

One Liberty Plaza  
New York, NY, 10006  
Tel: 1 212 418 0100  
Fax: 1 212 418 0123



June 25, 2019

**VIA EMAIL AND FEDERAL EXPRESS**

Mr. Brett Redfearn  
Director, Division of Trading and Markets  
Securities and Exchange Commission  
100 F Street, NE  
Washington, DC 20549

Re: *NYSE Mahwah Roof*

Dear Mr. Redfearn:

Virtu Financial, Inc. (“Virtu” or the “Firm”) appreciates the opportunity to present for your consideration a situation we believe illustrates anti-competitive, discriminatory behavior by the New York Stock Exchange (“NYSE”) that could impede the free market for the purchase and installation of antenna on the roof of its data center. This letter follows our call with you on June 10, 2019 in which we first discussed this issue.

We know the SEC Staff is focused on improving competition related to exchange connectivity and market data, which ultimately reduces investor fees.<sup>1</sup> NYSE recently applied for and was granted a variance from the Town of Mahwah Zoning Board to permit it to install microwave dishes and antenna on its rooftop to reduce the latency of the data that it transmits.<sup>2</sup> However, NYSE’s variance proposal only sought permission to add enough capacity for one provider due to purported resource and engineering constraints. This in turn means that only one wireless provider (as selected by the NYSE) will be able to locate an antenna on the NYSE roof under the variance that was granted. In our view, this is blatantly anti-competitive. As such, the variance has the effect of granting a monopoly to NYSE’s connectivity and colocation division, Secure Financial Transaction Infrastructure (“SFTI”), to charge exorbitant fees for access to its antenna, while potentially lower cost wireless providers that could provide competition to the NYSE vendor are arbitrarily blocked from participating in the market.

---

<sup>1</sup> See, e.g., Brett Redfearn, Director, Division of Trading & Markets, U.S. Securities and Exchange Commission, *The Nexus of Equity Market Structure and Investor Relations: Remarks at the 2019 Annual Conference of the National Investor Relations Institute*, June 3, 2019 (“In particular, I want to ensure that the market ecosystem continues to meet the Exchange Act requirements for efficient markets that are not unfairly discriminatory and that promote fair competition among market participants.”).

<sup>2</sup> See Resolution of Zoning Board of Adjustment, Township of Mahwah, Variance Approval for Co-Location of Additional Antennas, Height, and Setback Variances, May 1, 2019 (Appendix “1”).

We respectfully submit that it is critical for the SEC to review the Mahwah zoning variance that was granted to NYSE to determine whether it constitutes anti-competitive behavior inconsistent with Section 6 of the Securities Exchange Act of 1934 (the “Act”) and imposes “unfairly discriminatory terms” that limit efficient access to the quotations of an NMS stock at a national securities exchange’s trading facility inconsistent with Rule 610 under Reg NMS. The reality is that new the “floor” of the NYSE is actually now located on the roof of a nondescript datacenter in Mahwah, New Jersey. In the same manner that the NYSE would never have been permitted to sell positions on the floor of the exchange on Wall Street within ear shot of the specialists to the detriment of the rest of the members for a premium price so too should it be impermissible for the NYSE to do the same with rooftop access to the new exchange “floor”.

### **Background on NYSE’s Zoning Variance**

There are currently several wireless providers that transmit data to and from the NYSE colocation facility (see, Appendix “2”). Third-party service providers use the CCI Pole and the Cross River pole to transmit data to their network using a “last-mile” fiber optic wire to transmit data to/from the data center to these off-site poles. In the current state, the NYSE has already advantaged their own commercial offering to the detriment of competitive offerings. The NYSE has an on-premises pole with one distinct latency advantage: a shorter fiber connection to the data center.

In its proposal for the zoning variance, the NYSE sought “installation of additional wireless telecommunications equipment... to be located on the rooftop of the existing building ...”. In support, NYSE offered testimony from a telecommunications engineer who testified that “this antenna provides a better latency and reliability... [it] would reduce the fiber length to a few feet... This would just make [NYSE market data] faster... The closer you are to the data center, the faster you would be.”<sup>3</sup> Access to this faster data is critical for market participants with customers who depend on speed for trade execution. As NYSE admits, access to its rooftop antenna will provide the lowest-latency data. And, it is our understanding that the NYSE is not planning to allow antenna colocations from other vendors on the new pole on the roof. To be clear, Virtu is not suggesting that the NYSE should be prohibited from placing microwave technology on its roof. Instead, our position is that if it does decide to do so it should be done fairly and equitably, making the technology available for everyone.

### **Anti-Competitive Effects of Limiting Access to NYSE’s Rooftop for Wireless Data Transmission**

Access to the lowest-latency market data feed is critical for the execution of principal and agency orders from market participants like Virtu. NYSE admitted as much in its testimony before the Mahwah Zoning Board, describing the purpose of the rooftop dishes as providing “better latency” because “the closer you are to the data center, the faster you would be.” NASDAQ, which, as

---

<sup>3</sup> Testimony available at <http://mahwahnj.swagit.com/play/03202019-1419>.

discussed below, has undertaken a similarly anti-competitive practice at its Carteret data center, also acknowledged this fact in its 2012 application for a proposed rule to establish fees for new optional means for clients to receive third party market data and NASDAQ TotalView ITCH market data: “The wireless connectivity will be an optional offering, an alternative to fiber optic network connectivity, and will provide lower latency.”<sup>4</sup>

Given the importance to the market of lowering data latency, NYSE sought a zoning variance to open access to its rooftop for antenna that can wirelessly transmit its data. Virtu applauds the effort to further decrease latency on data transmission from the data center. However, and this is the crucial point: even though NYSE is opening access to its rooftop, under the zoning variance it is artificially limiting that access in order to keep an unfair competitive advantage in offering access to the newly accessible low latency data.

By only granting the vendor chosen by SFTI, its preferred wireless provider, access to its roof, NYSE is intentionally blocking competition from other, potentially lower-cost providers. This will eliminate the market for access to the NYSE roof. This in turn will unfairly limit the number of competitors who will be able to offer market data at the same latency as NYSE, which will have direct access to its new rooftop antenna.

NYSE has provided no bona fide rationale for its actions which, we believe, may be prohibited by Section 6 of the Act.<sup>5</sup>

NYSE’s actions also directly implicate Rule 610 (the “Access Rule”) under Reg NMS, which prohibits a trading center from imposing unfairly discriminatory terms that would prevent or inhibit the access of any person through members, subscribers, or customers of such trading center. The SEC’s stated objective in adopting Rule 610 was to promote the use of private linkages between exchanges by precluding unfair interference by those same exchanges.<sup>6</sup> NYSE’s rooftop maneuver contravenes Rule 610 by interfering in high-speed wireless private linkages between data centers.

### **NASDAQ’s Practices at Carteret are Instructive**

As you may know, NASDAQ has benefited from similar anti-competitive practices at its data center in Carteret. In 2013, when the SEC was considering a proposed rule change to permit NASDAQ to install wireless transmitters at Carteret, Quincy Data, LLC objected to the rule as

---

<sup>4</sup> SEC Release No. 34-68085 (Oct. 23, 2012) (SEC solicitation of comments on NASDAQ proposed rule change).

<sup>5</sup> Requiring Exchange rules be designed to “prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest; and are not designed to permit unfair discrimination between customers, issuers, brokers, or dealers... [and] not impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.”

<sup>6</sup> SEC Release No. 34-51808 (Reg NMS Final rules and amendments to joint industry plans).

anti-competitive in contravention of Section 6 of the Act. At Carteret, NASDAQ proposed to be the only wireless provider permitted to install microwave dishes on the rooftop. Quincy Data foresaw that equal and fair access to the roof top would be problematic.<sup>7</sup>

In response to Quincy Data's concerns, NASDAQ assured the SEC that it was not selling roof rights to individual clients because of a lack of physical space.<sup>8</sup> It also represented that Verizon, the lessor of the facility, retained "rights to the roof that would permit it to approve other vendors to place equipment on the roof..." These representations led to the SEC approving the rule. However, contrary to NASDAQ's and its contractor's representations, no other vendors were permitted to place equipment on the roof.

The NYSE cannot make the same representations that NASDAQ made in 2013. NYSE owns the Mahwah roof and has chosen to sell off access to its physical space. It will not have to rely on middlemen like to set up exclusive contracts; it is choosing to give exclusive rooftop access to its affiliate, SFTI. The securities laws and SEC rules require a fairer, competitive approach to access to market data.

## **Conclusion**

We look forward to engaging with the Staff to find a constructive solution to the anti-competitive behavior of NYSE. We respectfully submit that there should be adequate antenna space, equal cabling from antennas and adequate spectrum resources to allow for equal and fair access to the exchange similar to the method for accessing colocation spaces.

In the alternative, although we believe that offering lower latency data feeds improves the market and that paying for access to low latency makes sense in the free market, it may be best for NYSE and NASDAQ to not offer microwave access to their roofs until they can offer it in a competitive manner.

Further, perhaps it is time to offer fixed latency numbers from data center to data center. All providers could have circuits with the pairwise fixed wireless latency that connect between the major data centers and pay the same amount for that access. Existing providers could be incentivized by cementing in revenue at a reasonable rate, but the "wireless" arms race could be ended. Instead of spending money on eliminating the next microsecond, money could be spent elsewhere as firms compete on non-latency grounds. We believe this will in turn benefit the investor community by lowering costs associated with latency reducing technology and focusing firm resources on improving other marketplace resources.

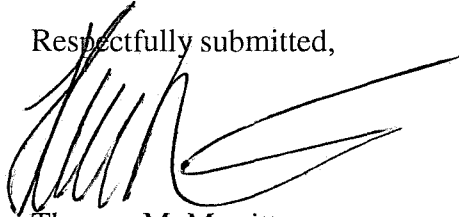
---

<sup>7</sup> See Quincy Data comment letter dated Jan. 17, 2013.

<sup>8</sup> SEC Release No. 34-68735 available at [http://nasdaq.cchwallstreet.com/NASDAQ/pdf/nasdaq-filings/2012/SR-NASDAQ-2012-119\\_Approval.pdf](http://nasdaq.cchwallstreet.com/NASDAQ/pdf/nasdaq-filings/2012/SR-NASDAQ-2012-119_Approval.pdf).

Thank you again, and we look forward to your questions.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Tom Merritt', with a long horizontal flourish extending to the right.

Thomas M. Merritt  
Deputy General Counsel

**Appendix 1**

RESOLUTION  
ZONING BOARD OF ADJUSTMENT  
TOWNSHIP OF MAHWAH

DOCKET NO. 1456-19

NYSE GROUP, INC.

VARIANCE APPROVAL FOR CO-LOCATION OF ADDITIONAL ANTENNAS,  
HEIGHT AND SETBACK VARIANCES

WHEREAS, NYSE GROUP, INC., located at 11 Wall Street, New York, New York, has applied to the Zoning Board of Adjustment of the Township of Mahwah for Variance Approval to modify the existing telecommunications monopole and building by the addition of additional equipment, as hereinafter described, for property located at 1700 MacArthur Boulevard, also known as Block 139, Lot 4, on the Tax Assessment Map of the Township of Mahwah; and

WHEREAS, the property is located in the IP-120 Zone where wireless communication towers are a conditional use; and

WHEREAS, Variance Approval to construct the existing tower was originally granted to Anova Technologies, LLC. on November 18, 2015; and

WHEREAS, the Applicant submitted the following plans and exhibits:

a. Site Plan entitled "NYSE Roof and Monopole, ID: NYSE RFT/NYSE MP Address: 1700 MacArthur Blvd, Mahwah, NJ" prepared by Ahead Engineering, dated 11/29/18;

b. As-built Survey, By Jeffrey H. Klein for Lapatka Associates, Inc. dated 12/15/09, revised 11/6/18;

c. Monopole Analysis prepared by Robert Picrocola, PE. for Ahead Engineering, dated 1/3/19;

d. Radiofrequency-Electromagnetic Energy Compliance Report, prepared by EBI Consulting, dated 11/15/18;

c. Photo Simulations, prepared by James T Kyle, PP, AICPA, dated 12/2/18

WHEREAS, the Applicant has submitted proof that it has notified all property owners within 200 feet of the extreme limits of the property in question and in accordance with the provisions of the Zoning Ordinance of the Township of Mahwah and the Land Use Statutes of the State of New Jersey as amended and supplemented. All property taxes have been paid; and

WHEREAS, a public hearings were held on March 20, 2019 and April 3, 2019, at which time the Zoning Board of Adjustment of the Township of Mahwah heard testimony by the applicant and it's witnesses, and gave due consideration to all individuals desiring to be heard, and after deliberation did hereby find and determine that:

1. The subject property, located at 1700 Macarthur Boulevard, also known as Block 139, Lot 4 is owned by Macarthur Boulevard, LLC., c/o Russo Development, 570 Commerce Blvd., Carlstadt, NJ 07072. The Applicant is NYSE Group, Inc, located at 11 Wall Street, New York, NY 10005.
2. The property is located in the IP-120 Zone and contains an existing data center building, as well as an existing 160 foot wireless telecommunications monopole facility, previously granted approval on November 18, 2015. The 28.28 acre site is located at the northwest corner of Macarthur Boulevard and N. Central Ave., west of Route 17. The site is irregularly shaped and contains a two-story Data Center building, with on site parking, an accessory one-story building, a 160 foot monopole tower, and a steel platform located at grade.
3. The applicant is seeking a conditional use variance pursuant to N.J.S.A. 40:55D-70d(3), a rear yard setback variance, and preliminary and final site



plan approval, in order to permit the installation of additional wireless telecommunications equipment consisting of four additional microwave dish antennas, each having a diameter of 1 foot, to be located at a height of 122 feet on the existing 160 foot monopole, 2 microwave dish antennas each having a diameter of 1 foot to be located on the rooftop of the existing building, and one additional equipment cabinet attached to the existing steel platform located at grade, located 31.5 feet from the rear property line.

4. The applicant is seeking relief from the following conditional use standards under the Mahwah Township Zoning Ordinance 24-17.6a1(a)(1), which requires that when antennas are co-located on an existing building, the antennas are not permitted to exceed the maximum building height permitted in the zone. The maximum building height permitted in the IP-120 Zone is 40 feet, however the height of the existing building is 47 feet (as permitted by prior variance relief), and the height of the top of the proposed 1 foot diameter roof mounted antennas will be 51 feet 8 inches. The applicant is also seeking rear yard setback variances (65 feet required) of 24.5 feet to the existing telecommunications equipment, 49 feet to the existing building, and 31.5 feet for the proposed additional equipment cabinet.

5. The proposal will require the following variances:
  - a. A "d-3" Conditional Use: The original approval under docket 1397-15 granted conditional use variance approval; however, the use is being expanded and, therefore, another "d-3" variance must be granted;

b. Height: The Applicant has requested a height variance from the provisions of Article 24-17.6, which limits a tower height up to 120 feet for two users and 150 feet for three users. A variance for 160 feet was previously approved.

Although the applicant does not request any increase to the height of the proposed tower, the additional antennas are proposed to be located at a height of 122 feet;

c. Rear Yard Setback: required 65 feet, existing 24.5 feet for the antenna and 49 feet for the building. A setback of 31.5 feet is proposed for the new equipment cabinet which will be mounted on the existing steel platform.

6. After hearing the testimony of the Applicant and witnesses, the Board finds that the Applicant has demonstrated that the proposed use complies with the criteria required to permit the location of the additional antennas and equipment.

7. The Board finds that the Applicant has demonstrated that the proposed use promotes the general welfare because the New Jersey Supreme Court has held that in the case of Smart SMR of New York, Inc., d/b/a Nextel Communications v. Borough of Fair Lawn Board of Adjustment, 152 N.J. 309 (1998), that all communications facilities holding an FCC license is a use that promoted the general welfare. In addition, the applicant must also show that the site is particularly suited for the proposed use. In order to do so, an applicant must show both the need for the facility at that location, and that the site itself is particularly suitable. New Brunswick Cellular Telephone Co. v. Borough of South Plainfield, 160 N.J. 1 (1999).

8. With respect to the second proof for the positive criteria (i.e. - that the proposed site is particularly suited to that use) the Coventry Square Court held proofs shall be sufficient to satisfy the Board that the site proposed for the conditional use, in the context of the applicant's proposed site plan continues to

be an appropriate site for the conditional use notwithstanding the deviations from one or more conditions imposed by the ordinance. Coventry Square, supra. 138 N.J. at 298.

9. In addition to the positive criteria, an applicant must also demonstrate the negative criteria in that the variance can be granted without substantial detriment to the public good and will not substantially impair the intent and purpose of the zone plan and zoning ordinance. The Board finds that the addition of the four additional antennas at the 122 ft. level on the existing and previously approved 160 foot tower, the installation of the two 1 foot diameter dish antennas on the rooftop of the existing building, and the one additional equipment cabinet attached to the existing steel platform located at grade, will not cause any substantial detriment to the public good, nor will it substantially impair the intent and purpose of the zone plan and zoning ordinance.

10. The proposed use will not produce any noise, vibrations, smoke, dust, odors, heat or glare. It will not require any municipal services such as water, sewer, police or fire and will require only infrequent maintenance. The use will not have any adverse impact on adjoining properties. The additional tower antennas will not materially affect the surrounding area, and the roof top dishes or equipment cabinet cannot be seen from anywhere in the immediate vicinity.

**NOW, THEREFORE, BE IT RESOLVED** by the Zoning Board of Adjustment of the Township of Mahwah that the Applicant's request for Conditional Use Variance, Height Variance, and Site Plan approval to add four additional 1 foot diameter microwave dish antennas to the existing 160 foot tower at the 122 foot elevation, two microwave dish antennas, each having a 1 foot diameter, to be located on the rooftop of the existing building, and one additional equipment cabinet to be located 31.5 feet from

the rear property line on the existing steel platform located at grade, are all hereby GRANTED subject to the following terms and conditions:

1. All construction shall be performed in accordance with all federal, county and municipal state rules, codes and regulations.
2. All conditions contained in the previously approved Resolutions, where not in conflict herein, shall continue and apply as if fully set forth herein.
3. The applicant shall pay all required application fees, escrow fees and bonds required by the municipality and this Resolution of Approval.

**BE IT FURTHER RESOLVED**, this approval shall not constitute a recommendation or approval of any application or variance not specifically delineated herein.

**BE IT FURTHER RESOLVED**, that a copy of this Resolution shall be provided to the applicant, the Construction Code Officer of the Township of Mahwah, and a notice of this decision of the Board of Adjustment shall be published in the official newspaper of the municipality within ten (10) days of the date hereof and thereafter be published according to law.

MOTION TO TAKE ACTION

DATE: April 3, 2019

MOVED BY: Mr. Montroy

SECONDED BY: Mr. Straffin

AFFIRMATIVE VOTES (5)      NEGATIVE VOTES (0)      ABSTENTIONS (0)

- 1) Mr. Calijone
- 2) Mr. Jackson
- 3) Mr. Montroy
- 4) Mr. Rabolli
- 5) Mr. Straffin

TOTAL VOTES: (5)

APPROVAL BY RESOLUTION

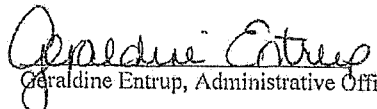
MOVED BY: Mr. Straffin

SECONDED BY: Mr. Calijone

AFFIRMATIVE VOTES (4)      NEGATIVE VOTES (0)      ABSTENTIONS (0)

- 1) Mr. Calijone
- 2) Mr. Jackson
- 3) Mr. Rabolli
- 4) Mr. Straffin
- 5) Mr. Whiteman

Dated: May 1, 2019



  
Geraldine Entrup, Administrative Officer

  
Charles Rabolli, Chairman

Prepared by: Ben R. Cascio, Esq.

Page Intentionally Left Blank

Township of Mahwah  
 Zoning Permit

Application #: 6523	Permit No: 20190030.000	Issue Date: 02/28/2019	Voucher/Receipt #: 0 Check #: 22669 Amount collected: \$100.00
Construction Control Number :			
Block: 139	Lot: 4	Qualifier:	
Work Site: 1700 MACARTHUR BOULEVARD		Zone: Default	
Owner: MACARTHUR BLVD LLC C/O RUSSO		Agent: GREGORY D. MEESE, ESQ.	
Address: DEVELOPEMENT 570 COMMERCE BLVD		Address: 50 TICE BLVD	
City/State/Zip: CARLSTAD NJ 07072		City/State/Zip: WOODCLIFF LAKE NJ 07677	
Telephone: _____		Telephone:  Redacted - Tel. # 	
Fax: ( ) _____		Fax: ( ) _____	
E-Mail:		E-Mail :	
Tenant: ANOVA TECHNOLOGIES, LLC			

This is to certify that the above-described premises together with any building thereon, are approved for use as indicated below and as depicted on the Plot Plan:

COLLOCATION OF ADDITIONAL WIRELESS TELECOMMUNICATIONS FACILITIES ON EXISTING MONOPOLE AS THE INSTALLATION OF TWO (2) NEW DISH ANTENNAS WITHOUT EXTENDING HEIGHT.

Which is a:


Use permitted by Zoning Ordinance, Article - ARTICLE Section - STAT.

Use permitted by variance approved on \_\_\_\_\_ # \_\_\_\_\_ subject to any special conditions attached to the grant thereof.

Valid nonconforming use as established by ( ) findings of the Zoning Board of Adjustment or by ( ) the undersigned zoning officer or by ( ) Planning Board on the basis of evidence supplied by applicant. Conditions, if any:

There is a nonconforming structure on the premises by reason of insufficient

Other: MUST OBTAIN APPROPRIATE BUILDING/CONSTRUCTION PERMITS

  
 Geraldine Enrup Zoning Officer

This is NOT a Construction Permit

Appendix 2

