

APPENDIX A
1999 Feasibility Study

Great Meadow Farm

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J.T. Lockman AICP
Director of Planning and Development
Town of Wells, Maine
208 Sanford Road
P.O. Box 398
Wells, ME 04090-0398

Dear J.T.

1/12/1999

The following information is based upon research conducted by Great Meadow Farm between November 10th, 1998 and January 12th, 1999. This information packet represents a partial and preliminary collection of research and idea alternatives for the Upland Marsh Walk in Wells, Maine. It is our intention to complete this study with a compilation of information obtained from this date forward.

Respectfully Submitted,

Daniel W. McHugh, Jr.

Daniel W. McHugh, Jr.



Section 1. The Investigation

Great Meadow Farm has made Six trips up to Wells and the areas surrounding. The trips were made for specific reasons outlined in our contract. First and most importantly to acquire information about the land parcels that fall within the area of the proposed Upland Marsh Walk. An inventory of land owners was achieved by using the town's tax records and GIS mapping programs. This information is being compiled on to a map that shows which plots have given permission to enter the premises and those that have not.

We have also had extensive discussions of the project with the staff at Laudholm Farm who have encouraged the potential improvement to the natural areas in Wells.

In our hopes to achieve this task we have spent time assessing the success of other coastal access projects in the surrounding areas, in particular the highly successful Marginal Way in Ogunquit, Maine. By comparing both the lay out of the walk and the overall commercial development along the walks we have found both differences and similarities which we will discuss below. In our discussions with people who use the Marginal Way walkway we have found there to be three vital aspects contributing to it's success. First, it is a beautiful spot, with it's high bluffs and rocky out croppings it allows for crashing waves and magnificent views of the ocean and seashore. Secondly, the areas is rich in commercial businesses, with many specialty stores and restaurants it is an ideal destination for both day trippers and vacationers alike. Lastly, it allows for a multitude of planning options which allows walkers to decide for themselves the length of their walk as well as their intentions. If they choose, they can use the walkway simply as a mode of going from one place to another or as a nature experience or a combination of the two. These three characteristics are dominated by an overall sense of accessibility for the user which is the most important aspect of its success. The user does not feel limited to just one experience, nor does he/she feel like their in the middle of nowhere.

In assessing the situation of Wells in the area between Harbor Road and Mile Road, we do not have any parallel to either the Cliff Walk in York or Marginal Way in Ogunquit. What we do have is a Bird Watching Satellite System and Recreation Area. Discussed in Section 3.



Section 2. The Complications

There are several inherent problems with the proposed walk that conflict with its potential. Our attempts to contact land owners have been difficult, with only a fractional response rate.

The most obvious problem is the denial of some major land owners to even allow us to set foot on their land. It is easy and logical to assume from this hostility towards even the most preliminary aspect of the project, that actual construction on these plots would be impossible. The refusal of Darling and Morse has already altered the scope and extent of the walk. Without their permission, we have only to look at the alternatives.

Rachel Carson Wildlife Refuge is another sticking point. Their goal is to conserve habitat for birds and other wildlife and they would consider any alteration to their land as undermining their attempts to provide, for wildlife, a secure and unaffected area for habitat.

There are also regulatory restrictions due to the extensive and appropriate limitations put upon those who wish to construct anything within the tidal zone. These restrictions alter the walk in a way that limits the work to an area riddled with land, property and physical obstructions.

Another aspect to take into account here is the issue of access. In order for a project like this one to be a success people need to feel as though they can come and go as they please. A one mile walk between mile and harbor roads with limited access proposes several difficulties that require a realistic objective view. The average user wants to feel unburdened by the length of their walk, this is achieved by providing them with multiple access points in which they can both get on or off the trail. If they have parked their car at one end the user does not want to plan or rely on some other way to get back to their starting point and if they want to walk the full distance of the trail they may not want to walk back along the same trail again and thus limit the extent of their walk.

The walk itself, although beautiful, would not vary in geography the way that others do. The marsh itself is of monotypic delineation and does not offer the same types of grand vistas that other walks offer. This aspect would certainly affect the type of user Wells would attract to it's walk.

The walk also could not really be structured in such a way as to invite its users into commercial areas. Its distance and position relative to the downtown strip inhibits the likelihood of a commercial tie-in, with the exception of the motel/condo areas which in and of themselves do not attract a great deal of daily commerce nor are they a draw for users, except the ones already staying over in these places.

Section 3. The Alternatives

The Town of Wells is located on what is known as the North American Flyway which is a widely used migratory pathway for birds traveling up and down the coast of the western hemisphere. Coastal areas along this pathway have been used by birds as resting and nesting areas throughout time. The importance of these habitat areas is essential to the success of the world's migrating bird populations. In the past few years we have seen dramatic declines in the number of migrating birds, mostly due to the fact that there are now so few areas left for the birds to live. As indicator species many different birds often reflect the overall health of the ecosystem in which they inhabit, so as we begin to see the decline of these populations we too will see the systemic failure of many other aspects of the earth's ecology.

Because of the difficulties in our efforts to realize the marsh walk as it is proposed we have sought some alternative ideas that may suit Wells very well, if not better than the original plan.

Alternative A

A looped walkway situated in a more easily accessed area (near the WSD station) could work. Centering around the family and education the walk would include signage designed to teach people about the marsh ecosystem and the environmental impacts that humans have upon it. The walkway would stretch out onto a portion of the marsh and also extend into the upland marsh ecotone with several interest points along the way where people would stop or perhaps picnic and enjoy the sights and sounds of nature. Although this alternative would greatly down scale the walk it would provide a place for people to go to in Wells where they could learn and discover things about the place they live. The area would be ecologically enhanced with the addition of some native shrubs and trees as well as the incorporation of niche habitats for the indigenous flora and fauna of the marsh.

Alternative B

Another, and more extensive project would include several coastal areas in Wells that have, so far, existed outside the scope of the upland marsh walk. In this strategy it is likely that we will recommend a portion of the walk as the center piece and meeting place for a larger incorporated bird watching stations, that included physically unconnected, but accessible areas around the marsh with parking and the addition of informational kiosks at key points within the stations containing information and maps of the entire system. There are coastal points around Wells that could be joined in a conservation effort designed to not only create, conserve and enhance wildlife but also act as a draw to one of America's most popular past times: bird watching. This could be achieved by adding some highly utilized plant species and making some minor geographic alterations to attract wildlife to these areas



Alternative C

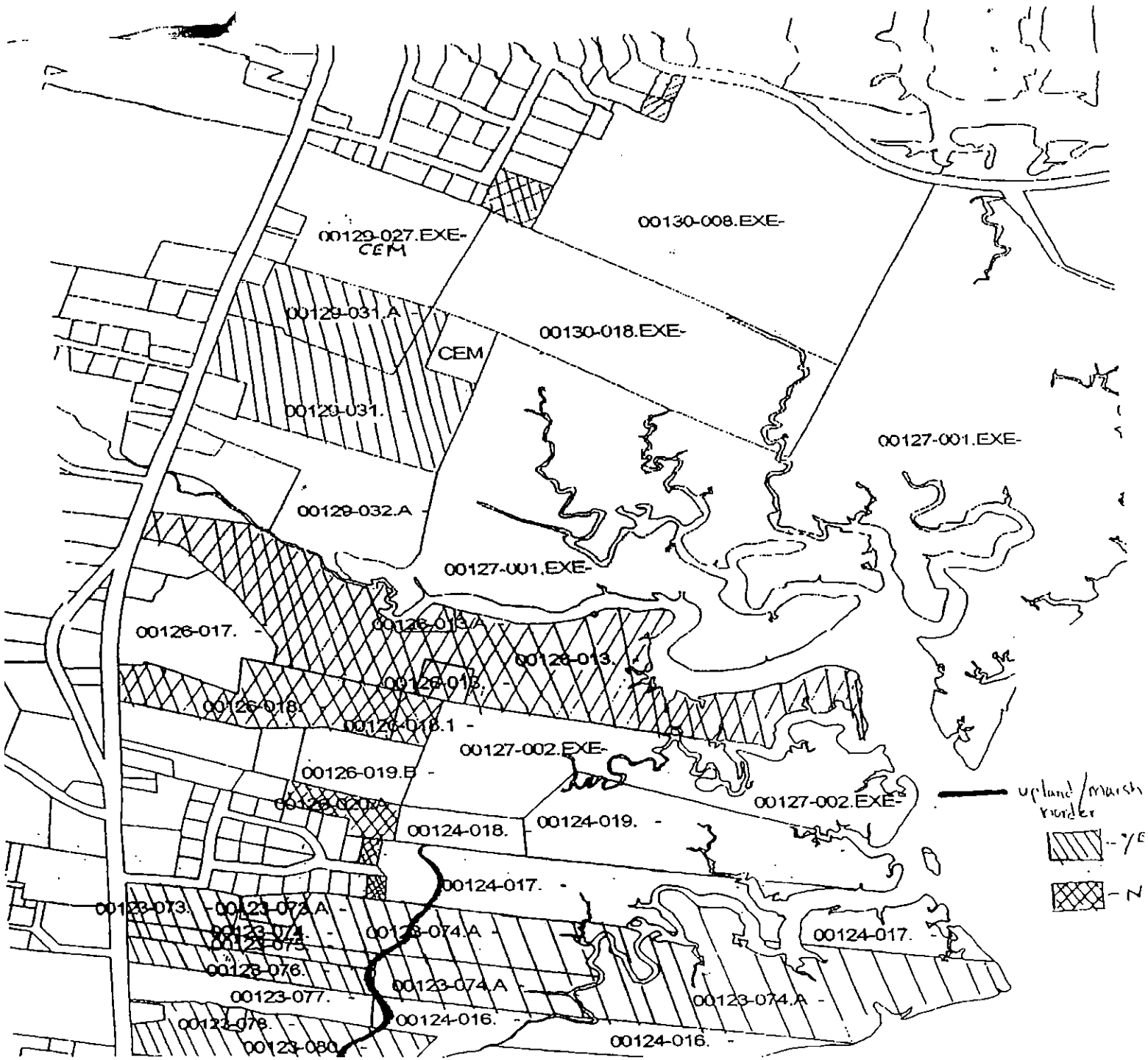
This Alternative would involve a major land purchase of an estate in Wells which would then be integrated into the southern portion of the proposed walk and satellite stations. Construction would include all the elements of Alternatives A and B and would be carried out in several stages with the walk and satellites being part the first phase. The land acquisition would then enable the town to then construct a nature center which would then be the focal point of the project, as well as a great asset to Wells. This project would, of course, take several years to complete and require extensive funding efforts.

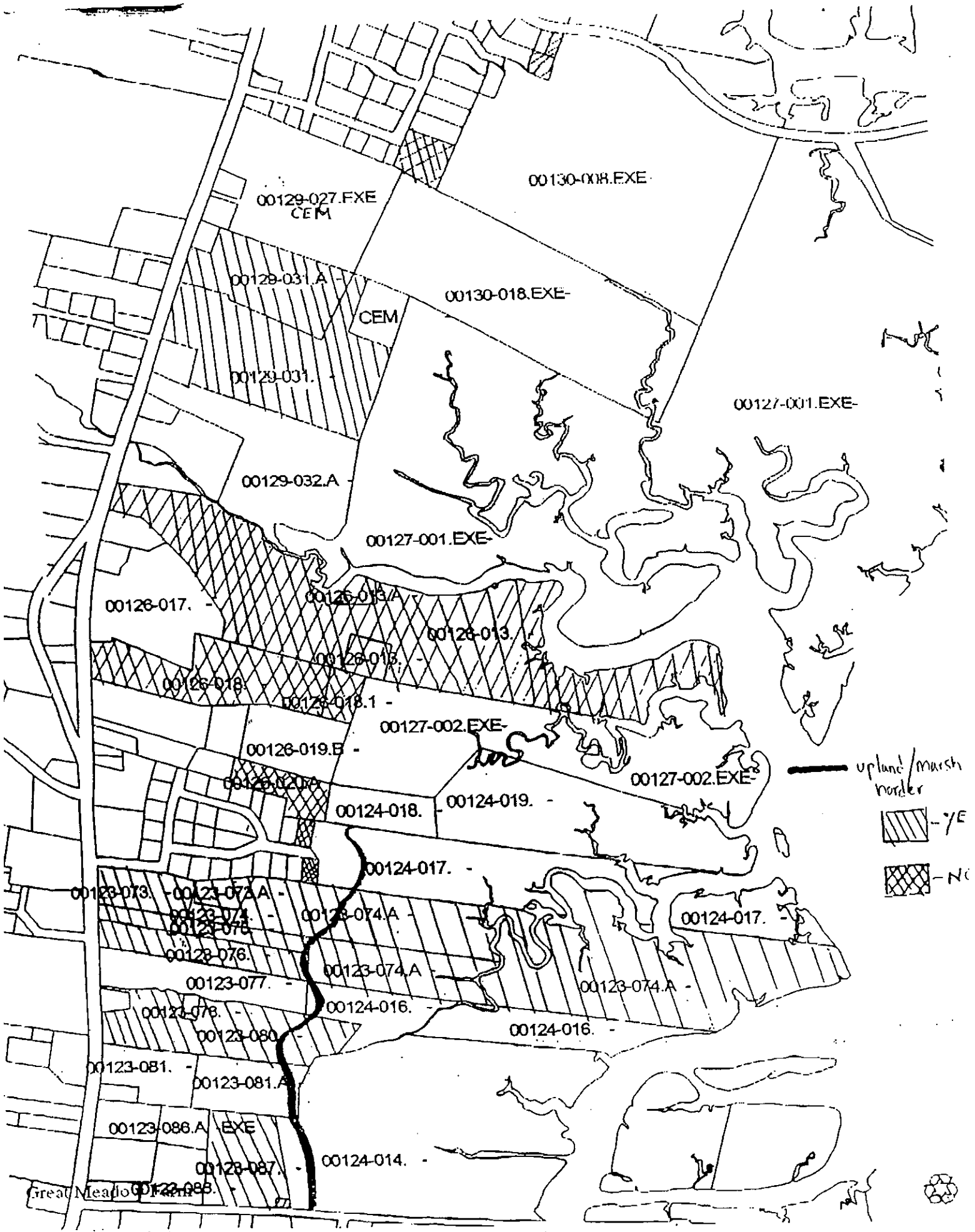
Funding sources are always eager to help provide for both conservation and educational endeavors so developing a wildlife observation/education system would open the flood gates for potential funding possibilities in every sector: private, state and federal.

The Audubon project on Plum Island Massachusetts stands as an excellent example of the potential of this project at Wells. With its many satellite observatories in and around Plum Island, Joppa Flat Bird Sanctuary and Educational Center (designed and under construction by Great Meadow Farm) has already, despite its unfinished appearance, attracted the eye of international bird watchers as an important destination point. Their enthusiasm and impact should not be overlooked, bird watching as an ever increasing activity in the US and abroad as a group we have found that bird watchers tend to be affluent and educated, they are willing to travel, and have large disposable incomes to spend, upon reaching their destinations. This type of project would enhance some of the coastal areas around town that have up until now attracted few outsiders. Laudholm Farm and Rachel Carson Wildlife refuge who have already become recognized for their own preservation efforts, are two diverse destination points within the town. By adding birding and nature walk areas Wells would only improve on some of the advantages it already has and incorporating educational signage as described in the first alternative would only improve this concept. Wells can certainly take advantage of the booming ecotourism industry as well as the increase in our interest in Natural History in New England. These Satellite birding areas in the off season become places of passive use and enjoyment by the year round inhabitants.

The open Marsh area along Webhamet River in Wells is an ideal area still left relatively unspoiled by the encroachment of development, and industry, and it is or hope that the people of Wells will see it fit to keep it that way. The potential in this area to attract great numbers migrating populations and shorebirds is significant. With some effort, we have the chance to put Wells on the map as one of the New England's premiere birding destinations, that offers not only a safe and healthy environment for birds but also a priceless commodity for people and for future generations. As Wells and the rest of the world moves into the next millennium and the importance of nature conservation and protection becomes a central concern, let it be Wells that takes the first steps to help not only keep, but also restore a vital aspect of natural habitat.







The following pages contain information about the Joppa Flat Audubon project. They are written for the Audubon News Letter as well as the Essex County Newspapers, of which there are several. The articles describe the construction process, the expectation that the project will be of great significance and benefit to the area as well as the threat of invasive species to a precious and sensitive habitat



JF-8147

JOPPA FLATS EDUCATION CENTER
Newburyport, MA
978-462-9998

CHRISTY.DOC

Salt Marsh Restoration at Joppa Flats

The Massachusetts Audubon Society is very pleased to report that it has begun salt marsh restoration at its Joppa Flats site on the Merrimack River in Newburyport. The objective of this ambitious project is to transform badly degraded wetlands and a portion of upland into very productive salt marsh habitat.

This fall, our contractor (Great Meadow Farm) will remove fill and invasive plant species (e.g., Japanese Knotweed and Common Reed) from our site. They will also begin construction of three salt pans and a tidal creek. The pans (small pools) will be located at different elevations within the restored salt marsh to create different salinity levels and inundation periods—differences that will encourage the development of slightly different plant and animal communities. The creek will restore tidal flow to the area. In the spring, we will complete construction of the pans and replant the salt marsh and coastal bank with native plant species.

The Massachusetts Audubon Society is currently raising funds to build a visitors center on the Joppa Flats site. The combination of restored salt marsh and visitors center will make the Joppa Flats site an important natural history destination a place from which Massachusetts Audubon can pursue its mission of advocacy, education, and conservation. With annual traffic flow past the site estimated to be 1.6 million vehicles, Joppa Flats will be an excellent venue from which to conduct community outreach programs on the value of salt marshes and strategies for restoration. We also expect that on-going monitoring by scientists of the Massachusetts Audubon Society will provide valuable insight into salt marsh restoration efforts information that can be shared with other agencies.

The Massachusetts Audubon Society is very grateful for all of the support it received during the permitting process. The Massachusetts Wetlands Restoration and Banking Program played a key role by providing technical support, help with proposal writing, and encouragement. The U.S. Army Corps of Engineers conducted many on-site visits to review our plans. Coastal Marine Fisheries provided excellent support. The U.S. Fish and Wildlife Service contributed expertise and funding. This has been a very rewarding team effort. Due to the review and permitting process, the final salt marsh restoration plan submitted by Massachusetts Audubon is significantly better than our original conceptual design.

If you want additional information about the Joppa Flats project, please contact Bill Gette, Sanctuary Director, at 978-462-9998.

Note: Christy, if I have left out any organizations, please add them.



The Flats

The Newsletter of the Joppa Flats Education Center and Wildlife Sanctuary

With the support of the MWRBP, we have also received a grant for \$90,000 to help pay for design, monitoring, public outreach, and construction. The GROWetlands designation and funding demonstrate how important state and federal agencies consider our project.

We have retained the services of Great Meadow Farm in Rowley to develop the plan for the site restoration and to guide us through the permitting process. Great Meadow Farm is the leading salt marsh restoration company in the area. The design is based on the original concept developed within Massachusetts Audubon and has been enhanced by input from the Newburyport Conservation Commission and state and federal agencies. (This project proves that consultation and review with regulatory agencies can have a very positive impact on the quality of the design.)

In our restoration plan, we will remove fill and invasive plant species (e.g., Japanese Knotweed and Phragmites) from the site and construct three shallow salt pans (pools). The pans will be constructed at different elevations within the salt marsh. As a result, the amount of salinity and the length of the inundation periods (flooding at high tide) will vary within the pans. Differing environmental conditions within the pans will promote the growth of different plants and animals. We expect that the diverse habitats within our relatively small site will attract a wide variety of shorebirds, herons and egrets, and waterfowl.

To begin the permitting process, we filed a Notice on Intent with the Newburyport Conservation Commission in late January and met with the board on February 3. The commission voted unanimously to accept our proposal! We must now work with state and federal agencies to obtain their concurrence. Assuming that there are no major objections to our application, we anticipate that we will begin the restoration process in May 1998.

Just think—we will be converting an unattractive, unproductive area into a highly productive wildlife habitat that will attract visitors and be the focal point for sanctuary programs and outreach activities.

Building Design

We are currently working with Black River Design Architects (Cambridge, MA) on the design for our education center. The center will house a reception/information area, classrooms, a small cafeteria, and nature store. Envisioned in the design are year-round observation areas for viewing the wildlife in the restored wetlands and the Merrimack River.

The combination of the restored salt marsh, pans, and education center will make Joppa Flats a spectacular interpretive area for birders, nature enthusiasts, school groups, international travelers, and the general public. Joppa Flats will be a world-class "Natural History Destination."

Program News

Programs at the Flats are being very well received. Based on registration from our last brochure, we had fill rates exceeding 90% of capacity. Registrations for our current brochure (Fall/Winter 1997/1998) are also very strong. I am very pleased to say that we are attracting many new participants from the local area and from throughout eastern Massachusetts, Rhode Island, New Hampshire, and Maine.



JOPPA FLATS EDUCATION CENTER, NEWBURYPORT, MA**Message from the Director****Introduction**

I am pleased to say that there have been a number of very positive developments at the Joppa Flats Education Center since I reported to you in my last program brochure. I have summarized the most important of these accomplishments below. If you want additional information, please call me at 978-462-9998.

Donation of Land

The Merrimack River Watershed Council (MRWC), a leading education and advocacy organization headquartered in Lawrence, donated 2.8 acres of land to the Joppa Flats Education Center in September. The land, which borders our Joppa Flats site along the southern bank of the Merrimack River, was given in memory of Geneva Zwicker. Geneva was a founding member of the MRWC.

We plan to use the land for ongoing education and research projects such as the water quality monitoring and plant studies currently being conducted by the students of the Rupert A. Nock Middle School of Newburyport.

Habitat Restoration

If you have visited the Newburyport/Plum Island area recently, you may have noticed the chain-link fence and construction equipment at our Joppa Flats site on the Plum Island Turnpike. I am pleased to say that we have begun habitat restoration along the Merrimack River. This fall, we will start the process of removing fill and invasive plant species (e.g., Japanese Knotweed and Common Reed) and begin the construction of three salt pans (small pools) and a tidal creek. In the early spring, we will complete construction of the pans and replant the marsh and coastal bank with native plant species.

The objective of this ambitious project is to transform a badly degraded wetland into extremely productive wildlife habitat that will be the focal point for our interpretive programs and community outreach activities.

Education Programs at "The Flats"

Programs at Joppa Flats have been very well received. Our programs have had excellent attendance, and many have been sell-outs, especially our weekend and out-of-state programs. We have also been conducting a significant number of school programs for communities as far away as Concord, Lexington, Newton, Westford, and Montreal, Canada.

We will also continue to provide programs for international birding groups. This coming May, we will provide field trips for groups from the United Kingdom.

As you can see, the Joppa Flats Education Center is already becoming a local and international natural history destination. Please join us!

Fund-raising

To-date, we have raised \$1.3 million toward our goal of \$2.8 million. We are encouraged by the level of support we have already received and look forward to additional support. If you can help support this exciting project, we would very much appreciate your tax-deductible gift.

Please send your gift to: Sanctuary Director
Joppa Flats Education Center
10 State Street
Newburyport, MA 01950

The Daily News, Newburyport, Mass., Friday, December 11, 1998 All

People, groups fighting to reconstruct our marshes



NORTH SHORE

By Bill Plante

A recent column raising the problem of galloping phragmites, the giant tasseled plant invading our marshes and river banks, produced some calls and at least one extensive response from The Eight

Towns and Bay Committee (8T&B) inviting me to look deeper.

One call led me to Bill Gette, sanctuary director of the Joppa Flats Education Center of the Massachusetts Audubon Society, for a logging tour of his works at the entrance to Plum Island. When finished, about this time next year, the center will become a major attraction for both bird watchers and students.

We sloshed about the marsh dig for the better part of an hour, as he pointed out the features of what will become a waterlogged laboratory when finished.

The Merrimack River River Watershed Council gave Mass. Audubon 2.8 acres of river bank adjacent to the evolving site, and Gette explained what was afoot.

In a clamshell, it is Newburyport's Little Dig to reconstruct the environment so as to provide ideal conditions for fish, birds and plants normal to the area before invaders like phragmites, purple loosestrife and Japanese knotweed started to drive them out.

That requires soil and plant displacement of a kind that, without permission, would get you locked up for a lifetime. It also takes tens of thousands of dollars and someone with the expertise to do it properly.

That someone became Dan McHugh of Great Meadows Farm in Rowley, who has done maybe a hundred of such projects along the Atlantic Coast.

Bill Gette led me around the plot, pointing out the locations of the three ponds under excavation, two of them shallow, one deeper, along with a marsh creek and flow control areas.

These are designed to permit the inundation with salt water according to tidal schedules that will enhance both the accommodation of desirable species while creating a natural protection, because of increased salinity, against those like phragmites, knotweed and loosestrife.

The ponds are of varying depths to attract the species needing the kinds of varied habitat that will sustain them. Great mounds of plant debris and muck were awaiting removal to McHugh's farm for composting over the two years required to rot the obnoxious seeds.

Finished, the Audubon site will be a major regional educational area, especially for school children, some of whom, from the Nuck Middle School in Newburyport, are already involved in conducting salinity studies.

Great Meadows Farm's endeavor is, however, it barely scratches the surface in the struggle against the invading plant species.



BRYAN EATON PHOTO

Area being reconstructed on Audubon land.

I spent some time with Frank Drauszewski down at the Plum Island wildlife refuge and visited the fresh water pond southeasterly of the observation tower at the Hellcat Swamp site. I commented on the extensive growth of phragmites along the easterly side of the pond and he said it covers about 20 acres of the 100 acres involved, and they are fighting it three ways:

They spray with Roundup just before the seed pods break open so as to reach the roots through the plant's system. Then they bulldoze, and then they burn.

Being a federal agency, they have less trouble in gaining the permission to take this kind of action. But even then they are having a difficult time trying to eradicate the problem.

This year's spreading of the herbicide did not take, probably, he said, because the timing was off. Meanwhile, all those seed pods did their thing and new infestations will spring up elsewhere.

As for loosestrife, beetles and grubs — the plant's natural enemies — are being imported.

Phragmites doesn't have any similar, natural enemies.

And that's the problem. The systems in place will work, but the red tape involved is so time consuming as to discourage ordinary citizens.

Furthermore, the cost of either what Audubon is doing or the wildlife refuge experts are doing is prohibitive.

It would seem that cities and towns with such problems could get permission and find the funds for controlled spraying with a proper herbicide like Roundup.

Bottom line. Good people are involved. Some good things are afoot. More help is needed.

Indeed, a great deal more help is needed, unless, of course, we are willing to give up what we have had since the Pilgrims landed.

Another 10 years of invasion and whatever marshes are left will be out of sight behind walls of towering tassles.

Bill Plante is former executive editor of Essex County Newspapers.



APPENDIX B

Project Memos and Meeting Minutes

Memo: Wells Harbor Marsh Walk Evaluation Team
September 17, 2012
Page 2

- Role of the Marsh Walk in the local Economy -
- Role of the Marsh Walk in Education -
- Sea Level Rise -
- Icing / Winter Issues –
- Land Ownership / Submerged Lands Program –
- Pedestrian Connectivity -
- Layout/Routing/Siting –
- Accessibility / ADA Compliance -
- Estimated costs of Construction –
- Estimated costs for Maintenance -
- Likely availability of Grant Funding for Implementation -

The following next steps are recommended, in the following order:

1. Add recently received data regarding sensitive/unique ecological communities, topography, zoning and existing trails to determine environmental constraints on boardwalk placement, identify potential future boardwalk connections, identify local regulatory requirements, and define tidal limits.
2. Obtain predictions for sea level rise that should be incorporated into our understanding of tidal limits and storm surges from the Town or SLAWG.
3. Convene a meeting with representatives of the Rachel Carson National Wildlife Refuge and the Wells National Estuarine Research Reserve (Wells NERR)/Laudholm Trust to discuss their willingness to participate in the project and gain concurrence on project goals and objectives, including the role of the marsh walk in the local economy and for education. At this meeting, preliminary boardwalk alignments will be discussed.
4. Convene meeting(s) with representatives of Maine DEP, USACE, USF&W and Maine DOC/Submerged Lands Program to discuss regulatory constraints and requirements, including, but not limited to state permitting as required under the Maine Natural Resources Protection Act (NRPA) and federal permitting as may be required under Section 404 of the Clean Water Act (and possibly Section 10 of the Rivers and Harbors Act of 1899). At this time, we will also discuss potential construction techniques and boardwalk alignments, and review potential NEPA concerns that could arise in relation to later funding requirements.
5. Based on the above findings, refine preliminary boardwalk alignments, and, depending on feedback from stakeholders and MaineDEP, USACE, and USF&W, prepare alternatives for further discussion, including a public forum.

3. Paul agrees that, from a connectivity perspective, connecting to the Laudholm Trust's trails would be a good long-term goal. Two related concerns it has are how to collect trail user fees at its boundary and how to control the public's access to the Laudholm property in a way that promotes safety. The NERR does not envision connecting its trail network to the trails at the Rachel Carson headquarters.
4. Paul echoed concerns about wildlife habitat impacts, which would extend beyond the boardwalk structure itself. He thought that, if done correctly, the connectivity benefit of the marsh walk could outweigh the wildlife impacts. If the solution is to create shorter boardwalk spur, he did not think that people would hesitate to use a boardwalk that requires users to retrace their steps.

The Town suggested that a river walk could be explored as an option if a marsh walk is found to be unfeasible due to Rachel Carson's concerns.

Next steps:

1. Wright-Pierce has been working through confirming property ownership and will prepare a revised ownership map based on correspondence with the NERR and Rachel Carson.
2. Wright-Pierce will follow up with the Town r.e. regulation of boardwalk structures and zoning map data
3. Wright-Pierce will schedule a meeting with representatives of Maine DEP, USACE, and the Maine DOC/Submerged Lands Program to discuss regulatory constraints and requirements, potential construction techniques, potential boardwalk alignments, and potential NEPA concerns. *Would a representative from the Town like to attend and who would be the best contact person to start with at DEP?*
4. Wright Pierce will conduct a limited review of boardwalk projects within the National Wildlife Refuge System and of other comparable maritime boardwalk systems adjacent to sensitive wildlife habitats. Several possible examples were raised at the meetings, and we will start with these.

TO:	Project Team	DATE:	April 4, 2013
FROM:	Jennifer Claster	PROJECT NO.:	12549A
SUBJECT:	Wells Harbor – Marsh Walk Feasibility Study Project Status Memo		

The following items have been completed since the last memo:

Property Ownership

Wright-Pierce has prepared a revised ownership map based on correspondence with the NERR and Rachel Carson. The revised map (attached) shows the Seal Harbor property as Town-owned, indicates additional properties thought to be privately owned, and identifies a portion of Town land near Harbor Park as to be managed by the Wells NERR.

Town Regulations and Zoning Map

A zoning map of the project area (attached) has been prepared using data obtained from the Town. According to the Town's Code Enforcement Officer, Jodine Adams:

- The proposed boardwalk would be classified as "Recreation, Passive" under the Town's District Regulations, which is allowed in every zone
- The proposed boardwalk would be considered a "wharf/pier/dock (O)" under Town Code Section 116 – Floodplain Management.

Summary of Case Study Research

Wright-Pierce contacted biologists and NWR managers at locations where boardwalks have been constructed through tidal marshes. A few common themes emerged:

- There is a lack of data demonstrating the effects of human activity on marsh bird behavior
- A boardwalk would probably not create a barrier to movement for salt marsh sharp-tailed sparrows
- A boardwalk would reduce the amount of breeding ground in the marsh. Salt marsh sharp-tailed sparrows and other nesting birds will not nest within a certain distance from the boardwalk, due to human and dog activity. The distance is species-specific. Staff members at GBNERR have observed salt marsh sharp-tailed sparrows nesting close to an area heavily used by people and dogs.

- A boardwalk would also create a perch for predators and would make it easier for them to eat the eggs of nesting birds.
- Because of the least tern and wading bird habitat, it will be difficult to permit a boardwalk in the marsh.
- The boardwalks discussed had either been in place for 15+ years, or were sited in areas that had previously been used, formally or informally, as trails. Thus, they were built before permitting became difficult, or were placed in areas where human disturbance had historically occurred.
- Few, if any, of the boardwalks discussed were built in a free-flowing, previously undisturbed salt marsh. The Gordon's Pond and Nisqually boardwalks follow former dikes. The Edwards EEC boardwalks are in an area cut off by railroad tracks. Parker River's boardwalk is in an impounded, previously saline marsh.
- Building the boardwalk on Town land and/or as part of a marsh restoration effort seem like the most viable options, based on the outcome of the interviews.
- The interviews are summarized at the end of this memo.

Alternative Boardwalk Alignments

1. Build the boardwalk entirely over the water. We can investigate the permitting requirements associated with this option.
2. Construct a smaller boardwalk in conjunction with the Wells Reserve's project to restore marshland near Harbor Park. This would not have the connectivity benefit of the original boardwalk alignment and would require coordination with the NERR and Maine DOC has an easement on it and would need to be involved. Rachel Carson should probably be involved as well, though they do not own it.
3. If the Refuge is not completely opposed, build a smaller boardwalk leaving north out of Harbor Park that would connect Harbor Road with Upper Landing Road. This route would follow inlets and would potentially have a smaller marsh impact.
4. Build a boardwalk alongside Harbor Road with observation platforms in conjunction with improvements to Harbor Park and roadway/park entrance improvements. This could potentially extend to the future bridge and might enhance the pedestrian experience along the roadway.

Questions for the Town

1. Should we continue our research, or do we have enough for now? If so, Bombay Hook and Prime Hook would probably be the next places to call.
2. Would it be appropriate at this time to schedule another meeting with Ward Feurt and Paul Dest (together), or just Ward Feurt, to review the results of Wright-Pierce's project review and marsh walk alternatives?
3. Would the Town like Wright-Pierce to look at any of the potential alternatives in more detail prior to that meeting?
4. Would the Town like Wright-Pierce to schedule a meeting with representatives of Maine DEP, USACE, and the Maine DOC/Submerged Lands Program to review and discuss the alternatives under consideration at this time, or wait until after we have spoken with Ward Feurt?

Case Study Interview Notes

1. **Gordon's Pond - Phone Interview with Rob Line, Biologist, Delaware State Parks March 25, 2013:**

A ½ mile boardwalk was initially proposed through a tidal marsh inhabited by the salt marsh sharp-tailed sparrow and piping plover at Gordon's Pond. The Department of Natural resources and Environmental Control led a working group of stakeholders through an evaluation of alternatives in October 2010. Project goals were similar to those of the Wells marsh walk project: providing connectivity in a larger walking/biking route, providing cycling and walking paths, promoting economic development, protecting wildlife, improving accessibility, improving health, and interpreting the natural environment. A preferred alternative has been developed and the plans are nearly completed. The final alignment calls for much of the path being built on an existing upland dike, with a 10' wide boardwalk (appx. 3,000 LF) 1 ½' above the current high tide mark, bridging over small patches of wetland. It does run parallel to the shoreline. It will be more than a mile between trail access points.

According to Rob, the salt marsh sharp-tailed sparrow is considered a "secure breeder". The heritage biologist assessing the project was opposed because the boardwalk would provide an opportunity for predator purchase. The boardwalk's specific impact on bird breeding habitat is unknown, but different species will not nest within specific distances

of the boardwalk, due to human disturbance. Human impacts are already occurring in the area where the boardwalk has been proposed, so the project is not anticipated to affect the salt marsh sharp-tailed sparrow in this location. The proposed boardwalk will have handrails that will keep people from venturing into sensitive areas (piping plover, rare orchids, and prehistoric sites) near the proposed alignment.

In researching habitat impacts in the course of the study, Rob's group found that a trail will reduce breeding habitat adjacent to it. A one-sided boardwalk (i.e. that abuts woodland on one side and marsh on the other) would have a reduced impact compared to a boardwalk surrounded by marsh. The boardwalk will also create a perching area for predators. The biologist on the project is working to make the boardwalk as innocuous as possible. Rob said there is not a lot of data available regarding the effect of human behavior on wetland bird species, because there's historically been very little human movement through the marshes. He did not think a boardwalk would impede the movement of the salt marsh sharp-tailed sparrow, but is not aware of data that would back that up.

Rob said the proposed trail will create a 5 to 10 mile loop trail that he believes will be very popular, based on the popularity of another loop built within the last 10 years. He suggested we look at two prime birdwatching areas, Bombay Hook and Prime Hook, and that we think about ways that the proposed boardwalk could benefit habitat.

2. Don Edwards San Francisco Bay National Wildlife Refuge - Phone Interview with Eric Marusz, Manager, March 18, 2013:

Boardwalks have been in place at Don Edwards San Francisco Bay NWR for 10 to 15 years. Eric was not there when the boardwalks were installed. He suggested the Wells marsh walk boardwalk be installed during non-breeding season. In his opinion, it is unlikely that even a fairly high boardwalk of 6' with an additional siderail of 4' would be a visual impediment to marsh birds. One of the refuge's boardwalks in LaRiviere Marsh is 4' off the marsh with 4' siderails. He has not seen any impediment to bird movement posed by this boardwalk.

Another of the refuge's boardwalks is 100 yards long with no siderails, 1'-2' off the marsh. 3-5,000 schoolchildren use the boardwalk annually, and there are 800,000 visitors annually, some of whom, it can be expected, also use the boardwalk, though the refuge does not keep data regarding boardwalk use.

Eric also mentioned that a California utility, PT&E, has miles of boardwalks and has never noticed any impediment to bird movement.

Eric did note that there is a buffer from the boardwalk within which specific species will not nest, and that there will be visual impact comprised by the people moving through the marsh. He suggested the placement of the boardwalk should be carefully considered.

3. Great Bay Discovery Center (GBNERR) New Hampshire - Phone Interview with Cory Riley, Manager, March 11, 2013:

The boardwalk at GBNERR was built 20 years ago and would be impossible to permit now. It needs to be re-decked and this will not be possible to permit. It loops from upland to salt marsh and does not follow the shoreline. Cory suggested it's hard to get Rachel Carson to permit anything in their marsh, even research and thought the Town should try to find a way to design the boardwalk such that it is not on the Refuge's land.

One of Cory's staff members asked Pamela Hunt, the NH State Ornithologist, Pamela Hunt, whether she was aware of any studies on the impacts to bird habitat (specifically the saltmarsh sparrow) of structures like boardwalks. Pamela did not know of any conclusive evidence either way, but she didn't think the boardwalk itself would create an impediment to the movement of the sparrows. The staff at GBNERR suspected the disturbance due to increased activity from people and dogs would be more of an issue, but also added that the sparrows do nest at Chapman's Landing, from which they deduced that people and dogs are not a huge issue. If nesting locations are known to exist in the vicinity of the boardwalk, it will trigger environmental review.

4. Nisqually NWR, Washington - Phone Interview with Doug Roster, Interim Manager, March 11, 2013:

Nisqually's boardwalk was part of a 760-Acre tidal restoration project and follows the alignment of a former rail bed and dike that held back the salt water. There had previously been a trail on the same footprint and they were creating tidal salt marsh where an impounded fresh water marsh had previously existed – so human disturbance wasn't an issue, and selecting an alignment wasn't an issue. The boardwalk uses concrete pin foundations, which are different from helical piles, also have a low impact, and can be installed with hand labor. They chose them because their crews had installed them before and they were comfortable with it. The boardwalk is 10' above ground at its

highest, and 8' wide. It was designed so that it wouldn't be overtopped at high tide even with some storm surge, but was not built to accommodate sea level rise.

(Information in this paragraph is taken from several newspaper stories.) The boardwalk is over a mile long, with an observation tower, an enclosed viewing platform/photo blind, bump-outs to allow birdwatchers to linger, and two covered viewing areas. Some areas have lower railings to allow children and wheelchair users to have a view. Wire mesh railings with smooth wooden handrails make the boardwalk less visually obtrusive. It is reached by a ½ mile gravel trail. Between February 2011 and March 2012, the park saw record attendance – over 200,000 visitors.

Doug thought it is an easier to sell to build a boardwalk on tidal marsh that is being restored than to destroy existing habitat.

5. Parker River NWR, Massachusetts - Phone Interview with Nancy Pow, Biologist, March 11, 2013:

Parker River's wetland boardwalk is 20-30 years old and stands to be redone, long with all their trails. It is low to the water, without handrails, and crosses an impounded fresh water marsh that was previously saline.

Nancy thought that the salt marsh sharp-tailed sparrow could fly over an elevated boardwalk, and suggested the boardwalk could be closed during breeding season (late May to August) to avoid disturbing the sparrows, which would not work well with Wells' tourist season. When females are on the nest, they bring back food every 2-10 minutes and use up a lot of energy. She described the sparrows as being shy of people, so putting people in their habitat would be the biggest concern. Disturbance during construction or the boardwalk potentially blocking their movement would be lesser concerns.

Nancy suggested I call Kate O'Brien, the biologist at Rachel Carson to find out more about how the sparrow specifically uses the Webhannet Marsh. She also suggested talking to Prime Hook NWR or Bumble Bay in Delaware, as well Don Edwards San Francisco Bay NWR.

6. Rachel Carson NWR, Wells – Phone Interview with Kate O'Brien, Biologist, March 11, 2013:

Kate cited permitting difficulty, cost of construction, shading grasses, marsh subsidence, sea level rise threatening marshes' survival, and human disturbance as reasons not to

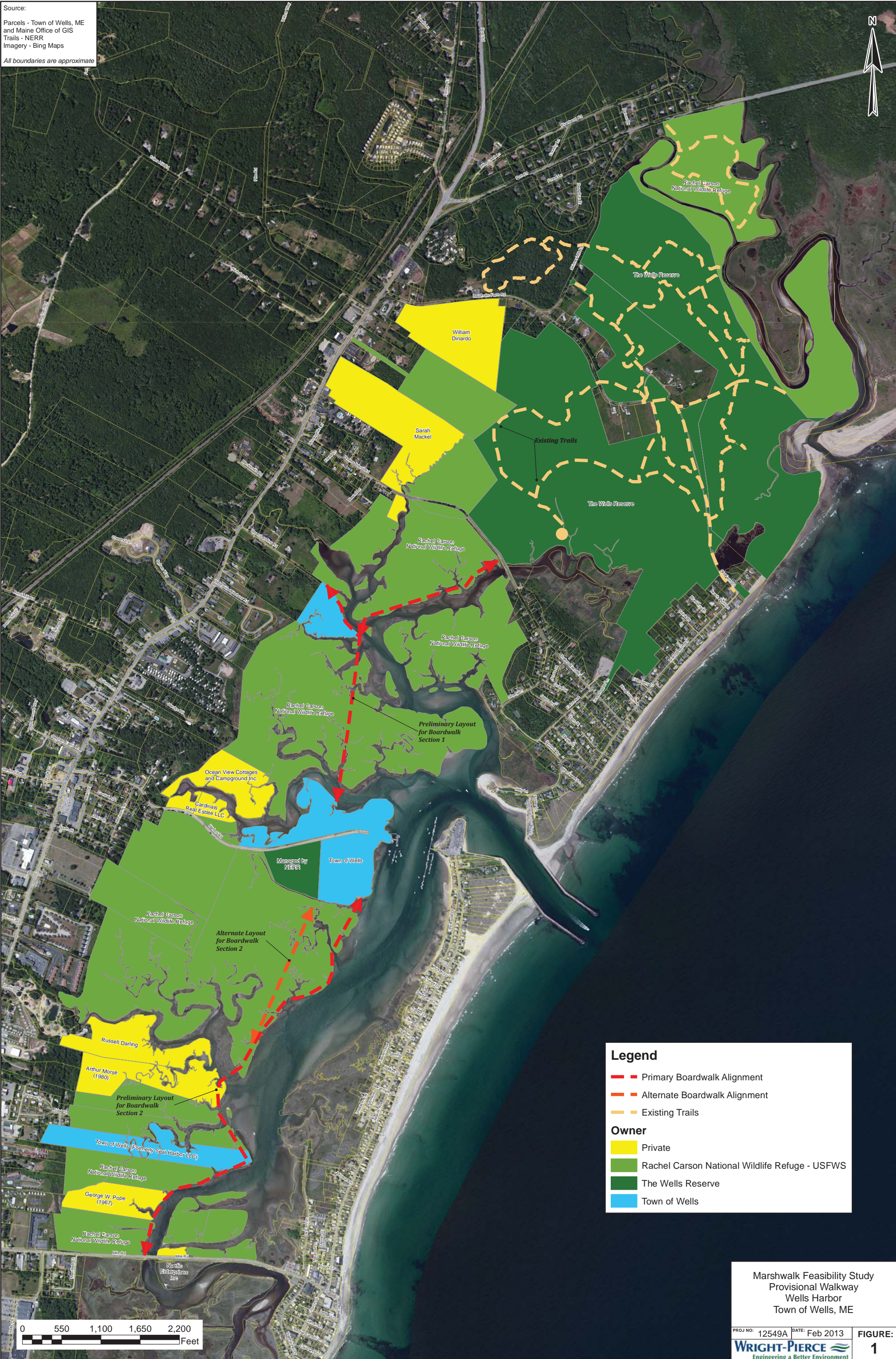
Memo: Wells Harbor Marsh Walk Evaluation Team
April 4, 2013
Page 7

build a boardwalk through the Webhannet Marsh. She did not know of any studies looking at the effect of boardwalks on salt marsh sharp-tailed sparrows and suggested that the research would be hard to conduct. She was familiar with the marsh walk concept and preliminary alignment and was able to verify that there are nesting salt marsh sharp-tailed sparrows in our project area. She said that nesting salt marsh sharp-tailed sparrows would not cross roads, but was not sure if they would react to a boardwalk the same way. The sparrows are rare and only nest in salt marshes.

In addition to the salt marsh sharp-tailed sparrows, other habitat issues (least tern, wading birds) will make it difficult to permit anything in the marsh. For example, the Rachel Carson NWR has had trouble from state regulators regarding an observation platform they rebuilt in the marsh without the proper permit. The boardwalk would have a negative effect on the health of the salt marsh in the long term and there will be large ice floes that would need to be addressed.

Kate's suggestion was to take advantage of the significant amount of Town owned land in the marsh and create an observation platform off a boardwalk following Wells Harbor Road. She thought we would get good input from the State.

Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate

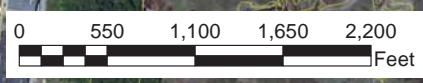


Legend

- - - Primary Boardwalk Alignment
- - - Alternate Boardwalk Alignment
- - - Existing Trails

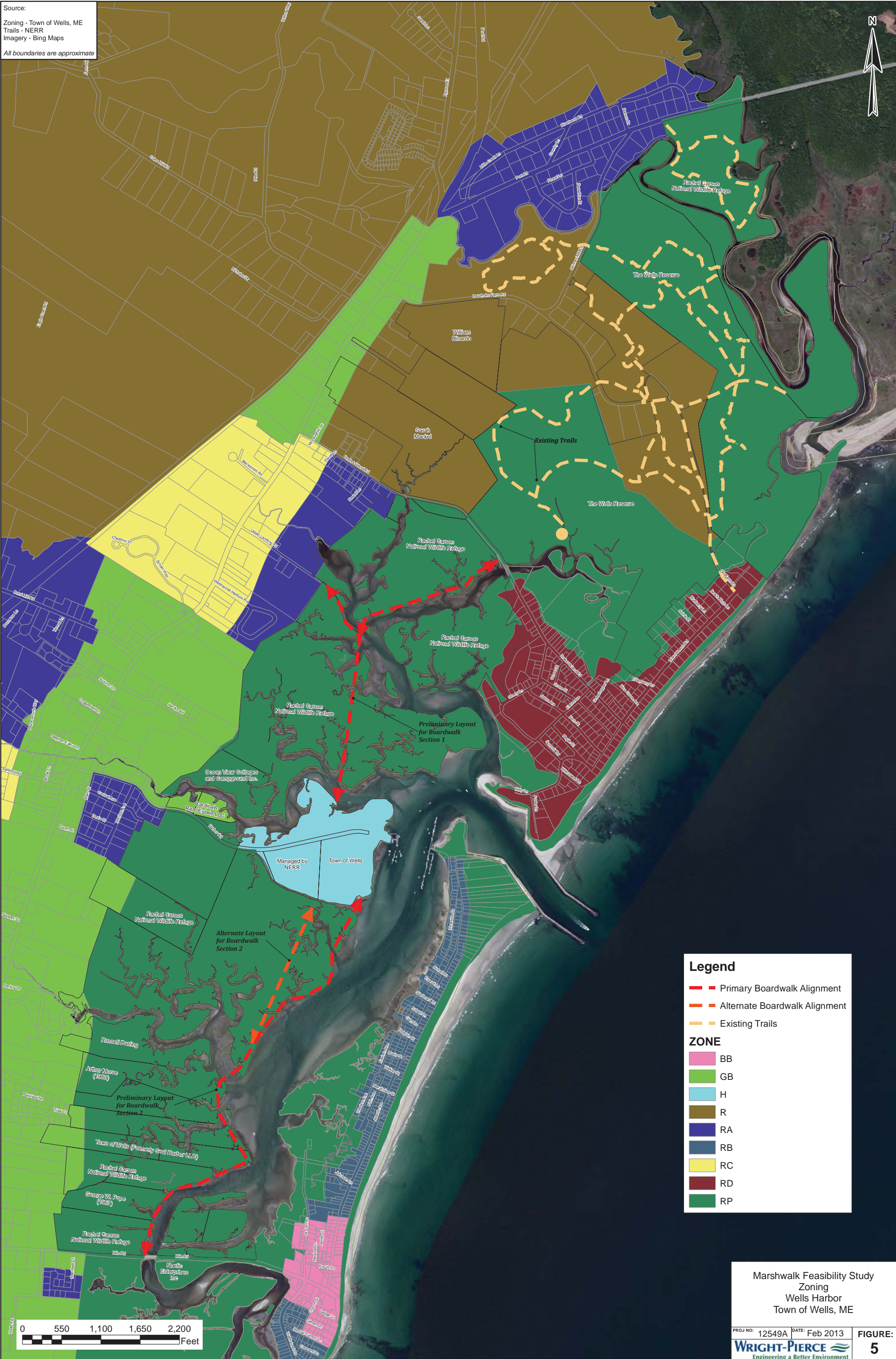
Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells



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Source:
 Zoning - Town of Wells, ME
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate



Legend

- Primary Boardwalk Alignment
- Alternate Boardwalk Alignment
- Existing Trails

ZONE

- BB
- GB
- H
- R
- RA
- RB
- RC
- RD
- RP



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Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate



Boardwalk Option 3 -
 Connects to Harbor
 Road and WNERR
 trails

Boardwalk Option 4 -
 Follows existing track/path
 Observation platforms

Boardwalk Option 2 -
 Loop through marsh
 restoration area

Boardwalk Option 1 -
 Over open water

Legend

- Alternate Boardwalk Alignments
- Existing Trails

Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells

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TO:	Project Team	DATE:	May 8, 2013
FROM:	Jennifer Claster	PROJECT NO.:	12549A
SUBJECT:	Wells Harbor – Marsh Walk Feasibility Study Project Status Memo		

The following items have been completed since the last memo:

Meetings and Phone Calls with State and Federal Regulatory Agencies

Phone Call – Jay Clement at US ACE, April 30th 2013

- For every foot of boardwalk width, the lowest part of the boardwalk deck will have to be an equal distance above the top of vegetation growing beneath it. If it is not possible to comply, the Town will need to explain what is being done to compensate for potential impacts. The use of see-through decking and special orientation relative to the position of the sun have both been tried; neither approach was successful. The intent is to allow the maximum flow of sunlight to reach the grasses beneath the decking.
- During deck construction, minimize impacts to the marsh by using low pressure tires or treaded vehicles, or steel/plywood mats under vehicles.
- From the ACE's perspective, building the boardwalk over open water could be possible. It depends on the prevailing boat traffic and whether the boardwalk would be crossing navigable tidal waters.

Meeting 1 – Bob Green (Maine DEP) Brad Zitske (IF&W) and Ward Feurt (USFWS/Rachel Carson), DEP Portland Office May 3rd 2013

- W-P reviewed the project goals and process to date, including the conclusions of the case study exercise.
- DEP, IF&W, and USFWS were asked to review the five Marsh Walk alternatives developed April 16th, 2013 (and attached to this memo). In general, IF&W does not support constructing trails through marshes. They do not support reduction of critical habitat.
- NRPA requires compensation for wetlands impacts. Even if there is no fill, and the boardwalk affects the function and value of the wetland, it will be a problem. DEP considers piers and helical piles to constitute fill, even though helical piles have a small

footprint. Shading is considered a wetland alteration. Avoidance and minimization are key considerations.

- Any trail that falls within the footprint of an existing structure or disturbance will be more favorable than a new disturbance. The regulators would consider boardwalk spurs to observation points within limits. They are concerned with limiting new shadow on previously undisturbed marshland. Any boardwalk spurs would need to be located away from open water to deter fishermen, who are seen as generators of large amounts of litter. The boardwalk design would need to balance drawing people in with minimizing their impact. The regulators liked the idea of incorporating an elevated tower that would allow birders long views over the marsh, but would keep them away from open water.
- In general, Options 2, 4, & 5 were viewed more favorably. The regulators expressed an interest in scheduling a site walk to walk these three alternatives with representatives of W-P, the Audubon Society, and the Town to see what they are like on the ground.
- If any of these three options were advanced into permitting, a survey would need to be conducted to determine the exact location of the HAT line (which defines the coastal wetland's upland edge), so that the NRPA application can demonstrate the boardwalk is out of the coastal wetland to the greatest extent possible. Any permit will require revegetation of disturbed areas and will require that disturbance be minimized during construction. A photosimulation may be required, depending on the height and length of the boardwalk. The application should include photos from other refuges with boardwalks.
- Construction would need to take place between October 1 and March 1.
- When the scope of work is delineated, the Department of marine Resource will need to be involved. The project should be reviewed with DMR soon to determine whether there will be any problems with migratory fish. IF&W fisheries will also be involved because of anadromous fish.
- Audubon will use their clout if they don't like the project. It is important to bring them in early.
- The regulators' comments on specific trail alignments are as follows:
 - **Option 1:** Whether this option would be on floats or piers makes a difference, but the agencies were not very supportive of either scenario. DEP: This would run up against scenic resources impacts under NRPA. Scenic impacts considers both the structure and the use (people walking on it). It would not be hard to demonstrate that a boardwalk on

the water, floating or on piers, would have a scenic impact in the proposed location. A floating boardwalk would have a lower visual impact. A boardwalk on piers would definitely not meet the agency's standards for visual impacts. The town would need to evaluate the maintenance and anchoring of a seasonal floating dock as part of its alternatives analysis for permitting, including where it would be stored during the winter. IF&W: Even though it doesn't appear on the maps, the entire shore area here is crawling with shore birds at lower tide. They use the whole area for feeding and roosting.

Option 2: IF&W: If the boardwalk is put in as part of a disturbance (restoration project), construction impacts would be lessened. USFWS: The idea of restoring this area was first raised 10 years ago, and there was talk of using it as a demonstration site to study different marsh restoration techniques, like an agricultural test plot. He has heard Paul Dest talking about this idea again in the last few months. There would be big machinery used and lots of disturbance.

Option 3: IF&W considers this a no go because of habitat fragmentation, habitat loss and potential introduction of trash into the environment. Destruction of the boardwalk & difficulty of maintenance are seen as potential issues. This was the least favored option.

Options 4 and 5: Would be the easiest to permit through DEP because they follow an existing road for part of their length. Option 4 appears to follow an existing track. Both options could be designed to be out of the coastal wetland (above the HAT line). The less disturbance of wetland that can be designed in, the better. It would be important to conduct a site walk to see whether the project would involve trail construction/improvement, boardwalk construction, or a combination of both.

Meeting 2 – Jay Clement at US ACE, Wright-Pierce Portland Office May 8th, 2013

- W-P reviewed the project goals and process to date, including the conclusions of the case study exercise and the outcome of the May 3rd meeting at DEP.
- Jay mentioned that most deeds read to the low water line, so the USFS/Rachel Carson may own the land that Option 1 crosses.
- Will the Marsh Walk project provide something unique, and will it be able to compete with the Wells NERR trails and Kennebunk/Wells visitor centers? How does it fit into the regional picture and what is the goal?

- Jay would attend a site walk to look at Options 2,4 &5. He recommended inviting Maine Audubon, the Town's Conservation Commission, and the Laudholm Trust.
- ACE does not consider pilings to be fill, but DEP does.
- A permit would be needed for any structure seaward of the mean high water line or any fill placed seaward of the high tide line, or in any adjacent marsh.
- If a structure is placed over a tidal creek, it is considered a "bridge over navigable waters" and falls under the jurisdiction of the US Coast Guard. Bridges proposed as part of Option 3 would probably qualify for an exemption.
- Once the alignment of the marsh walk is more defined, Jay can tell us whether an Army Corps permit would be needed.
- The ACE's main concerns at this stage are to keep the boardwalk high to allow sunlight to reach grasses and to avoid flooding, to hug the wetland/upland transition, and to avoid using CCA and creosote in building materials.

Alternative Boardwalk Alignments

Option 5: This alternative developed during a conversation with Jon Carter in mid-April. He noted that the alignment still crosses private property, including the cemetery, and the Rachel Carson Refuge. It appears to skirt the tidal wetland limit.

Questions for the Town

1. Would the Town like Wright-Pierce to schedule a meeting with representatives of Maine DEP, USACE, IF&W, Maine Audubon, Wells NERR, the Wells Conservation Commission, and Rachel Carson to conduct a field review of Options 2, 4, and 5?
2. Would the Town like Wright-Pierce to look at any of the potential alternatives in more detail prior to that meeting?

Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate



Boardwalk Option 5 -
 Follows upland edge with
 easement through cemetery

Boardwalk Option 3 -
 Connects to Upper
 Landing Road and
 possibly WNERR trails

Boardwalk Option 4 -
 Follows existing track/path
 with observation platforms

Boardwalk Option 2 -
 Loop through marsh
 restoration area

Boardwalk Option 1 -
 Over open water

Legend

- Alternate Boardwalk Alignments
- Existing Trails

Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells



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Source:
 Trails - NERR
 2004 ME Coastline LIDAR/Contours - NOAA
 Imagery - Bing Maps
 All boundaries are approximate



Boardwalk Option 3 -
 Connects to Upper
 Landing Road and
 possibly WNERR trails

Boardwalk Option 5 -
 Follows upland edge with
 easement through cemetery

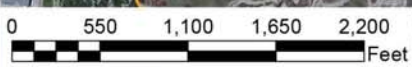
Boardwalk Option 4 -
 Follows existing track/path
 with observation platforms

Boardwalk Option 2 -
 Loop through marsh
 restoration area

Boardwalk Option 1 -
 Over open water

Legend

- Existing Trails
- HAT (NAVD88) 6.4 feet
- 2-Ft Contours
- Alternate Boardwalk Alignments
- Alignments



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- Birdwatching opportunities would be better than Option 5 in the winter, but Option 5 would present better opportunities in the summer.
- The shrubs would be maintained within the 25' buffer – they could potentially be trimmed to enhance views depending on the level of permitting required. Coastal shrublands are a rare habitat type in the State.
- A 10' tall raised platform could be constructed to allow better views near the boat trailer parking area.
- We were not able to locate the old boy scout trail, because of the density of existing vegetation. It is more apparent in other seasons.
- In places, the trail would follow the shoulder of the roadway.
- At the existing restaurant at the west end of Option 4, careful consideration would need to be given in the vicinity of the existing pull in parking to reduce conflict between pedestrians and drivers.
- PROS: Winter birdwatching, nice shaded walk through the trees
- CONS: Conflict with cars at restaurant, no good connectivity to Town facilities or future ped bridge to the east

Discussion of Option 5

- Option 5 would be a walking path on the south side of Harbor Road, set back from the HAT line or existing 3:1 slope at least 25', taking advantage of existing sweeping views of the marsh, in particular, some of the best breeding ground in the refuge.
- At its western extent, the Marsh Walk would turn south across refuge property, buffered from the shorebird roosting and feeding habitat, and would climb the hill to the cemetery where distant marsh views would be afforded at the top of the hill, before terminating on Route 1 across from the Jr. High School.
- Improvements to the shoulder of Harbor Road may fall with 25' of the HAT line or 3:1 slope. If no physical improvements are made to the shoulder of Harbor Road other than providing signage, permitting will be less involved.
- The Refuge did not say “yes”, but sounded supportive of Option 5, provided an adequate buffer from the shorebird roosting and feeding habitat can be provided.
- PROS: Compatible with renovation of Harbor Park, very good summer birdwatching from Harbor Road, could connect in future to sidewalk at Route 1/Harbor Road intersection, nice views, could connect to Jr. High School if a good crossing is provided
- CONS: Cemetery is privately owned, would require coordination with refuge, steep slope to cemetery may not meet ADA guidelines, care will need to be taken with respect to

documenting the shorebird roosting and feeding habitat and providing an adequate buffer, the walk through the cemetery to Route 1 may be uninteresting

Discussion of Option 2

- Option 2 was initially considered because the Town has fee interest in the property, and restoring this area to marsh – possibly as a test site for different restoration techniques – has been discussed in the past. The restoration could be used as compensation for a boardwalk.
- Wells NERR has a management authority for the property and the DOC has a conservation easement on the property. Paul Dest is not aware of any aspect of the agreements that would preclude the construction of trails on the property, as long as they are open to the public and meet the mission of the Reserve.
- 10 Acres would need to be restored and the earth moving would take 1-2 years. The associated costs would be significant. Paul Dest thinks it is unlikely a restoration will move forward, because the costs would probably not outweigh the benefits. It could happen in the future if funds can be located.
- If a trail is constructed and restoration moves forward, the cost of rebuilding the trail would be a small percentage of the overall project cost and would not be prohibitive.
- Vegetation now includes a meadow, early successional forest, and rare coastal shrublands. Meeting participants thought the variety of habitats would attract a range of birds.
- The trail would need to be a minimum of 25' from the HAT line or existing 3:1 slope, preferably with a railing to keep people from stepping on the marsh – which people are already beginning to do.
- Bob Green suggested perhaps constructing a one-way spur, rather than a loop, in order to minimize duplicate trail function.
- PROS: Compatible with renovation of Harbor Park, could be constructed in conjunction with portions of Options 4 & 5, Town owns the entire parcel, provides access to diverse habitats, takes users away from the roadway, could reduce trampling of marsh grasses if well-defined and appealing
- CONS: Does not provide connectivity, may not provide a significantly better/different experience than the existing platform and beach at the east end of Harbor Park

Conclusion

- Space out views to build anticipation – views do not have to be provided continuously along the route.
- For all options, who will maintain the trail and how will it be policed?

- Option 5 was the top preference in an informal concluding conversation, with Option 2 as the second choice and Option 4 as the third choice.
- There was no need seen for a trail on both sides of the roadway.
- For permitting, the clearer the application can be regarding the goals for the project, the better.
- “Avoid and minimize” were repeated by the regulators throughout the walk. If a portion of the proposed walk cannot be demonstrated to be adding something, it should not be included.
- The regulators clearly would prefer that the Marsh Walk be confined to upland areas with views into the marsh.

Excerpt from Email from Jay Clement at US ACE, June 11th 2013

1. First choice, no boardwalks over the marsh (aka no trails on the marsh). Second choice, the least amount of boardwalk over the marsh and any option that hugs the upland/wetland fringe as opposed to being out in the middle of the marsh.
2. Any boardwalk over marsh needs to meet our height to width standard - for every foot of width, the lower deck has to be at least 1' above the surface of the marsh vegetation. *Spartina patens* - not as challenging to achieve; cattails or *S. alterniflora* - much more of a challenge.
3. Any boardwalk that crosses a tidal river is a bridge. Bridges over tidal/navigable waters must also be approved by the Coast Guard. Point of contact is Gary Kassof at gkassof@battery.ny.uscg.mil
4. The town has to be cognizant of ADA and FEMA flood zone issues when thinking about the design of any potential impacts. Not our call but likely to be of interest to someone.

TO:	Project Team	DATE:	July 26, 2013
FROM:	Jennifer Claster	PROJECT NO.:	12549A
SUBJECT:	Wells Harbor – Marsh Walk Feasibility Study Project Status Memo		

Following a meeting with the Town on July 2nd, a draft plan and sections have been prepared for the Town's review, incorporating the Town's interest in pursuing the Marsh Walk as an extension of planned improvements to Harbor Road and Harbor Park. That day, Jennifer Claster visited the site to take photographs and measurements of existing site features. A draft plan and sections are attached for the Town's review and comment. The following considerations apply:

- Existing Conditions
 - The concept plans draw on field observations and available GIS data as base information and are not based on actual survey data. Contours are not tied to a benchmark.
 - It appears that travel lanes are generally 10'-6" to 11'-0" on Harbor Road and that gravel shoulders are generally 6'-0" wide on the south side of the road, where the Harbor Walk is proposed, but are as wide as 10'-0" in some places.
 - Two Island Explorer stops are located on the south side of Harbor Road.
 - Utility poles are present along the roadway, and it appears the project can be designed such that they are not disturbed.
- Proposed Design
 - The design proposes shifting the road centerline 2'-0" to the north in some places. The red centerline on the attached plans indicates a shifted centerline.
 - The design assumes an 11'-0" travel lane and 4'-0" shoulder in each direction from Harbor Park to Route 1. The curbed sidewalk and 4'-0" shoulder between the Fisherman's Catch and Route 1 are considered a future phase of roadway improvements and would not be included in the plans for the Marsh Walk project. Nonetheless, they are important to keep in mind, in the interest of providing connectivity for bicyclists and pedestrians. In the event that the slopes and curves on the west end of Harbor Road make it difficult to construct a 4'-0" shoulder for the length of the project, the Town could consider narrowing the

shoulders and providing Shared Lane Markings (SLM's) and signage that indicate that cyclists may use the vehicular travel lanes.

- Because a curb is not being used along the Harbor Walk, overland drainage is assumed. The on-grade portions of the path could be constructed of compacted stone dust or asphalt. A 3'-0" esplanade with a timber guardrail creates a separation between pedestrians and traffic on Harbor Road. The esplanade would require periodic maintenance, such as trimming. Where the pedestrian way is too close to the roadway to permit the use of an esplanade, such as at the Island Explorer stops, granite bollards can be used to further delineate pedestrian space.
- Where the path is adjacent to the parking lot in Harbor Park, a minimum 10'-0" planted buffer with a split rail fence is proposed, to provide separation from cars and focus attention on the natural areas of the park. A 2'-0" to 3'-0" strip is recommended to be mown on both sides of the path, to reduce exposure to ticks and provide an area for amenities such as benches. Plants would be comprised of shrub and grass species native to the park.
- A boardwalk is proposed between the Fisherman's Catch restaurant and the land managed by Wells NERR, including one of the Island Explorer stops, because the existing shoulder is narrower here, and the proposed improvements will be closer to the marsh. Including a railing, though it may not technically be required by code due to the elevation of the boardwalk, will provide a support for interpretive signage and will dissuade people from walking closer to the marsh. Materials for the deck are envisioned as including concrete piers, ACQ framing, and Trex decking.
- Two small plazas are proposed, one at the bathroom and one at the trail kiosk. The Town should consider using pavers or other higher quality materials in these areas. At a minimum, kiosks with signage about the bus system and the trails/park are proposed. Site amenities, such as benches, trash receptacles, plantings, and bicycle racks should be considered.
- Three overlook decks are proposed. Two are 12' x 24', and one is 24' x 24'. They are oriented differently to provide a unique experience of the marsh. The larger deck overlooks the prime birding area near the Fisherman's Catch. A smaller deck is located near the NERR managed land in a location that provides a peek around the woodlands to a beautiful view of the channels. The third deck

emerges from the forest to a more isolated location on the marsh, away from development.

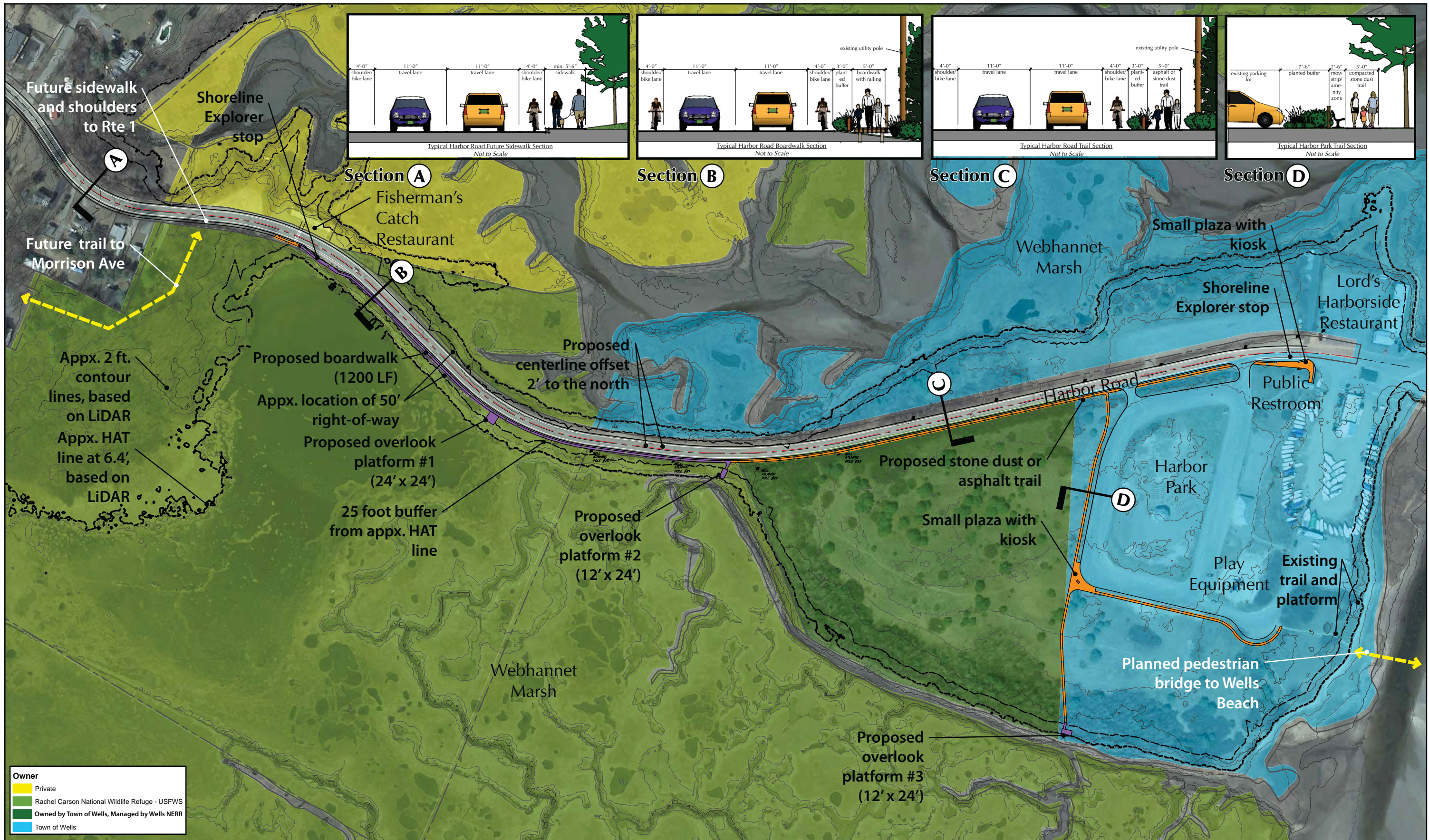
- A path around the edge of the NERR-managed land has not been proposed, due to the fact that it would be set at least 25' back from the edge of the woods and would not appear to avoid and/or minimize impacts. However, a path connecting to the beach path at Harbor Park from the new Marsh Walk is proposed as part of this project, to improve pedestrian connectivity within the park.
- Impacts to Abutters
 - At the Fisherman's Catch restaurant, the depth of the area available for pull in parking will be reduced by at least 4'-0" feet. There would still, however, be at least 20'-0" to the face of the building, which should still accommodate perpendicular pull-in parking. The Town should consider encouraging the restaurant to shift to angled parking in front of the building, which is more compatible with backing into the public roadway and would require less depth. Back-in angled parking has been used with mixed success in other Maine communities, where a bike lane is proposed adjacent to pull-in parking, which has some advantages for cyclists and pedestrians, and could also be discussed with the owners of the restaurant. As it is now, visitors to the restaurant appear to walk in the street to get to their cars.
 - Parts of the pathway and some of the proposed decks may still be on Rachel Carson land in some locations, depending on the exact location of the right-of-way (to be determined). Our understanding, based on the series of discussions we have had with them, is that the Refuge would not be categorically opposed to a proposal of this nature. It seems compatible with their preference that visitors look into the marsh from the edge.
- Impacts to Natural Resources
 - A 25' buffer is indicated from the HAT line. The HAT line has been generated from LiDAR data and is for conceptual design purposes only. Any work occurring within the 25' buffer would require a full NRPA permit. Our sense is that it would probably be worth pursuing a full NRPA permit for this project, since the alternatives analysis, which is a large component of the permit, has already been performed and this is the alternative that avoids and minimizes impacts as much as possible, while still providing some experience of the marsh.

A full NRPA permit requires a 120 day review period, which would mean that no construction could be performed this season.

- Although none of the decks is proposed to be constructed over the marsh, within the Highest Annual Tide (HAT) line, they are all within 25' of the HAT line, to provide a meaningful experience of the marsh.
- Most of the proposed walkway, with the exception of the Island Explorer stop near the Fisherman's Catch, is outside the 25' buffer.
- Future Improvements
 - The path connection to Morrison Ave., and the pedestrian bridge, as well as the sidewalk and roadway improvements from the Fisherman's Catch to Route 1, are being indicated as a future improvements.
- Next Steps
 - Town reviews concept – two weeks
 - Wright-Pierce revises sections and plan, develops costs, and assembles the Preliminary Design Report (see attached draft Table of Contents) – two weeks after Town review (by September 1)

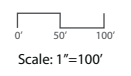
Questions for the Town

1. What are the Town's reactions to the proposed concept in terms of maintenance, impacts, and fulfilling the project's goals?
2. Does the proposed schedule sound reasonable?



HARBOR ROAD CONCEPT - MARSH WALK FEASIBILITY STUDY

July, 2013 Town of Wells, Maine



- Proposed Design
 - Jennifer reviewed the plan and sections and noted that parts of the pathway and some of the proposed decks are possibly partially located on Rachel Carson land in some locations, depending on the exact location of the right-of-way (to be determined). USFWS expressed that the proposed boardwalk would have to be nice enough to attract people to be successful, but that they wouldn't want it to be overrun with tourists.
 - **Overlook platforms:** It was suggested that the sizes shown on the plans may be too large and that Jennifer should visit the platforms at the Refuge Headquarters on the Carson Trail for comparison. The Rachel Carson platforms are similar to those envisioned for the Marsh Walk, but are generally 10' x 10' or 10' x 14', whereas the proposed platforms on the Marsh Walk concept plan are 12' x 24' and 24' x 24'. They appear to have Trex (or similar) railings and decking on pressure treated or ACQ timber framing, with concrete piers on the downhill side. It was noted that DEP would have problems with building anything in the tidal area.
 - It was suggested that Platform #1 could be a narrower, longer deck that is cantilevered out from the boardwalk.
 - It was suggested that Platform #2 could be designed as a partial blind to provide an educational experience and adventure for children. It was recommended that the deck be cantilevered and pushed back from the HAT line.
 - It was suggested that Platform #3 will potentially attract undesirable behavior because of its remote location. It was recommended that the deck be cantilevered and pushed back from the HAT line.
 - **Alternative of using fill and Mobimat instead of a boardwalk along the Refuge edge:** was discussed, but was not looked upon favorably by the Refuge. A boardwalk would be preferred. Furbish Road was cited as a local example of fill associated with a roadway migrating into the marsh. The fill is difficult to remove from the marsh and seems to be an ongoing issue. The idea of adding any additional fill adjacent to the marsh along Harbor Road is not acceptable to the Refuge, because it will create an additional stress on the marsh. Another factor that Jennifer realized is that if fill is brought in for the pathway, there would probably be no need for the Mobimat.

- **Proposed boardwalk:** The inclusion of a railing for the full length was appreciated as a way to discourage people from walking in the marsh.
- **Proposed culvert:** Kate noted that the impounded former salt pond area is still saline and Ward and Kate did not believe that the proposed culvert concept would benefit wildlife habitat in the Refuge. They were going to consult with Sue Adomovich (salt marsh ecologist) for her opinion. Later today, Jennifer received an e-mail from Ward suggesting that the proposed culvert would drain the shorebird feeding and roosting area, which would not be desirable. A culvert farther to the east may benefit the Refuge by connecting two waterways that were divided by Harbor Road, but he cautioned that more study would be needed to ensure that this is the case. He is seeking other opinions from within his organization.
- **Vegetated buffer between path and roadway:** Suggested plants included bayberry, switchgrass and Virginia rose.
- Ward and Kate will take the concept plan and compare it with existing site conditions in the field to better understand the implications of the plan.
- **Collaboration**
 - USFWS's internal grant program has been eliminated and funding is tighter each year because of Sequestration. That said, they could help recommend external grants that the Town and Rachel Carson could jointly apply for, which would make a more compelling application. Public health was considered as a possible angle.
 - USFWS could also help with ideas regarding interpretation of the marsh.
 - USFWS's participation in the boardwalk would be part of a good faith effort that would assume that Harbor Park is not going to come to resemble Old Orchard Beach.
 - USFWS would want to visit the site and get a better sense of the path's use and where the site improvements would fall on the land before agreeing to the proposal.
 - If the boardwalk is partially on USFWS land, they would want to come to an agreement with the Town about hours of operation and permitted uses, recognizing that in some ways, the boardwalk will function as a public sidewalk. For examples, could motorized vehicles be prohibited from using the sidewalk,

could acceptable uses be posted, such as staying on the boardwalk, not throwing trash in the marsh, keeping pets leashed, etc. Typically, the Refuge is only open dawn to dusk, and this would need to be resolved.

- Given the Refuge's budget issues, they would want to have a clear understanding of who is maintaining and caring for the boardwalk. Pursuing the project will take some staff time just for basic coordination, and they are low on operating budget as things stand.
- There are two different ways to get legal permission from the refuge for the boardwalk.
 - **Special Use Permit from USFWS** Advantages: It is easy and free. The Carson Refuge would do it. Disadvantages: It is only good for 5 years and needs to be re-granted every 5 years.
 - **Work out a right of way that travels with the deed from the USFWS Division of Realty** Advantages: It is permanent. Disadvantages: It is a considerably more involved process.
- Future Improvements
 - The path connection to Morrison Ave., and the pedestrian bridge, as well as the sidewalk and roadway improvements from the Fisherman's Catch to Route 1, were explained as future improvements. The connectivity plan between the Transportation Center and the Harbor was also explained.
- Next Steps
 - USFWS will visit the site, review the culvert proposal, and respond with their conclusions by Friday, September 6th.
 - Wright-Pierce maps roosting/feeding bird buffer and sea level rise/new FEMA data in vicinity of project.
 - Wright-Pierce revises sections and plan to reflect overlook suggestions, develops costs, and assembles the Preliminary Design Report by September 6th, in preparation for the Town Council Workshop on September 10th.
 - Wright-Pierce will develop more fleshed out 3-D computer models of the overlooks for the 10th.

Memo: Wells Harbor Marsh Walk Evaluation Team
August 27, 2013
Page 5

Questions for the Town

1. What are the Town's reactions to the meeting outcome?
2. Is it OK to abandon the Mobimat option?
3. Does the proposed schedule still sound reasonable?

TO: Jon Carter; Wells Town Council DATE: September 6, 2013
FROM: Jennifer Claster PROJECT NO.: 12549A
SUBJECT: Wells Harbor – Marsh Walk Feasibility Study
Council Workshop

Project Background and Stakeholder Involvement

A feasibility study for a marsh walk in the Webhannet Marsh was completed for the Town in 1999, but no construction resulted from that effort. In 2012, Wright-Pierce was hired to complete a new feasibility study for the marsh walk. The project was undertaken in conjunction with an update of the Town's Harbor Management Plan and the conceptual design of a cross-harbor pedestrian bridge that would link the easterly and westerly shores of the Webhannet River.

The initial concept for the marsh walk included a boardwalk over the marsh that would connect Harbor Park to Mile Road and Drakes Island Road, and, by doing so, create a coastal walking network in Wells that would eventually link up with other existing paths and trails, such as those at Laudholm Farm. Due to the ecological significance of the Webhannet Marsh and the complexity of land ownership in the vicinity of the planned project, the following stakeholders were involved in an evaluation of marsh walk concepts that took place between January and August 2013:

- Town of Wells (as represented by the Town Manager and Harbormaster)
- Wells Conservation Commission
- Wells Harbor Commission
- Maine Department of Environmental Protection (Maine DEP)
- Maine Inland Fisheries and Wildlife (IF&W)
- United States Army Corps of Engineers (USACE)
- Rachel Carson National Wildlife Refuge/USFWS
- Wells National Estuarine Research Reserve (NERR)
- Maine Audubon

As a result of the site's ecological complexity, and in conformance with the recommendations of key stakeholders, the design has been revised to reduce its impact on the marsh.

Project Goals

The Marsh Walk would promote the following goals:

- Support eco-tourism and enhance the experience of carless vacationing in Wells by providing a destination for travelers arriving from the Eastern Trail or from the train station at the Wells Transportation Center using public transit or a planned future bicycle pedestrian connection

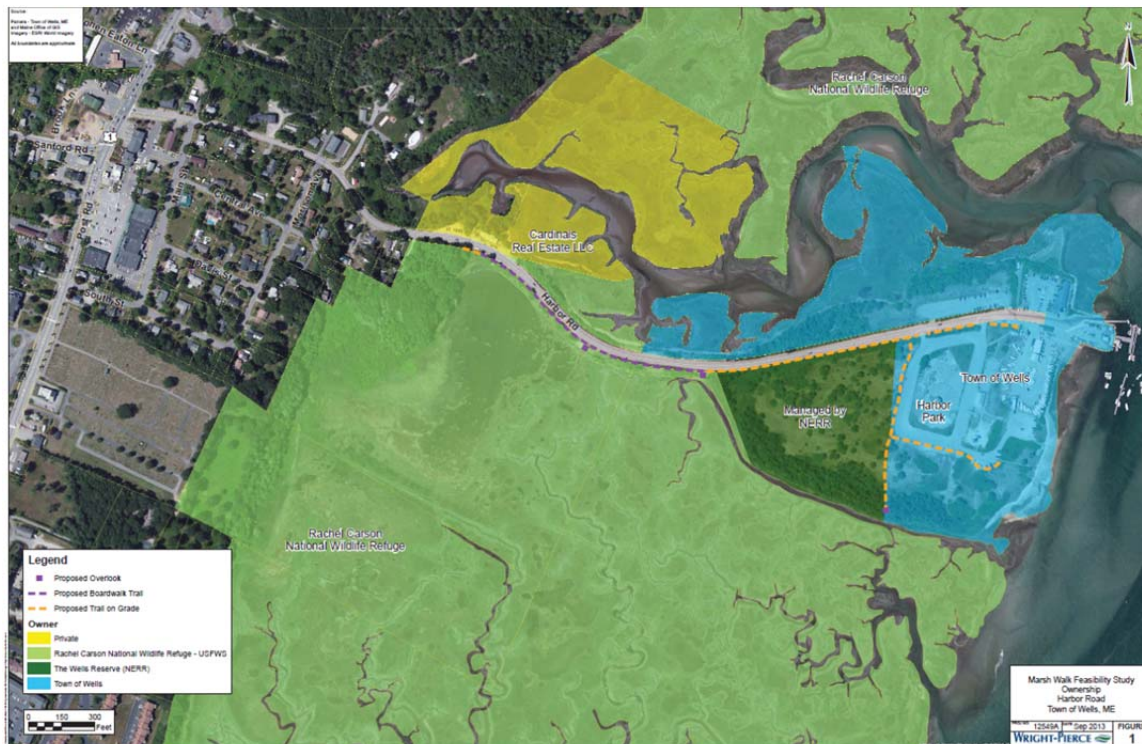
through the Town's school properties and along Harbor Road (See attached Bicycle and Pedestrian Connectivity Vision figure)

- Support eco-tourism by improving visual access to plant and animal species in a variety of habitats
- Use interpretive signage to educate marsh walk users about the ecology of the marsh
- Support and expand research and education about the marsh and its natural communities in partnership with the Wells National Estuarine Research Reserve (WNERR) and Rachel Carson National Wildlife Refuge (Rachel Carson)
- Complement planned improvements to Harbor Park
- Minimize and avoid negative environmental impacts on important wildlife habitats, such as shading of *Spartina alterniflora* grass, and disturbance of shore birds using the marsh

Land Ownership

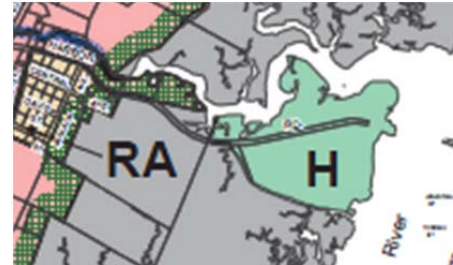
Because the Town of Wells most likely does not have exclusive ownership of the land that would be affected by the marsh walk, it will be important to obtain surveyed boundaries of the potentially affected land owners and work with them to obtain the easements and permissions needed.

The Rachel Carson National Wildlife Refuge and Wells NERR both have interests in land abutting the project, which generally follows Harbor Road from the Fisherman's Catch Restaurant to the public rest room in Harbor Park.



Environmental Conditions and Permitting

The project is adjacent to the Webhannet Marsh, which, as part of the Wells and Oqunguit Marsh Complex, is the second largest salt water marsh in the State. Based on LiDAR data available from NOAA, it appears that none of the proposed marsh walk project lies within the coastal wetland, however storm surges and future sea level rise will need to be considered where the marsh walk is in close proximity to the marsh. Performing a survey of the site will help to establish the exact location of the marsh's boundary, and will help to make clear the regulatory ramifications of this project. At this time, however, it is anticipated that the following will likely necessitate permits to be acquired from the Town and State:



- The project's is located near tidal wading bird and waterfowl habitat (considered significant by Mein DEP) and is within salt marsh sharp-tailed sparrow habitat
- Parts of the project are located within the 100 year flood zone
- Parts of the project may be located within 25' of the regulatory boundary of the tidal marsh
- The project is within the Town's Resource Protection and Shoreland Overlay Districts



Marsh Walk Concept Plan

The concept plan is based on field observations and available GIS data and is not based on survey data.

Existing Conditions

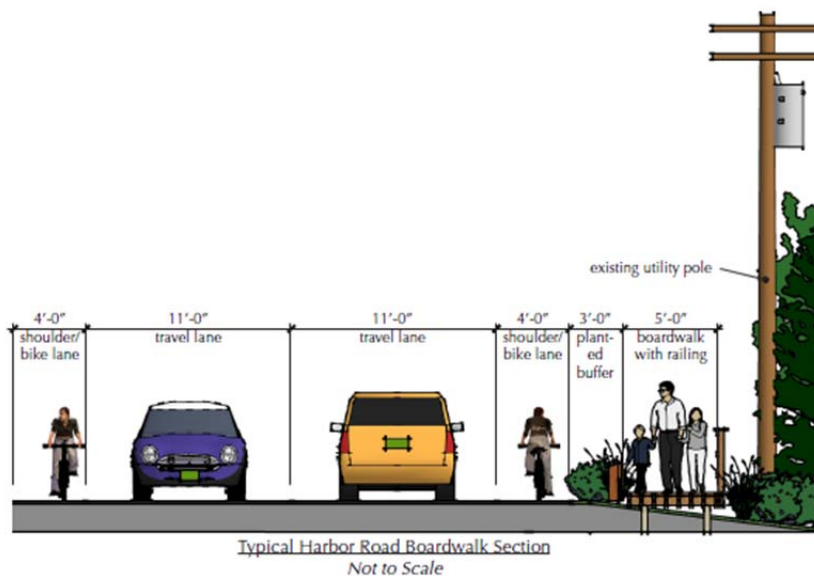
It appears that travel lanes are generally 10'-6" to 11'-0" on Harbor Road. Gravel shoulders are generally 6'-0" wide on the south side of the road, where the marsh walk is proposed, but can be as wide as 10'-0" in some places. Two Shoreline Explorer bus stops are located on the south side of Harbor Road. Utility poles are present along the roadway, and it appears the project can be designed such that they are not disturbed.

General

The marsh walk concept plan, with typical sections and illustrations, is included at the end of this memo. The following considerations apply.

- The design proposes shifting the road centerline 2'-0" to the north in some places. The red centerline on the concept plan indicates a shifted centerline.
- The design assumes an 11'-0" travel lane and 4'-0" shoulder in each direction from Harbor Park to Route 1.
- Because a curb is not being used along the marsh walk, overland drainage is assumed.
- A curbed sidewalk and 4'-0" shoulder between the Fisherman's Catch and Route 1 are considered a future phase of roadway improvements and are not considered part of the marsh walk project.
- A discussed trail connection to Morrison Avenue and the pedestrian bridge to Wells Beach are also considered future improvements outside the scope of this project.

Boardwalk Trail



A 5'-0" wide boardwalk is proposed between the Fisherman's Catch restaurant and the land managed by Wells NERR. At the Shoreline Explorer stop across from the Fisherman's Catch Restaurant, the sidewalk and a standard ADA compliant 8'-0" landing area adjacent to the bus turn out would also be constructed as a boardwalk. It is in this area, close to the proposed crosswalk, that the

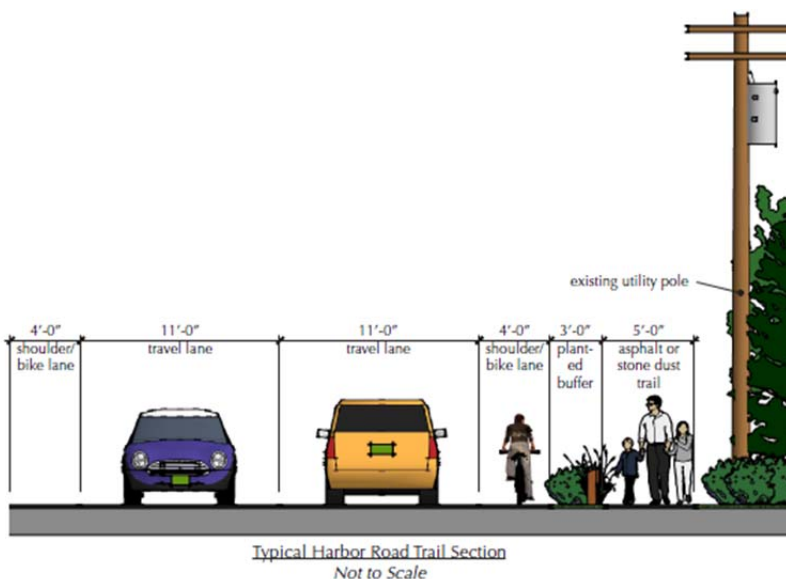
upland edge of the salt marsh appears to be closest to the roadway and to the proposed improvements. A boardwalk is proposed in this area for several reasons:

- The existing shoulder is narrower here, where the roadway has been constructed through the marsh, and the existing grade drops off toward the marsh at about a 10% grade beyond the shoulder. To construct a sidewalk on grade, fill would need to be imported. Due to the sensitivity of the marsh and the fact that some of the proposed work may be occurring within 25' of the marsh boundary, fill will need to be strictly limited in this area.
- The potential for storm surges and for impacts due to projected sea level rise are greatest along this section of the marsh walk. Building the marsh walk as a boardwalk through this area will make it more resilient to impacts resulting from future environmental changes.
- Proximity to the marsh along this stretch provides good wildlife viewing opportunities and also creates a temptation, as evidence of current use suggests, for people to enter the marsh. The grade separation provided by the boardwalk, reinforced by the proposed 42" railing, will deter people from entering the marsh itself, while providing an aesthetic experience that heightens the sensation of being in a special ecological setting.

Trail on Grade

The on-grade portions of the marsh walk will take the form of a 5'-0" wide compacted stone dust or asphalt trail. A 3'-0" esplanade with a timber guardrail will create a separation between pedestrians and traffic on Harbor Road. The esplanade will require periodic maintenance and trimming. Where the pedestrian way is too close to the roadway to permit the use of an esplanade, such as at the Shoreline Explorer stops, granite bollards could be used to further delineate pedestrian space.

Where the trail is adjacent to the parking lot in Harbor Park, a minimum 10'-0" planted buffer with a split



rail fence is proposed, to provide separation from cars and focus attention on the natural areas of the park. A 2'-0" to 3'-0" strip is recommended to be mown on both sides of the trail, to reduce exposure to ticks and provide an area for site amenities such as benches and trash receptacles. Plants would be comprised of shrub and grass species native to the park, such as Switchgrass, Virginia Rose, and Bayberry.

A path around the marsh-facing edge of the NERR-managed land has not been proposed, due to the fact that it would be set at

least 25' back from the edge of the woods and would not seem to avoid and/or minimize impacts for

permitting purposes. However, a path connecting to the beach path at Harbor Park from the new marsh walk is proposed as part of this project, to improve pedestrian connectivity within the park.

Plazas

Two plazas are proposed, one at the bathroom and one at the trail kiosk. The Town should consider using pavers or other higher quality materials in these areas. At a minimum, kiosks with signage about the bus system, the trails, and Harbor Park are proposed. Site amenities, such as benches, trash receptacles, plantings, and bicycle racks are also recommended in the plaza areas.

Overlook Platforms

Three cantilevered overlook platforms are proposed. Each platform is intended to provide a unique experience of the marsh.

- The longer, narrower platform (#1) overlooks the prime birding area near the Fisherman's Catch Restaurant.
- A smaller platform (#2) is located near the NERR managed land in a location that provides a peek around the woodlands to a beautiful view of the channels, and could be partially blinded to provide better wildlife viewing opportunities.
- The third platform (#3) emerges from the forest to a more isolated location on the marsh, away from the roadway. It has been noted that the remote location of this platform will necessitate some form of community policing.



Proposed Culvert

A culvert is being considered just west of overlook platform #2 to reconnect waterways that were disconnected as a result of the construction of Harbor Road, for the purpose of improving wildlife habitat within the marsh. This culvert is not needed because of flooding, and is solely being considered for the purpose of providing compensation and improving marsh ecology. It should be noted that no need for compensation has been identified at this time, and the culvert is strictly being proposed as a good faith effort by the Town. That does not preclude the possibility that a need for compensation will be identified as part of the permitting process.

In the location of the proposed culvert, as generally indicated on the marsh walk concept plan, Harbor Road is acting as a dike. This location has been suggested by the Rachel Carson Refuge, with the caveat that more study and discussion with the Refuge and the marsh ecologists at USFWS would be needed to ensure that the culvert will have a positive effect on the marsh before embarking on such a costly project. There are considerable permitting requirements associated with a culvert of this nature.

Impacts to Abutters

At the Fisherman’s Catch restaurant, the depth of the area available for pull in parking will be reduced by at least 4’-0” feet. There would still, however, be at least 20’-0” to the face of the building, which should still accommodate perpendicular pull-in parking. The Town should consider encouraging the restaurant to shift to angled parking in front of the building, which is more compatible with backing into the public roadway and would require less depth, and should also consider back-in angled parking, which has some advantages for cyclists and pedestrians.

Depending on the exact location of the right-of-way (to be determined), portions of the marsh walk and some of the proposed overlook platforms may be partially or wholly located on Rachel Carson land. At the time of writing, the Refuge was seemingly still open to the proposal described in this plan, with some reservations.

Costs

Conceptual, planning level costs by trail section, which include engineering and contingencies, with an additional figure for boundary, utility, and topographic survey, are as follows:

Section 1 - 5' wide asphalt trail and crosswalk to Fisherman's Catch Restaurant	\$11,800
Section 2 - 5' wide boardwalk, boardwalk bus turn out, and overlook platforms #1 and #2	\$646,000
Section 3 - 5' wide asphalt trail along Harbor Road and plaza at public restroom	\$179,100
Section 4 - 5' wide stone dust trail along Harbor Park parking lot and plaza at trail junction	\$146,600
Section 5 - 5' wide stone dust trail in Harbor Park and overlook platform #3	\$34,800
Section 6 - Roadway improvements including repaving roadway, paving asphalt shoulders and striping	\$394,200
Section 7 - Culvert Survey	\$100,000.00 \$20,000.00
Grand Total :	\$1,532,500

Next Steps

The following next steps will need to be accomplished as the project moves into design development:

1. Secure funding for survey and engineering. A meeting is being held with a representative of the Recreational Trail Grant Program (Maine DOC) to preliminarily identify potential grant opportunities on September 12th.
2. Perform a ground survey of the HAT line/marsh boundary, topographic survey, utility survey, and boundary survey.

3. Overlay the concept plans with the surveyed existing conditions to see whether the implications for permitting and design have changed. Make revisions as necessary.
4. Review the revised concept plans with Town, State and federal regulators and stakeholders including the Town's Code Officer, Maine DEP, Maine IF&W, Maine Department of Marine Resources, the USACE, the USFWS/Rachel Carson, the Wells NERR, the Wells Conservation Commission, the Wells Harbor Commission, Maine Audubon, and the Fisherman's Catch Restaurant. The review would have two purposes - to verify permitting and partnership requirements in light of better existing conditions information (including ownership) and to confirm buy-in and receive comments prior to design development. It will be critical to confirm with the Town's Code Officer that the project is in conformance with local codes. It will also be important to define the terms and costs of the use agreement between the Town and USFWS.
5. Hold a public meeting to receive comments on and build support for the project.
6. Prepare 90% plans for permitting purposes, including sections and details. The NRPA permit alone has a 120 day review period, so it will be a major factor in the timing of construction.
7. Finalize plans, specifications, and cost estimates.
8. Secure construction funding.
9. Solicit bids for the portions of the project that are selected for construction and select a contractor.

TO:	Project Team	DATE:	September 23, 2013
FROM:	Jennifer Claster	PROJECT NO.:	12549A
SUBJECT:	Wells Harbor – Marsh Walk Feasibility Study Project Status Memo		

Based on comments received at the Town of Wells Selectboard Meeting of September 6th, 2013, the Town seems generally favorable toward the Marsh Walk concept as presented. The following comments were made by Selectboard members at the meeting:

- The design will need to accommodate bicyclists, due to trends suggesting an increase in use by cyclists, on a shared use trail or bicycle lanes, as space permits.
- The proposed culvert should not be pursued if no ecological improvement value can be found, recognizing that further study will be needed to evaluate its effect on the marsh.
- Try to limit or eliminate work on USFWS land and keep work on town land or within the Harbor Road right-of-way.
- Would the school properties really make sense as a place to locate a path, given the schools' concerns with unmonitored activity on their property?
- Should the trail hug the woods as much as possible?
- The concept is great – Harbor Park and Harbor Road are a diamond in the rough.
- How will this proposal affect The Fisherman's Catch?
- Add more overlooks, if possible, if room exists within the Harbor Road right-of-way.
- Morrison Ave. is preferred as a way to connect cyclists and pedestrians from Harbor Road to Rte. 1, instead of following Harbor Road all the way to the intersection of Rte. 1.
- If a trail connects the schools to Harbor Road, children can use it to walk to Harbor Park.
- If work is proposed in the woods, remove dead trees and clear out underbrush.

The Town is interested in pursuing topographic and boundary surveys along Harbor Road, from its intersection with Route 1 to its eastern end, as well as the western boundary of Harbor Park of Harbor Road to establish an understanding of ownership within the corridor, identify the limits of regulatory constraints as defined by the coastal wetland (highest annual tide line), and other existing conditions that could affect the design of the Marsh Walk in conjunction with a reconstruction of the roadway, which could occur during spring of 2014. The survey work will help the Town to firmly establish constraints and opportunities for the Marsh Walk, before embarking on additional design.

We recommend the following survey scope of services:

1) **Boundary Survey**

- Existing easements;
- Approximate side lot lines;
- Intersecting street right-of-ways;
- Existing monumentation;
- Right-of-way along Harbor Road, and;
- Boundaries of the parcel that is managed by the Wells NERR.

2) **Topographic Survey**

- Topographic survey along the entire length of Harbor Road and extending to a distance of 60 ft. on either side of the existing road centerline. (If a building is closer than 60 ft. then this item and others can stop at the face of the building);
- Topographic survey up to and including the channels within the marsh that the proposed culvert would connect, beyond the typical survey cross section of 60 ft. distance from the existing road centerline as necessary;
- Topography within Harbor Park in a 60 foot corridor centered on the proposed pathways/trails, or the existing trail (in woods), if trail is not depicted accurately on the concept plan;
- Establishment of temporary horizontal and vertical control points; and
- Temporary benchmarks outside of the development area to serve future construction/layout.

Topographic survey features are expected to include:

- 1 foot contours for the project area;
- Top of bank and bottom of bank spot elevations if steep slopes are present adjacent to and extending beyond the corridors specified above;
- Drainage structures, pipe material/size and inverts;

- Ditches, ditch centerlines and top of bank;
- Edge of road, gravel shoulder, curblines, driveways, walkways, and existing trails, paths, and kiosks;
- Centerline of road; existing roadway striping including centerlines, parking lines, fog lines, and warning lines;
- Utility poles and guy wires;
- Signs, including type/message;
- Vegetation (massed trees at the drip line, individual trees and shrubs in field/lawn areas and near the HAT line, and landscaped beds);
- Fences, retaining walls and guardrails;
- Other surface utility features like sewer manholes, water valves, hydrants...;
- Face of buildings; and
- Possibly dig safe underground utilities.

All survey data for right-of-ways, easements and topographic features shall be provided in AutoCAD, shall be referenced to a known datum and shall be georeferenced to NAD83 State Plane Feet (OR as requested by the Town)

3) **The highest annual tide (HAT) line** will be calculated based on topographic survey and data provided by Maine DEP to establish the boundary of the tidal marsh for regulatory purposes

Other Information to Consider Obtaining:

1) **Environmental science subconsultant evaluation** to evaluate the efficacy of a new culvert in the proposed location. The Town will probably need more biological assessment of the habitats on each side, as well as the hydrology. If the Wells NERR likes this idea, is it possible they could support that part of the project?

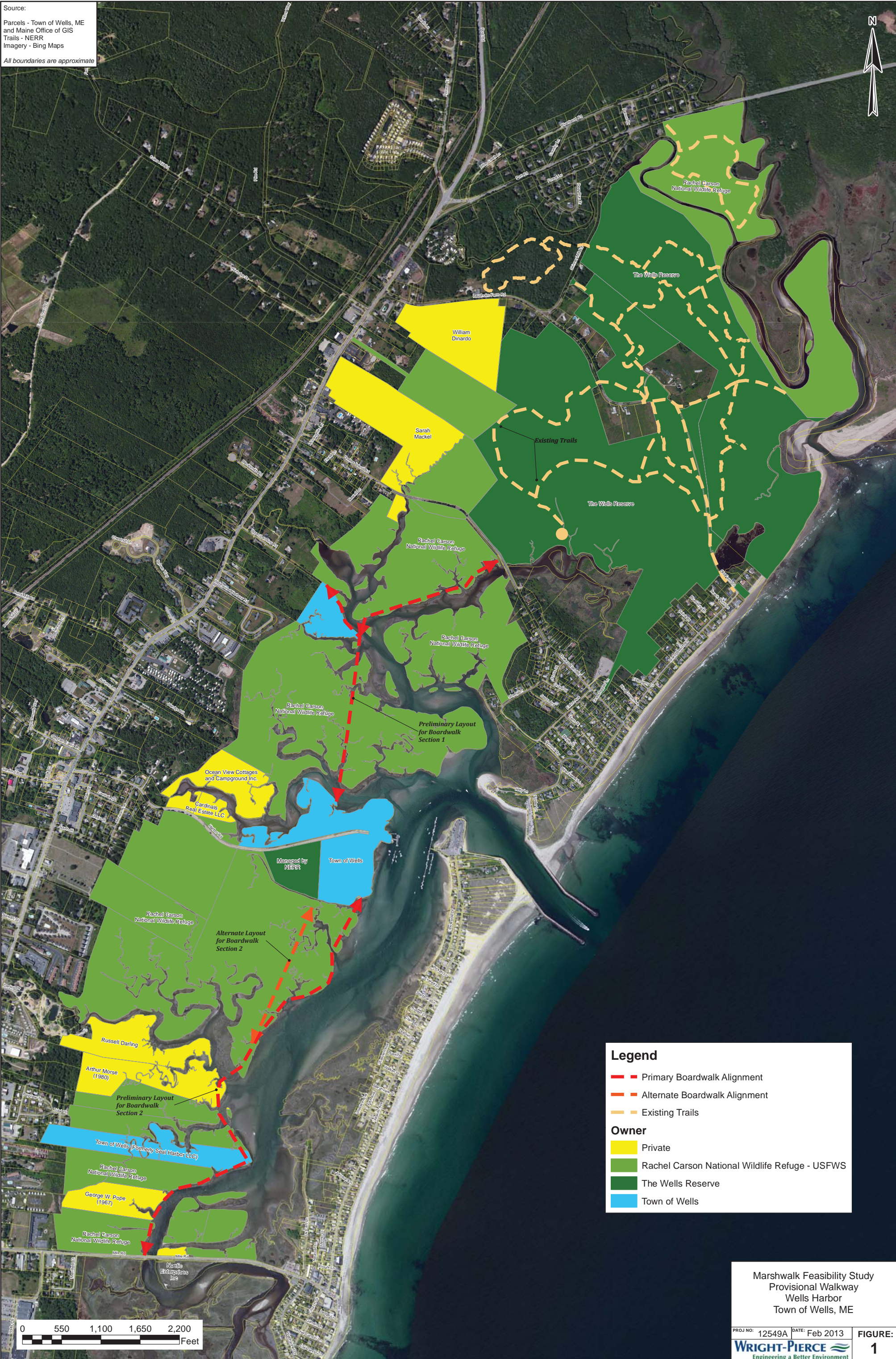
2) **Geotechnical**

- Evaluation of the roadway sub-base regarding suitability for re-paving with test pits using town forces
- Evaluation of soil characteristics regarding suitability for structural support where overlooks and boardwalks are proposed by sampling using test borings

APPENDIX C

Marsh Walk Alternatives Mapping

Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate

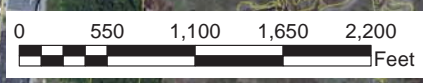


Legend

- Primary Boardwalk Alignment
- - - Alternate Boardwalk Alignment
- - - Existing Trails

Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells



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Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate



Boardwalk Option 3 -
 Connects to Harbor
 Road and WNERR
 trails

Boardwalk Option 4 -
 Follows existing track/path
 Observation platforms

Boardwalk Option 2 -
 Loop through marsh
 restoration area

Boardwalk Option 1 -
 Over open water

Legend

- Alternate Boardwalk Alignments
- Existing Trails

Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells

Marshwalk Feasibility Study
 Alternative Boardwalk Alignments
 Wells Harbor
 Town of Wells, ME

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Source:
 Parcels - Town of Wells, ME
 and Maine Office of GIS
 Trails - NERR
 Imagery - Bing Maps
 All boundaries are approximate



Boardwalk Option 5 -
 Follows upland edge with
 easement through cemetery

Boardwalk Option 3 -
 Connects to Upper
 Landing Road and
 possibly WNERR trails

Boardwalk Option 4 -
 Follows existing track/path
 with observation platforms

Boardwalk Option 2 -
 Loop through marsh
 restoration area

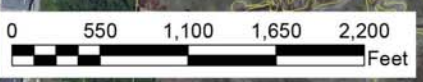
Boardwalk Option 1 -
 Over open water

Legend

- Alternate Boardwalk Alignments
- Existing Trails

Owner

- Private
- Rachel Carson National Wildlife Refuge - USFWS
- The Wells Reserve
- Town of Wells



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Source:
Trails - NERR
2004 ME Coastline
LIDAR/Contours - NOAA
Imagery - Bing Maps
All boundaries are approximate

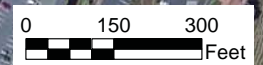
- Legend**
- Boardwalk Alignment Option 2
 - Boardwalk Alignment Option 4
 - Boardwalk Alignment Option 5
 - Existing Trails
 - HAT (NAVD88) 6.4 feet
 - 2-Ft Contours



**Boardwalk Option 4 -
Follows existing track/path
with observation platforms**

**Boardwalk Option 5 -
Follows upland edge with
easement through cemetery**

**Boardwalk Option 2 -
Loop through marsh
restoration area**

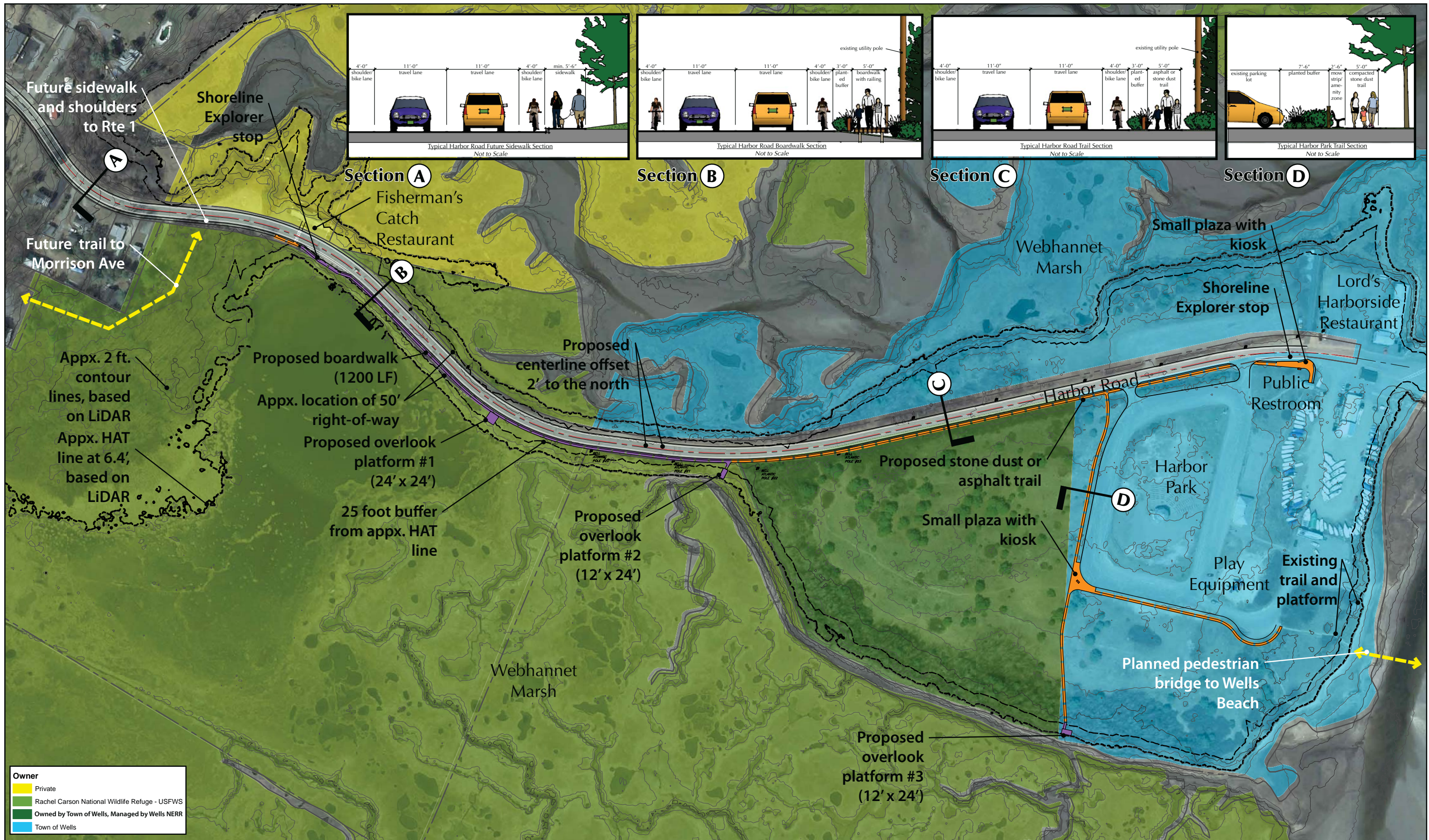


Marshwalk Feasibility Study
Highest Annual Tide (NAVD88)
Harbor Rd.
Town of Wells, ME

PROJ NO: 12549A	DATE: Jun 2013	FIGURE: 4
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WRIGHT-PIERCE
Engineering a Better Environment





HARBOR ROAD CONCEPT - MARSH WALK FEASIBILITY STUDY

July, 2013 Town of Wells, Maine