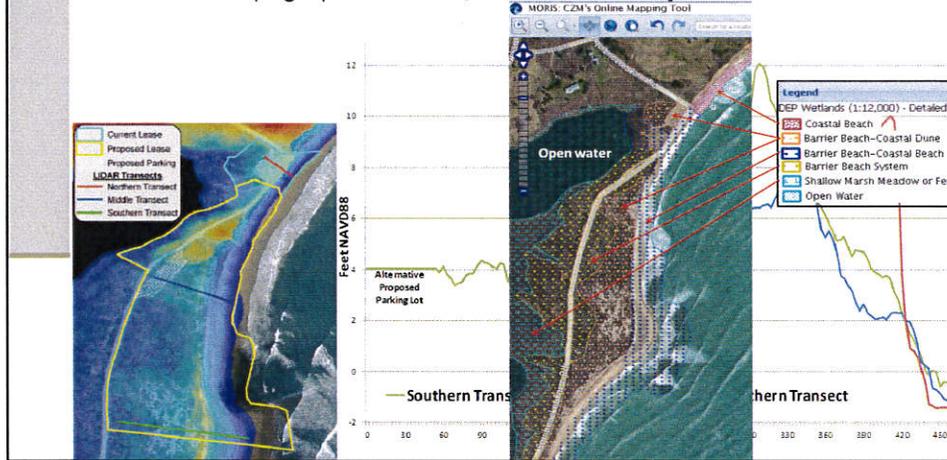
Effective 7/6/2010, Map # 25007C0159H



Questions 1 – 3: (Erosion/Longevity, Flooding, Alternative Parking Location)

Alternative Parking Location

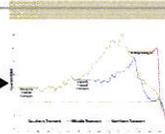
Coastal Resource Areas
Topographic Profiles, 2012 Post Sandy USACE LiDAR



Questions 1 – 3: (Erosion/Longevity, Flooding, Alternative Parking Location)

Alternative Parking Location

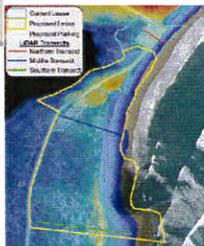
Higher dune system
Wider Beach



Slower Erosion Rate (near zero)

Station	Distance	Current Elevation	Proposed Elevation	Erosion Rate
1	0	10.5	10.5	0.0
2	10	10.5	10.5	0.0
3	20	10.5	10.5	0.0
4	30	10.5	10.5	0.0
5	40	10.5	10.5	0.0
6	50	10.5	10.5	0.0
7	60	10.5	10.5	0.0
8	70	10.5	10.5	0.0
9	80	10.5	10.5	0.0
10	90	10.5	10.5	0.0

Resource Classification



Question 4: (vegetation)

- Keep it Healthy
Suited to Environment
Angle or Zigzag New Path



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Question 5: (impact of the current revetment)

- Maintained position of the upland
General Negatives
Little Scour



Questions 6 - 9: (What to do with revetment, and effects)

Final configuration has significant impact



Full Removal?
Elevation?
Covered?
Plantings?
Armor Road?
Need Engineering...

Questions 10 - 11: (Nourishment)

Location/Width/Elevation to engineered dimensions

NOW Adjacent coastal banks are experiencing erosion
Toe gets wet during many high tides

POST Inlet would affect sediment transport
Adjacent properties may see minor storm protection

FUTURE Nourishment does not stop erosion or sand movement
Must be periodically maintained
Access to the beach for machinery



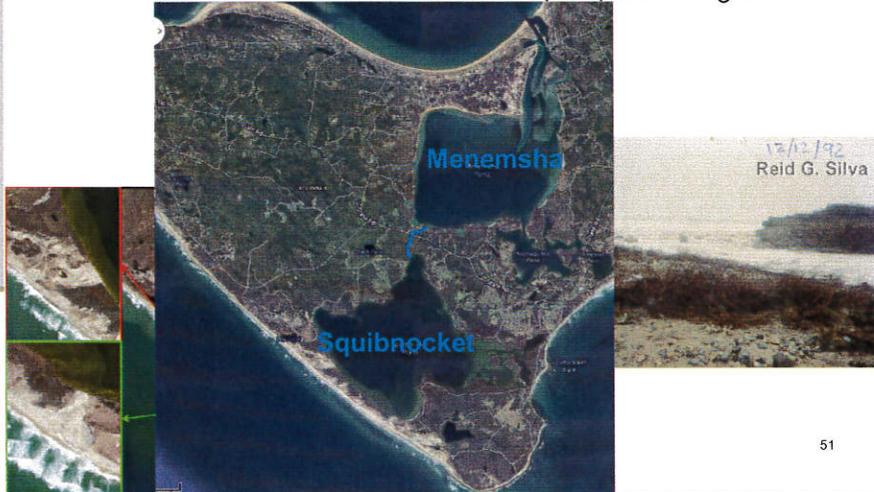
Example:

Erosion Rate	X	Length of Landform	X	Height of Landform	=	Volume	50
1.4'/yr	X	300' long	X	6' high	=	2,520 ft ³ /yr (=93 cy/yr)	

Question 12: (water level of the pond)

- Some connection already

Connected to Menemsha Pond by way of Herring Creek



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Questions 13 - 14: (Squibnocket Road)

- The only constant is change

Red/Yellow >60' from road, @ 1.4'/yr \approx 40 years
Or leave/re-align some of existing revetment

Continue planning for managed retreat !!!



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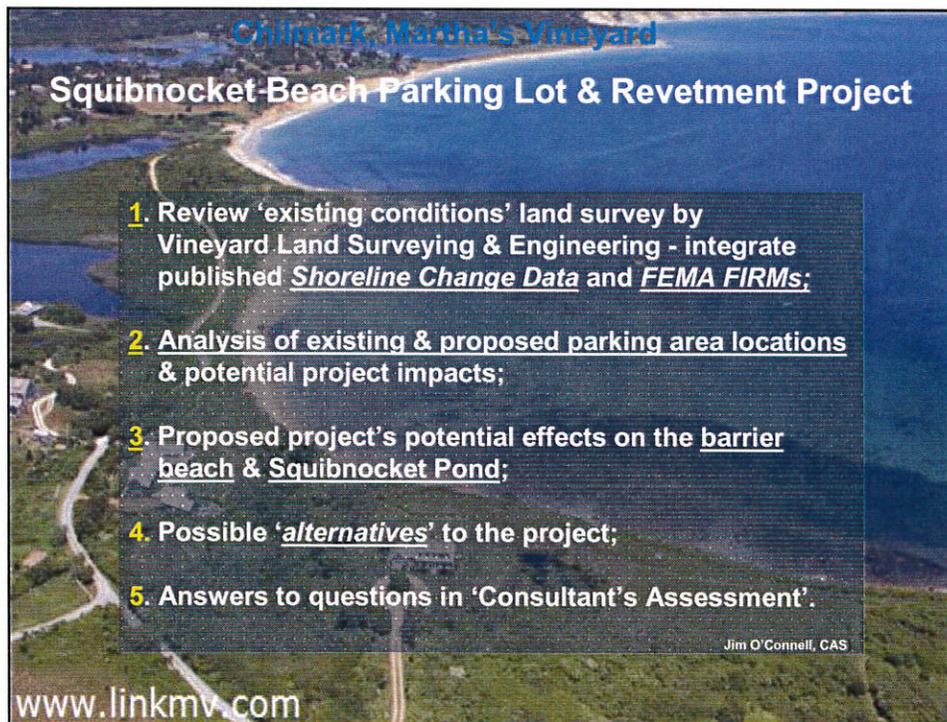
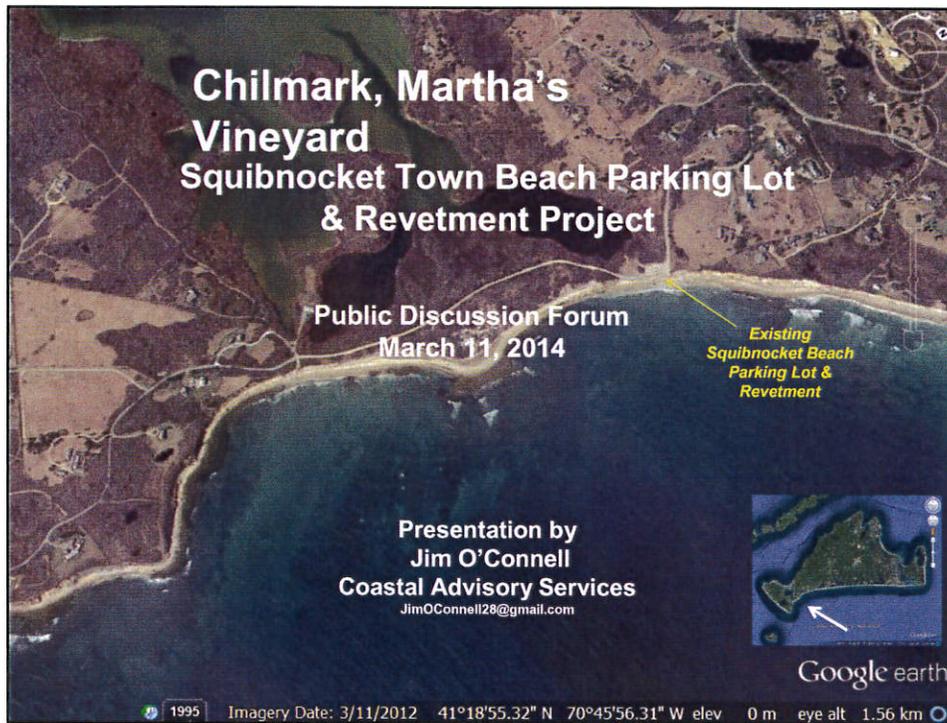
Summary

- I have attempted to **briefly** address the questions.
 1. Complete answers to some of the questions will require a more robust analysis.
 2. Several regulatory and permitting agencies will need to weigh-in.
 3. If negative consequences similar proposals might be harder to permit.
 4. **If successfully implemented and maintained, chance to serve as example of the effectiveness of un-armoring for other sites in Massachusetts.**

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Jim O'Connell - Coastal Geologist

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**New Beach & Parking Area Plan
2014 – 2113**

**New Beach & Parking Area Lease
Concept 2014 – 2113**



PURPOSE

1. Provide stable, 'long-term' Town 'beach parking' with a
2. 'recreational beach' and
3. 'small boat access' to Squibnocket Pond

Fig 4 Squibnocket Beach Parking Lot & Revetment

***existing & future Issues**

1. No High Tide Beach

NOTE high tide is forced against the revetment due to on-going erosion

2. Flanking Erosion (east & west sides) (future revetment extensions?)

NOTE significant erosion off-set between the Parking Lot revetment and adjacent coastal bank to the east

3. Frequent storm damage associated costs \$\$

With on-going erosion and relative sea level rise =

Lowering of fronting beach =

Increased wave energy =

Increased future frequency of storm damage & overwash =

Increased repair costs \$\$

Fig 5 Squibnocket Beach Parking Lot

coastal bank

Squibnocket Beach Parking Lot

revetment

Jan 31, 2014
(Jim O'Connell, CAS)



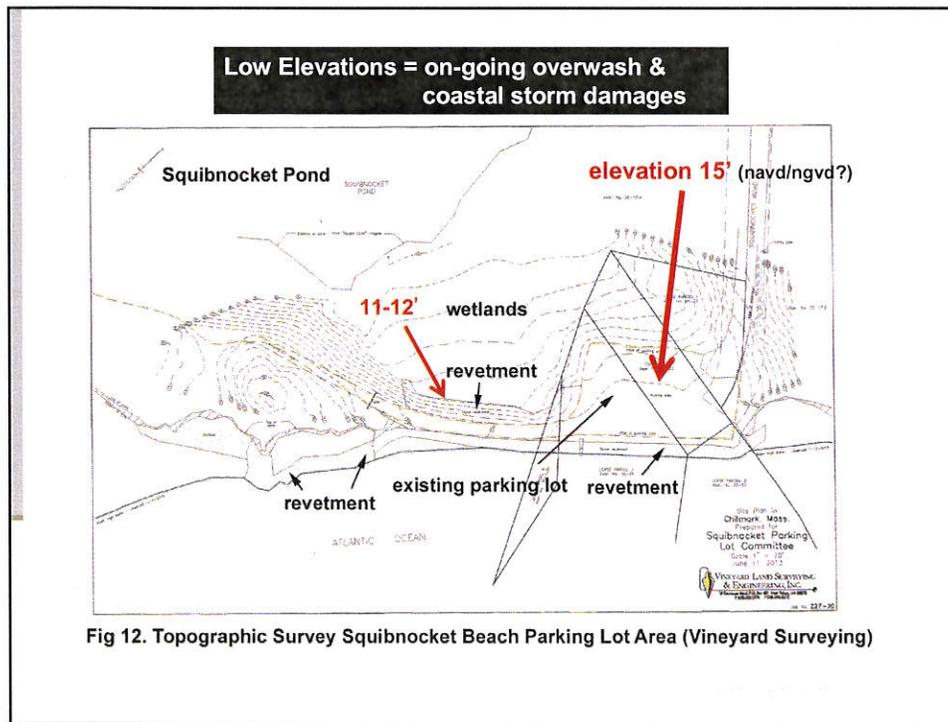
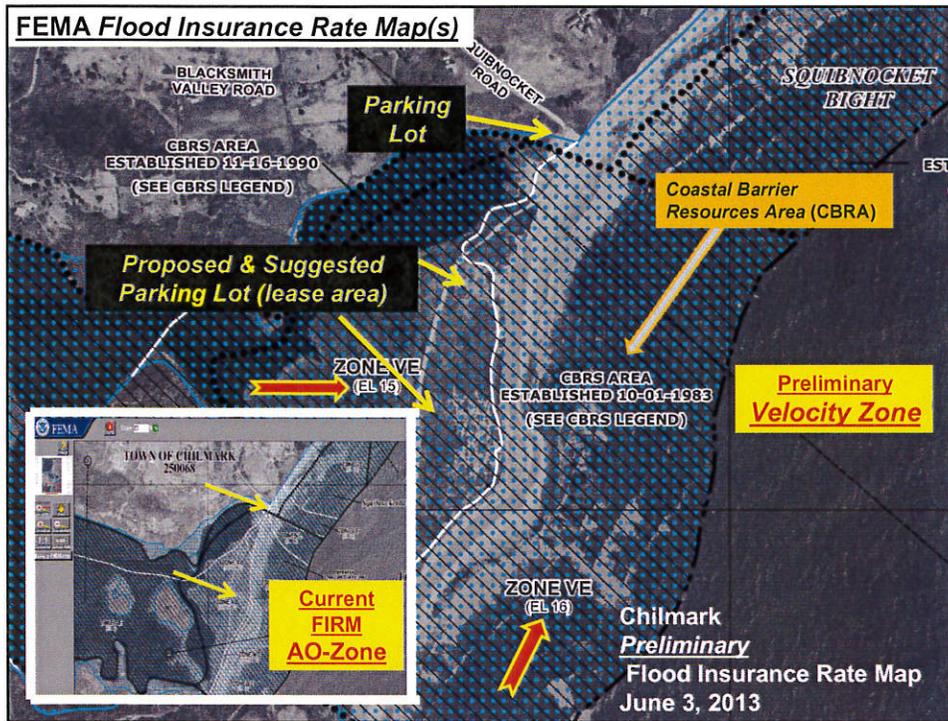
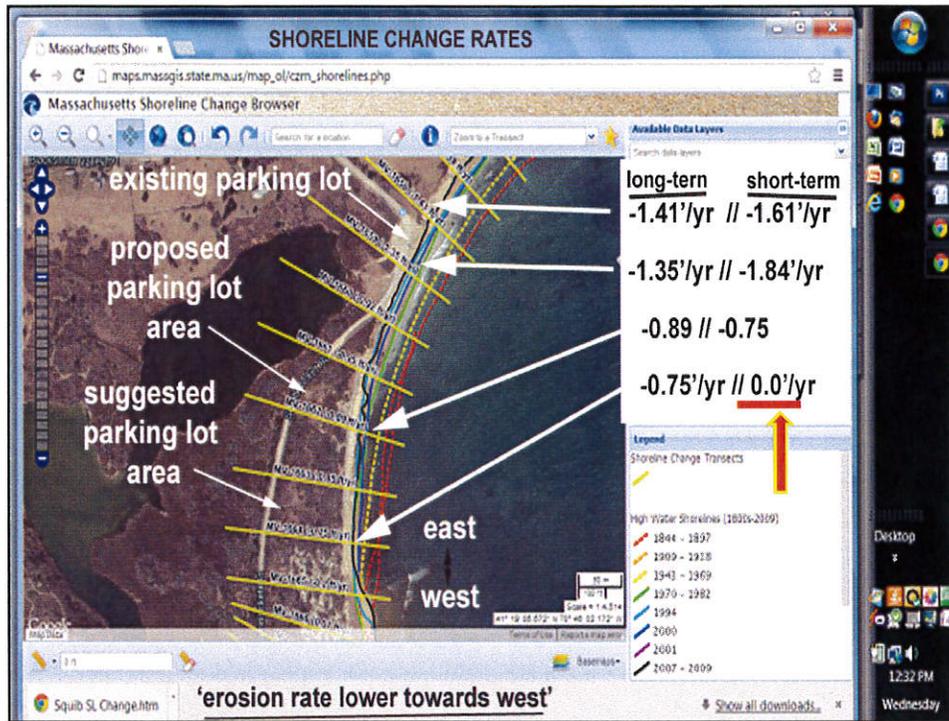


Fig 12. Topographic Survey Squibnocket Beach Parking Lot Area (Vineyard Surveying)



New Beach & Parking Area Plan 2014 – 2113

with 'suggested' new Parking Lot Location for Discussion



***recommendation**

**Move
proposed
New Parking
Area to West**

recommendation

**'Move proposed
Parking Lot
location slightly
farther WEST**

**WHY? Erosion
rates less as you
move west**

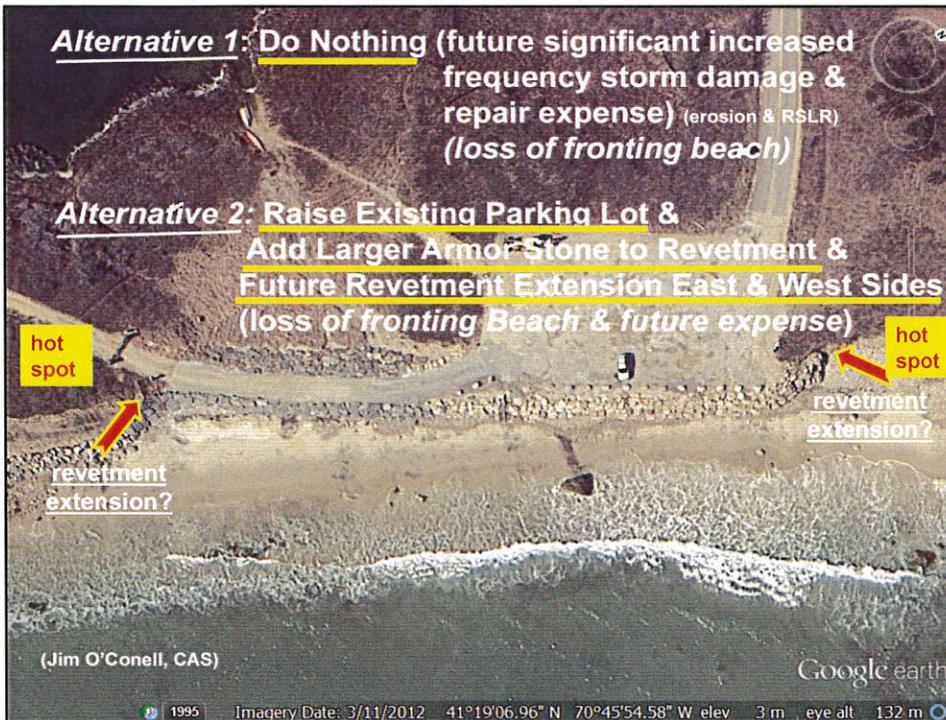
AND

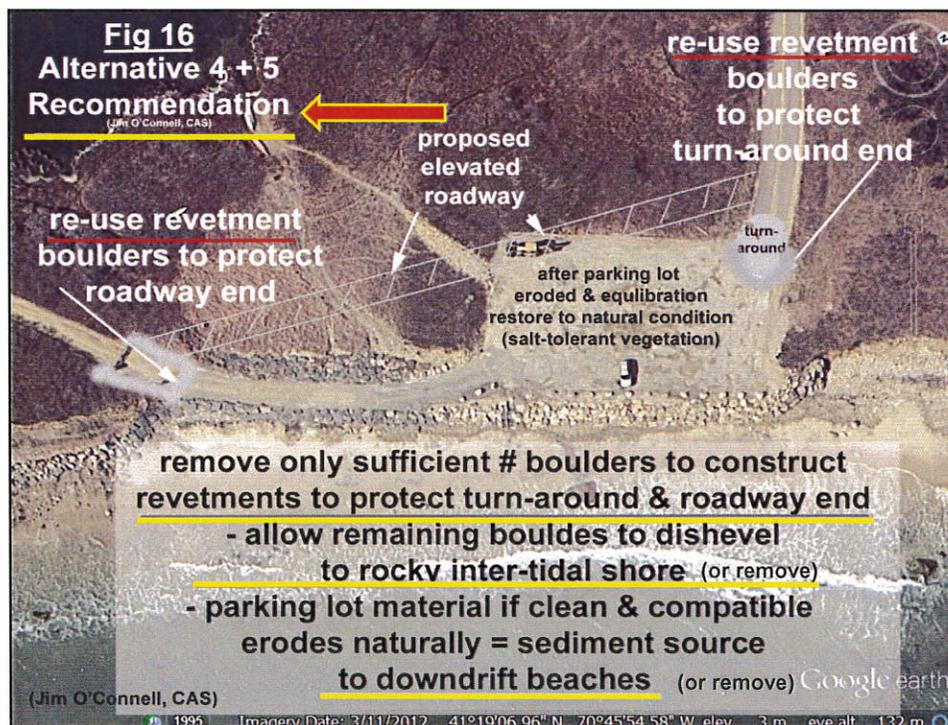
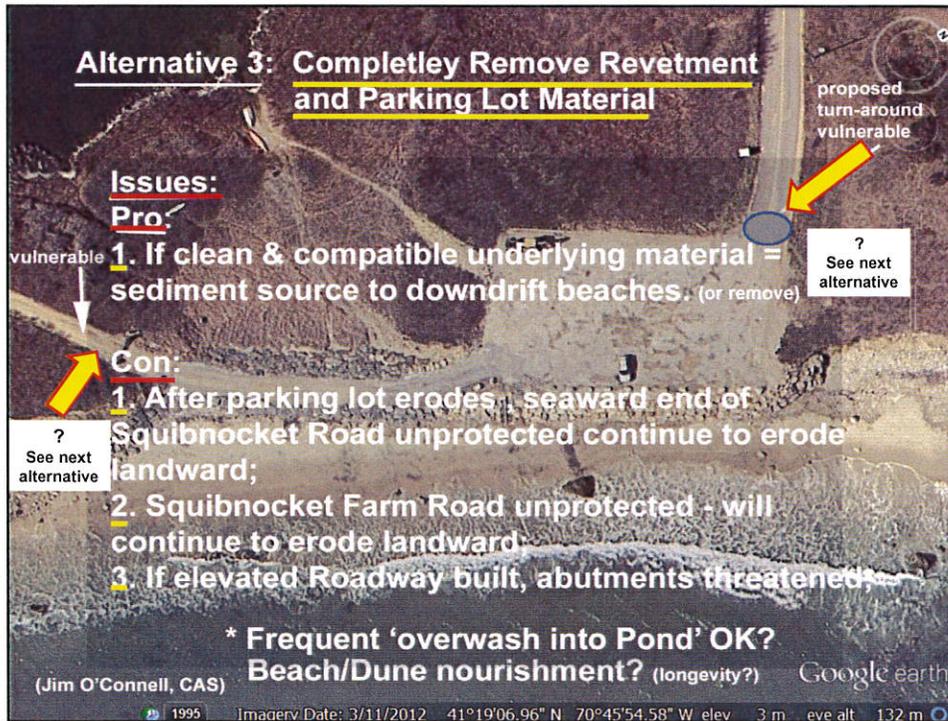
**fronted by
'cobble lag
deposit'
break-up wave
energy & reduce
overwash**

**Long-term erosion rate
0.0'/yr**

(mid-1800s – 2009)

Fig 11. Existing, Proposed and Suggested Squibnocket Beach Parking Lot Locations







Budgeting Cost Estimates Town's Construction Elements

■ Surveying & permitting:	\$ 15,000
■ Construct new beach parking area, walking path & skiff launch:	\$ 98,800
■ Remove, restore current parking area surface:	\$ 90,000
■ Revetment removal, beach restoration (if done):	<u>\$ 63,600</u>

Total: **\$267,400**

Note: These estimates are inflated + 20 %.

Budgeting Cost Estimates Town's Construction Elements

■ Surveying & permitting: \$ 15,000

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Construct Beach Parking Area, Walking Path, Skiff Launch

■ Total: \$ 98,800

- Archaeological survey: \$ 7,000
- Clear, construct parking area, stabilize surface: \$ 55,200
- Parking area amenities (stops): \$ 5,000
- Create walking path to beach: \$ 2,000
- Construct seasonal accessible walkway: \$ 5,000
- Create skiff launch path: \$ 9,600
- Plant parking area screening: \$ 15,000

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Remove, Restore Current Parking Area Surface

■ <u>Total:</u>	<u>\$ 90,000</u>
■ Remove, dispose existing soil cement surface:	\$ 38,400
■ Create new turnaround:	\$ 19,200
■ Grade lot surface:	\$ 4,200
■ Truck in, spread topsoil:	\$ 10,200
■ Landscape parking area surface:	\$ 18,000

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Revetment Removal, Beach Restoration (if done)

■ <u>Total:</u>	<u>\$ 63,600</u>
■ Remove all of the 210' revetment:	\$ 38,400
■ Truck in, spread 300 yards white beach sand:	\$ 25,200*

* If done, there may be an opportunity to use the Menemsha Channel dredging sand—provided it matches the current beach sand grain size.

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U. S. Dep't. of Interior Grant Update

- \$100 Million Hurricane Sandy Coastal Resiliency Competitive Grants Program.
 - Grant application submitted January 17, 2014 seeking **\$364,600**.
 - Notify selected grant recipients **early May 2014**.

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MA. Green Infrastructure for Coastal Resilience Grant

- Maximum \$1.3 million available for this pilot grant program—announced February 27, 2014. Maximum \$500,000 per application.
- Grant application submitted seeking **\$280,000**.
- Notify selected grant recipients by **April 28, 2014**.

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Other Questions

- Does the Town have an option to purchase the currently leased land for \$1.00 when the 100-year lease expires in 36 years? **No.**

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Other Questions

- Does the proposed 10.5 - acres of additional leased land have a Conservation Restriction (CR) on it—that would prohibit relocating the parking area and installing the paths to the shore and for Squibnocket Pond access? **No.**

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Next Steps to the April 28, 2014 Annual Town Meeting

- Before proceeding with additional planning and negotiations the Selectmen are proposing a non-binding referendum on the Warrant to assess the Town's interest in pursuing this project.

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Next Steps to the April 28, 2014 Annual Town Meeting

DRAFT ARTICLE XX: To see if the Town will vote in favor of the Board of Selectmen proceeding with developing a plan involving Squibnocket Beach, including improvements to and relocation of the access road, the new construction of a raised roadway; the addition of approximately 1000 feet of beach to be added to the existing beach; the relocation and expansion of the existing parking area, and the construction of improvements to allow access for boating in Squibnocket Pond. The proposed project will involve the negotiating of a new or amended lease for the existing beach which will expand the length of its term by approximately 50 years, and will provide for a 99 year lease of approximately 10.5 acres of land to be used for the expanded beach, parking area, and boat water access. This article is to assess the Town's interest in pursuing this project. Should the Town vote in favor of pursuing this project, the Selectmen will hold a future Special Town Meeting in October 2014 to vote on the terms of any lease, to appropriate funding, including from Community Preservation Act funds, and to consider any necessary zoning by-law or other by-law changes needed to allow the project to proceed.

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Next Steps to the April 28, 2014 Annual Town Meeting

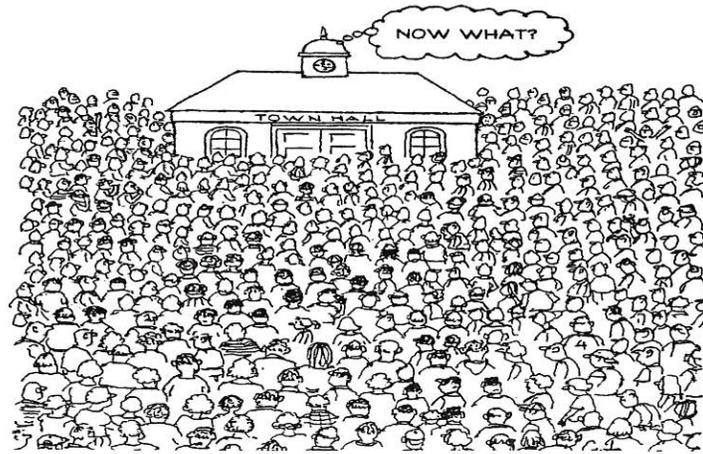
- Plan on having Public Forum # 4 in April to review the entire proposal.

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Open Discussion

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Thank you!



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