

STATE OF NEW HAMPSHIRE
Inter-Department Communication



DATE: September 10, 2012
AT (OFFICE): NHPUC

FROM: Randy Knepper, Director, Safety & Security *R. S. Knepper*

SUBJECT: Docket No. DT 12-007 New Hampshire Optical Systems, Inc. Petition for a License to Construct and Maintain Fiber Optic Cables Over at nine locations described as across Ashuelot River in Gilsum, Sullivan and Marlow; Dodge Brook, Giles Brook and Babb Brook in Lempster; Sugar River in Sunapee; and Mascoma River in Enfield, New Hampshire

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

This is memorandum 1 of 2 regarding DT 12-007. 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 January 11, 2012, New Hampshire Optical Systems, Inc. (NHOS) filed a petition to construct and maintain fiber optic cables over and across six bodies of water. Nine 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 Ashuelot River in Gilsum between Pole 29/139 and Pole 29/140 along a path that parallels the easterly side of Gilsum Road bridge (Route 10) in the vicinity of Centennial Road.
 2. the Ashuelot River in Sullivan between Pole 29/160 and Pole 29/159 along a path that parallels the southerly side of Dartmouth College Highway (Route 10) in the vicinity of Mack Road.

3. the Ashuelot River in Marlow between Pole 3/8 and Pole 3/7 along a path that parallels the easterly side of (Route 10 and 123) in the vicinity of Washington Pond Rd.
 4. the Dodge Brook in Lempster between Pole 13/106 and Pole 13/105 along a path that parallels the easterly side of Route 10 in the vicinity of the intersection of Dodge Hollow Rd and Hamlin Rd.
 5. the Giles Brook in Lempster between Pole 13/7 and Pole 13/7.5 along a path that parallels the easterly side of Route 10 in the vicinity of Brook Rd.
 6. the Babb Brook in Lempster between Pole 13/5 and Pole 13/4 along a path that parallels the easterly side of Route 10 in the vicinity of Brook Rd. This is directly north of crossing 5 above.
 7. the Sugar River in Sunapee between Pole 30C/7 and Pole 30C/8 along a path that parallels the northerly side of Route 11 in the vicinity of the intersection of Sleeper Rd and Riverside Dr.
 8. the Sugar River in Sunapee between Pole 4X/3 and Pole 4X/2 along a path that parallels the easterly side of Sunapee Lake Rd bridge in the vicinity of Main St and Chase St.
 9. the Mascoma River in Enfield between Pole 31/2 and Pole 31/1 along a path that parallels the westerly side of Shaker Hill Rd bridge in the vicinity of Main St and Depot St.
- On February 27 and March 16, 2012, New Hampshire Optical Systems, Inc. (NHOS) filed revised petitions on planned construction following discussion with Staff affecting crossings 8 and 1 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 1 of the Middle Mile Fiber network that connects from Keene to Enfield. An annotated map of this portion is labeled as Attachment 1
 - NHOS was certified 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 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 Ashuelot River in Gilsum between Pole 29/139 and Pole 29/140 along a path that parallels the easterly side of Gilsum Road bridge (Route 10) in the vicinity of Centennial Road. The pole to pole span is 235 feet while the river span is 73 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 42 feet of height at Pole 29/139 and 38 feet in height at Pole 29/140. NHOS will be the first attachee from the electric space and will be placed directly above CATV 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.

2) NHOS will install fiber optic over the Ashuelot River in Sullivan between Pole 29/160 and Pole 29/159 along a path that parallels the southerly side of Dartmouth College Highway (Route 10) in the vicinity of Mack Road. The pole to pole span is 151 feet while the river span is 50 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 39 feet of height. NHOS will be the first attachee from the electric space and will be placed directly above CATV 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. There are at total of 3 attachees including NHOS.

3) NHOS will install fiber optic over the Ashuelot River in Marlow between Pole 3/8 and Pole 3/7 along a path that parallels the easterly side of (Route 10 and 123) in the vicinity of Washington Pond Rd. The pole to pole span is 232 feet while the river span is 61 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 30 feet of height at Pole 3/8 and 34 feet in height at Pole 3/7. NHOS will be the first attachee from the electric space and will be placed directly above telecommunication cable at a distance of 47 inches and 24 inches respectively at each pole. No other attachees will be relocated in a make ready process.

4) NHOS will install fiber optic over the Dodge Brook in Lempster between Pole 13/106 and Pole 13/105 along a path that parallels the easterly side of Route 10 in the vicinity of the intersection of Dodge Hollow Rd and Hamlin Rd. The pole to pole span is 190 feet while the brook span is 33 feet. The poles are jointly owned by New Hampshire Electric Cooperative and Fairpoint Communications and are approximately 34 feet of height at Pole 13/106 and 30 feet in height at Pole 13/105. NHOS will be the first attachee from the electric space and will be placed directly above telecommunication cable at a distance of 12 inches. No other attachees will be relocated in a make ready process.

5) NHOS will install fiber optic over the Giles Brook in Lempster between Pole 13/7 and Pole 13/7.5 along a path that parallels the easterly side of Route 10 in the vicinity of Brook Rd. The pole to pole span is 184 feet while the brook span is 20 feet. The poles are jointly owned by New Hampshire Electric Cooperative and Fairpoint Communications and are approximately 34 feet of height at Pole 13/106 and 30 feet in height at Pole 13/105. NHOS will be the first attachee from the electric space and will be placed directly above telecommunication cable at a distance of 12 inches. No other attachees will be relocated in a make ready process.

6) NHOS will install fiber optic over the Babb Brook in Lempster between Pole 13/5 and Pole 13/4 along a path that parallels the easterly side of Route 10 in the vicinity of Brook Rd. This is directly north of crossing 5 above The pole to pole span is 221 feet while the brook span is 22 feet. The poles are jointly owned by New Hampshire Electric Cooperative and Fairpoint Communications and are approximately 47 feet of height at Pole 13/5 and 48 feet in height at Pole 13/4. NHOS will be the first attachee from the electric space and will be placed directly above telecommunication cable at a distance of 12 inches. No other attachees will be relocated in a make ready process.

7) NHOS will install fiber optic over the Sugar River in Sunapee between Pole 30C/7 and Pole 30C/8 along a path that parallels the northerly side of Route 11 in the vicinity of the intersection of Sleeper Rd and Riverside Dr. The pole to pole span is 190 feet while the river span is 33 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 30 feet of height at Pole 30C/7 and 21 feet in height at Pole 30C/8. NHOS will be the second attachee from the electric space and will be placed directly below the fire alarm cable at a distance of 12 inches. No other attachees will be relocated in a make ready process.

8) NHOS will install fiber optic over the Sugar River in Sunapee between Pole 4X/3 and Pole 4X/2 along a path that parallels the easterly side of Sunapee Lake Rd bridge in the vicinity of Main St and Chase St. The pole to pole span is 153 feet while the river span is 91 feet. The poles are jointly owned by Public Service of New Hampshire and Fairpoint Communications and are approximately 42 feet of height. NHOS will be the first attachee from the electric space and will be placed directly above CATV 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 multiple telecommunication cables. There are at total of 5 attachees including NHOS.

9) NHOS will install fiber optic over the Mascoma River in Enfield between Pole 31/2 and Pole 31/1 along a path that parallels the westerly side of Shaker Hill Rd bridge in the vicinity of Main St and Depot St. The pole to pole span is 105 feet while the river span is 41 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 first attachee from the electric space and will be placed directly above the CATV at a distance of 12 inches. There is a CATV cable

below NHOS and a telecommunication cable. There are at total of 3 attachees including NHOS.

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, 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 Ashuelot River in Gilsum, Sullivan and Marlow; Dodge Brook, Giles Brook and Babb Brook in Lempster; Sugar River in Sunapee; and Mascoma River in Enfield, 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.