

# Impacts of Shadow Flicker Scituate and Fairhaven Wind Projects

MWWG October 30, 2013

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# Scituate and Fairhaven: At a Glance

	Scituate	Fairhaven
Location	Town owned waste water treatment plant	Town owned waste water treatment plant
Construction Timeframe	2011 to 2012	2011 to 2012
Project Size	One 1.5 MW Turbine	Two 1.5 MW turbines
Turbine Make/ Model	Sinovel SL1500	Sinovel SL1500
Approved by Town Vote	2005	2004
Estimated Production	4,295,200 kWh	7,227,000 kWh
Lease Period	15 Years with two 5 year Option Periods	20 Year Term with Extension Options
PPA	Starting at \$89.00/ MWh	Starting at \$74.30/ MWh
Developers	Palmer Capital & Solaya Energy	CCI Energy, Palmer Capital, & Solaya Energy

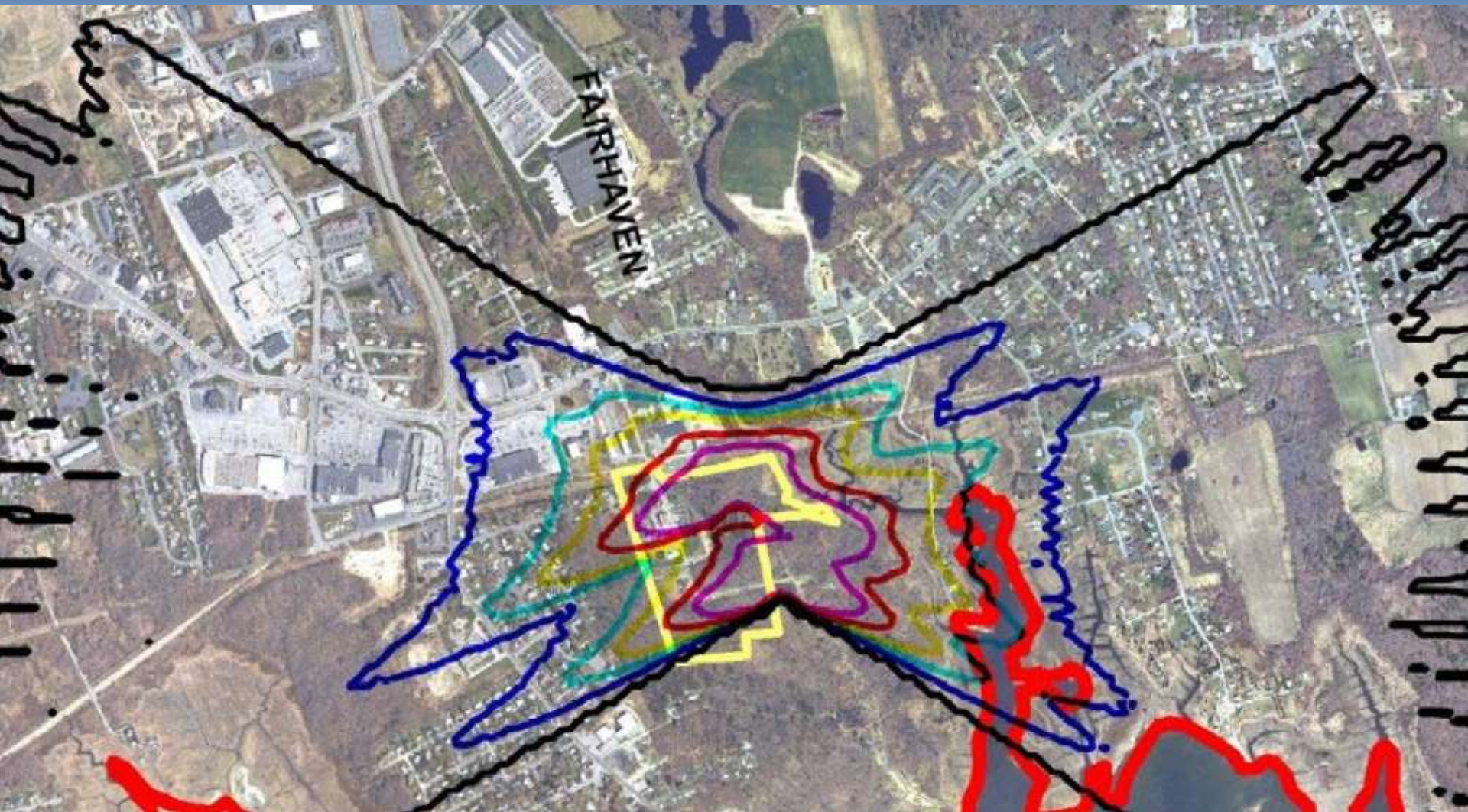
# Fairhaven Flicker Study

- May 2007, Flicker Study was first performed by the University of Massachusetts, Renewable Energy Research Laboratory
- April 2008, Flicker Study was updated based on alternate locations
- October 2011, Fairhaven Wind commissioned Atlantic Design Engineers to study based on different turbine and based on final locations

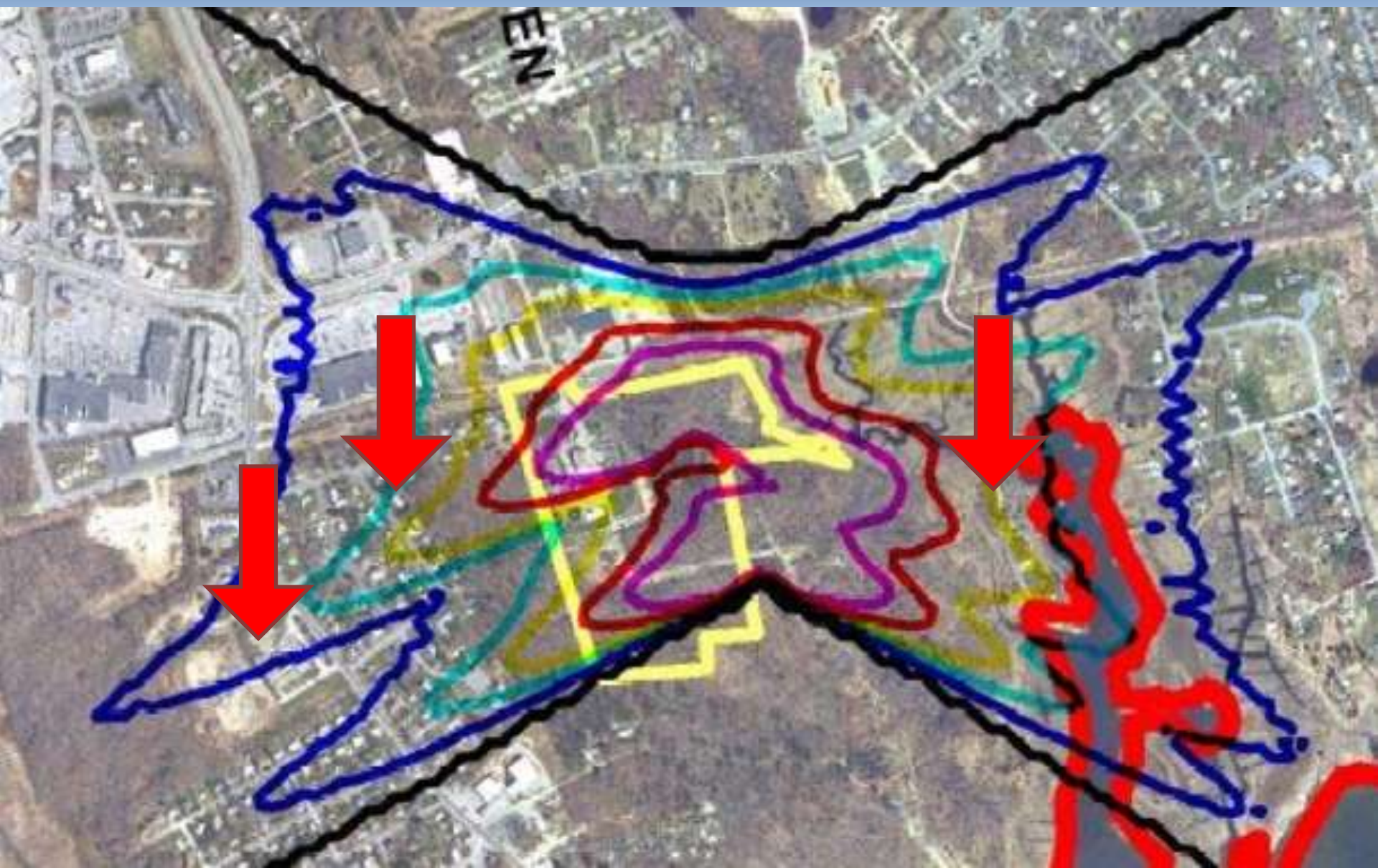
# Project Impacts – Flicker



# Fairhaven

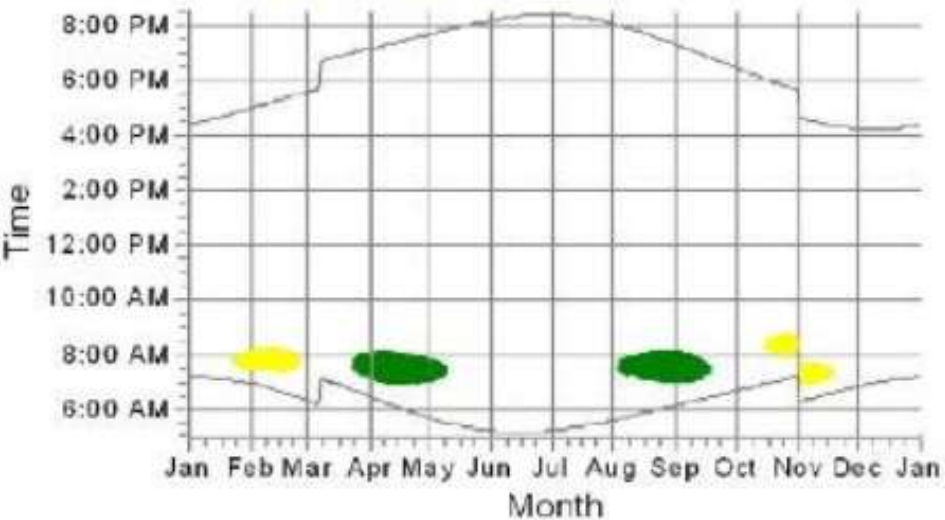


# Fairhaven

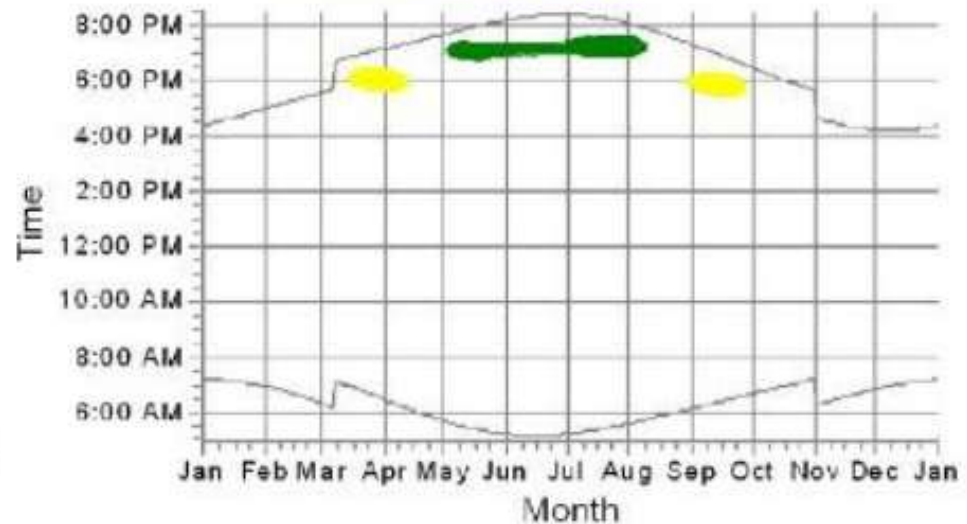


# Fairhaven

B: 27 Timothy Street



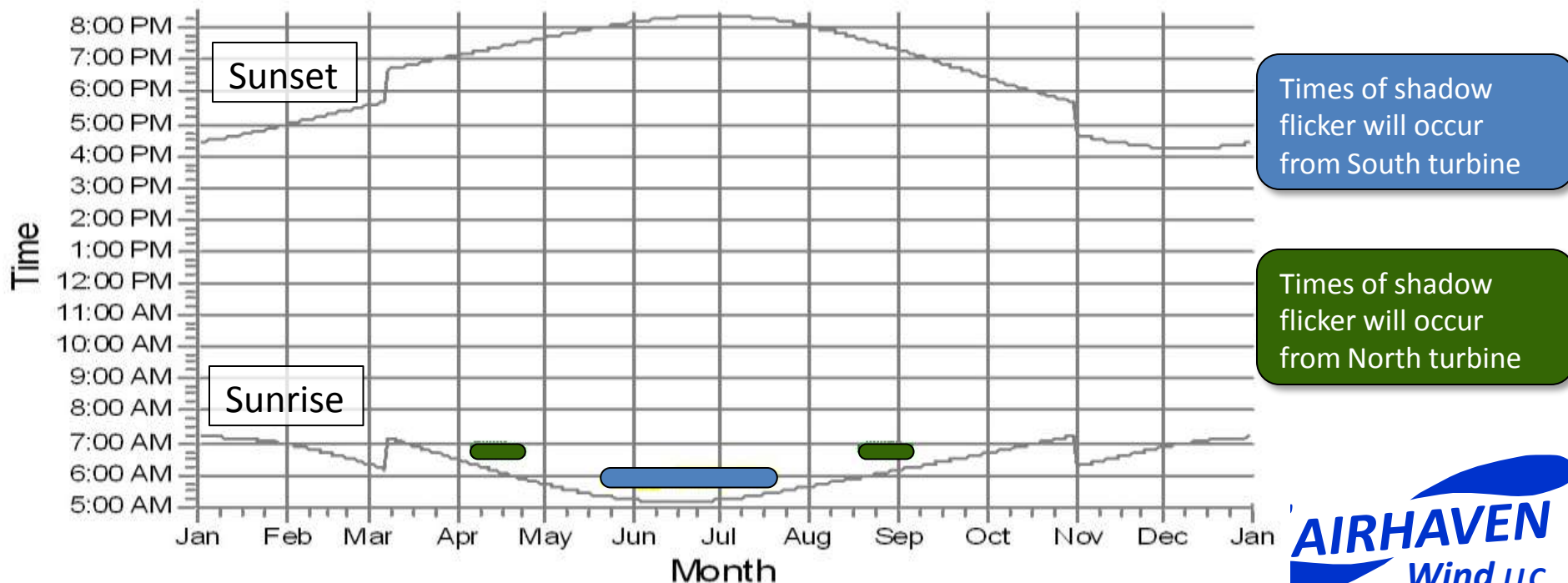
F: 7 Peirce's Point



# Project Impacts – Flicker at School

- Concerns have been raised about flicker at the Leroy Wood Elementary School
  - School is west of the turbines, shadows will only occur in the morning
  - Most of the shadow flicker will occur in June and August
  - Shadow flicker will not occur after 7:00 am on any one day

Y: Leroy Wood Elm School



# Fairhaven Concerns: Flicker

- Key Results

Receptor	Location Description	Hours Per Year
B	Timothy Street	44:18
D	1 Teal Circle	23:35
F	Pierce's Point	33:37
Q	Wood School	13:13

# Fairhaven Reaction

- Through the Fairhaven Board of Health, the Town has set up a complaint process to document the self reported impacts of the wind turbines
  - Most complaints in Fairhaven have been about noise
  - 21 Complaints have been received from 13 households regarding flicker; however most of the complaints also included sound impacts

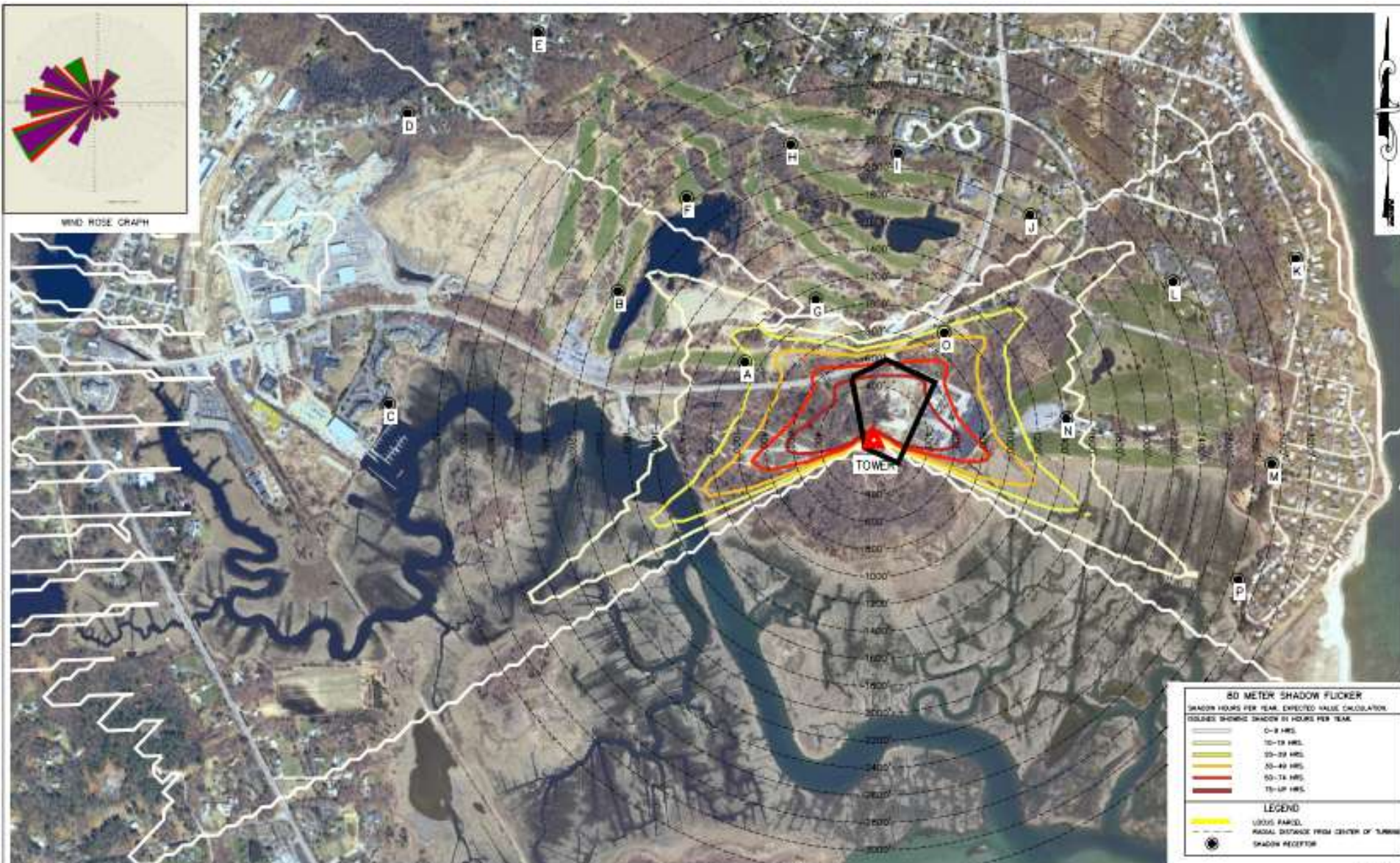
# Fairhaven Reaction

- Flicker Comments:
  - flicker early AM 5/7 & 5/8
  - irritable;concentration;flicker+hobby
  - light flicker very difficult all over house
  - experiences sound & flicker issues
  - strobe effect-awoke household
  - Got home and was immediatey annoyed by the horrible sound. Then while making dinner the flicker started from the south Tb which is the first time it has been fr that Tb. Got a little dizzy.
  - Woke up from the light flicker, both my mother and I. With the sun rising at a different time the light flicker has appeared on our house and has begun to disrupt our sleep. Please up help us!
  - only because it didnt last as long as in the spring get dizzy standing in my kitchen when the flicker comes across my eyes
  - Sound-8 Flicker-10 Visual-9

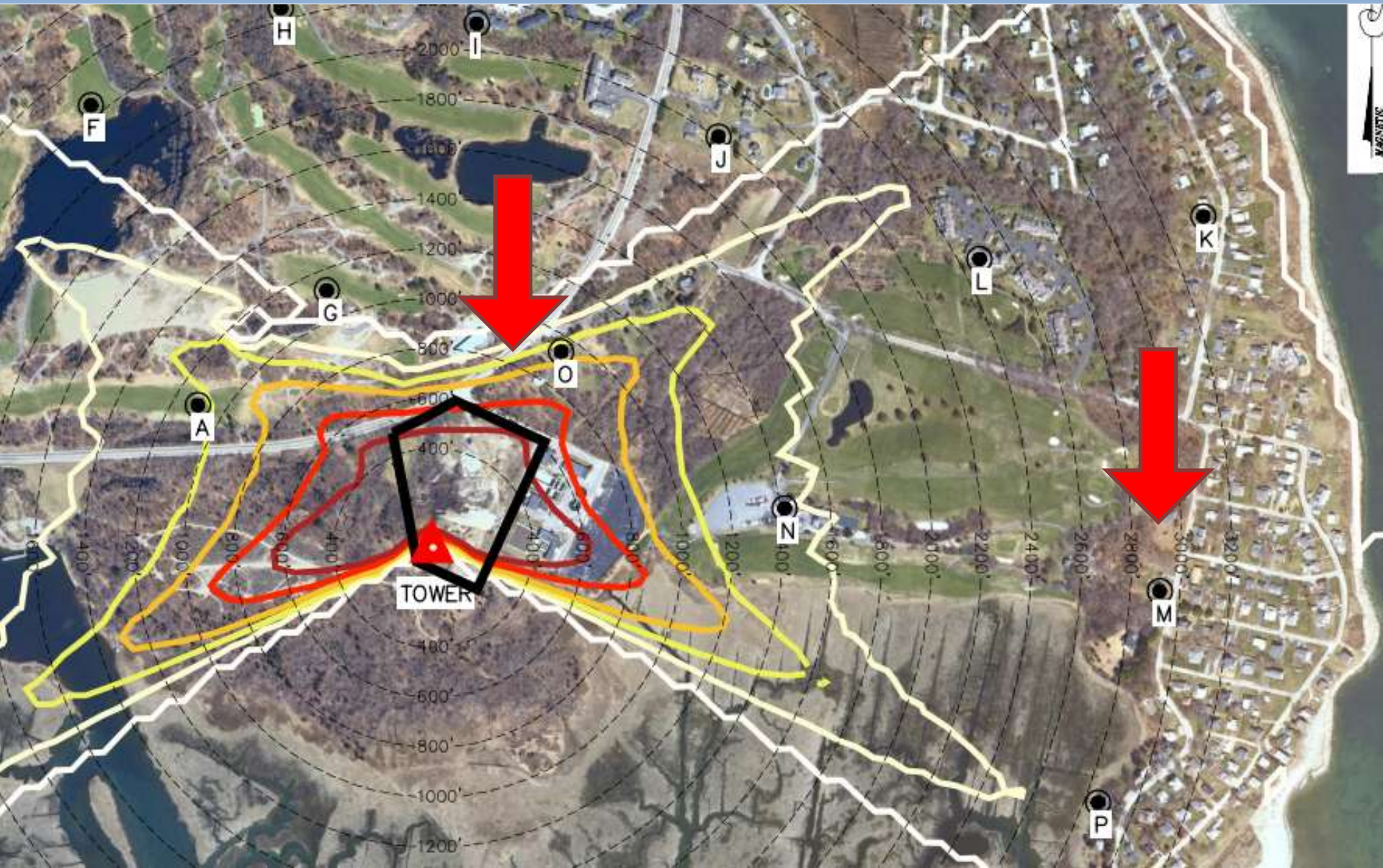
# Scituate

- March 2010 – Scituate Wind Commissioned Flicker Study
  - Study by Atlantic Design Engineers
  - No major concerns with the flicker study were presented at the permitting hearings
  - Flicker is not addressed in the Town's bylaws
- Predicted flicker calculations accepted as part of the special permit approval process.

# Scituate Flicker Study



# Scituate Flicker Study



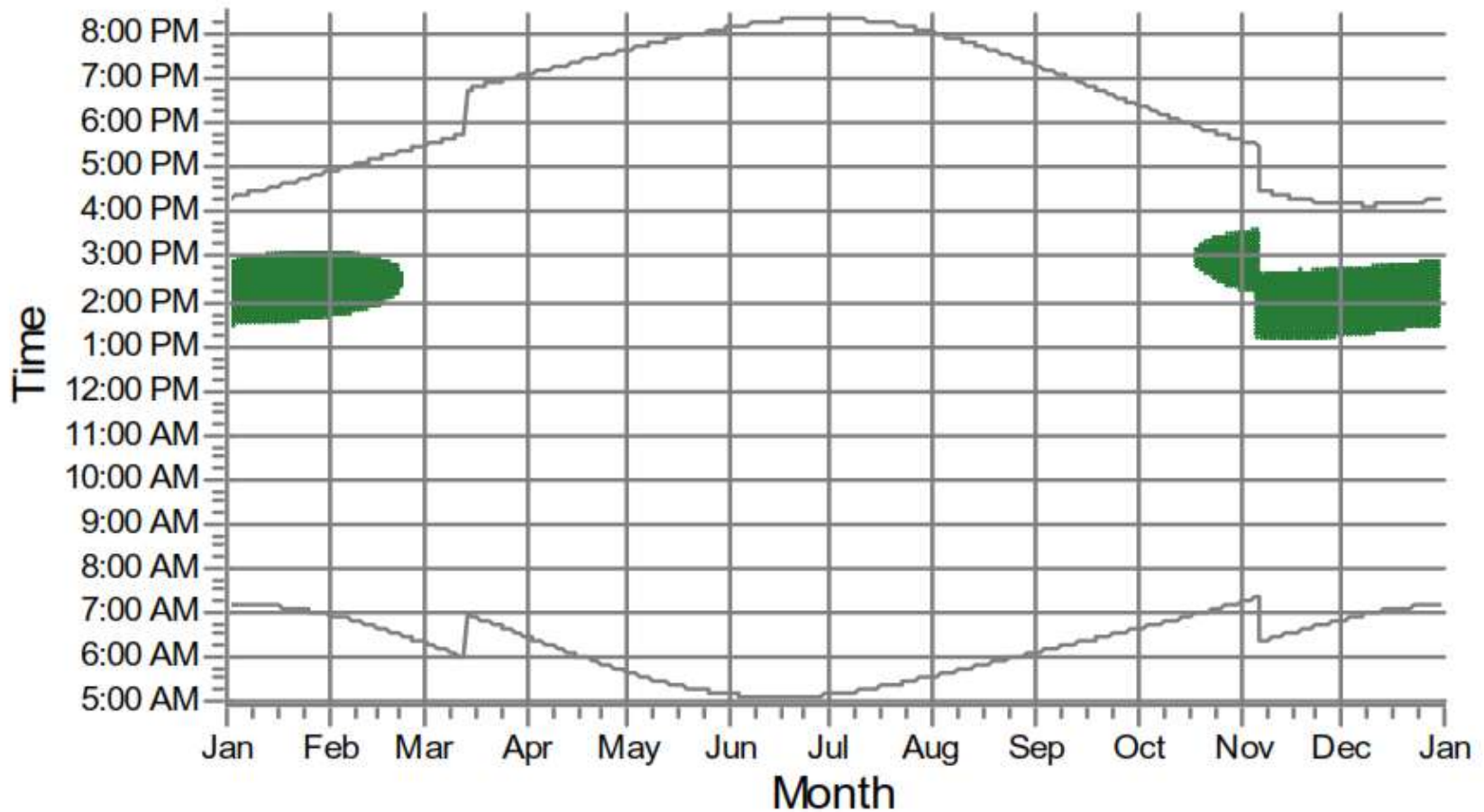
# Scituate Concerns: Flicker



Source: YouTube: *"Child's Birthday Disrupted by Scituate Turbine Flicker"*

# Scituate

Z: 151 Driftway



# Scituate

- Key Results

# Scituate Concerns: Flicker

- Scituate resident complains about shadow flicker at all public forums by looping the shadow flicker video
- The Town has engaged the MassCEC to conduct an independent review of Scituate Wind's flicker study

# Next Steps

- Both the Scituate and Fairhaven projects are public-private partnerships
- Any future steps involve further discussion with the Towns

# Thank you!

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