

Desired Trails Map Revision

Introduction

The Williston Conservation Commission is primarily responsible for the development and maintenance of the town's primitive path network. The vision for this network of paths was largely formulated through a mapping exercise done in the late 1980's, which resulted in a map of Desired Trails and Greenways. This map has guided the town's acquisition of trail easements and development of trails ever since. The methodology used to develop this map is unknown due to missing documentation, but it can be assumed that some reasonable criteria were applied to its development. However, since it was created 30 years ago, its revision is needed to better reflect current conditions and sentiments.

As the town's network of trails has grown, so have the costs of maintenance. The town currently maintains 12 miles of primitive paths with an annual budget of \$10,000. Each new trail costs a significant amount of money to construct. Cost is certainly a consideration in the overall design of a town wide trail network. The existing map shows over 50 miles of desired trails. Therefore, it may be worthwhile to pare down the network to trails that are reasonably feasible to construct and maintain, and that provide tangible benefits to the community.

Another important consideration is a trail's impact on natural resources. It is preferable for a trail to avoid impacts to rare/threatened/endangered species, deer wintering areas, wildlife corridors, wetlands and riparian areas. Trails not only bring people, but also dogs off-leash. For protection of sensitive resources, in some areas it may make sense not to build trails.

The goals for the revision of the Desired Trails map are to 1) evaluate each segment of the network based on multiple criteria such as feasibility, natural resource impacts, and community benefits, 2) to prioritize each segment according to how well it satisfies the combined criteria (by combined score), and 3) to potentially reduce the amount of trails in the network by eliminating those segments that are lacking in overall feasibility and/or community benefits.

The intended use of the revised map is for guidance on future trail easement acquisition and development of trails, and to incorporate this information into an Official Map.

Prioritization Methodology

1. Begin with Desired Trails/Greenways shapefile, convert to polyline.
2. Export a copy of this layer. Using Edit/Split Line tool, divide this layer into approximately 0.1 mile segments.
3. Score each segment according to the following criteria/constraints. For each criteria, a field was added to the attribute table. Selection by Location was done for each criteria, then used the Field Calculator to assign scores.
 - a. Trail's distance from residence:
 - <50ft – assign 0 points
 - 51-100ft – 1 point
 - >100ft – 2 points

- b. Watershed Protection Buffers
 - Trail in the buffer – 0 points
 - Trail in the buffer, but perpendicular crossing – 1 point
 - Trail outside the buffer – 2 points
 - c. Rare/Threatened/Endangered Species
 - In buffer area – 0 points
 - Outside of buffer area – 1 point
 - d. Deer Wintering Area
 - In – 0 points
 - Out – 1 point
 - e. Wildlife Corridor
 - In – 0 points
 - Out – 1 point
 - f. Steep Slopes
 - <15% slope – 2 points
 - 15.1% to 29.9% slope – 1 point
 - >30% slope – 0 points
 - g. Flood Hazard
 - In 100 year flood zone – 0 points
 - Outside 100 year but in 500 year flood zone – 1 point
 - Out of 100 and 500 year flood zone – 2 points
 - h. Aligns with existing easement or trail (within 200ft)
 - Doesn't align – 0 points
 - Aligns – 1 point
2. Dissolve the original Desired Trails polyline into a single feature, and then divided this into segments that made sense – for example, individual branches or where segments changed direction were made into single features. The length of segments ranged from .5 miles to 3 miles, with an average length of 1.25 mile.
 3. The scores from the 0.1 mile trail segments were joined to the longer segments using a Spatial Join. The scores for all 0.1 mile segments within a larger segment were summed, in order to reflect the amount of trail affected by each criteria.
 4. Additional scoring criteria were applied to the longer segments, as follows (note that the scores are 0, 10 and 20, so the criteria would be weighted more or less proportional to the criteria applied to 0.1 mile segments and then summed):
 - a. Number of parcels the trail passes through
 - >10 – 0 points
 - 5 to 10 – 10 points
 - <5 – 20 points
 - b. Whether the trail passes through any parcels with Act 250 Permits
 - Yes – 0 points
 - No – 10 points

- c. Trail would serve a lot of people that aren't currently in walking or biking distance of a current trail (geo-equity). See scoring methodology in Addendum A.
 - d. Trail provides a linkage to park, conservation area, or other destination such as school, commercial center, town offices
 - No – 0 points
 - Yes – 10 points
 - ~~e. Trail provides other values such as recreational component (mountain biking) or scenic viewpoint.

 - No – 0 points
 - Yes – 10 points~~
5. Three maps (high/medium/low) reflecting different factors of consideration:
 - Natural Resource Impacts (watershed protection buffers, RTE species, deer wintering areas, wildlife corridors)
 - Feasibility Constraints (flood hazard areas, steep slopes, distance from dwelling, Act 250 parcel, # different landowners)
 - Community Benefits (connects to a park or natural area, ~~has other benefits like high recreational or scenic value~~, equity of access across town).
 6. Map showing total combined score of above three factors.
 - Total scores were calculated
 - Per mile scores were calculated
 - Since the total scores are biased in favor of longer segments and the per-mile scores are biased in favor of shorter segments, the average of the two scores was calculated and used for the final ranking.
 7. Overlay existing easements and rank them using above considerations – are there some easements that should not be developed with a trail?
 8. The resulting map informs following discussions about trail priorities and public input.

ADDENDUM A: Equity of access methodology

- a. Buffer trails by .25 mile (walking distance) and 1 mile (biking distance). Select residential e911 points that are within walking or biking distance (respectively) of an existing trail. Reverse selection to show residential points that are greater than .25 and 1 mile from a trail. Create new layers from these selections.
- b. Select feature from Desired Trails layer, then buffer by .25 mile. Select residential e911 points (new layer created in Step 5.a.) that fall within .25 mile of the trail – these points represent new households that would be served by a proposed trail that don't currently have walkable access to a trail. Calculate the additional percentage of households to be served by that trail. Repeat for biking distance (1 mile). Add up the percentages in both columns to get an overall “geo-equity” score.

ADDENDUM B: Thoughts about prioritization

In general, the desired trails north of I-89 rank higher with respect to public benefit, but lower with respect to feasibility and natural resources impacts. Makes sense, as the population is denser (more people will be served) but there is less space to build trails and more constraints on where they can be built. In contrast, desired trails south of I-89 rank lower with respect to public benefit because fewer people are served and also because most of the town's existing trail network is in this area, but rank higher with respect to feasibility and natural resources impacts. There is more land and potential location of trails is less constrained, providing an opportunity to avoid natural resource impacts and social impacts. Building a trail with little public benefit does not make sense, regardless of how feasible it is. Public benefit needs to be carefully weighed. Are there other considerations besides number of people served and geographic equity? Perhaps there is a different way to rank potential important linkages?

How to balance public benefit with feasibility and potential impacts? Is there a threshold public benefit score that would trump (ugh, got to come up with a better word!) natural resource impacts and feasibility concerns? (Seems like that has already been done with the Allen Brook Nature Trail).

Many of the desired trails follow the existing VAST network. Given that it is possible to walk the VAST trail, should these segments of desired trails aligning with VAST be considered already built? (*Comment added on 3/2/21 – No, because the VAST trail is strictly limited to snowmobiling, except for portions on public land*).

Looking at the 1990 Greenways document, there are a couple mentions of developing trails alongside rivers and streams. Current views are that from an ecological standpoint, it is not such a good idea.

Desired trails network should be represented as more generalized flow lines instead of precise locations, which convey a false precision. Denote desired connections, desired and already implemented, desired but alternative is available (such as parallel VAST trail). Important connections identified include the following:

- East/west connection between Taft Corners and the Village. Long term goal is to have a trail or path built that is comfortable for people to use, noting that terrain is a barrier to many. The connection could be near Williston Rd or to the north closer to the highway if a primitive path. Short term goal is to improve wayfinding signage along the on-road bike route through the Southridge neighborhood, so it can be better utilized.
- North/south connection from Mud Pond to Lake Iroquois. Although this has been mostly implemented by FOTW, it is an unofficial network and by request of landowners not mapped or indicated as public. Long term goal is to sanction this as an official trail, and make improvements as needed.
- Connection from Village to Mud Pond. There is both an existing VAST trail just south of I-89 and a trail easement on the Siple property; however, a connection is needed from the Village to cross over I-89 (pedestrian facilities on existing Oak Hill Rd?)

- Connection from Mt View Rd to Jacob property. WVPD is likely to obtain and develop the Jacob parcel as a public natural area/park, and is in the process of negotiating access with the Trinity Baptist Church.
- Connection from Lake Iroquois to Shelburne Pond. The town would need to work with the Champlain Valley Regional Conservation Partnership to explore potential trail connections through Shelburne/South Burlington.
- East/west connection from VTrans park and ride to Bradley Lane.
- North/south through CIRC Highway ROW. Would require permission from VTrans.