

STATE OF NEW HAMPSHIRE

Inter-Department Communication

DATE: September 5, 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 at eleven locations described as across Winnepesaukee River in Franklin and Laconia, Mink Brook in Hanover, Contoocook River in Concord, Squam and Pemigewasset Rivers in Ashland, and Indian and Mascoma Rivers in Canaan, New Hampshire

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

This is memorandum 1 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 seven bodies of water. Eleven of the proposed crossings will be constructed using a 288 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 0.31 pound per foot and nominal diameter of 1.1 inches.
- The water crossings are located over:
 1. the Winnepesaukee River in Franklin between Pole 1/22 and Pole 1/23 along a path that parallels the southerly side of Central Street bridge (Route 3 and 11) in the vicinity of Peabody Rd and River Street.

2. the Winnepesaukee River in Franklin between Pole 1/43 and Pole 1/42 along a path that parallels the southerly side of the Central Street (Route 3 and 11) bridge in the vicinity of East Bow St.
 3. the Winnepesaukee River in Laconia between Pole 180/17 and Pole 180/16 along a path that parallels the easterly side of New Salem St bridge in the vicinity of the intersection of Winnisquam Avenue and Fair St.
 4. the Mink Brook in Hanover between Pole 197/3 and Pole 197/2 along a path that parallels a dirt access road that extends from Buck Rd but does not cross Mink Brook in the vicinity of Lebanon St (Route 120).
 5. the Mink Brook in Hanover between Pole 83/4 and Pole 83/3 along a path that parallels the westerly side of Great Hollow Road in the vicinity of the intersection of Greensboro Rd and Etna Rd.
 6. the Contoocook River in Concord between Pole 736/1 and Pole 554/1 along a path that parallels the westerly side of the Village Street (Route 3) bridge.
 7. the Squam River in Ashland between Pole 4/7 and Pole 4/6 along a path that parallels the northerly side of the Winnepesaukee Scenic Railroad Bridge.
 8. the Pemigewasset River in Ashland between Pole 380/453 and Pole 380/452 approximately 200 feet northerly of the Daniel Webster Highway bridge in the vicinity of North Ashland Road.
 9. the Indian River in Canaan between Pole 116/28 and Pole 116/27+ along a path that parallels the southerly side of Route 4 near Gristmill Hill Rd.
 10. the Mascoma River in Canaan between Pole 116/82 and Pole 116/81 along a path that parallels the northerly side of Route 4 in the vicinity of Lafortune Rd.
 11. the Mascoma River in Canaan between Pole 412/177 and Pole 412/178 along a path that parallels the westerly side of Route 4 in the vicinity of Goose Pond 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 1,2,4,5,6, and 9 above. On March 2, 2012, New Hampshire Optical Systems, Inc. (NHOS) filed a revised petition on planned construction following discussion with Staff affecting crossing 8 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 crossing 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 conservatively calculated from the bridge structure which in all cases will meet the required vertical clearances above the water required by the NESC code. 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 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, with the exception of the Pemigewasset River in Ashland, 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 Winnepesaukee River in Franklin between Pole 1/22 and Pole 1/23 along a path that parallels the southerly side of Central Street bridge (Route 3 and 11) in the vicinity of Peabody Rd and River Street. The pole to pole span is 201 feet while the river span is 181 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 35 feet of height. NHOS will be the second attachee from the electric space and will be placed directly under fire alarm cable at a distance of 12 inches. All other attachees will be relocated in a make ready process. There is a CATV cable below NHOS and a guy cable used to support the span on the pole as well as CATV.

2) NHOS will install fiber optic over the Winnepesaukee River in Franklin between Pole 1/43 and Pole 1/42 along a path that parallels the southerly side of the Central Street (Route 3 and 11) bridge in the vicinity of East Bow St. The pole to pole span is 150 feet while the river span is 66 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 placed directly under secondary electric cable by 10 feet. There are no relocations required during make ready process. There is a single telecommunication cable that will be below NHOS and separated by the required 12 inches.

3) NHOS will install fiber optic over the Winnepesaukee River in Laconia between Pole 180/17 and Pole 180/16 along a path that parallels the easterly side of New Salem St bridge in the vicinity of the intersection of Winnisquam Avenue and Fair St. The pole to pole span is 223 feet while the river span is 172 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 34 feet in height. NHOS will be the second attachee from the electric space and will be placed directly under fire alarm cable at a distance of 12 inches. All other attachees will be relocated in a make ready process. There is a CATV cable below NHOS and a telecommunication cable.

4) NHOS will install fiber optic over the Mink Brook in Hanover between Pole 197/3 and Pole 197/2 along a path that parallels a dirt access road that extends from Buck Rd but does not cross Mink Brook in the vicinity of Lebanon St

(Route 120). The pole to pole span is 208 feet while the river span is 30 feet. The poles are jointly owned by Liberty Utilities (formerly National Grid at the time of the petition) and Fairpoint Communications and are approximately 38 feet in height. NHOS will be the first attachee from the electric space and will be placed at a distance of 12 inches from the next fiber optic attachee. All other attachees will be relocated in a make ready process. There are a total of eight attachees including NHOS.

5) NHOS will install fiber optic over the Mink Brook in Hanover between Pole 83/4 and Pole 83/3 along a path that parallels the westerly side of Great Hollow Road in the vicinity of the intersection of Greensboro Rd and Etna Rd. The pole to pole span is 133 feet while the river span is 26 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 position from the electric space and will be placed at a distance of 12 inches from the above fiber optic attachee on the northern pole. On the southern side of the brook crossing the attachment point will not be the pole but the push brace and NHOS will be the second position vertically away from the electric space. The push brace will keep the wires from crossing each other. All other attachees will be relocated in a make ready process. There are a total of five attachees including NHOS.

6) NHOS will install fiber optic over the Contoocook River in Concord between Pole 736/1 and Pole 554/1 along a path that parallels the westerly side of the Village Street (Route 3) bridge. The pole to pole span is 221 feet while the river span is 188 feet. The poles are jointly owned by Unitil Electric and Fairpoint Communications and are approximately 42 feet in height. NHOS will be placed directly under fiber alarm cable and separated by the required 12 inches. NHOS will be the second attachee from the electric space. All other attachees will be relocated in a make ready process. There is a CATV cable below NHOS and a guy cable used to support the span on the pole as well as CATV.

7) NHOS will install fiber optic over the Squam River in Ashland between Pole 4/7 and Pole 4/6 along a path that parallels the northerly side of the Winnepesaukee Scenic Railroad Bridge. The pole to pole span is 348 feet while the river span is 62 feet. The poles are singly owned by Ashland Electric and are approximately 37 feet in height on the northwest pole and 26 feet in height on the southwest pole. NHOS will be placed directly under the secondary electric at 40 inches below the electric space and will be the only attachee.

8) NHOS will install fiber optic over the Pemigewasset River in Ashland between Pole 380/453 and Pole 380/452 approximately 200 feet northerly of the Daniel Webster Highway bridge in the vicinity of North Ashland Road. The pole to pole span is 409 feet while the river span is 321 feet. The northwest pole is jointly owned by New Hampshire Electric Cooperative and Fairpoint Communications and is approximately 28 feet in height. The southwest pole is jointly owned by Ashland Electric and Fairpoint Communications and is approximately 25 feet in height. NHOS will be placed directly over CATV with 12 inches separation and will be the first attachee from the electric space. No attachees will need to be relocated in a make ready process. There is a telecommunication cable that spans the river at the lowest vertical position. The 22 foot vertical clearance is maintained from the Pemigewasset River as is required for sailboating capable rivers.

9) NHOS will install fiber optic over the Indian River in Canaan between Pole 116/28 and Pole 116/27+ along a path that parallels the southerly side of Route 4 near Gristmill Hill Rd. The pole to pole span is 184 feet while the river span is 64 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 at a distance of 12 inches from the next CATV attachee. No other attachees will be relocated in a make ready process.

10) NHOS will install fiber optic over the Mascoma River in Canaan between Pole 116/82 and Pole 116/81 along a path that parallels the northerly side of Route 4 in the vicinity of Lafortune Rd. The pole to pole span is 203 feet while the river span is 54 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 43 feet in height. NHOS will be the first attachee from the electric space and will be placed directly over CATV at a distance of 12 inches. No other attachees will be relocated in a make ready process.

11) NHOS will install fiber optic over the Mascoma River in Canaan between Pole 412/177 and Pole 412/178 along a path that parallels the westerly side of Route 4 in the vicinity of Goose Pond Rd. The pole to pole span is 175 feet while the river span is 59 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 on the southwest pole and 30 feet in height on the northeast pole. NHOS will be the first attachee from the electric

space and will be placed directly over CATV at a distance of 12 inches. All other attachments (two fiber optic cables) will be relocated in a make ready process.

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 and thus there are no land ownership considerations.

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, NHOS states it will build an open access, non-discriminatory network offering broadband providers the ability to expand their service areas, allow companies the opportunity to build private networks they own and control, and give end users more choice and affordability in Internet access and communication products. 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 Winnepesaukee River in Franklin and Laconia, New Hampshire; Mink Brook in Hanover, New Hampshire; Contoocook River in Concord, New Hampshire; Squam and Pemigewassat Rivers in Ashland, New Hampshire; and Indian and Mascoma Rivers 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.**