

FIBER OPTIC NETWORK AND STATEWIDE RADIO SYSTEM



Fiber optic backbone and electronics status

Project activities

- Closeout of project expected Q1 2015
- Network documentation system—implementation continues
- Cyber security firewalling—in progress as part of perimeter network redesign
- Waitsfield Telecom— Final interconnection to be completed Q2-2015
- Examining efficiencies to connect to additional utility customers

Field work

- Montpelier and Barre fiber installs complete; transitioning traffic on to the electronics
- Mendon to Snowshed construction underway
- VELCO continues to support distribution utility (DU) integration efforts—80% complete
 - 21 fiber electronic nodes are on order to complete GMP North connectivity
 - Remaining nodes planned for installation based on fiber readiness
 - GMP South—80 of 84
 - GMP North—22 of 49
 - VEC—13 of 13
 - Stowe, Enosburg Falls and Northfield—4 of 5
- Telcos are now leveraging network and interconnections for carrier access
- Continue to balance network and construction obligations for DUs and Carriers

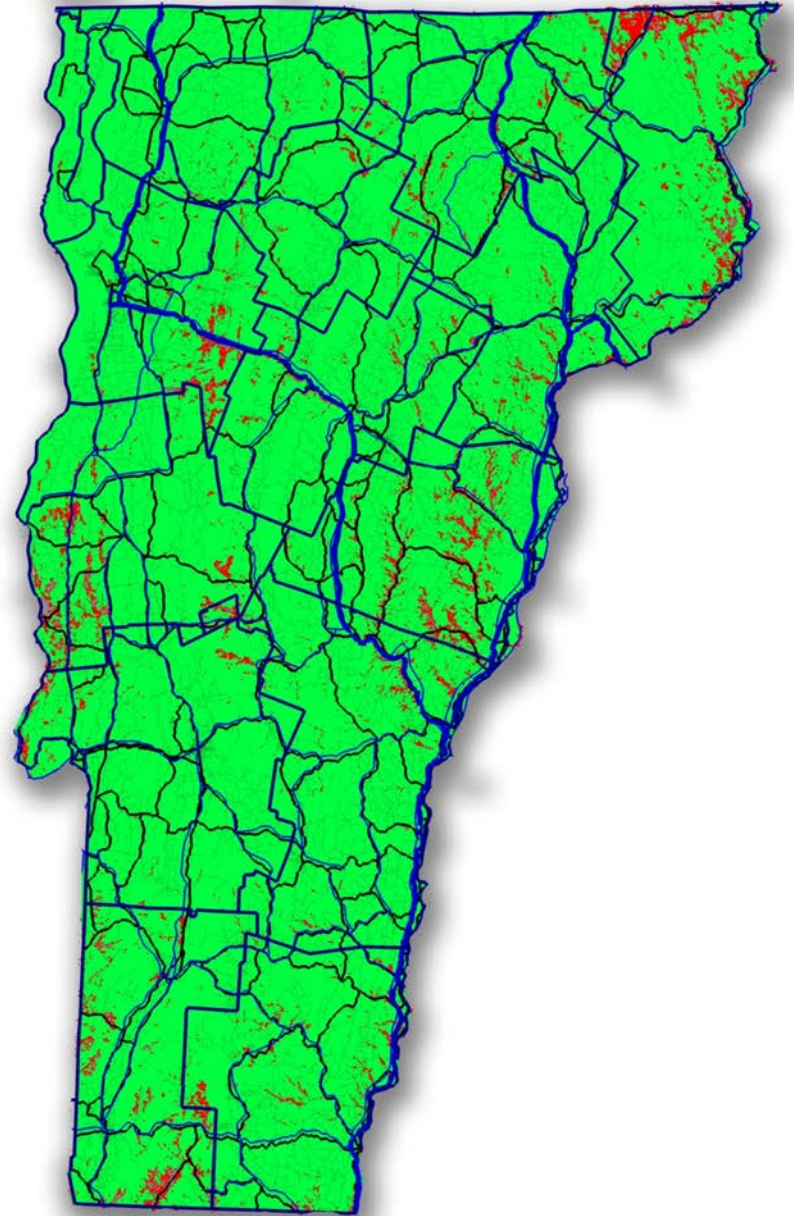
Statewide Radio Project status

Asset acquisition

- Acquired four GMP radio sites currently used by VELCO as part of SRS

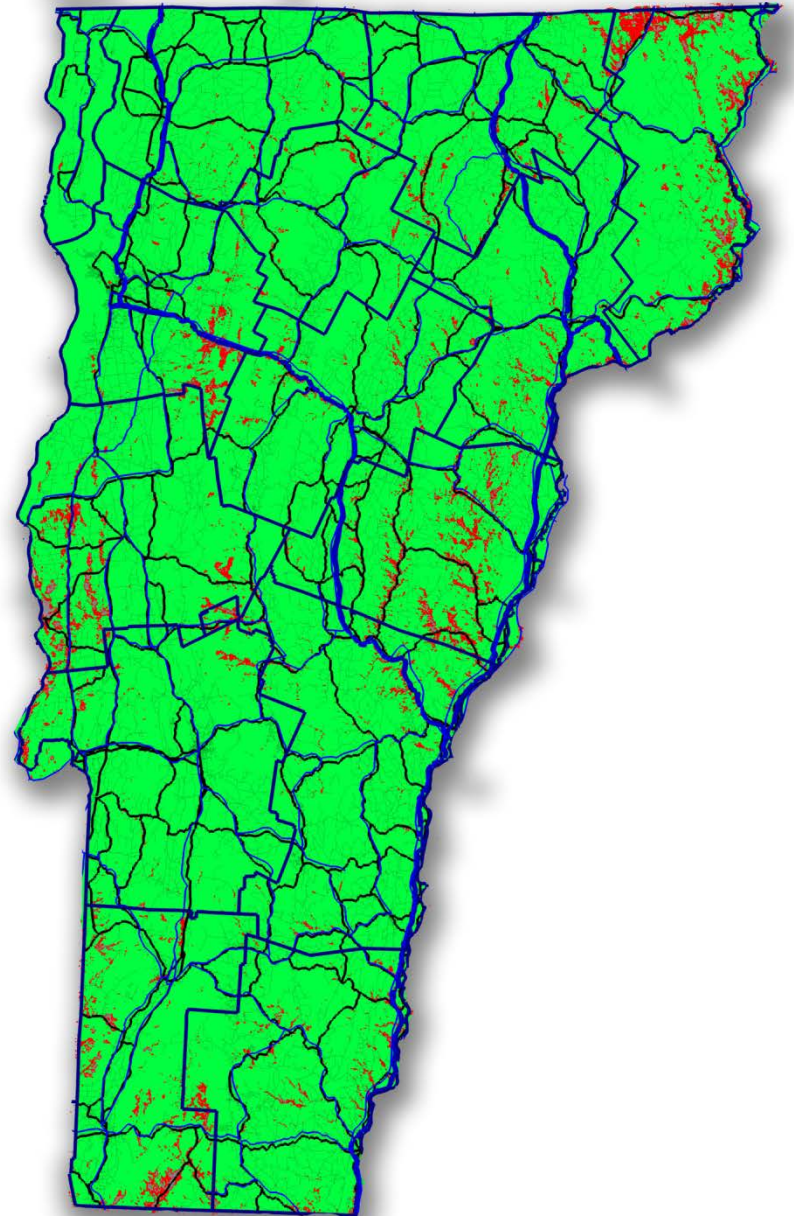
Field work & construction

- Rockingham—commissioned
- Additional contract resources engaged for end user support, site evaluation, and construction.
- Project closeout of original project scope to be completed in January 2015
 - Ongoing work to be completed as part of separate effort



Proposed SRS sites

SITE ID	SITE NAME	TOWN
32	Olga	Wilmington
37	Danby	Danby
38	E. Corinth	E. Corinth
39	Glebe	Londonderry
41	Hurricane	Hartford
42	Rockingham	Rockingham
43	Putney	Putney
44	Chelsea	Chelsea
45	Stafford	Stafford
46	Marshfield	Marshfield
48	Rochester	Rochester
49	Thetford	Thetford
50	Huntington	Huntington
51	Orwell	Orwell
52	Chester	Chester
53	W. Rupert	Rupert
54	Vershire	Vershire
55	Richmond	Richmond
57	Kelsey	South Royalton



Statewide Radio System Status

Summary

- 93% transmission and distribution line coverage
- Additional 16 sites planned targeting User Group coverage requests and line miles
 - Additional sites would increase DU wireline coverage to an estimated 97%

Customer feedback

- Accelerate coverage improvements – urgent
- Implement Storm Channel changes to enable immediate access
- Utilities with internal technical support experiencing best performance
- Requests of VELCO to provide additional end-user support
- Requests of VELCO to provide additional training – especially after initial users become comfortable with vehicle-mounted radios



Statewide Radio System Performance – Damon

Network troubles experienced

- Exceptional mountain-top icing
- Okemo microwave link failed 12/16 – 12/25
- Northeast Mountain microwave link failed 12/9 – 12/11, and 12/17
- Intermittent system congestion (all channels busy)
- Brownell radio site off line for three hours (0630 – 0900) on 12/15

Other contributing troubles

- Lack of outdoor speakers
- Improperly installed and/or maintained antennae
- Poor location of radio control
- Radio programming incorrect on mobile or portable radios
- Dispatch consoles passing one-way audio

Statewide Radio Network

Winter Storm Damon call performance

Site Name	Total Call seconds	No of calls	No of calls queued
01 - Richford VEC	32866	531	0
02- Stowe	30250	506	3
03 - Mt Irish	148607	2403	39
04 - Bradford	17960	284	1
05- Waterbury	68843	1038	9
06 - Brownell Mt	219792	3481	103
07 - Lunenburg	13137	212	2
08 - Cambridge	70774	1183	29
09 - Converter	35170	587	7
10 - Crane Mt.	72247	1183	9
11 - Lyndonville	20761	290	1
12 - French Hill	130766	2083	47
13 - Wenlock	14441	246	0
14 - Bridgewater	45290	677	4
16 - Hardwick	51460	833	5
17 - Jay Pk	109133	1852	30
18 - Lincoln Pk	144570	2182	39
19- Anthony	50833	810	1
20 - Chipman Hill	122927	1738	31
21 - MT. Equinox S	105112	1598	14
22 - Pinnacle	46914	788	19
23 - Mt. Ascutney	48795	792	7
24 - Randolph	71731	1039	3
25 - Burke Mt	50018	809	30
26 - W. Brattleboro	18012	257	3
27 NE Mountain	178644	2556	50
28 - Nelson Hill	39035	669	14
29 - Okemo Mt.	123694	1934	16
30 - Haverhill	17114	270	1
31 - Sharon	99472	1390	14
32- Mt. Olga	21648	353	1
33 - Davis Hill	93881	1537	27
34 - Pico Pk	143142	2114	34
35 - Hanley Mtn	173195	2600	32
36 - Green Hill	16785	281	4
37- Danby	102913	1602	7
Incomplete Data	285893	4396	58

Total Call Hours	843.2847222	
Total Calls		47104
Total Queued Calls		694

Statewide Radio System Performance – Damon

- DUs experienced periodic inability to place calls when working along service territory boundaries
 - Statewide scope, level of traffic and geographic location of work led to system congestion
 - Made real-time adjustments made to call queuing process to prevent further congestion
- **Immediate-term strategy** – equipment ordered (\$500k) to secure additional channels to 12 border area sites. Q1 deployment scheduled:
 - Brownell, NE Mt., French, Lincoln, Mt. Irish, Pico, Hanley, Chipman, Jay, Burke, Davis, Pinnacle
- **Near-term strategy** – reconvene as an OC subcommittee DU/VELCO group to revisit SRS performance cost/benefit analysis; develop and implement recommendations
- **Long-term strategy** – Secure statewide channel additions in 2015