



# North Yarmouth Solar Research Committee

Discoveries and Recommendations to the  
North Yarmouth Planning Board



*Town of*  
**North Yarmouth**  
**M A I N E**



# Solar Research Committee Members

Byron Kern - *Chair*

Austin Harrell - *North Yarmouth Select Board*

Andy Walsh

Draven Walker - *Executive Assistant to the Town Manager*

Chris Byers

Kelly Walker

Jay Fulton



## Purpose of the Committee

Identify solar usage opportunities for the Town of North Yarmouth, including its residents and business owners.





# Key Focus Areas

1

**Policy:** outline new state policies that seek to increase the benefits of solar to Maine ratepayers

2

**Financing Models:** summarize models for solar project financing and benefits to the end user (including models available with the new state policy)

3

**Land:** analyze parcels within North Yarmouth for the potential of developing a solar project

4

**Permitting:** review recommendations to permit large-scale solar projects

5

**Education:** provide educational resources for residents and business owners to benefit from solar energy.



# New Maine Solar Policy

LD1711 and LD1494 were passed into law with bipartisan support in June 2019

- Increase state renewable energy goals
- Energy produced by solar projects must be distributed exclusively to Mainers.
- Create community solar marketplace
- Public Utilities Commission facilitating the procurement of solar power to lower the standard offer rate for all Mainers
- Increase maximum size of projects to 5 MW
  - (~20-30 acres, equivalent to ~700 homes)
- Promote renewable energy jobs in Maine

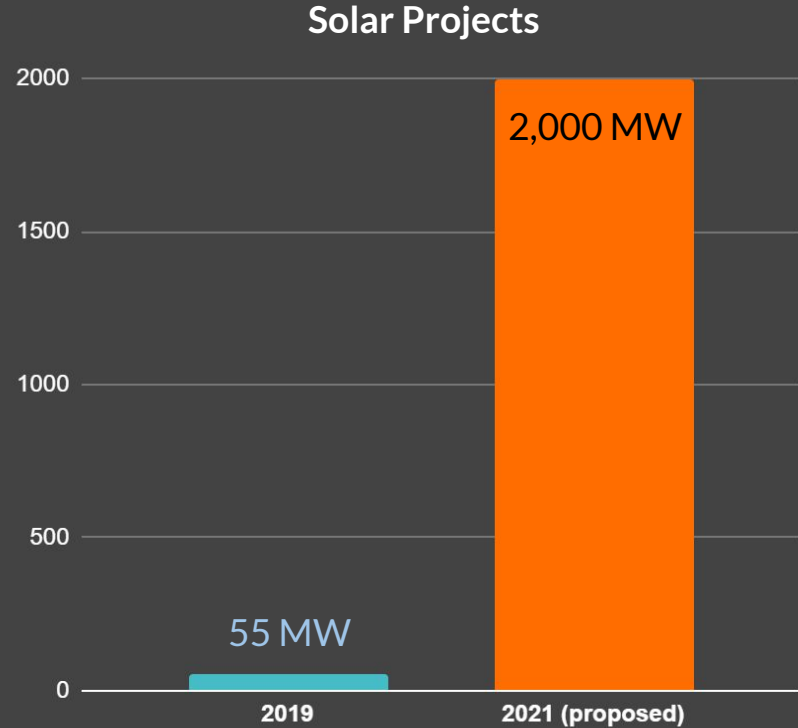


[See helpful reference links at end of presentation](#)

# Solar Growth in Maine

In early 2019, Maine only had **55 MW** of solar built across the state.

As of January 2021, over **2,000 MW** of solar projects are proposed by solar developers in the CMP interconnection queue alone.





## Financial Models for Solar

- 1** **Ownership:** Pay cash or finance through bank
- 2** **Solar Loan:** Solar installed at no upfront cost. 15 year loan; payments are equivalent to your CMP bill.
- 3** **Community Solar:** Subscribe to or own a share in a solar farm.
- 4** **Power Purchase Agreement (PPA):** Lock in electricity supply over 20 years at a lower rate.
- 5** **Lease Land to a Solar Developer:** Host a solar project on your land and receive annual lease payments.

### Who Benefits?

Residential Commercial Municipal


\*Combinations of each model are possible (eg. a municipality can lease their own land and sign a PPA)



# Community Solar

## Subscribing vs Owning A Share

	Subscription	Own Community Solar Share
Upfront Investment	\$0	Purchase, able to finance via HELOC, bank loan (\$25-40k)
Who Claims Federal Tax Credit	Developer	Community solar member/owner
Price Fluctuation	Save 10-15% below current utility price	Fixed price of the system locks in your reduced rate
Portability	Unsubscribe anytime	Share moves with you, or sell your share to a new member/owner
Maintenance Costs	\$0 to Subscriber	Covered in O&M agreement





# Leasing Land to a Solar Developer

Requires 20+ acres of buildable land

20 year - 30 year Lease Terms

Lease Rates: \$500-\$1,000/acre

No operations and maintenance responsibilities for the landowner

Project must be decommissioning at the end of the lease at cost to the project owner





# Municipal Solar Opportunities

North Yarmouth currently benefits from a rooftop solar project on Wescustogo Hall which satisfies nearly all of the municipal energy load across various CMP meters.

**Annual Savings with Solar: ~\$45,000**

Solar sited near load and within the town creates positive sense of ownership and connectivity to the project even if the town doesn't own the project.





# Municipal Solar Opportunities

Town-owned properties were evaluated for suitability to host a solar project in order to generate annual lease revenue for the town.

**Conclusion:** The town does not currently own parcels that are highly attractive for solar development.





# How do you evaluate a site for a solar project?

## Top 5 Criteria

- **Natural Resources**
  - Avoid wetlands, vernal pools, and streams. Use National Wetlands Inventory, MDOT Map Viewer, and Town GIS for initial data
- **Sensitive Wildlife and Plants**
  - Look at Beginning with Habitat Maps for any mapped wildlife and rare, threatened & endangered species (Map 2)
- **Terrain/Topography**
  - Flat is best, but some undulations are acceptable. Anything over 20% slopes may be too steep. South facing is preferred.
- **Public and Abutters**
  - Limited visibility to residential abutters is important. Avoid development near parks or other historic areas.
- **3-Phase Power**
  - Large scale solar projects need to be interconnected to 3-Phase power. Ideally 3-phase power is located at the site's point of interconnection. If 3-phase power must be extended to the point of interconnection, then anything >1 mile will be considered too expensive.

See helpful reference links at end of presentation



352 West Pownal Rd  
Capped Landfill

**Parcel Development Summary**

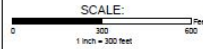
- 1. Natural Resources**  
Stream and wetlands run through center of the site
- 2. Sensitive Wildlife**  
No mapped sensitive wildlife nearby
- 3. Terrain/Topo**  
Landfill slopes are too steep for development, including most areas in the northern and central portions of this parcel. The only area that could be developed is the flatter area along Miliken Rd.
- 4. Public and Abutters**  
A few abutters nearby would have visual impacts. Engagement with these nearby abutters would be important.
- 5. 3-Phase Power Proximity**  
1.5 miles away (>1 mile is difficult for a solar project to support financially)

**Overall Rating: D**



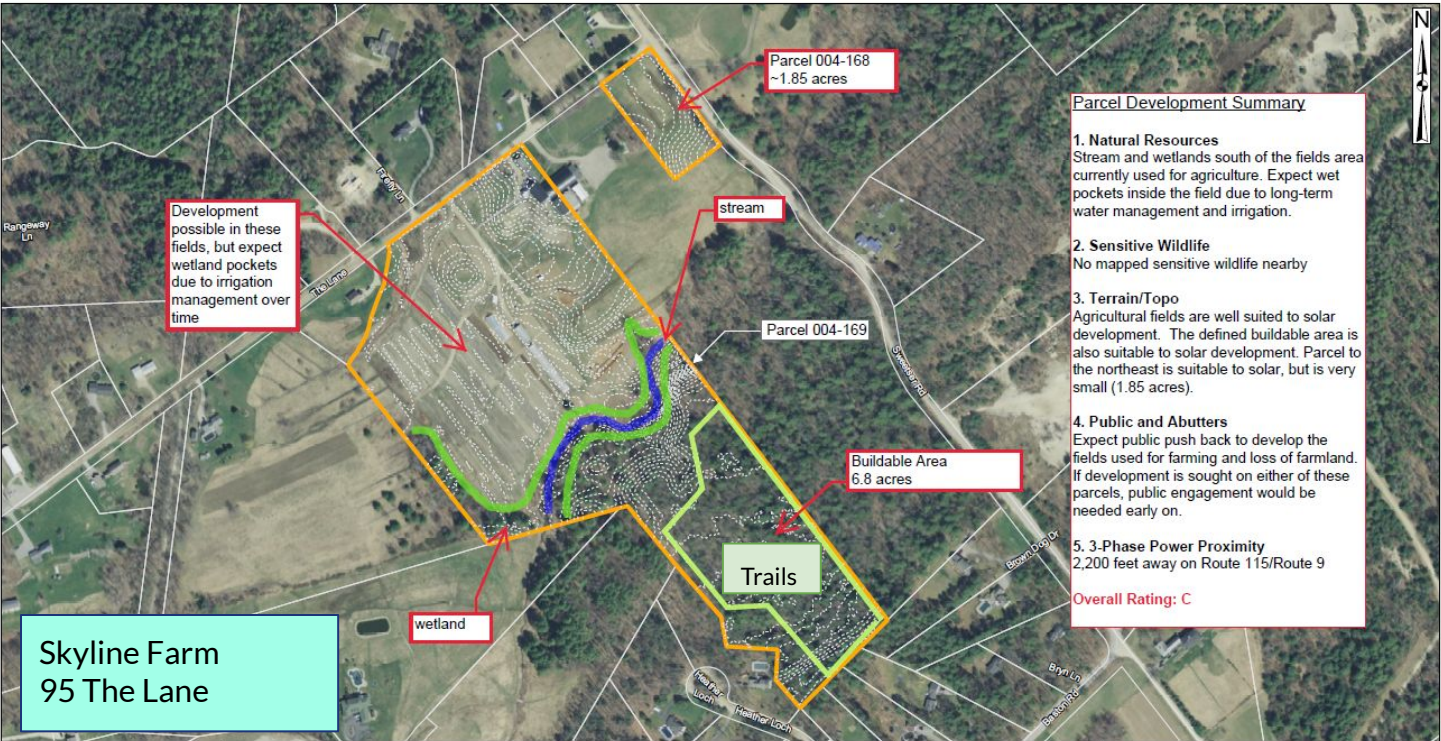
**LEGEND**

- 2ft Contour Intervals
- Parcel 013-021 (Approx 38 Acres)
- Approximate North Yarmouth Parcel Boundaries
- ★ Project Location



**NORTH YARMOUTH PARCEL LOCATION MAP**  
NORTH YARMOUTH, MAINE

PROJECT NUMBER: 000      DECEMBER 02, 2020



Skyline Farm  
95 The Lane

**Parcel Development Summary**

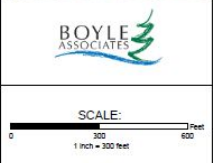
- 1. Natural Resources**  
Stream and wetlands south of the fields area currently used for agriculture. Expect wet pockets inside the field due to long-term water management and irrigation.
- 2. Sensitive Wildlife**  
No mapped sensitive wildlife nearby
- 3. Terrain/Topo**  
Agricultural fields are well suited to solar development. The defined buildable area is also suitable to solar development. Parcel to the northeast is suitable to solar, but is very small (1.85 acres).
- 4. Public and Abutters**  
Expect public push back to develop the fields used for farming and loss of farmland. If development is sought on either of these parcels, public engagement would be needed early on.
- 5. 3-Phase Power Proximity**  
2,200 feet away on Route 115/Route 9


**Overall Rating: C**



**LEGEND**

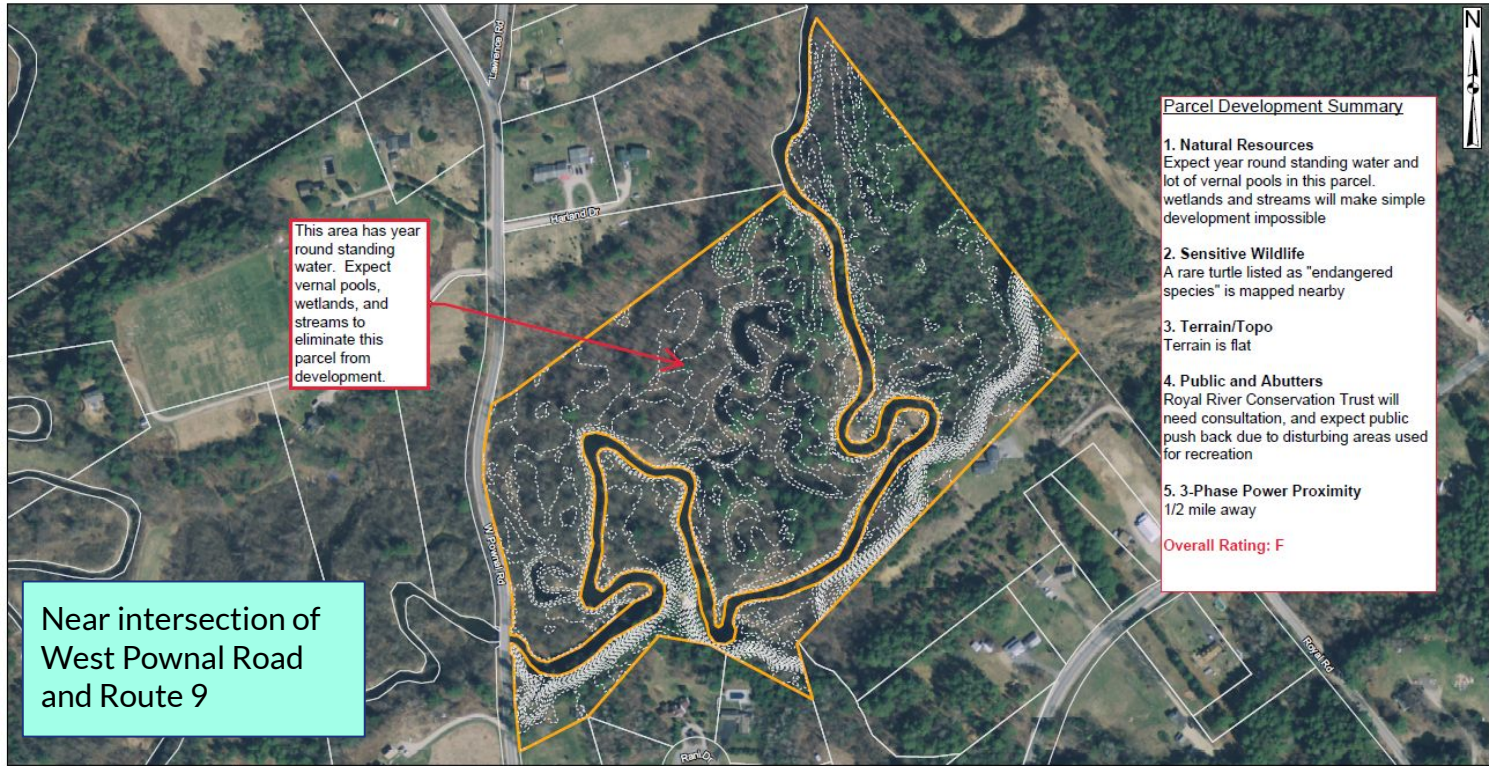
- 2ft Contour Intervals
- Parcel 004-169 (Approx 32 Acres)
- Approximate North Yarmouth Parcel Boundaries
- ★ Project Location





**NORTH YARMOUTH PARCEL LOCATION MAP  
NORTH YARMOUTH, MAINE**

PROJECT NUMBER: 000      DECEMBER 02, 2020



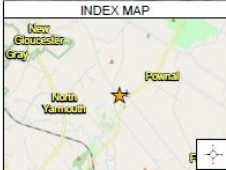
This area has year round standing water. Expect vernal pools, wetlands, and streams to eliminate this parcel from development.

Near intersection of West Pownal Road and Route 9

**Parcel Development Summary**

- 1. Natural Resources**  
Expect year round standing water and lot of vernal pools in this parcel. wetlands and streams will make simple development impossible
- 2. Sensitive Wildlife**  
A rare turtle listed as "endangered species" is mapped nearby
- 3. Terrain/Topo**  
Terrain is flat
- 4. Public and Abutters**  
Royal River Conservation Trust will need consultation, and expect public push back due to disturbing areas used for recreation
- 5. 3-Phase Power Proximity**  
1/2 mile away

**Overall Rating: F**



LEGEND	
	2ft Contour Intervals
	Parcel D13-055 (Approx 33 Acres)
	Approximate North Yarmouth Parcel Boundaries
	Project Location

**BOYLE ASSOCIATES**

SCALE:  
0 250 500 Feet  
1 inch = 250 feet

**NORTH YARMOUTH PARCEL LOCATION MAP**  
**NORTH YARMOUTH, MAINE**

PROJECT NUMBER: 000      DECEMBER 02, 2020

### North Yarmouth Gravel Pit Map 7, Lot 93

**Parcel Development Summary**

**1. Natural Resources**  
Eastern, Central and Western portions of the site appear to be wet.

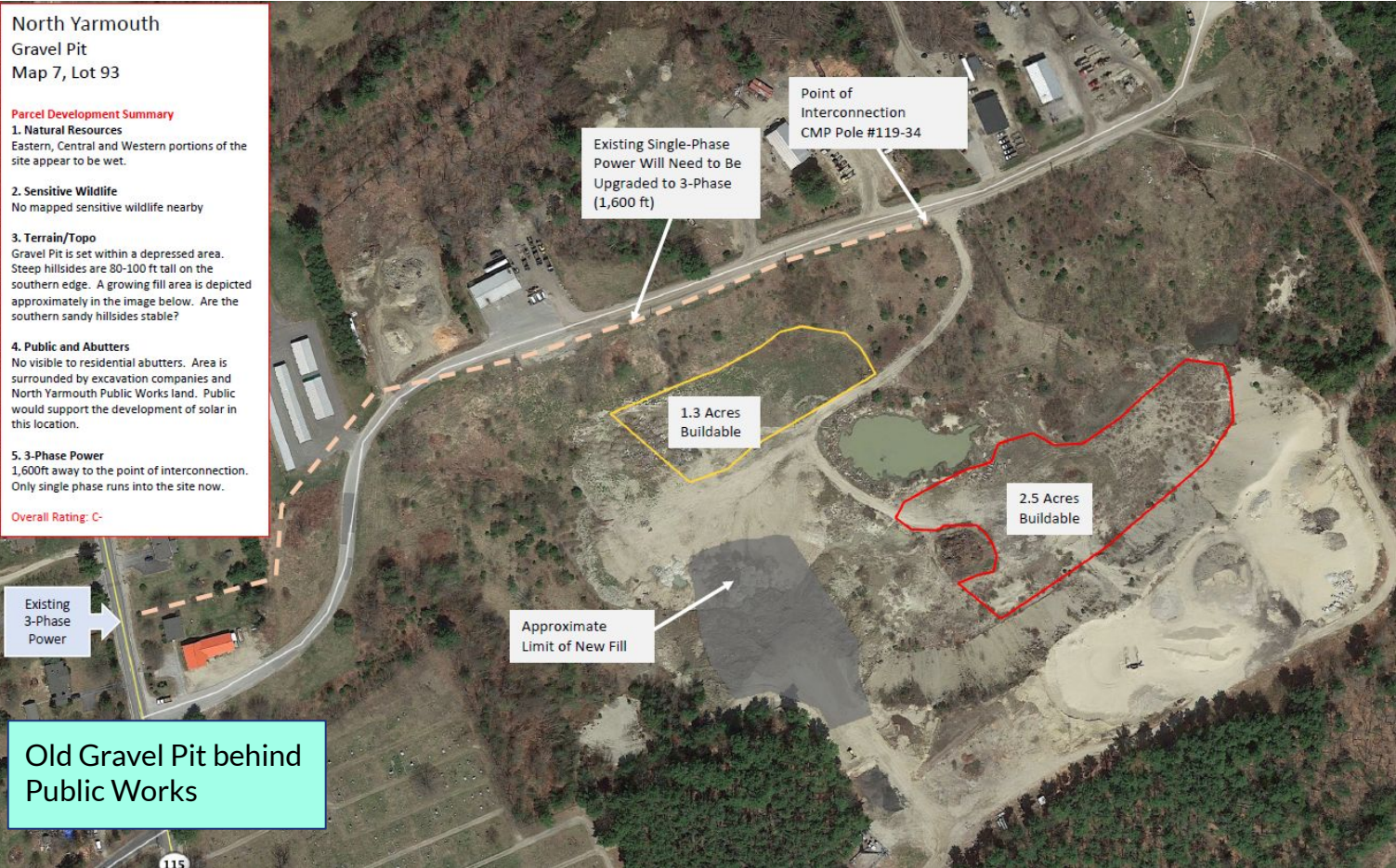
**2. Sensitive Wildlife**  
No mapped sensitive wildlife nearby

**3. Terrain/Topo**  
Gravel Pit is set within a depressed area. Steep hillsides are 80-100 ft tall on the southern edge. A growing fill area is depicted approximately in the image below. Are the southern sandy hillsides stable?

**4. Public and Abutters**  
No visible to residential abutters. Area is surrounded by excavation companies and North Yarmouth Public Works land. Public would support the development of solar in this location.

**5. 3-Phase Power**  
1,600ft away to the point of interconnection. Only single phase runs into the site now.

**Overall Rating: C-**



Old Gravel Pit behind  
Public Works



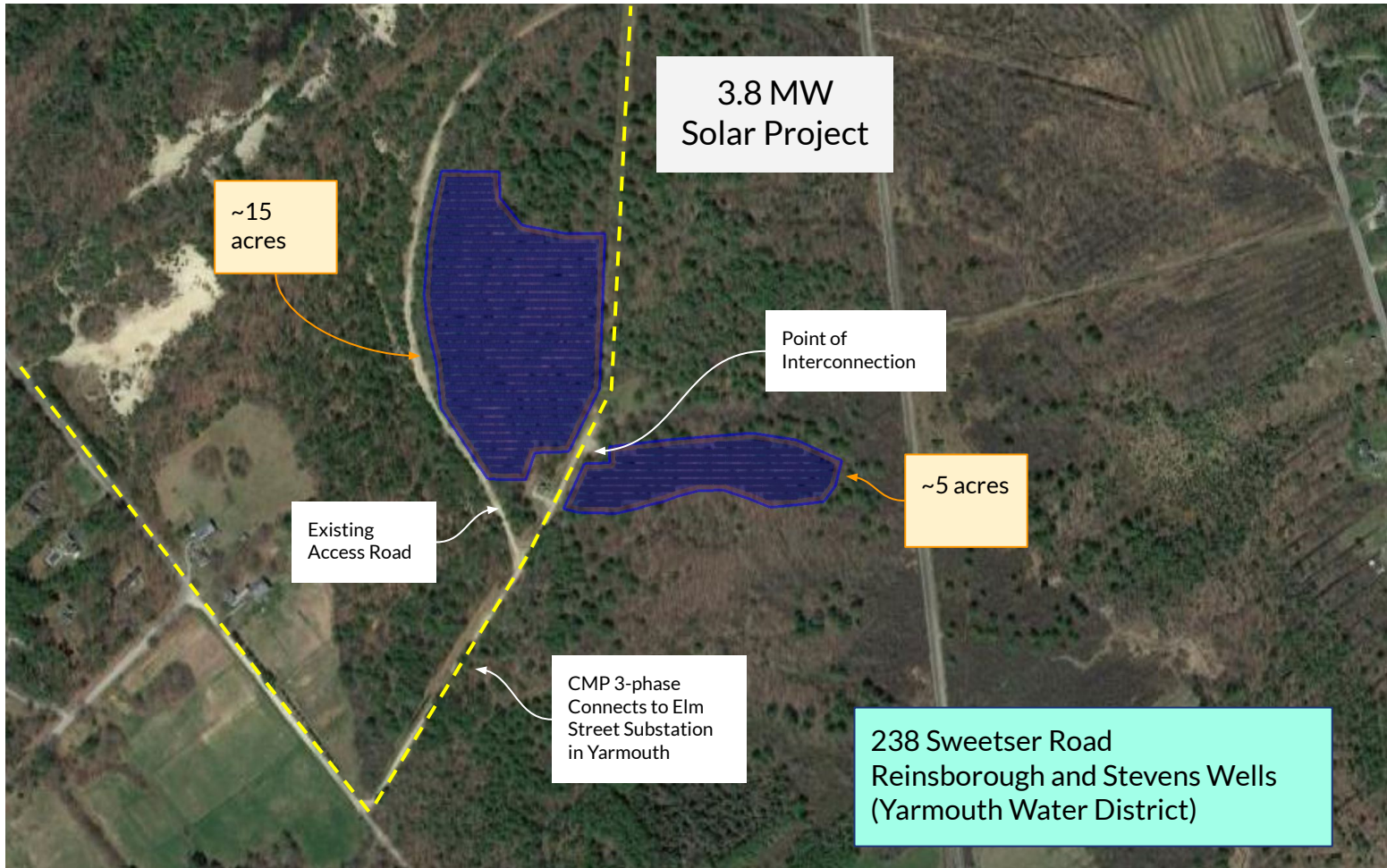
## Alternative Idea

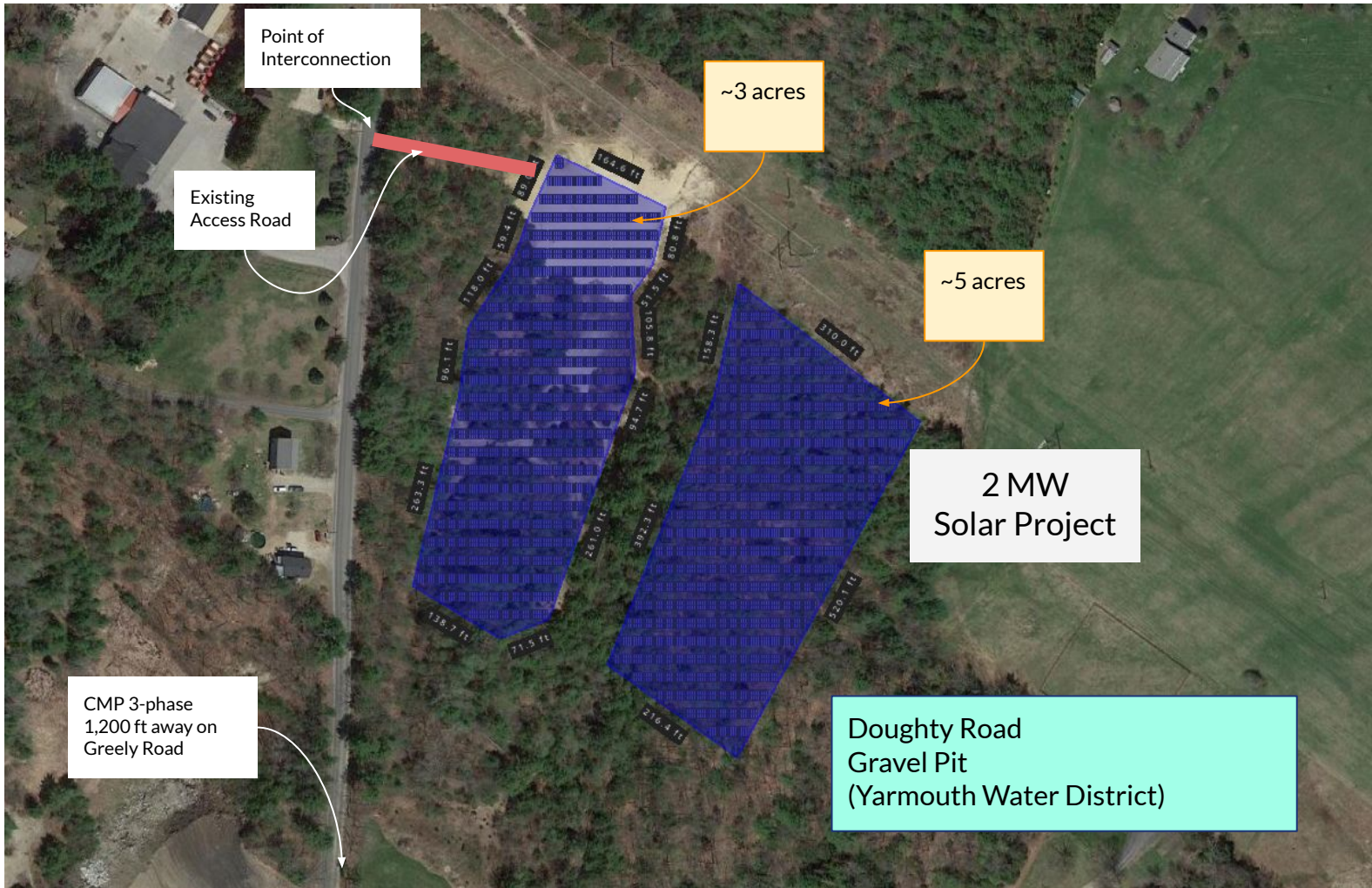
### Develop a project on Yarmouth Water District land within North Yarmouth

Some sites have been identified  
as suitable for solar project  
development

- Yarmouth Water District (YWD) does not pay property taxes, but a solar project developer could provide payments to the town.
- YWD may be interested in monetizing otherwise unusable land that cannot be used for a subdivision, or other types of high-intensity development.
- A presentation was made on 2/2 by Chris Byers to YWD outlining the opportunity for solar on their land on Sweetser Road









# Permitting Recommendations

- **Questions to ask**
  - Does the town need to define if solar is an allowed use?
  - Does the town need to define where solar is and is not allowed (eg. town center)
  - How much discretion does the Planning Board have in making decisions to permit a solar project?
- **Avoid Solar Ordinance/ Create a Checklist Instead**
  - Ordinances will not serve as a overarching regulatory process, better to preserve flexibility during the site plan review application process
  - Facilitate workshops for planning board and selectboard members
  - Create a checklist of questions and deliverables that the planning board can ask of solar developer applicants.
- **Grid Constraints: Maximum ~2-3 Projects in North Yarmouth**
  - 3-Phase Circuit on Sweetser can only support 8 MW of solar projects
  - Circuit could be full before a ordinance even passes (ordinance could take >1 year).



# Solar Checklist Examples

## Common Requests from Planning Boards

- Site Plan
  - Roads
  - Fence Type
  - Solar Panels
  - Equipment Pads
  - Interconnection Poles
  - Knox Box
- Due Diligence
  - Wetland Delineation
  - Wildlife Map
  - Soil Map
  - Flood Plain Map
- Project Narrative: Purpose and Need
- Noise and Glare
- Decommissioning Plan and Form of Surety
- Visual Screening (if needed)
- Utility Interconnection Application
- Copies of other State (eg. DEP) or Federal Permits (eg. Army Corps of Engineers)
- Agency Inquiry Letters
  - Maine Fish and Wildlife
  - Maine Natural Areas Program
  - Maine Historical Preservation Commission

[See helpful reference links at end of presentation](#)



# Community Education

## Community Solar Education Series

Set 3 dates for people to learn about community solar, buying vs subscribing, PPAs, & current solar news in general. Forum TBD.

Solar Webinars

Invite local solar professionals as panelists

## Town Website Resources

Recordings of the community solar education series.

North Yarmouth solar customer testimonials.

Solar Project Map with Project Info

Wescustogo Hall Solar Project History and Stats

## Video Content

Town TV Channel

The future of YouTube for North Yarmouth?

Recording of the community education series.

Recording of a presentation to the Selectboard



*Town of*  
**North Yarmouth**  
**M A I N E**

**Thank you.**



# Helpful Links



## Maine Solar Policy

[LD1711: An Act To Promote Solar Energy Projects and Distributed Generation Resources in Maine](#)

[LD1494: An Act To Reform Maine's Renewable Portfolio Standard](#)

## Permitting Checklist

[Greenville Solar Energy Systems Checklist](#)

## Assess a Solar Project Using Free Desktop

### Tools

[National Wetlands Inventory \(NWI\)](#)

[Beginning With Habitat Wildlife and Plant Maps \(Map 2\)](#)

[Natural Resources Conservation Service \(NRCS\)](#)

[CMP 3-Phase Map](#)

## Community Solar

[Community Solar Explained: Revision Energy](#)

[Revision Energy Community Solar Sign Up](#)

[Nexamp Community Solar](#)

[Mailings from Community Solar Farms in My Mailbox](#)

[Office of Maine Public Advocate: Community Solar FAQ](#)

[List of Community Solar Projects and Companies in Maine](#)