

Town Landing Trail Feasibility Study

REPORT

Prepared for:
Town of Topsham
100 Main Street
Topsham, ME 04086
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Topsham's Lower Village & River-focused Investments

Over the past two decades, Topsham has invested much effort in planning and improvements aimed at creating an urban center of business and community activity within the Lower Village. Topsham's heritage and character is inherently tied to the Androscoggin River and to the living legacy of the historic Bowdoin Mill Island and outlying neighborhoods. The visual and physical integration of the waterfront with the downtown continues to be a key component of Topsham's identity as a community and economic center. The Town of Topsham has long endeavored to create a waterfront park in its Lower Village to capitalize on the scenic and recreational resource offered by the Androscoggin River. The recent Waterfront Access Study examined the feasibility for park development and river access in the heart of the Lower Village, identifying the old fire station area as a preferable location.

Recreational & Walkability Improvements

Over the past few years, the Town has made great strides in advancing both opportunities for recreation and improving walkability within its commercial core and in-town neighborhoods. Sidewalk improvements have significantly enhanced pedestrian safety and mobility around town. The recently completed Bridge-to-Bridge trail and the Androscoggin Riverwalk have greatly improved public visual access to the river and are key steps in the larger Topsham-Brunswick regional trail networks planned for the future.

The Riverwalk, Bridge to Bridge trail and Riverfront Trail projects demonstrate how Topsham's relationship to the river has evolved in more recent years to embrace the Androscoggin's scenic and recreational qualities. The river,

once valued for its utility, has emerged as a character-defining element of the Lower Village center and an incredible "quality of life" asset for residents and visitors alike. This and Topsham's incredible walkability are important reasons why many choose to live and work there. Topsham's many pedestrian routes, from sidewalks to trails offer many benefits for the community. The Riverfront Trail, within the context of a community and regional trail network, stands to play an integral role in achieving the stated goals for redevelopment because it leverages Topsham's spectacular natural, scenic and cultural assets to showcase the town's exceptional quality of life and unique sense of place, both of which are key factors for attracting businesses, workers, residents, and tourists.

Fit Within Longer-Term, Big Picture Objectives

This Feasibility Study is an important first step, that must fit within longer-term, big picture objectives to be truly successful. Examining how the trail intersects and relates to the complex development pattern of the Lower Village center is an important exercise in understanding how best to balance traffic, pedestrian circulation and future development.

Community Outreach

Community support by residents, business owners and other stakeholders is essential in moving the project forward in later stages. Communication is as important as design, so a lingering sour taste by citizens from feeling not included or heard can spoil the potential to implement a good plan. To this end, the Feasibility Study includes a thorough outreach effort to invite a collectively crafted vision for the Riverfront trail – and partnerships necessary to turn that vision into a reality.



Goal

The Town Landing Trail Feasibility Study's goal is pedestrian water access and connectivity within the Village area and along the Androscoggin River that will connect to a scenic 11 acre vacant waterfront parcel, and may culminate at the proposed Bike Path facility along Elm Street. The study examines how the trail intersects and relates to the complex development pattern of the Lower Village center as an important exercise in understanding how best to balance traffic, pedestrian circulation and future development.

Approach Based on Distinct Yet Interrelated Segments

With project Goals understood and articulated, the Approach is focused. Rather than a single homogeneous project, the Project Approach is based on is a combination of distinct yet interrelated segments: **Segment 1: The Riverwalk Connection & Lower Village Center, Segment 2: Green Street Connection, Segment 3: Town Landing Trail and Segment 4 – Town Landing Trail Extension.** Because each of these segments is physically and programmatically distinct, we have tailored a corresponding project approaches that responds each segment's unique characteristics and needs

Segment 1: The Riverwalk Connection (Western segment) **& Lower Village Center** (Central area).

This segment includes pedestrian connections across Main Street to the new Androscoggin Riverwalk off Summer Street. A majority of the existing routes are sidewalks. The central area is urban land within the urban core of the Lower Village: the majority of the area is level & paved; actively used by people & cars; highly visible to citizens and visitors.

Segment 2: Green Street Connection

This segment examined pedestrian access along Green Street as an important link between the Town Landing Road and the Lower Village Center. The segment primarily encompasses sidewalks and crosswalk connections, which collectively serve to enhance pedestrian activity and connectivity between the Lower Village Center, neighborhoods and the future trail connection off Town Landing Road.

Recommendations

- Should Green Street be made one-way, as currently recommended by the on-going traffic study, a new 5 foot wide sidewalk should be installed on one side of the street and the vehicle travel way reduced to at least 15 feet (including shoulders).
- A new crosswalk should be installed just south of the intersection with Town Landing Road. Thompson Lane should be improved to provide better shared access for both pedestrians and vehicles, particularly since the street aligns with busy Winter Street. Signage will be important, both to regulate traffic and parking and to provide information on pedestrian routes and trail heads.



Summary & Recommendations

Segment 3: Town Landing Trail

This segment is mostly rural and undeveloped land; much of it steep & flood prone; possibly environmentally sensitive. It should be recognized that this site (Littlefield, Smart properties) is not ideal for trail development. The physical conditions are challenging, and there are significant environmental and permitting constraints that need to be considered. However, it is also recognized that this site presents an unprecedented opportunity for pedestrian access to the river and a recreational trail network east of Main Street – something that many Topsham residents support.

With the acknowledgment of the site realities, and the Town should understand that even with thoughtful and careful trail construction, the seasonal flooding in particular will likely necessitate regular trail repair or adjustments. How the trail is designed and ultimately constructed affects costs, permitting, environmental impacts, constructability and sustainability. To be feasible, trails must fit the requirements of the site – they should be non-invasive, designed to fit the land and sustain the forces of nature.

Recommendations

- To the extent possible, trail construction should use on-site materials and construction should be, for the most part, by hand – and by seasoned trail builders. This is not a project that requires detailed engineering and/or the typical bidding & construction process, which would likely impact the outcome and feasibility of the project by increasing site impacts and cost. The implementation of this trail requires a crew with natural trail construction knowledge and

experience and a more responsive “in-the-field” construction approach using proven trail techniques.

- For this reason, our strong recommendation is that the Town partner with an organization like the Brunswick-Topsham Land Trust. The Town of Topsham should consider initiating a partnership prior to undertaking trail improvements, which can offer access to its trail professionals and/or volunteer labor force.

Segment 4: Town Landing Trail Extension

This trail extension provides a valuable connection from Elm Street to the Town Landing Trail and the Androscoggin River waterfront. The physical conditions of this site, while challenging, are more favorable for natural trail development. The slopes are less steep and being at a slightly higher elevation, the lowland portion of the trail is less impacted by seasonal flooding than other portions of lowland trail located up river. Soils are similar to those found on the Smart property. The extension will require permitting for a stream crossing, which is within the FEMA floodplain.

Recommendations

- The approach to site construction should follow the recommendations for Segment 3. As well, the Town should work closely with the applicable permitting agencies on the specific siting and design of the stream crossing.

Signage should be provided at Elm Street, the trail head at River Landing and at the intersection with Town Landing Trail.



Permitting Implications

Because some amount of soil disturbance and development will be undertaken for this project in the floodplain, adjacent to, and in protected natural resources, local, state, and federal permits will be required. Because of the limited impact proposed to these resources, we believe the project as currently conceived is permit-able.

Recommendations

- Continue contact with the Local, State, and Federal permitting agencies as the project proceeds to next steps.

Community Outreach

Outreach with stakeholders and the general public is an important component of the process and consensus greatly informs a project's final outcome as well as ensure its future support. This Feasibility Study built on previous studies by re-engaging past citizen participants and stakeholder organizations such as Green Street Residents, the Brunswick Topsham Land Trust, the Lower Village Redevelopment Committee and the Fore River Group, plus reaching out to new citizens and stakeholders.

Recommendations

- To accomplish the goals, it is vital to continue the planning momentum. Maintain contact with and engage all organizational and individual stakeholder to inform the final outcome as well as ensure its future support.

Preliminary Budget

Costs herein assume a typical bid and construction scenario, which is not our recommendation. However, these costs have been provided for budgetary planning purposes and reflect the conservative range of potential construction costs. Costs of

trail construction can be greatly reduced by in-house construction, volunteer labor or through a partnership with an organization with trail-building experience and capacity like the Brunswick-Topsham Land Trust. Hiring an experienced trail-oriented design-build firm is another approach and would likely ensure a successful outcome. The Town should consider these alternative approaches to trail construction.

Recommendations

- Green Street Sidewalk Improvements \$60,000. This work would be separate from trail funding and tied to ongoing traffic recommendations for Main Street.
- Town Landing Right-of-way Improvements: \$33,000. This work will require a field survey and additional engineering design to more accurately determine scope, costs and necessary easements. This is a critical portion of the trail network and should be prioritized.
- Town Landing Trail , Phase One. Construction of approximately 1,300 linear feet of trail, including the entire length of the Lowland and Extension sections. Cost is estimated between \$28,900 and \$37,800, depending upon whether a footbridge is included in the construction scope.

Funding Strategies

A myriad of possible State and Local implementation mechanisms for the acquisition and construction of extended segments of the Topsham riverfront trail are described. Maximize the leverage of this study by using its "ready to write a grant" sections to compete for next-step funding for advanced design and construction. Use this study as the backbone to demonstrate determination and make a compelling case to as many funding sources as possible.



Acknowledgments

Collaborative Effort

This Feasibility Study was a collaborative effort, and its success is due to participation by many, especially the following:

The Select Board supported the effort by dedicating funds and committing Town resources.

- Don Russell Chairman
- David Douglass Vice -Chairman
- Ronald Riendeau
- Marie Brilliant
- Jim Trusiani

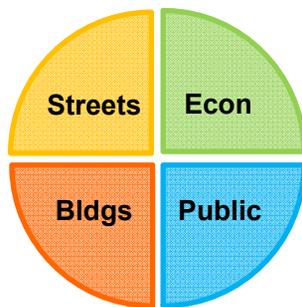
The Lower Village Development Committee's dedicated members provided wise guidance and insight :

- Douglas Bennett
- Jim Howard
- Jane Scease
- Gary Smart
- Angela Twitchell
- Fred Wigand

Topsham's Professional Staff provided critical support and without their exceptional leadership this effort would not have been possible.

- Pam LeDuc - Director, Parks & Recreation
- Rod Melanson, Natural Areas Planner
- Richard Roedner - Town Planner
- John Shattuck - Director, Economic & Community Development

Many Business, Property Owners and Citizens shared their thoughts and interest by participating in the Public Forums. Their input is appreciated and their contributions were critical, ensuring this effort reflects the needs and perspectives of the community.



The Downtown reVitalization Collaborative is founded on the four cornerstones of Downtown Revitalization – Economics, Streets, Buildings and Citizen Participation. The Team purposefully integrates the allied disciplines of Planning, Design, Engineering, Funding, Financing and Implementation to provide comprehensive services - from Great Ideas to Ribbon Cutting!

The Downtown reVitalization Collaborative includes:

- Denis Lachman, Lachman Architects & Planners – Team Leader & Citizen Participation
- Regina Leonard - Landscape Architecture & Design
- Mike Sabatini, P.E., & Tom Fowler, Landmark Corporation Surveyors & Engineers
- Rodney Lynch AICP – Community & Economic Development Planner

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Lower Village is Topsham's Downtown

Topsham's Lower Village has long been the 'urban' center of business activity, first with the presence of the former mills, and more recently with the redevelopment of the mill buildings and construction of new commercial buildings along Main Street. This area of Town has come to be called the Lower Village. Until the past 10 years, this was also a civic center of the community, with the presence of the Public Works Garage and the Fire Station, and nearby Topsham Public Library and Town Hall. Starting in 2000, the community has gradually decreased its civic presence by relocating all of these facilities as part of overall redevelopment efforts, and a municipal effort to upgrade its own facilities.

Past, Recent and Concurrent Planning

In 1996, and again in 2006, the Town identified the area of the Lower Village as ripe for redevelopment and also recommended that the Town re-establish its civic presence by way of a waterfront park, generally located in and around the former Fire Station.

The vision of creating a pedestrian friendly village has been a long term vision for Topsham and as part of the implementation of this long-term vision, the Town undertook a Phase I study of Waterfront Access and redevelopment options in the Green Street area in the summer of 2010.

With the appointment of a Lower Village Redevelopment Committee, this project has now entered a more formal planning process and has identified tasks that remain in regards to our Phase I study of the area.

The Committee is also working concurrently on the Lower Village Green/Main Street Roundabout Feasibility Study that largely incorporates the concept of a roundabout to alleviate traffic concerns identified in our Phase I study.

Continuing Planning Momentum

Town Landing Trail Feasibility Study builds upon previous and recent planning and complements the concurrent Traffic Study. Its Goal is pedestrian water access and connectivity plan within the Village area and along the Androscoggin River that will connect to a scenic 11 acre vacant waterfront parcel, and may culminate at the proposed Bike Path facility along Elm Street. Continuing the momentum of planning for this area is vital, and the visions set forth in previous planning efforts remain.

As Topsham continues to develop a diverse network of pedestrian facilities (Bridge to Bridge waterfront trail, Androscoggin Riverwalk, Topsham Bike Path, etc.), the waterfront of the lower Village Area will serve as a destination and hub for these improved facilities, as well as an important means to access the scenic Village waterfront area. It will also serve as a waterfront amenity that connects the future Lower Village Park to the Androscoggin Bike Path.

Riverfront Trail Feasibility Study



Downtown reVitalization Collaborative

The Town Landing Trail Feasibility Study has the following interconnected goals:

Preferred Route

The goal of the Study is to identify a preferred route extending upstream and downstream from the existing Lower Village urban core. Centered near the old fire station, the project includes an assessment of options and design of a foot trail along the river, running roughly east toward the Riverview Cemetery on Elm Street, and a more urban pedestrian route extending west across Main Street to the head of the Androscoggin Riverwalk.

Direct Physical and Visual Access

Once completed, the Trail will provide direct physical and visual access to the tidal portions of the Androscoggin River. As water quality in the river has improved, we have seen a steady increase in usage, but Topsham is hampered with no means of access to the river in the tidal section. Currently, residents of Topsham must travel to Brunswick to find a public access.

Community Outreach & Partnerships

Outreach with stakeholders and the general public is an important component of the process and consensus will greatly inform project's final outcome as well as ensure its future support. Engage three types of stakeholders - Staff/Steering Committee, Abutters and the Public - with different meetings that target each with distinctive goals and agendas, yet together they create an interrelated citizen engagement process. Work with local and regional non-profit groups such as the Brunswick-Topsham Androscoggin

Riverwalk Committee, the Brunswick Topsham Land Trust and the Greater Topsham Trail Alliance. Work closely and cooperatively with adjacent waterfront property owners, the Fore River Group.

Feasibility Study Topics

The Feasibility Study addresses the following topics:

- Inventory Existing Conditions – right-of-ways, storm water, privacy, soils, slopes, flood zone, shorelands, setbacks, flora and fauna.
- Environmental Constraints - impact on potential alignments, including wetlands, flood plains, habitat, ice and other applicable environmental regulations.
- Permitting Implications – local, State and Federal permitting.
- Property Constraints - impact on potential alignments, including physical dimensions of property and private ownership.
- Preliminary Budget - preliminary budget based on quantity takeoffs for design, construction and permitting.
- Preliminary Funding Sources for Design and Construction - maximize the leverage of current funding by producing “ready to write a grant” products – thereby setting the stage for competitive next-step funding for advanced design and engineering, bid documents and construction.

Feasibility Study Timeline

- Late Fall 2012 - Shore and Harbor Planning Grant Awarded.
- Early Winter 2013 – Requests for Proposals prepared and advertised. Receipt of Proposals and review by Town Staff.
- Late Winter 2013 – Approval by Town Selectmen and project awarded to the Downtown reVitalization Collaborative.
- Early Spring 2013 – Staff & Committee meetings to Kickoff project, review tasks and establish timeframes.
- Late Spring 2013 – Documentation, analysis, site visits & field work + Planning, design, trail route graphics + Property abutter public meeting + Report 75% Draft
- Summer 2013 – Review Report
- Mid Fall 2013 – Adjust Report accordingly for 100% Draft review.
- Late Fall 2013 – Finalize report.

Build Upon Previous, Recent and Concurrent Planning

This Town Landing Trail Feasibility Study builds upon previous planning and presents a unique opportunity to consider trail/pedestrian improvements and waterfront access within the context of the goals and objectives for Topsham's Main Street redevelopment. The recent recommendations of the Waterfront Access Feasibility Study reinforce the importance of the central fire station parcel as a civic and scenic amenity within the redevelopment area and an important destination hub for pedestrian connections. The timing of this study is especially relevant given the ongoing traffic study, which will likely offer recommendations that will impact the current traffic configurations and land use within the Lower Village.

Reinforcing a safe and visible pedestrian connection between the new Riverwalk trailhead off Summer Street and Topsham's urban business center along Main Street is imperative to the ultimate expansion of the riverfront trail network toward Riverview Cemetery and beyond to Topsham's Bike Path. With careful planning, the waterfront will serve as an important destination for Topsham's diverse network of pedestrian facilities and public access to the scenic and recreational opportunities of the Androscoggin River.

The Work of the Lower Village Development Committee

We began work as a committee about a year ago to make proposals about ways to improve the lower village in Topsham. We are by no means the first committee to work on this. Other groups have worked hard on this in the past, and we are trying to build on their good work. Yes, it has been slow. As a town we have made some progress. Many people think there is still more we can do, and the members of this committee agree.

Goals

One focus of our work has been the possibility of creating a park in the lower village that provides **access to the river**. This is a dream many people have had over the years, and it is something we would like to help realize.

It isn't the only goal of our work, however. And we quickly came to realize that if we didn't address a number of other issues in and around the lower village, we might not make much progress towards a riverfront park, either. What other issues? Issues around **parking, pedestrian safety, traffic movement** (especially the problem of making some left turns), and further **economic development**.

Larger Vision

We have a **larger vision that has come to frame our work**. We believe the lower village can be (more than it is today) a place that people notice and think of as giving a pleasing identity to Topsham as one of the most desirable places to live in Maine. We believe the lower village can be a place that provides value for all the residents of Topsham – both those who live near it, and those who live further away from it. More specifically:

- (1) We want a walkable lower village with high quality opportunities for robust commercial development that provide amenities for those who live in, work in, or visit the lower village.
- (2) We want a park that provides river access as part of that walkable lower village, and we want opportunities for people to walk, run or bike along the river.
- (3) We want safe, orderly movement of traffic into and through the lower village, with enough parking to support the commercial enterprises and the residences in the lower village, and with safety for pedestrians (including children) to cross Main Street.

Interconnected Parts

We have come to realize that the various parts of this vision are connected together in ways that make progress on one aspect dependent on progress on the others. So at times we find ourselves working on traffic flow, at others on parking and pedestrian crossing, and still others on river access. Whichever one is our focus at the moment, we find ourselves turning to include consideration of the others.

Because the lower village is already an older, built up area that has a good deal of traffic moving through it, we are trying to both open new opportunities and also create a little disruption for those who are already living or working there. Sometimes it is a difficult balance to strike. We want to hear from the residents of Topsham about their hopes and concerns for the lower village. Each resident in the conversation will bring his or her own focus. We especially invite you to share in this larger vision of the possibilities of the lower village.

LARGER VISION:

- 1) Walkable lower village & opportunities for commercial development
- 2) Public park with river access & recreational opportunities
- 3) Safe, orderly traffic flow & a pedestrian-friendly environment

Androscoggin
RiverWalk

LOWER VILLAGE
REDEVELOPMENT

Traffic Study

Waterfront
Access Study

The backbone of success for projects like the Town Landing Trail Feasibility Study is the Approach. The first step to establish a winning approach is to understand and articulate the project's goals, so the approach can be tailor-matched.

Understanding & Articulating Project Goals

- Examine riverfront trail options
- Identify environmental, property & permitting constraints, physical & visual river access points
- Engage abutters and citizens in community conversations, and gain their “buy-in”
- Identify a final preferred trail layout / design: one that creates a safe, pedestrian environment and supports the physical and visual connection between the village to the Androscoggin waterfront
- Cost estimates for design, construction and permitting
- Produce documents that “set the stage’ for next steps
- Maximize the leverage of current funding by producing “ready to write a grant” products – thereby setting the stage for competitive next-step funding for advanced design and engineering, bid documents and construction.
- Foster citizens’ understanding of how this project is one step of a larger strategy to improve Topsham - an opportunity to advance the well-accepted goals of the Main Street Plan.
- Encourage citizens’ understanding and support for efforts to improve by capitalizing on its stunning assets through community conversations about planning.

Approach Based on Distinct Yet Interrelated Segments

With project Goals understood and articulated, the Approach is focused. Rather than a single homogeneous project, the Project Approach is based on is a combination of distinct yet interrelated segments: **Segment 1 - the Riverwalk Connection & Lower Village Center, Segment 2 – Green Street Connection, Segment 3 – Town Landing Trail and Segment 4 – Town Landing Trail Extension.** Because each of these segments is physically and programmatically distinct, we have tailored a corresponding project approaches that responds each segment’s unique characteristics and needs.

- Segment 1: Riverwalk Connection (Western segment) & Lower Village (Central area). This segment includes pedestrian connections across Main Street to the new Androscoggin Riverwalk off Summer Street. A majority of the existing routes are sidewalks. The central area is urban land within the urban core of the Lower Village: the majority of the area is level & paved; actively used by people & cars; highly visible to citizens and visitors.
- Segment 2: Green Street Connection. This segment examined pedestrian access along Green Street as an important link between the Town Landing Road and the Lower Village Center. The segment primarily encompasses sidewalks and crosswalk connections, which collectively serve to enhance pedestrian activity and connectivity between the Lower Village Center, neighborhoods and the future trail connection off Town Landing Road.
- Segment 3: Town Landing Trail (Eastern segment) This segment is mostly rural and undeveloped land; much of it steep & flood prone; possibly environmentally sensitive.

- Segment 4: Town Landing Trail Extension The focus of the Trail Feasibility, Segment 4, examined a pedestrian connection from Elm Street to the eastern edge of Segment 3. Consideration of this portion of the proposed trail is made possible by an agreement between the Town and the developers of River Landing, a new senior housing project located on Elm Street. The extension will be within an easement within the River Landing property. This segment includes shared access via an interior sidewalk from the trail head through the future development to Elm Street. The Town Landing Trail Extension portion of the project is characterized primarily by undeveloped wooded property along and within the floodplain of the Androscoggin River east of the Smart property and bordered to the north by Elm Street.

1 What Does the Feasibility Study Include? How Much Effort Where?



Reinforcing a safe and visible pedestrian connection between the Riverwalk trailhead and Topsham's busy urban center along Main Street is an integral consideration in the ultimate expansion of the riverfront trail network toward Riverview Cemetery and beyond to Topsham's bike path. The integration of pedestrian routes and amenities into the Lower Village Redevelopment may be accomplished in phases, but needs to be considered contextually and with long-term improvements in mind. While this project focused primarily on the feasibility of a new riverfront trail east of Green Street, it also considered how the trail fits within the Lower Village neighborhoods and center, the Androscoggin Riverwalk and other recreational opportunities.

Riverwalk Connection

As plans proceed for the Androscoggin Riverwalk, it will be important to place the Main Street pedestrian crosswalk locations to enhance connections to Bowdoin Mill Island and Lower Village Center and to consider other sources of pedestrian traffic that need to be accommodated. Eventually, the Riverwalk will be extended to Main Street, where a new stepped platform is proposed south of the Priority Group building. Since this entrance to the trail is not accessible, an alternate pedestrian route will follow the Summer Street sidewalk to Main Street, just north of the Priority Building.

There currently are two Main Street crosswalks south of Green Street: one just north of Summer Street and another on the Southern Side of the southerly Bowdoin Mill Island entrance. This crosswalk does not align with the sidewalk from Main Street into Bowdoin Mill Island, which is on the northerly side of the entrance drive. While the northerly crosswalk is highly

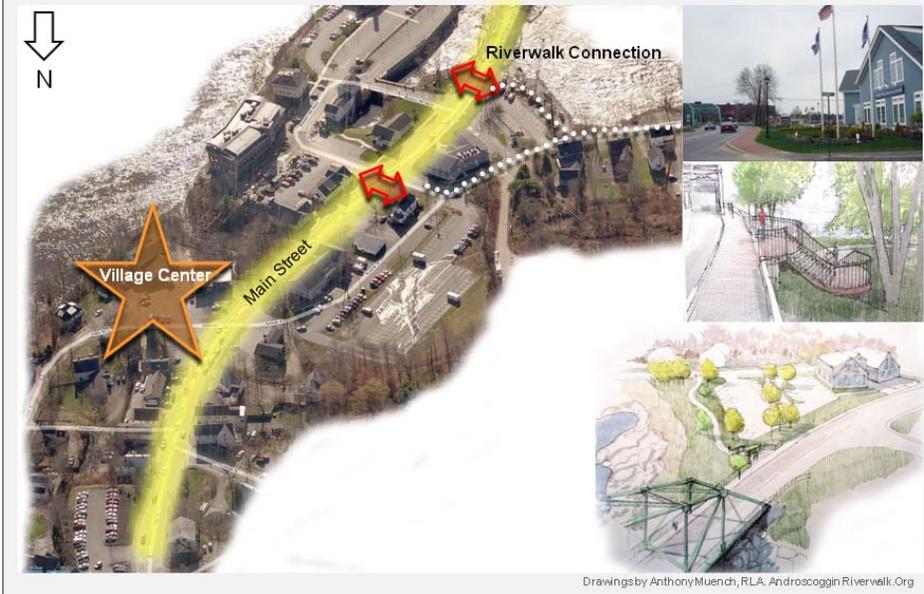
visible and has pavement-embedded flashers to alert vehicles of pedestrian activity, the southerly crosswalk does not incorporate this technology, which is very effective within this busy vehicle corridor.

It is our understanding that there has been ongoing discussion about the best location for the most southerly crosswalk. Our recommendation is that the Town should shift this crossing to the northerly side of the Bowdoin Mill Island drive where it will be aligned with the sidewalk, and to consider utilizing the signalized flasher technology for this location as well. Sight distances should be verified from the north and south vehicle approaches.

Lower Village Center (At Former Fire Station)

The recent recommendations of the Waterfront Access Feasibility Study reinforce the importance of the central fire station parcel as a civic and scenic amenity within the redevelopment area and a destination hub for pedestrian connections. The timing of this study coincided with an ongoing traffic study, the recommendations of which will alter current traffic configurations and land use. It is recognized that the redevelopment of the Lower Village Center must accommodate multiple layers of land uses and users to be successful. In light of the ongoing traffic planning and recommendations, our study considered pedestrian connectivity from the riverfront trail network via Green Street to the Lower Village Center, but did not investigate specific treatment options.

Segment #1 - Riverwalk Connection + Village Center



Assessment - Riverwalk Connection



Task: Consider Main Street crossings to Riverwalk.



Aerial photo courtesy of the Town of Topsham.

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Segment 2: Green Street Connection

The focus of the Trail Feasibility, Segment 2, examined pedestrian access along Green Street as an important link between the Town Landing Road and the Lower Village Center. The segment primarily encompasses sidewalks and crosswalk connections, which collectively serve to enhance pedestrian activity and connectivity between the Lower Village Center, neighborhoods and the future trail connection off Town Landing Road.

Green Street

With potential traffic changes and redevelopment within the Lower Village Center, including a long-planned waterfront park, safe pedestrian accommodations along Green Street are of critical importance as a primary access route between the commercial center and areas east. While parking is limited on residential streets and in particular, near the riverfront trail heads, public parking is available in the Lower Village Center and a larger lot is planned in conjunction with future traffic improvements. A safe pedestrian connection along Green Street from public parking is integral to the ultimate success of the riverfront trail since enhances the value of the trail as a public amenity. The Town Landing Trail Feasibility Study examined current conditions and sought to define both opportunities and constraining factors relevant to future sidewalk improvements on Green Street. The on-going traffic study recommendations are significant to the Green Street portion of this project since the potential alterations in traffic patterns affect the feasibility of sidewalks in this corridor.



Segment #2 - Green Street



The roughly 1,150 linear foot public-right-of-way along Green Street is marked by dense residential development with a traffic volume heightened by traffic patterns associated with Main, Winter and Elm Streets. Since there are currently no sidewalks on Green Street, pedestrians travel along the edges of the vehicle lanes. Traffic volume, poor sight distances and habitual speeding create a potentially hazardous pedestrian environment. The study examined conditions along the Green Street public right of way to determine the feasibility and locations for new sidewalks and crossings between Main and Elm Streets. Following is a summary of our findings.

Right-Of-Way Constraints

The apparent width of the Green Street right-of-way (ROW) is between 25 and 30 feet for the majority of the corridor, except near Main Street, where the ROW expands to 50 feet. Two standard 12 foot vehicle travel lanes take up the width of the corridor. Additional of a sidewalk to the existing street configuration would require a verification and expansion of the ROW boundary in most locations. The ongoing traffic study has made a preliminary recommendation for one-way traffic along Green Street. Reduction of the vehicle corridor to one lane (15 feet) would allow for new sidewalks within the current established ROW.

Grade Relationships

The narrow setback and finish floor elevations of the existing homes along the eastern side of lower Green Street limit opportunities for a sidewalk along this frontage. Vertical separation between vehicle and pedestrian travel-ways is critical for safety and usually accomplished with a raised curb. In some locations of Green Street, however, the street grade is only 6 inches below the finish floor elevations of the buildings. Raising the sidewalk grade by 6 inches would, in some instances, create a sidewalk level with the doorways, creating drainage issues for residential properties. Since most buildings sit at the street edge, there is not enough horizontal distance to properly mitigate the grade change. For this reason, a sidewalk is not recommended in this location (see map).

Roadway Layout

The visibility of pedestrians along Green Street is another important consideration, particularly with regard to crossing points. Vehicle sight distances are restricted by both horizontal and vertical road alignment along a majority of the street. Our study identified two potential crossing zones along Green Street: one at the center of the curve near the pumping station and another larger crossing zone toward Elm Street. The crossing of Green Street is necessary because of limited sight lines created by steep grade changes on the western side of the Elm Street intersection, where vehicles entering Green Street from the eastward travel lane create an unsafe pedestrian environment. For this reason, the sidewalk should be shifted to the east side of Green Street before Town Landing Road.

Assessment - Green Street



Grade relationships:



Access Issues:



ROW:



Roadway layout:

Assessment goal:
Examine the possibility for
sidewalks on Green Street



Stormwater:

Access Considerations

The feasibility study noted a variety of access-related issues affecting sidewalk placement. The closely spaced residences and driveways on the eastern side of lower Green Street make a sidewalk in this area impractical due to the number and location of curb cuts. Gravel parking areas on either side of upper Green Street also present challenges for sidewalk placement. The parking associated with the existing garage at the top of Green Street near Town Landing Road is particularly challenging and should be looked at in greater detail to identify opportunities to limit the extent of curb cut.

Storm Water

The crowned road profile, lack of curbing and dropping grades from northwest to southeast present challenges to the management of runoff. Storm water flows enters Green Street from a number of contributing sources, including Elm and Pleasant Streets and adjacent properties along the western boundary. Beginning from Elm Street, the western edge of Green Street is bordered by 500 linear feet of granite curbing, which keeps storm water flows within the ROW and limits erosion. Signs of erosion are evident along the entire eastern and lower western sides of the street. Erosion appears to be undermining the gravel areas at the head of Town Landing Road. The edge of pavement in this location has recently been reinforced with patching. There is one catch basin located uphill of the sharp curve on the east side of Green Street, but no other drainage outlets were.

As planning for sidewalks and single lane traffic along Green Street continues, the Town should conduct a detailed field survey of topography and existing conditions to more effectively evaluate the relationship between street and finish floor elevations and specific drainage patterns and issues. This information will allow the Town to investigate ways to better mitigate storm water and erosion-related impacts to properties and the existing storm water system.

Summary Recommendations

Should Green Street be made one-way, as currently recommended by the on-going traffic study, a new 5 foot wide sidewalk should be installed on one side of the street and the vehicle travel way reduced to at least 15 feet (including shoulders). Begin the new sidewalk at the existing sidewalk on the north side of Main Street and extend approximately 750 linear feet (with necessary curb cuts for access). A new crosswalk should be installed just south of the intersection with Town Landing Road to an easterly section of sidewalk extending approximately 295 linear feet to Elm Street.

Thompson Lane should be improved to provide better shared access for both pedestrians and vehicles, particularly since the street aligns with busy Winter Street.

Signage will be important, both to regulate traffic and parking and to provide information on pedestrian routes and trail heads. Directional signs should be installed near the intersections of Main and Elm Streets and Thompson Lane. Regulatory and trail direction signs should be installed near the head of Town Landing Road.

Recommendations – Green Street



7

Segment 3: Town Landing Trail

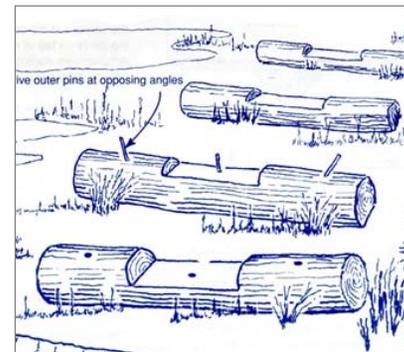
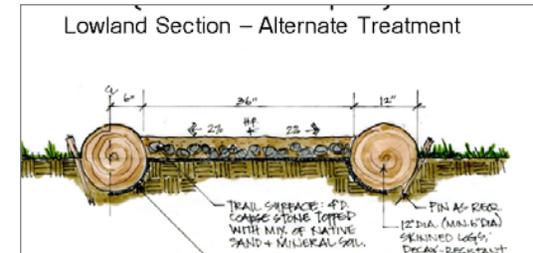
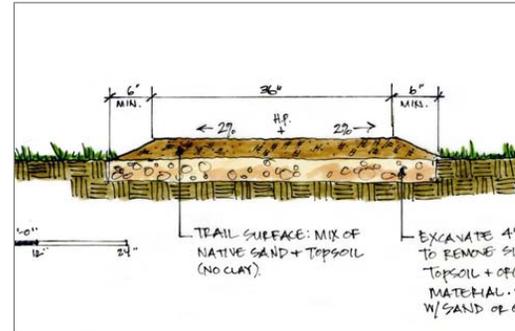
The focus of the Trail Feasibility, Segment 3, examined pedestrian access down Town Landing Road and through three privately owned properties (Littlefield, Smart & Riverview Cemetery). This segment includes shared driveway access on Town Landing Road as well as a dedicated pedestrian trail network, called the Town Landing Trail, adjacent to the Androscoggin River. This segment connects back toward Elm Street via two spurs through Riverview Cemetery. An extension to Town Landing Trail on an adjacent property, Segment 4, was also addressed.

Town Landing Trail

While Topsham is fortunate to have the asset of the Androscoggin River so close to its urban core, public access has been limited. Recently, several private landowners agreed to partner with the Town to examine the feasibility of establishing public-use trail along the waterfront and land bordered by Town Landing Road and Riverview Cemetery. This is an unprecedented opportunity to enhance public recreational access along the river – for exercising, enjoying scenery and experiencing nature.

The Town Landing Trail portion of the project is characterized primarily by undeveloped wooded property along and within the floodplain of the Androscoggin River east of Town Landing Road and an existing public right of way via Town Landing Road. The feasibility study examined the existing properties to determine the appropriateness of trail development, to identify potential and preferred routes and treatment recommendations.

Example trail treatments are illustrated at right. Please see the Appendix for complete information,



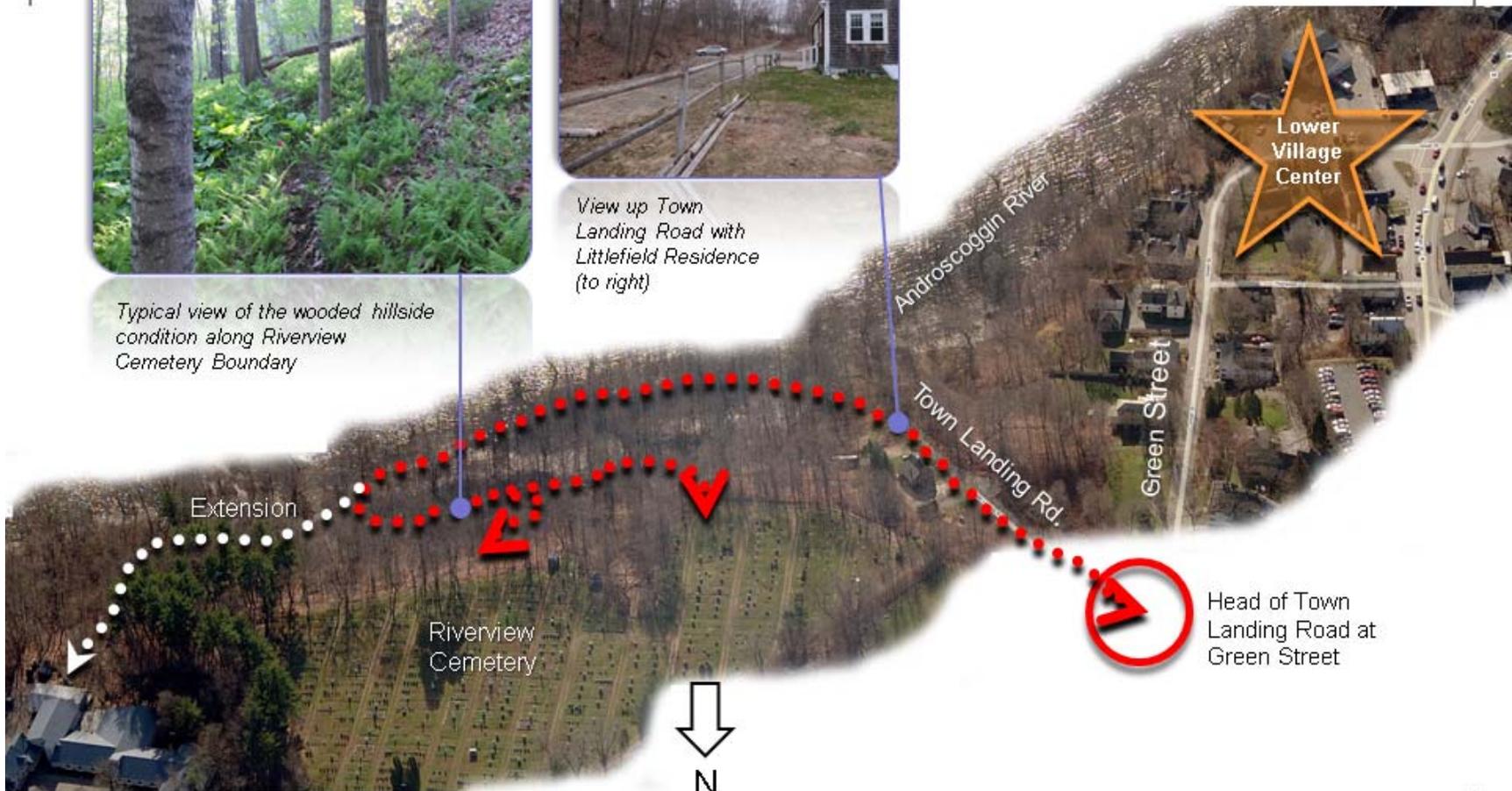
3 Segment #3 Town Landing Trail



Typical view of the wooded hillside condition along Riverview Cemetery Boundary



View up Town Landing Road with Littlefield Residence (to right)



Downtown reVitalization Collaborative

The Town Landing Trail represents a unique opportunity for the Town to expand its existing trail network and to open approximately 635 linear feet of public access to the Androscoggin River near the Lower Village Center. This study focused on the question of feasibility. This included a fairly comprehensive assessment of the existing conditions, from field observations to mapping from state and local databases. It should be noted that the existing conditions and trail routes shown on the plan are based on a combination of ortho-photogrammetric and GPS location mapping, which have varying degrees of accuracy. For this reason, the preferred trail route shown on the plan is approximate.

The conclusions drawn from this study are grounded in decisions regarding trail treatment, which affect every aspect of trail development, including the level of permitting, construction costs, environmental impacts, sustainability, maintenance and experiential qualities. For this reason, we have included fairly detailed recommendations for trail width, surfacing, layout and construction.

Town Landing Road Assessment

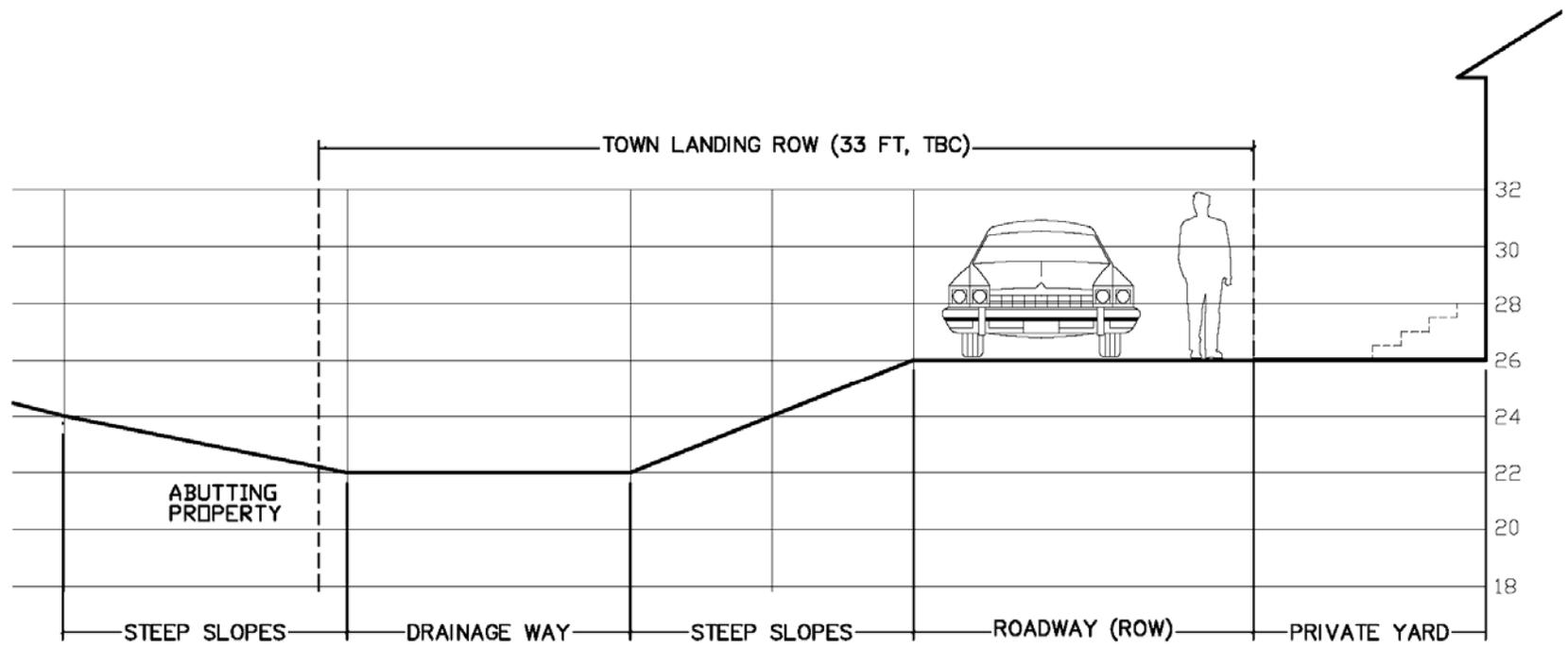
The study examined the feasibility of Town Landing Road to provide access from Green Street to the river and trail network. Town Landing Road is a shared public-private drive terminating at the residential property owned by William and Jane Littlefield. Historically, Town Landing Road was a town-owned right-of-way extending to the river however the southerly section of the ROW past the Littlefield home was discontinued years ago, thereby restricting public access.

The width of the ROW is shown on Town maps as 25 and 30 feet. The current drive measures approximately 12 feet wide.

Town Landing Road is 475 long, extending past the Littlefield home to the top of the bank bordering the flood plain. The road has recently been improved with the addition of a gravel parking area to the west of the drive. It appears that the grade of the road was raised adjacent to the house and garage. The side slopes west of the road and extending to the existing north-to-south-running drainage-way are quite steep and need to be stabilized. Erosion is evident at the southern end of the gravel roadway, which slopes toward the floodplain at a 20-25% grade.

There are currently no special accommodations for pedestrians along Town Landing Road, but because of its limited use as a residential driveway, shared use is a feasible option. The greatest challenges to a shared use of Town Landing Road are related to preserving the privacy of the property owners and restricting vehicles while enhancing pedestrian access.

Improved pedestrian access will also need to respond to the environmental limitations of the site, including addressing unstable slopes adjacent to drainage areas. Invasive Japanese Knotweed is highly established in this area, and without due precautions, any excavation or movement of these soils could increase the infestation to other natural areas on site. Erosion is evident from the top to the bottom of Town Landing Road, and any improvements related to the Town Landing Trail or Green Street traffic changes should include provisions for addressing these issues.



EXISTING CONDITIONS - TOWN LANDING ROAD (CROSS SECTION)
 N.T.S.

Town Landing Trail Assessment

The trail assessment and layout focused on approximately four acres of wooded undeveloped land owned by Gary Smart with an existing access path through the Littlefield property. (It should be noted that the Town's accounting of the parcel area appears to be incorrect). The footpath follows the river bank for about 900 linear feet running west to east to an existing stream and ravine at the property edge. There are no other trails or access points to the property.

The Smart property is characterized by low, wet floodplain, which extends approximately 180 feet north into the site from the river's edge and then rises steeply over another 120-150 linear feet to the abutting Riverview Cemetery to the north. This is an extremely challenging site for trail development, given the topography, seasonal flooding, as well as the environmental, permitting and private property constraints. While the property is not ideal, the beautiful setting on the river offers an incredible opportunity for outdoor recreation and river access close to the Lower Village Center.

Soils

The majority of the site is marked by Adams Series soils. The USDA defines the series as consisting of very deep, excessively and somewhat excessively drained glacial-fluvial sand. These soils dominate the steep slopes along the northern half of the site. Soil borings revealed a profile consisting of 8-12 inches of forest duff/topsoil over deep layers of sand and silt. Minus the duff layer, these soils are suitable for trail development provided they are properly mixed. Reference the geo-engineering report in the appendix for more information.

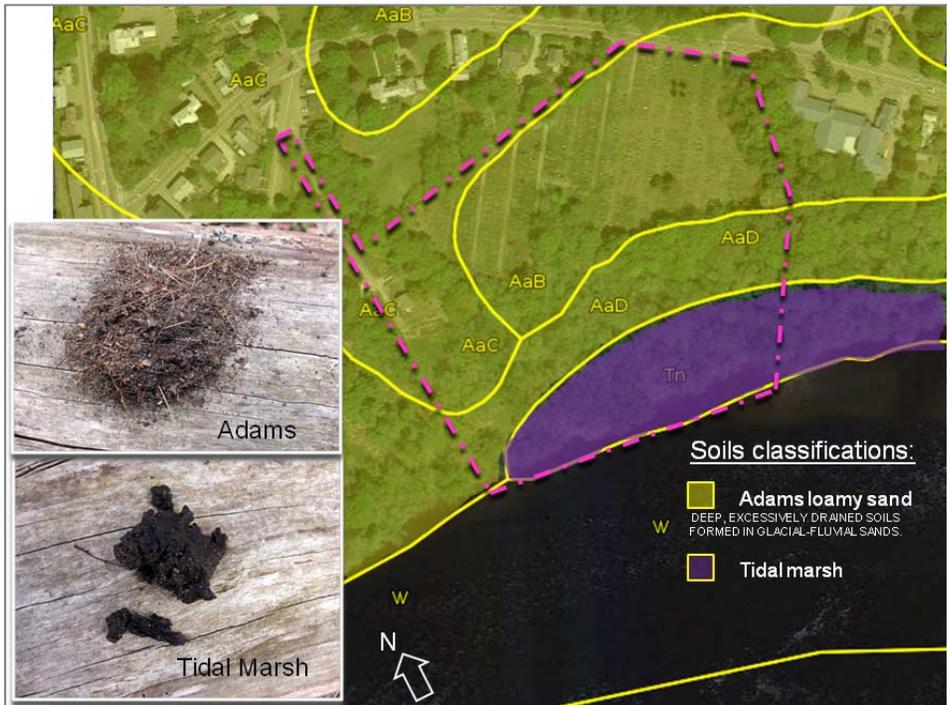
Remaining sections within the floodplain - are classified as Tidal Marsh. The existing path bordering the river is elevated from the center of site and soils firmer than the marsh-type soils within the lower portions of the site. These soils still have high silt content and will need to be mixed with native mineral or gravelly soils to be appropriate for trail use.

Slopes

The top half of the site is marked by steep slopes descending from the northerly property line at Riverview Cemetery. The hillside rises abruptly from the alluvial flood zone at a roughly 15 percent grade, which gains steepness quickly to a nearly 2:1 slope, which comprises the majority of the area. While these grades do not prohibit trail development, they do present challenges to trail construction in terms of complexity, cost and sustainability. The remainder of the site is flat, sloping between 1-2 percent toward the river, and within the flood zone. The center of the flood zone area is depressed and the river bank slightly elevated, forming a narrow, shallow causeway running parallel to the river.

Flood Zones, Shoreland & Setbacks

Approximately 89% of the site is within the FEMA defined Flood Hazard zone and a majority of the site is within the Shoreland Zone. Development of a trail will need to adhere to the regulatory and practical constraints of these designations and the Resource Protection Zone, which extends 75 feet from the water lines of the Androscoggin River and the brook at the



Assessment – Town Landing Trail



(Left) Photograph showing the late spring understory growth near the base of the hillside within the Smart parcel.

(Below left) Photograph taken in late spring after tree leaf-out. The view is across the low tidal marsh area. (Below center) Beaver activity evidence. (Below right) View of a spring freshet, the typical season flood elevations as viewed from the Littlefield property. Photo by Bill Littlefield.



Assessment – Town Landing Trail



(Left) Photograph showing the condition of the trail section running from Town Landing Road parallel along the Androscoggin River on Gary Smart's property.

(Below) Photograph showing the layout of the Smart property – with a raised bar along the edge of river (background), low and wet central drainage area and steep upland slopes at the edge of the cemetery (foreground).



Eastern property boundary. The current footpath is located approximately 25 feet from the normal high water line of the river. The existing trail may be retained, but there will be regulatory limitations to the amount of soil disturbance and the extent to which the trail surface can be modified. Please refer to the permitting memorandum in the Appendix for more information regarding the permitting considerations for trail development.

The lower portion of the site is inundated seasonally by flood waters, which overflow the river and fill the center of the site before receding. Water ponds at the center of the site in the spring, but these areas are not classified as vernal pools. Trails are not feasible in these particular locations due to the consistently wet soil conditions.

In general, trails constructed within the lower half of the site will need to withstand both minor and major flooding conditions, including debris and the erosive forces of moving water.

Private Property Constraints

Protection of privacy for private landowners and sensitivity to the existing abutting land uses is a major consideration for trail development. The Riverview Cemetery Board conceptually supports trail connections to the trail from Riverview Cemetery to Elm Street, but these routes need to be handled in way that supports the existing cultural uses of the property. Signage will be very important to regulate and balance uses. Please reference the Memorandum on Riverview Cemetery use in the Appendix section.

Access to the trail route via Town Landing Road will need to incorporate improvements to provide clear separation between public and private zones and to ensure a level of privacy for the landowners. Areas uphill east of the Littlefield's property line should be preserved as a buffer and protected from pedestrian activity overlooking the home.

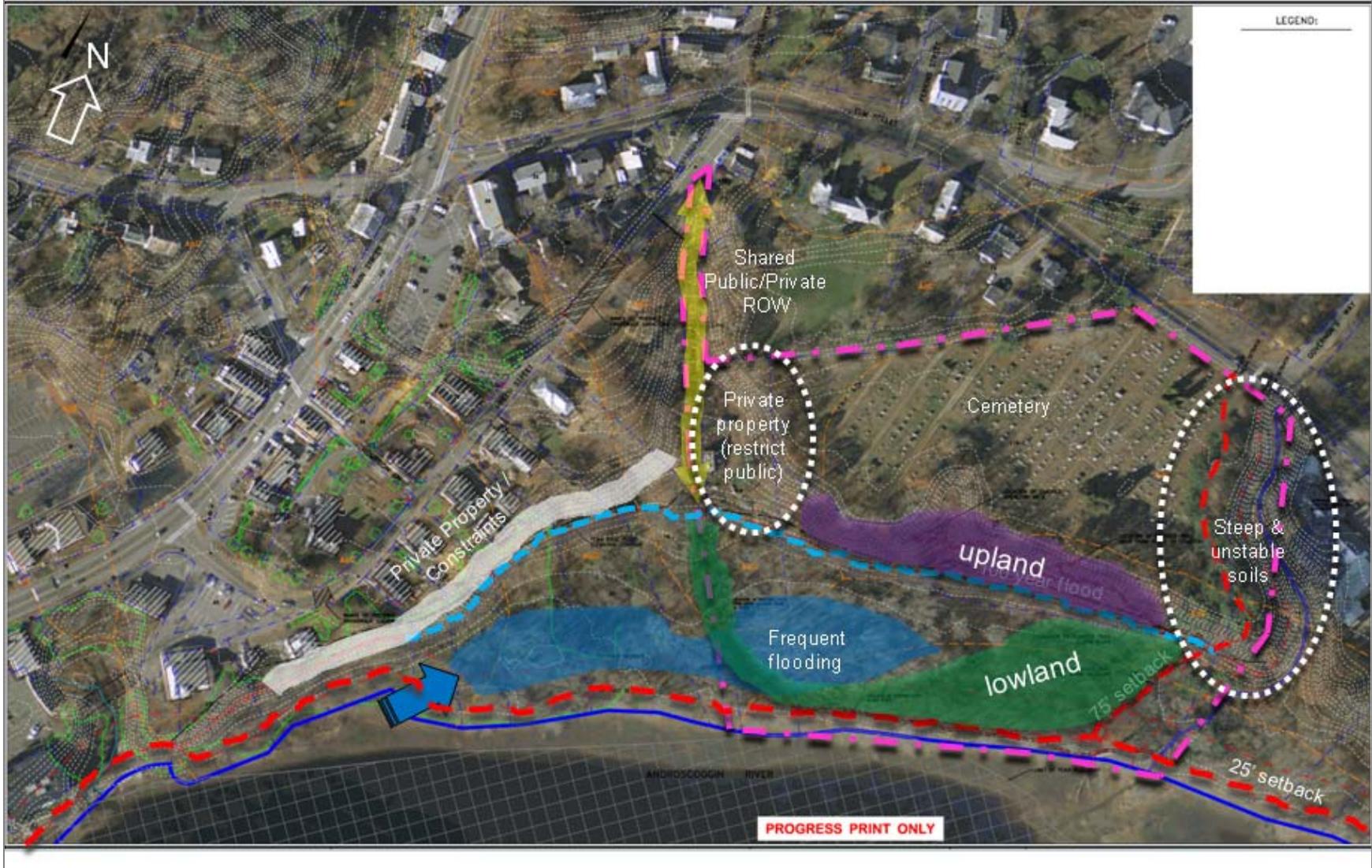
Trail Routing Considerations

The many limitations of the site essentially dictated the routing of the trail. While a loop trail would have been preferable, issues with wet soils and preservation of privacy prevented consideration of this option.

Destinations and points of interest along a route are integral to a good trail experience. They add a sense of value or reward for the trail user and can fulfill a variety of functional purposes. Stops or highlights along the trail can serve as points of reference, scenic interest or places to rest. Out-and-back trails are recommended only when loop trails cannot be incorporated.

While the site has many physical and environmental constraints that limit opportunities for optimal trail routing, the site does offer unique access along the river, beautiful views from the hillside and a setting in which to appreciate nature. The routing of the trail for the purposes of this study should be described as the most feasible layout rather than a preferred layout. While the trail layout doubles back, it arrives at an overlook before a steep spur connection to the cemetery, which offers access to Elm Street

Assessment – Town Landing Trail



Town Landing Road Summary Recommendations

Shared access of Town Landing Road, for much of its length (175 feet), requires little more than clear directional signage at Green Street. That signage should include restrictions to vehicle access, particularly since the name, “Town Landing” can be misleading. As well, the Town should consider adopting sign graphics specific to its trail system so that signs are readily recognizable. This could be accomplished in partnership with other trail organizations, which would lend consistency to the trail signage.

The existing drive should be terminated just north of the Littlefield home and the gravel parking area on the west side of the driveway should be removed. The side slopes of the driveway should be stabilized with geotextiles and seeding with an appropriate native seed mix. The trail should begin at the southwest corner of the driveway and marked with a small post and trail sign. To provide privacy to the residence, the former driveway should be excavated so that the trail drops in grade as it travels south. The remaining area should be graded to slope to the trail, seeded and planted accordingly to provide a buffer between the private and public uses. The hillside south of the residence should be stabilized with geotextile or turf reinforcement mat and seeded with an appropriate native herbaceous seed mix.

Town Landing Trail Summary Recommendations

This study was tasked with outlining the feasibility of a riverfront trail. It should be recognized that this site (Littlefield, Smart properties) is not ideal for trail development. The physical conditions are challenging, and there are environmental and permitting constraints that need to be considered. However, it is also recognized that this site presents an unprecedented opportunity for pedestrian access along 635 linear feet of river frontage and a recreational trail network east of Main Street – something that many Topsham residents support. For these reasons, the question of feasibility is a little more nuanced and less black and white. The following recommendations should therefore be balanced with the acknowledgment of the site realities, and the Town should understand that even with thoughtful and careful trail construction, the seasonal flooding in particular will likely necessitate seasonal trail repair or adjustments. We hope this study provides the guidance necessary for the Town to make an informed decision about how best to proceed in light of all these factors.

As stated earlier in this report, the specific trail treatments for this project are inherently tied to the feasibility of trail development. How the trail is designed and ultimately constructed affects costs, permitting, environmental impacts, constructability and sustainability. To be feasible, trails must fit the requirements of the site – they should be non-invasive, designed to fit the land and sustain the forces of nature. The Appendix provides specific treatment recommendations for each documented trail condition and provides guidance with regard to construction methodology, materials and cost.

Assessment – Town Landing Trail



(Left) Photograph showing the late spring understory growth near the base of the hillside within the Smart parcel.

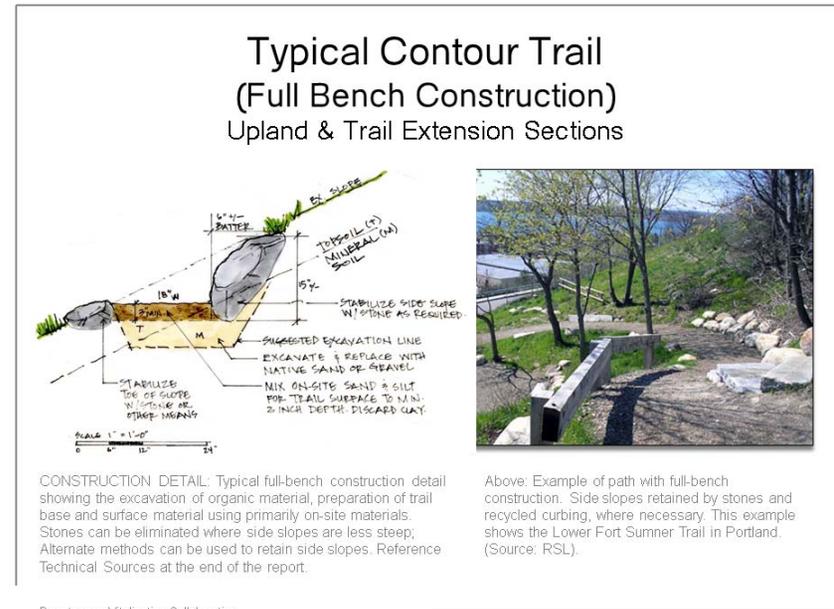
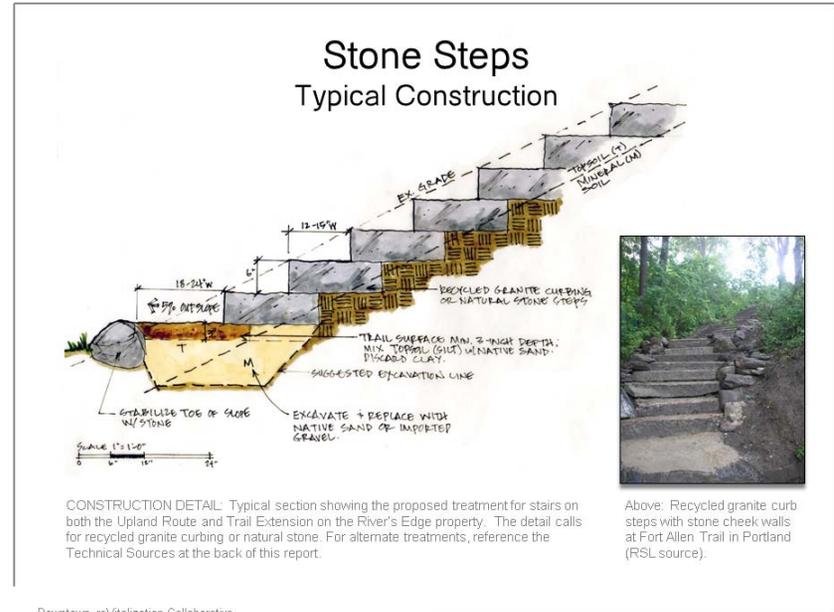
(Below left) Photograph taken in late spring after tree leaf-out. The view is across the low tidal marsh area. (Below center) Beaver activity evidence. (Below right) View of a spring fresh et., the typical season flood elevations as viewed from the Littlefield property. Photo by Bill Littlefield.



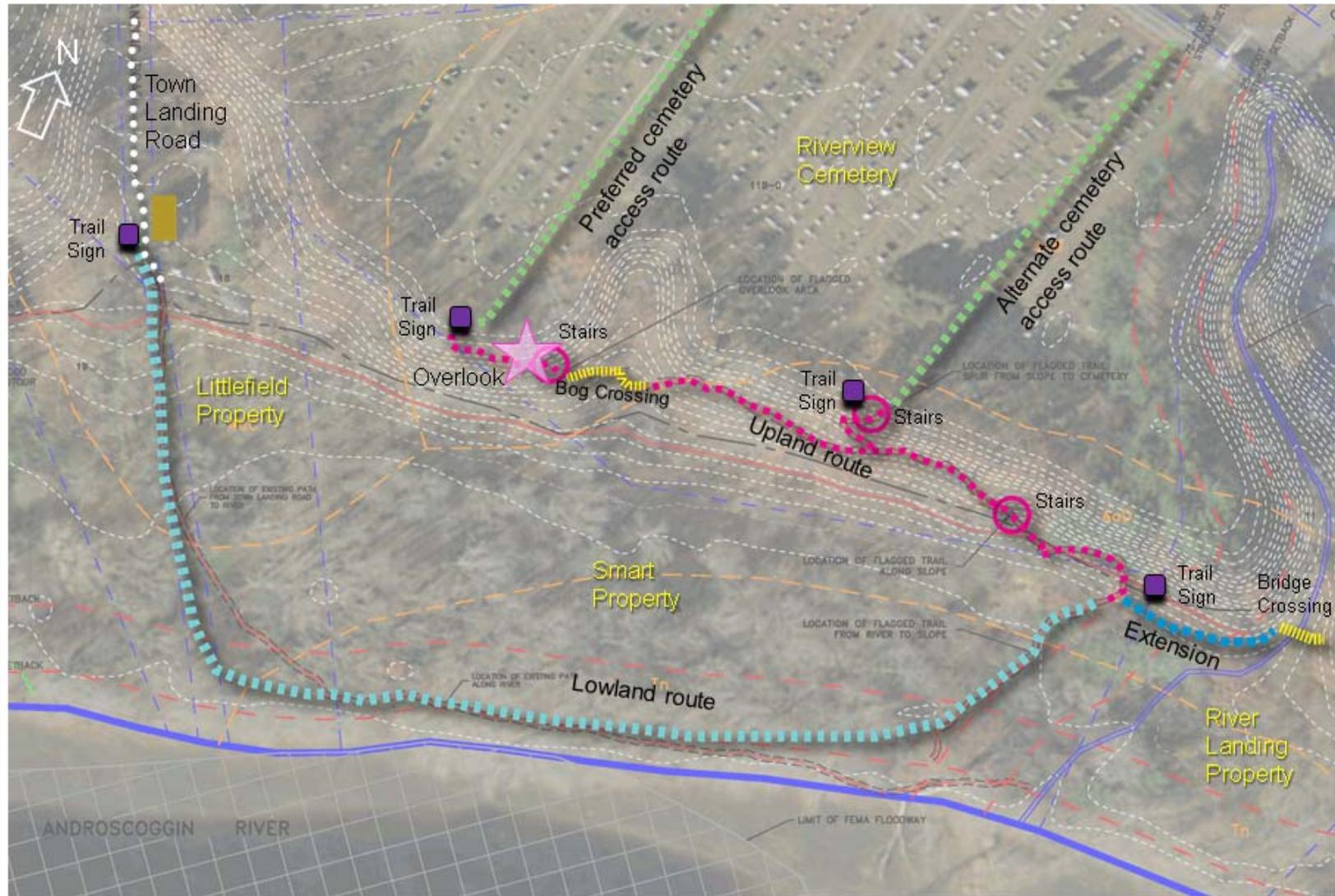
To the extent possible, trail construction should use on-site materials and construction should be, for the most part, by hand – and by seasoned trail builders. This is not a project that requires detailed engineering and/or the typical bidding & construction process, which would likely impact the outcome and feasibility of the project by increasing site impacts and cost. The implementation of this trail requires a crew with natural trail construction knowledge and experience and a more responsive “in-the-field” construction approach using proven trail techniques.

For this reason, our strong recommendation is that the Town partner with an organization like the Brunswick-Topsham Land Trust, which can offer access to its trail professionals and/or volunteer labor force. As an example, the City of Portland has a long history of partnering with Portland Trails to tackle a wide range of trail projects and trail maintenance. Portland Trails, as a non-profit, has acted in varying capacities according to the specific project needs: grantee, project manager and/or contractor. The Town of Topsham should consider initiating a similar partnership prior to undertaking trail improvements.

The Town Landing Trail presents an exciting opportunity for public access and recreation along the Androscoggin River and within a short walk from the Lower Village Center. With a well-considered approach and the right partnerships, this would be an incredible amenity for the local and neighboring communities.



Proposed Routes – Town Landing Trail



Downtown reVitalization Collaborative

The focus of the Trail Feasibility, Segment 4, examined a pedestrian connection from Elm Street to the eastern edge of Segment 3. Consideration of this portion of the proposed trail is made possible by an agreement between the Town and the developers of River Landing, a new senior housing project located on Elm Street. The extension will be within an easement within the River Landing property. This segment includes shared access via an interior sidewalk from the trail head through the future development to Elm Street.

Town Landing Trail Extension

The Town Landing Trail Extension portion of the project is characterized primarily by undeveloped wooded property along and within the floodplain of the Androscoggin River east of the Smart property and bordered to the north by Elm Street.

Town Landing Trail Extension Assessment

The trail assessment and layout focused on approximately 0.8 acre section of undeveloped land on the southern portion of the former Amenity Manor property, now called River Landing. There are no other trails or access points to the property from the Town Landing Trail, although historically, an unimproved farm road at one time provided access to the back lot from the former residence, which pre-dated Amenity Manor.

The undeveloped portion of the property is characterized by moderate uplands of mature hardwood and little understory sloping to floodplain, which extends approximately 200 feet south to the river's edge. Lowland areas are characterized by thick undergrowth comprised of honeysuckle and multiflora rose. Native fern and skunk cabbage are also abundant. This is a moderately challenging site for trail development, given the topography,

floodplain and the necessity for a stream crossing. The crossing, in particular, will require continued close coordination with permitting agencies to determine the most acceptable location and means of access across the stream. Above the floodplain, the steep ravine conditions limit the feasibility of a crossing.

Soils

It is assumed that the upland portions of the site are characterized by Adams Series soils. The USDA defines the series as consisting of very deep, excessively and somewhat excessively drained glacial-fluvial sand. Soil borings taken on the adjacent Smart property revealed a profile consisting of 8-12 inches of forest duff/topsoil over deep layers of sand and silt. Minus the duff layer, these soils are suitable for trail development provided they are properly mixed. Reference the geo-engineering report in the appendix for more information. The property within the floodplain is classified as Tidal Marsh, although there are distinctly higher areas less prone to holding water. In general, soils within this floodplain have high silt content and will need to be mixed with native mineral or gravelly soils to be appropriate for trail use.

Slopes

The top half of the site is marked by moderate slopes descending from the developed areas of the former Amenity Manor property. The hillside rises abruptly from the alluvial flood zone at a roughly 10-15 percent grade. While these grades do not prohibit trail development, they do present challenges in terms of universal access. The remainder of the site is fairly flat, sloping between 1-2 percent toward the river, and within the flood zone. The former Amenity Manor development is bordered to the southeast by very steep slopes and a ravine, which extends from north to south.

Flood Zone, Shoreland & Setbacks

The southern property boundary runs along the Androscoggin River approximately 180 linear feet. The lower portion of the site is inundated seasonally by flood waters, which typically quickly recede. Approximately 0.3 acre is within the FEMA defined Flood Hazard zone and a majority of the site is within the Shoreland Zone. Development of a trail will need to adhere to the regulatory and practical constraints of these designations and the Resource Protection Zone, which extends 75 feet from the water lines of the Androscoggin River.

A stream runs roughly north to south through the property, beginning at the base of a steep ravine and descending to the floodplain. There is evidence of scouring along portions of the existing ravine and evident erosion and undercutting of trees. Flood debris is heavy in this portion of the property.

Trails constructed within the lower half of the site will need to withstand both minor and major flooding conditions, including debris and the erosive forces of moving water. There will likely be use or design restrictions related to the FEMA floodplain as well, particularly with regard to the stream crossing.

Private Property Considerations

Retaining privacy for homes within the River Landing property and maintaining sensitivity to shared use will be special considerations for this area of trail development. Both the trail and the shared sidewalk need to be handled in way that invites all users yet preserves the quality of life for River Landing residents. Signage will be very important to regulate and balance uses.

Trail Route Consideration

The routing of the trail largely followed the remnant grading of the old farm road from the parking area down to the base of the upland hillside. Once in the lowland, the trail shifts toward the east through slightly higher ground within the floodplain to the stream crossing. From there, the route continues east across the toe of the upland slopes where it meets the Town Landing Trail.

As with the Smart property, the River Landing site had physical and environmental constraints that largely dictated trail routing. The River Landing site extends public access along the river and to the larger trail network and is a much less challenging option for making a key connection from Elm Street.

Summary– Town Landing Trail Extension

The Town's partnership with the River Landing development offered an opportunity to expand the feasibility study of a riverfront trail. It should be recognized that this site, like the Littlefield and Smart properties, is not ideal for trail development. The physical conditions are slightly less challenging, but there are environmental and permitting constraints that need to be considered, particularly with regard to the stream crossing. In conjunction with the Town Landing Trail, this site presents the valuable opportunity to extend pedestrian access and the trail system another 400 linear feet of river frontage and to make a strong direct connection to Elm Street. As we've explained in the previous chapter, the question of feasibility is decidedly nuanced.

Recommendations – Town Landing Trail Extension

The following recommendations should therefore be balanced with the acknowledgment of the site realities, and the Town should understand that even with thoughtful and careful trail construction, the seasonal flooding of both the floodplain and the stream will likely necessitate seasonal trail repair or adjustments. Additionally, the stream crossing, because it is within the floodplain, will likely have design constraints that may limit accessibility and increase maintenance. We hope this study provides the guidance necessary for the Town to make an informed decision about how best to proceed in light of all these factors.

Trail treatment and construction should be in line with what we've previously described for the Town Landing Trail. Please reference that section for more information as well as the Appendix, which provides specific treatment recommendations and provides guidance with regard to construction methodology, materials and cost.

Assessment – Town Landing Trail Extension



(Left) Photograph showing the proposed trail head located on the southeast corner of the future River Landing housing development.



(Below. Left to right) Flag showing center line of lowland trail route; High spot near proposed stream crossing, with view of upland to the northwest; Evidence of flood debris and bank scouring; View of the stream channel, looking upslope toward Amenity Manor, the proposed site of the River Landing project.



Downtown reVitalization Collaborative

Overview

Local, State, and Federal permitting will be required for this project due to possible impacts to natural resources on the project site, proximity to natural resources, and the project's location in the floodplain. Our understanding of the permit requirements from these perspectives follows.

Local Permitting

Local permitting will consist of a Shoreland Zone Permit and Flood Hazard Development Permit. The Flood Hazard Boundary, as established by the Federal Emergency Management Agency (FEMA), is shown on the Riverwalk Trail Feasibility Plan. Any work within this zone requires a permit administered by the municipality. In general terms, this permit requires any new installation to be flood proofed, i.e. not able to float away. The Plan also shows the Flood Way for the Androscoggin River, which is not subject to impact by this project. Further discussion with the Topsham Planning Office and Code Enforcement Officer is necessary to complete the local permitting summary.

State Permitting

Maine Department of Environmental Protection (DEP) regulates the impact of development in, on, over, or adjacent to natural resources such as wetlands and the Androscoggin River. To firm up our understanding of possible permitting requirements for this project, we held a site visit with Beth Callahan, Project Manager from the Division of Land Resource Regulation at DEP on April 25, 2013, which was attended by Ms. Callahan, Tom Fowler, P.E., Regina Leonard, Landscape Architect, Gary Smart, one of the property owners and member of the Riverview Cemetery Association, and

Rod Melanson of the Town of Topsham. This site visit consisted of Riverview Cemetery and the Smart and Littlefield properties. These owners have been open to discussion with the Town about the possibility of recreational trail over their properties. DEP made the following recommendations while on site:

- There was standing water in the floodplain area, which should be investigated for potential vernal pool properties. Rod Melanson, the Town's Natural Resource specialist examined the standing water at that time and found no egg masses present.
- Likely some removal of invasive shrubs such as barberry and bittersweet will be part of the trail improvement program. Replacement of removed plants by native species will likely be required under Shoreland Zoning.
- Make arrangements for long term maintenance of the trail. We believe that if the Town pursues the project then either a Town Department such as public works or parks & recreation, or a local land trust would be enlisted for maintenance.
- Any wetland in the floodplain is designated as a Wetland of Special Significance (WOSS). Any impact to the WOSS may require a full Natural Resources Protection Act (NRPA) permit, but due to the location and proposed minimal amount of disturbance/impact, permitting can likely be waived down to a Tier permit by DEP. In making this judgment call, DEP staff considers effect on the functions & values, hydrologic connection the Androscoggin, and existing development/use in the area.

- Consider construction access in the planning of the project. We feel that much of this will be done by hand. Delivery of materials such as stone for steps could be accomplished from the top of slope. Placement would likely be manual.
- DEP has been under increased scrutiny to provide clear Title, Right, or Interest to projects during permitting. Secure agreements for property access etc. prior to permitting.
- Permits-By-Rule would likely be required for:
 - Section 2 – Activity Adjacent to a Protected Natural Resource
 - Section 10 - Stream Crossing
 - Section 12 - Restoration of Natural Areas
- Keep DEP apprised of details of design as the process moves forward to keep the final permit applications smooth.

Federal Permitting

The Army Corps of Engineers regulates impacts to all wetlands including freshwater and salt water. Copies of any NRPA Permit Application submitted to the Maine DEP are sent to the Army Corps of Engineers for their concurrent review.

Summary

Because some amount of soil disturbance and development will be undertaken for this project in the floodplain, adjacent to, and in protected natural resources, local, state, and federal permits will be required. Because of the limited impact proposed to these resources, we believe the project as currently conceived is permit-able. We recommend continued contact with the Local, State, and Federal permitting agencies as you take the project to the next steps beyond Feasibility.

Past Outreach & Partnerships

Outreach with stakeholders and the general public is an important component of the process and consensus greatly informs a project’s final outcome as well as ensure its future support. Fortunately for this project, a great deal of groundwork has already been laid by the Topsham Lower Village Waterfront Access Study. Over 100 persons attended 3 Focus Groups and 2 Public Meetings. This Feasibility Study built on this foundation by re-engaging past citizen participants and stakeholder organizations. such as Green Street Residents, the Brunswick Topsham Land Trust, the Lower Village Redevelopment Committee and the Fore River Group, plus reaching out to new citizens and stakeholders.

Communication as Important as Design

Community support by residents, business owners and other stakeholders is essential in moving the project forward in later stages. Communication is as important as design, so a lingering sour taste by citizens from feeling not included or heard can spoil the potential to implement a good plan. To this end, the Feasibility Study included a thorough outreach effort to invite a collectively crafted vision for the riverfront trail – and partnerships necessary to turn that vision into a reality

Three Types of Stakeholders

Three types of stakeholders were identified Staff/Steering Committee, Abutters and the Public. Their meetings had distinctive goals and agendas and occurred in a “leap frog” pattern to cross inform and build upon each other. Together they created an interrelated citizen engagement process.

Staff/Steering Com Mtgs	Abutter Meetings	Public Forums
Meeting #1 Staff/Steering Committee		
	Meeting #2 Abutters Downtown + Trail + Waterfront	
Meeting #3 Staff/Steering Committee		
Meeting #4 Staff/Steering Committee		
Meeting #5 Staff/Steering Committee		
		Meeting #6 Public Forum
Meeting #7 Staff/Steering Committee		

Introduction

The Town Landing Trail Feasibility Study recommendations described sidewalk improvements along Green Street, a new separated trail at the base of Town Landing Road and Town, and a new trail system on the Littlefield, Smart and River Landing properties. The trail system was broken into roughly three sections: the lowland trail section, the upland trail section and the trail extension. Following is a brief description of these improvements and their estimated costs. These estimates are based on concept-level design and general survey information.

Green Street Improvements

Proposed sidewalk improvements include the installation of approximately 1045 linear feet of five foot wide bituminous sidewalk and curbing. The budget includes a 7% mobilization fee, a technical design / engineering support fee of 10% and a 15% contingency fee. Constructed to Topsham typical standards, the sidewalk improvements are estimated at just over \$60,000. Because the site slopes toward homes on the east side of the street, we recommend consideration of a sidewalk underdrain under approximately 750 linear feet of sidewalk. The additional cost for associated drainage improvements is estimated at \$33,000.

Town Landing Road Right-of-way (ROW) Improvements

Considering that vehicle access by the general public will be restricted on Town Landing Road., the recommendations do not include any physical upgrades to the existing infrastructure. To ensure privacy for the property owner, the report recommends a 125 linear foot separated trail running roughly parallel to the road bed, beginning at the existing parking area on the west side of the road. This layout will require the installation of a culvert and filling of the existing

gully. Costs for this work are estimated near \$33,000 and include further engineering design, which will be necessary to size the pipe and to develop a more specific grading plan to determine potential impacts to abutting properties that may require additional easements. The Town should prepare a topographic survey or the current conditions and verify the ROW boundaries prior to engineering design. These costs are not included in this report.

Slope stabilization (ROW)

The existing slope south of the Littlefield residence is primarily gravel fill and prone to erosion. This approximately 30 foot section of slope will need to be stabilized. Costs for this work include installation of a geogrid to hold the trail base, the installation of turf reinforcement matting as well as loam and seeding. The cost for this work is estimated at around \$3,500.

Town Landing Trail

Costs for the Town Landing Trail are broken into two sections: the reconstruction of the existing 900 linear feet of footpath in the Lowland section and 420 linear feet of Upland section. Reference the Preliminary Trail Construction Recommendations in the Appendix for detailed information. The construction of these sections will be distinctly different and determined largely by the existing physical conditions on site

As discussed extensively in Chapter 7 of this report, the cost of, trail construction can be greatly reduced by in-house construction, volunteer labor or through a partnership with an organization with trail-building experience and capacity like the Brunswick-Topsham Land Trust. Hiring an experienced trail-oriented design-build firm is another approach and would likely ensure a successful outcome. Costs herein assume a typical

bid and construction scenario, which is not our recommendation. However, these costs have been provided for budgetary planning purposes and reflect the conservative range of potential construction costs. Reference the Appendix for more information on trail construction recommendations and the geoenvironmental report.

The Lowland portion of trail work includes reconstruction of the existing footpath to harden the trail surface and make it more durable to increased foot traffic. Work includes removal of organic surface material and soils and the preparation of a gravel base. Existing suitable material can be mixed on site with sand (excavated from the Uphill section) and laid as a natural surface. Cost for this work is estimated at around \$11,000.

The Upland portion of the Town Landing Trail includes 420 linear feet of a narrow, full-bench cut trail along the steep slopes at the northern end of the Smart Property. The estimate also include two spur segments leading to the Riverview Cemetery property, where Elm Street can be accessed via switchbacks and stairs. Trail preparation includes the removal of organic material and unsuitable soils. The natural trail surface will be a mixture of excavated suitable soil and on-site sand. Cost include approximately 65 linear feet of an on-site constructed rustic bog bridge leading to an overlook. Costs for this trail section are estimated at around \$15,000. Elimination of the two spurs to Riverview Cemetery lowers the estimated costs by \$6,000. Considering the feasibility of the Topsham Landing Trail Extension, which provides access to Elm Street, these spurs may not be necessary.

The third section of the trail, the Topsham Landing Trail Extension, extends approximately 400 linear feet from the head of the slope at the former Amenity Manor property down to the Town Landing Trail near the base of the hillside. This

portion of the trail route includes a footbridge and anticipates one set of steps. Trail costs, exclusive of the bridge, are estimated at \$8,000.

The cost estimate for the Town Landing Trail Extension includes a \$12,000 allowance for bridge and banking reinforcement. This cost is based on similar bridges constructed by the US Forest Service. It should be noted that this estimate assumes on-site construction and wood materials. Permitting requirements may dictate specific bridge design because the bridge is in a floodplain. Should a footbridge be cost prohibitive, the trail could be rerouted south along the lowland area to make a connection with the Town Landing Trail. This would require expansion of the area being considered for the trail easement and an additional 300 linear feet of trail construction. The estimated cost for this alternative is approximately \$3,000. The trail alternative has not been field located.

Phasing Recommendations

It is recommended that the Town survey the Town Landing Road and develop and engineer design for the separated trail to more accurately determine scope of work, costs and any additional easements that may be necessary to the performance of work. This trail section will be a crucial part of the Town Landing Trail and should be considered a priority.

Phase One trail construction should include the Lowland sections and the Extension. Estimated construction costs for this phase of work are estimated at \$38,000 with the footbridge construction. Constructing the alternative without a footbridge would bring the cost down to \$29,000.

The Upland sections of the trail would best be constructed gradually by volunteers if the Town wishes to install them.

Introduction

The purpose of this section of the Town Landing Trail Feasibility Study is to assist the Town of Topsham in financing the extension of a riverfront trail from the Lower Village. More specifically in two directions; generally south from the Old Fire Station, across Main Street to the existing Androscoggin Riverwalk, and generally east from the Old Fire Station to the historic Riverview Cemetery on Elm Street.

Having completed the feasibility study and done the planning for a lengthened riverfront trail system the next step is to implement the recommendations which include land and/or easement acquisition, purchase and donation payments, and funding trail construction. This aspect of the feasibility study will focus on the wide range of potential State and local resources and options for land/easement acquisition and/or funding for trail construction work.

STATE OF MAINE RESOURCES

Department of Agriculture, Conservation and Forestry Division of Parks and Public Lands, Recreation Trail Program (RTP). The Recreational Trail Program (RTP) is a federal assistance program to help States provide and maintain recreational trails for both motorized and non-motorized use. It provides funds for a variety of trails including single use and multi- purpose trails. Administered at the federal level by the Federal Highway Administration and at the state level by the Maine Department of Agriculture, Conservation and Forestry, Division of Parks and Public Lands, RTP grants can provide up to \$35,000 of allowable costs with a 20% local cash or in-kind match or matches from other state, local grants, and certain federal grants. Eligible Development and Acquisition Grant activities include:

development or rehabilitation of any trailside or trailhead facility; construction of new recreational trails including new trail bridges and trail signage; acquisition of easements and fee simple title to property for trail purposes. A pre-approval site inspection of a potential project is required by state staff in August, a pre-application due in September with a full application due in November.

A RTP manual is available to provide general information about the Recreational Trail Program including the steps a potential sponsor must take to apply.

Bureau of Geology, Natural Areas and Coastal Resources Maine Coastal Program. The Maine Coastal Program's Coastal Communities Grant Program (formerly part of the State Planning Office) provides grants up to \$50,000 for public access, water quality, stormwater management, habitat restoration, open space planning and water access planning. For the FY 2014 grant round the Program Statement and application information is expected to be available by early summer 2013. There is a 25% cash or in-kind local match requirement. The funds do not allow for land acquisition or easement purchase; however, it is possible that a coastal communities grant could purchase materials for trail construction but cannot pay for actual construction. This is where the Maine Conservation Corps could come in.

Maine Outdoor Heritage Fund. The Maine Outdoor Heritage Fund (MOHF) has been helping to fund critical conservation and wildlife projects throughout the state since it was created by the legislature in 1996, in response to a grassroots effort from environmental and sportsman's groups. It is supported by proceeds from the Maine Outdoor Heritage Lottery Ticket.

The Maine Outdoor Heritage Fund conserves wildlife and open spaces through the sale of instant Lottery tickets. With proceeds from ticket sales, grants are awarded twice a year, totaling approximately \$700,000 annually. The seven-member Maine Outdoor Heritage Fund Board chooses projects in four categories that promote recreation as well as conservation of Maine's special places, endangered species and important fish and wildlife habitat. Proceeds can be used for acquisition and management of public lands, parks, wildlife conservation areas, public access and outdoor recreation sites and facilities. Unlike other programs, the State must hold title to any easement or parcel of land acquired with MOHF monies.

Grant awards are made within three months of application. Examples of the expenditure of these funds include purchase of land for hiking trails and trail repairs resulting from erosion. \$3,000 in heritage funds was used to assist with the purchase of a 100 acre parcel with 4,000 feet along the Moose River the purpose of ensuing lifetime public access to the river. For more information about the Maine Outdoor Heritage Fund and the Maine Outdoor Heritage Lottery Ticket, contact Carol Gay, Secretariat for MOHF, email: mohf@zwi.net, (207) 458-8421.

Maine Conservation Corps (MCC), Division of Parks and Public Lands. Part of the 4-fold mission of the MCC is to accomplish projects and engage conservation volunteers. MCC Field Teams consist of 3-6 person trail crews working throughout the State of Maine in the construction of new or the rehabilitation of existing recreational trails whether it be in the mountains or along our rivers and coastlines. More particular, single/multi-use trails, local nature and walking paths, stone and wooden staircases, timber bridges, and board walks. Crew team leaders must complete a 11-week course at the MCC Trail Training Academy. Location of MCC projects includes the Ducktrap River in Lincolnville, Portland Trails and Wolfe's Neck State Park in Freeport.

Maine Department of Environmental Protection (MeDEP)

Maine Natural Resources Conservation Program (MNRCP) was created in 2007 to manage the allocation of funds collected by the MeDEP through its *In Lieu Fee Compensation Program*. This volunteer program enable those entities that are impacting natural resources such as wetlands to make payments directly to the DEP as an alternative to the traditional or usual required mitigation process. The MNRCP is administered by the Maine Nature Conservancy in collaboration with the MeDEP and the U.S. Corps of Engineers. Fees collected are deposited in a Natural Resources Conservation Fund overseen by the Conservancy.

Funds administered by the Conservancy are distributed through competitive grant process for projects that restore or preserve high valued natural resources. Awards are typically announced in June of each year. Municipalities, public agencies, and non-profit conservation organizations are eligible recipients. Grants can be awarded for fee simple and conservation easement acquisition for the purpose of protecting threatened wetlands habitats identified in a town's comprehensive plan and/or through a regional or municipal planning process (i.e. the Town Landing Trail Feasibility Study). While there is no mandatory match requirement for these funds financial leveraging and other indications of project readiness are a plus for grant approval. A local example of the use of these funds is the Upper Cathance River wetlands which is held by the Brunswick-Topsham Land Trust (B-TLT)

The first step is to submit a Letter of Intent. If the LOI meets the program requirements the town is invited to submit an application proposal.

Department of Transportation (MeDOT)

Bureau of Transportation Systems Planning, Quality Community Program Safe Routes to School Program (SRTS) is now part of the new Transportation Alternative under the 2012 Federal Transportation bill. Funding is intended to provide resources for infrastructure improvements and activities to increase the number of students walking and bicycling to school and after school activities. Infrastructure improvements such as school zone lights, traffic calming and sidewalk improvements are intended to be part of a larger effort within communities to improve conditions and raise awareness of the benefits of walking and biking to school.

The Safe Routes to School Program is the only program within the Quality Community Program that provides up to 100 % funding for projects within 2 miles of an elementary or middle school. However, in order to be competitive a community should provide for a local match and have completed, at a minimum, the preliminary design and cost estimating work. Ideally the surveying, design, preliminary engineering and cost estimating work should be completed prior to the submission of a SRTS application. This funding is available on a biennium basis or every 2 years. Applications are submitted on even numbered years; awards are made on odd number years. Infrastructure improvements must make walking and biking safer for students (e.g. for sidewalks, signage, crossings, bike lanes, traffic calming, etc.).

LOCAL RESOURCES

Tax Increment Financing (TIF) District

The Town of Topsham is currently in the process of developing a Downtown TIF District which will also encompass the Lower Village riverfront area. Title 30-A, Maine Revised Statutes, Section 5225 allows for recreation related development costs for new or existing trails and improvements in a trail corridor including bridges, crosswalks, signs, signals and other associated capital costs as eligible Development Program project costs. The Development Program for the pending TIF should contain a provision allowing the use of TIF revenues for new or existing riverfront trail improvements.

Maine's Tree Growth and Farm and Open Space Laws

The **Open Space** portion of the law may be suitable for those owners who desire to donate a conservation easement on their land. It only applies to the area of the easement or protection and not the entire parcel. It is administered at the local level by the town assessor. There is no minimum lot size requirement under the statute and the tract must be used for land preservation, recreation or other use and provide a public benefit, which the landowner must show proof thereof.

Valuation guidelines are set by the State Property Tax Division to assist the land owner and the local assessor. Valuation depends on the level or tier of protection placed on a parcel of land. Suggested accumulative reductions from fair market value are: 20% for open space; an additional 30% for a permanently protected conservation easement; an additional 20% for "forever wild lands"; a further reduction of 25% may be added to the previous for allowing public access. Applications for the Open Space program must be made to the town assessor by April 1st of the year in which the classification is requested. As a note of caution, withdrawal from the program incurs a penalty.

Town of Topsham

Funding the capital reserve or capital improvement

Topsham Community Fund account for the Androscoggin Bike Path Project.

Local Land Trust

Provisions for trails over private lands are made through donated or granted easements or use agreements. They come in all sizes and shapes and forms and are individually tailored to meet the needs of the property owner, town or conservation organization; i. e. , the parties involved. Such easements may be a formal document recorded in a County Registry of Deeds or a temporary agreement between the municipality and a land owner. Generally easements or agreements contain the following components:

- The name of the non-profit conservation organization for which the easement is granted to, and to which holds the easement. The recipient organization may be referred to as either a licensee or grantee.
- Description of what the easement holder is allowed to do on the land such as construct a trail.
- The duration or term of the easement of agreement such as for 10 years with renewal options.
- The location of the easement and the width of the trail which is usually depicted on an attached map.
- Licensee or grantee's rights such as allowing for the construction of timber steps, boardwalks and bridges.
- The public use of the trail which is the basis for demonstrating public benefit-especially if there a claim for a reduction in valuation under the Open Space law. This portion may also state what can/cannot be allowed on the trail such as motorized vehicles.

- Reiteration of the Maine Recreational Use Statute, Title 14 M.R.S.A Section 159-A which provides for landowner immunities against liability for injuries by the public when using the land owner's land for recreation.

The most logical local conservation organization to hold any conservation easement(s) for a riverfront trail over private property is the **Brunswick-Topsham Land Trust**. It was founded in 1985 to conserve the diversity of the natural areas of Brunswick and Topsham including access to recreation and for the protection of the river corridor.

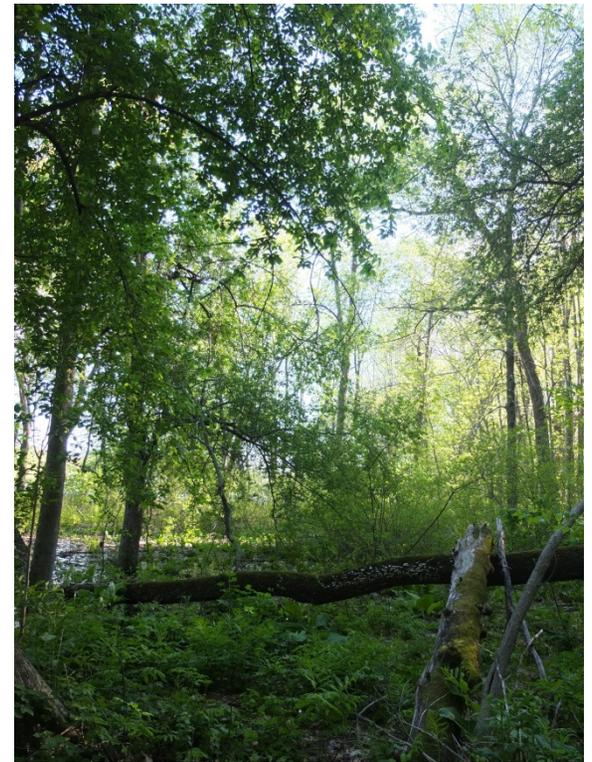
Attached in the appendices are examples of existing easements held by different land trusts.

Summary

In summary, in the previous paragraphs we have described a myriad of possible public implementation mechanisms for the acquisition and construction of extended segments of the Topsham riverfront trail. However, for reasons of space, time and budget, private and NGO trail funders were not included; however a listing is contained in the appendices for further research as to their feasibility and applicability to the riverfront project.

Town Landing Trail Feasibility Study

APPENDIX



Town Landing Trail Feasibility Study

APPENDIX

ADA CONSIDERATIONS & RESOURCES

Accessibility Considerations

OBSERVATIONS: Based on the findings of the feasibility study, it appears that a majority of the Lowland portions of the Town Landing Trail can be made accessible. The trailheads referenced in the plan will have signage but no parking or constructed. Signage should comply with F216.13. Grades leading from both points of trail access exceed allowable grades. It is anticipated that the Town Landing Road trail entrance could be modified to fit the standard, however environmental regulatory limitations on grading within the floodplain may be prohibitive. The trail from the River Landing entrance is along existing grades that exceed 15% and it is impractical due to existing terrain. Prevailing trail construction practices may limit access as well.

Source: <http://www.access-board.gov/attachments/article/1500/outdoor-rule.pdf>

SUMMARY: Architectural Barriers Act of 1968, as amended 42 U.S.C. §§ 4151 et seq. (ABA)

F216.13 Trailhead Signs

Requires new trail information signs provided at trailheads on newly constructed and altered trails designed for use by hikers or pedestrians to comply with the applicable technical requirements for trailhead signs.

F247 Trails

Requires trails designed for use by hikers and pedestrians to comply with the applicable technical requirements for trails where the trail directly connects to a trailhead or another trail that substantially meets the applicable technical requirements for trails.

Requires existing trails to comply with the applicable technical requirements for trails where the original design, function, or purpose of the trail is changed and the altered portion of the trail directly connects to a trailhead or another trail that substantially meets the applicable technical requirements for trails.

Requires camping facilities, picnic facilities, and viewing areas provided on trails to comply with the applicable scoping requirements in F244, F245, and F246, except for outdoor recreation access routes.

Requires at least 20 percent of outdoor constructed features provided at trailheads and at each location on trails, other than at facilities provided on trails, to comply with the applicable technical requirements.

Requires outdoor recreation access routes to connect accessible parking spaces or other arrival points serving a trailhead to the starting point of the trail and accessible elements, spaces, and facilities provided within the trailhead.

Accessibility Considerations, cont'd.

Source: US Access Board

<http://atfiles.org/files/pdf/AccessBoardDec3Webinar.pdf>

Architectural Barriers Act of 1968, as amended 42 U.S.C. §§ 4151 et seq. (ABA)

- Newly updated guidelines apply to outdoor developed facilities “constructed or altered by or on behalf of the Federal government”
- Apply guidelines to facilities constructed or altered “with Federal grants or loans” (ABA)
- covered by Title II or III of the ADA

APPLICABILITY:

Trails

- Pedestrian route developed primarily for outdoor recreational purposes
- Newly constructed/altered trail directly connected to a trailhead or another trail complying with guidelines
- Conditional exceptions permitted – new and altered
- Shared use paths to be addressed in upcoming rulemaking

Trailheads

- Outdoor space developed to serve as an access point to a trail
- Not a junction of two or more trails where no other access point is provided
- 20% of each type of outdoor constructed feature provided within trailhead to be accessible

Trail signs

- New signs provided at trailheads on newly constructed or altered trails
- Required information
- length of the trail or trail segment
- surface type
- tread width (typical/minimum)
- running and cross slope (typical/maximum)

Accessibility Considerations, cont'd.

Source: US Access Board
<http://atfiles.org/files/pdf/AccessBoardDec3Webinar.pdf>

Architectural Barriers Act of 1968, as amended 42 U.S.C. §§ 4151 et seq. (ABA)

SUMMARY GUIDELINES:

Trails

- Surface – firm and stable
- 36 inches minimum width
- Passing spaces – every 1,000 feet where less than 60 inches in width
- Tread obstacles – 2 inches maximum, except concrete, asphalt, or board = ½ inch
- Openings – ½ inch maximum (302.3)
- Cross slope – 1:20 maximum, except for concrete, asphalt, or boards = 1:48
- Resting intervals – 60 inches long, alongside trail - turning space, slope 1:20 maximum, except concrete, asphalt, or boards = 1:48
- Protruding objects – applies to “constructed features”
- Gates and barriers – clear width, gate hardware

Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20	1:12	200 feet (61 m)
1:12	1:10	30 feet (9 m)
1:10	1:8	10 feet (3050 mm)

Accessibility Considerations, cont'd.

Source: US Access Board

<http://atfiles.org/files/pdf/AccessBoardDec3Webinar.pdf>

Architectural Barriers Act of 1968, as amended 42 U.S.C. §§ 4151 et seq. (ABA)

SUMMARY GUIDELINES:

Conditional exceptions

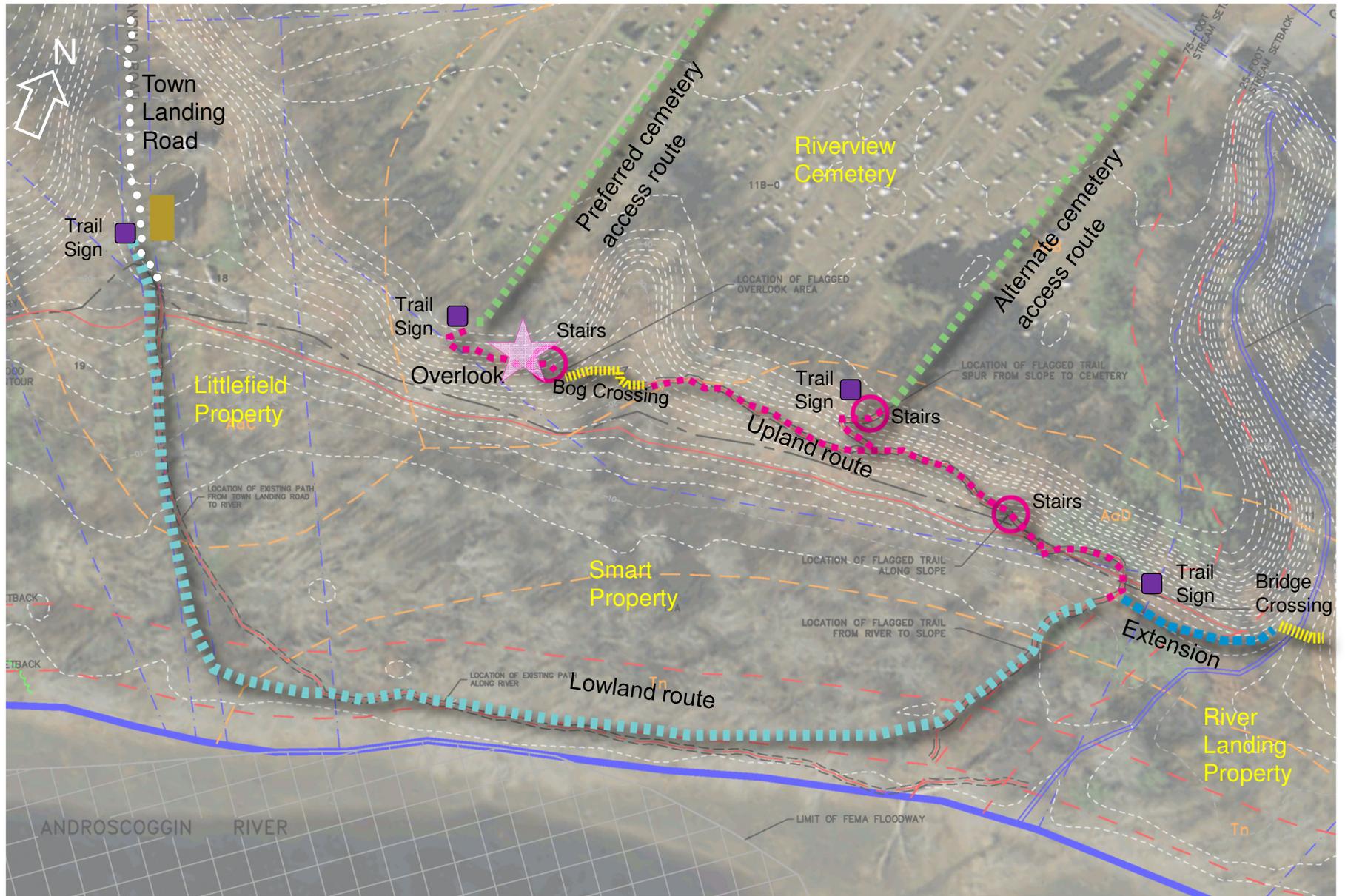
- Apply on a provision-by-provision basis
- Where full compliance with a technical provision is not possible because of the limitations and constraints included in the conditional exceptions...
 - “maximum extent feasible”
 - Document where conditional exceptions are used for specific provisions for trails and beach access routes
 - Include in project file
- Documentation not required where conditional exceptions are used for outdoor constructed features, outdoor recreation access routes, tent pads and platforms, camp shelters or viewing areas
- When applying conditional exceptions to portions of the trail results in exempting the entire trail or beach access route from the technical provisions...
 - Notify the Board where an entire trail or beach access route is exempted
 - Technical assistance available
- Compliance is not feasible due to terrain
- Compliance cannot be accomplished with the prevailing construction practices
- Compliance would fundamentally alter the function or purpose of the facility or the setting
- Compliance is precluded by the:
 - Endangered Species Act;
 - National Environmental Policy Act;
 - National Historic Preservation Act;
 - Wilderness Act; or
 - Other Federal, State, or local laws

Town Landing Trail Feasibility Study

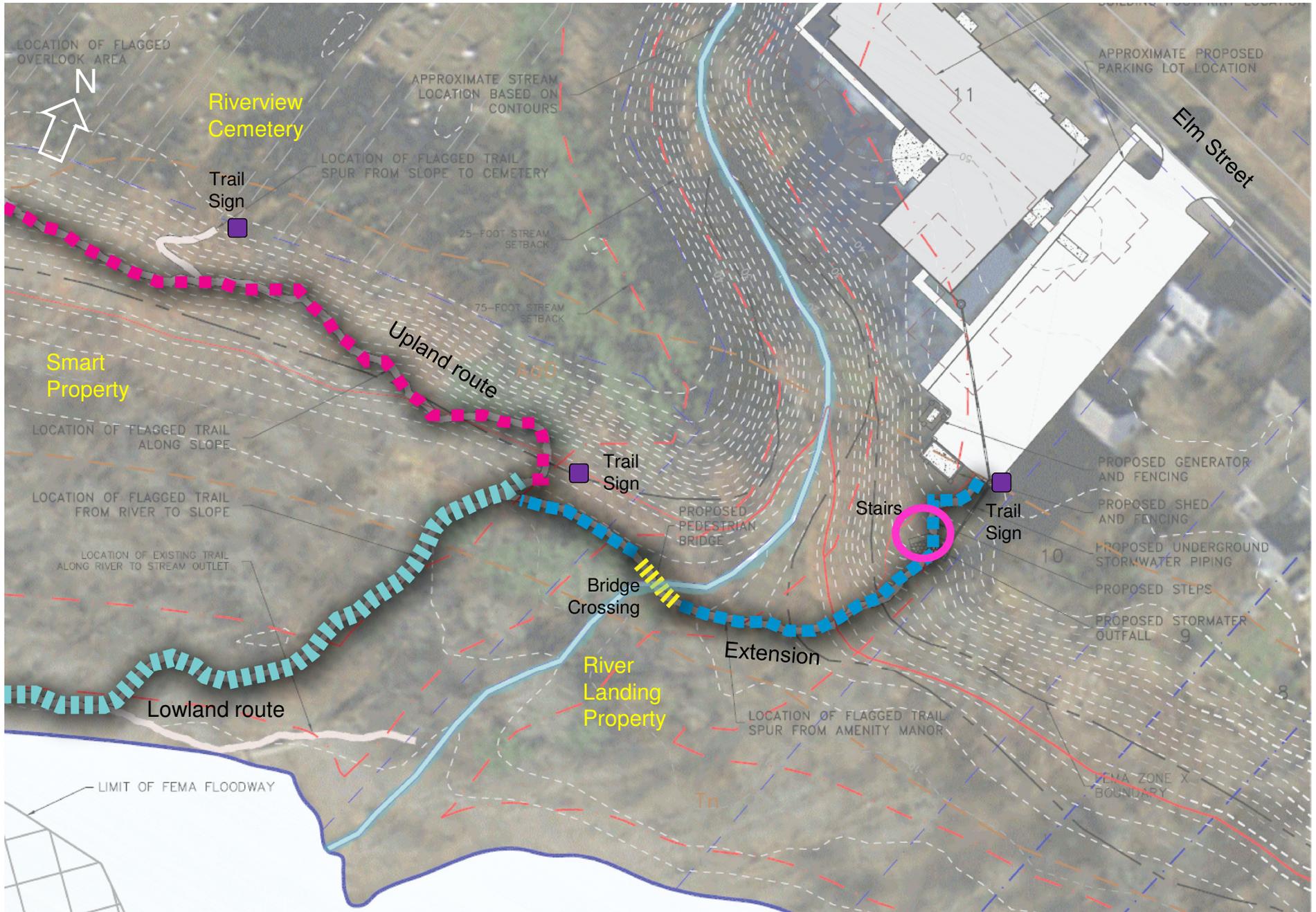
APPENDIX

PRELIMINARY CONSTRUCTION RECOMMENDATIONS

Proposed Routes – Town Landing Trail



Proposed Routes – Town Landing Trail



Town Landing ROW

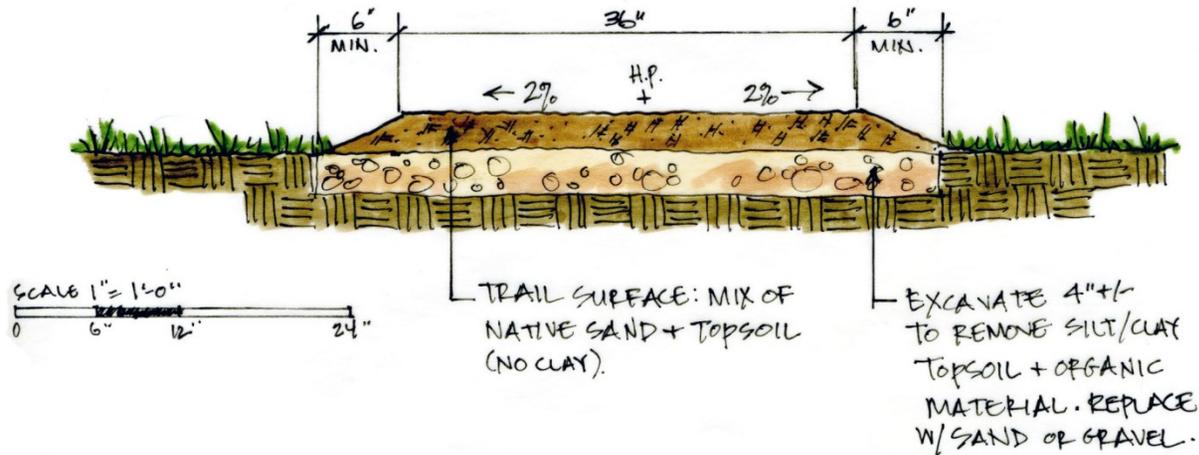
Separated Trail Alternative



SECTION-ELEVATION: Separated trail option for southern end of Town Landing Road right-of-way (ROW). This option would require improvements in the existing drainage-way in order to construct the trail. Additional engineering will be required to determine layout, calculate runoff, pipe size and final grades. Town will need to verify classification of the drainage way. Alternative may require adjacent landowner easements. A topographic and boundary field survey should be performed for the Town Landing Road ROW and adjacent slopes.

Modified Causeway

Lowland Section – Preferred Treatment EXISTING TRAIL IMPROVEMENTS

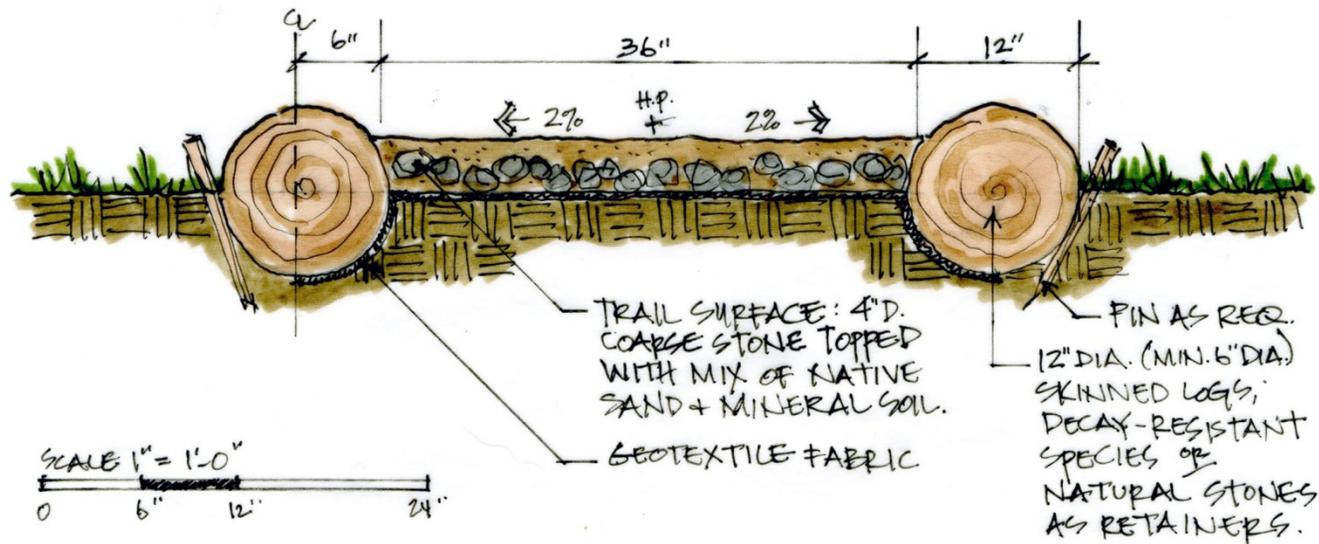


CONSTRUCTION DETAIL: Simplified causeway detail for improving the existing lowland trail section running parallel to the Androscoggin River. Where this section is prone to flooding and environmentally sensitive, the minimalist approach is designed to reduce soil disturbance and cost. It is anticipated that this trail section will have a higher level of maintenance due to seasonal flooding.



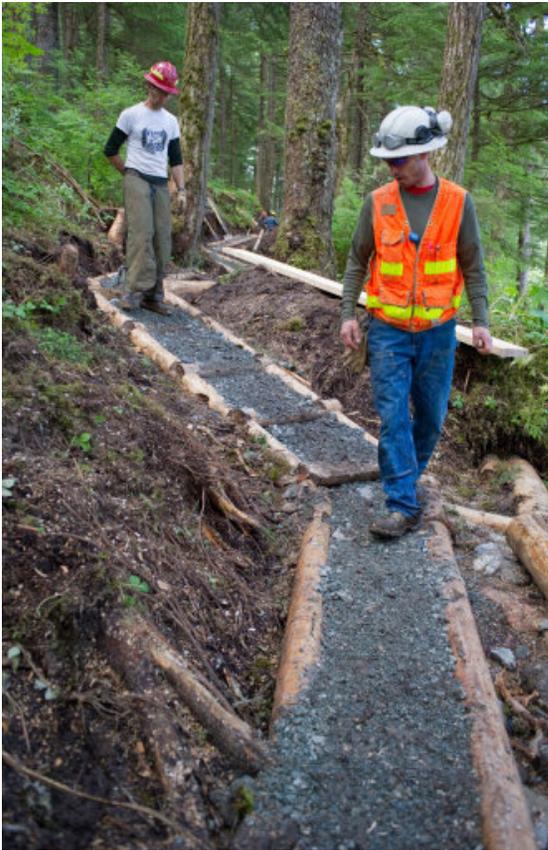
Above: Crushed stone base to be covered with fines to harden trail surface (Credit: forum.mtbr.com)

Typical Causeway (Ditchless Turnpike) Lowland Section – Alternate Treatment



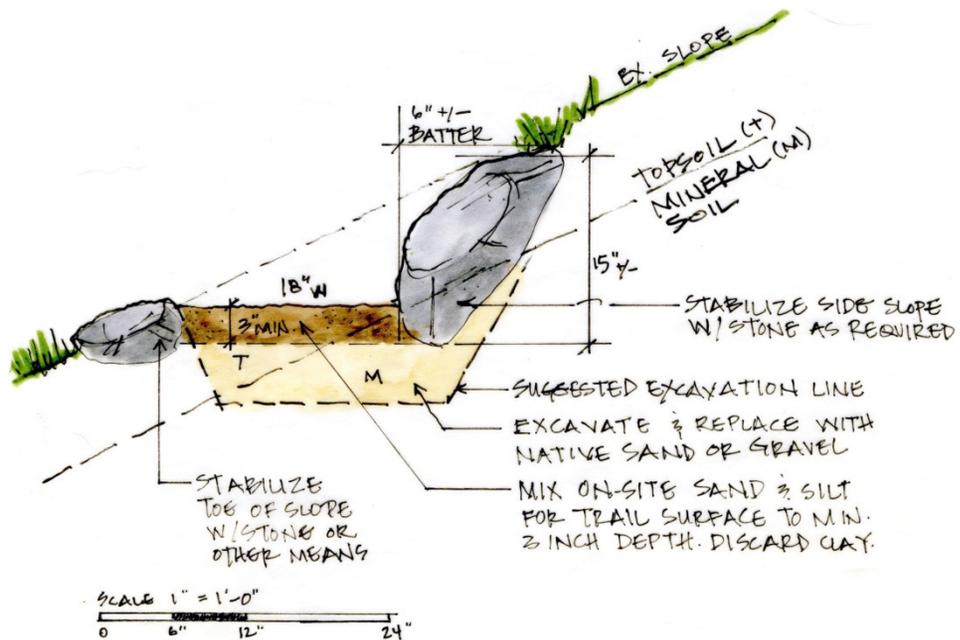
CONSTRUCTION DETAIL: Typical causeway section showing log retainers along the path edges. A layer of crushed stone is laid as a base and covered with fines to harden the tread surface. The surface is crowned at the center. Drainage should be accommodated where necessary. See sources at the end of the report for specific guidance.

Causeway & Turnpikes EXAMPLES



Clockwise, from left: Typical log turnpike construction (Credit: juneauempire.com); Causeway style construction: drainage rock (1) covered with fines (2) to seal surface (Credit: snowflaketrails.longstair.com); Typical timber turnpike construction (Credit: thessca.org); Typical stone-retained turnpike construction (Credit: nwws.org).

Typical Contour Trail (Full Bench Construction) Upland & Trail Extension Sections



CONSTRUCTION DETAIL: Typical full-bench construction detail showing the excavation of organic material, preparation of trail base and surface material using primarily on-site materials. Stones can be eliminated where side slopes are less steep; Alternate methods can be used to retain side slopes. Reference Technical Sources at the end of the report.

Above: Example of path with full-bench construction. Side slopes retained by stones and recycled curbing, where necessary. This example shows the Lower Fort Sumner Trail in Portland. (Source: RSL).

Trail Hardening Techniques

EXAMPLES

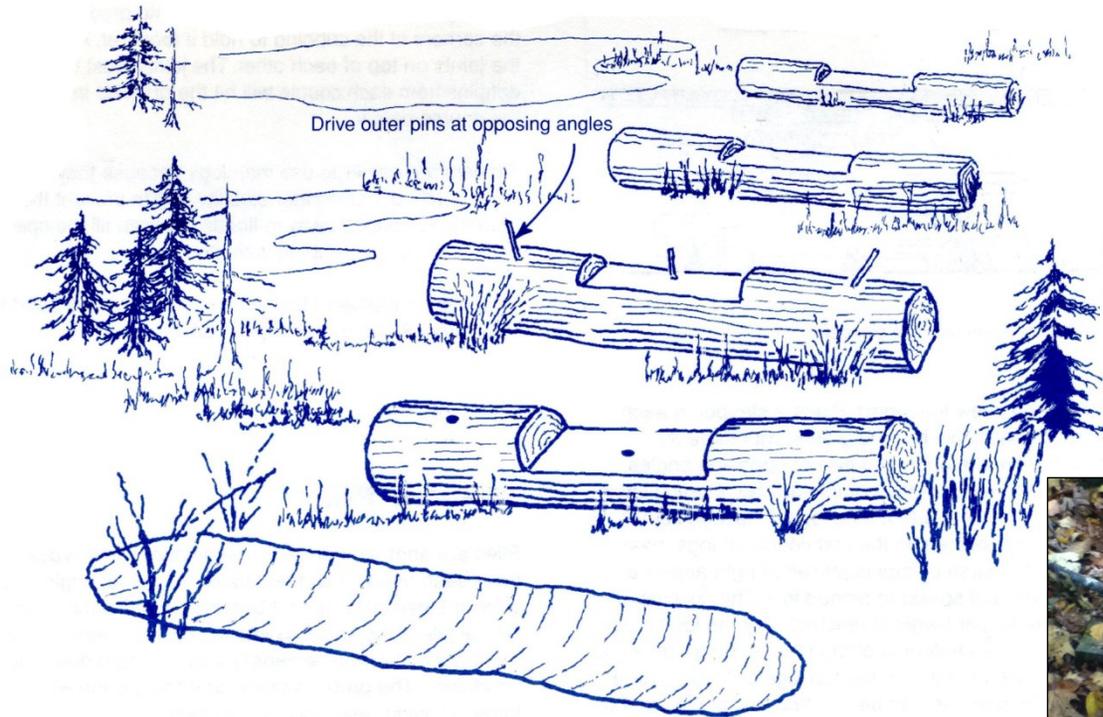


(Left to Right): Gravel trail base (Credit: timbermtb.org); Large inset stones (Credit: chasetrails.co.uk); Coarse drainage rocks (Credit: forum.mtbr.com); Crushed stone base (Credit: hikewnc.info); Concrete turf block (Credit: forum.mtbr.com)

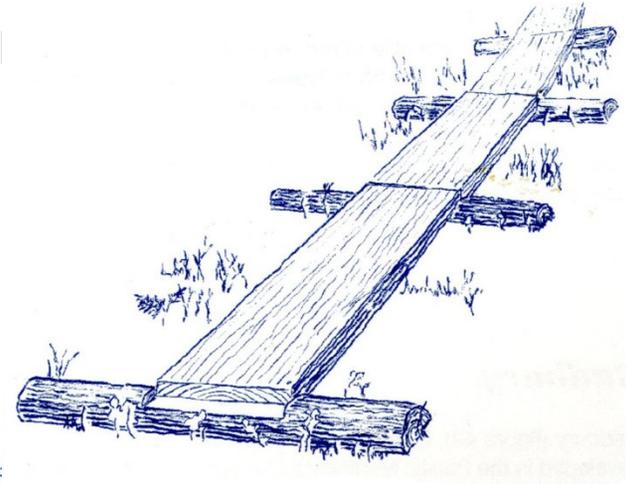
Notes: Also reference USDA's Geosynthetics for Trails in Wet Areas, 2008 edition for guidance on using geosynthetics for trail hardening in soft, saturated soils.



Bog Bridge Sleeper & Bent Const



Above: Sketch showing typical log sleepers or sills as a simple foundation for a tread plank or stringers. The sleeper is placed in a shallow trench at a right angle to the trail centerline. Both sketches from the USDA's Wetland Trail Design and Construction, 2007 ed.



Above: Single bent and sleeper construction. These are used to cross sections of saturated, boggy soils.



Left: Screening used to improve traction across bog bridge. Credit: <http://www.atwithwarwagon.wordpress.com>

Bog Bridge

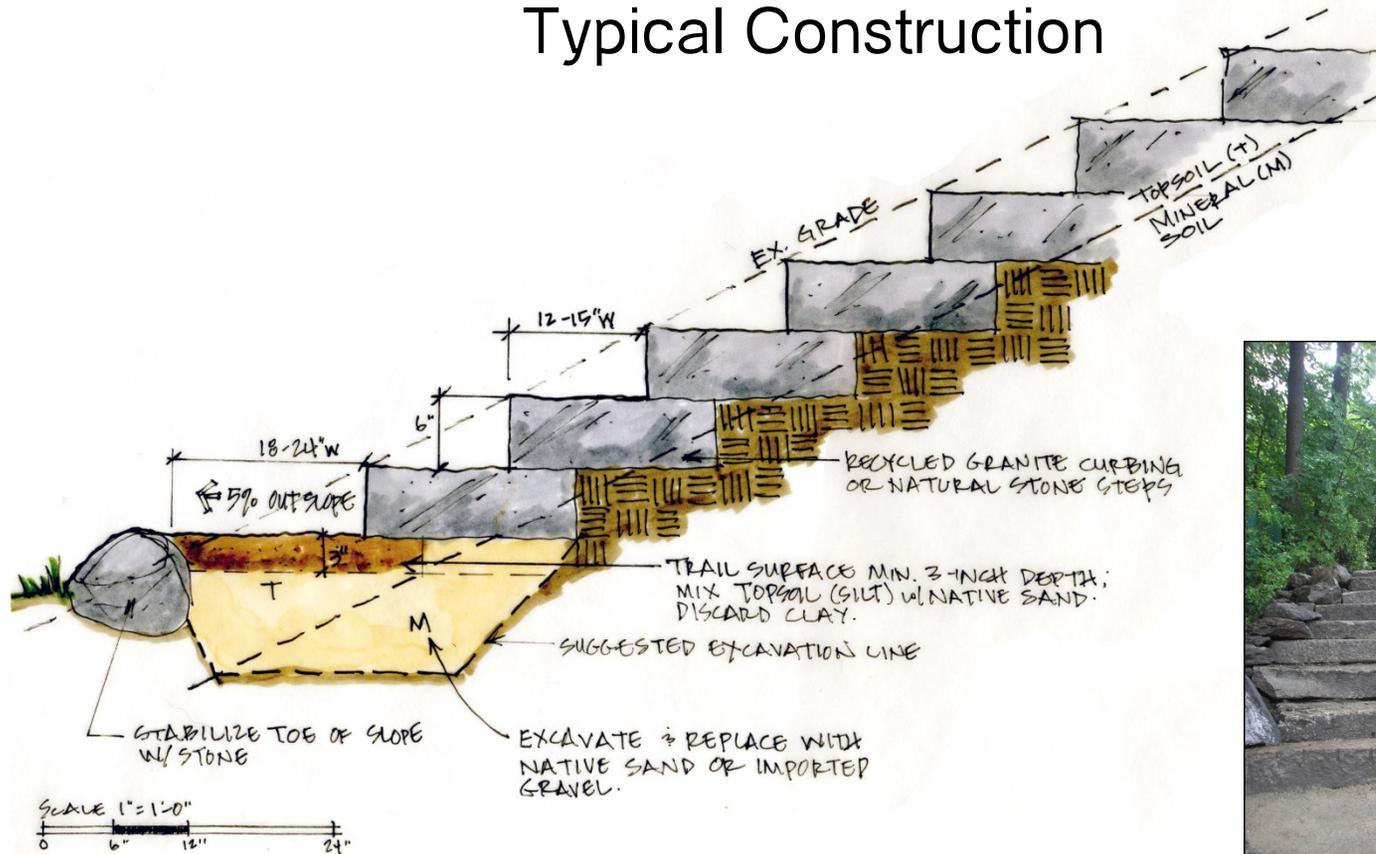
Sleeper & Bent Construction



Clockwise, from left:
Plank bridge (Credit: nhstatepark.org); Bridge abutment construction (Credit: juneauempire.com); Plank bridge (Credit: nps.gov); Bridge construction (Credit: villagineforest.blogspot.com); Plank bridge with timber (Credit: idahostayontrails.blogspot.com).

Stone Steps

Typical Construction



CONSTRUCTION DETAIL: Typical section showing the proposed treatment for stairs on both the Upland Route and Trail Extension on the River's Edge property. The detail calls for recycled granite curbing or natural stone. For alternate treatments, reference the Technical Sources at the back of this report.

Above: Recycled granite curb steps with stone cheek walls at Fort Allen Trail in Portland (RSL source).

Town Landing Trail Feasibility Study

APPENDIX

COST ESTIMATES

Topsham Town Landing Trail Feasibility Study
Topsham, Maine

GREEN STREET IMPROVEMENTS

Estimate of General Construction Costs for Sidewalks

Date: 11/13/13

Note: This estimate is for the improvement recommendations identified in the Town Landing Trail Feasibility Study, prepared for the Town of Topsham. This estimate is only intended to identify the general magnitude of costs associated with the elements of the plan. This estimate is based on expected costs associated with a competitive bid and traditional construction. Alternative arrangements, such as in-house construction could result in significant cost savings. All costs should be verified as the plans and scope of work are further developed.

Category	Item	Material	Quantity	Unit	Unit Cost	Subtotal
1. Green Street Improvements (Topsham Standard)						
	Remove bituminous pavement	Full depth removal	610	s.y.	\$5.00	\$3,050.00
	Common excavation	Sidewalk & curb base	305	c.y.	\$15.00	\$4,575.00
	Bituminous curb	Town standard	1060	l.f.	\$15.00	\$15,900.00
	Bituminous paving	2.5 inch, grading C	96	tons	\$120.00	\$11,520.00
	Type A aggregate base	Estimated 10 inch depth	194	c.y.	\$30.00	\$5,820.00
	Painted crosswalks	Town standard	2	ea.	\$200.00	\$400.00
	Miscellaneous	Allowance	1	l.s.	\$1,500.00	\$1,500.00
	Signage	Trail directional signs	2	ea.	\$300.00	\$600.00
	Loam & seed	Loam 4 inch depth, park seed	118	s.y.	\$12.00	\$1,416.00
	Seeding	Conservation mix (CM) seed	4	m.s.f.	\$150.00	\$600.00
	Mobilization	7%	1	l.s.	\$3,176.67	\$3,176.67
	Technical design & support	10%	1	l.s.	\$4,538.10	\$4,538.10
	Subtotal					\$53,095.77
	Contingency	15%	0.15	pct	\$48,557.67	\$7,283.65
	TOTAL					\$60,379.42
2. Green Street Improvements (Suggested sidewalk underdrain, west side)						
	Common excavation	Allowance	20	c.y.	\$15.00	\$300.00
	Underdrain	6 inch dia., sidewalks	750	l.f.	\$30.00	\$22,500.00
	Stormdrain	10-inch dia.PVC, to CB	30	l.f.	\$80.00	\$2,400.00
	Catch basin alteration	Connect, clean, add filter	1	l.s.	\$1,250.00	\$1,250.00
	Bituminous paving	2.5 inch, grading C patch	1	ton	\$120.00	\$120.00
	Type A aggregate base	Allowance	10	c.y.	\$30.00	\$300.00
	Mobilization	7%	1	l.s.	\$1,880.90	\$1,880.90
	Subtotal					\$28,750.90
	Contingency	15%	0.15	pct	\$4,312.64	\$4,312.64
	TOTAL					\$33,063.54

Topsham Town Landing Trail Feasibility Study

Topsham, Maine

TOWN LANDING TRAIL EXTENSION (ALTERNATIVE

Estimate of General Construction Costs for Trail

Date: 11/13/13

Note: This estimate is for the improvement recommendations identified in the Town Landing Trail Feasibility Study, prepared for the Town of Topsham. This estimate is only intended to identify the general magnitude of costs associated with the elements of the plan. This estimate is based on expected costs associated with a competitive bid and traditional construction. Alternative arrangements, such as in-house construction, design-build scenarios, volunteer labor or partnership with a trail-building organization could result in significant cost savings. All costs should be verified as the plans and scope of work are further developed.

ALTERNATIVE TRAIL (EXTENSION) - REROUTED, NO BRIDGE

Category Item	Material	Quantity	Unit	Unit Cost	Subtotal
5B. New Trail (Extension) - 710 lf					
Selective clearing	Removal of brush, logs	1	l.s.	\$1,000.00	\$1,000.00
Natural surface trail 4'w	Reference detail	316	s.y.	\$15.00	\$4,740.00
Switchbacks, Type I	Spurs, In place	1	ea.	\$300.00	\$300.00
Stairway	In-place, (10) R	1	ea.	\$1,500.00	\$1,500.00
Rolling dips	In-place, TBD	2	ea.	\$80.00	\$160.00
Drainage features	Stabilized rock dip, TBD	6	ea.	\$250.00	\$1,500.00
Loam & seed	Allowance	100	s.y.	\$12.00	\$1,200.00
Trail sign	Directional sign on post	1	ea.	\$300.00	\$300.00
Subtotal					\$10,700.00

Town Landing Trail Feasibility Study

APPENDIX

OVERALL TRAIL PLAN

The following graphic is a reduction of an over-sized document, which is on file with the Planning Department at the Town of Topsham municipal building and can be seen on request.

Town Landing Trail Feasibility Study

APPENDIX

Geoengineering Report

MEMORANDUM

Date: May 20, 2013
To: Regina Leonard
CC:
From: Bill Peterlein, P.E. Summit Geotechnical Engineering Services
RE: Topsham Trail SGS #13080

This memo is to summarize our meeting and my recommendations for constructing a portion of the proposed trail on an existing steep slope adjacent to the River View cemetery on Elm Street.

During our meeting at the site on May 8, 2013, we discussed the plans for the location of the new trail. I understand that the portion of the trail in the steep slope area will consist of stairways built into the existing slope connecting a switch-back. The trail in other steep slope areas will be cut into the existing bank.

I performed a total of 3 hand auger holes at the site, each to a depth of 48 inches. The hand boring drilled in the proposed stair area (HB-1) revealed soil consisting of 8 to 12 inches of forest duff/topsoil, over 36 inches of medium to fine sand with a trace of silt. A second hole (HB-2) drilled downhill of the HB-1 area in the proposed trail revealed 8 to 12 inches of forest duff/topsoil over 6 inches of sand with a trace of silt, over 30 inches of olive-brown silt with a little fine sand. The third hand boring (HB-3), drilled in the proposed trail area east of HB-2, revealed 8 to 12 inches of forest duff/topsoil over 4 inches of sand, over 12 inches of olive-brown silt with a little sand, over 24 inches of stiff silty clay. No groundwater was observed in the hand borings.

Based on our conception of the proposed construction and the soil observed in our hand borings, we recommend the following.

- The forest duff/topsoil should be removed in its entirety from beneath the proposed stairs. We anticipate that the back edge of each stair will be at or near the existing ground surface. A portion of the step will be bearing on the native sand soil and a portion will be bearing on the step below.
- The soil beneath the bottom stair and beneath stone retaining walls should be removed to a minimum depth of 12 inches and replaced with the native sand soil. The sand soil should be hand compacted prior to setting the bottom step.

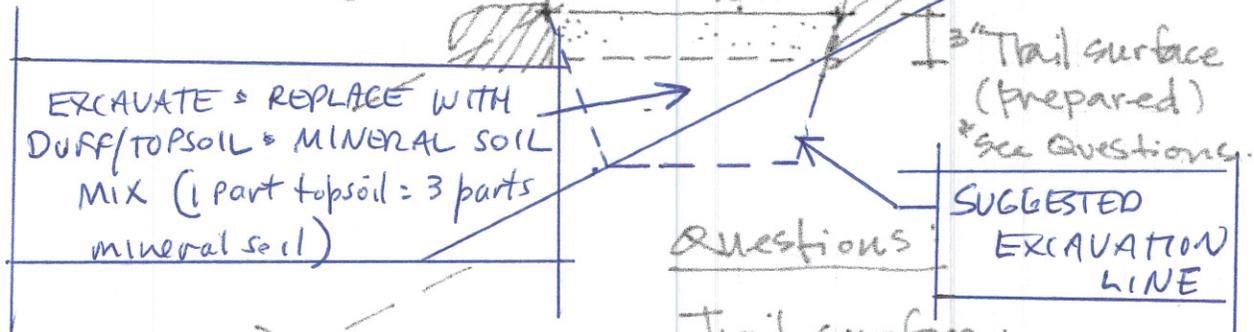
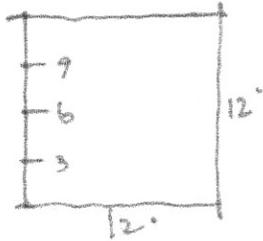
- The forest duff/topsoil beneath the trail footprint should be removed and replaced the native sand and silt soil. The topsoil can be mixed with the native mineral soil, but should be limited to 3 parts native soil and 1 part topsoil. The silty clay soil will not mix and should not be reused; however, this soil is sufficiently stiff to be stable as the trail base soil.

A summary of these recommendations are shown on the attached sketch.

If there are any questions, please contact me.

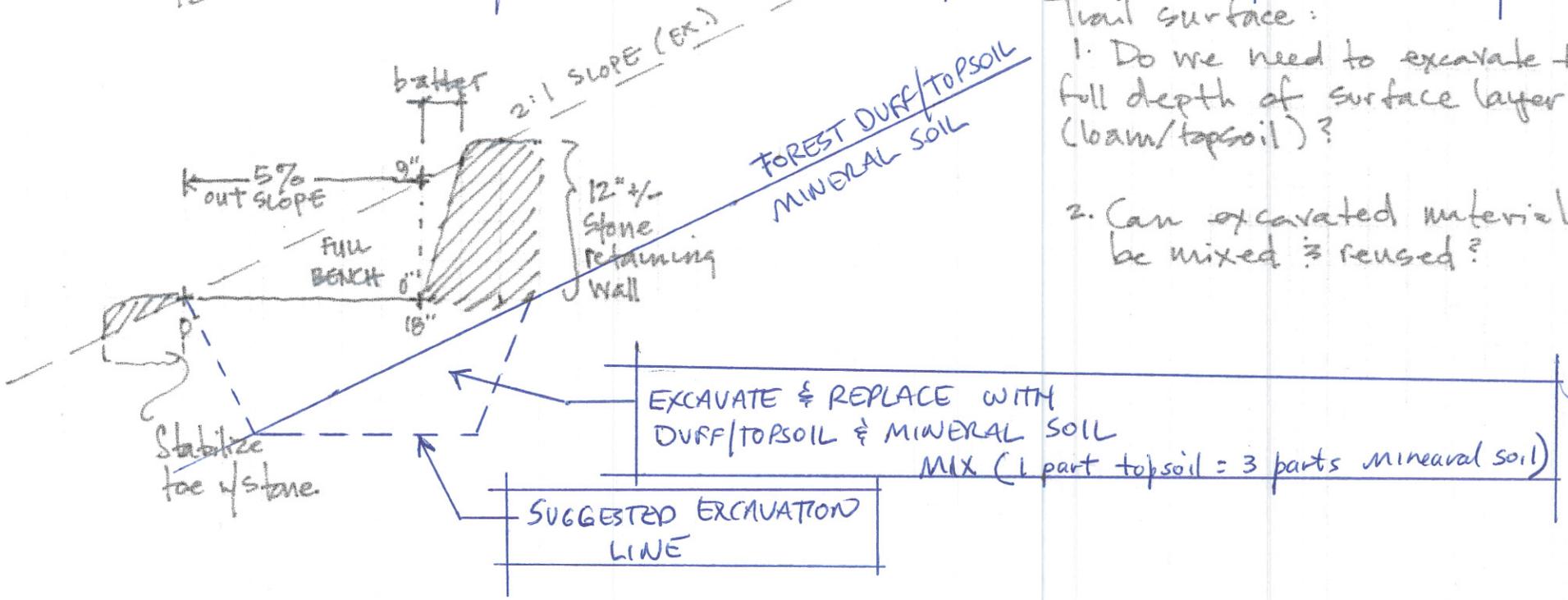
Typical cross sections
mid-slope trail

Scale: $\frac{1}{4} = 1'-0''$



Questions: SUGGESTED EXCAVATION LINE

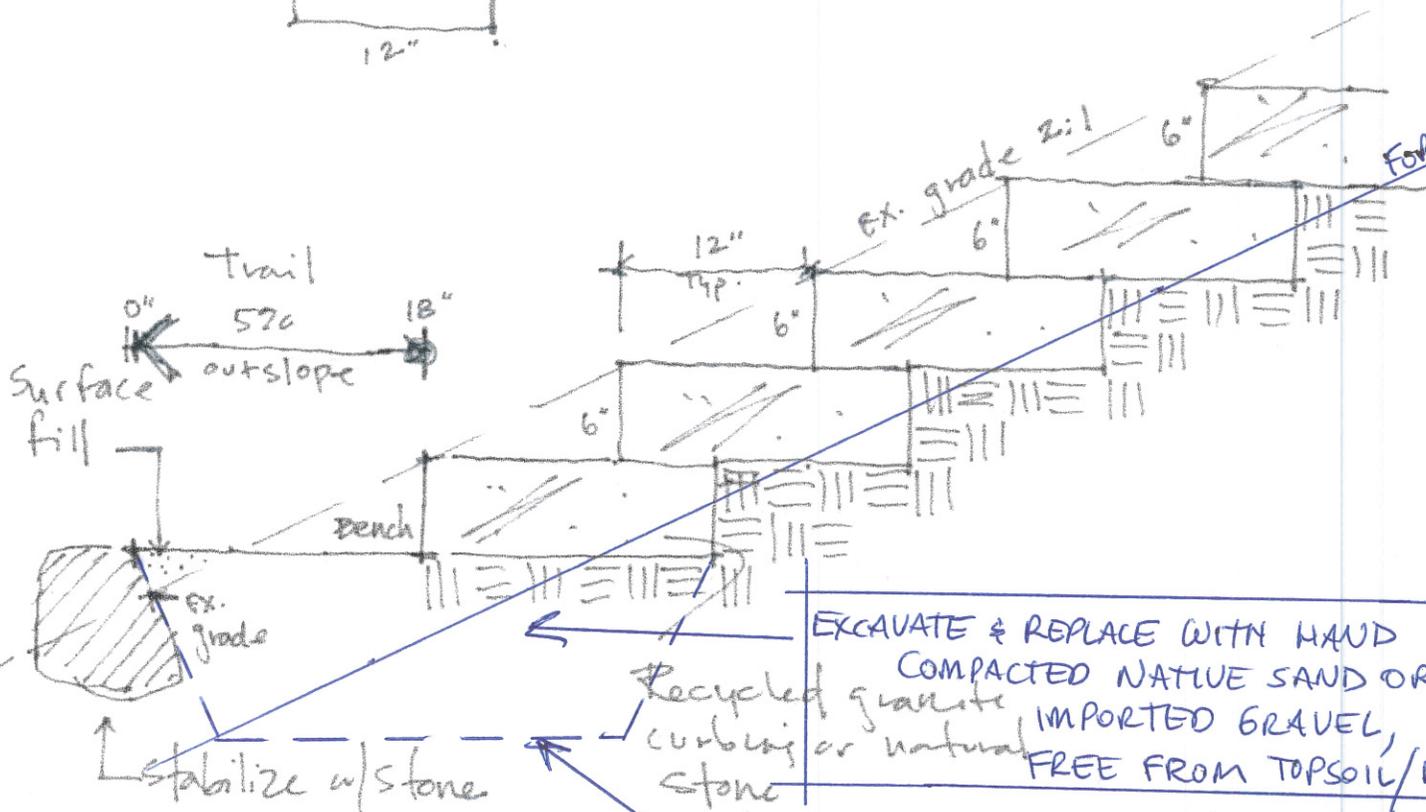
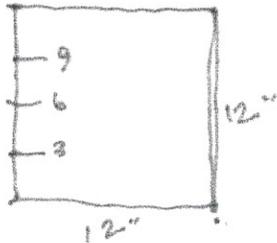
- Trail surface:
1. Do we need to excavate to full depth of surface layer (loam/topsoil)?
 2. Can excavated material be mixed & reused?



Prepared by RSL 5/08/13

Typical cross section stone steps

Scale 1/4" = 1'-0"



FOREST DUFF/TOPSOIL
MINERAL SOIL

Questions:

1. Can granite be set on ~~native~~ soil?
native
or

Do we need to excavate native topsoil out + replace w/ other material?

if so, to what depth?
What material (base)?

EXCAVATE & REPLACE WITH HAND COMPACTED NATIVE SAND OR IMPORTED GRAVEL, FREE FROM TOPSOIL/DUFF

Recycled granite curbing or natural stone

SUGGESTED EXCAVATION LINE

prepared by RSL 5/08/13