

Elsen, Nikki

From: Josh Miner <jwminer@gmail.com>
Sent: Wednesday, February 5, 2020 7:23 PM
To: ZZ Council Members
Subject: Grandma's Gateway trail project proposal
Attachments: Rogue Trails.pdf

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Dear members of the Common Council:

I am writing to you in support of moving forward the so-called Grandma's Gateway shared-use trail project. I recently wanted to see the area in question for myself, and so I took a hike through the forest beneath Granddad's Bluff during the day, Tuesday February 4th. What follows is a narrative of what I did and saw with my own eyes. Attached is a map I made of where I hiked and some photos illustrating the types of things I saw.

First of all, in my outing, I followed only existing, easy to see "trails" that had previously been used by human foot traffic (there were many deer trails I encountered, where I could see no obvious human footprints -- I did not use those trails, and nothing I discuss below refers to those wildlife trails).

As you can see from my map, there are MANY trails beneath Granddad's Bluff. I did not make an exhaustive census of them by any means. Overall, they are extremely steep and difficult to navigate. They often follow old quarry road bed cuts that probably date from the early part of the 20th Century, when the upper part of Granddad's Bluff was an active, industrial quarrying site, with heavy machinery and rail car lines running up and down the bluffside. In many cases, they follow what are referred to as "fall lines" -- basically gulleys cut by water runoff eroding away the hillside. It is very obvious that the foot traffic and trails that follow these gulleys are contributing to increasing erosion and instability of the slope. This is easy to see first-hand by going there right now. There are very similar areas in lower Hixon forest and on MVC property leading to Miller Bluff where more extensive damage can be seen from the same type of "rogue" or "informal" trail use. It is only a matter of time before the area beneath Granddad's Bluff suffers the same fate, assuming no change in current management practices.

I also saw lots of evidence of what I'd describe as vandalism and the defacing of the actual bluff face -- graffiti, carving into the rock face, fire pits with broken glass around it, litter, etc. It is really no different that some of the other places in the local Blufflands where these types of rogue trails exist -- for example on Miller Bluff (MVC property) or in the area directly below and to the south of the Granddad's parking area, which ORA volunteers worked to clean up last summer.

Finally, I saw invasive species. Lots and lots of invasive species. Buckthorn, barberry, Oriental bittersweet, and honeysuckle to name just a few of the worst. It is not a forest that can be described as a healthy, functional ecosystem right now. Interestingly, one of the landowners of property abutting the public land (at 2931 Ebner Coulee Rd) has done what looks to be a fairly amazing job of clearing invasives from their property, including building what appeared to be a "keep out" fence exclusively from cut invasives (it was right next to many "private property signs" -- I'm sad I wasn't able to get any pictures, but I wonder what sort of native diversity one might see on this property during the spring and summer months, compared with the rest of the forest.)

Please remember that there is currently a management plan and trail system in the area under Granddad's Bluff. It might be described as a "hands-off" approach, and it has led to erosion, dangerous rogue trails, vandalism, and the spread of invasive species. The Grandma's Gateway plan really doesn't change the fact that there will be trails beneath the bluff -- it simply will ensure that those trails are sustainably and appropriately designed and built. Increased use of those trails

will lead to fewer instances of vandalism, as has occurred elsewhere in the bluffs. And finally, more people getting into the woods as users and volunteer trail workers, will lead to greater demand for, and opportunities to perform, invasive species mitigation.

Again, thank you for your attention to this matter and for your public service on my behalf.

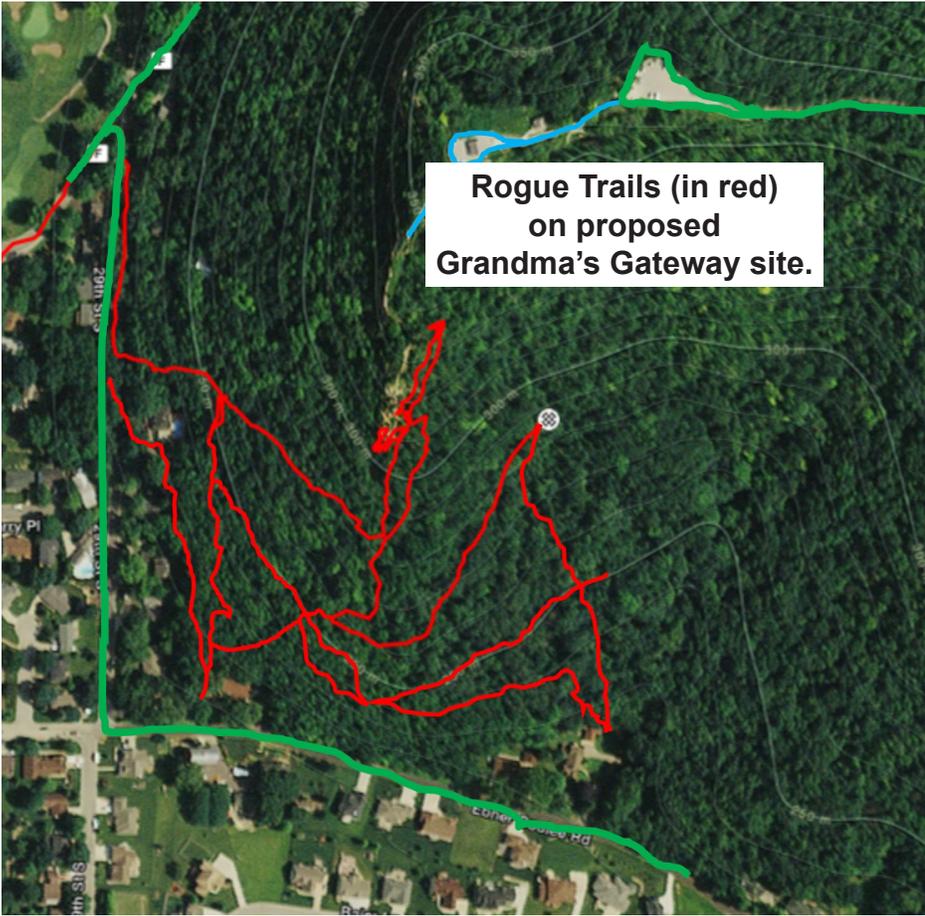
Please don't hesitate to contact me for any reason.

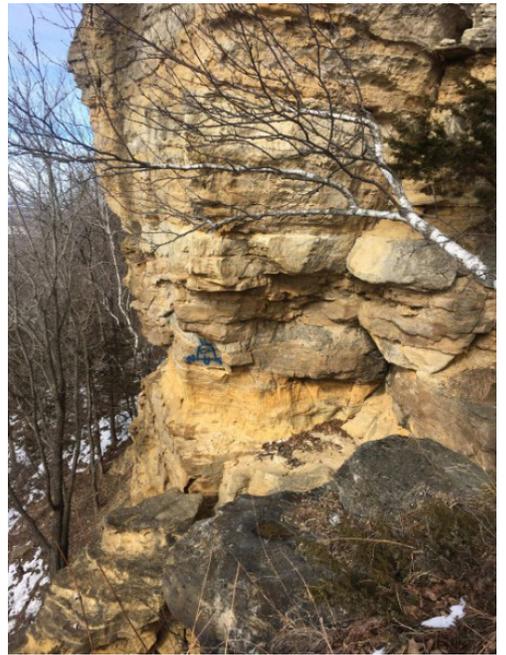
Josh Miner

2225 State St., La Crosse

M.A., Environmental Science, Policy & Management, UC Berkeley

Assistant coach, La Crosse Area Youth Mountain Bike team





Elsen, Nikki

From: Josh Miner <jwminer@gmail.com>
Sent: Thursday, February 6, 2020 6:32 AM
To: ZZ Council Members
Subject: Fwd: USDA Web Soil survey data use

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Council Members:

Those opposing the Grandma's Gateway plan have presented what they describe as a "USDA Report" that shows the area in question to be problematic for trail development, due to its slope and soil type.

This is actually a user-generated report using publically-available soil data. Anyone can create a similar report for free (I did, and it is attached here) using the USDA web soil survey website:

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

While it is true that the area beneath Grandad's Bluff has a steep slope and is prone to erosion due to its soil types, that it the case for all the La Crosse Blufflands, and for the entire Drifless region to a certain extent.

Below is a forwarded email message from Scott Nemecek, the Wisconsin State Soil Scientist, describing the ways in which such reports should, and more importantly should NOT be used. It is included in its entirety, along with my original query to him, so that you can form your own opinions without me taking any of his comments out of context.

I encourage you to reach out to him if you have any questions about the information contained in any of the soil reports, and how you are being asked to use them.

Thank you!

Josh Miner
La Crosse

----- Forwarded message -----

From: Nemecek, Jason - NRCS - Madison, WI <jason.nemecek@usda.gov>
Date: Mon, Feb 3, 2020 at 3:56 PM
Subject: FW: USDA Web Soil survey data use -- URGENT
To: jwminer@gmail.com <jwminer@gmail.com>

Hi Josh;

I'm sorry but I can't lobby for or against. I would recommend hiring a local consultant. The soils information is a guide only to help people make an informed decision and is mapped at a certain scale which has a degree of accuracy and precision.

Soil survey data seldom contain detailed, site-specific information. They are not intended for use as primary regulatory tools in site-specific permitting decisions. They are, however, useful for broad regulatory planning and application.

Soil survey information cannot replace site-specific details, which require onsite investigation. It is a valuable tool where acquiring onsite data is not feasible or is cost prohibitive. It is most useful as a tool for planning onsite investigation.

Soil survey information can be used to predict or estimate the potentials and limitations of soils for many specific uses. A soil survey includes an important part of the information that is used to make workable plans for land management. The information must be interpreted to be useable by professional planners and others. Predictions based on soil surveys serve as a basis for judgment about land use and management for areas ranging from small tracts to regions of several million acres. These predictions, however, must be evaluated along with economic, social, and environmental considerations before they can be used to make valid recommendations for land use and management.

Soil survey data is an invaluable tool for comparing soil properties over broad areas. It can dramatically facilitate planning and preparation for onsite investigation. Soil maps can effectively communicate the nature of soil differences across an area. In the context of general land-use planning, soil survey data provides an irreplaceable tool for basic and objective based resource planning. In the context of land-use planning for areas smaller than 4 or 5 acres, on-site investigation is clearly required. At the intensity of a single auger boring or a half-acre lot, caution must be raised on the use of the published information. On-site data is required when the focus is on a specific parcel of land.

Jason Nemecek

Wisconsin State Soil Scientist

USDA – NRCS

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Think Soil First! Helping People Understand Soils

Soils is part of the National Cooperative Soil Survey, an effort of Federal and State agencies, universities, and professional societies to deliver science-based soil information.



Soil surveys seldom contain detailed site-specific information and are not designed for use as primary regulatory tools in site-specific permitting decisions, but they are useful for broad regulatory planning and application. Official Soil Survey Information is public information and may be interpreted by organizations, agencies, units of government, or others based on their own needs; however, users are responsible for the appropriate application of soil survey information. NRCS will not accept reassignment of authority for decisions made by other Federal, State, or local regulatory bodies. NRCS will not make changes to Official Soil Survey Information or of any supplemental soil mapping for purposes related solely to State or local regulatory programs.

From: Josh Miner <jwminer@gmail.com>
Sent: Monday, February 3, 2020 3:15 PM
To: Nemecek, Jason - NRCS - Madison, WI <jason.nemecek@usda.gov>
Subject: USDA Web Soil survey data use -- URGENT

Jason:

I am a resident in La Crosse, and a group of displeased landowners are about to use a USDA Custom Soil Resource Report generated via the online Web Soil Survey to argue that the City should cancel plans to build hiking and biking trails in the blufflands around La Crosse.

I'm enough of a scientist to know that these kind of data are not meant to be used to make those sorts of decisions -- in fact there is language to that effect in the report.

"Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)."

I'd really appreciate being able to reiterate that using your name and language. Unfortunately, the meeting at which I would need this is in 45 minutes. Please email me or call me at 608-782-082. Thanks!

Josh Miner

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Elsen, Nikki

From: Josh Miner <jwminer@gmail.com>
Sent: Thursday, February 6, 2020 6:36 AM
To: ZZ Council Members
Subject: Web soil survey map
Attachments: La Crosse Blufflands Soil Map.pdf

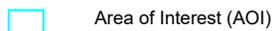
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I forgot to include the report I generated using the USDA Web Soil Survey. It shows all the La Crosse Blufflands being of similar slope and soil type to the area beneath Granddad's Bluff.

Josh Miner

MAP LEGEND

Area of Interest (AOI)



Area of Interest (AOI)

Background



Aerial Photography

Soils

Soil Rating Polygons



Very limited



Somewhat limited



Not limited



Not rated or not available

Soil Rating Lines



Very limited



Somewhat limited



Not limited



Not rated or not available

Soil Rating Points



Very limited



Somewhat limited



Not limited



Not rated or not available

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: La Crosse County, Wisconsin

Survey Area Data: Version 18, Sep 14, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 15, 2012—Nov 28, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Unpaved Local Roads and Streets

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
21A	Palms muck, 0 to 1 percent slopes, frequently flooded	Very limited	Palms, frequently flooded (90%)	Ponding (1.00)	61.7	0.7%
				Depth to saturated zone (1.00)		
				Subsidence (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
			Ettrick (5%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
			Kalmarville (3%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Dusty (0.03)		
114B2	Mt. Carroll silt loam, 2 to 6 percent slopes, moderately eroded	Very limited	Mt. Carroll, moderately eroded (90%)	Frost action (1.00)	14.5	0.2%
				Low strength (1.00)		
				Dusty (0.03)		
			Brinkman, moderately eroded (5%)	Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Pepin, moderately eroded (5%)	Frost action (1.00)		
				Low strength (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.03)		
115vC2	Seaton silt loam, driftless valley, 6 to 12 percent slopes, moderately eroded	Very limited	Seaton (95%)	Frost action (1.00)	67.8	0.8%
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Greenridge (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Lambeau (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
115vD2	Seaton silt loam, driftless valley, 12 to 20 percent slopes, moderately eroded	Very limited	Seaton (95%)	Frost action (1.00)	21.5	0.2%
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			Council (2%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
			Greenridge (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			Lambeau (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			116C2	Churchtown silt loam, 6 to 12		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	percent slopes, moderately eroded			Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Greenridge (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Chaseburg, occasionally flooded (1%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (0.25)		
				Dusty (0.03)		
116D2	Churchtown silt loam, 12 to 20 percent slopes, moderately eroded	Very limited	Churchtown (92%)	Frost action (1.00)	566.1	6.5%
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			La Farge (4%)	Frost action (1.00)		
				Slope (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Brownchurch (2%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.00)		
			Beavercreek (2%)	Flooding (1.00)		
				Frost action (0.50)		
				Large stones (0.06)		
				Dusty (0.00)		
116E2	Churchtown silt loam, 20 to 30 percent slopes, moderately eroded	Very limited	Churchtown (94%)	Slope (1.00)	1,490.9	17.1%
				Frost action (1.00)		
				Low strength (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.03)		
			Brownchurch (2%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.00)		
			Norden (2%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.03)		
			Elbaville (2%)	Slope (1.00)		
				Low strength (1.00)		
				Frost action (0.50)		
				Dusty (0.03)		
126B	Barremills silt loam, 1 to 6 percent slopes	Very limited	Barremills (90%)	Frost action (1.00)	139.7	1.6%
				Low strength (1.00)		
				Dusty (0.10)		
			Toddville (6%)	Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.10)		
				Shrink-swell (0.05)		
			Arenzville (4%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (0.72)		
Dusty (0.10)						
132B2	Brinkman silt loam, 2 to 6 percent slopes, moderately eroded	Very limited	Brinkman (90%)	Frost action (1.00)	85.0	1.0%
				Low strength (1.00)		
				Shrink-swell (0.50)		
				Dusty (0.05)		
			Valton (8%)	Shrink-swell (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.10)		
			Mt. Carroll (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.37)		
				Dusty (0.10)		
132C2	Brinkman silt loam, 6 to 12 percent slopes, moderately eroded	Very limited	Brinkman (90%)	Frost action (1.00)	215.6	2.5%
				Low strength (1.00)		
				Shrink-swell (0.50)		
				Dusty (0.05)		
				Slope (0.04)		
			Valton (6%)	Shrink-swell (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.10)		
				Slope (0.04)		
			Mt. Carroll (4%)	Frost action (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.37)		
				Dusty (0.10)		
				Slope (0.04)		
133B2	Valton silt loam, 2 to 6 percent slopes, moderately eroded	Very limited	Valton (96%)	Frost action (1.00)	7.8	0.1%
				Low strength (1.00)		
				Dusty (0.03)		
				Shrink-swell (0.02)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Brinkman (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Reedsburg (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.19)		
				Shrink-swell (0.05)		
				Dusty (0.03)		
			Wildale (1%)	Low strength (1.00)		
				Shrink-swell (0.87)		
				Frost action (0.50)		
				Dusty (0.03)		
133C2	Valton silt loam, 6 to 12 percent slopes, moderately eroded	Very limited	Valton (95%)	Frost action (1.00)	151.0	1.7%
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
				Shrink-swell (0.02)		
			Brinkman (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Mickle (2%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
			Wildale (1%)	Low strength (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Shrink-swell (0.87)		
				Frost action (0.50)		
				Slope (0.04)		
				Dusty (0.03)		
133D2	Valton silt loam, 12 to 20 percent slopes, moderately eroded	Very limited	Valton (93%)	Frost action (1.00)	721.1	8.3%
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
				Shrink-swell (0.02)		
			Lamoille (5%)	Slope (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.70)		
				Frost action (0.50)		
				Dusty (0.03)		
			Pepin (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			Wildale (1%)	Slope (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.87)		
				Frost action (0.50)		
				Dusty (0.03)		
134C2	Lamoille silt loam, 6 to 12 percent slopes, moderately eroded	Very limited	Lamoille (95%)	Low strength (1.00)	3.0	0.0%
				Shrink-swell (0.70)		
				Frost action (0.50)		
				Slope (0.04)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.03)		
			Valton (3%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (0.04)		
				Dusty (0.03)		
				Shrink-swell (0.02)		
			Wildale (1%)	Low strength (1.00)		
				Shrink-swell (0.87)		
				Frost action (0.50)		
				Slope (0.04)		
				Dusty (0.03)		
			Newglarus, deep (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.97)		
				Slope (0.04)		
				Dusty (0.03)		
134D2	Lamoille silt loam, 12 to 20 percent slopes, moderately eroded	Very limited	Lamoille (95%)	Slope (1.00)	22.7	0.3%
				Low strength (1.00)		
				Shrink-swell (0.70)		
				Frost action (0.50)		
				Dusty (0.03)		
			Valton (3%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
				Shrink-swell (0.02)		
			Newglarus, deep (1%)	Frost action (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.97)		
				Dusty (0.03)		
			Fivepoints (1%)	Slope (1.00)		
				Low strength (1.00)		
				Frost action (0.50)		
				Shrink-swell (0.13)		
				Depth to hard bedrock (0.10)		
163E2	Elbaville silt loam, 20 to 30 percent slopes, moderately eroded	Very limited	Elbaville (75%)	Slope (1.00)	212.0	2.4%
				Low strength (1.00)		
				Frost action (0.50)		
				Dusty (0.03)		
			Lamoille (10%)	Slope (1.00)		
				Low strength (1.00)		
				Frost action (0.50)		
				Shrink-swell (0.25)		
				Dusty (0.03)		
			Newglarus, deep (6%)	Slope (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.91)		
				Dusty (0.03)		
			Dorerton, very stony (5%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.02)		
			Valton (4%)	Shrink-swell (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
253C2	Greenridge silt loam, 4 to 12 percent slopes, moderately eroded	Very limited	Greenridge (90%)	Frost action (1.00)	2.9	0.0%
				Low strength (1.00)		
				Shrink-swell (0.50)		
				Dusty (0.10)		
253D2	Greenridge silt loam, 12 to 20 percent slopes, moderately eroded	Very limited	Greenridge (90%)	Frost action (1.00)	30.7	0.4%
				Low strength (1.00)		
				Slope (1.00)		
				Shrink-swell (0.50)		
				Dusty (0.10)		
			Norden (10%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.08)		
254D2	Norden silt loam, 12 to 20 percent slopes, moderately eroded	Very limited	Norden (90%)	Slope (1.00)	31.6	0.4%
				Frost action (0.50)		
				Dusty (0.03)		
			Urne (6%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.00)		
			Greenridge (3%)	Frost action (1.00)		
				Low strength (1.00)		
				Slope (1.00)		
				Dusty (0.03)		
			Rockbridge (1%)	Slope (1.00)		
				Frost action (0.50)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low strength (0.31)		
				Dusty (0.02)		
254E2	Norden silt loam, 20 to 30 percent slopes, moderately eroded	Very limited	Norden (90%)	Slope (1.00)	97.7	1.1%
				Frost action (0.50)		
				Dusty (0.03)		
			Urne (6%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.00)		
			Greenridge (2%)	Slope (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Churchtown (2%)	Slope (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
318A	Bearpen silt loam, 0 to 3 percent slopes, rarely flooded	Very limited	Bearpen, rarely flooded (90%)	Frost action (1.00)	6.9	0.1%
				Low strength (1.00)		
				Depth to saturated zone (0.75)		
				Flooding (0.40)		
				Dusty (0.03)		
			Ettrick, frequently flooded (4%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
Toddville (4%)	Frost action (1.00)					

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Low strength (1.00)		
				Dusty (0.03)		
			Orion, occasionally flooded (2%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.75)		
				Dusty (0.03)		
326B2	Medary silt loam, 0 to 6 percent slopes, moderately eroded	Very limited	Medary (95%)	Ponding (1.00)	33.4	0.4%
				Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
				Low strength (1.00)		
				Frost action (0.50)		
			Zwingle, mollic intergrade (3%)	Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
				Low strength (1.00)		
				Frost action (0.50)		
				Dusty (0.03)		
			Festina (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
				Shrink-swell (0.00)		
			Denrock (1%)	Shrink-swell (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.03)		
336B	Toddville silt loam, 1 to 6 percent slopes	Very limited	Toddville (90%)	Frost action (1.00)	31.9	0.4%
				Low strength (1.00)		
				Dusty (0.03)		
			Richwood (3%)	Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Bearpen, rarely flooded (3%)	Frost action (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.75)		
				Flooding (0.40)		
Dusty (0.03)						
424E	Merit silt loam, 20 to 45 percent slopes	Very limited	Merit (90%)	Slope (1.00)	30.5	0.3%
				Frost action (0.50)		
				Low strength (0.09)		
				Dusty (0.02)		
			Bertrand, moderately eroded (5%)	Slope (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Bilson, moderately eroded (5%)	Shrink-swell (0.00)		
				Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.00)		
483B2	Brice loamy fine sand, 2 to 6 percent slopes, moderately eroded	Somewhat limited	Brice (90%)	Frost action (0.50)	23.7	0.3%
502B2	Chelsea fine sand, 2 to 6	Not limited	Chelsea (95%)		16.8	0.2%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	percent slopes, moderately eroded		Finchford (2%)			
			Sparta (1%)			
502C2	Chelsea fine sand, 6 to 15 percent slopes, moderately eroded	Somewhat limited	Chelsea (97%)	Slope (0.37)	16.7	0.2%
511F	Plainfield sand, river valley, 15 to 60 percent slopes	Very limited	Plainfield, river valley (96%)	Slope (1.00)	1.6	0.0%
			Boplain, river valley (2%)	Slope (1.00)		
			Finchford, river valley (2%)	Slope (1.00)		
601C	Beavercreek cobbly fine sandy loam, 3 to 12 percent slopes, occasionally flooded	Very limited	Beavercreek (96%)	Flooding (1.00)	82.8	0.9%
				Frost action (0.50)		
				Large stones (0.35)		
				Dusty (0.00)		
			Beavercreek, frequently flooded (2%)	Flooding (1.00)		
				Frost action (0.50)		
				Large stones (0.35)		
				Dusty (0.00)		
			Arenzville (2%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (0.72)		
				Dusty (0.10)		
625A	Arenzville silt loam, channeled, 0 to 2 percent slopes, occasionally flooded	Very limited	Arenzville, occasionally flooded, channeled (91%)	Frost action (1.00)	40.6	0.5%
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Orion, occasionally flooded (5%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Depth to saturated zone (0.75)		
				Dusty (0.03)		
			Ettrick, frequently flooded (4%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
626A	Arenzville silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Arenzville, occasionally flooded (95%)	Frost action (1.00)	160.1	1.8%
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Orion, occasionally flooded (3%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.75)		
				Dusty (0.03)		
			Ettrick, frequently flooded (2%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
628A	Orion silt loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Orion, occasionally flooded (91%)	Frost action (1.00)	67.6	0.8%
				Flooding (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.75)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.03)		
			Arenzville, occasionally flooded (5%)	Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Ettrick, frequently flooded (3%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Bearpen, rarely flooded (1%)	Frost action (1.00)		
				Low strength (1.00)		
				Depth to saturated zone (0.75)		
				Flooding (0.40)		
				Dusty (0.03)		
629A	Ettrick silt loam, 0 to 2 percent slopes, frequently flooded	Very limited	Ettrick, frequently flooded (92%)	Depth to saturated zone (1.00)	7.5	0.1%
				Frost action (1.00)		
				Flooding (1.00)		
				Low strength (1.00)		
				Dusty (0.03)		
			Palms, frequently flooded (4%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Subsidence (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI		
			Orion, occasionally flooded (4%)	Frost action (1.00) Flooding (1.00) Low strength (1.00) Depth to saturated zone (0.75) Dusty (0.03)				
676A	Kickapoo fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Very limited	Kickapoo (90%)	Flooding (1.00) Frost action (0.50) Dusty (0.03)	105.9	1.2%		
			Beavercreek (2%)	Flooding (1.00) Frost action (0.50) Large stones (0.35) Dusty (0.01)				
1125F	Dorerton, very stony-Elbaville complex, 30 to 60 percent slopes	Very limited	Dorerton, very stony (60%)	Slope (1.00) Frost action (0.50) Large stones (0.05) Dusty (0.02)			2,258.3	25.8%
			Elbaville (25%)	Slope (1.00) Low strength (1.00) Frost action (0.50) Dusty (0.03)				
			Churchtown (6%)	Slope (1.00) Frost action (1.00) Low strength (1.00) Dusty (0.03)				
			Dorerton, nonstony (3%)	Slope (1.00) Frost action (0.50) Dusty (0.01)				
			Rockbluff (3%)	Slope (1.00)				
			Brodale (3%)	Slope (1.00)				

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Large stones (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
1145F	Gaphill-Rockbluff complex, 30 to 60 percent slopes	Very limited	Gaphill (50%)	Slope (1.00)	27.7	0.3%
				Frost action (0.50)		
				Dusty (0.01)		
			Rockbluff (35%)	Slope (1.00)		
			Gaphill, very stony (8%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
			Brownchurch (3%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
			Dorerton, very stony (2%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.05)		
				Large stones (0.03)		
1658A	Alganssee-Kalmarville complex, river valleys, 0 to 3 percent slopes, frequently flooded	Very limited	Alganssee, river valleys (55%)	Flooding (1.00)	141.4	1.6%
				Depth to saturated zone (0.75)		
			Kalmarville, river valleys (30%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Flooding (1.00)		
				Dusty (0.02)		
			Kerston, river valleys (4%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Subsidence (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Frost action (1.00)		
				Flooding (1.00)		
			Scotah (4%)	Flooding (1.00)		
			Northbend (2%)	Flooding (1.00)		
				Depth to saturated zone (0.75)		
				Frost action (0.50)		
				Dusty (0.02)		
1743F	Council-Elevasil-Norden complex, 30 to 60 percent slopes	Very limited	Council (33%)	Slope (1.00)	70.2	0.8%
				Frost action (0.50)		
				Dusty (0.05)		
			Elevasil (28%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
			Norden (27%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.09)		
			Seaton (5%)	Slope (1.00)		
				Frost action (1.00)		
				Low strength (1.00)		
				Shrink-swell (0.31)		
				Dusty (0.10)		
			Urne (5%)	Slope (1.00)		
				Frost action (0.50)		
				Dusty (0.01)		
			Boone (1%)	Slope (1.00)		
2014	Pits, quarry, hard bedrock	Not rated	Pits, quarry, hard bedrock (100%)		50.2	0.6%
2020	Urban land, valley trains	Not rated	Urban land, valley train (85%)		1,412.0	16.2%
			Chelsea (5%)			

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Rasset (5%)			
			Finchford (5%)			
N1155G	Brodale-Bellechester-Rock outcrop complex, 60 to 90 percent slopes	Very limited	Brodale (40%)	Slope (1.00)	83.7	1.0%
				Large stones (0.92)		
				Frost action (0.50)		
				Dusty (0.01)		
			Bellechester (30%)	Slope (1.00)		
			Brodale, siltstone (12%)	Slope (1.00)		
				Large stones (0.92)		
				Frost action (0.50)		
				Dusty (0.01)		
W	Water	Not rated	Water (100%)		28.2	0.3%
Totals for Area of Interest					8,738.7	100.0%

Rating	Acres in AOI	Percent of AOI
Very limited	7,191.2	82.3%
Somewhat limited	40.4	0.5%
Not limited	16.8	0.2%
Null or Not Rated	1,490.4	17.1%
Totals for Area of Interest	8,738.7	100.0%

Description

Unpaved local roads and streets are those roads and streets that carry traffic year round but have a graded surface of local soil material or aggregate.

Description:

Unpaved local roads and streets are those roads and streets that carry traffic year round but have a graded surface of local soil material or aggregate.

The roads and streets consist of

(1) the underlying local soil material, either cut or fill, which is called "the subgrade";

(2) the surface, which may be the same as the subgrade or may have aggregate such as crushed limestone added.

They are graded to shed water, and conventional drainage measures are provided. These roads and streets are built mainly from the soil at the site. Soil interpretations for local roads and streets are used as a tool in evaluating soil suitability and identifying soil limitations for the practice. The rating is for soils in their present condition and does not consider present land use. Soil properties and qualities that affect local roads and streets are those that influence the ease of excavation and grading and the traffic-supporting capacity. The properties and qualities that affect the ease of excavation and grading are hardness of bedrock or a cemented pan, depth to bedrock or a cemented pan, depth to a water table, flooding, the amount of large stones, and slope. The properties that affect traffic-supporting capacity are soil strength as inferred from the AASHTO group index and the Unified classification, subsidence, shrink-swell behavior, potential frost action, and depth to the seasonal high water table. The dust generating tendency of the soil is also considered.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.