STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Janet T. Mills
GOVERNOR

Bruce A. Van Note
COMMISSIONER

October 26, 2021

Tom Miragliuolo
Senior Planner
Municipal Planning Assistance Program
Department of Agriculture, Conservation and Forestry
22 State House Station, Augusta, ME 04333-0022

Dear Tom,
Maine Department of Transportation finds the 2021 Town of Scarborough Comprehensive Plan consistent with its transportation policies and goals. Scarborough's residential and business growth combined with dispersed development has created challenges for all modes of transportation. Similar difficulties are faced by many Portland region municipalities. Partial solutions to the congestion and lack of safety can be accomplished incrementally with the tools the Plan details: required street connectivity for new development, "complete streets" features for new and upgraded roads and adaptive traffic signal systems at selected intersections. MaineDOT supports each of the recommendations under the Plan's Vision 5: "Scarborough's transportation network will support current and future land uses (walkable, mixed-use development patterns) that create efficiencies which reduce the impact of traffic on residents and businesses."

Maine Department of Transportation also supports the Comprehensive Plan's call for a Town of Scarborough infrastructure investment strategy study in response to sea level rise and climate adaptation. MaineDOT has embarked on a similar study of its own infrastructure assets as part of Maine's Climate Action Plan. Our study includes attention to portions of Routes 1 & 9 in Scarborough. The town will hear more from MaineDOT about these proposed highway improvements in the next few years.

Finally, MaineDOT is pleased to partner with the Town of Scarborough and other partners on both on-road and off-road expansions of the Eastern Trail, to occur in 2022 – 2023. These additions to the town's transportation and recreation network should be welcomed by residents and visitors alike.

Sincerely,

Stephen Cole
Regional Planner, Regions 1 & 2
MaineDOT

From: Hodge, Ashley
To: Miragliuolo, Tom
Subject: Scarborough Comprehensive Plan Review
Date: Friday, November 05, 2021 3:41:35 PM

Good Afternoon Tom,

The Maine CDC Drinking Water Program has finished reviewing the Scarborough's Comprehensive Plan. Great job to Scarborough on their aquifer protection! They are welcome to reach out to the Drinking Water Program should they need any future help with watershed/aquifer protection (creating ordinances, advice, etc.).

Thank you for the opportunity to review this plan.

Ashley Hodge
Source Water Protection Coordinator

Department of Health and Human Services
Maine Center for Disease Control and Prevention - Preserve ~ Promote ~ Protect
Division of Environmental and Community Health
Drinking Water Program

Maine CDC Drinking Water Program
151 Jetport Boulevard
Portland, ME 04102-1946

Office: (207) 822-2341

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
MAINE FOREST SERVICE
22 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 3, 2021

Tom Miragliuolo
Land Use Planning
22 State House Station
Augusta, ME 04333-0022

RE: Maine Forest Service review of the Town of SCARBOROUGH Comprehensive Plan

Dear Tom:
The Maine Forest Service (MFS) has reviewed the Town of Scarborough draft comprehensive plan. While the plan is generally well written and attractive, it is lacking in the basic required information outlined in Maine's Growth Management Act, and therefore should be considered inconsistent.

Current Maine Tree Growth current use taxation data was partially included, and not current:

Town_Name	Total Acres	Number of Landowners	Number of Parcels	Date_Recd
SCARBOROUGH	1,107.51	30.00	33.00	9/22/2021

Current use taxation programs are one of Maine's most basic forms of encouraging conservation of agricultural, open space, and forest lands. While clear the town is concerned about loss of open space to development and conversion to other uses, this tool set is almost completely ignored in its comprehensive planning process.

The plan does not refer to timber harvesting in as part of Scarborough's shoreland zoning regulations. Scarborough opted to adopt local timber harvesting regulations mirroring state regulations (Option 2) Under Option 2, The local code enforcement in tandem with MFS administers and enforces these standards.

The plan does provide broad references to town owned and conservation properties but does not provide any further details regarding conservation entities or management of public asset and open space resources. Management beyond recreational purposes was not discussed.

The plan refers to street trees as a component of placemaking and potential use for low impact development and stormwater retention planting but makes no mention of active management of these resources. Active management of conservation properties as well as the urban forest can provide for a healthier woodland ecosystem, safe recreational space, and can potentially provide income to support ongoing management. MFS provides grants to support management planning, as well as street tree planting and management through Project Canopy. Grants are typically made available on an annual basis.

MAINE FOREST SERVICE
18 ELKINS LANE, HARLOW BUILDING

PHONE: (207) 287-2791

WWW.MAINEFORESTSERVICE.GOV

Timber harvest data was not included in the plan. Timber harvesting was not referenced to once. Current harvesting data is included below.

Summary of Timber Harvest Information for the town of: **Scarborough**

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1991-1992	148	0	36	184	26	6
1993	141	0	6	147	6	6
1994	133	60	0	193	0	8
1995	233	0	30	263	27	8
1996	112	0	0	112	15	5
1997	455	90	0	545	20	13
1998	613	105	5	723	22	20
1999	322	40	7	369	107	23
2000	401	30	0	431	60	17
2001	279	0	0	279	68	13
2002	105	0	6	111	130	6
2003	193	0	0	193	184	13
2004	108	0	0	108	119	19
2005	97	0	0	97	135	9
2006	243	20	0	263	21	7
2007	204	0	0	204	51	16
2008	270	0	0	270	0	13
2009	125	0	0	125	0	13
2010	108	0	0	108	18	6
2011	40	21.4	0	61.4	0	8
2012	247	0	0	247	15.5	15
2013	627	145	28	800	69.85	23
2014	128	25	30	183	37	19
2015	64	45	5	114	8	16
2016	94	38	0	132	1.5	8
2017	115.5	2	0	117.5	15	9
2018	112	0	0	112	50.6	17
2019	48	24	12	84	94	12
Total	5765.5	645.4	165	6575.9	1300.45	348
Average	206	23	6	235	46	12

[illegible]

[illegible]

We help you make informed decisions about Maine's forests

**** To protect confidential landowner information, data is reported only where three or more landowner reports reported harvesting in the town.***

Reviewing agency and review coordinator contact information:

Department of Agriculture, Conservation and Forestry - Maine Forest Service
Jan Santerre
22 State House Station
Augusta, ME 04333-0022
207-287-4987
jan.santerre@maine.gov

If you have any questions regarding these comments, please contact one of the review coordinators directly. Thank you for your consideration of our comments.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

To: Tom Miragliuolo, Senior Planner, Municipal Planning Assistance Program, Department of Agriculture, Conservation and Forestry

From: Addie Halligan, Watershed Management Unit, Division of Environmental Assessment, Department of Environmental Protection

Re: Scarborough Comprehensive Plan Review

Date: November 5, 2021

I have reviewed Scarborough's Comprehensive Plan as it relates to surface waters. The Plan identifies The Scarborough Marsh, Red Brook, Phillips Brook, Mill Brook and Willowdale Brook as critical water resources, with the Scarborough Marsh in particular being essential to the town's character and an important economic resource. The information on surface water resources was accurate, but could use more detail, as outlined below. The identification of areas of improvement regarding surface water protection, specifically include strengthening the understanding and impact that nonpoint source pollution has on surface waters, the inclusion of additional critical water resources, the importance of collaborating with adjacent towns in protection efforts, and additional measures to strengthen protection measures and conduct education and outreach within the community.

Appropriate use of data provided by the DEP Division of Environmental Assessment
Overall, the Scarborough Comprehensive Plan provided some overview and understanding of water resources in the town. However, it appears that the Town of Scarborough last received information from DEP regarding water resources in Spring of 2017, please see attached maps and letter for up to date information and incorporate missing information described below into the plan where applicable.

The inclusion of the following additional information is strongly recommended:

- **Nonpoint Source Priority Watersheds:** On page 85 the plan mentioned that Phillips Brook and Red Brook are impaired, and that Willowdale Brook and Mill Brook are threatened. However, the plan does include the listing of the Scarborough River Estuary, which is on the Marine NPS Priority List as impaired due to DMR/NPS threats (Please visit the NPS Priority lists page for further details on the Priority List Reasoning) . The Spurwink River is also on the Marine NPS Priority List as impaired because it's a MHB Priority Water, and due to DMR/NPS Threats. Lastly, Beaver Brook is listed on the Streams NPS Priority lists as threatened due to Highway Access-related Development Threat. It is important to include these waterbodies in the plan, in order to take actions to restore and protect them.
- **Turnpike Streams:** Due to their location near the I-95 and 295 exit and the likelihood of exit-related development in their watersheds, the streams within the circles (see Turnpike Streams attachment) could be at risk of current or future impairment. It is important to include these in the plan in order to outline efforts to ensure they are not harmed by further development in their watersheds.

- **Overboard Discharge:** There is one active OBD in the Town of Scarborough that outfalls into Phillips Brook. It is important to mention point sources of pollution in the plan so the community can take steps to eliminate them.
- **Beaches (Maine Healthy Beaches Program):** The plan does not provide an overview of the marine resources, and their scenic, economic, and recreational value. In the 2006 Update of the Comprehensive Plan Appendix a: Marine Resources outlined the beaches and their significance for the town nicely. We recommend a similar approach in this plan. In addition, it is important to mention that the Town of Scarborough manages Pine Point and Ferry Beaches MHB monitoring program, the State Park manages the Scarborough Beach State Park, and the Higgins Beach Association manages water quality monitoring and notifications at Higgins Beach. It is good to include the towns participation in this program and recommend continuing this important partnership and participation in this program.
- **MS4:** Since the town is an MS4, this should be discussed more thoroughly in the plan. On page 152, the plan mentions the option to "consider expanding their reach beyond MS4 communities" which is a great addition, however the plan does not illustrate where the MS4 community is within the town, a map of this would be a great addition to the plan and a brief description of what the town is required to do as an MS4 community.

How the Plan's policies and implementation strategies promote the State goals relating to DEP's principal objectives and directives

The Comprehensive Plan's policies and implementation strategies for Natural Resources did a fairly good job of promoting State goals relating to DEP's principal objectives and directives. Additional policies and strategies are recommended below:

- Under Natural Environment "Increasing Risks" (page 87) there should be a section on Nonpoint Source Pollutions impact on the seven waterbodies within the Town of Scarborough and strategies to protect and restore these waterbodies. The plan does include watershed restoration plans for Red Brook and Phillips Brook. We encourage the inclusion of details regarding the need to update the Red Brook Watershed Restoration Plan, set to expire in 2021, and the need to implement both the Red Brook and Philips Brook restoration plans, through MEDEP's Nonpoint Source Water Pollution Control Grants ("319").
    - For the waterbodies that lack adequate data but are listed on the NPS Priority Waterbodies list, we suggest getting involved in MEDEP's Volunteer River Monitoring Program to gather water quality data to inform protection efforts. In addition to stream monitoring, we encourage the town to continue to work with MHB to monitor the beaches and work to investigate sources of bacteria.
        - For more information visit: [redacted] or MDEP Volunteer River Monitoring Program.

    - Additionally, we agree with the suggestion to work to improve conditions in Red Brook, Phillips Brook, Mill Brook and Willowdale Brook (p.145). In this sentence, include Beaver Brook, Scarborough River Estuary and the Spurwink River. In addition to working with state and regional partners to develop watershed management plans for Mill Brook and Willowdale, we recommend also developing a plan for Beaver Brook and working with state and regional partners atimproving the conditions of the Spurwink River and the Scarborough River Estuary.

        - For streams with identified threats due to potential development consider increased buffers, additional protection of riparian areas and requirements to address stormwater quality and quantity.
        - We recommend working with Saco and Old Orchard in regard to the Scarborough River Estuary and Cape Elizabeth and South Portland on the Spurwink River, to collaborating take steps to restore both of these waterbodies.
            - Resources for restoring streams: http://www.usda.gov/stream_restoration or MEDEP Stream Stressor Guide .

- It was great to see the inclusion of LID practices. However, since impervious cover is impacting multiple waterbodies, we recommend going beyond suggesting the use of LID practices and consider in certain watersheds amending local land use ordinances to *require* the use of LID practices in watersheds impacted by impervious cover (Red Brook, Philips Brook, and Mill Brook).

- The Scarborough River Estuary, and the Spurwink River are both listed due to DMR/NPS threats, and Spurwink River is additionally listed as a MHB Priority Water. These listing reasoning's indicate the likely threat of bacteria from NPS sources. The plan should mention efforts to minimize pollution discharges through the upgrade of existing public sewer systems and wastewater treatment facilities, and investigative monitoring to track these bacteria sources (again, this can be a collaborative effort with neighboring towns).

- The first Vision Statement identifies the Scarborough Marsh as central to the Towns identity and that land use development should be sensitive to this ecosystem. Some strategies to further protect this waterbody and others in the town include:

    - Consider upgrading shoreland zoning to include first order streams.
    - Consider creating conservation easements for sensitive (riparian) areas.
        - Resource: Connecticut River Joint Commission --Riparian Buffer Resource Materials. http://www.crjc.org/riparianbuffers.htm

- On page 116 of the plan, the Increase Sustainable Design Practices is a great recommendation. To further enhance this goal, we suggest conducting outreach to residential landowners on Best Management Practices that could be done on their own properties (like rain gardens, rain barrels, etc. as mentioned). The plan also mentioned some farmland and woodlands. Providing water quality best management practices to farmers and loggers is also encouraged.

Consistency of Plan with DEP's programs and policies; Measures DEP recommends the town take to ensure its plan addresses and identifies deficiencies and inconsistencies
The town's Comprehensive Plan is consistent with the DEP Division of Environmental Assessment programs.

Please feel free to contact me directly at (207) 441-9057 or Addie.Halligan@maine.gov if you have additional questions or would like more information.

JANET T. MILLS
GOVERNOR

STATE OF MAINE
BEGINNING WITH HABITAT
DEPARTMENT OF INLAND FISHERIES & WILDLIFE
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

BEGINNING WITH HABITAT

Date: November 5, 2021

To: Tom Miragliuolo, Municipal Planning Assistance

From: Lisa St. Hilaire, MNAP and Steve Walker, MDIFW

Re: Scarborough Comprehensive Plan Review

On behalf of Beginning with Habitat (BwH), the Maine Department of Inland Fisheries and Wildlife (MDIFW), and the Maine Natural Areas Program (MNAP), we have reviewed Scarborough Draft Comprehensive Plan ('the Plan') and provide the following comments.

As you are aware, BwH is a habitat-based approach to conserving wildlife and plant habitat on a landscape scale. The goal of the BwH program is to maintain sufficient habitat to support all native plant and animal species currently breeding in Maine. BwH compiles habitat information from multiple sources, integrates it into one package, and makes it accessible to towns, land trusts, landowners, conservation organizations, and others to use proactively in conservation planning. The habitat information BwH provides is objective, comprehensive, and equips local decision-makers with the necessary tools to make informed and responsible land use decisions that mesh wildlife and habitat conservation with future growth needs. While BwH information is comprised of both regulated and non-regulated features, it should be used for planning purposes only. Other agency assistance, such as MDIFW's Environmental Review Program (https://www.maine.gov/ifw/programs-resources/environmental-review/index.htm) and MNAP's Environmental Review Program (https://www.maine.gov/dacf/mnap/assistance/review.htm), should be contacted for questions or issues regarding project permitting.

BwH is housed at MDIFW but is comprised of more than ten public agency and conservation partners. Comments provided below result from Plan review by two BwH public agency partners (MDIFW and MNAP) but are guided by the overall conservation principles of the BwH program. These recommendations are based on the Department of Agriculture, Conservation, and Forestry (DACF) instructions for agency commenters.

Resources identified on BwH maps are accurate at the time they are produced; however, it is important to note that the data contained on these maps are regularly updated. Much of this updated information is accessible to the public online through the BwH MapViewer: https://webapps2.cgis-solutions.com/beginningwithhabitat/mapviewer/

The Town also may request updated paper and digital BwH maps as often as needed during Plan implementation from MDIFW: https://www.maine.gov/ifw/fish-wildlife/wildlife/beginning-with-habitat/maps/index.html

Additional mapped information on stream habitats and barriers is available on the Maine Stream Connectivity Workgroup's Maine Stream Habitat Viewer: https://webapps2.cgis-solutions.com/mainestreamviewer/

Additional land use planning resources and tools intended for use at the municipal level are available through BwH: https://www.maine.gov/ifw/fish-wildlife/wildlife/beginning-with-habitat/index.html.

Appropriate Use of Data Provided by BwH, MDIFW, and MNAP

BwH provides natural resource data to all Maine municipalities on behalf of MNAP and MDIFW. Information on rare plants and natural communities is provided by MNAP within DACF. MDIFW data depict high value plant and wildlife habitats and critical natural resources. Additionally, BwH attempts to highlight innovative habitat conservation planning efforts undertaken by Maine municipalities and provide information regarding these efforts to other towns as example approaches to balancing future growth with local ecological functions.

While the Scarborough plan is attractively laid out and repeatedly states a key strategy: "Significant natural resources, agricultural land, and open space should be protected, and an interconnected network of "public" open space developed where feasible", there is a notable lack of actionable policy proposals that would result in implementation this strategy. The BwH program is referenced, and very generalized maps that attempt to show some of the BwH data are provided in the Plan, but no specific information regarding important fisheries and wildlife habitat in the town is included. There is no discussion of the various types of Significant Wildlife Habitats in Scarborough, rare plant and animal occurrences, rare and exemplary natural communities, or information regarding Focus Areas of Statewide Ecological Significance. A reader of the plan would gain little understanding of critical natural resources or other unique natural features of Scarborough. Without this level of detail, future planning efforts will lack the context necessary to appropriately weigh growth and conservation decisions. **Given this lack of detail vital for meaningful future planning decisions, both MDIFW and MNAP suggest finding this Plan incomplete.** We encourage Scarborough to review natural resource narratives from other Maine comprehensive plans, and to contact BwH staff should any assistance be needed with future plan revisions.

Relation of Plan's Policies and Implementation Strategies to BwH Principal Objectives and Directives

The generalized plan goals and broad strategy statements are consistent with BwH objectives, however without any substantive natural resource information, and very few actionable policies or implementation strategies proposed regarding natural resource protection within the Town, we encourage a finding of incomplete. Additional feedback is included below that could help serve as a starting point for future plan revisions.

Consistency of Plan with BwH Programs and Policies

As stated above, the very general strategies laid out in the Plan indicate public interest in conserving Scarborough's irreplaceable natural resources. The BwH program has been designed to provide the best available data to inform local planning efforts and encourage thoughtful approaches to future growth that minimize impacts to local ecological functions. The plan currently lacks the specifics necessary to evaluate its consistency with BwH programs and policies.

Specific Plan comments and recommendations below are provided by the following staff:

- *MDIFW: Steve Walker (Endangered/Threatened Species Coordinator – Augusta), Josh Matijas (Assistant Regional Wildlife Biologist – Region A, Gray), and Nick Kalejs (Assistant Regional Fisheries Biologist – Region A, Gray)*
- *MNAP: Kristen Puryear (Ecologist) and Lisa St. Hilaire (Information Manager)*

The availability of high-quality habitat for plants, animals, and fish is essential to maintaining abundant and diverse populations for local ecological, economic, and recreational purposes. Scarborough is fortunate to be home to many critical and important natural resources that presently co-occur with an active residential real-estate market and vibrant commercial district. Future planning decisions will determine if this balance can persist. Additional critical and important natural resource detail in the Plan would build local awareness of the diversity of these resources and inform what the presence, or absence of these resources in certain locations tells us about existing patterns of growth and priorities for future planning.

Wildlife and Wildlife Habitats

MDIFW recommends that the Plan include: 1) a description of the various significant wildlife habitat types (Shorebird Areas, Tidal Waterfowl and Wadingbird Habitat, Significant Vernal Pools, etc.) and where these features are located in town; 2) a description of the designated Essential Habitat including threats to piping plover and least tern nesting areas that the town has to date successfully partnered with MDIFW to minimize; 3) identification of other mapped special concern, threatened, or endangered species within town boundaries; 4) a more detailed discussion of the importance of unfragmented forest blocks and stream riparian zones for both habitat protection and water quality benefits; and 5) better highlight the town's Focus Area of Statewide Ecological Significance (a feature not shared by all coastal communities).

Rare and Exemplary Botanical Features

MNAP, within DACF, documents rare, threatened, or endangered plant species and rare and exemplary natural communities and ecosystems. We provide the following comments to help inform a more complete iteration of this Plan:

- Scarborough Marsh (including associated beaches and dune systems) is home to several mapped natural community types and rare plant species. There are also mapped natural communities and/or rare plant species at Scottow Bog, Spurwink Marsh, and along the Nonesuch River. These should be clearly identified and their significance should be discussed in Plan narratives.
- The maps included throughout the Plan are difficult to read (pp 63-65, 89, 92). Use of BwH map products may help to illustrate the ecological features throughout town.

- State of Maine resources regarding coastal resiliency and sea level rise should be incorporated and referenced within the Plan. Discuss how these tools can help the Town identify areas for marsh migration and how the Town might prioritize those areas for permanent conservation status versus leaving them open for development potential. Note that Maine's Climate Action Plan recommends that towns commit to manage for 1.5 feet of sea level rise and prepare to manage for 3 feet by 2050 and 8.8 feet by 2100. The Town should consider preparing for these future scenarios.
- The Scarborough Marsh Focus Area is an important feature within the Town. It should be discussed in a section "Focus Areas" under Natural Resources, not mentioned briefly under Visitor Impact. The reference for this Focus Area should be the State of Maine link vs the local land trust. Under this same section on page 93, the Nonesuch River is noted as being previously identified as a conservation priority, is this still the case?
- Discussion of strategies (pp 100-101) and conservation and open space (104) is extremely vague.
- The Plan notes that growth areas are in impaired/threatened watersheds, but then also discusses promoting growth in those areas with no discussion of approaches/strategies for protecting these water resources or mitigating impacts to growth in those areas. The Plan also recommends that the Town should protect healthy watersheds by directing development to growth areas, but does not address actions that could mitigate further impacts to impaired watersheds.
- It seems like the Plan is advocating open and natural areas in places where people live, but reads as though the built environment is the primary concern of the Town. As written, the Plan appears to be advocating expanding development in natural environments to bring nature closer to people rather than implementing local approaches that would conserve the few remaining undeveloped areas in town. Specifically, on page 162, item 4 under "active living" the Plan seems to be calling for more development in natural areas.
- We suggest an action item that recommends all development projects in the Town undergo review by MDIFW and MNAP to ensure that important natural resource features will not be impacted.

Fisheries and Fisheries Habitats

The Fisheries Division of MDIFW has completed its review of Scarborough's comprehensive town growth plan and we offer the following comments. The comments provided below identify key issues of importance with regard to ensuring consistency with MDIFW fisheries management programs.

<u>I. Protection and Enhancement of Fisheries and Fisheries Habitat</u>

The plan states that protecting natural resources and connecting open spaces are key strategies to guide town growth; however, additional focus is needed. Although not all the streams in Scarborough have been inventoried by MDIFW, many flowing waters support wild brook trout (see attached list of known Scarborough wild trout streams). Further, while a map within the plan delineates the geographic extent of most brook trout populations, the plan should more clearly state that many flowing waters in Scarborough represent potential brook trout habitat. The Nonesuch River is also

stocked with brown trout, representing a significant investment of state resources. Additional protection should be considered to protect these streams and other important natural resources when reviewing proposed development projects. Brook trout habitat is particularly vulnerable to a host of land-based activities, which often lead to a concurrent loss of riparian habitat. For this reason, the Town should also emphasize the need for riparian buffers along freshwater stream habitat, not simply tidal waters, under "Development Patterns" on page 86. We typically request 100-foot undisturbed buffers along both sides of any stream, including steam-associated wetlands. Buffers should be measured from the upland wetland edge of stream-associated wetlands; if the natural vegetation has been previously altered then restoration may be warranted[1]. Protection of riparian areas diminishes erosion/sedimentation problems, reduces thermal impacts, maintains water quality, and supplies leaf litter/woody debris (energy and habitat) for the system. Protection of these important riparian functions ensures that the overall health of the stream habitat is maintained. In addition, smaller headwater and lower order streams are often affected the greatest by development and these systems benefit the most from adequately sized, vegetated buffers.

Based on MDIFW surveys around the region, many road maintenance and construction projects also often inadvertently impede passage at stream crossings. The plan should identify the need for and adopt stream-crossing practices (i.e., culvert installation/maintenance) which do not impede fish passage as required by the Natural Resources Protection Act[2]. Refer to guidelines attached to this document. In addition, the Army Corps of Engineers has adopted regulations regarding stream crossings that potentially affect municipal road maintenance programs. Maine Audubon, along with many local and federal partners, has also developed a "Stream Smart" design methodology for road crossings built according to high standards of aquatic organism passage. Such a methodology may be of use to the Town in future development projects.

II. Public Access

There is a public need to provide safe angler access to all Town waters that support recreational and commercial fisheries, as well as other recreational uses. The Town plan should adopt language that reflects State and MDIFW goals[3,4,5] and access development priorities to be consistent with those goals. For example, public access to public waters must never be limited to Town residents only, as such action would jeopardize existing MDIFW stocking and management programs[6] and is inconsistent with MDIFW and State public access goals. Exorbitant fees for non-resident anglers and boaters may also prevent equitable use of public resources and should be avoided. Based on this review, formal access sites to freshwater in Scarborough are limited. However, any existing public access sites to freshwater should be noted and mapped similar to marine access locations (page 135). Note as well that some of these marine access sites provide opportunities for upstream travel to fresh waters (e.g., Nonesuch River, Scarborough River). Angler access points similar to the Spurwink River Fishing Pier should also be included in any inventory of public access locations.

The plan identifies some access/boating facilities to tidal waters located within the Town of Scarborough; however, more information could be provided. The town plan should identify and describe the status of public access to all waters within the Town's boundaries, including more detailed enumeration of parking capacity, facilities, and type of boat launch present, if applicable. Scarborough does not possess many accessible Great Ponds over ten acres in surface area; most inland water bodies over this size are privately owned and/or inaccessible due to development. However, Massacre Pond

within Scarborough Beach State Park is publicly owned and accessible. Further description of this water body in the plan, including shore access and facilities, would be warranted. Recreational access to fresh flowing waters is not discussed and should be more detailed in terms of any existing facilities and locations, if applicable. There is also no real discussion regarding the development of new access sites or improvements to existing sites, though the desire to preserve open space for recreation use was well stated. The Town could explicitly outline additional strategies to maintain or expand public access to water bodies, including in the form of a future development goal. These strategies should help prioritize public access needs based on a variety of factors including fisheries present, water size, proximity to population centers, land availability and cost, existing waterfront development, and other related factors.

In adopting measures to address land use and development issues, it is imperative that language and measures not be adopted which could preclude efforts by the Town, MDIFW, or other State agencies from developing public access to public waters of the State, which would be inconsistent with State and MDIFW goals[3,4,5]. Also, land use zoning ordinances and practices designed to protect water quality should not be so strict as to impede the development of public access opportunities. These measures could severely limit or eliminate good access prospects on heavily developed waterfront areas. An "exemption" for public access projects should be adopted for projects which are consistent with Town, State, and MDIFW public access goals. This measure will ensure consistency while foregoing the need to undertake a very detailed and comprehensive review of all plan provisions, including their implications.

Open space is being used more and more by Towns to provide recreational opportunities and access. This is a good idea, particularly when public resources (i.e. lakes, rivers, and streams) are located within or adjacent to the designated open space areas. Additionally, the open space that public water resources provide can greatly expand the total amount of recreational space for town residents and visitors. However, the Town should be sure that such areas are open to all Maine citizens and not just residents of the development. While the desire to create a network of interconnected, public open space is stated, little time is spent discussing concrete steps to realize that desire. Further planning and specific, achievable items should be strongly considered.

III. Significant Habitats and Fisheries

The plan does not discuss habitats or values for any inland bodies of water, nor does it provide information regarding fishery habitats/resources associated with ponds and streams within the Town of Scarborough. The map of Significant Wildlife Habitat on page 63 does a fair job of delineating the extent of most brook trout habitat. However, wild brook trout streams represent a unique resource and their importance should be described in detail; currently, no mention of their value is present within the plan. Furthermore, the recreational fisheries that brook trout can provide also deserve more detailed attention. Presenting trout habitat as an essential part of local environmental systems shows the Town's commitment to conservation of important fisheries resources, which is currently lacking in the plan. Brook trout are of special conservation importance to the State of Maine, and habitats necessary to sustain wild populations merit additional protections. As there are numerous wild brook trout streams in Scarborough, this knowledge may be useful for prioritizing public access needs/improvements, identifying significant fisheries habitats for protection, and for addressing other Town planning needs.

IV. Miscellaneous Items

(1) The plan suffers from a lack of achievable goals when it comes to the conservation of natural resources. Protection of these resources is stated as a growth strategy but more discussion of how these resources will be acquired and maintained in the future is warranted. For example, conservation of the Nonesuch River is a stated goal, but it is unclear how the Town proposes to prioritize this watershed in practical terms. Further, resource protection should be a stated goal in urban areas of the town as well, not just designated rural zones—protection and rehabilitation of already impaired natural resources is vital to the long-term health of town ecosystems.

(2) It may be worth noting that while Red Brook and Phillips Brook are both impaired waters, they both represent existing and potential brook trout habitat. Discussion of stormwater management in these watersheds (page 83) should include brook trout as an additional source of value in these urban streams.

[1] MAINE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE, STANDARD ENVIRONMENTAL REVIEW RECOMMENDATIONS

Riparian Buffers Along Streams

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and fisheries habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

MDIFW Fisheries will rely on MDEP to review project applications for the adequacy of wetland functional assessments and the adequacy of proposed stream buffers, which should be reviewed based upon the aforementioned guidance.

[2] MDEP, Natural Resources Protection Act, 38 M.R.S.A SS.480-A to 480-Z, Statute, revised 4/3/2002

SS. 480-Q. Activities for which a permit is not required… 2. Maintenance and repair… "B. Crossings do not block fish passages in water courses;"

2-A. Existing road culverts…"and that the crossing does not block fish passage in the water course."

[3] MSPO, Comprehensive Planning: A manual for Maine's communities.

"State Goal: To promote and protect the availability of outdoor recreation opportunities for all Maine citizens, including access to surface waters.

[4] Strategic Plan for Providing Public Access to Maine Waters for Boating and Fishing, MDOC & MDIFW, March 1995.

"Boating and Fishing Access Goal – The primary, long term goal of state fishing and boating access programs is to ensure legal, appropriate, adequate, and equitable means of public access to waters where recreational opportunities exist."

[5] MDIFW, Administrative Policy Regarding Fisheries Management, 12/2002

"The purpose of the Department's Access Program is to ensure that the public is able to gain access to Maine's public waters and to the fisheries within them. By law, all great ponds belong to the people of Maine. Private land ownership may limit access to great ponds. Fishing opportunity is directly linked to the public's ability to get to the waters to fish, so acquiring publicly-owned private points of access is critical, especially in areas where heavy development or restrictive private access already limits legal access by the public to the lake or pond.

It is also important to provide legal public access to flowing waters, although there is no parallel legal right to use flowing waters. Such acquisitions must, therefore, include enough land to allow access to stretches of the river or stream."

[6] MDIFW, Administrative Policy Regarding Fisheries Management, 12/2002

" The Department will not stock waters without reasonable, legal public access, since stocking programs are to benefit the general fishing public, and not only the people that own land around a lake, pond, river or stream."

[7] MSPO, Comprehensive Planning: A manual for Maine's communities.

"Legislative requirement: The act requires that each comprehensive plan include an inventory and analysis of: Significant or critical natural resources, such as wetlands, wildlife and fisheries habitats…"

Stream Crossing Guidelines

A good reference for information on fish passage at stream crossings may be found in the Maine Department of Transportation Fish Passage Policy and Design Guide. The following recommendations reduce the potential for culvert installations to create impediments to fish passage for most resident stream fish typically found in Fisheries Management Region A. These recommendations apply to circular culverts installed in streams.

- Do not install hanging culverts.

- Culvert installation should occur between July 1 and October 1.

- Culvert invert (downstream bottom end of the culvert) should be installed below streambed elevation; 6 inches deep for culverts less than 48 inches in diameter and 12 inches deep for larger culverts.

- Installation should not exceed the existing natural gradient.

- Use corrugated steel/aluminum culverts with the largest available corrugations. Smooth concrete and corrugated plastic culverts should only be used in very low gradient areas where water backs up the entire length of the pipe. In addition, polyethylene slip liners and smooth bore plastic culverts are becoming more popular for new or replacement installations due their longevity and low cost; however, they are creating serious fish passage problems around the State. A review of flow capacity specifications for Snap-Tite, a local distributor of slip liner technology, reveals that in all applications where smaller diameter Snap-Tite Solid liners are installed in existing corrugated metal pipes (CMP) flow capacities are increased, even though effective pipe size is decreased. For example, when a 28-inch (26 inch inside diameter) solid liner is installed in a 30 inch (inside diameter) CMP the new liner provides 187% of the original capacity provided by the metal pipe. The increase in capacity results from the smooth walls and nonwetting characteristic of polyethylene, which reduce friction within the pipe. The increased velocities that result from slip liner and smooth bore polyethylene culverts usually far exceed that which can be negotiated by most fish typically occurring in Maine streams, which typically ranges between 1 and 2 feet per second. Furthermore slip liner projects effectively increase the invert elevation, creating a hydraulic drop at the outlet, which creates an additional obstacle to fish passage. Increased flow velocities within the pipe also increase downstream scour, which can lead to degradation of the outlet plunge pool, important staging habitat for fish attempting to pass through culverts. Resulting erosion can also create "head cuts" or nick points that cause additional scouring of the stream channel and associated habitat degradation. Impediments and barriers to fish passage will generally be created using slip liners and smooth bore culverts, except under the following conditions:

1) In drainage ditches or similar circumstances where water is not being conveyed in a jurisdictional stream channel;

2) In streams where there are no fish present and where the presence of natural/artificial barriers prevent seasonal use by fish species lower in the drainage;

3) In very low gradient settings where water backs up the entire length of the pipe, and where the water depth at the inlet end of the liner/culvert is at least 4-6 inches deep at low flows.

4) Where a permanent, natural barrier is located upstream/downstream within 150 feet of the stream crossing. A permanent/natural barries is defined as a vertical drop of at least 4 feet over a rock/ledge substrate, as measured during summer low flows. Beaver dams would not be considered a permanent impassable barrier.

- Culverts should be installed so as to provide a minimum water depth of 4-inches within the culvert during critical, seasonal movement/migration periods (spawning, summer refugia, etc.), which will vary by species. This minimum water depth is needed to provide passage opportunities for smaller fish that dominate the streams in Region A. MDOT's Fish Passage Policy and Design Guide provides information on movement periods.

- Flow velocities within the culvert should not exceed 1 and 2 feet per second during critical, seasonal movement/migration periods (spawning, summer refugia, etc.), which will vary by species. These low flows velocities are needed to provide passage opportunities for smaller fish that dominate the streams in Region A. The aforementioned flows should not be exceeded more than 50% of the time during periods of movement. MDOT's Fish Passage Policy and Design Guide provides information on movement periods and how to evaluate this standard.

- Two offset culverts may be used, such that one pipe provides passage conditions during low flow periods and the other is installed to pass design peak flows. An experienced engineer should design multiple culvert installations.

- Efforts to mitigate for fish passage problems (e.g., fish ladder, tailwater control, baffles, etc.) should always be coordinated through MDIFW.

MDIFW Stream Data for Scarborough – Surveyed Wild Brook Trout Streams (2021)

Stream Name:

- ☐ Nonesuch River
- ☐ Red Brook
- ☐ Carter Brook
- ☐ Fogg Brook
- ☐ Silver Brook
- ☐ Bond Brook
- ☐ Stuart Brook
- ☐ Phillips Brook
- ☐ Finnerd Brook
- ☐ Beaver Brook
- ☐ Mill Brook
- ☐ Unnamed tributary to Stuart Brook (approx. location 43.576, -70.419)
- ☐ Unnamed tributary to Cascade Brook (approx. location 43.564, -70.390)

MDIFW Stocking Information for Scarborough Waters (2021)

Stream Name:

- ☐ Nonesuch River: brown trout

Additional General Comments

It's clear from the input from residents that they value the natural resources within the Town. The Plan needs to present this information in some sort of inventory and provide actual action items in the Driving Success section that address protecting these resources.

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