

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: September 6, 2012

AT (OFFICE): NHPUC

FROM: Randy Knepper, Director, Safety & Security



SUBJECT: Docket No. DT 11-280 New Hampshire Optical Systems, Inc.
Petition for a License to Construct and Maintain Fiber Optic Cables Over
and Across Mascoma River in Lebanon and Canaan, and Indian River in
Canaan, New Hampshire

TO: Debra Howland, Executive Director
Kate Bailey, Director, Telecom Division
Lynn Fabrizio, Staff Attorney

This is memorandum 2 of 3 regarding DT 11-280. The Safety Division's review of the above petition consisted of the following elements:

- Petition contents and history
- Review of land ownership of existing pole structures.
- Review of public need and public impact, including applicability of State regulations
- Conclusions and Recommendations

1. Petition contents and history

- On December 20, 2011, New Hampshire Optical Systems, Inc. (NHOS) filed a petition to construct and maintain fiber optic cables over and across two bodies of water. Seven of the proposed crossings will be constructed using a 144 single mode fiber cable (fiber) bundled with a 0.25 inch diameter extra high strength support cable. The bundle fiber will have a combined weight of 0.27 pound per foot and nominal diameter of 1 inch.
- The water crossings are located over:
 1. the Mascoma River in Lebanon between Pole 110D/14 and Pole 110D/10 along a path that parallels the westerly side of Route 4 in the vicinity Route 4A and Sunset Rock Rd.
 2. the Mascoma River in Lebanon between Pole 203/2 and Pole 203/3 along a path that parallels a hypothetical line that connects Hardy Hill Rd cul de sac to Riverside Drive. This is approximately 125 feet easterly of an existing covered bridge.

3. the Mascoma River in Lebanon between Pole 1/32 and Pole 1/33 along a path that parallels Bank Street Extension in the vicinity of Riverdale Dr.
 4. the Mascoma River in Lebanon between Pole 119/1 and Pole 225/3 along a path that more or less parallels Hanover St (Route 120).
 5. the Mascoma River in Canaan between Pole 412/148 and Pole 412/149 along a path that parallels the southerly side of Route 4 in the vicinity of the intersection of West Farms Rd and Blackwater Rd.
 6. the Indian River in Canaan between Pole 7613/34 and Pole 7613/33 along a path that parallels the westerly side of Dorchester Road (Route 118).
 7. the Indian River in Canaan between Pole 116/35 and Pole 116/34 along a path that parallels the southerly side of Route 4 and is located between Roberts Rd and Upper Grafton Rd.
- On February 13 and 23, 2012, New Hampshire Optical Systems, Inc. (NHOS) filed revised petitions on planned construction following discussion with Staff affecting crossings 2, 3, 4, 5 and 6 above.
 - NHOS' construction is a portion of the Network New Hampshire Now Middle Mile Fiber network; a project that will extend broadband capability in areas of New Hampshire that have limited or no broadband services. This project is being funded by a grant from the Federal Broadband Technology Opportunities Program. These crossings are cross referenced to those in Segment 15 of the Middle Mile Fiber network that connects from Concord to Lebanon. An annotated map of this portion is labeled as Attachment 1.
 - NHOS was certified and authorized to provide competitive local exchange services in New Hampshire on August 13, 2010 by the PUC (*see DT 10-215 authorization CL-08-002-10*).
 - This construction does not require New Hampshire Department of Environmental Services or New Hampshire Department of Transportation permits.
 - Vertical clearances over the water crossings have been calculated using the FEMA 10 year flood profile. Where the water crossing is within 10 feet horizontally of an existing bridge, the vertical clearances over the water crossings have been calculated from the bridge structure. Vertical distances on the submitted petition indicate final attachment heights and clearances, once all utilities have completed the make-ready work necessary to provide space for the NHOS fiber.

- The maximum sags of the fiber and minimum clearances for the proposed crossings were determined and designed using the above design criteria.
- The existing utility crossings over these bodies of waters have not been researched for existing licenses from the New Hampshire Public Utilities Commission.
- NESC heavy load conditions (0 degree F, 4.0 pound per sq ft wind loading and 0.5 inch radial ice loading) were the prevailing loading condition when verifying the sag conditions with required clearances
- NHOS states that based on its research and field inspection these water crossings are not suitable for sail boating. This consideration has been taken into account in the engineering and design.
- The water crossing locations listed in the petition are listed as Public Rivers and Streams on the DES official list of public waters in which RSA 371:17 is applicable *see*
<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/olpw.pdf>

1. A. Details of Each Crossing

(for purposes of this memo pole attachees are considered any utility or municipal cabling that are attached to the pole other than the electric company).

1) NHOS will install fiber optic over the Mascoma River in Lebanon between Pole 110D/14 and Pole 110D/10 along a path that parallels the westerly side of Route 4 in the vicinity Route 4A and Sunset Rock Rd. The pole to pole span is 540 feet while the river span is 154 feet. The southern pole is jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and is approximately 44 feet in height. The northern pole is solely owned by Fairpoint and is approximately 42 feet in height. NHOS will be the first attachee from the electric space on the southern pole 110 D/10 and will be placed directly over CATV at a distance of 12 inches at both poles. All other attachees (CATV and telecommunication) will be relocated in a make ready process.

2) NHOS will install fiber optic over the Mascoma River in Lebanon between Pole 203/2 and Pole 203/3 along a path that parallels a hypothetical line that connects Hardy Hill Rd cul de sac to Riverside Drive. This is approximately 125 feet easterly of an existing covered bridge. The pole to pole span is 158 feet while the river span is 50 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 32 feet in height. NHOS will be the first attachee from the electric space and will be

placed directly over another fiber optic cable at a distance of 12 inches at both poles. All other attachées (CATV and telecommunication) will be relocated in a make ready process.

3) NHOS will install fiber optic over the Mascoma River in Lebanon between Pole 1/32 and Pole 1/33 along a path that parallels Bank Street Extension in the vicinity of Riverdale Dr. The pole to pole span is 126 feet while the river span is 74 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 39 feet in height at the west pole and 34 feet in height at the east pole. NHOS will be the third attachée from the electric space and will be placed directly below fire alarm cable at a distance of 12 inches at both poles. All other attachées (CATV, fiber optic and telecommunication) will be relocated in a make ready process. Including NHOS there will be 6 attachées

4) NHOS will install fiber optic over the Mascoma River in Lebanon between Pole 119/1 and Pole 225/3 along a path that more or less parallels Hanover St (Route 120). The pole to pole span is 102 feet while the river span is 51 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 34 feet in height at the northern pole and 51 feet in height at the southern pole. NHOS will be the second attachée from the electric space and will be placed directly below fire alarm cable at a distance of 12 inches at both poles. All other attachées (CATV, fiber optic and telecommunication) will be relocated in a make ready process. Including NHOS there will be 5 attachées.

5) NHOS will install fiber optic over the Mascoma River in Canaan between Pole 412/148 and Pole 412/149 along a path that parallels the southerly side of Route 4 in the vicinity of the intersection of West Farms Rd and Blackwater Rd. The pole to pole span is 260 feet while the river span is 69 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 39 feet in height at the eastern pole and 40 feet in height at the western pole. NHOS will be the first attachée from the electric space and will be placed directly above CATV at a distance of 12 inches at both poles. All other attachées (fiber optic) will be relocated in a make ready process. Including NHOS there will be 4 attachées.

6) NHOS will install fiber optic over the Indian River in Canaan between Pole 7613/34 and Pole 7613/33 along a path that parallels the westerly side of Dorchester Road (Route 118). The pole to pole span is 223 feet while the river span is 46 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 35 feet in height. NHOS will be the first attachée from the electric space and will be placed directly above CATV at a distance of 12 inches at both poles. Including NHOS there will be 3 attachées.

7) NHOS will install fiber optic over the Indian River in Canaan between Pole 116/35 and Pole 116/34 along a path that parallels the southerly side of Route 4 and is located between Roberts Rd and Upper Grafton Rd. The pole to pole span is 213 feet while the river span is 48 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 35 feet in height. NHOS will be the first attachee from the electric space and will be placed directly above CATV at a distance of 12 inches at both poles. Including NHOS there will be 3 attachees.

2. Review of land ownership of existing pole structures.

NHOS states that each of the proposed water crossings will be placed on existing utility poles within the existing public-right-of way.

3. Review of public need and public impact.

The Safety Division's review of the petition finds the petition to be in conformance with the applicable sections of the NESC C2-2002.

Staff has determined, after reviewing the petition and existing field conditions, that the water crossings require a license under RSA 371:17. Staff concurs with the methodology utilized by NHOS in determining vertical clearances from existing bridge structures, where the crossing is 10 feet within an existing bridge, as the clearance will be greater than utilizing the FEMA 10 year flood profile. Staff notes that existing water crossing licenses, for the other utilities located on the poles utilized by NHOS, have not been researched in the interest of expediting this petition. This is based on NHOS' timeline dictated by Federal funding. Finally, Staff concludes that NHOS has demonstrated a public need for the proposed crossings and that approval of the petition for a license of the proposed crossings is consistent with the public interest.

4. Recommendations and Conclusions.

The Safety Division recommends approval of New Hampshire Optical Systems, Inc.'s petition for a license to construct and maintain fiber optic cables over and across Mascoma River in Lebanon and Canaan, New Hampshire and Indian River in Canaan, New Hampshire with the following conditions:

- a) The Commission should require that all future alterations to the crossings that may affect the public conform to the requirements of both the 2002 and 2007 editions of the NESC and be resubmitted to the Commission 60 days prior to the alteration.

- b) New Hampshire Optical Systems, Inc. should be required to maintain and operate the crossings in conformance with the NESC or risk future revocation of the license.**