



Howard County Maryland
Department of Planning and Zoning
3430 Courthouse Drive, Ellicott City, MD 21043

(410) 313-2350

www.howardcountymd.gov

DPZ Office Use only:
Case No BA-25-010C
Date Filed 4/28/2025

Conditional Use Petition

Conditional Use Request

Conditional Use Category: Communication Towers

Conditional Use Section Number(s): Communication Towers is Section 131.0.N.14

Proposed Use: A communication tower that will include a 155' monopole structure (with an additional 5 feet top point for total overall height of 160 ft.), along with antennas and support structures, a fenced, secured ground equipment compound, and supporting ancillary equipment.

Petitioner Information

Name: Jennifer Jack
Trading As: TowerCo
Address: 5000 Valleystone Dr. , Cary, NC, 27519
Phone: 9196535700
Email: jjack@towerco.com
Petitioner's Interest in the Property: Lessee/Tenant



Representative Information

Name: Sean Hughes
Address: 200B Monroe Street, Rockville, MD, 20850
Phone: 3017625212
Email: sphughes@mimcanby.com
Profession: Attorney

Property Information

Property Address: 2700 Turf Valley, Ellicott City, MD, 21042
Total Site Area: 97.48 acres Use Area (if different): Tax Map: 16 Grid: 17 Parcel: 8
County Council District: 5 Zoning District: PGCC-2
Subdivision Name: SDP #:

General Standards Required for Approval

The Hearing Authority shall have the power to permit Conditional Uses, provided the following general standards are met. Please explain how the proposed use complies with these criteria.

1. The proposed Conditional Use plan will be in harmony with the land uses and policies in the Howard County General Plan which can be related to the proposed use.

Please see uploaded supplemental narrative(Statement of Justification).

2. The nature and intensity of the use, the size of the site in relation to the use, and the location of the site with respect to streets giving access to the site are such that the overall intensity and scale of the uses are appropriate for the site.

Please see uploaded supplemental narrative(Statement of Justification).

3. The proposed use at the proposed location will not have adverse effects on vicinal properties above and beyond those ordinarily associated with such uses. In evaluating the proposed use under this standard, the Hearing Authority shall consider whether or not.

- a. The impact of adverse effects such as, but not limited to, noise, dust, fumes, odors, intensity of lighting, vibrations, hazards or other physical conditions will be greater at the proposed site than it would generally be elsewhere in the same zoning district or other similar zoning districts.

Please see uploaded supplemental narrative(Statement of Justification).

- b. The location, nature and height of structures, walls or fences, and the nature and extent of the existing and proposed landscaping on the site are such that the use will not hinder or discourage the development or use of adjacent land and structures more at the subject site than it would generally elsewhere in the same zoning district or other similar zoning districts.

Please see uploaded supplemental narrative(Statement of Justification).

- c. The number of parking spaces will be appropriate to serve the particular use. Parking areas, loading areas, driveways and refuse areas will be appropriately located and buffered or screened from the public roads and residential uses to minimize adverse impacts on adjacent properties.

Please see uploaded supplemental narrative(Statement of Justification).

- d. The ingress and egress drives will provide safe access with adequate sight distance, based on actual conditions, and with adequate acceleration and deceleration lanes where appropriate. For proposed Conditional Use sites which have driveway access that is shared with other residential properties, the proposed Conditional Use will not adversely impact the convenience or safety of shared use of the driveway.

Please see uploaded supplemental narrative(Statement of Justification).

- e. The proposed use will not have a greater potential for adversely impacting environmentally sensitive areas in the vicinity than elsewhere.

Please see uploaded supplemental narrative(Statement of Justification).

- f. The proposed use will not have a greater potential for diminishing the character and significance of historic sites in the vicinity than elsewhere.

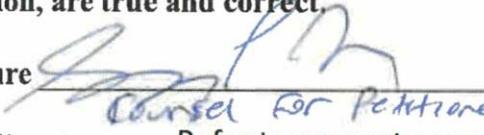
Please see uploaded supplemental narrative(Statement of Justification).

Specific Criteria

Please attach a narrative explaining how the proposed use complies with each of the Communication Towers Specific Conditional Use Criteria.

Signatures

The undersigned hereby affirms that all of the statements and information contained in, or filed with this petition, are true and correct.

Petitioner's Signature  **Date** 4/30/25

Property Owner's Signature Refer to property owner's letter **Date** _____

Process information and submittal requirements can be found on the [ProjectDox website](#)



Exhibit 2

PETITIONER: TowerCo

ADDRESS: 2700 Turf Valley Road, Ellicott City, MD 21042

PROJECT: TELECOMMUNICATION FACILITY@2700 TURF VALLEY RD., ELLICOTT CITY, MD

Affidavit made pursuant to the pertinent provisions of Title 22 of the Howard County Code as amended:

The person(s) signing below hereby declare(s) that no officer or employee of Howard County, whether elected or appointed, has received prior hereto or will receive subsequent hereto, any monetary or material consideration, any service or thing of value, directly or indirectly, upon more favorable terms than those granted to the public generally in connection with the submission, processing, issuance, grant or award of the attached petition to the Hearing Examiner for a conditional use as requested.

I, we, do solemnly declare and affirm under the penalties of perjury that the contents of the foregoing affidavit are true and correct to the best of my, our, knowledge, information and belief.

A handwritten signature in black ink, appearing to read 'Carrie Lynn Fazzolari'.

Carrie Lynn Fazzolari

Witness

Signature

Date 3/11/2025

Jennifer Jack

A handwritten signature in black ink, appearing to read 'Jennifer Jack'.

Witness

Signature

Date 3/11/2025

5000 Valleystone Dr.
Suite 200
Cary, NC 27519

Address

919.653.5700

Phone

919.469.5530

Fax

info@towerco.com

Email

towerco.com

Website

Exhibit 3

Statement of Justification- Conditional Use Application For Communication Tower

I. Introduction

TowerCo brings forth this Conditional Use (CU) application. This CU will further benefit its anchor tenant, Verizon Wireless (“Verizon”) and its customers and has the support of the property owner Turf Valley Resort (“Turf Valley”). TowerCo is proposing to erect a communication tower that will include a 155’monopole structure (with an additional 5 feet top point for total overall height of 160 ft.), along with antennas and support structures, a fenced, secured ground equipment compound, and supporting ancillary equipment. The facility will be located within the large Turf Valley campus at 2700 Turf Valley Rd, Ellicott City, MD 21042. It is specifically at the Turf Valley Resort owned parcel with tax id number 03-297764, and parcel (P8) that is 97 plus acres (See Ex. 15-SDAT document and Ex. 10-Entrex civil engineering plans) in size, in the PGCC-2 zone (See Ex. 16- County Zoning Map of property and area). The monopole and the related equipment will be housed at the Turf Valley property, placed by the driving range tee off area (See Ex. 10, Ex. 8Photo Simulations, and Ex. 12 Aerial photos). Said location is approximately 1,200 feet north of the Turf Valley resort and conference center buildings, a partially wooded area, with tall trees up to 80 plus feet in height, centrally located to the entire Turf Valley community (See Ex.17 County Approved Sketch Plan for the Community). The tower location is a considerable distance from the Resorts parcels to the offsite residential districts. These offsite residential districts are also in the PGCC-2¹ zone, in the Turf Valley community with the closest being over 1,000 feet away (1,004 ft.) to the north (See Ex. 10, Entrex engineering

¹ See Zoning Code Section 126.0.B. re PGCC (Planned Golf Course Community) District that notes that PCCC-2 is the Multi-Use Subdistrict of PGCC and PGCC-1 is the Residential Subdistrict.

drawings, pg. C-1,), which is nearly, per Howard County Zoning Code 128.0.E.2.b², 13x the required setbacks for a commercial tower in the PGCC-2 zone. It is even greater in other directions, including 1,07 ft to the west, 1,456 to the east and 1,428 to the south. The Turf Valley Resort (and greater community) sits due south of Rt. 70, east of Marriottsville Road and north of Rt. 40/Baltimore National Pike and be accessed from Rt. 40 via Turf Valley Road or off of Marriottsville Road via Resort Road. The actual conditional use area for the facility will consist of an unmanned approximately 2,500 square foot screened, fenced, locked and secure ground compound. The facility is designed with capacity to hold antennas, associated ancillary equipment and cables of at least four (4) communications providers/platforms, including the equipment of lead tenant and petitioner, Verizon at the top.

This application submission is the result of forged partnerships between TowerCo, Verizon and the Turf Valley Resort in order to provide enhanced wireless connectivity to the Resort as well as the nearby residential and commercial units and for commuters along Routes 40, 70, Marriottsville Road and the supporting neighboring roads.

Based on the simple but crucial premise of providing essential, enhanced wireless connectivity to the general public as well as government and public safety needs, TowerCo, along with its anchor tenant, bring forth this application. Additionally, TowerCo is building the site for future co-location for other wireless service providers as required by the County code. The site will serve all of Verizon's customers who live, work and travel in this area of Howard County.

²b. Setbacks for communication towers in the POR, PEC, CCT, B-1, B-2, SC, I, BRX, BR, M-1, M-2, and CE Districts, and in employment land use areas of the PGCC and MXD Districts:

- (1) From residential districts: a minimum distance equal to half the tower height (including antennas) measured from ground level.
- (2) From public street rights-of-way: a minimum distance equal to 50 feet or one-third of the tower height (including antennas) measured from ground level, whichever is greater.

This location at Turf Valley will fill a long standing Verizon coverage gap and provide additional capacity relief to the surrounding Verizon link up sites in the area, thus resulting in providing enhanced wireless connectivity, services and speeds to the area for essential, non-essential and emergency communications³.

II. Application

Exhibits:

1. Online submission-County Electronic Conditional Use Application
2. Financial Affidavit pursuant to provisions of Title 22 of the Howard County code
3. Statement of Justification evaluating required code standards
4. Application fees (\$2500 for Conditional Use and \$50 for each Poster)
5. Radio Frequency Propagation Coverage Maps with relationship to other antenna sites
6. Radio Frequency Engineer's Health Compliance Report
7. Documents noting existing structures taller than 50 ft. within one mile
8. Visuals- Photo Simulations and Map of property/area
9. Property Owner letter of Authorization
10. A scaled Conditional Use plot plan and accompanying engineering drawings
11. PlanHOWARD 2030 - Designated Place type Map
12. Aerial Photo
13. Site Photo
14. Pre-Submission Community Meeting Package
 - a. Meeting Minutes
 - b. Affidavit of Posting for Pre-Submission Meeting

³ 80 percent of an estimated 240M 9-1-1 calls are made from wireless devices annually. And 76 of adults live in wireless-only households. Source- CTIA. <https://www.ctia.org/the-wireless-industry/infographics-library>.

- c. Sign in List from Pre-Submission Meeting
- d. Certification re Pre-Submission Meeting
- e. Health Document
- f. Zoning Map

15. SDAT Page for Parcel

16. County Zoning Map

17. Turf Valley Sketch Plan

III. Statement of Applicant

The Petitioner's application, supporting materials, and projected testimony to be shared at the County's Conditional Use hearing will demonstrate that the request is reasonable, appropriate and meets all Zoning code and other requirements. Not only will the application meet all applicable laws, but the communications tower will provide a positive impact in the County via enhanced wireless communications. This positive impact will include filling multiple needs in this area of Ellicott City/Turf Valley, including Verizon's wireless coverage gaps. By filling this wireless communications coverage gaps the residents, visitors, public safety and business users will have enhanced wireless connectivity for essential, non-essential and emergency communications. It will also assist by continuing to shrink the digital divide that exists in areas of our Country and State by providing state of the art wireless broadband services to the area.

1. Property Identification. While the specific parcel to host the communication facility is 97-acres and irregularly shaped, the Resort property is much larger and made up of multiple parcels. The property and site is located and most easily accessed off of Rt. 40 via Turf Valley Road in Ellicott City. It can also be accessed from Marriottsville Road and via access onto Resort

Road. The property is in the 5th Councilmanic Election District for Howard County. The proposed compound is about 3,700 feet north of Route 40 and Turf Valley Road intersection and 3,800 feet from Marriottsville Road and Resort Road intersection and will reside at the driving range tee off area which is approximately 700 feet off of the intersection of Mt. Villa Parkway and Club Road. Turf Valley Resort is identified as 2700 Turf Valley Road, Ellicott City, MD 21042. The proposed conditional use site (the Site) is approximately 2,500 sq. ft. or about 0.057 acres.

2. Property Description. The Property consists of an exceptionally large, long standing, vibrant resort, conference center with two 18 hole golf courses campus. Said campus also includes multiple large buildings (hotel, conference center with restaurant, spa, meeting space, etc.), several maintenance buildings, large parking areas surrounding the buildings and the two 18 hole golf courses, along with the driving range. The elevation of the proposed site is among the highest in the Turf Valley resort property at 473 ft. The elevation slopes from the site's elevation to 417 feet to the east at intersections of Turf Valley Golf Road and Turf Valley Road, to 440 ft. to the south at Turf Valley Road and Rt. 40, to 441 feet to the west at Marriottsville Road and Resort Road and to 474 to the north at Resort Road and Atwood Lane, just south of Route 70.

3. Vicinal Properties. Most of the Turf Valley community is also zoned PGCC, with most of the area being PGCC-2 . Please see Ex. 16 (zoning map) and Ex. 12(aerial). There are some smaller area, in excess of 1500 feet away, consisting of R-20 to the east in the community on the east side Turf Valley Road. Addition properties are also zoned PGCC-1 near the R-20 properties. In the northwest corner of the community is a POR zone that is approximately. 1600 plus feet away. Off the community to the north is Route 70 and across it and approximately 1600 feet from

the proposed site that is some PEC zoning (where Verizon is actually on an existing tower site), RA-15 and R-20. To the west, across Marriottsville Road at approximately 3700 plus ft. away is the County's Alpha Ridge landfill zoned RC-DEO and Chapelgate school, church and newly built residences zoned CEF-M. To the south across Route 40 and approximately 3800 plus feet away are R-ED, R-20, R-SA and B-1 zones. Lastly, to the east are R-20 zoned properties on the east side of Turf Valley road and nearly 2700 plus feet away from the site.

4. Roads. The Turf Valley Resort is on Turf Valley Road, which has two travel lanes and variable paved width. Maryland Rt. 40/Baltimore National Pike is also generally in front of the subject property to the south and is a four lane road. Access can also be gained from the west off Marriottsville Road via Resort Road. The Resort has been located at the location for in excess of fifty years, and has been developed over time. The existing Resort Ingress and egress drives will continue to provide safe access with adequate sight distance to and from the Turf Valley Resort property based on actual conditions, and with adequate acceleration and deceleration lanes (see also Entrex engineering drawings Ex. 10, sheet Z-1, Site Survey Plan Notes 7.). Once built the site is unmanned and sparingly visited. Typically about every two months by TowerCo and the wireless tenants and for any emergency outages and similar. The tower site is located from the existing drive at the driving range via Club Road.

5. Water and Sewer. The Property is located within the Metropolitan District and served by public water and sewer.

6. General Plan. PlanHOWARD 2030 designates the Property as in the “growth & revitalization” area of Turf Valley. (See attached Plan Howard2030 Map 6-2 as reference- Ex. 11).

7. The Proposed Commercial Communications Tower Conditional Use. Petitioner proposes to construct a 155-foot tall commercial communications monopole tower and associated equipment on the Site. The tower would sit in excess of 3700 feet from Rt. 40/Baltimore National Pike, 782 feet from the nearest residentially used lots to the west, and in excess of a thousand to several thousand plus feet from the other adjoining, offsite residentially used zone and lot lines. The structure and equipment will be located in an approximately 2,500 square foot fenced enclosure on the specific 97-acre property, among the several hundred acre golf course resort property. The fence as proposed would be eight feet in height. The Site, next to the driving range, will be accessed via Club Road, which is east of the intersection of Mt. Villa Pkwy and Club Road and due north about 1500 feet of the Turf Valley Conference Center and Hotel buildings. (See attached aerial and area photo-Ex. 12 and 13). It is not visible from the Resort’s private roads or the further public roads in the area due to the existing trees and structures, excessive setbacks, and changes in elevation. An employee or two for each wireless provider and TowerCo will typically visit the site approximately once every few months for general maintenance and for any emergency outages. The site is monitored remotely by TowerCo and the wireless providers on site.

IV. General Criteria for Conditional Uses (§ 131.0.B) HCZR §§ 131.0.B.1-3 require the Hearing Authority to evaluate a proposed Conditional Use through the application of three

standards, harmony with the General Plan, overall intensity and scale of use and adverse impacts.

A. Harmony and Intensity of Use (§§ 131.0.B.1 & .2)

1. The proposed Conditional Use plan will be in harmony with the land uses and policies in the Howard County General Plan which can be related to the proposed use.

REPLY: While no Howard County General Plan policy relates directly to Conditional Use petitions for communication towers, properly sited communication towers can be considered generally compatible with PGCC-2 zoned areas as well as residential uses and have been found so in many prior residential cases. The zoning code certainly anticipated communication towers in the PGCC zone since it permits them in such zones via the Conditional Use process. And as noted, many have been approved in County residential zones including a taller tower (160 feet) in BA 14-005C with significantly less setbacks and greater visibility on Rt. 216 in the Fulton area , BA 17-014C and 23-003C among others.

2. The nature and intensity of the use, the size of the site in relation to the use, and the location of the site with respect to streets giving access to the site are such that the overall intensity and scale of the use(s) are appropriate for the site.

REPLY: The proposed use is a passive, unmanned, unlight, rarely visited, low intensity utility use accessed from existing driveways. The use will generate only a limited number of annual vehicle trips. The Site would occupy only a very small portion (**less than 2500 sq. ft. of the 4,225,320 sq. feet, which is 0.0005 percent of the 97 acres** of the specific parcel that is hosting the facility) of the Resort campus. The proposed use is appropriate at the Site, given its location, screening, significant setbacks, etc.

B. Adverse Impacts (§ 131.O.B.3)- The Proposed use at the proposed location will not have adverse effects on vicinal properties above and beyond those ordinarily associated with such uses.

REPLY: In prior tower cases Howard County has noted that compatibility of the proposed use with the neighborhood is measured under § 131.O.B.3's six offsite, "adverse effect" criteria: (a) physical conditions; (b) structures and landscaping; (c) parking areas and loading; (d) access; (e) environmentally sensitive areas; and (f) historic sites. Inherent in the assessment of a proposed Conditional Use under these criteria is the recognition that virtually every human activity has the potential for adverse impact. The assessment therefore accepts some level of such impact in light of the beneficial purposes the legislative body has determined to be inherent in the use. Thus, the question is not whether the proposed use would have adverse effects in an PGCC district. The proper question is whether there are facts and circumstances showing the particular use proposed at the particular location would

have any adverse effects above and beyond those inherently associated with such a special exception [conditional] use irrespective of its location within the applicable zones. People's Counsel for Baltimore County v. Loyola College in Maryland, 406 Md. 54, 956 A.2d 166 (2008); Schultz v. Pritts, 291 Md. 1, 432 A.2d 1319 (1981); Mossburg v. Montgomery County, 107 Md. App. 1, 666 A.2d 1253 (1995). For the reasons provided herein and to be presented at the public hearing the Petitioner is confident that the burden of presenting sufficient evidence will be met under HCZR §131.0.B.3 to establish that the proposed use will not have adverse effects on vicinal properties beyond those ordinarily associated with a communications facility in the PGCC zoning district.

a. The impact of adverse effects such as, but not limited to, noise, dust, fumes, odors, intensity of lighting, vibrations, hazards or other physical conditions will be greater at the proposed site than it would generally be elsewhere in the same zoning district or other similar zoning districts.

REPLY: In this Conditional Use application there is no evidence of adverse physical effects on vicinal properties beyond those ordinarily associated with a telecommunications tower and equipment compound in the PGCC district. There is no evidence of any noise being greater at the proposed site than at other commercial communication facilities in the PGCC zoning district. The tower will be unlight, so the site will not be visible at all at night. There is no evidence of atypical adverse noise, dust, fumes, vibrations, hazards, or other physical

conditions. In fact, this project is very similar to many approved communication towers in the County and likely is among the largest setbacks of commercial tower sites in the County.

b. The location, nature and height of structures, walls or fences, and the nature and extent of the existing and/or proposed landscaping on the site are such that the use will not hinder or discourage the development and/or use of adjacent land and structures more at the subject site than it would generally elsewhere in the same zoning district or other similar zoning districts.

REPLY: The tower would be sited about 3,700 plus feet from Rt. 40/Baltimore National Pike, some 1,000 plus feet from the closest offsite residentially used lot lines. Although a portion of the tower will be visible, which is anticipated under a tower CU case, the significant setback distances, modest height, no lighting, existing screening and elevation changes at the resort and surrounding community and proposed ground compound screening is such that it will not hinder or discourage the development and/or use of adjacent land and structures more at the subject site than it would generally elsewhere in the same zoning district or other similar zoning districts. The balloon test visual study photographs and photoshopped images included in the petition indicate the tower would be visible from several locations (as are the existing water tank and towers at the County landfill to the west, power lines, street and parking light poles in this area) but no more than other towers in similar areas of Howard County. No walls are proposed.

The screening requirements of § 131.N.14.b(3) are in place to reduce the view of a commercial communications tower facility at ground and street levels.

c. The number of parking spaces will be appropriate to serve the particular use. Parking areas, loading areas, driveways and refuse areas will be appropriately located and buffered or screened from public roads and residential uses to minimize adverse impacts on adjacent properties.

REPLY: The property has hundreds of parking spots. There is also ample and designed space near the compound for site visits at the driving range area. The need to park in the area of the site will be rarely used, as the compound is unmanned, and the proposed area will easily accommodate the occasional employee visit.

d. The ingress and egress drives will provide safe access with adequate sight distance, based on actual conditions, and with adequate acceleration and deceleration lanes where appropriate. For proposed Conditional Use sites which have driveway access that is shared with other residential properties, the proposed Conditional Use will not adversely impact the convenience or safety of shared use of the driveway.

REPLY: There is no indication that the existing driveway will not provide safe access with adequate sight distance. The driveway access to the driving range and site is off Club Road and is not shared with other residential properties, but instead

with the golf course. The site visits as stated earlier are rare once the site is built. In fact, the existing Resort ingress and egress drives will continue to provide safe access with adequate sight distance to and from the Resort property based on actual conditions, and with adequate acceleration and deceleration lanes. See Ex. 10 (Entrex drawings, pg.Z-1, note 7).

e. The proposed use will not have a greater potential for adversely impacting environmentally sensitive areas in the vicinity than elsewhere.

REPLY: Applicant's research shows that there are no scenic roads (or trails) within 100 feet. There are no off-site environmental features within 100 feet. There are no existing historic sites within 100 feet. There are no cemeteries within 100 feet. Thus, there is no evidence of the proposed land use having a greater potential for adversely impacting environmentally sensitive areas in the vicinity than elsewhere. This proposed site is quite small overall, at approximately 2,500 sq. ft., and especially compared to the enormous size of the Turf Valley Resort it would reside upon.

f. The proposed use will not have a greater potential for diminishing the character and significance of historic sites in the vicinity than elsewhere.

REPLY: There are no known historic sites in close proximity. And again the use is unmanned, passive with very rare site visits for maintenance and emergency

service. There is no evidence of the proposed land use adversely diminishing the character and significance of any historic sites in the area.

V. Specific Criteria for Commercial Communications Towers (§ 131.O.N.14) Section 131.O.N.14 provides for the use in an RR zoning district subject to compliance with nine criteria.

(1) An applicant for a new communication tower shall demonstrate that a diligent effort has been made to locate the proposed communication facilities on a government structure or, on an existing structure or within a non-residential zoning district, and that due to valid considerations, including physical constraints, and economic or technological feasibility, no appropriate location is available. The information submitted by the applicant shall include a map of the area to be served by the tower, its relationship to other antenna sites in the area and, an evaluation of all existing structures taller than 50 feet, within one mile of the proposed tower.

REPLY: The petition includes a map and list of a diligent effort to list existing structures taller than 50 feet, within one mile of the proposed tower. This information indicates that these facilities cannot provide the coverage and capacity needed in the area of the proposed facility Our testimony at the CU hearing will further support.

(2) New communication towers shall be designed to accommodate antennas for more than one user, unless the applicant demonstrates why such design is not

feasible for economic, technical or physical reasons. Unless collocation has been demonstrated to be infeasible, the Conditional Use plan shall delineate an area near the base of the tower to be used for the placement of additional equipment buildings and cabinets for other users.

REPLY: The facility will comply with this section as the petition states the facility is designed to permit multiple carriers. Additionally, the Conditional Use Plan drawings support such contention.

(3) Ground level equipment and buildings and the tower base shall be screened from public streets and residentially-zoned properties.

REPLY: This requirement will be met as the compound is over 1,000 feet from public roads and residentially zoned properties, surrounded by fencing, large, mature trees in the area of the compound and golf course community and due to changes in elevation in the community. See Conditional Use Site Plan drawing (Ex. 10).

(4) Communication towers shall be grey or a similar color that minimizes visibility, unless a different color is required by the Federal Communications Commission or the Federal Aviation Administration.

REPLY: The facility will comply with this section. Please see attached Conditional Use plan drawings (Ex. 10) and photo simulations (Ex. 8) re proposed galvanized grey color for the tower pole

(5) No signals or lights shall be permitted on a tower unless required by the Federal Communications Commission or the Federal Aviation Administration.

REPLY: The facility will comply with this section. No lights are required for this location per review of the federal (FAA) criteria.

(6) A communication tower that is no longer used shall be removed from the site within one year of the date that the use ceases.

REPLY: The Applicant commits that the facility will comply with this section.

(7) The communication tower shall comply with the setbacks for such structures as specified in Section 128.0.E. Section 128.0.E.2.b requires Setbacks for communication towers in the POR, PEC, CCT, B-1, B-2, SC, I, BRX, BR, M-1, M-2, and CE Districts, and in employment land use areas of the PGCC and MXD Districts:

- (1) From residential districts: a minimum distance equal to half the tower height (including antennas) measured from ground level.*
- (2) From public street rights-of-way: a minimum distance equal to 50 feet or one-third of the tower height (including antennas) measured from ground level, whichever is greater.*

REPLY: The 155-foot high tower (with a top ht. of 160 ft. to include the tallest point on the facility) will be set back significantly in excess of the code required distances for the PGCC-2 zone of the tower height of 160 ft. from public street rights of way and other residentially zoned districts. In the PGCC the setbacks are required to be half tower height from residential districts, thus 80 feet. And 50 feet or one third tower height, whichever is greater, from public street rights-of-way so here one third tower height of 160 feet which is 52.8 ft. as shown on the Conditional Use Plan. In this case, the closest residentially used property in the community and thus in the PGCC-2 zone is 1,004 ft. to the north. And the distance to the public streets right of way is 3,446 plus feet to the south at Pebble Beach Drive. See Ex. 10 Entrex drawings, p. C-1. Thus, even if the greater required setback from section 128.0.E.2.a. was utilized, the setbacks would be nearly 5x the required tower height to the closest residentially used offsite property.

TowerCo has discussed with Planning and Zoning Staff and with their support of the Code being applicable and supportive here for the setback compliance requests that the setbacks for the Turf Valley property (which legally consists of multiple tax account numbers) be reviewed pursuant to Code Section 128.0 (10) Setbacks from lot lines internal to a development⁴. This writer also

⁴ Setbacks from lot lines internal to a development a. When two or more contiguous lots or parcels are treated as a single parcel for development purposes, the zoning structure and use setbacks from lot lines internal to the development shall not apply provided that.

- a. A plan is approved for the development showing an integrated design for the contiguous lots or there are two adjoining projects by the same developer that have integrated design elements such as roads, utilities or open space;
- b. The lots are developed and maintained as an integrated development;
- c. All of the lots are integral and necessary to the project; and

utilized the same code scenario in another recent tower case⁵ at Grace Church in Fulton area. The setbacks are met regardless, however, this code provision allows for a real viewing of the offsite setback numbers.

(8) On an ALPP purchased easement property, the use is not permitted except as a release of one acre for a public interest use per Section 15.516 of the Howard County Code.

REPLY: This section is inapplicable, as no ALPP purchased easement property is involved.

(9) On an ALPP dedicated easement property, the use is permitted, provided that the use shall not interfere with farming operations or limit future farming production, shall operate within a specified area, which shall be no larger than necessary for the tower and the ground mounted equipment structures, and the parking shall be within this same area. The tower, the ground mounted equipment and parking shall count towards the cumulative use cap of 2% of the easement.

- d. Improvements are planned and constructed without regard to the internal lot lines.
- e. In all instances, perimeter setbacks to adjoining parcels shall be maintained.
- f. This section applies only to the setbacks specified within these Zoning Regulations and not to building and fire code regulations administered by the Fire Department or the Department of Inspections, Licenses and Permits.

⁵ BA 23-003

REPLY: This section is inapplicable, as no ALPP purchased easement property is involved.

SUMMARY

The applicant contends that per the attached CU application, supporting materials and projected testimony to be shared at the County's Conditional Use public review process prove that the application is appropriate, reasonable and meets all of the County's We are confident that not only does this application meet the spirit and law for a Howard County Conditional Use, as well as applicable State and Federal laws, that the facility will provide a positive impact on the County by filing wireless coverage gaps in this area of Turf Valley area of Ellicott City for Verizon public safety and private resident customers. This will occur by providing enhanced state of the art wireless communications to the nearby residents, visitors, government staff and businesses for essential, non-essential and emergency communications. Additionally, it is a site for potential future wireless providers to co-locate on the pole (below Verizon's antennas) and location.

If you have any questions or need anything further regarding this application, please contact me at:

Miller, Miller & Canby
200-B Monroe Street
Rockville, MD 20850
301-762-5212
sphughes@mmcanby.com

Sincerely,

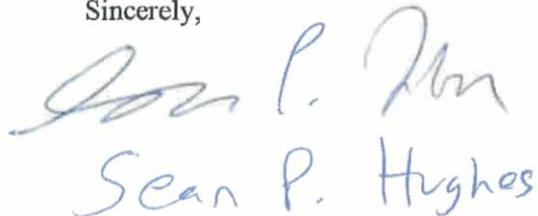

Sean P. Hughes

Exhibit 5

MILLENNIUM ENGINEERING, P.C.
42 Old Barn Drive
West Chester, Pennsylvania 19382

Cell: 610-220-3820
www.millenniumeng.com

Email: pauldugan@comcast.net

February 20, 2025

MasTec Communications Group
Attn: Joshua Schakola, Zoning Manager
10640 Iron Bridge Road, Ste 2B
Jessup, MD 20794

Re: Radiofrequency Design of Proposed Communications Facility

Site Name: Turf Valley Resort, Proposed 155' Monopole

Site Address: 2700 Turf Valley Road, Ellicott City, MD 21042 (Howard County)

Latitude 39° 18' 04.361" N, Longitude 76° 53' 08.388" W (NAD83), G.E. 473.5' +/- A.M.S.L.

Dear Mr. Schakola,

I have performed an analysis to provide an independent evaluation and design review of the wireless communications facility proposed by TowerCo at the above referenced property. As a registered professional engineer, I am under the jurisdiction of the State Registration Boards in which I am licensed to hold paramount the safety, health, and welfare of the public and to issue all public statements in an objective and truthful manner.

The proposed communications facility consists of a 155' monopole with Verizon Wireless antennas at a centerline height of 150'. Verizon Wireless is currently licensed by the Federal Communications Commission (FCC) to provide wireless communication services to Howard County and a large number of other counties in Maryland and throughout the nation. The license specifies the frequency band and power levels at which these carriers are authorized to operate their system.

The objectives of the proposed communications facility are to provide new and improved reliable 4G LTE and 5G wireless communication coverage to a northeastern section of Howard County in a community known as the Turf Valley Resort & Conference Center. The community the facility would serve includes many commercial and residential uses including homes, golf courses, shopping centers, restaurants, and hotels to name a few. This area currently suffers from unreliable wireless communications services simply due to not having a facility within the resort community. The closest existing site is known as Turf Valley and it is over 0.75 mile to the northwest and only 120' which is too short and too far to serve the resort community effectively. The proposed facility will improve service and provide better handoff between the existing sites. The facility will provide several square miles of substantial new service to the community including large sections of Interstate 70, Route 40, and other secondary roads in the vicinity.

The proposed facility will provide substantially improved in-building and data throughput speeds to wireless devices in the target area. There are no other identified existing tall structures within the resort community suitable for collocation in this target area which I could identify during my site visit. The proposed facility location is particularly suited to fulfill the objectives of providing new reliable coverage to the area in which it will serve. The new coverage will enhance public safety to the community where there currently is poor coverage. During my site visit on 2/19/2025, I checked signal levels and data throughput speeds throughout the

resort community to verify the lack of reliable service. Signal levels and download and upload data throughput speeds are very poor within the report community.

The existing Verizon Wireless facilities in the area are identified on the propagation maps as follows:

Turf Valley – 132' pine monopole at 2407 Longstone Lane, Marriottsville MD 21104 (VZ @ 120' centerline)
Red Lion – 169' transmission tower at 9357 Furrow Ave., Ellicott City MD 21042 (VZ @ 166' centerline)
Bethany – 150' monopole at 3290 Pine Orchard Lane, Ellicott City MD 21042 (VZ @ 133' centerline)

Attached are 5 figures identified as follows:

Figure 1 - Delorme Topo street map identifying the location of the proposed structure and 3 adjacent existing Verizon sites

Figure 2 – Delorme Topo street map zoomed in to show more road detail

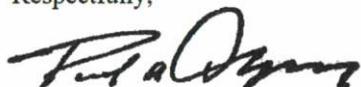
Figure 3 – Propagation maps of existing and proposed coverage to demonstrate how the proposed site fills a significant gap in service

Any reduction in height from that proposed reduces the coverage footprint to the area the site is intended to serve as outlined in the objectives. Maintaining optimum signal level threshold in all areas is not possible or practical, but reaching the target level where possible and where the users are using the devices is a critical design criteria for most locations within the footprint of the area the facility is intended to serve. The design thresholds contain a margin of safety (aka fade margin) that should be maintained in the design for a higher level of reliability under all reasonable conditions. Also, the connection and download speed of broadband wireless internet services degrades dramatically at or below design thresholds.

The proposed facility at this location would provide coverage to an area that spans approximately 0.5-1.5 mile in all directions. The proposed structure location is “particularly suited” to provide the necessary reliable service to this area. The demand for wireless infrastructure has escalated dramatically over time and the need for reliable service is extremely important for public safety and everyday use.

In summary, upon consideration of the many factors discussed herein, it is my opinion that the proposed communications facility is particularly suited (both in location and minimum height required for Verizon to provide reliable service to subscribers in a northeast section of Howard County that currently suffers from a significant gap in reliable wireless service. I am not aware of any other more feasible alternatives of providing reliable wireless service in this area. The proposed communications facility in this location is necessary for the efficient operation and provision of wireless services to the area for which it is proposed.

Respectfully,



Paul Dugan, P.E.
Registered Professional Engineer
Maryland License Number 24211



Figure 1

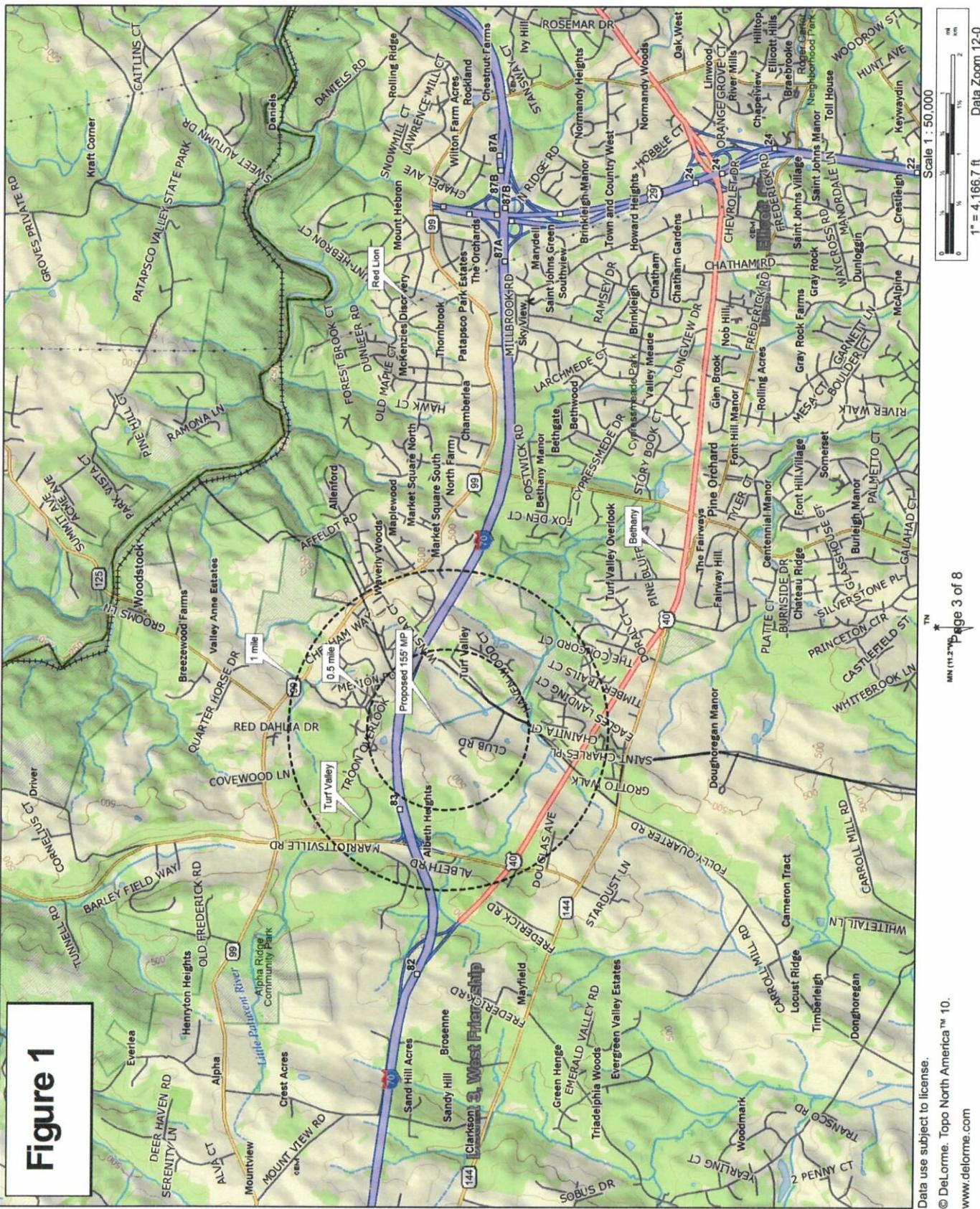


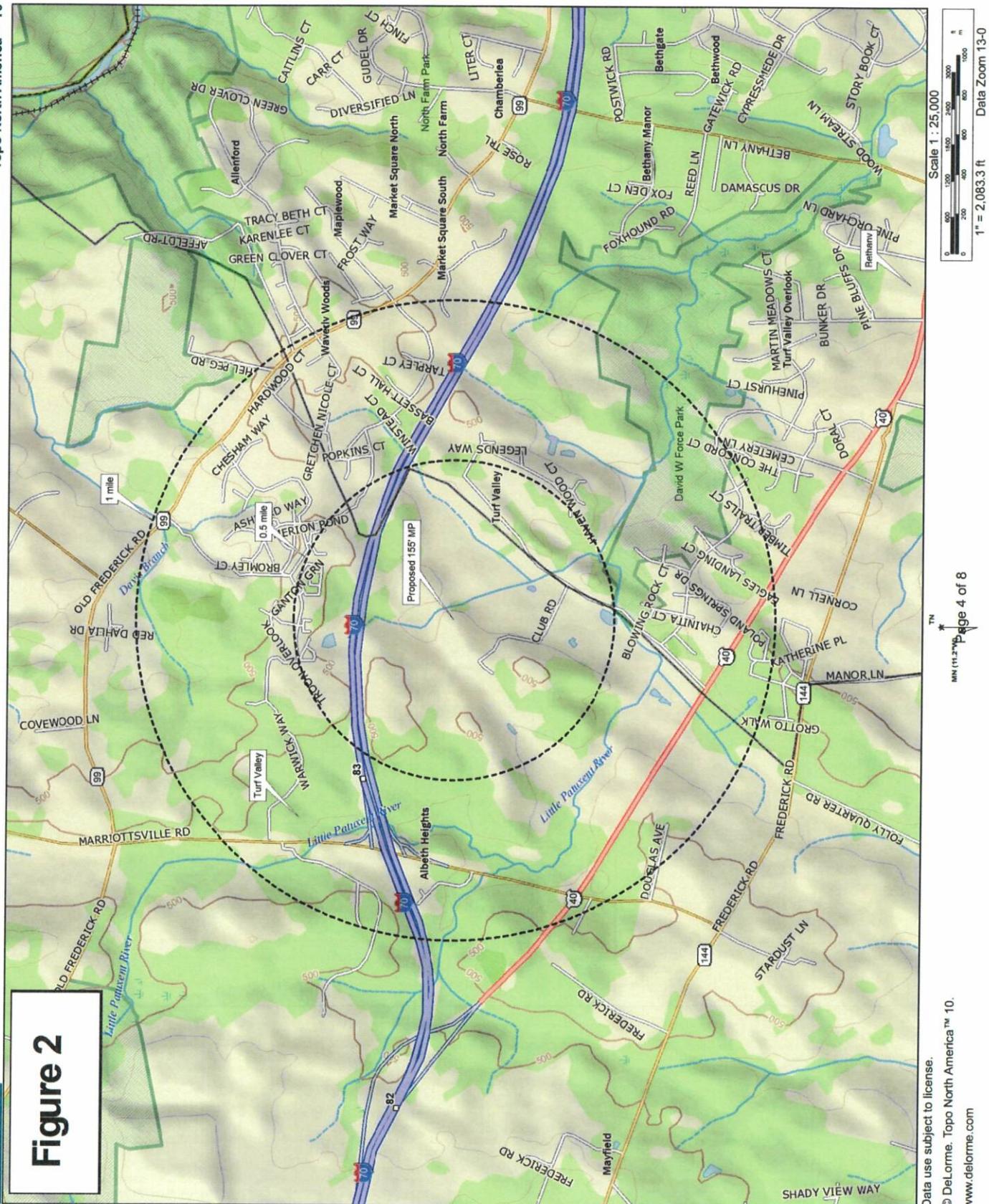
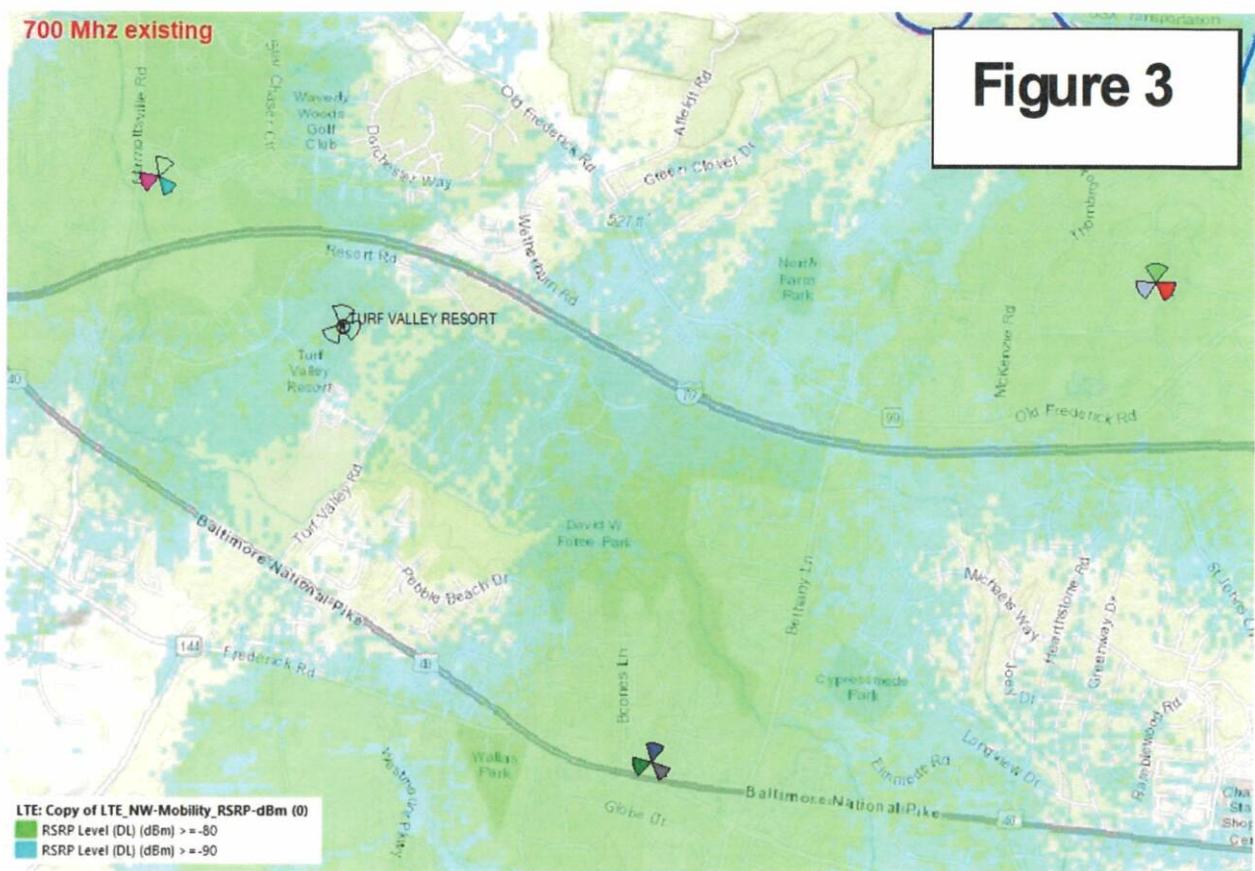
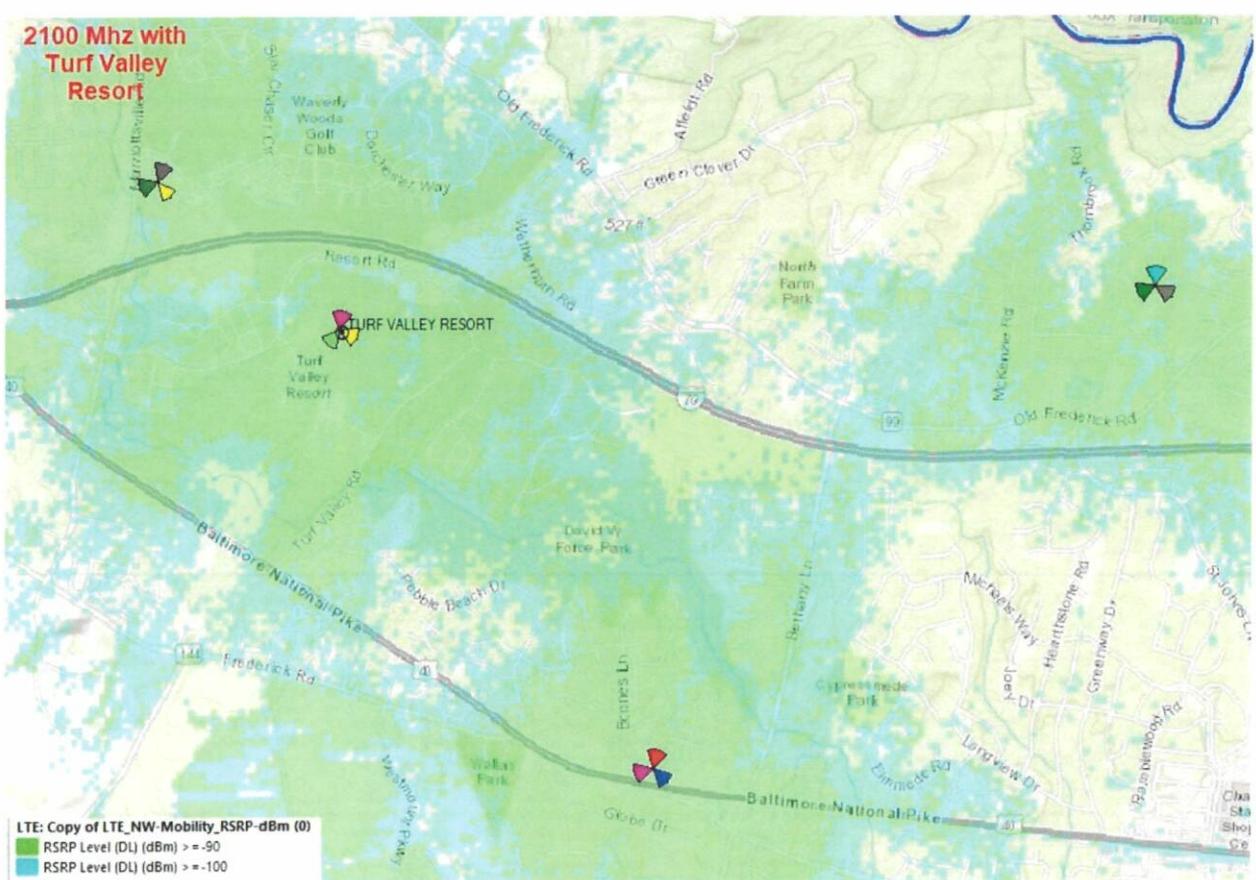
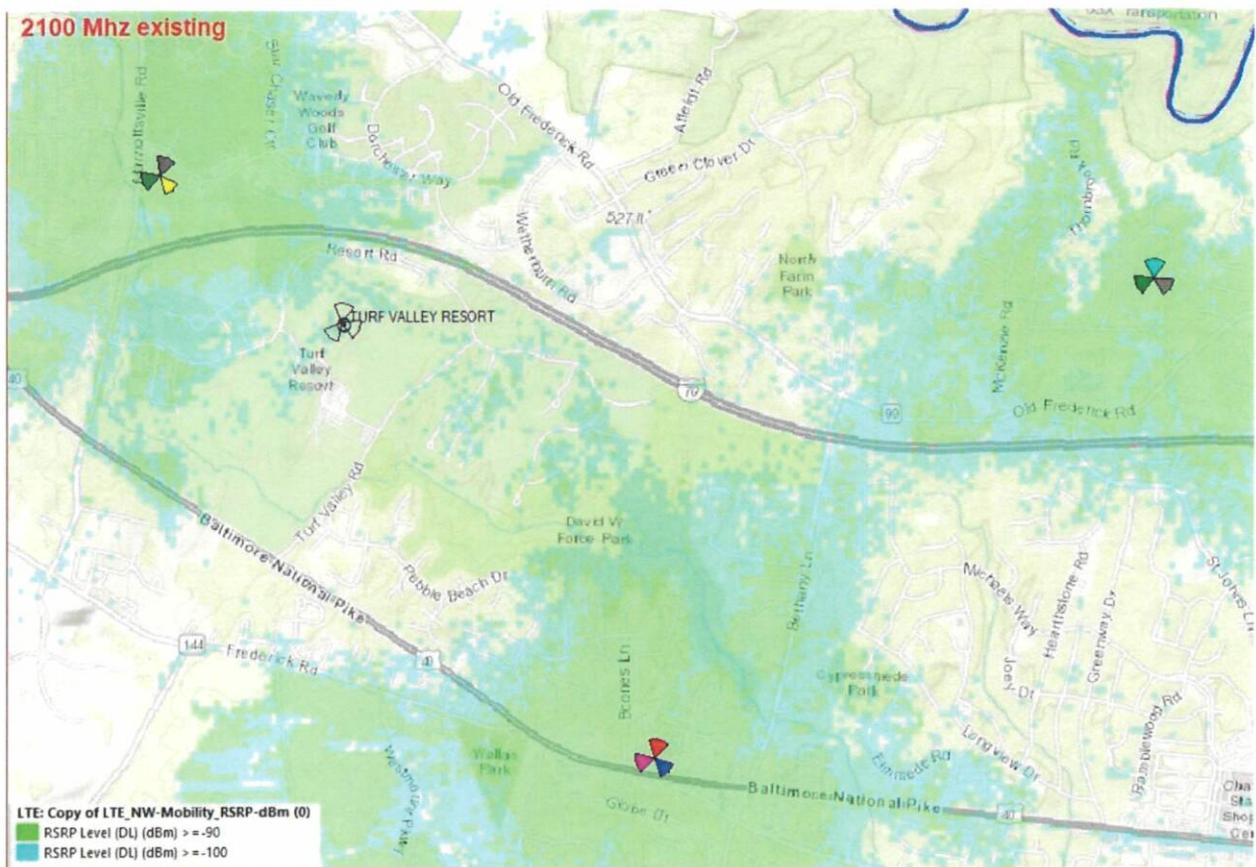
Figure 2

Figure 3





DECLARATION OF ENGINEER

Paul Dugan, P.E., declares and states that he is a graduate telecommunications consulting engineer (BSE/ME Widener University 1984/1988), whose qualifications are a matter of record with the Federal Communications Commission (FCC). His firm, Millennium Engineering, P.C., has been retained by TowerCo to perform a RF design review for justification of a proposed communications facility for suitability to meet the requirements of Anne Arundel County and the community for which it serves.

Mr. Dugan also states that the calculations or measurements made in the evaluation were made by himself or his technical associates under his direct supervision, and the summary letter and exhibits associated with the foregoing document was made or prepared by him personally. Mr. Dugan is a registered professional engineer in the Jurisdictions of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, New York, Connecticut, District of Columbia, West Virginia, Colorado, and Puerto Rico with 43 years of engineering experience. Mr. Dugan is also an active member of the Association of Federal Communications Consulting Engineers, the National Council of Examiners for Engineering, the National Society of Professionals Engineers, the Pennsylvania Society of Professional Engineers, and the Radio Club of America. Mr. Dugan further states that all facts and statements contained herein are true and accurate to the best of his own knowledge, except where stated to be in information or belief, and, as to those facts, he believes them to be true. He believes under penalty of perjury the foregoing is true and correct.



Paul Dugan, P.E.

Executed this the 20th day of February, 2025.

PAUL DUGAN, P.E.
42 Old Barn Drive
West Chester, PA 19382

Cell: 610-220-3820
Email: pauldugan@comcast.net
Web Page: www.millenniumeng.com

EDUCATION: Widener University, Chester, Pennsylvania
Master of Business Administration, July 1991
Master of Electrical Engineering, December 1988
Bachelor of Science, Electrical Engineering, May 1984

PROFESSIONAL ASSOCIATIONS: Registered Professional Engineer in the following jurisdictions:
Pennsylvania, License Number PE-045711-E
New Jersey, License Number GE41731
Maryland, License Number 24211
Delaware, License Number 11797
Virginia, License Number 36239
West Virginia, License Number 20258
Connecticut, License Number 22566
New York, License Number 079144
District of Columbia, License Number PE-900355
Puerto Rico, License Number 18946
Colorado, License Number PE.0065295

Full member of **The Association of Federal Communications Consulting Engineers** (www.afcce.org) January 1999 to Present
Elected and served on the Board of Directors for five year term 2006-2011

Full member of **The National Society of Professional Engineers** (www.nspe.org) and the **Pennsylvania Society of Professional Engineers** (www.pspe.org) June 2003 to Present
Currently serving as PSPE State Director and Past President on the Board of Directors of the Valley Forge Chapter and the South East Region Vice-Chair for the "Professional Engineers in Private Practice" Executive Committee. Actively participated in NSPE Annual Conferences 7/2005 to Present.

Actively participate in **Chester County ARES/RACES Amateur Radio** (CCAR www.w3eoc.org) which prepares and provides emergency backup communications for Chester County Department of Emergency Services, March 2005 to Present

Full member of **The National Council of Examiners for Engineering** (www.ncees.org) May 2001 to Present

Full Member of **The Radio Club of America** (www.radio-club-of-america.org) December 2003 to Present

Pennsylvania Real Estate License Number RS347405 Keller Williams 2/2019 to Present

PROFESSIONAL EXPERIENCE: Millennium Engineering, P.C., West Chester, Pennsylvania
Position: **President**, August 1999 to Present (www.millenniumeng.com)

Verizon Wireless, Plymouth Meeting, Pennsylvania
Position: **Cellular RF System Design/Performance Engineer**, April 1990 to August 1999

Communications Test Design, Inc., West Chester, Pennsylvania
Position: **Electrical Engineer**, May 1984 to April 1990

PERSONAL: Date/place of birth: November 21, 1961, West Chester, Pennsylvania; United States Citizen

Exhibit 6

MILLENNIUM ENGINEERING, P.C.
42 Old Barn Drive
West Chester, Pennsylvania 19382

Cell: 610-220-3820

www.millenniumpc.com

Email: pauldugan@comcast.net

February 20, 2025

MasTec Communications Group
Attn: Joshua Schakola, Zoning Manager
10640 Iron Bridge Road, Ste 2B
Jessup, MD 20794

Re: RF Safety FCC Compliance of Proposed Communications Facility

Site Name: Turf Valley Resort, Proposed 155' Monopole

Site Address: 2700 Turf Valley Road, Ellicott City, MD 21042 (Howard County)

Latitude 39° 18' 04.361" N, Longitude 76° 53' 08.388" W (NAD83), G.E. 473.5' +/- A.M.S.L.

Dear Mr. Schakola,

I have performed an analysis to provide an independent determination and certification that the proposed Verizon Wireless communications facility at the above referenced property will comply with Federal Communications Commission (FCC) exposure limits and guidelines for human exposure to radiofrequency electromagnetic fields (Code of Federal Regulation 47 CFR 1.1307 and 1.1310). As a registered professional engineer, I am under the jurisdiction of the State Registration Boards in which I am licensed to hold paramount the safety, health, and welfare of the public and to issue all public statements in an objective and truthful manner.

The proposed communications facility consists of a proposed 155' monopole at the above referenced property. The proposed antenna configuration consists of 9 antennas as follows:

- (2) multiband directional antennas (JMA Wireless MX06FHG865-HG or equivalent) per sector (total of 6 multiband antennas), at a centerline of 150°, azimuth of 10-115-220; transmitting from this antenna will be (1) 700 MHz LTE wideband channel, (1) 850 MHz LTE & 5G wideband channel, (1) 1900 MHz LTE wideband channel, (1) AWS 2100 MHz LTE wideband channel, and (2) AWS3 2100 MHz LTE wideband channels
- (1) LS6 5G panel antenna (Samsung- MT6413-77A or equivalent), (1) per sector (brings total antennas to 9) at a centerline of 150°; azimuths of 0-115-230; transmitting from these antennas will be (1) LS6 3700 MHz 5G wideband channel

The following assumptions are made for reasonable upper limit radiofrequency operating parameters for the proposed facility due to the Verizon Wireless antennas alone:

- (6) 700/850/1900/2100 MHz (LTE) multiband directional antennas
- (3) 3700 MHz 5G directional antennas
- (1) 700 MHz LTE wideband channel at 4X40W max power/face before cable loss/antenna gain
- (1) 850 MHz LTE/5G wideband channel at 4X40W max power/face before cable loss/antenna gain
- (1) 1900 MHz LTE wideband channel at 4x40W max power/face before cable loss/antenna gain

- (1) 2100 MHz LTE AWS wideband channel at 4X40W max power/face before cable loss/antenna gain
- (2) 2100 MHz LTE AWS3 wideband channels at 4x40W max power/face before cable loss/antenna gain
- (1) 3700 MHz 5G wideband channel at 320W max power/face before cable loss/antenna gain
- The facility would be at or near full capacity during busy hour

Using the far-field power density equations from FCC Bulletin OET 65, the power density at any given distance from the antennas is equal to $0.360(\text{ERP})/R^2$ where R is the distance to the point at which the exposure is being calculated. The given equation is a conversion of the OET 65 power density equation for calculating power density given the distance in feet and the result in metric units (mW/cm^2). This calculated power density assumes the location is in the main beam of the vertical pattern of the antenna. After making an adjustment for the reduction in power density due to the vertical pattern of the transmit antenna, the calculated ground level power density is well below 1 % of the FCC general population exposure limit at any distance from the antenna system of Verizon Wireless.

The 700 MHz “Upper C Block” transmit frequencies (746-757 MHz), which Verizon Wireless is licensed by the FCC to operate, have an uncontrolled/general population MPE FCC limit of $497 \mu\text{W/cm}^2$. The 850 MHz (cellular) “B Band” transmit frequencies (880-894 MHz), which Verizon Wireless is also licensed by the FCC to operate, have an uncontrolled/general population MPE FCC limit of $587 \mu\text{W/cm}^2$. The 1900 MHz (PCS) “C Block” transmit frequencies (1975-1990 MHz), which Verizon Wireless is also licensed by the FCC to operate, have an uncontrolled/general population MPE FCC limit of $1000 \mu\text{W/cm}^2$ or 1 mW/cm^2 . The 2100 MHz (AWS) “B Block”, “F Block” and “J Block” transmit frequencies (2120-2130, 2145-2155, 2170-2180 MHz), which Verizon Wireless is also licensed by the FCC to operate, have an uncontrolled/general population MPE FCC limit of $1000 \mu\text{W/cm}^2$ or 1 mW/cm^2 . The 3700 MHz C-Band transmit frequencies have an uncontrolled/general population MPE FCC limit of $1000 \mu\text{W/cm}^2$ or 1 mW/cm^2 .

Therefore, the exposure at ground level at any distance from the structure would be substantially below 1 % of the FCC general population exposure limits due to Verizon Wireless antennas alone. The extremely low ground exposure levels are due to the elevated positions of the antennas in the structure and the low power which these systems operate. See Figures 1 and 2 in the back of this report which discusses the relationship between height, proximity or distance, and orientation to level of electromagnetic field exposure.

In summary, the proposed communications facility will comply with all applicable exposure limits and guidelines adopted by the FCC governing human exposure to radiofrequency electromagnetic fields (FCC Bulletin OET 65). Federal law (FCC Rule Title 47 CFR 1.1307 and 1.1310) sets the national standard for compliance with electromagnetic field safety. The FCC exposure limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI). **Thus, there is full compliance with the standards of the IRPA, FCC, IEEE, ANSI, and NCRP.**

General Information on Electromagnetic Field Safety

Verizon Wireless facilities transmit and receive low power electromagnetic fields (EMF) between base station antennas and handheld devices (smart phones, ipads, laptops, jetpacks, etc.). The radiofrequency energy from these facilities and devices is non-ionizing electromagnetic energy. Non-ionizing, unlike X-Rays or other forms of potentially harmful energy in the microwave region, is not cumulative over time nor can the energy change the chemical makeup of atoms (e.g. strip electrons from ions). “Non-ionizing” simply means that the energy is not strong enough to break ionic bonds.

Safe levels of electromagnetic fields were determined by numerous worldwide organizations, such the International Committee for Non-Ionizing Radiation Protection, a worldwide multi-disciplinary team of researchers and scientists studying the effects of non-ionizing radiofrequency energy such as that emitted by base stations or cell phones. The FCC did not arbitrarily establish their own standards, but rather adopted the recommendations of all leading organizations that set standards and research the subject such as the Institute of

Electrical and Electronics Engineers (IEEE), American National Standards Institute (ANSI), and National Council on Radiation Protection and Measurements (NCRP).

When Verizon Wireless, or any commercial wireless communications licensee, is located on an antenna structure such as a self-supporting lattice type tower, lattice tower, guyed tower, watertank, etc. the antennas are typically 10 meters or more above ground level (10 meters = 32.81 feet). With the relatively low power and elevated positions of the antennas on the structure with respect to ground level, the maximum ground level exposure can rarely approach 1 % of the applicable FCC exposure limit regardless of how many sets of antennas are collocated on the structure. For this reason, the FCC considers the facilities "categorically excluded" from routine evaluation at antenna heights above 10 meters (or above 32.81 feet). Categorical exclusion exempts a site from routine on-site evaluation. However, the facility is not excluded from compliance with the federal exposure limits and guidelines. The types of facilities used by Verizon Wireless typically elevated on antenna structures (away from access to close proximity, i.e. greater than 10 meters or 32.81 feet) simply cannot generate ground level exposure levels that approach the limits under any circumstances.

From a regulatory perspective, the FCC has sole jurisdiction over the regulation of electromagnetic fields from all facilities and devices. The FCC has established guidelines and limits over emissions and exposure to protect the general public. The FCC also has certain criteria that trigger when an environmental evaluation must be performed. The criteria are based on distance from the antennas (accessibility) and transmit power levels.

CONCLUSIONS:

- 1) The proposed Verizon Wireless communications facility will comply with electromagnetic field safety standards by a substantial margin (well below 1 %) in all publicly accessible areas. This includes the base of the proposed structure and any areas in proximity to the structure.
- 2) Verizon Wireless takes appropriate measures to ensure that all telecommunications facilities (including this proposed facility) comply with applicable exposure limits and guidelines adopted by the FCC governing human exposure to radiofrequency electromagnetic fields (FCC Bulletin OET 65).
- 3) In cases where such compliance exists, the subject of electromagnetic field safety is preempted. The Telecommunications Act of 1996 states that: "No state or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [FCC's] regulations concerning such emissions." Telecommunications Act of 1996, § 332[c][7][B][iv].

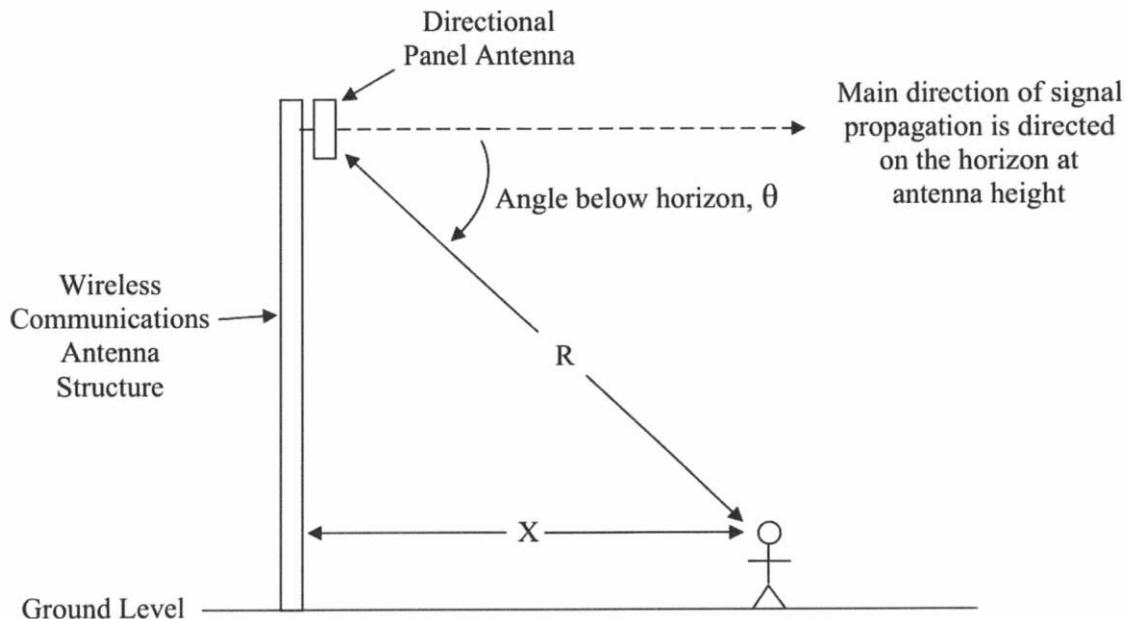
Respectfully,



Paul Dugan, P.E.
Registered Professional Engineer
Maryland License Number 24211

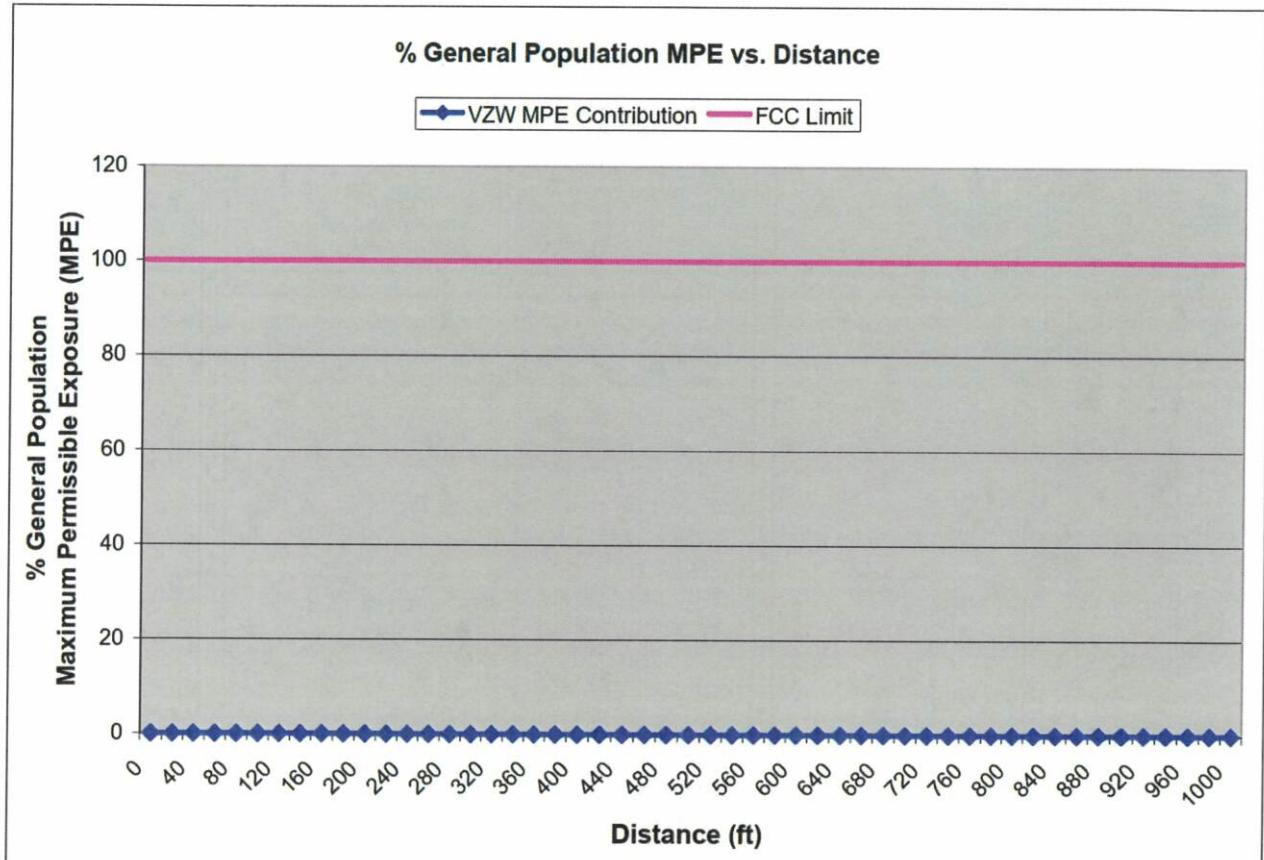


FIGURE 1: Diagram of Electromagnetic Field Strength as a Function of Distance and Antenna Orientation



The above diagram illustrates the conceptual relationship of distance and orientation to directional panel antennas used in wireless communications. At the base of the structure ($x = 0$), the distance R is a minimum when the angle of the direction of propagation θ is a maximum. As one moves away from the antenna structure, the horizontal distance X increases as well as the distance R to the antennas while the angle below the horizon decreases. For this reason, electromagnetic fields from these facilities remain fairly uniform up to a few hundred feet and continue to taper off with distance. As noted in the report, the electromagnetic fields from these types of facilities are hundreds of times below safety standards at any distance from the antenna structure, making them essentially indistinguishable relative to other sources of electromagnetic fields in the environment due to the elevated heights of the antennas and the relatively low power at which these systems operate.

FIGURE 2: Graph of MPE Contribution vs. Distance



The above graph represents the contribution of VZW to the composite electromagnetic field exposure level at any distance from the base of the structure. The contribution of VZW will remain well under 1% of the FCC general population maximum permissible exposure (MPE) at any distance as shown.

DECLARATION OF ENGINEER

Paul Dugan, P.E., declares and states that he is a graduate telecommunications consulting engineer (BSE/ME Widener University 1984/1988), whose qualifications are a matter of record with the Federal Communications Commission (FCC). His firm, Millennium Engineering, P.C., has been retained by TowerCo to perform power density measurements or calculations for an existing or proposed communications facility and analyze the data for compliance with FCC exposure limits and guidelines for human exposure to radiofrequency electromagnetic fields.

Mr. Dugan also states that the calculations or measurements made in the evaluation were made by himself or his technical associates under his direct supervision, and the summary letter certification of FCC compliance associated with the foregoing document was made or prepared by him personally. Mr. Dugan is a registered professional engineer in the Jurisdictions of Pennsylvania, New Jersey, Delaware, Maryland, Virginia, New York, Connecticut, District of Columbia, West Virginia, Colorado, and Puerto Rico with 43 years of engineering experience. Mr. Dugan is also an active member of the Association of Federal Communications Consulting Engineers, the National Council of Examiners for Engineering, the National Society of Professionals Engineers, the Pennsylvania Society of Professional Engineers, and the Radio Club of America. Mr. Dugan further states that all facts and statements contained herein are true and accurate to the best of his own knowledge, except where stated to be in information or belief, and, as to those facts, he believes them to be true. He believes under penalty of perjury the foregoing is true and correct.



Paul Dugan, P.E.

Executed this the 20th day of February, 2025.

PAUL DUGAN, P.E.
42 Old Barn Drive
West Chester, PA 19382

Cell: 610-220-3820
Email: pauldugan@comcast.net
Web Page: www.millenniumeng.com

EDUCATION: Widener University, Chester, Pennsylvania
Master of Business Administration, July 1991
Master of Electrical Engineering, December 1988
Bachelor of Science, Electrical Engineering, May 1984

PROFESSIONAL ASSOCIATIONS: **Registered Professional Engineer** in the following jurisdictions:
Pennsylvania, License Number PE-045711-E
New Jersey, License Number GE41731
Maryland, License Number 24211
Delaware, License Number 11797
Virginia, License Number 36239
West Virginia, License Number 20258
Connecticut, License Number 22566
New York, License Number 079144
District of Columbia, License Number PE-900355
Puerto Rico, License Number 18946
Colorado, License Number PE.0065295

Full member of **The Association of Federal Communications Consulting Engineers** (www.afcce.org) January 1999 to Present
Elected and served on the Board of Directors for five year term 2006-2011

Full member of **The National Society of Professional Engineers** (www.nspe.org) and the **Pennsylvania Society of Professional Engineers** (www.pspe.org) June 2003 to Present
Currently serving as PSPE State Director and Past President on the Board of Directors of the Valley Forge Chapter and the South East Region Vice-Chair for the "Professional Engineers in Private Practice" Executive Committee. Actively participated in NSPE Annual Conferences 7/2005 to Present.

Actively participate in **Chester County ARES/RACES Amateur Radio** (CCAR www.w3eoc.org) which prepares and provides emergency backup communications for Chester County Department of Emergency Services, March 2005 to Present

Full member of **The National Council of Examiners for Engineering** (www.ncees.org) May 2001 to Present

Full Member of **The Radio Club of America** (www.radio-club-of-america.org) December 2003 to Present

Pennsylvania Real Estate License Number RS347405 Keller Williams 2/2019 to Present

PROFESSIONAL EXPERIENCE: Millennium Engineering, P.C., West Chester, Pennsylvania
Position: **President**, August 1999 to Present (www.millenniumeng.com)

Verizon Wireless, Plymouth Meeting, Pennsylvania
Position: **Cellular RF System Design/Performance Engineer**, April 1990 to August 1999

Communications Test Design, Inc., West Chester, Pennsylvania
Position: **Electrical Engineer**, May 1984 to April 1990

PERSONAL: Date/place of birth: November 21, 1961, West Chester, Pennsylvania; United States Citizen

Exhibit 7

ITEM	STRUCTURE	ADDRESS	APPROXIMATE HEIGHT	CONCLUSION OF CONSIDERATION	DISTANCE FROM PROPOSED FACILITY (IN FEET)
1	Alpha Ridge Landfill Flagpole Tower	2350 Marriottsville Rd, Marriottsville, MD 21104	80 feet	Too far from deserved location. Too close to existing facility at Milestone Waverly Tower	Approximately 4,731.47 ft
2	Milestone Waverly Tower	2301 Warwick Way, Marriottsville, MD 21104	135 feet	Already on this tower facility	Approximately 4,082.92 ft
3	Waverly Gardens	10801 Enfield Dr. Woodstock, MD 21163	50 feet	Too far north, too low in height, additionally it's a residential building with pitched roof, not suitable for antenna installation	Approximately 2,984.41 ft
4	Waverly Elementary	10220 Wetherburn Rd, Ellicott City, MD 21042	50 feet	Too far east, too low in height. Additionally, these are school buildings with pitched roof, not suitable for antenna installation	Approximately 4,866.48 ft
5	Adjacent to 11150 Resort Road, Ellicott City, MD	55 feet	Too close to the Landfile Tower and the Milestone Waverly Tower	Approximately 4,049.91 ft	
6	Lorien Health Sign	11075 Resort Road, Ellicott City, MD 21042	36 feet	Too far west, too low in height. Additionally, these are retail buildings, not tall enough for antenna installation	Approximately 3,568.18 ft
7	Harris Teeter	2951 Mount Villa Pkwy, Ellicott City, MD 21042	54 feet	Too low in height. Additionally, these are residential building with pitched roof, not suitable for antenna installation	Approximately 1,064.53 ft
8	The Villas	2700 Turf Valley Rd, Ellicott City, MD 21042	84 feet	Too low in height. Additionally, this is a hotel building with pitched roof, not suitable for antenna installation	Approximately 1,801.10 ft
9	Turf Valley Resort	10530 Resort Road, Ellicott City, MD 21042	54 feet	Too low in height Residential building with pitched roof, not suitable for antenna installation	Approximately 3,190.48 ft
Vantage Condominium					





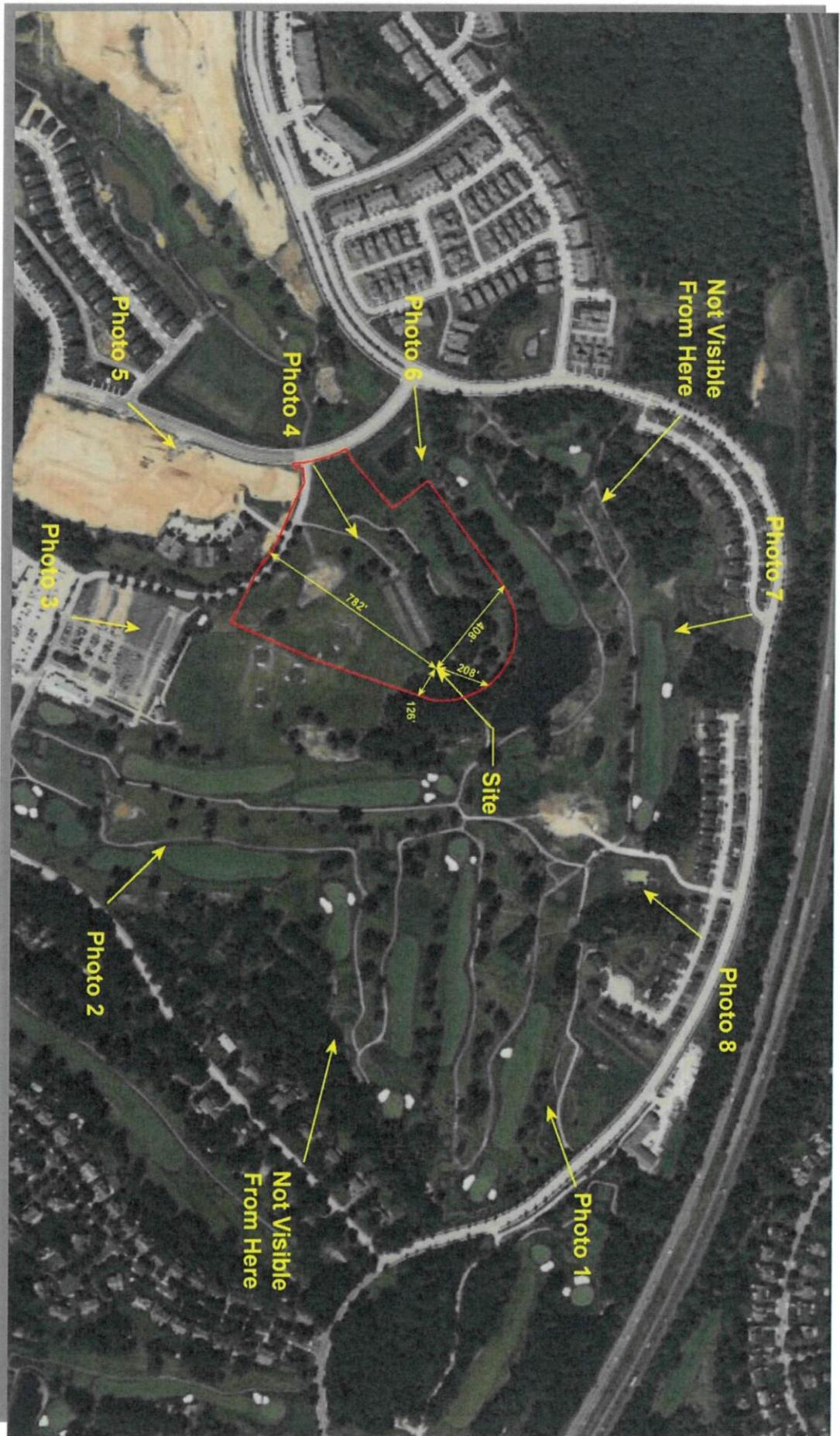
TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042

entrex
communication services, inc.

6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0980
FAX: (202) 408-0961

Exhibit 8
KEY MAP
AERIAL PHOTO





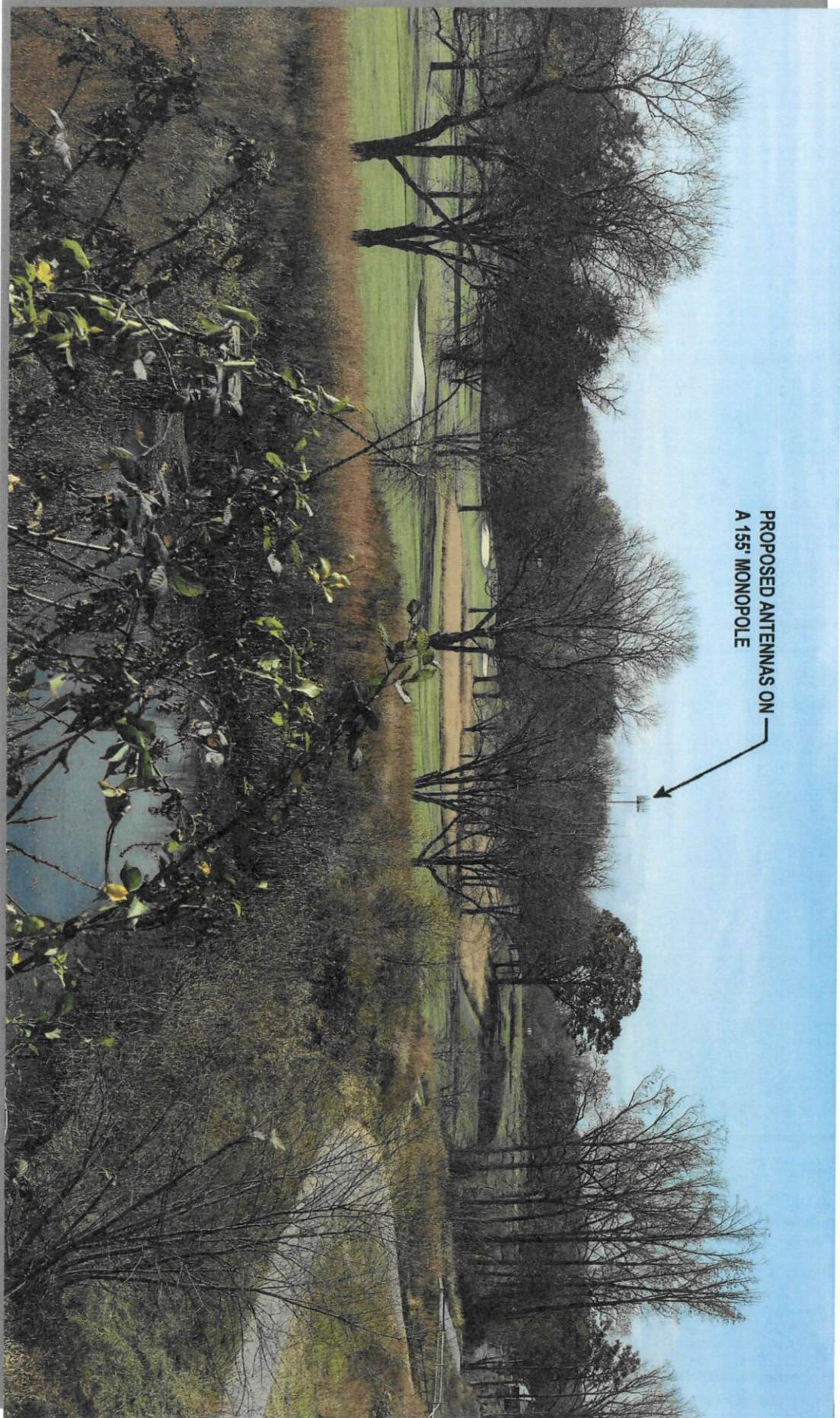
TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 1
LOOKING WEST
FROM RESORT ROAD
DISTANCE 1,950'





TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

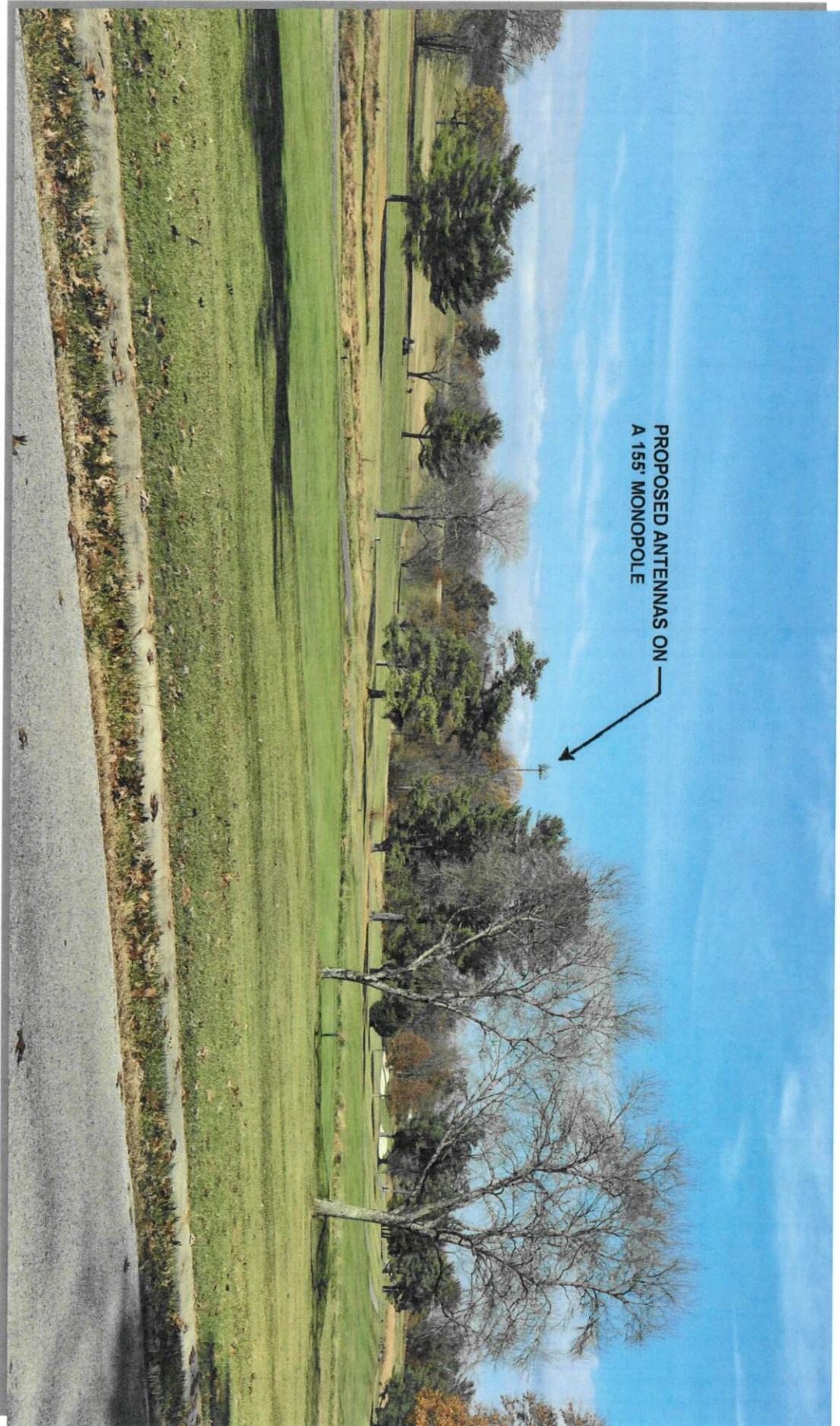
SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (301) 408-0960
FAX: (301) 408-0961

PHOTO 2

LOOKING NORTH WEST
FROM TURF VALLEY ROAD
DISTANCE 1,810'





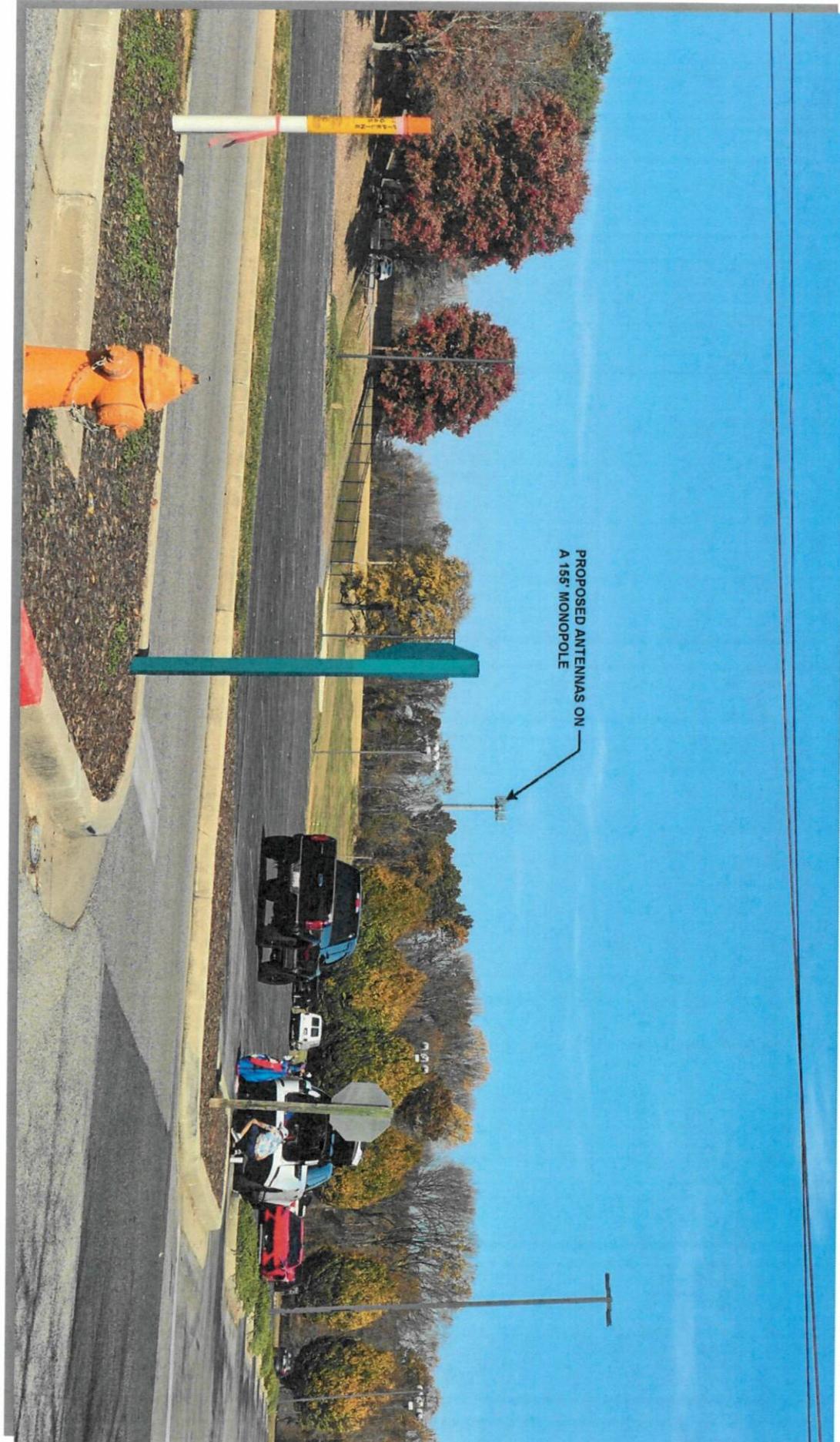
TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 3
LOOKING NORTH
FROM TURF VALLEY GOLF ROAD
DISTANCE 1,735'





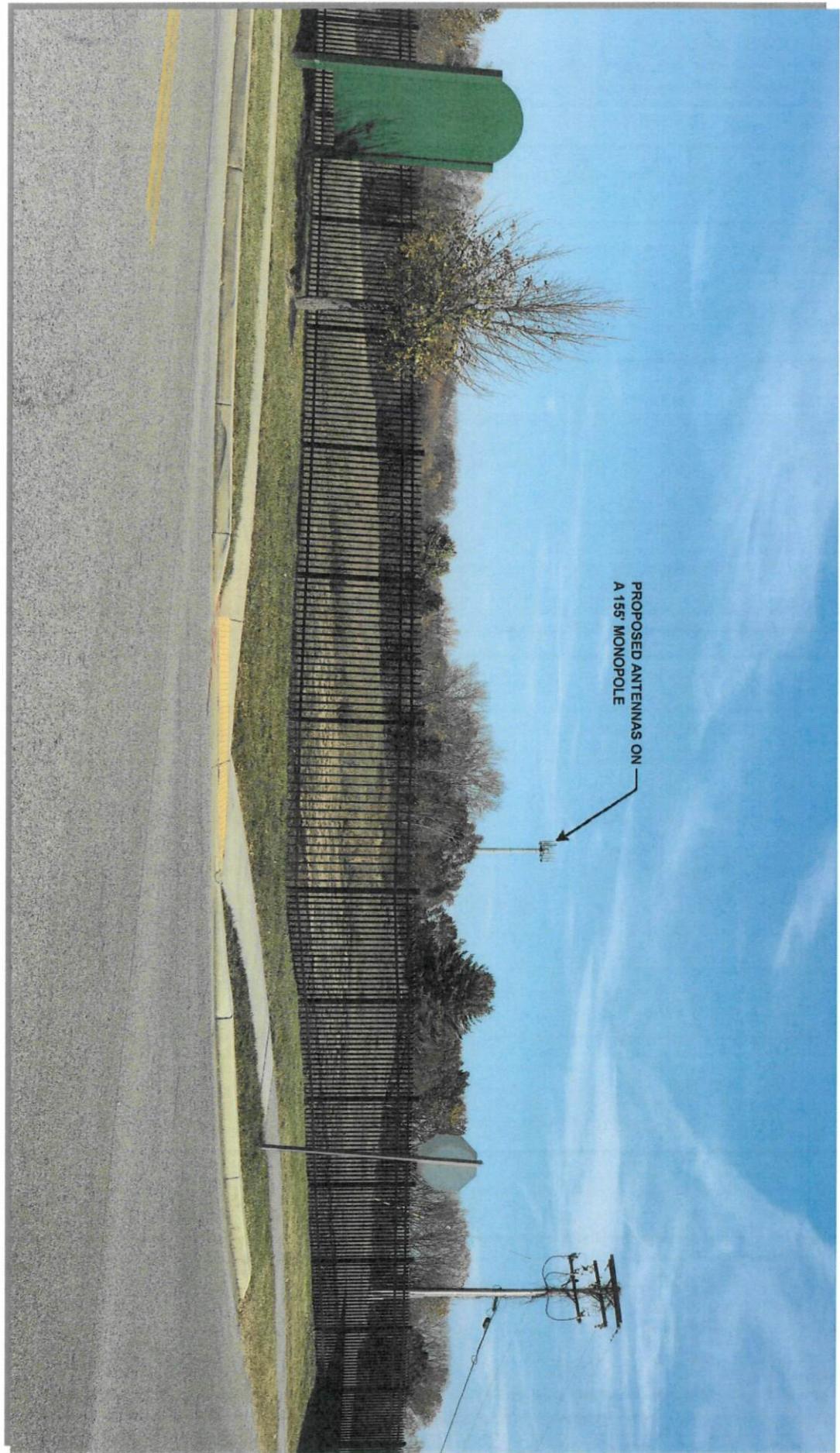
TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELICOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 4
LOOKING NORTH
FROM M VILLA PKWY
AND CLUB ROAD
DISTANCE 1,150'





TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELICOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 5
LOOKING NORTH EAST
FROM BRAVA COURT
AND M VILLA PKWY
DISTANCE 1,800'





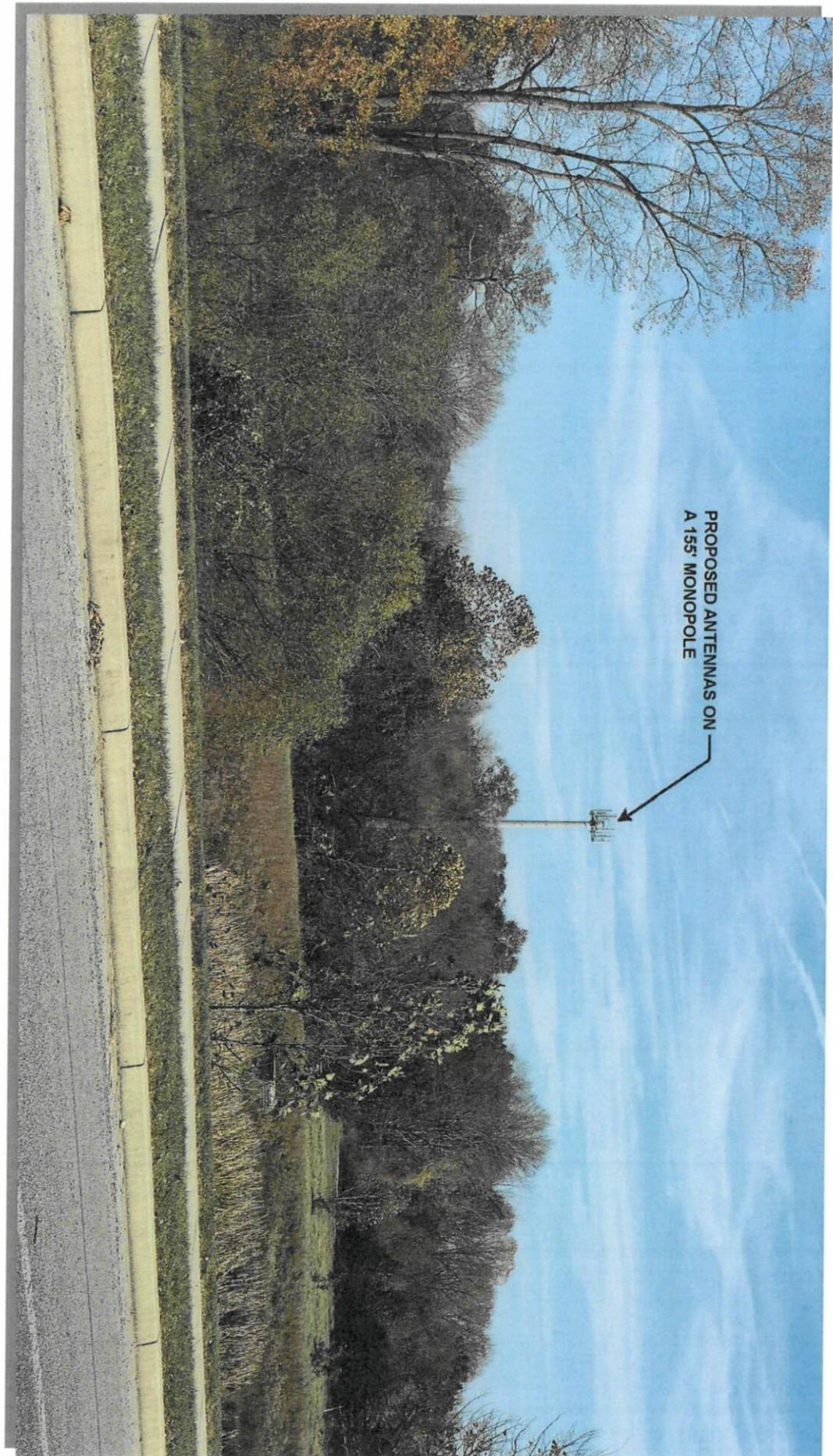
TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180
TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-9960
FAX: (202) 408-0961

PHOTO 6
LOOKING EAST
FROM RESORT ROAD
AND M VILLA PKWY
DISTANCE 1,225'



PROPOSED ANTENNAS ON
A 155' MONPOLE



TowerCo
5000 VALLEYSTONE DR
CARY, NC 27519

SITE #: MD0180

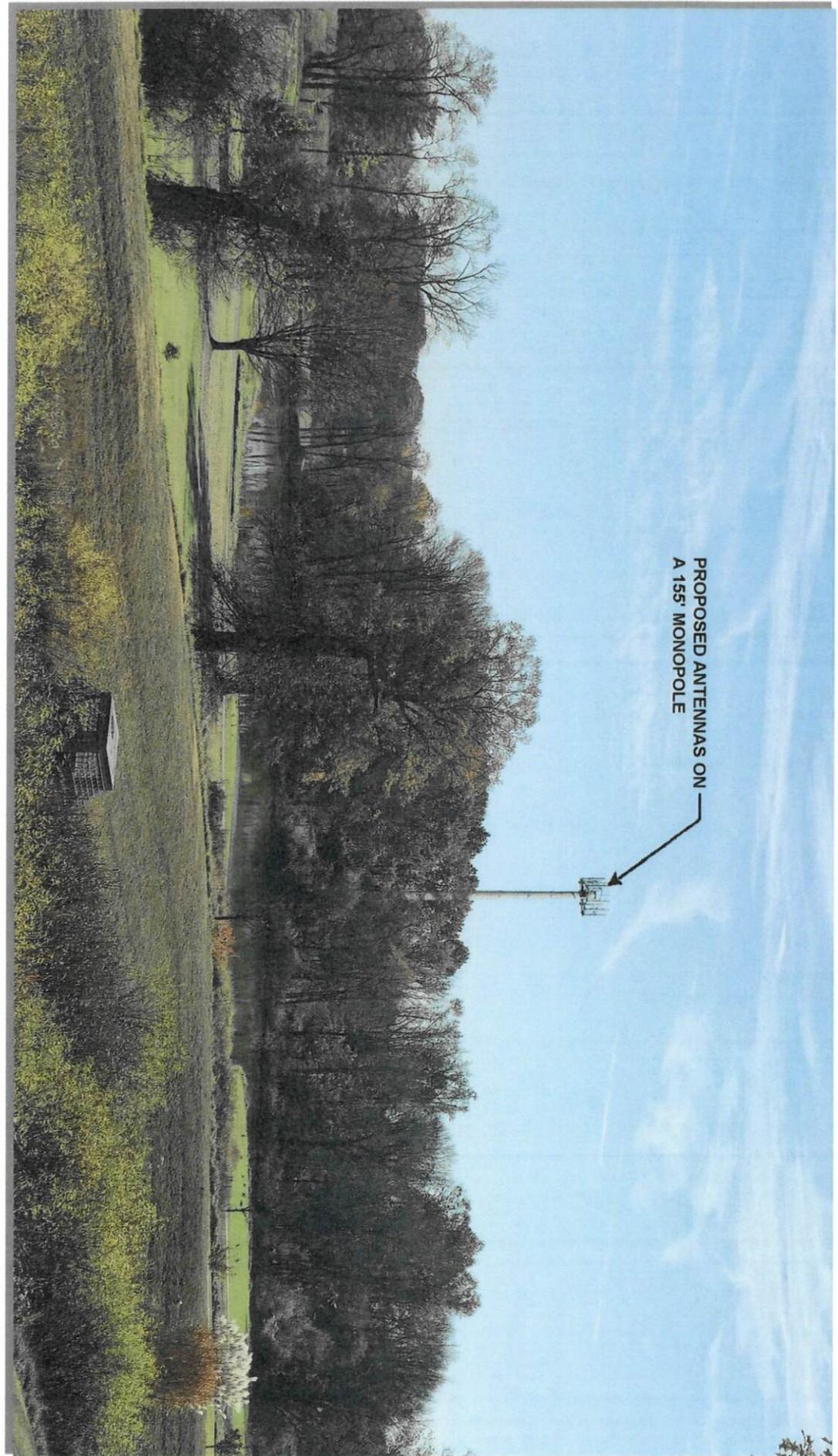
TURF VALLEY
2700 TURF VALLEY RD
ELICOTT CITY, MD 21042



entrex
communication services, inc.
6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852

PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 7
LOOKING SOUTH
FROM RESORT ROAD
DISTANCE 1,100'





TowerCo
5000 VALLEYSTONE DR

CARY, NC 27519

SITE #: MD0180

TURF VALLEY
2700 TURF VALLEY RD
ELLIOTT CITY, MD 21042



entrex
communication services, inc.

6100 EXECUTIVE BLVD, SUITE 430
ROCKVILLE, MD 20852
PHONE: (202) 408-0960
FAX: (202) 408-0961

PHOTO 8

LOOKING SOUTH WEST
FROM WICKWOOD COURT
DISTANCE 1,300'

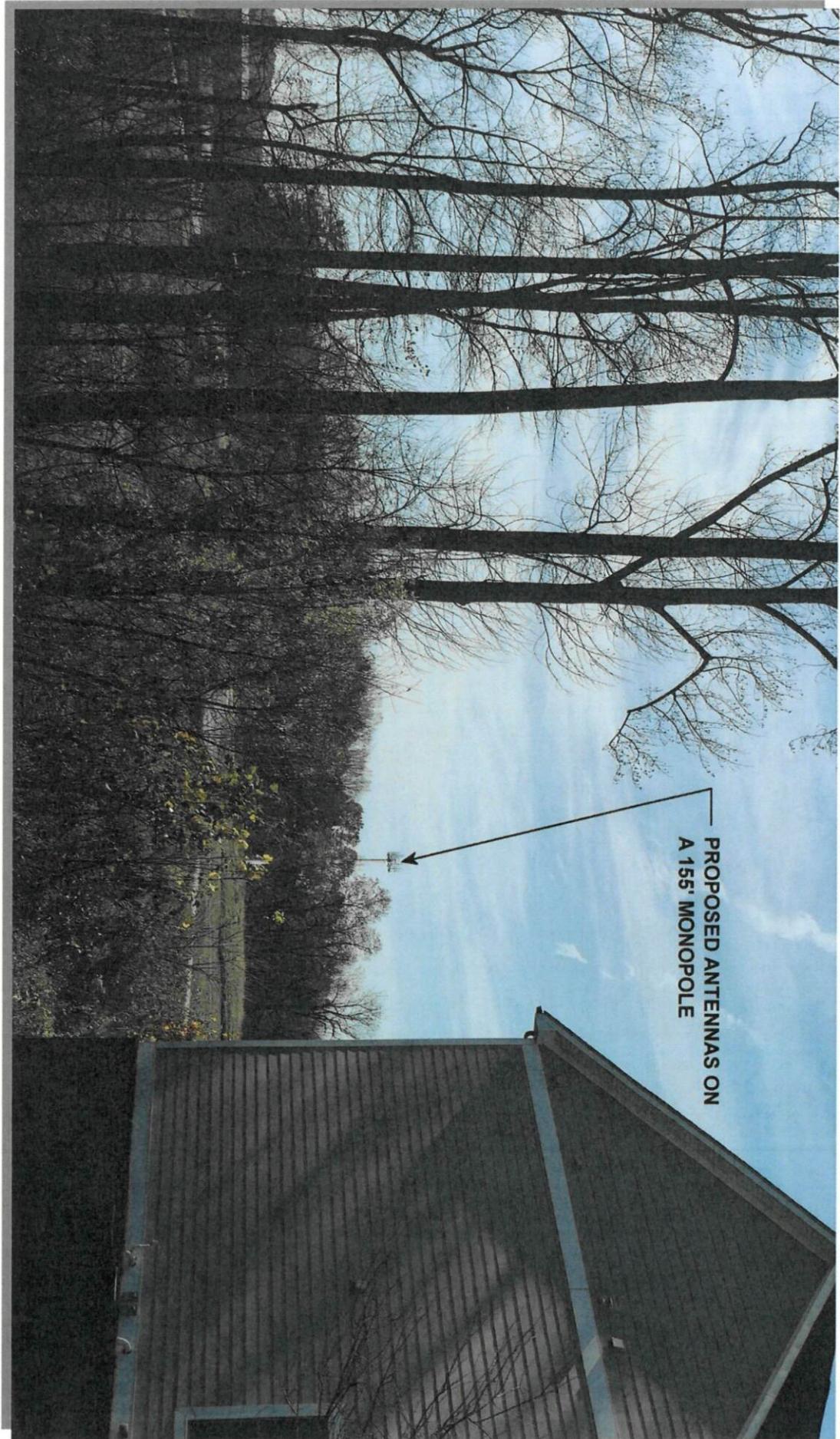


Exhibit 9

**MANGIONE ENTERPRISES OF TURF VALLEY
LIMITED PARTNERSHIP**
1205 York Road, Penthouse
Lutherville, MD 21093
410-825-8400

March 14, 2025

Dear Howard County Government,

Re: Letter of Authorization for TowerCo re anchor tenant Verizon Wireless for Cell Tower Project at Turf Valley Resort (PAR 8- Tax ID #03-297764)

I, John D. Mangione, on behalf of Turf Valley Resort ownership, hereby grant authorization to TowerCo and its outside counsel Sean Hughes/Miller Miller & Canby and project consultants to file any applications pertaining to land use approvals required from the Howard County Government for the proposed cell tower project at Turf Valley Resort.

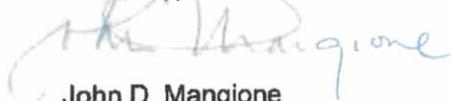
TowerCo is empowered to act with our permission in seeking and obtaining any and all necessary permits, licenses, or approvals from the Howard County Government related to the installation and operation of the cell tower project at Turf Valley Resort. This includes but is not limited to zoning approvals, building permits, environmental assessments, and any other regulatory requirements deemed necessary by the Howard County Government.

Furthermore, we authorize TowerCo to engage in communication and negotiation with relevant authorities, attend meetings, submit applications, provide information and documentation, and undertake any other actions necessary to facilitate the successful approval and implementation of the cell tower project at Turf Valley Resort.

Please consider this letter as a formal expression of our consent and authorization for TowerCo to act with our approval in all matters related to the aforementioned project. Should you require any further information or clarification regarding this authorization, please do not hesitate to contact me at the provided contact details.

Thank you for your attention to this matter.

Sincerely,



John D. Mangione

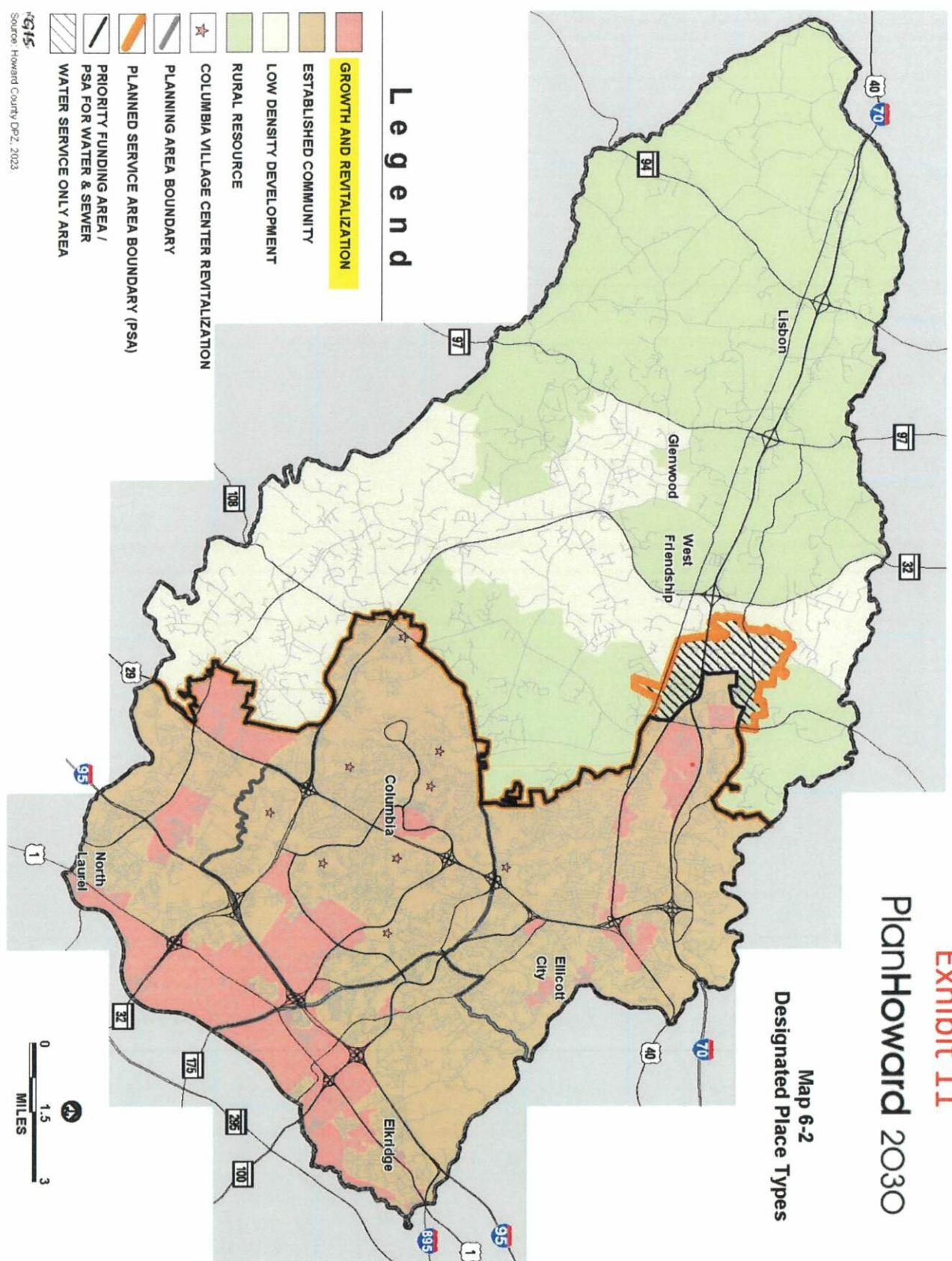
JM/jlr

cc: Pete Mangione – Turf Valley Country Club

Exhibit 11

PlanHoward 2030

Map 6-2
Designated Place Types



Source: Howard County DPZ, 2023.

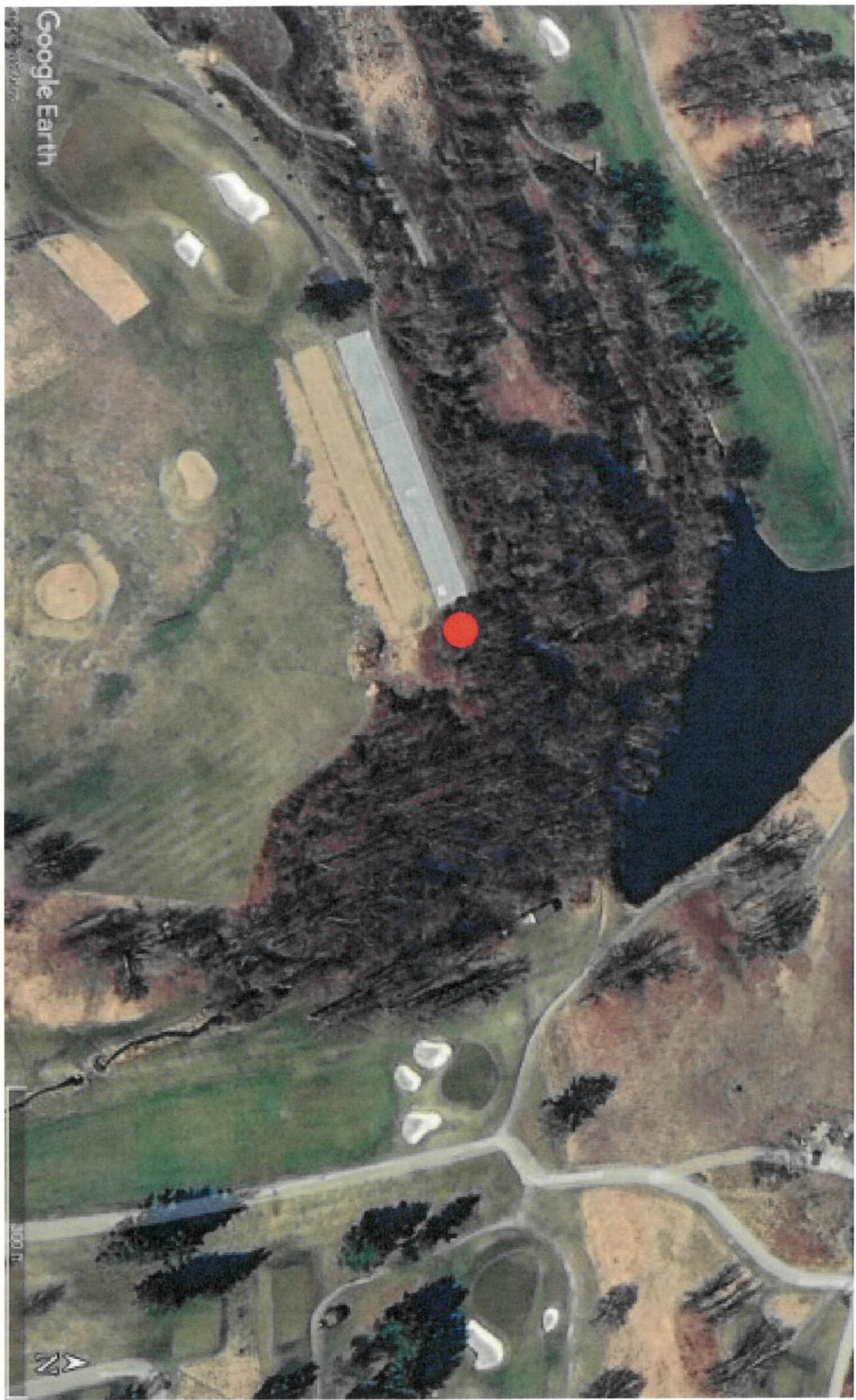


Exhibit 12



Exhibit 13

Exhibit 14a

Turf Valley Resort – Community Meeting Notes

February 27, 2025 – 7:00 p.m. – 8:00 p.m.

Project Team Attendees

Sean Patrick Hughes, Esq. – Land Use Attorney with Miller, Miller & Canby

Carrie Fazzolari – National Director of Zoning with TowerCo

Paul Dugan, P.E. – Radio Frequency Engineer Consultant with Millennium Engineering, P.C.

Camille Shabshab, P.E. – Engineer with Entrex Communication Services, Inc.

Joshua Schakola – Project Manager Consultant for Verizon Wireless

Residents:

Please see sign-in sheet attached.

Presentation Items

1. Subject Property
2. Identification of location for Telecommunications Facility Conditional Use Application
3. Details of scale for the proposed facility
4. Process for the Conditional Use

Discussion Items

1. Will this project hold its value for coverage

Feedback (FB): as an example, the Milestone Tower to the northwest is helping the coverage a little, but the signal traffic demands more capacity.

After analysis of the site location, data throughput speeds are less than 1 mpbs. The site is needed for Verizon's customers.

2. Conference Center & Parking Lot should be location

FB – we think this is a good location to meet Verizon's customer needs and meets the County zoning code requirements.

3. Verizon wireless (VZW) might have a need, but other carriers are fine

FB – not necessarily true, but we looked for VZW, the anchor tenant and who will be at the top of the tower, need who has been the largest carrier in the area.

TowerCo will reach out to other carriers for collocation opportunities and wouldn't take this project if they didn't see those opportunities as likely

4. Zoning as PGCC is residential not Commercial, which Councilmember confirmed they are not allowed in an area that's residential

FB – Noted I/we did not have full and complete answer to this exact question., but will look into it for clarity and update our answer. Upon further review, the Zone is PGCC-2 for the tower site location (See attached Zoning Map for the area) and for most of the Turf Valley Resort and greater community. See also code section 126.0 for PGCC (Planned Golf

Course Community) District. The PGCC-2 is the Multi-use District. The PGCC-1 is a Residential District in a PGCC zoning district.

5. Science isn't trustworthy as we see now with FDA recalls, you can locate this somewhere safer
FB – there's a lot of data out that is misleading. The projected energy emissions exposure at ground level for this project is less than 1% than what is allowed under FCC regulations. These concerns about the health -per federal law are not a reason for local jurisdictions to deny an application, provided the health limits are met. And as noted above and shared at the meeting, our projected numbers are less than 1% the maximum exposure limits. In fact, the wi-fi routers, microwaves, baby monitors and others similar objects provide higher levels to and inside residences and buildings. We also noted and left a hand out regarding the topic of health levels and questions about cell tower sites from well known and established government and health organizations. See attached.
6. Why not make it like the ICC tree pole or locate along the major roadways rather than bringing into the community.
FB-we believe proposed site will blend in appropriately in the area selected for the area and meet the code requirements. The tower is also proposed to be gray as is noted as preferred by the County in the zoning code. See 131.0.E.14.b.4.
7. Telecom Act prohibits local governments from considering health and environmental effects, but you don't live here
FB-These towers have to be somewhat near you to work and make a difference.
8. If the range is 1.5 miles, move it that far away from us.
FB-The need exists to place a site in this area to meet service needs and we believe this site meets the county code requirements.
9. ANSI standards aren't in the presentation
FB – Paul Dugan can share information and will testify at the Hearing. FCC sets the standard 1000's of times below the allowed limit they adopted these standards over 30 years.
Ground location is too small to make a difference for exposure.
10. Do you plan to submit these studies
FB – yes we expect that these will be part of the Conditional Use (CU) application. We also expect to have live testimony on the topic.
11. Your perception is coming from your bias, you can find anything you want in these reports. Internet information contradicts (i.e. Israel)
FB – There's a lot of reports out there that aren't credible. Please see handouts we provided with info from FCC, American Cancer Society, World Health Organization.
12. Put it closer to Route 40
FB - We look at parcels that are accommodating to this type of installation and for coverage this location is nearly center to the need for improvement.
13. This location used to be at another area, but we understand that one of the owners didn't want it move, so why are you fighting us on this, just move it.
FB – I understand you want it somewhere else.
14. Concerned about property values being ½ mile from our house.

FB-We believe enhanced wireless connectivity and services actually makes a community more desirable to move to and remain in and in fact property values increase as a result.

15. It's going to be near a school and we don't know about the health and psychological effects on kids.

FB- Please do your own research and we recommend info from credible government agencies and health organizations.

16. Since Waverly built, I don't have problems

FB- We know that service did improve some in the northwest part of the greater Turf Valley community. However, wireless service issues are real and exist in much of the resort and greater community areas.

17. When did you test the signals for RF

FB – February 19, 2025

18. For me the signal has not improved, but worse over time living here. I don't have signal, don't ignore me (attendees discussing)

19. If you have a problem change your service provider (discussion continues)

20. No they need to fill the demand (attendees discussing)

FB – This is the location we have chosen, it will meet the service needs well for Verizon customers and we believe comply with zoning code. .

21. Employee works at the resort and has SOS signal while working, concerned about needing to be available for emergencies with family members

22. You'll get better support if you move this away from the planned school and still cover the resort.

FB-We understand your position. Wherever it is placed in the Turf Valley area to provide the needed and desired enhanced wireless connectivity and services, it will be near some residences. This location is nearly 5 to 10 times the required setback distance per the zoning code to the closest residential district and greater distances in other directions.

23. What is the timeline until you build and go on air

FB – Could be another 6 months or more to get it completed through reviews.

24. Is this meeting for "show", you're moving forward with or without our concerns

FB – We think it's a good site and we can continue talking about this after, but let some others get questions in.

25. Young Adult says he has no problems and hasn't including during his digital learning time.

FB – thank you for your comment

26. Can you show us the other places you looked as an alternative, do you see when have problems telling kids and pets not to go near the site location.

FB – you're not accurate on your understanding of the data.

27. Move it away to a less populated area, at 1.5 miles you can find somewhere with less residents who may not be as opposed

FB – we are listening to you and understand where you are coming from

We think it's a good fit for the location, and that the health concerns are settled science.

Vertically you will see the tower, but the footprint itself is small , especially compared to the resort campus it would reside upon.

28. The people who may be buying our homes don't know your science that says it's safe

29. Is the Mangione family pressuring you for this particular location or is there another location on the resort
FB - When leasing a space for any structure we have to agree with the owner on a site location via a meeting of the minds. And that is what we did here too with the property owners.

30. Property Manager, Syrian McCloud: for years receives complaints about the service.
Around 800 homes in the Turf Valley area and the opposition here only represents about 1.5% of the people that are not here and probably thrilled that there's a plan to improve service.

31. Property Manager also manages other communities and has never seen any issues with property values due to proximity to power lines, and driving around talking to a realtor without a reliable signal is a problem

32. 2 communities weren't made aware of this meeting and nobody can see those signs.
FB – we are going to wrap this up cause there are workers here that need to close up. We understand and appreciate the comments tonight . We notified all required of this meeting and additional people at the Turf Valley HOA's request. We will leave handouts.

END OF MEETING 8:13pm

Documents included

1. Sign In Sheet
2. Maximum Permissible Exposure Report
3. FCC document re: Health Topic
4. Zoning Map of property and area

Exhibit 14b

AFFIDAVIT OF POSTING Pre-submission Meeting

Case: 2700 Turf Valley Road

(STATE OF MARYLAND)

(COUNTY OF HOWARD)

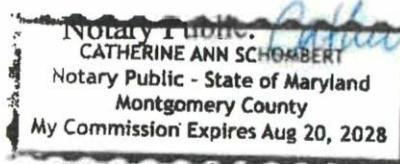
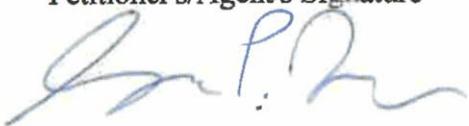
I, Sean P. Hughes, HEREBY CERTIFY that to the best of my information, knowledge and belief the property which is the subject of the above-captioned petition has been posted in accordance with the following requirements of the Department of Planning and Zoning:

1. The poster(s) shall be erected and shall remain on the subject property for three weeks prior to the pre-submission meeting.
2. The poster(s) shall be erected using two stakes, one on each side of the poster.
3. The posters shall be erected perpendicular to the road which serves as the mailing address of the subject property.

I further certify that the poster has been posted at least 21 days immediately prior to the pre-submission meeting scheduled for **February 27, 2025**, giving notification of the place, date and time of the meeting.

Subscribed and sworn to before me on this 26th day of February, 2025.

Petitioner's/Agent's Signature



My Commission expires: 8/20/28

Note: It is the responsibility of the Petitioner to ensure that all posting requirements have been met. Failure to meet any of these requirements may result in the postponing and rescheduling a meeting in order to ensure the proper posting of the property. It is also the Petitioner's responsibility to remove the poster 2 weeks after the meeting.

Exhibit 14c

PLEASE SIGN IN

NAME	MAILING ADDRESS	EMAIL	PHONE	WANT TO RECEIVE UPDATES (Yes/No)
Marco				Yes
Marilyn Heats	2653 Legends Way		9192 weeks 0	Yes
Doug Hudson	2675 Legends Way	dougudson@outlook.com		Yes
STEVEN Lafourrier	2612 GOLF ISLAND RD	SMAF@COMCAST.NET		Y
Al + Marianne DiGeronimo	2604 GOLF ISLAND RD	mmarkley@gmail.com		Yes
Phil + Jennifer Han	10747 WICKWOOD CT.	JYKOH32@gmail.com philhan1@gmail.com		Yes
Hares, Greta R.	10735 WICKWOOD	HERFISHIRAIHUN@gmail.com		Y
Munsi Toraiya	10827 Timberline Ln Ukiah City	munsi.toraiya.85@gmail.com		Yes
Miles Hart	2717 Lakeside Dr Cary 27542	MilesHart@gmail.com		Y
Dr. Michael	10480 Little Mountain Pkwy Colombia, MD 20744	Smileddhbaader.com		Y
Jae Hong	10704 WICKWOOD CT 21042	jachoda@hotmail.com		Y

PLEASE SIGN IN

NAME	MAILING ADDRESS	EMAIL	PHONE	WANT TO RECEIVE UPDATES (Yes/No)
Benji Sim	10704 Wickwood Ct. Ericott City MD 21041	wsim013@gmail.com		Y
Nicole Motsay		nicolemotsay@gmail.com		Yes

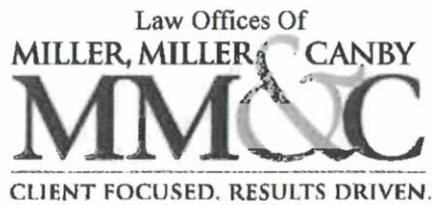


Exhibit 14d

200-B MONROE STREET, ROCKVILLE, MARYLAND 20850 P: 301.762.5212 F: 301.762.6044 WWW.MILLERMILLERCANBY.COM

SEAN P. HUGHES
sphughes@mmcanyb.com

April 23, 2025

PROJECT: TELECOMMUNICATION FACILITY @ 2700 TURF VALLEY RD., ELLICOTT CITY, MD

The developer/petitioner signing below hereby certifies that the meeting notices and minutes on the above noted project, which includes written responses to questions not answered verbally at the meeting, were sent out together with attendees' contact information within 30 days of the meeting on February 27, 2025. As required by the County code section 16.128 said minutes were sent electronically or by first class mail to all attendees who supplied their contact information. Additionally, it was also sent to those who were unable to attend the community meeting but asked to be supplied with the minutes. Further, this information has been transmitted to the Department of Planning and Zoning with our initial application submission filing in order to and thus to become part of the official record.

I/we do solemnly declare and affirm that the contents of the foregoing certification are true and correct to the best of my/our knowledge, information and belief.

Sean Hughes, Esq. P.D. - attorney for 423-25
Signature Petitioner Date

PETITIONER: Tower Co
ADDRESS: 200-B Monroe St., Rockville, MD 20850
(attorney address)

Health Effects Data – Cellular Towers & Equipment

1. There are no known adverse health effects from cell sites and no health risks to the general public have been shown.
 - a. The FCC has pointed out that the possibilities are remote that a person could be exposed to RF levels that exceed the FCC guidelines.
 - b. You can find the full FCC guidelines for Cellular and PCS Sites at:
<http://www.fcc.gov/cgb/consumerfacts/rfexposure.html>
2. In addition, the American Cancer Society (ACS) affirms the FCC's conclusion stating "at ground level near typical cellular base stations, the amount of RF energy is thousands of times less than the limits for safe exposure set by the FCC and other regulatory authorities." The ACS also states that it is "very unlikely" for an individual to be exposed to excess RF levels just by being close to a cell site.
 - a. According to a report on cell sites, the ACS confirms that most scientists believe that cell sites and antennas are unlikely to cause cancer or result in health problems.
 - b. You can find the full ACS report at:
<http://www.cancer.org/Cancer/CancerCauses/OtherCarcinogens/AtHome/cellular-phone-towers>
3. Furthermore, the World Health Organization (WHO) confirms that RF emissions diminish rapidly with distance. Likewise, the WHO states that studies have not shown a correlation between exposure to RF emissions from base stations and an increased risk of cancer or any adverse long or short-term health effects.
 - a. You can find the full WHO reports at:
<http://www.who.int/mediacentre/factsheets/fs304/en/index.html>
and <https://www.sciencedirect.com/science/article/pii/S0160412024005695?via%Dihub>
4. The energy from the antennas on cell sites decreases with distance. As a result, ground-level exposure is much lower than if a person were very close to the antenna and the main beam.
5. The FCC's RF exposure guidelines recommend a maximum permissible exposure level to the general public of approximately 580 microwatts per square centimeter. This limit is many times greater than RF levels typically found near the base of cell sites or in the vicinity of other, lower-powered cell site transmitters.

Human Exposure to Radio Frequency Fields: Guidelines for Cellular and PCS Sites

Primary antennas for transmitting wireless telephone service, including cellular and Personal Communications Service (PCS), are usually located outdoors on towers, water tanks and other elevated structures like rooftops and sides of buildings. The combination of antenna towers and associated electronic equipment is referred to as a "cellular or PCS cell site" or "base station." Cellular or PCS cell site towers are typically 50-200 feet high. Antennas are usually arranged in groups of three, with one antenna in each group used to transmit signals to mobile units, and the other two antennas used to receive signals from mobile units.

At a cell site, the total radio frequency (RF) power that can be transmitted from each transmitting antenna depends on the number of radio channels (transmitters) that have been authorized by the Federal Communications Commission (FCC) and the power of each transmitter. Although the FCC permits an effective radiated power (ERP) of up to 500 watts per channel (depending on the tower height), the majority of cellular or PCS cell sites in urban and suburban areas operate at an ERP of 100 watts per channel or less.

An ERP of 100 watts corresponds to an actual radiated power of 5-10 watts, depending on the type of antenna used. In urban areas, cell sites commonly emit an ERP of 10 watts per channel or less. For PCS cell sites, even lower ERPs are typical. As with all forms of electromagnetic energy, the power density from a cellular or PCS transmitter rapidly decreases as distance from the antenna increases.

Consequently, normal ground-level exposure is much less than the exposure that might be encountered if one were very close to the antenna and in its main transmitted beam. Measurements made near typical cellular and PCS cell sites have shown that ground-level power densities are well below the exposure limits recommended by RF/microwave safety standards used by the FCC.

Guidelines

In 1996, the FCC adopted updated guidelines for evaluating human exposure to RF fields from fixed transmitting antennas such as those used for cellular and PCS cell sites. The FCC's guidelines are identical to those recommended by the National Council on Radiation Protection and Measurements (NCRP), a non-profit corporation chartered by Congress to develop information and recommendations concerning radiation protection. The FCC's guidelines also resemble the 1992 guidelines recommended by the Institute of Electrical and Electronics Engineers (IEEE), a non-profit technical and professional engineering society, and endorsed by the American National Standards Institute (ANSI), a nonprofit, privately-funded membership organization that coordinates development of voluntary national standards in the United States.

In the case of cellular and PCS cell site transmitters, the FCC's RF exposure guidelines recommend a maximum permissible exposure level to the general public of approximately 580 microwatts per square centimeter. This limit is many times greater than RF levels typically found near the base of cellular or PCS cell site towers or in the vicinity of other, lower-powered cell site transmitters. Calculations corresponding to a "worst-case" situation (all transmitters operating simultaneously and continuously at

the maximum licensed power) show that, in order to be exposed to RF levels near the FCC's guidelines, an individual would essentially have to remain in the main transmitting beam and within a few feet of the antenna for several minutes or longer. Thus, the possibility that a member of the general public could be exposed to RF levels in excess of the FCC guidelines is extremely remote.

When cellular and PCS antennas are mounted on rooftops, RF emissions could exceed higher than desirable guideline levels on the rooftop itself, even though rooftop antennas usually operate at lower power levels than free-standing power antennas. Such levels might become an issue for maintenance or other personnel working on the rooftop. Exposures exceeding the guidelines levels, however, are only likely to be encountered very close to, and directly in front of, the antennas. In such cases, precautions such as time limits can avoid exposure in excess of the guidelines. Individuals living or working within the building are not at risk.

Consumer Help Center

For more information on consumer issues, visit the FCC's Consumer Help Center at www.fcc.gov/consumers.

Accessible formats

To request this article in an accessible format - braille, large print, Word or text document or audio - write or call us at the address or phone number at the bottom of the page, or send an email to fcc504@fcc.gov.

Last Reviewed 10/31/16

Zoning Map Exhibit 14f



[View Map](#)

[View GroundRent Redemption](#)

[View GroundRent Registration](#)

Special Tax Recapture: COUNTRY CLUB AGREEMENT

Account Number: District - 03 Account Identifier - 297764

Owner Information

Owner Name:	MANGIONE ENTERPRISES TURF VALLEY C/O M ROBIN POLEC	Use: Principal Residence:	COUNTRY CLUB NO
Mailing Address:	1205 YORK RD PH LUTHERVILLE MD 21093-6247	Deed Reference:	/00447/ 00775

Location & Structure Information

Premises Address:	2700 TURF VALLEY RD ELLIOTT CITY 21042-0000	Legal Description:	97.4827 A. 2700 TURF VALLEY RD VIL @ TURF VALLEY, PH 5
-------------------	--	--------------------	--

Map:	Grid:	Parcel:	Neighborhood:	Subdivision:	Section:	Block:	Lot:	Assessment Year:	Plat No:
0016	0017	0008	10000.14	0000				2025	Plat Ref:

Town: None

Primary Structure Built 2008	Above Grade Living Area 14,175 SF	Finished Basement Area	Property Land Area 97.4827 AC	County Use
---------------------------------	--------------------------------------	------------------------	----------------------------------	------------

Stories	Basement	Type	Exterior	Quality	Full/Half Bath	Garage	Last Notice of Major Improvements
		CLUB HOUSE	/	C3			

Value Information

	Base Value	Value	Phase-in Assessments
	As of 01/01/2025	As of 07/01/2024	As of 07/01/2025
Land:	487,400	487,400	
Improvements	3,340,100	3,560,600	
Total:	3,827,500	4,048,000	3,827,500
Preferential Land:	487,400	487,400	3,901,000

Transfer Information

Seller:	Date:	Price:
Type:	Deed1: /00447/ 00775	Deed2:
Seller:	Date:	Price:
Type:	Deed1:	Deed2:
Seller:	Date:	Price:
Type:	Deed1:	Deed2:

Exemption Information

Partial Exempt Assessments:	Class	07/01/2024	07/01/2025
County:	000	0.00	
State:	000	0.00	
Municipal:	000	0.00 0.00	0.00 0.00

Special Tax Recapture: COUNTRY CLUB AGREEMENT

Homestead Application Information

Homestead Application Status: No Application

Homeowners' Tax Credit Application Information

Homeowners' Tax Credit Application Status: No Application Date:

Zoning Map

Exhibit 16



Exhibit 17

LAND BANK SITE – Turf Valley Sketch Plan

Approximate boundary



Turf Valley Sketch Plan

- Originally signed August 1994
- Amended April 2006
- Approved units: 1,653 dwelling units

Sean Patrick Hughes

From: Sean Patrick Hughes
Sent: Thursday, May 1, 2025 4:00 PM
To: Sean Patrick Hughes
Subject: NOTICE OF APPLICATION: CONDITIONAL USE APPLICATION - BA-25-010C

Dear Pre-Submission Community Meeting Attendees and/or requesting interested parties:

Please be advised that the above reference land use application has been filed with the Howard County Department of Planning and Zoning(DPZ) for the development of a telecommunications facility at Turf Valley Resort, located at 2700 Turf Valley Road, Ellicott City, MD 21042. This site is currently zoned PGCC-2 and the proposal involves a Conditional Use for a 155-foot communication tower (with top height of 160 ft) to provide an enhanced wireless connectivity to the area. The proposed development on the property includes the tower, fenced 50 by 50-foot ground compound and ancillary equipment.

General information regarding development applications can be located on the Howard County Government's Department of Planning & Zoning website at <https://www.howardcountymd.gov/planning-zoning/development-process-and-procedures> or by calling the office at 410-313-2350.

Should you have questions or desire additional follow up correspondence, please do not hesitate to contact **Sean Hughes**, at **301.762.5212** or email sphughes@mmcanby.com.

Sincerely,

Sean Hughes
Outside Counsel for Applicant

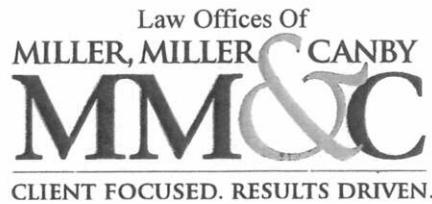
Sean Patrick Hughes, Esq.
Attorney



200-B Monroe Street Rockville, MD 20850
T: 301.762.5212 F: 301.424.9673

[website](#) | [bio](#) | [linkedin](#) | [vCard](#) | [confidentiality](#) | [email](#)

Pre-Submission Community Meeting Attendees & Interested Parties			
First Name	Last Name	Mailing Address	Email Address
Macro			marcom@mfie.bz
Marilyn	Weeks	2653 legends way	kirk1weeks@comcast.net
Doug	Hudson	2675 legends way	doughud@outlook.com
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May 1, 2025

NOTICE OF APPLICATION: CONDITIONAL USE APPLICATION - BA-25-010C

Dear adjoining property owners, Community Associations and/or interested parties:

Please be advised that the above reference land use application has been filed with the Howard County Department of Planning and Zoning(DPZ) for the development of a telecommunications facility at Turf Valley Resort, located at 2700 Turf Valley Road, Ellicott City, MD 21042. This site is currently zoned PGCC-2 and the proposal involves a Conditional Use for a 155-foot communication tower (with top height of 160ft) to provide an enhanced wireless connectivity to the area. The proposed development on the property includes the tower, fenced 50 by 50-foot ground compound and ancillary equipment.

General information regarding development applications can be located on the Howard County Government's Department of Planning & Zoning website at <https://www.howardcountymd.gov/planning-zoning/development-process-and-procedures> or by calling the office at 410-313-2350.

Should you have questions or desire additional follow up correspondence, please do not hesitate to contact *Sean Hughes*, at *301.762.5212* or email sphughes@mmcanyby.com.

Sincerely,
Miller, Miller & Canby


Sean P. Hughes, Esq.

AV^ERY

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