



Middletown-Norwalk Project

Low Magnetic Field Transmission Design Options

Prepared for the Connecticut Siting Council

July 27, 2004



**Connecticut
Light & Power**

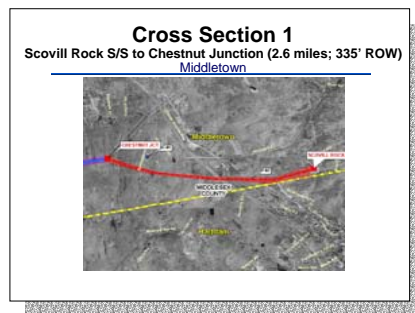
The Northeast Utilities System



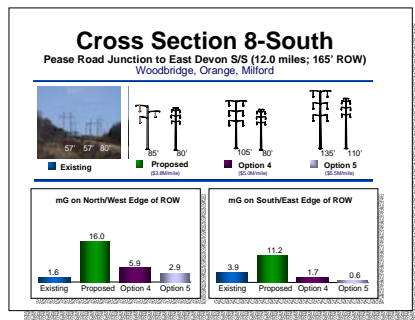
The United Illuminating Company

Overview

- Strategies for reducing magnetic fields from overhead lines
- For Cross Sections 1-8:



Show aerial photographs of the “buffer zone statutory facilities” adjacent to ROW



Compare design options per their magnetic fields at the edges of ROW

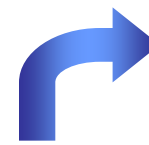
Strategies to Reduce Magnetic Fields

1. Add Distance

a. Widen the ROW

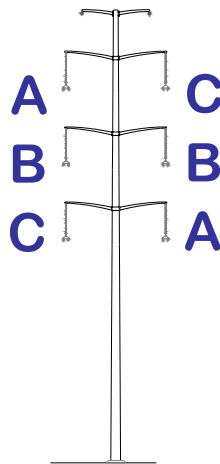


c. Relocate the Line

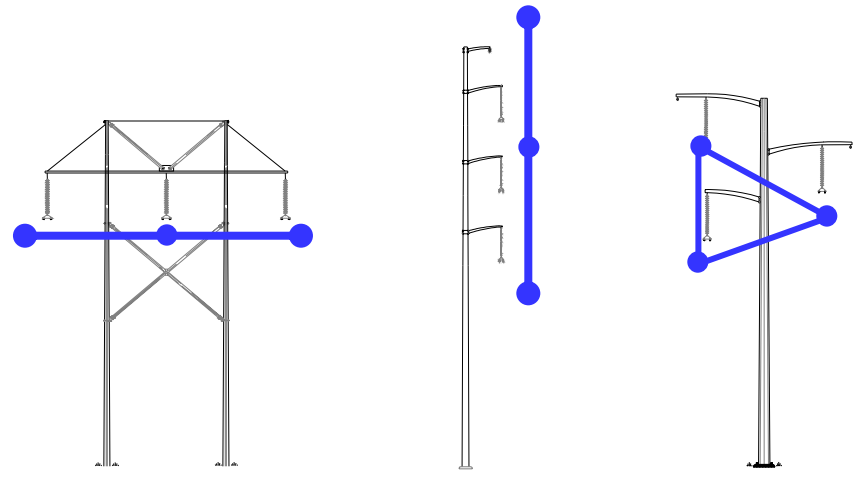


b. Increase Pole Height

2. Optimize phasing to maximize field cancellation



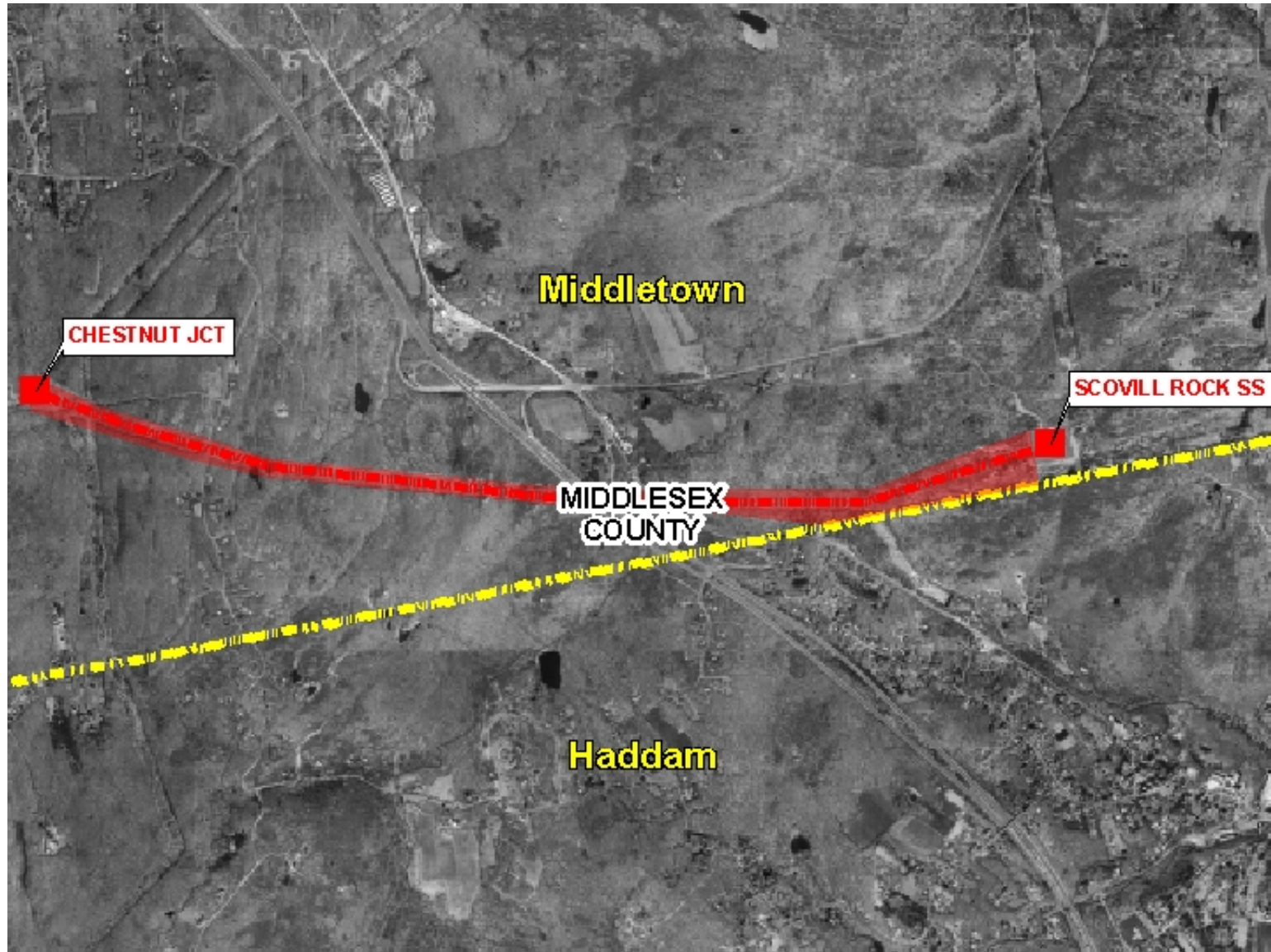
3. Optimize combination of the structures



Cross Section 1

Scovill Rock S/S to Chestnut Junction (2.6 miles; 335' ROW)

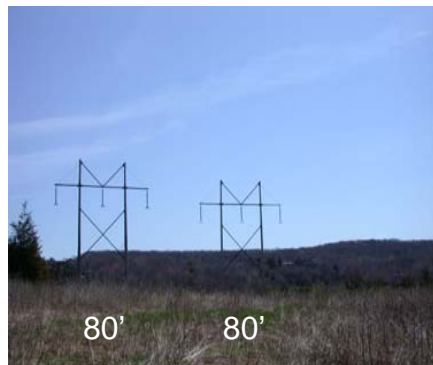
Middletown



Cross Section 1

Scovill Rock S/S to Chestnut Junction (2.6 miles; 335' ROW)

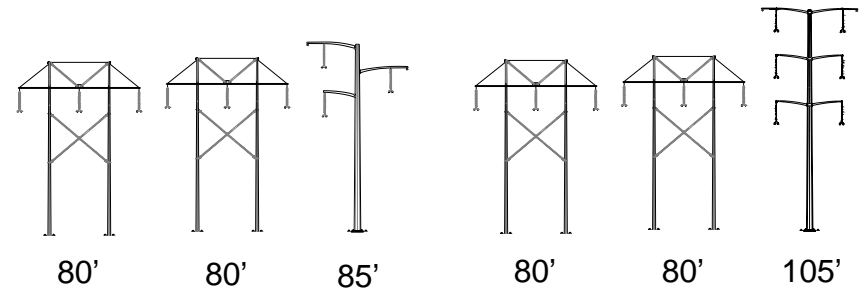
Middletown



Existing



Proposed
(\$2.1M/mile)

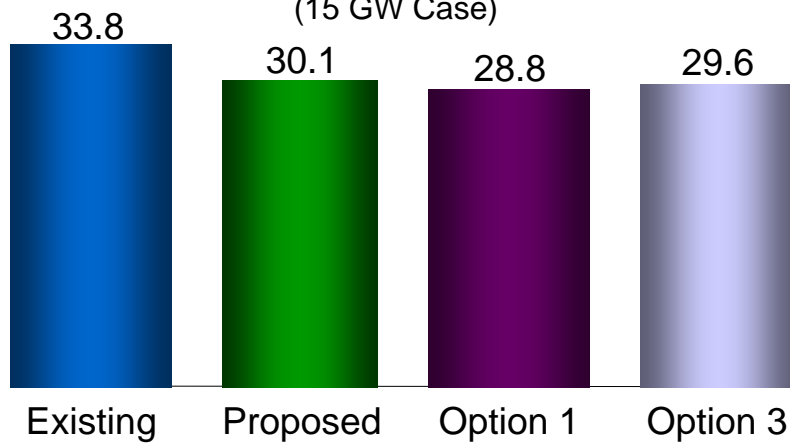


Option 1
(\$2.1M/mile)

Option 3
(\$3.1M/mile)

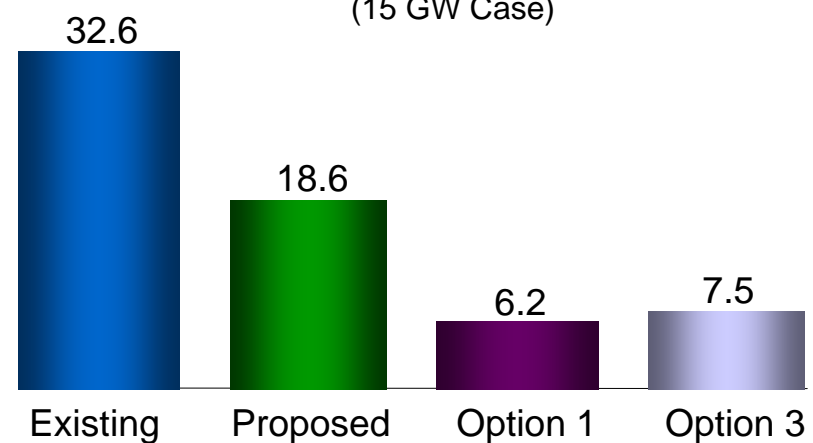
mG on North/West Edge of ROW

(15 GW Case)



mG on South/East Edge of ROW

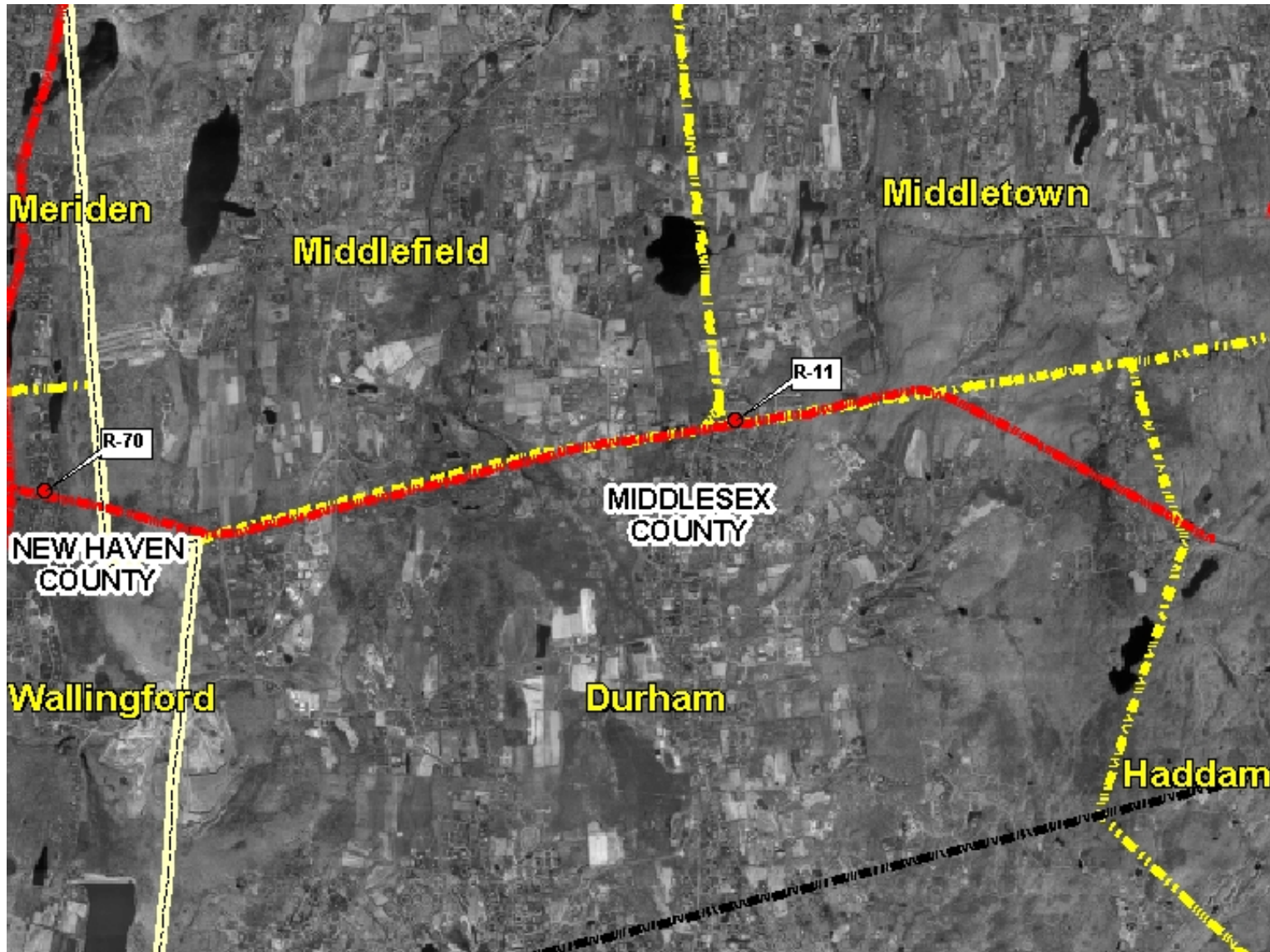
(15 GW Case)



Cross Section 2

Oxbow Junction to Beseck S/S (7.0 miles; 125' ROW)

Haddam, Durham, Middletown, Middlefield, Wallingford



Cross Section 2

Oxbow Junction to Beseck S/S (7.0 miles; 125' ROW)

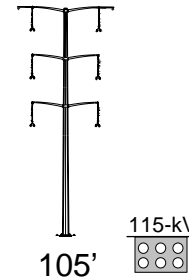
Haddam, Durham, Middletown, Middlefield, Wallingford



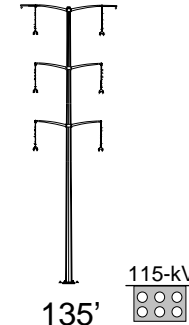
Existing



Proposed
(\$2.8M/mile)



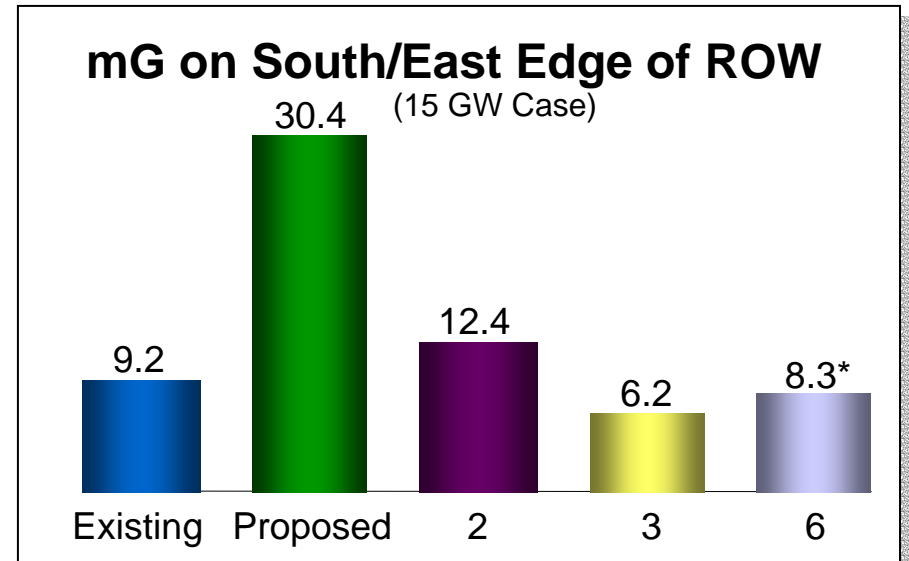
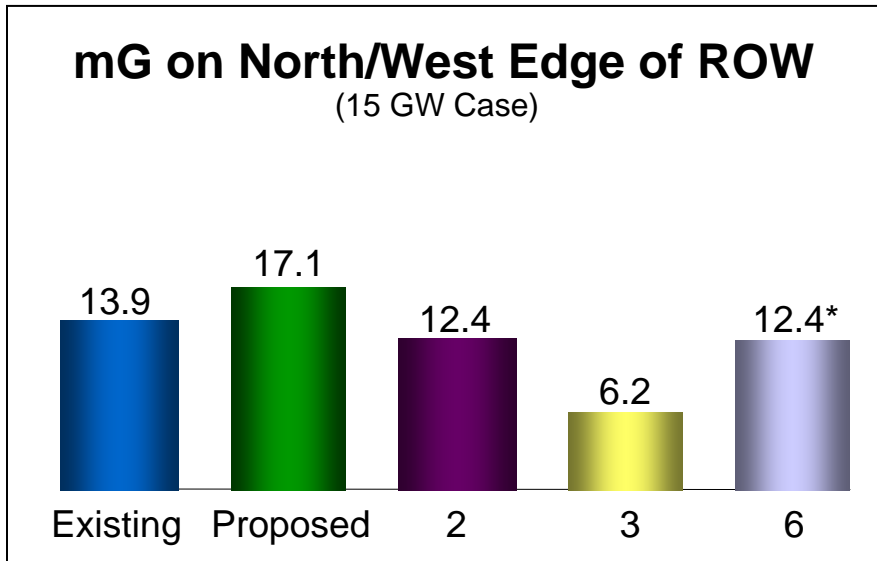
Option 2
(\$6.7M/mile)



Option 3
(\$7.5M/mile)

Bypass Royal Oak by placing 345-kV on new ROW.
Existing 115-kV remains.

Option 6
(\$TBD M/mile)

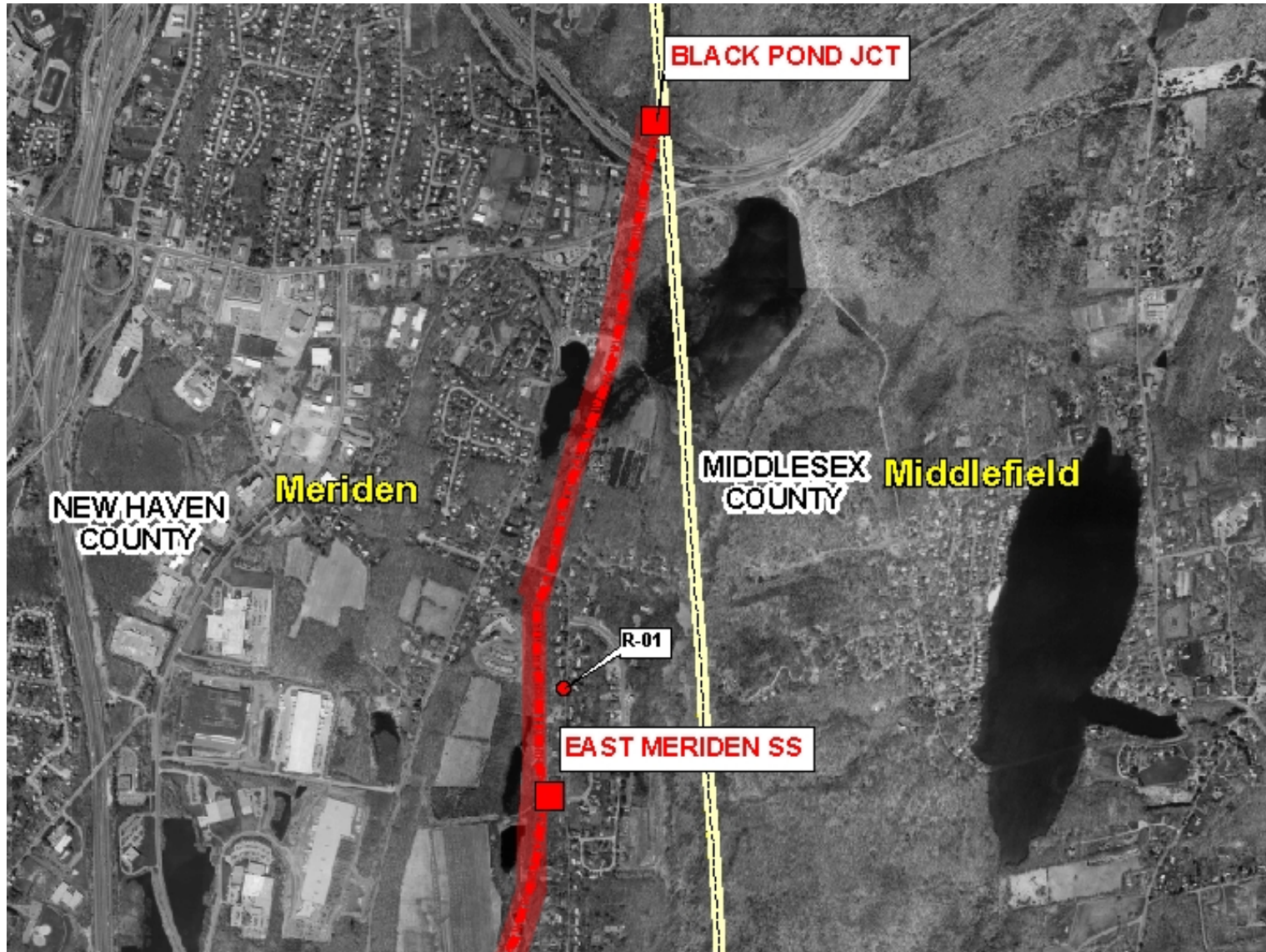


* EMF value for 115-kV only

Cross Section 3

Black Pond Junction to E. Meriden S/S (1.4 miles; 275' ROW)

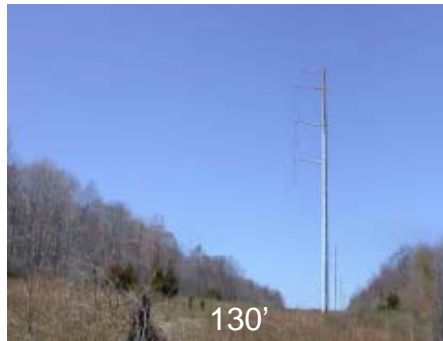
Meriden



Cross Section 3

Black Pond Junction to E. Meriden S/S (1.4 miles; 275' ROW)

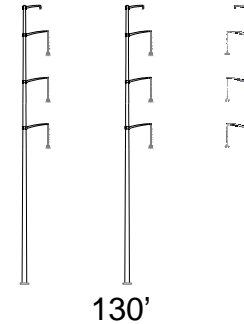
Meriden



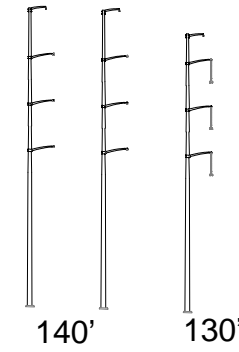
Existing



Proposed
(\$2.4M/mile)

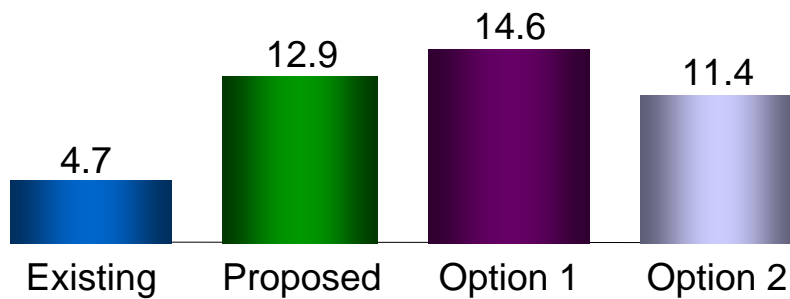


Option 1
(\$2.4M/mile)

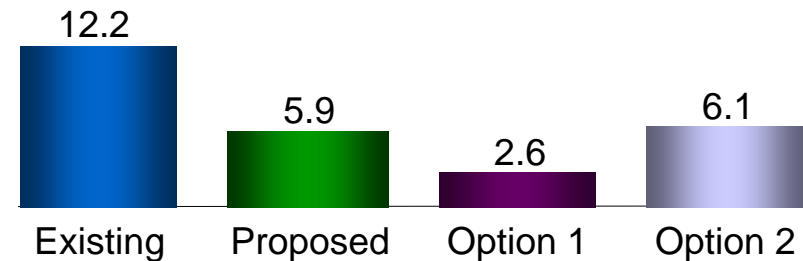


Option 2
(\$2.5M/mile)

mG on North/West Edge of ROW (15 GW Case)



mG on South/East Edge of ROW (15 GW Case)



Cross Section 4

E. Meriden S/S to Beseck S/S (1.4 miles; 320' ROW)

Meriden

