



BEGINNING  
FARMERS

## RURAL LAND ACCESS

# Mapping your Soils, History, Climate & Topography

Learn about your site using online mapping tools before you create a site map.

## KEY TERMS

**Plat Map:** Map showing **land owners**. Online maps have info on landowners, like home address. You can buy printed plat maps or use them at libraries.

**Soil Survey:** A map showing **soil types** and typical soil characteristics. These are useful for rural sites, but not where bulldozers moved soil or spread fill dirt.

**Growing Zone:** Map showing areas with the same expected **winter low temperatures**. This lets you know which perennials and trees will survive winters.

**Redlining:** **Racist US government policy** that is now illegal.

Neighborhoods with Black, Indigenous, Hispanic, Asian, Immigrant or other people of color were shaded red and denied home loans. Green areas had all-white populations and received the best loan terms. Yellow areas were considered at risk of rising populations of people of color. Wealth disparities from redlining remain today.

## SUPPLIES NEEDED

If meeting in-person

- Soil Scorecard Handouts and an outdoor space to assess soils
- Mapping Handouts and computers for mapping

If meeting online:

- Online meeting space (Zoom, Meet, etc.) with breakout rooms
- Links to handouts
- Shared documents for discussions.



## How do you do this?

Step 1: **Look at the maps** in this handout and in the **Mapping Links** below. Choose 2 maps to try.

Step 2: As a full group, learn how to make a few of the maps that are popular with the group.

- The **Soil Survey** is a good option if everyone has a laptop. People are on phones can try the LandPKS app, since the Web Soil Survey does NOT work on a phone.

Step 3: Create a Site Plan for your farm. See the examples on P. 15.

### Mapping Links:

- Finding Land
  - Zillow [www.zillow.com](http://www.zillow.com)
  - MI FarmLink - <https://mifarmlink.org/find-farmland>
  - [Realtor.com](http://Realtor.com)
  - Plat maps [fhn.com/acre-vision/plat-map/MI](http://fhn.com/acre-vision/plat-map/MI)
  - Google maps <https://maps.google.com/>
- USDA Web Soil Survey <https://websoilsurvey.nrcs.usda.gov/app/>
  - How-to video [https://www.youtube.com/watch?v=IKFc\\_96UZ7Q](https://www.youtube.com/watch?v=IKFc_96UZ7Q)
  - NOTE: Soil Survey maps are NOT accurate in areas where soil moving equipment has been used
- Google maps <https://maps.google.com/>
- History (choose 1 or 2)
  - Land Grab <https://www.landgrab.org/lands>
  - Native Lands map <https://native-land.ca/>
  - Circa 1800 map <https://mnfi.anr.msu.edu/resources/vegetation-circa-1800>
  - [bplant.org/region/1366](http://bplant.org/region/1366)
  - [Redlining Map https://dsl.richmond.edu/panorama/redlining/](https://dsl.richmond.edu/panorama/redlining/) for urban/suburban farmsites



## How do you do this? (cont.)

- Weather (choose 1 or 2)
  - USDA Plant hardiness zones <https://planthardiness.ars.usda.gov>
  - Freeze Date and Growing season Tool - <http://mrcc.purdue.edu/freeze/freezedatetool>
  - <https://www.usclimatedata.com/>
  - <https://www.drought.gov/>
  - <https://enviroweather.msu.edu/>
- If your site is hilly or in a low-lying area or flood zone....
  - Topography Map [apps.nationalmap.gov/downloader/](https://apps.nationalmap.gov/downloader/)
  - Flood Map <https://msc.fema.gov/portal/home>
- USDA Food Access Research Atlas <https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/>
- Local Zoning
- Create a site plan!



# Land Access

## Introduction to Rural land Access

### ACTIVITY 5

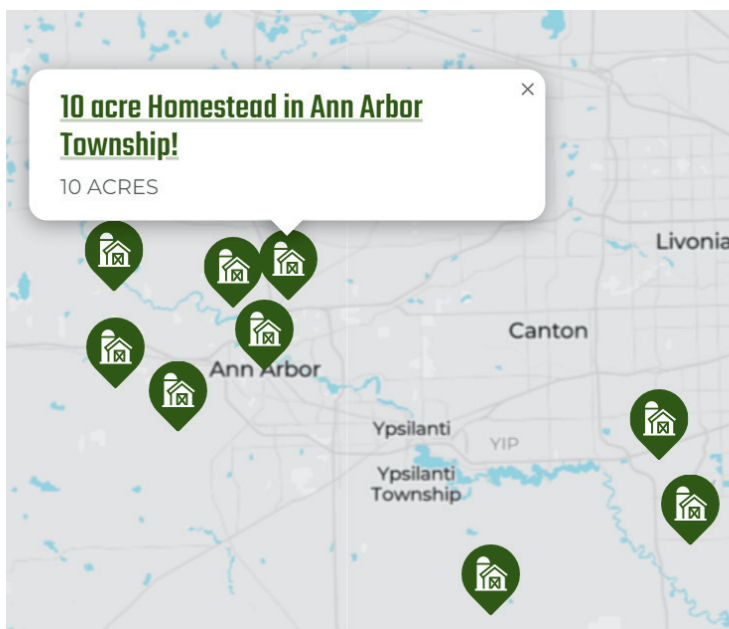
#### Zillow [www.zillow.com/](https://www.zillow.com/)

- Type in an area
- Click “More” at the top right
- Scroll down to “Lot size”, choose your minimum acres and click “Apply”
- Choose other filters for price, home features, etc.

The screenshot shows the Zillow website interface. On the left, a map displays a large green lot for sale in Covert, MI, priced at \$449,900. The lot is 38.53 acres. A pop-up window shows the property details: 70440 34th Ave, Covert, MI 49043. On the right, a sidebar contains filters for 'Real Estate' (64 results), 'Lot Size' (5 acres to No Max), 'Year Built' (No Min to No Max), 'Basement' (Has basement), and 'Number Of Stories' (Single-story only). A blue 'Apply' button is at the bottom of the filters.

#### MI FarmLink [mifarmlink.org/find-farmland](https://mifarmlink.org/find-farmland)

- Use map or listings of land for lease or purchase.
- Create a Farm Seeker profile & log in to access more features.



#### Mid-Michigan

##### 95 Acres in Mt Pleasant MI

95 ACRES  
ISABELLA COUNTY  
Farm Seeker/Farm Owner  
Partnership, Sale

☑ UPDATED AUG 9, 2024

##### Lake, MI 22 acres to Lease

22 ACRES  
CLARE COUNTY  
Lease

☑ UPDATED APR 29, 2024

#### Western Michigan

##### RietKerk Farm

78 ACRES  
KALAMAZOO COUNTY  
Lease, Working  
arrangement with future  
partner

☑ UPDATED AUG 5, 2024

##### Shady Side Farm

126 ACRES  
OTTAWA COUNTY  
Farm Seeker/Farm Owner  
Partnership, Working  
arrangement with future  
partner

☑ UPDATED JUL 19, 2024






### Realtor.com [www.realtor.com](http://www.realtor.com)


- Type in an area
- In the “Property Type” tab at the top, you can click “Farm”, “Lot/Land” or “Any”
- In the “More” tab, at the top right, you can click “Lot Size”
- Choose other filters for price, home features, etc.

Brokered by Coldwell Banker Woodland Schmidt Whitehall




● Farm for sale  
**\$510,000** ↓ \$20k  
4 bed 2.5 bath 3,506 sqft 8.5 acre lot  
4142 W Skeels Rd  
Montague, MI 49437  
[Email Agent](#)

Brokered by Michigan Whitetail Properties



● Farm for sale  
**\$1,250,000** ↓ \$50k  
3 bed 1 bath 1,522 sqft 46 acre lot  
1264 100th St SE  
Byron Center, MI 49315  
[Email Agent](#)


Brokered by Real Estate One Northern Properties



New  
● Farm for sale  
**\$149,900**  
87 acre lot  
S Mackinac Trl Ste Marie  
Sault Sainte Marie, MI 49783  
[Email Agent](#)

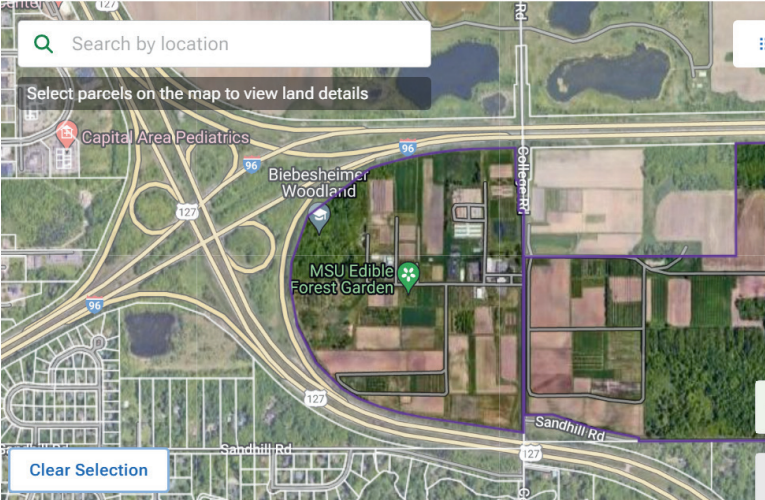
### Plat Maps

- Counties with **online plat maps** make it simple to contact a landowner about leasing.
- Farm Business Network Plat Maps [fbn.com/acre-vision/plat-map/MI](http://fbn.com/acre-vision/plat-map/MI)
- Paper copies are often available at libraries or municipal offices.



[Sign In](#)[Sign Up](#)

Select parcels on the map to view land details



[Clear Selection](#)

Parcels  
3 of 4

[View Details](#)

### Overview

Total acres	Avg. productivity index
<b>117.3</b>	<b>54.7 NCCPI</b> ⓘ
Primary land use ⓘ	Cropland (34.3%)
Est. tillable land ⓘ	<a href="#">Sign up to view</a>
Ownership	Michigan State University
Address:	—



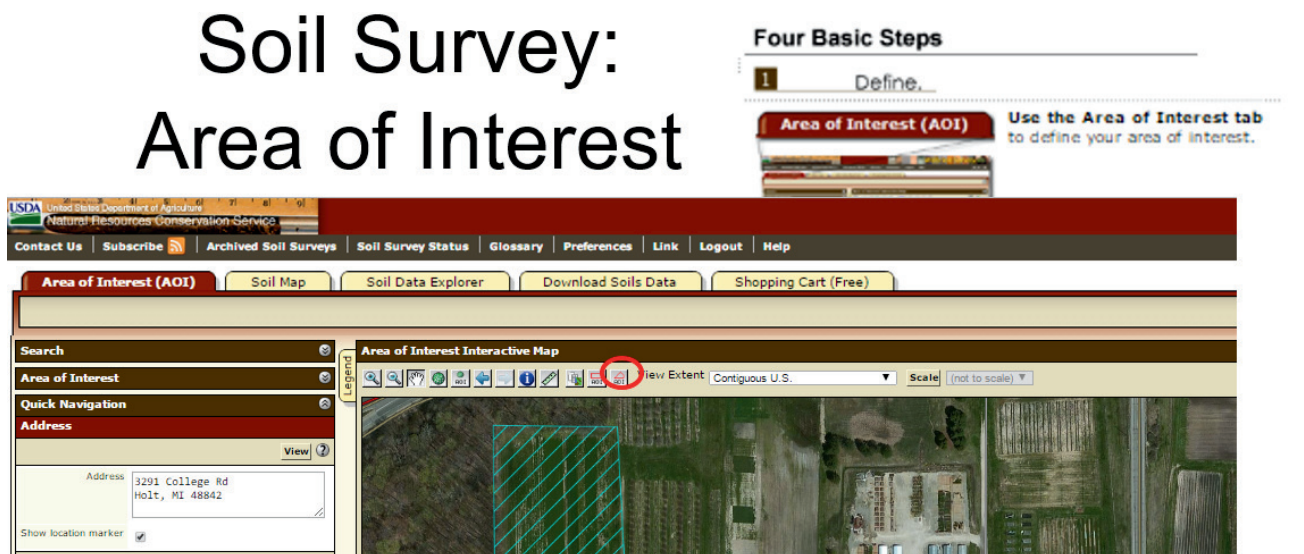
USDA Web Soil Survey <https://websoilsurvey.nrcs.usda.gov/app/>

- Click the green button ("Start WSS")



- In the Area of Interest tab (at top), choose Address (at left) and type in the address
- Choose the rectangle or odd shapes AOI tool (circled in red above) to outline your property.
- Teal diagonal lines = success!

## Soil Survey: Area of Interest







USDA Web Soil Survey <https://websoilsurvey.nrcs.usda.gov/app/>

# Soil Survey

The screenshot displays the USDA Web Soil Survey interface. The 'Soil Map' tab is selected and highlighted with a red circle. A large blue arrow points from the 'Soil Map' tab to the 'Map Unit Description' popup window. The popup window shows detailed information for the 'MaB-Marlette fine sandy loam, 2 to 6 percent slopes' map unit.

**Map Unit Description**

**Report — Map Unit Description**

**Ingham County, Michigan**  
**MaB—Marlette fine sandy loam, 2 to 6 percent slopes**

**Map Unit Setting**  
National map unit symbol: 2v5mj  
Elevation: 800 to 1,000 feet  
Mean annual precipitation: 30 to 41 inches  
Mean annual air temperature: 41 to 52 degrees F  
Frost-free period: 110 to 200 days  
Farmland classification: All areas are prime farmland

**Map Unit Composition**  
Marlette and similar soils: 90 percent  
Minor components: 10 percent  
Estimates are based on observations, descriptions, and transects of the mapunit.

**Description of Marlette Setting**  
Landform: Moraines, till plains  
Landform position (two-dimensional): Summit, shoulder, backslope  
Landform position (three-dimensional): Interfluvial, side slope, head slope  
Down-slope shape: Linear  
Across-slope shape: Linear, concave  
Parent material: Loamy till

**Typical profile**  
Ap - 0 to 9 inches: fine sandy loam  
B/E - 9 to 16 inches: clay loam  
Bt - 16 to 36 inches: clay loam  
C - 36 to 80 inches: loam

**Properties and qualities**  
Slope: 2 to 6 percent  
Depth to restrictive feature: More than 80 inches  
Natural drainage class: Moderately well drained  
Runoff class: Medium  
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)  
Depth to water table: About 18 to 24 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Calcium carbonate, maximum in profile: 30 percent  
Sodium adsorption ratio, maximum in profile: 2.0  
Available water storage in profile: Moderate (about 9.0 inches)

**Interpretive groups**  
Land capability classification (irrigated): None specified  
Land capability classification (nonirrigated): 2e  
Hydrologic Soil Group: C/D  
Hydric soil rating: No

**Minor Components**  
**Capac**  
Percent of map unit: 8 percent  
Landform: Moraines, till plains  
Landform position (two-dimensional): Footslope  
Landform position (three-dimensional): Base slope  
Down-slope shape: Linear  
Across-slope shape: Linear  
Hydric soil rating: No  
**Parkhill, non dense till subsoil**  
Percent of map unit: 2 percent  
Landform: Moraines, till plains  
Landform position (two-dimensional): Toeslope  
Landform position (three-dimensional): Base slope  
Down-slope shape: Linear, concave  
Across-slope shape: Linear  
Hydric soil rating: Yes

**Description — Map Unit Description**

Map Unit Symbol	Map Unit Name	Area of Interest (AOI)	Percent of AOI
CaA	Capac loam, 0 to 4 percent slopes	0.8	5.3%
MaB	Marlette fine sandy loam, 2 to 6 percent slopes	14.1	94.6%
MaC	Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes	0.0	0.1%
<b>Totals for Area of Interest</b>		<b>14.9</b>	<b>100.0%</b>

- Click the "Soil Map" tab (at top)
- Click the soil name to see the popup of soil info.



USDA Web Soil Survey <https://websoilsurvey.nrcs.usda.gov/app/>

### Soil Survey: Soil Data Explorer

- Click soil data explorer (at top) for LOTS more info, including yields, soil drainage, etc.
- This example shows clicking “Soil Organic Matter” and “Percent Clay” (at left)
- NOTE: this data is the typical results for your soil TYPE, not your EXACT LOCATION

Report — Chemical Soil Properties								
Ingham County, Michigan								
Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	meq/100g	pH	Pct	Pct	mmhos/cm	
CaA—Capac loam, 0 to 4 percent slopes								
Capac	0-9	3.0-23	—	5.6-7.0	0	0	0.0-0.4	0-1
	9-16	6.0-18	—	5.6-7.2	0	0	0.0-0.1	0-1
	16-31	7.0-22	—	5.6-7.8	0-5	0	0.1-0.2	0-1
	31-80	5.0-9.0	—	7.8-8.4	10-30	0	0.1-0.2	0-2
MaB—Marlette fine sandy loam, 2 to 6 percent slopes								
Marlette	0-9	3.0-23	—	5.6-7.0	0	0	0.0-0.4	0-1
	9-16	6.0-18	—	5.6-7.2	0	0	0.0-0.1	0-1
	16-36	7.0-22	—	5.6-7.8	0-5	0	0.1-0.2	0-1
	36-80	5.0-9.0	—	7.8-8.4	10-30	0	0.1-0.2	0-2
MaC—Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes								
Filer	0-9	3.0-23	—	5.6-7.0	0	0	0.0-0.4	0-1
	9-16	6.0-18	—	5.6-7.2	0	0	0.0-0.1	0-1
	16-36	7.0-22	—	5.6-7.8	0-5	0	0.1-0.2	0-1
	36-80	5.0-9.0	—	7.8-8.4	10-30	0	0.1-0.2	0-2

- Click the “Download Soils data” tab (at top)
- Click the soil name to see the popup of soil info.



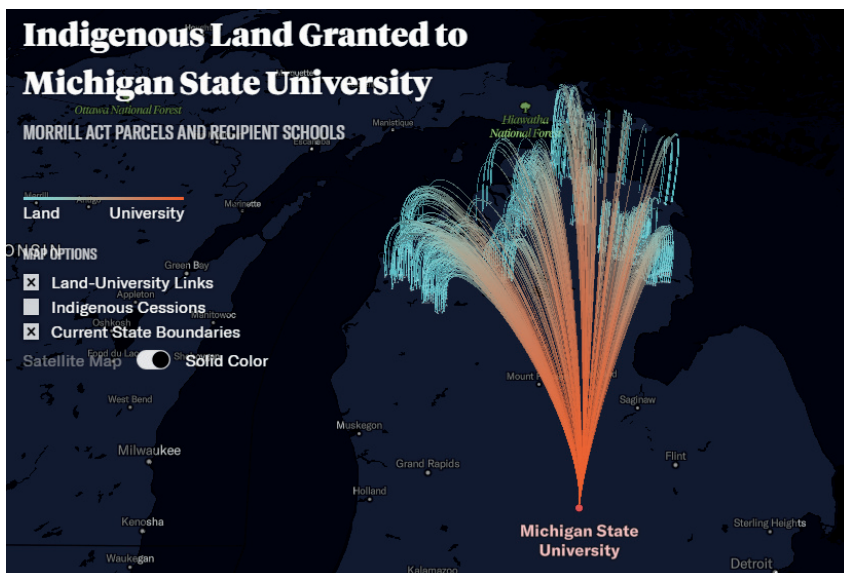
Google maps <https://maps.google.com/>

- Walk the site and observe plant and other features of the site



Land Grab <https://www.landgrabu.org/lands>

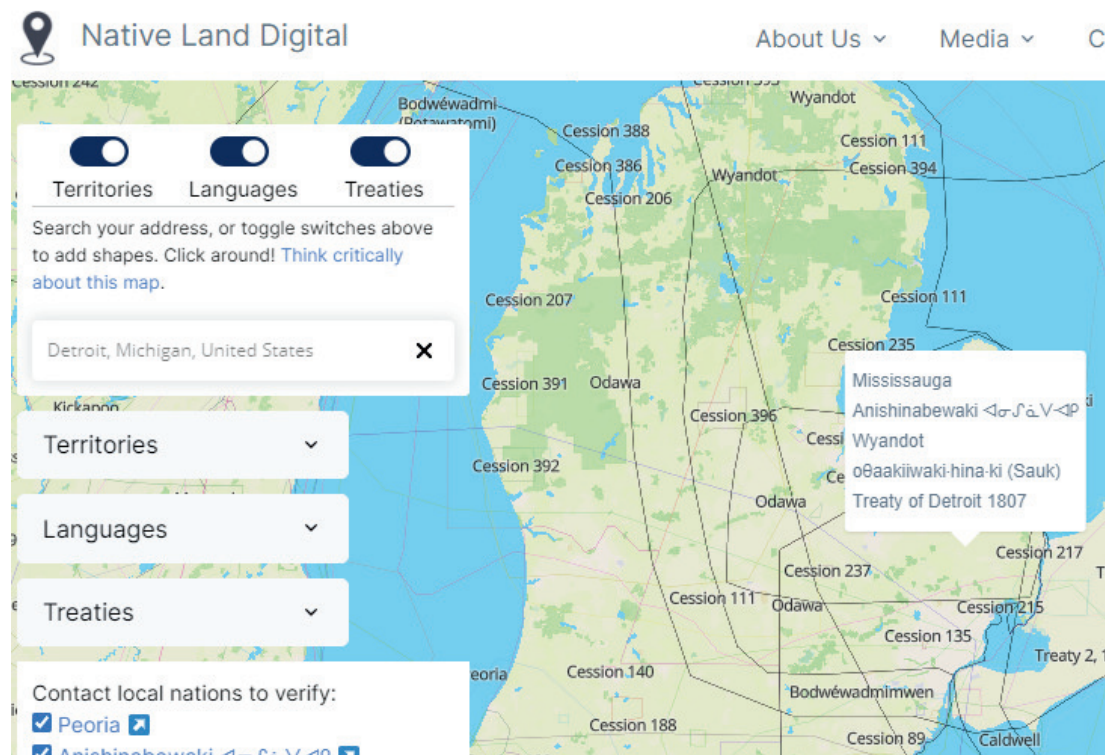
- Zoom in to see if your land was taken from Indigenous people to fund University endowments







Native Lands map <https://native-land.ca/>



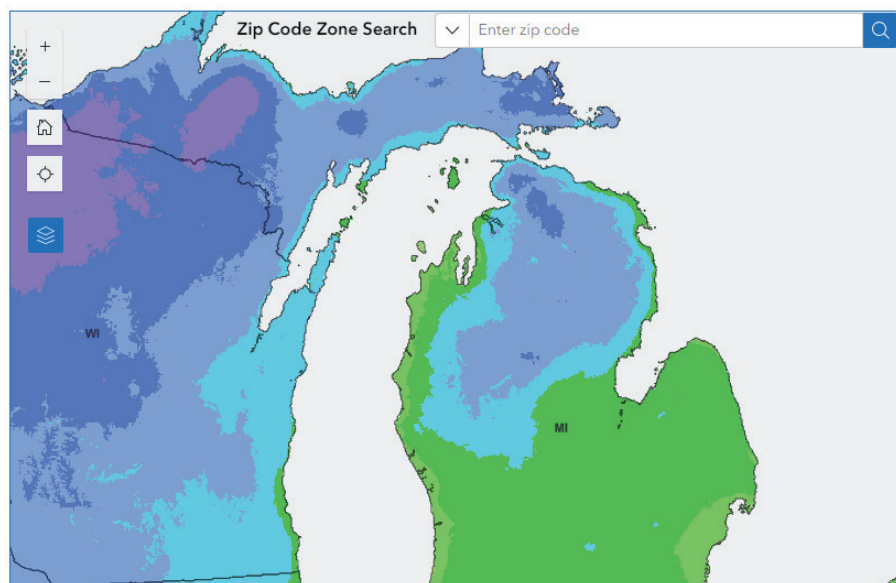






USDA Plant hardiness zones <https://planthardiness.ars.usda.gov>

## 2023 USDA Plant Hardiness Zone Map

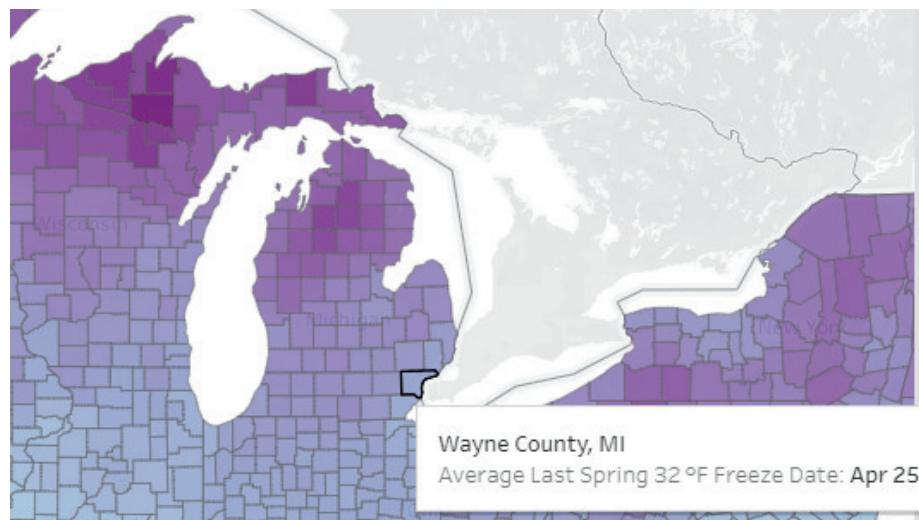


USDA Plant hardiness zones <https://planthardiness.ars.usda.gov>

## Freeze Date Tool

Last Spring Freeze Date Map

Gro





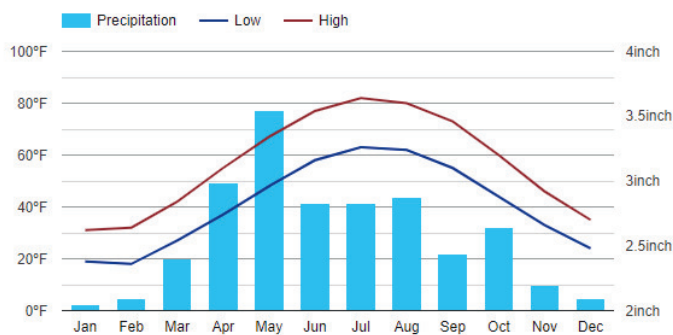
## Land Access Introduction to Rural land Access

### ACTIVITY 5

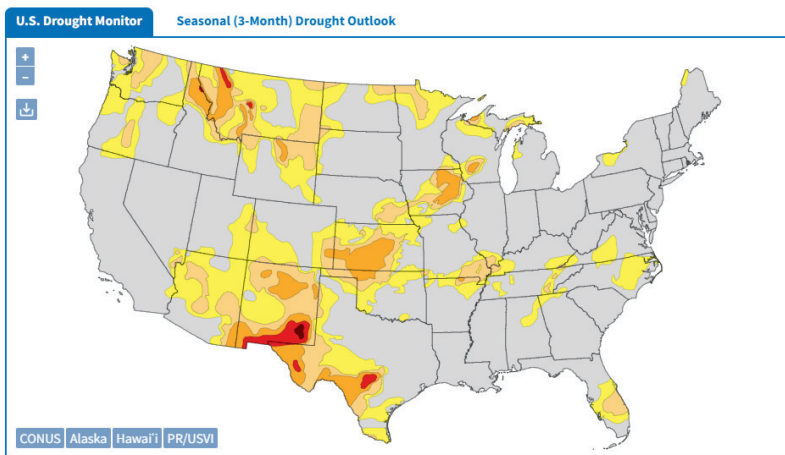
<https://www.usclimatedata.com/>

	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F	82	80	73	60	46	35
Average low in °F	63	62	55	44	33	24
Days with precipitation	9	8	9	9	12	13

q [Detroit](#) Climate Graph - Michigan Climate Chart



<https://www.drought.gov/>



The U.S. Drought Monitor depicts the location and intensity of drought across the country using 5 classifications: Abnormally Dry (D0), showing areas that may be going into or are coming out of drought, and four levels of drought (D1-D4).

The U.S. Drought Monitor is a joint effort of the National Drought Mitigation Center, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration.

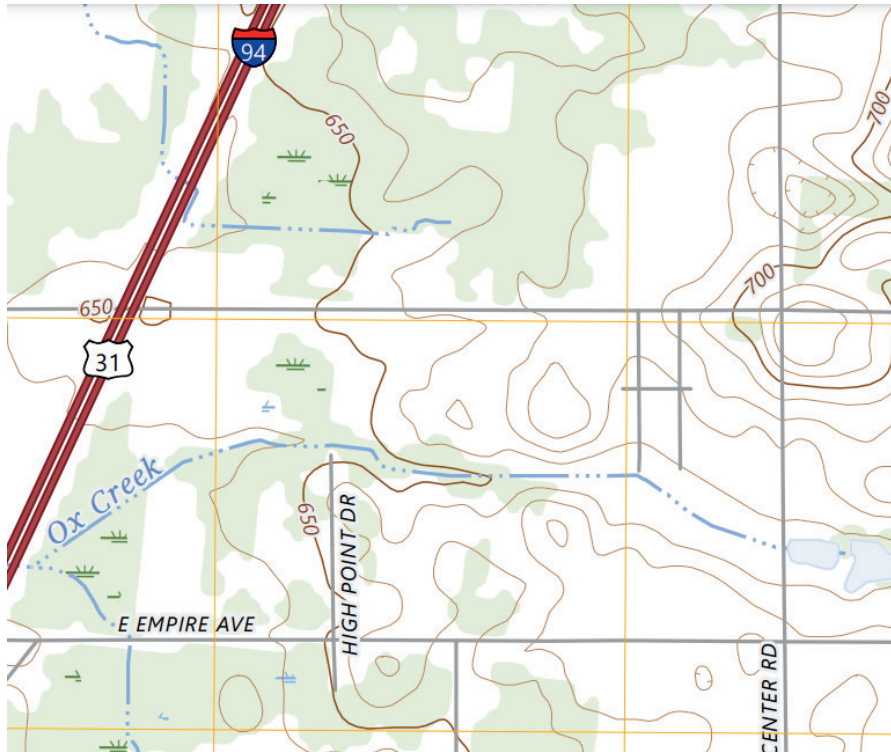
Source(s): [NDMC](#), [NOAA](#), [USDA](#)

#### Legend

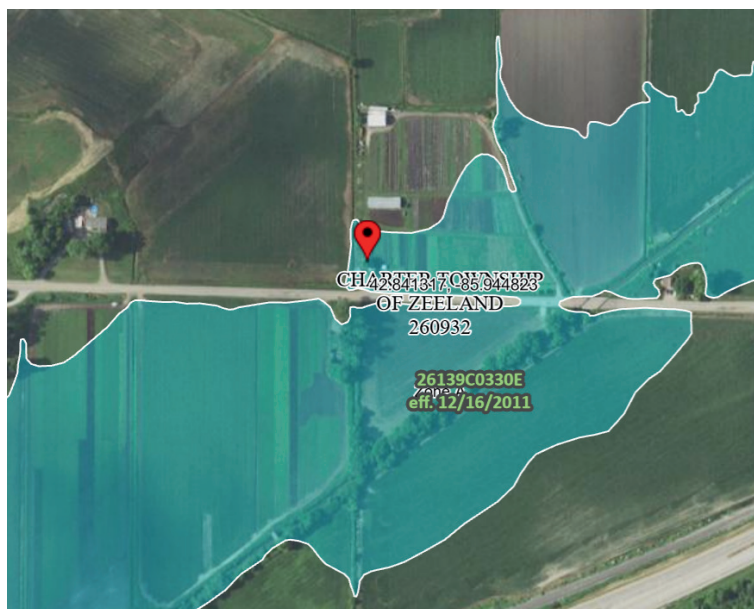
U.S. Drought Monitor Category	% of U.S.
D0 - Abnormally Dry	16.8%
D1 - Moderate Drought	8.4%
D2 - Severe Drought	3.6%
D3 - Extreme Drought	0.6%
D4 - Exceptional Drought	0.1%
Total Area in Drought (D1-D4)	12.6%



Topography Map [apps.nationalmap.gov/downloader/](https://apps.nationalmap.gov/downloader/)






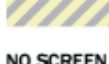
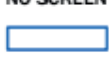





Flood Map <https://msc.fema.gov/portal/home>



## FLOOD HAZARD INFORMATION

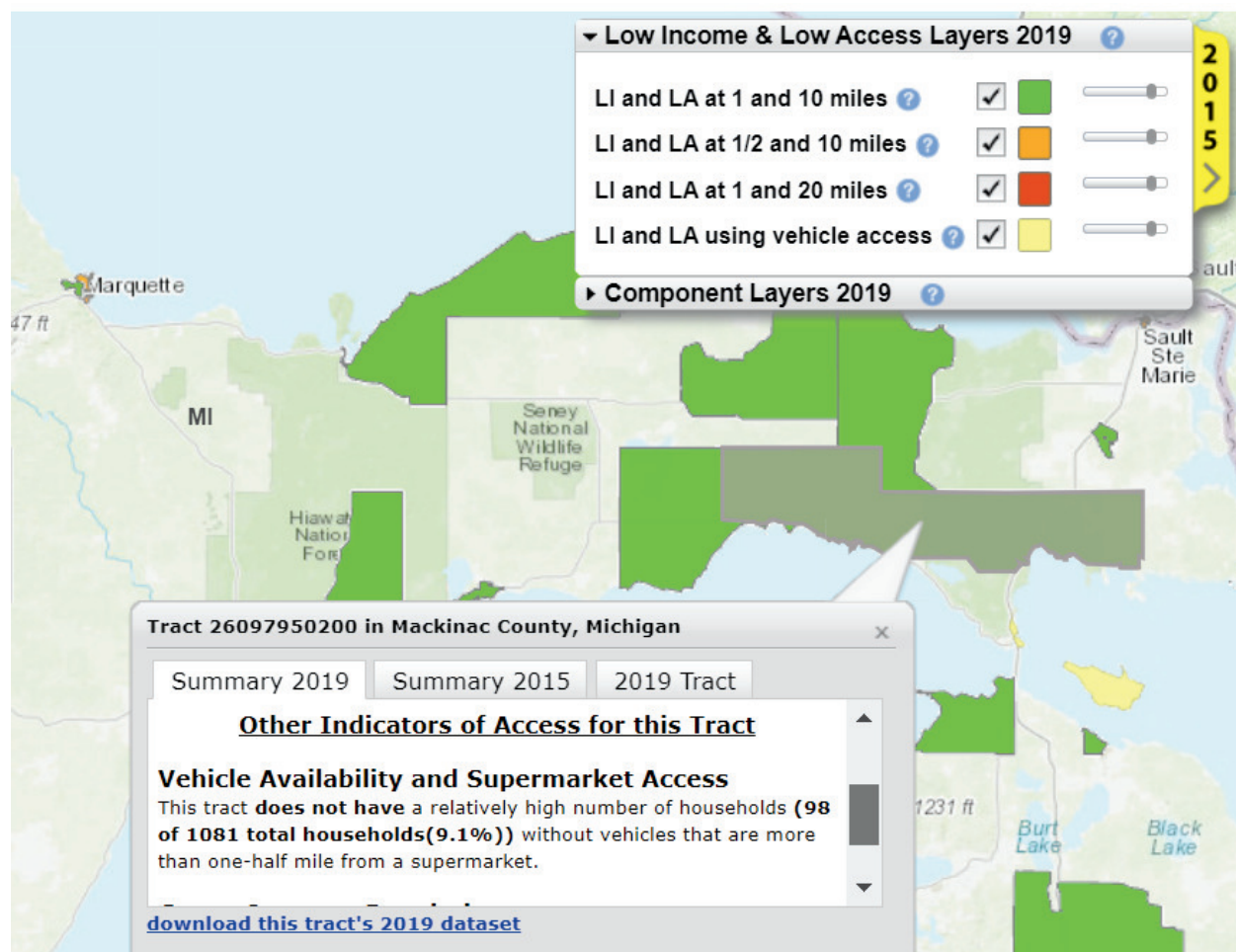
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP  
FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee See Notes Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D



USDA Food Access Research Atlas

<https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/>







# Land Access Introduction to Rural land Access

## ACTIVITY 5

THANK YOU to Melissa Holahan, the MSU Student Organic Farm and Meghan Lemon for sharing their site plans

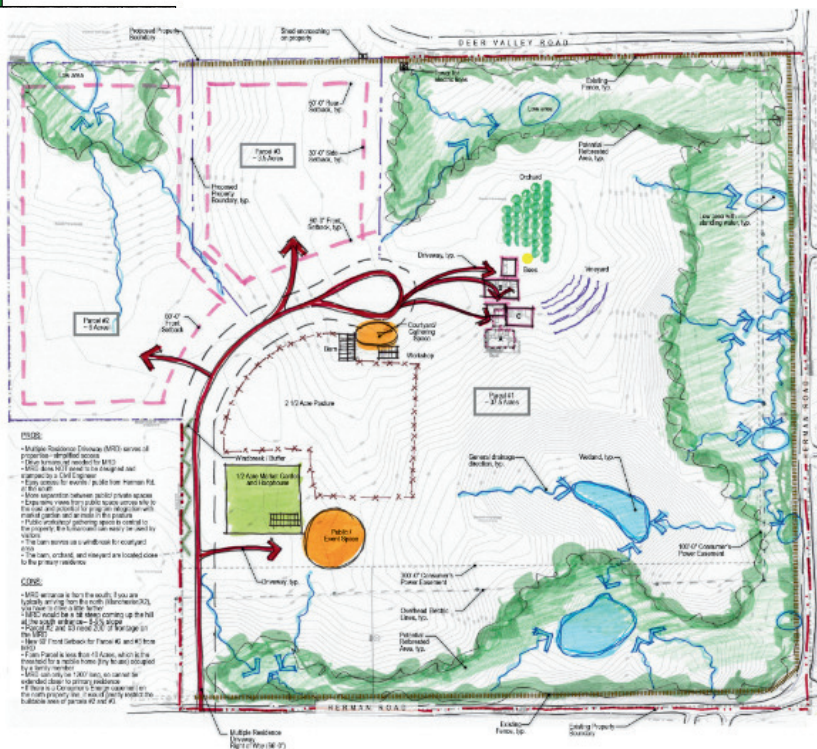
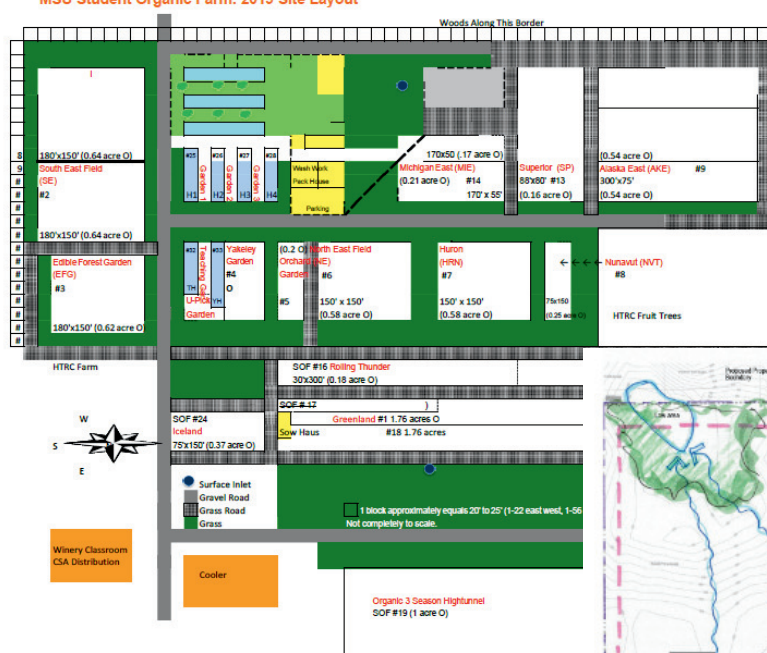
### Create a site plan!

Choose an option:

1. Draw the site
2. Use a google map, soil map or aerial photo
3. Use a spreadsheet and fill in cells for fields or crop rows
4. Get creative with other options



MSU Student Organic Farm: 2019 Site Layout





## Create a site map

Step 1: **Choose a google map, soil survey, other map or draw a map** of your farmsite. If you don't have a farmsite, you can use a possible site, your yard or make up a site.

Step 2: **Add buildings, hoopouses, fields, water lines, conservation projects** or other features of your current or future site. Get creative! These can be beautiful or practical.

Step 3: **Share your map with the group.** Ask them questions and get input on your plan.

Step 4: **Share your map with a farmer, friend, family member or farm ally.** Ask if they have any questions or suggestions.



## What does it mean for my farm?

Think about what you learned from your mapping your farmsite. Can you answer 5 of the questions below?

- What soil type(s) are at your site? What did you learn about those soils from the soil survey? Does seeing the soil map help you in making your site plan?
- What did you learn about your neighborhood and community?
- What Native peoples are indigenous to your land?
- What ecosystem do you think would cover your site if it had not been disturbed by colonization, farming and other factors?
- What did you learn about your ecology, climate or topography?
- What is your growing zone?
- When would you expect a last frost in spring? Or a first frost in the fall?
- Are you in a flood zone?
- Is your region in a drought right now?
- Do people in your community have access to full service grocery stores or transportation to get to a grocery store that is far away?
- What else did you learn from these maps?

Share your **draft site plan** with a farmer, friend, family member, ally or someone in your land access group. Ask them questions. Do they have any suggestions for your site plan?