

Comparison Viewshed Mapping Package

Exhibit D

Proposed Upgrade to Existing Wireless Telecommunications Facility:

VT1061U Hardwick Hopkins Hill Road
1190 Hopkins Hill Road
Hardwick, VT 05843



- Comparison of existing 130ft AGL structure and proposed 140 ft AGL antenna structure
- Viewshed map completed
- Balloon test and viewshed verification completed

Package prepared by:

Virtual Site Simulations, LLC
24 Salt Pond Road
Suite C3
South Kingstown, Rhode Island 02879

www.VirtualSiteSimulations.com
www.ThinkVSSFirst.com

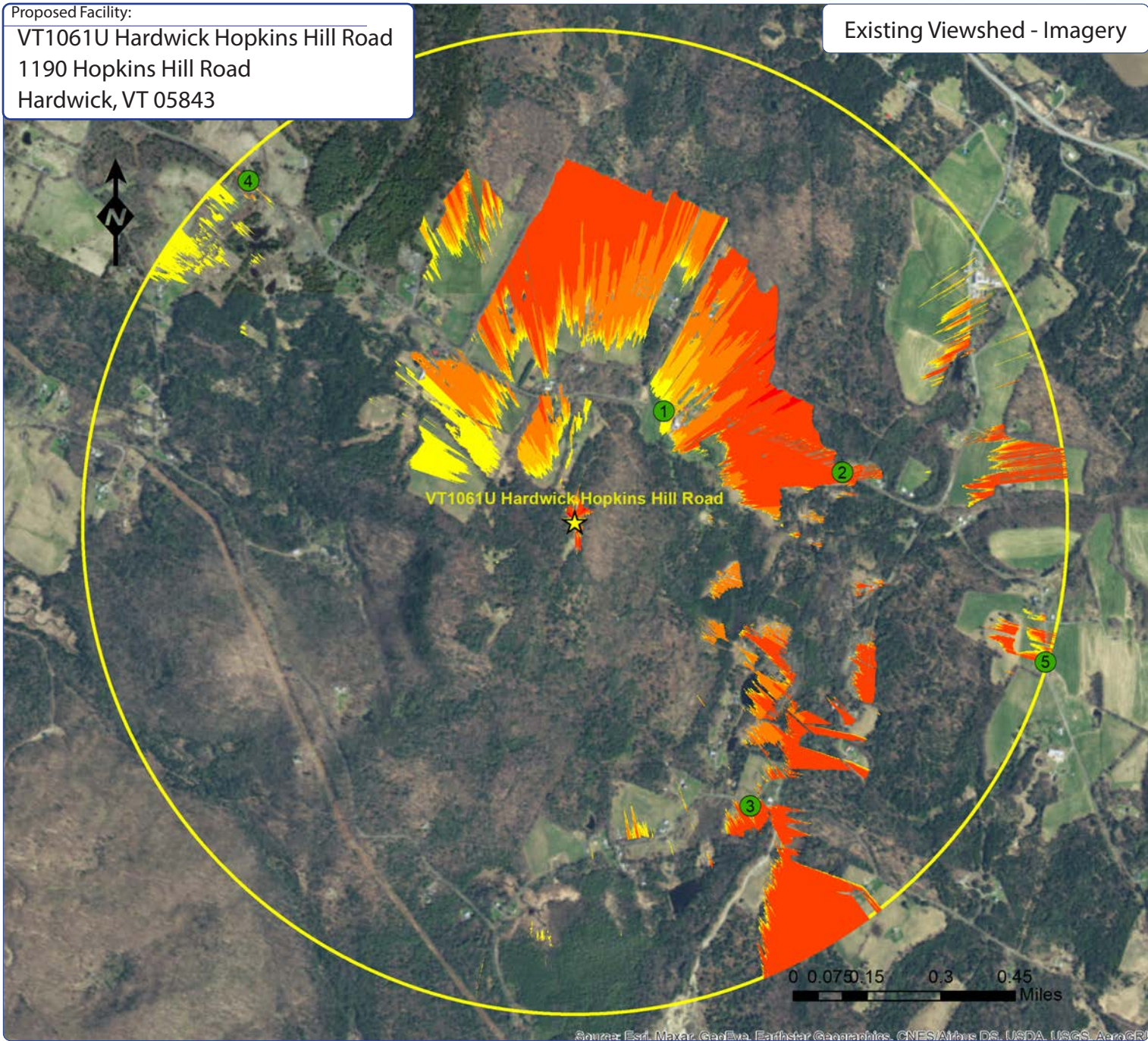
Viewshed analysis maps and representations contained herein depict where proposed facility may potentially be visible based on the best data available and site conditions at the time data was collected. This study does not claim to depict all locations from where the facility may be potentially visible.



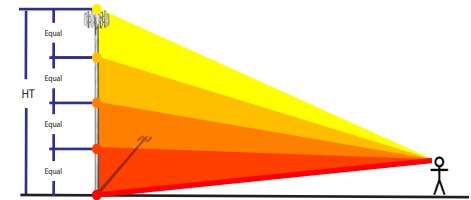
Proposed Facility:

VT1061U Hardwick Hopkins Hill Road
 1190 Hopkins Hill Road
 Hardwick, VT 05843

Existing Viewshed - Imagery



IVSview® Color Legend



★ Facility Location ○ 1 Mile Radius

- ⓧ Photo location -Balloon visible
- Year Round Visibility
- ⓧ Photo location -Balloon visible
- Obstructed Visibility
- ⓧ Photo location -Balloon NOT visible

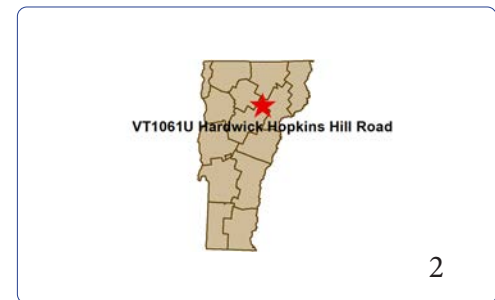
Tower Visibility			
Color	Location	% Vis	Acres
Yellow	Top 25%	1.54%	31.0
Orange	Top 50%	1.07%	21.5
Red-Orange	Top 75%	2.98%	59.9
Red	Top 100%	6.38%	128.2
	Base	0.06%	1.2
TOTAL		12.03%	241.8 Acres

Statistics:

PROJ_DESC=Geographic (Lat/Long) / WGS84 / arc degrees
 PROJ_DATUM=WGS84 PROJ_UNITS=arc degrees
 PIXEL WIDTH=0.0000013 arc degrees (+/- .6 ft)
 PIXEL HEIGHT=0.0000014 arc degrees (+/- .6 ft)
 RADIUS (FT)= 1 Mile
 TRANSMITTER_HEIGHT (Ft-AGL)= 130
 RECEIVER_HEIGHT (Ft-AGL)= 5 Ft
 PERCENT_VISIBLE (%)= 12.03%

Notes:

- map compiled by VSS, LLC on : 2/2/2021
- Tower location(lat/long NAD 83): 44.48332 -72.33782
- Data Sources noted on documentation page attached

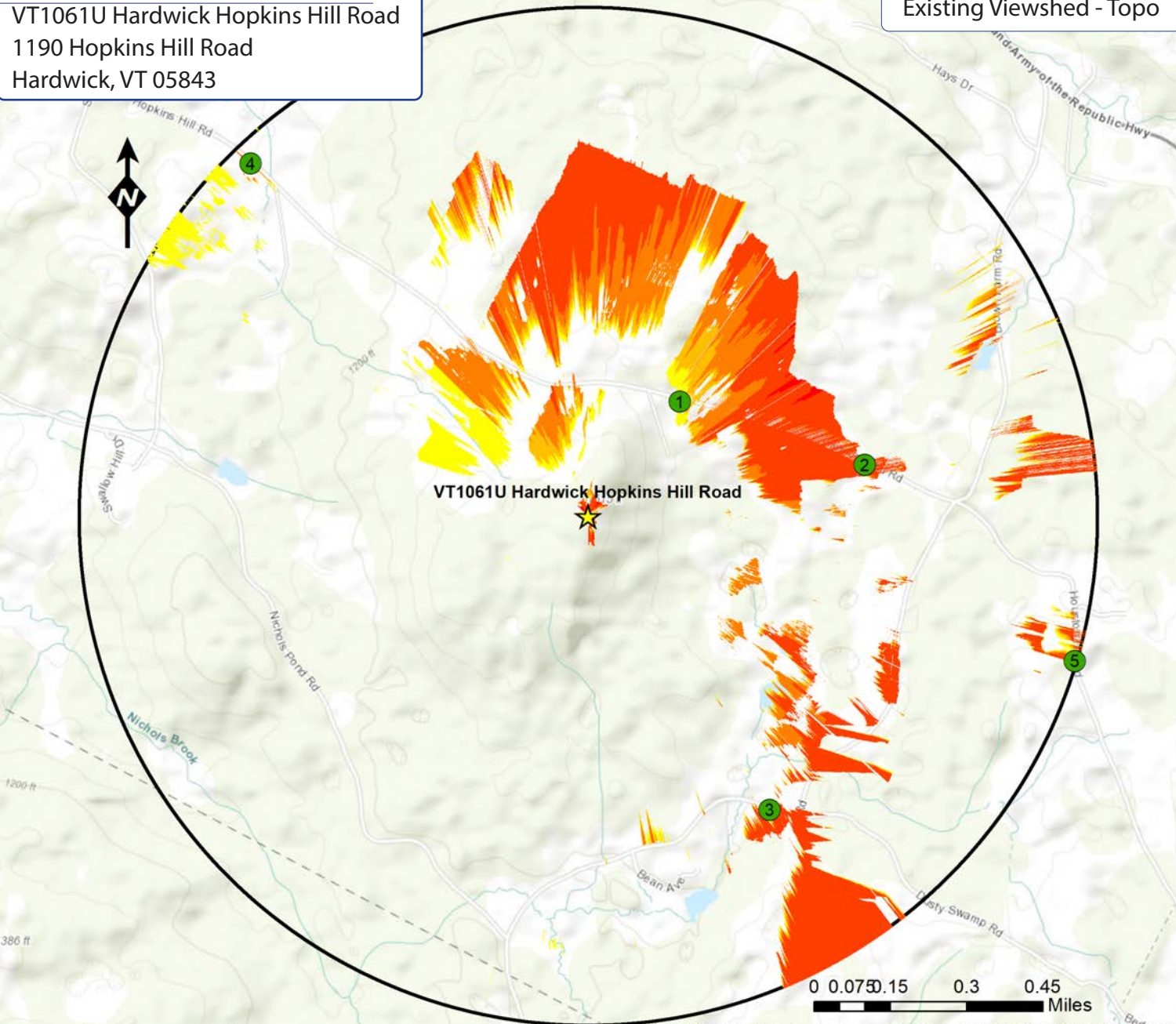


VSS-IVS- Interactive Viewshed Analysis output maps contained herein depict where proposed facility may potentially be visible based on the best and newest data publicly available at the time the data was collected. VSS does not claim to depict all locations from where the facility may potentially be visible and calculated output should be confirmed by site testing as needed.

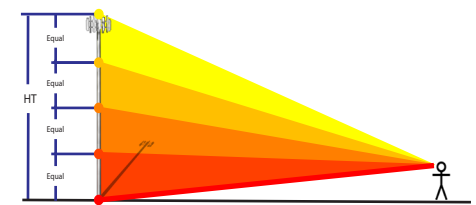


Proposed Facility:
 VT1061U Hardwick Hopkins Hill Road
 1190 Hopkins Hill Road
 Hardwick, VT 05843

Existing Viewshed - Topo



IVSview® Color Legend



- ★ Facility Location ○ 1 Mile Radius
- ⊗ Photo location -Balloon visible
- Year Round Visibility
- ⊗ Photo location -Balloon visible
- Obstructed Visibility
- ⊗ Photo location -Balloon NOT visible

Tower Visibility			
Color	Location	% Vis	Acres
Yellow	Top 25%	1.54%	31.0
Light Orange	Top 50%	1.07%	21.5
Orange	Top 75%	2.98%	59.9
Dark Orange	Top 100%	6.38%	128.2
Red	Base	0.06%	1.2
TOTAL		12.03%	241.8 Acres

Statistics:
 PROJ_DESC=Geographic (Lat/Long) / WGS84 / arc degrees
 PROJ_DATUM=WGS84 PROJ_UNITS=arc degrees
 PIXEL WIDTH=0.000013 arc degrees (+/- .6 ft)
 PIXEL HEIGHT=0.000014 arc degrees(+/- .6 ft)
 RADIUS (FT)= 1 Mile
 TRANSMITTER_HEIGHT (Ft-AGL)= 130
 RECEIVER_HEIGHT (Ft-AGL)= 5 Ft
 PERCENT_VISIBLE (%)= 12.03%

Notes:
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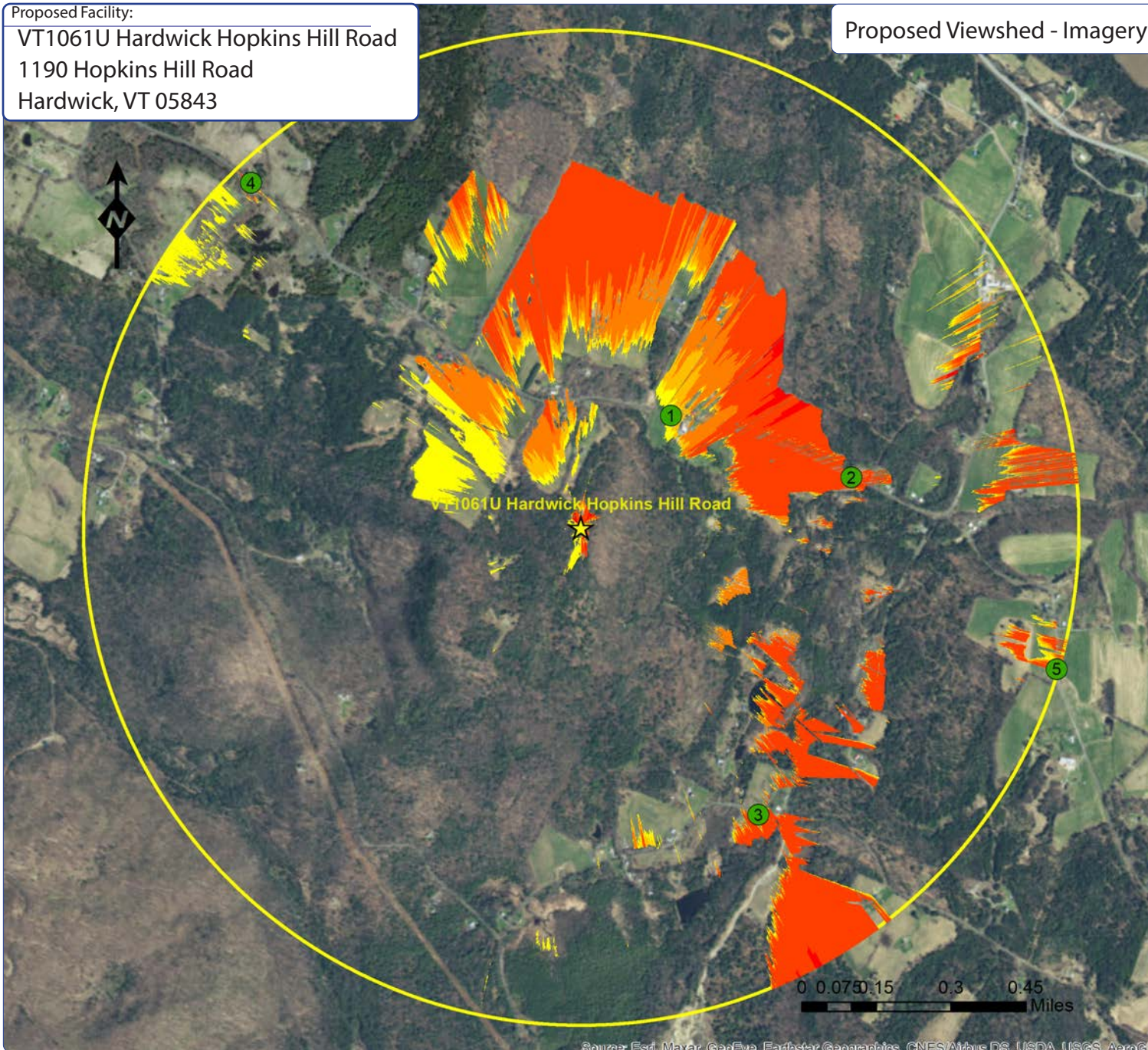
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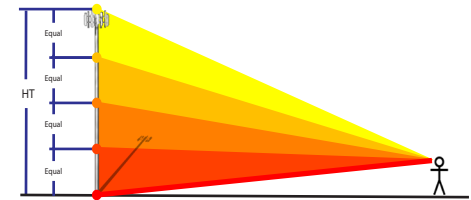
Proposed Facility:

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 Hardwick, VT 05843

Proposed Viewshed - Imagery



IVSview® Color Legend



★ Facility Location ○ 1 Mile Radius

- ⓧ Photo location -Balloon visible
- Year Round Visibility
- ⓧ Photo location -Balloon visible
- Obstructed Visibility
- ⓧ Photo location -Balloon NOT visible

Tower Visibility

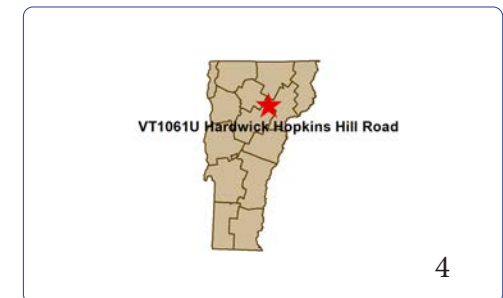
Color	Location	% Vis	Acres
Yellow	Top 25%	1.74%	35.0
Orange	Top 50%	0.99%	19.9
Red-Orange	Top 75%	2.41%	48.5
Red	Top 100%	7.16%	144.0
	Base	0.15%	3.1
TOTAL		12.46%	250.5 Acres

Statistics:

PROJ_DESC=Geographic (Lat/Long) / WGS84 / arc degrees
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 PIXEL WIDTH=0.0000013 arc degrees (+/- .6 ft)
 PIXEL HEIGHT=0.0000014 arc degrees (+/- .6 ft)
 RADIUS (FT)= 1 Mile
 TRANSMITTER_HEIGHT (Ft-AGL)= 140
 RECEIVER_HEIGHT (Ft-AGL)= 5 Ft
 PERCENT_VISIBLE (%)= 12.46%

Notes:

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- Tower location(lat/long NAD 83): 44.48332 -72.33782
- Data Sources noted on documentation page attached

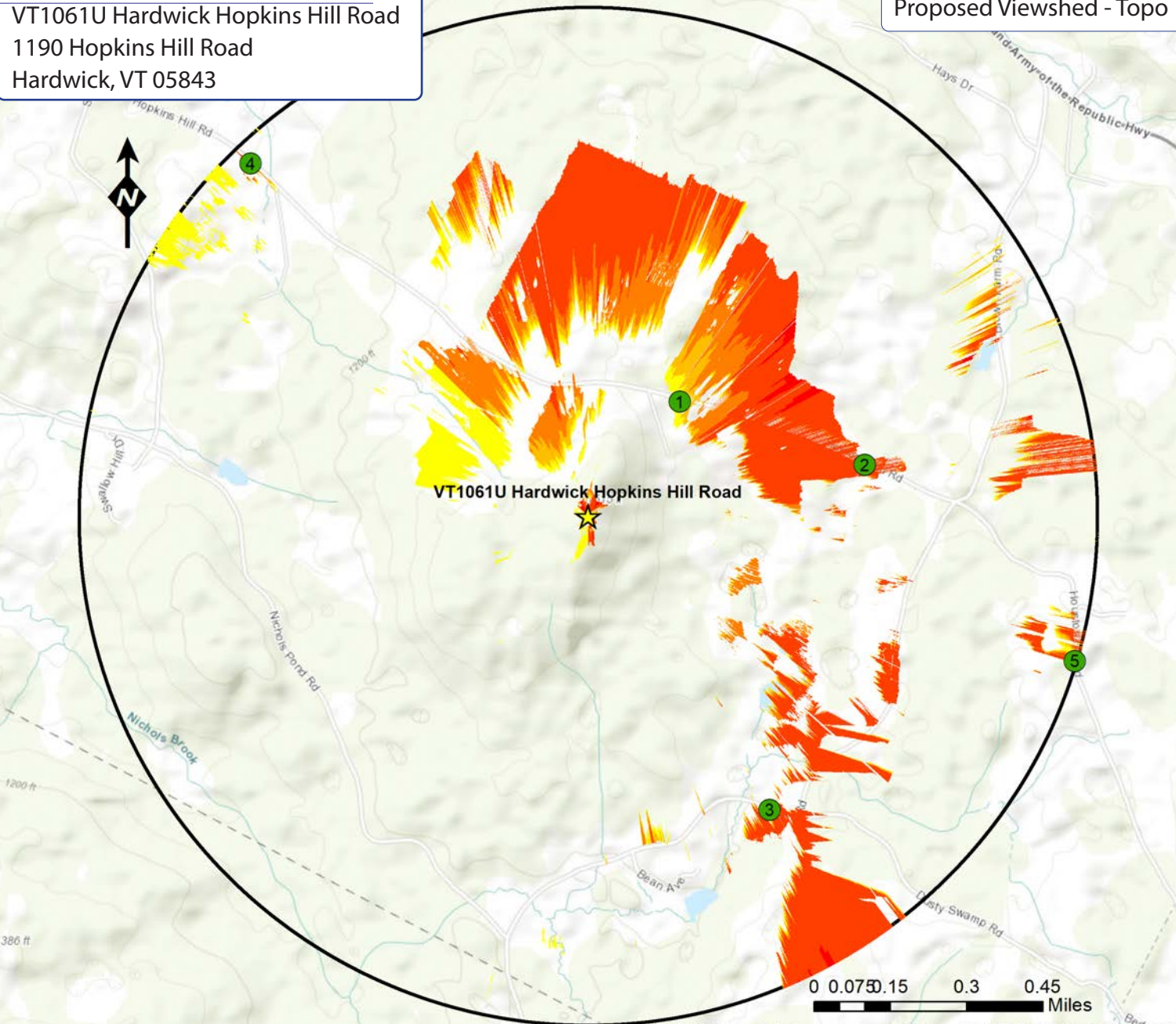


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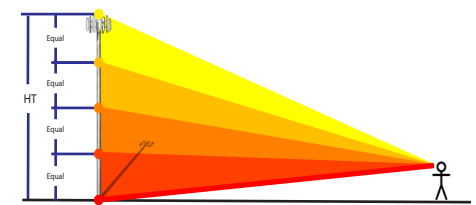


Proposed Facility:
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Proposed Viewshed - Topo



IVSview® Color Legend



- ★ Facility Location ○ 1 Mile Radius
- ⊗ Photo location -Balloon visible
- Year Round Visibility
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- Obstructed Visibility
- ⊗ Photo location -Balloon NOT visible

Tower Visibility			
Color	Location	% Vis	Acres
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 PERCENT_VISIBLE (%)= 12.46%

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 - Tower location(lat/long NAD 83): 44.48332 -72.33782
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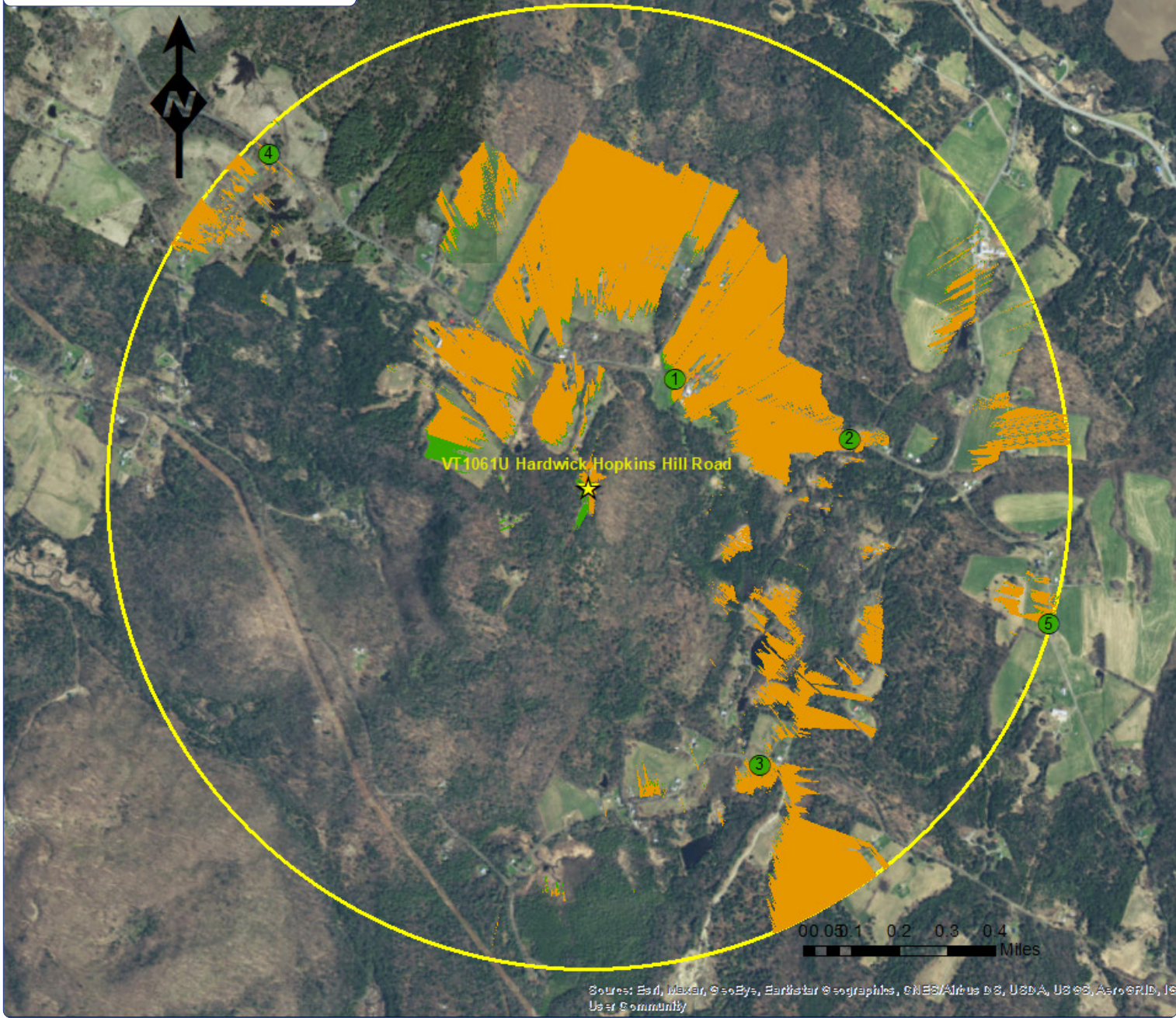


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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap





Comparison Viewshed - Imagery



Proposed Wireless Telecommunications Facility:

VT1061U Hardwick Hopkins Hill Road
 1190 Hopkins Hill Road
 Hardwick, VT 05843

Legend:

-  Facility Location
-  1 Mile Radius
-  Existing Tower Visibility
 12.03 % Visible 241.8 Acres
-  Proposed Additional Visibility
 0.43 % Visible 8.7 Acres

Statistics:

PROJ_DESC=Geographic (Lat/Long) / WGS84 / arc degrees
 PROJ_DATUM=WGS84 PROJ_UNITS=arc degrees
 PIXEL_WIDTH=0.0000013 arc degrees (+/- .6 ft)
 PIXEL_HEIGHT=0.0000014 arc degrees (+/- .6 ft)
 RADIUS (FT)= 1 Mile
 TRANSMITTER_HEIGHT (Ft-AGL)= 130 & 140
 RECEIVER_HEIGHT (Ft-AGL)= 5 Ft
 PERCENT_VISIBLE (%)= 12.03 & 12.46

Notes:

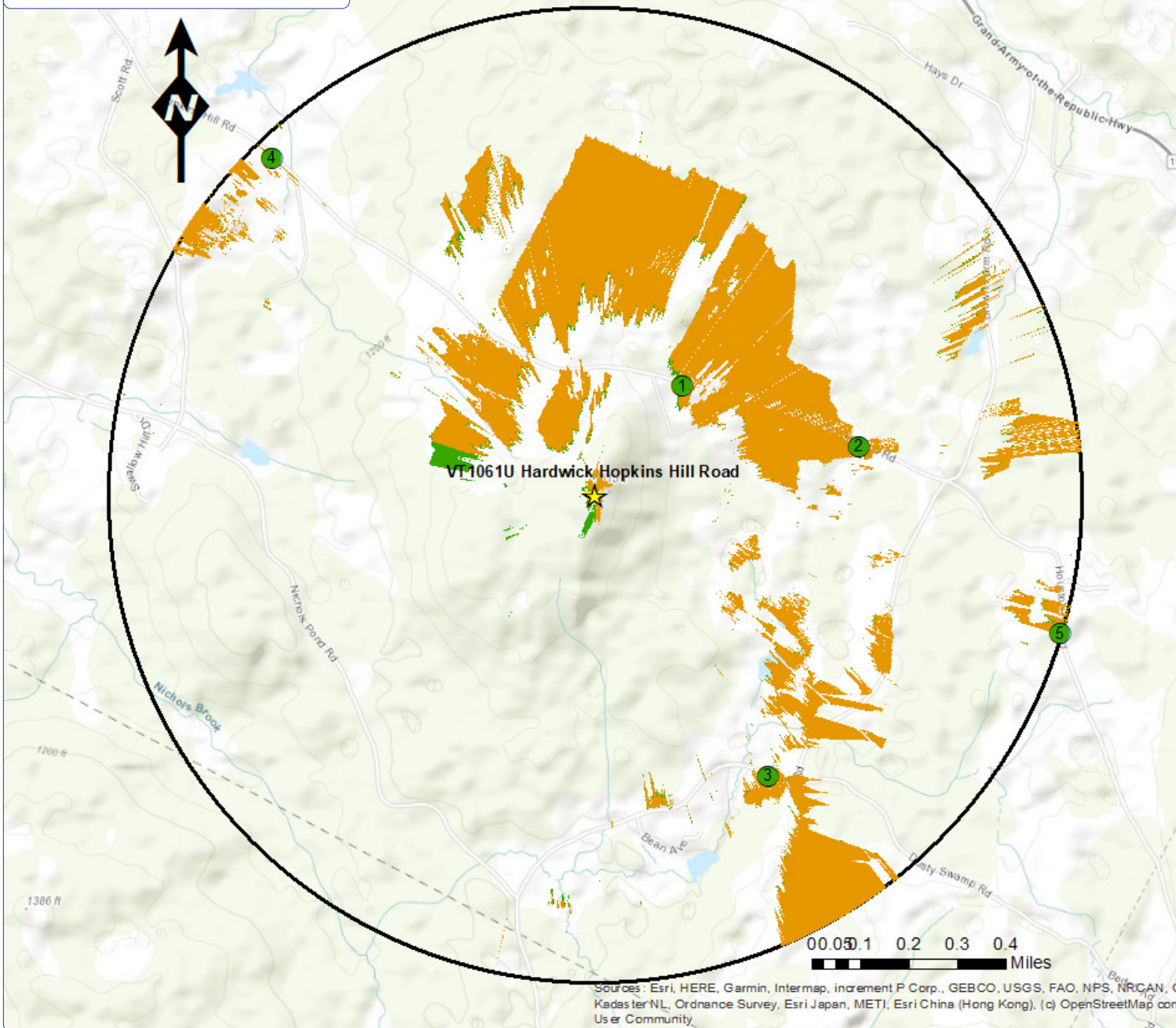
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- Tower location(lat/long NAD 83): 44.48332 -72.33782
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Comparison Viewshed - Topo



Proposed Wireless Telecommunications Facility:

VT1061U Hardwick Hopkins Hill Road

1190 Hopkins Hill Road

Hardwick, VT 05843

Legend:

★ Facility Location ○ 1 Mile Radius

Existing Tower Visibility
12.03 % Visible 241.8 Acres

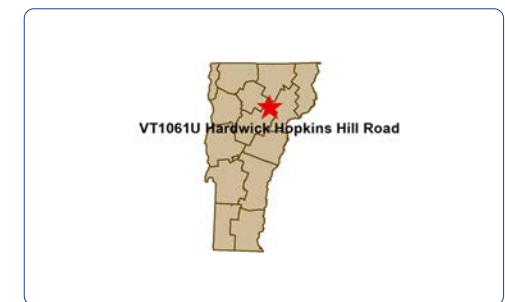
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 PERCENT_VISIBLE (%)= 12.03 & 12.46

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Ge...
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 User Community

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Photographic Simulation Package

Proposed Upgrade to Existing Wireless Telecommunications Facility:

VT1061U Hardwick Hopkins Hill
1190 Hopkins Hill Road
Hardwick, VT 05843

- Site photographs taken 1/31/2021

Package prepared by:

Virtual Site Simulations, LLC
24 Salt Pond Road
Suite C3
South Kingstown, Rhode Island 02879

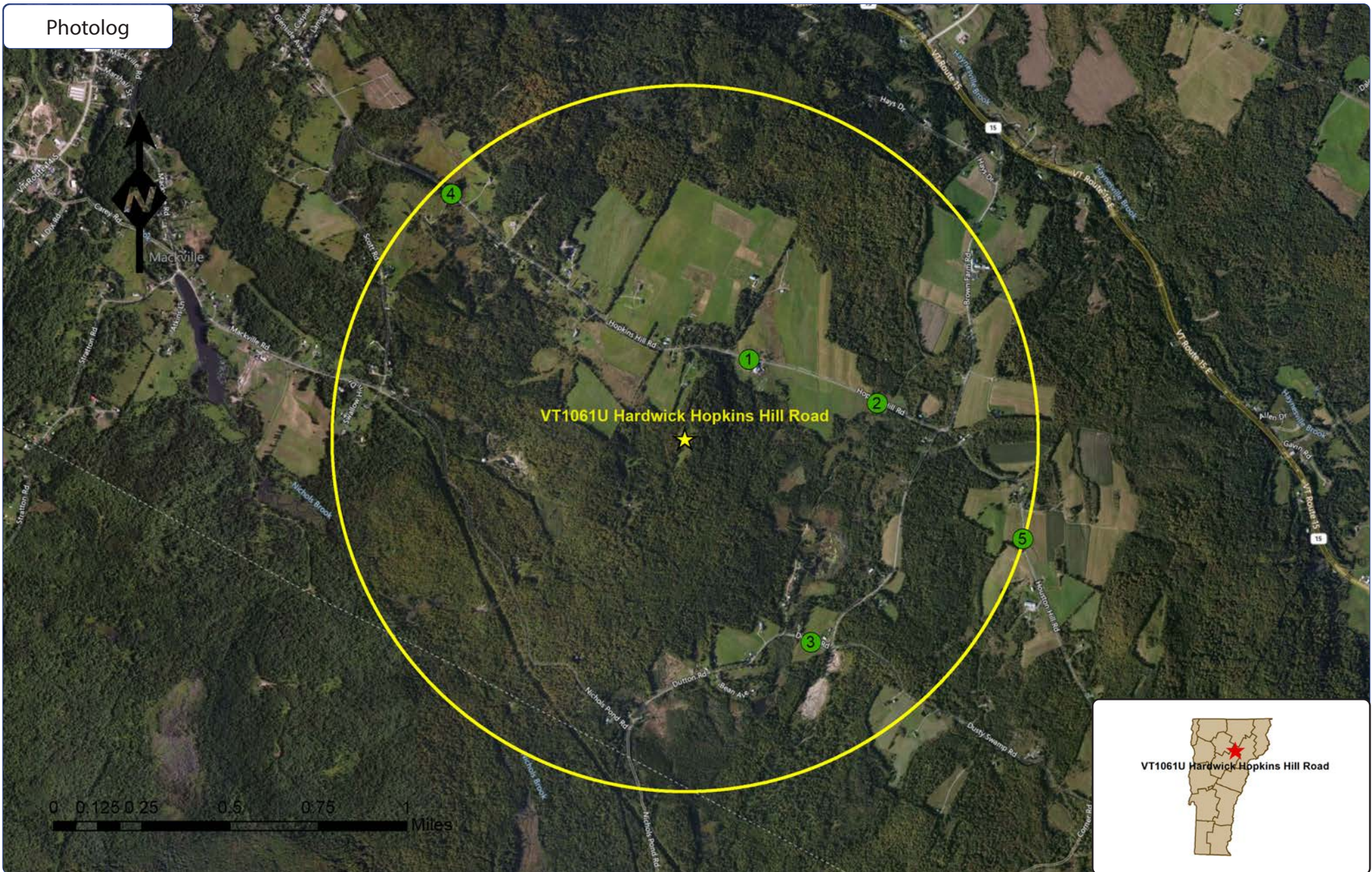
www.VirtualSiteSimulations.com
www.ThinkVSSFirst.com



Photo Simulations are for demonstration purposes only. It should not be used in any other fashion or with any other intent. The accuracy of the resulting data is not guaranteed and is not for redistribution



Photolog



Wireless Telecommunications Facility:

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 1190 Hopkins Hill Road
 Hardwick, VT 05843

Legend:

- ★ Facility Location ○ 1 Mile Radius
- ⊗ Photo location-Year Round Visibility
- ⊗ Photo location - Obscured Visibility
- ⊗ Photo location - NOT visible

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Existing



Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
1	Hopkins Hill Rd	44.48656	-72.33415	0.29 Miles	North-East	219	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
1	Hopkins Hill Rd	44.48656	-72.33415	0.29 Miles	North-East	219	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Existing



Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
2	Hopkins Hill Rd	44.48474	-72.32683	0.55 Miles	East	260	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
2	Hopkins Hill Rd	44.48474	-72.32683	0.55 Miles	East	260	Year Round

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Existing



Photo #	Approximate Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
3	Dutton Rd	44.47496 -72.33068	0.68 Miles	South-East	329	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Simulation



Photo #	Approximate Location	Gps Coordinates	Distance to site	Orientation	Bearing to site	Visibility
3	Dutton Rd	44.47496 -72.33068	0.68 Miles	South-East	329	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Existing



Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
4	Hopkins Hill Rd	44.49339	-72.35114	0.96 Miles	North-West	137	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Simulation



Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
4	Hopkins Hill Rd	44.49339	-72.35114	0.96 Miles	North-West	137	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Existing



Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
5	Houston Hill Rd	44.47915	-72.31852	0.99 Miles	East	287	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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Photo #	Approximate Location	Gps Coordinates		Distance to site	Orientation	Bearing to site	Visibility
5	Houston Hill Rd	44.47915	-72.31852	0.99 Miles	East	287	Year Round

Site: VT1061U Hardwick Hopkins Hill Road

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