



Agenda

Jefferson County Planning Commission

Tuesday, August 29, 2023 at 7:00 PM

**By order of the President of the Jefferson County Planning Commission,
Public Participation is available in-person only.
The meeting will be broadcast live via ZOOM for viewing purposes only.**

In-Person Meeting Location: County Commission Meeting Room located in the lower level of the Charles Town Library (side entrance on Samuel Street)
200 East Washington Street, Charles Town, WV 25414

ZOOM Broadcast Information*: Meeting ID: 883 1216 8501
Meeting Link: <https://us02web.zoom.us/j/88312168501>

**If watching live broadcast, please ensure your microphone is muted and be mindful that your video is streaming to others.*

1. **Citizens Comment (up to 3 minutes per person, not to exceed 30 minutes total):** Citizens may provide comment on the proposed Shannondale Lake Telecommunication Tower that is subject to an appeal in the United States District Court, Northern District Case No. 3:23-CV-171 (PC File #23-3-SP).

There is no public comment for the following items.

2. **Legal Advice, Discussion and Action:** Discussion of VB BTS, LLC v. JEFFERSON COUNTY, WEST VIRGINIA, & THE JEFFERSON COUNTY PLANNING COMMISSION (United States District Court, Northern District Case No. 3:23-CV-171) including potential resolution/settlement offer presented by Plaintiff.

3. **Non-Actionable Correspondence:**

1. Eddie Love dated August 16, 2023
2. John Freiler dated August 20, 2023
3. Charlotte Fremaux dated August 21, 2023
4. Corey Ash dated August 21, 2023
5. Jon Avery dated August 23, 2023
6. Robert Berg, Esq. dated August 23, 2023
7. Rachel Grogan dated August 24, 2023
8. Adam McDowell dated August 24, 2023

UNITED STATES DISTRICT COURT

for the

Northern District of West Virginia

VB BTS, LLC

Plaintiff(s)

v.

Jefferson County, West Virginia and The Jefferson County Planning Commission

Defendant(s)

Civil Action No. 3:23-CV-171

SUMMONS IN A CIVIL ACTION

To: (Defendant's name and address) The Jefferson County Planning Commission 116 East Washington Street, Suite 200 Charles Town, WV 25414

RECEIVED

JUL 28 2023

JEFFERSON COUNTY PLANNING ZONING & ENGINEERING

A lawsuit has been filed against you.

Within 21 days after service of this summons on you (not counting the day you received it) — or 60 days if you are the United States or a United States agency, or an officer or employee of the United States described in Fed. R. Civ. P. 12 (a)(2) or (3) — you must serve on the plaintiff an answer to the attached complaint or a motion under Rule 12 of the Federal Rules of Civil Procedure. The answer or motion must be served on the plaintiff or plaintiff's attorney, whose name and address are:

F. Samuel Byrer, Law Offices of F. Samuel Byrer, PLLC 202 West Liberty Street, Charles Town, WV 25414

If you fail to respond, judgment by default will be entered against you for the relief demanded in the complaint. You also must file your answer or motion with the court.

Cheryl Dean Riley

CLERK OF COURT

Signature of Clerk or Deputy Clerk

Date:

07/13/2023

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF WEST VIRGINIA
MARTINSBURG DIVISION

ELECTRONICALLY
FILED
Jul 13 2023
U.S. DISTRICT COURT
Northern District of WV

VB BTS, LLC,)
)
 Plaintiff,)
)
 v.)
)
 JEFFERSON COUNTY, WEST)
 VIRGINIA, & THE JEFFERSON)
 COUNTY PLANNING COMMISSION.)
)
)
)
)

Case No. 3:23-CV-171 (Groh)

ELECTRONICALLY FILED

COMPLAINT

Plaintiff VB BTS, LLC (“Vertical Bridge” or “Plaintiff”), by and through undersigned counsel, and for its Complaint against Defendants Jefferson County, West Virginia (the “County”) and the Jefferson County Planning Commission (the “Planning Commission”), (collectively, the “County Defendants”), states and alleges as follows:

NATURE OF THE MATTER

1. This action seeks relief from the County Defendants’ improper and arbitrary denial of Vertical Bridge’s application to construct a wireless communications tower (colloquially called a “cell tower”; hereinafter, the “Proposed Tower”) on property located at 1329 Lakeside Drive, parcel ID number 06000600090000, Jefferson County, West Virginia 25425 (the “Property”).

2. Vertical Bridge complied with all of the federal, state, and local requirements applicable to cell towers. Despite such compliance, the County Defendants denied Vertical Bridge’s Application (the “Denial”).

3. The County Defendants’ Denial violates the Federal Telecommunications Act of 1996 (47 U.S.C. Ch. 5) (the “TCA”), as the Denial is not based on substantial evidence in the

record. Further, County Defendants' Denial violates the TCA as the Denial amounts to an effective prohibition of enhanced cellular service.

4. Vertical Bridge seeks declaratory, injunctive, and mandamus relief pursuant to 47 U.S.C. § 332 and 28 U.S.C. § 2201, and requests that the County Defendants be ordered to approve Vertical Bridge's Application or that the Application be deemed approved.

PARTIES

5. VB BTS, LLC is, and at all times relevant hereto has been, a Delaware limited liability company registered to conduct and conducting business in the State of West Virginia. Vertical Bridge's primary place of business is in Boca Raton, Florida.

6. The County is a political subdivision in the State of West Virginia.

7. The Planning Commission is the duly authorized planning commission for the County.

JURISDICTION AND VENUE

8. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. § 1331 and § 1367 because these claims arise under the laws of the United States, specifically 47 U.S.C. § 332(c)(7).

9. This case presents an actual controversy under Article III of the United States Constitution and 28 U.S.C. § 2201 because the County has violated Vertical Bridge's federal rights under the TCA.

10. Venue is proper in this Court because the County is located in this judicial district, and the property affected is located within this judicial district.

11. The TCA provides that "the Court shall hear and decide such action on an expedited basis." 47 U.S.C. § 332(c)(7).

FACTS COMMON TO ALL COUNTS

12. Vertical Bridge is in the wireless telecommunications industry and places, constructs, modifies, operates, and manages telecommunication infrastructure on behalf of its clients across the United States.

A. PROPOSED TOWER

13. After first looking for available collocation opportunities, a carrier and provider of wireless communications services and fixed internet services (the “Carrier”) engaged Vertical Bridge to locate, construct, and operate a telecommunications tower in Jefferson County, West Virginia in order to resolve a gap in coverage in the Shannondale area and improve its overall network.

14. Vertical Bridge conducted a thorough review of the area affected by the gap in cell and wireless service to determine which location would best achieve the Carrier’s objectives as well as best comply with the requirements of federal, state, and local law, including the Jefferson County Zoning and Land Development Ordinance Article 4B (the “County Code”).

15. After evaluating six potential sites, Vertical Bridge determined that property at 1329 Lakeside Drive, parcel ID number 06000600090000, Jefferson County, West Virginia 25425, was the ideal location for constructing the cell tower.

16. The Proposed Tower is a 100-foot monopole.

17. The Proposed Tower complies with the County Code. Such compliance is set forth fully in the Staff Report by the Jefferson County Planning Commission (the “Staff Report”), attached hereto as Exhibit A.

C. VERTICAL BRIDGE'S APPLICATION TO CONSTRUCT THE PROPOSED TOWER

18. Under Section 4B.7 of the County Code, wireless telecommunications towers are permitted uses in all Jefferson County zoning districts. The applicant must obtain a minor site plan.

19. Under, Section 4B.7 of the County Code, new tower applications in Jefferson County require a minor site plan approval, which is obtained in the following manner:

- A. The applicant submits a concept plan to the County.
- B. The concept plan undergoes review by the Jefferson County Planning and Zoning Staff ("Planning Staff") to ensure compliance with Section 4B.7 and the Comprehensive Plan.
- C. After a finding of compliance by the Planning Staff, the concept plan is reviewed at a public hearing before the Planning Commission.
- D. The Planning Commission reviews for compliance with Section 4B.7 and the Comprehensive Plan.
- E. Upon finding compliance with Section 4B.7 and the Comprehensive Plan, the Planning Commission approves a site plan.

20. If the application is compliant with Section 4B.7 and the Comprehensive Plan, the Planning Commission has no discretion to deny the application. The approval is ministerial.

21. Here, on April 26, 2023, Vertical Bridge submitted an application entitled the Shannondale Lake Telecommunication Tower Concept Plan (the "Application") to the Planning Commission.

22. In the Application, Vertical Bridge explained its reasons for the tower location and its efforts in evaluating five other nearby sites for the Proposed Tower.

23. The Application underwent review by the Planning Staff.

24. On May 5, 2023, Vertical Bridge's Application was deemed compliant by Planning Staff provided an FCC license was submitted. Vertical Bridge subsequently submitted the FCC license.

25. The Staff Report determined that the Application was "[c]omplete based on the information provided related to the required criteria outlined in the Subdivision Regulations and the Zoning Ordinance; and Consistent with the Comprehensive Plan." *See* Ex. A, Staff Report at 6.

26. The Staff Report also indicated that "[a]s provided for in Section 4B.7.B.2.J.7 of the Zoning Ordinance, the Planning Commission has the discretion to require that fencing be screened by a landscape buffer of at least 10 feet in width, planted along the entire exterior perimeter of the fence." *See id.*

27. On June 13, 2023, the Planning Commission held a public hearing, wherein members of the public appeared and voiced various objections to approval of the minor site plan.

28. Because the Application complied with the County Code, the Planning Commission had no discretion to deny the Application. The Planning Staff informed the Planning Commission of this fact at the July 13, 2023 public hearing.

29. Nonetheless, the Planning Commission denied Vertical Bridge's Application.

30. The Planning Commission approved meeting minutes from the June 13, 2023 meeting on July 11, 2023. Those meeting minutes are attached hereto as Exhibit B.

31. The meeting minutes do not provide a basis for denial of the Application. County Defendants have not provided any other written denial or writing that identifies the basis for denial of the Application.

COUNT I – VIOLATION OF 47 U.S.C. § 332(c)7(B)(iii)
(LACK OF SUBSTANTIAL EVIDENCE UNDER TCA)

32. Vertical Bridge restates and incorporates by reference the preceding paragraphs as if fully set forth herein.

33. The TCA provides that “[a]ny decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless services facilities shall be in writing and supported by substantial evidence contained in a written record.” 42 U.S.C. § 332(c)(7)(B)(iii).

34. Based on the record before the County Defendants, the Denial of the Application is not supported by substantial evidence and as such is a violation of the TCA.

35. First, the County Defendants failed to issue a written denial that provided the bases of their decision, in violation of the TCA. The Court must, therefore, assume there is no lawful basis for the Denial.

36. Second, the Denial is not based in local or state law. To the contrary, the record demonstrates that Vertical Bridge complied with all applicable laws and was entitled to the approval of its Application.

37. Third, whatever the bases for the Denial, they are not supported by substantial evidence found in the written record.

38. The County Defendants’ failure to comply with the requirements of the TCA and their refusal to approve the Application has caused and will continue to cause Vertical Bridge irreparable harm as Vertical Bridge and the Carrier cannot provide improved wireless service without the Proposed Tower.

WHEREFORE, Vertical Bridge respectfully requests that this Honorable Court:

- (i) Declare that the County Defendants' Denial of Vertical Bridge's Application is not supported by substantial evidence in the written record in violation of the TCA;
- (ii) Issue an Order prohibiting the County Defendants from denying the Application;
- (iii) Issue an Order requiring the County Defendants to complete the ministerial act of approving the Application;
- (iv) Issue a writ of mandamus directing the County Defendants to discharge their duties properly and to approve the Application;
- (v) Issue an Order requiring the County Defendants to certify to this Court a true, full, and complete copy of the record of the acts and procedures involved in the Denial of Vertical Bridge's Application so that this Court may review the data and records and adjudicate upon the legality of said proceedings under the TCA;
- (vi) Issue an Order reserving jurisdiction to this Court to resolve any issues between the parties as to further permit issues; and
- (vii) Provide for such other and further relief as the Court deems just and proper.

COUNT II – VIOLATION OF 47 U.S.C. § 332(c)(7)(B)(i)(II)
(EFFECTIVE PROHIBITION UNDER TCA)

39. Vertical Bridge restates and incorporates by reference the preceding paragraphs as if fully set forth herein.

40. The TCA prohibits local regulation of the placement, construction, or modification of personal wireless service facilities that "prohibit[s] or ha[s] the effect of prohibiting the provision of personal wireless services." 47 U.S.C. § 332(c)(7)(B)(i)(II).

41. The Carrier has a substantial gap in coverage in the area around the Proposed Tower.

42. The Carrier cannot remedy its substantial gap and provide reliable coverage in the area without the construction of the Proposed Tower.

43. The Denial materially inhibits Vertical Bridge's and the Carrier's ability to provide enhanced coverage in the area.

44. The Denial therefore has effectively prohibited the provision of personal wireless services.

45. The County Defendants' failure to comply with the requirements of the TCA and their refusal to approve the Application has caused and will continue to cause Vertical Bridge irreparable harm as Vertical Bridge and the Carrier cannot provide improved wireless service without the Proposed Tower.

WHEREFORE, Vertical Bridge respectfully requests that this Honorable Court:

- (i) Declare that the County Defendants' Denial of Vertical Bridge's Application is an effective prohibition in violation of the TCA;
- (ii) Issue an Order prohibiting the County Defendants from denying the Application;
- (iii) Issue an Order requiring the County Defendants to complete the ministerial act of approving the Application;
- (iv) Issue a writ of mandamus directing the County Defendants to discharge its duties properly and to approve the Application;
- (v) Issue an Order requiring the County Defendants to certify to this Court a true, full, and complete copy of the record of the acts and procedures involved in the Denial of Vertical Bridge's Application so that this Court may review the data and records and adjudicate upon the legality of said proceedings under the TCA;
- (vi) Issue an Order reserving jurisdiction to this Court to resolve any issues between the parties as to further permit issues; and
- (vii) Provide for such other and further relief as the Court deems just and proper.

COUNT III – DECLARATORY RELIEF
(FEDERAL DECLARATORY JUDGMENT ACT, 28 U.S.C. §§ 2201-2202)

46. Vertical Bridge restates and incorporates by reference the preceding paragraphs as if fully set forth herein.

47. Based on the record before the County Defendants, the Denial of Vertical Bridge's Application is not supported by substantial evidence, violating the TCA.

48. Further, the Denial of Vertical Bridge's Application amounts to effective prohibition, violating the TCA.

49. Based on the record before the County Defendants, the Denial of Vertical Bridge's Application is not supported by substantial evidence.

50. A real, immediate, actual, justifiable, and substantial continuing controversy exists between Vertical Bridge and the County Defendants as to whether the Denial of Vertical Bridge's Application violates the TCA.

51. There is a bona fide, actual, present, and practical need for a declaration of Vertical Bridge's right to an approval of its Application to construct the Proposed Tower.

52. Vertical Bridge's interest in the declaration of its rights are actual and adverse to those of the County Defendants.

53. All conditions precedent to the relief demanded herein have been performed.

WHEREFORE, Vertical Bridge requests that this Honorable Court:

- (viii) Issue an Order declaring that the Denial of Vertical Bridge's Application is not supported by substantial evidence in the written record, in violation of the TCA;
- (ix) Issue an Order declaring that the County Defendants effectively prohibited cell and wireless service, violating the TCA;
- (x) Issue an Order declaring Vertical Bridge's right to approval of its Application;
- (xi) Issue an Order reserving jurisdiction to this Court to resolve any issues between the parties as to further permit issues; and
- (xii) Provide for such other and further relief as the Court deems just and proper.

COUNT IV – WRIT OF CERTIORARI/MANDAMUS

54. Vertical Bridge restates and incorporates by reference the preceding paragraphs as if fully set forth herein.

55. The County Defendants' denial of the Application is subject to review by certiorari and/or mandamus.

56. Vertical Bridge is an aggrieved person because the County Defendants' refusal to approve the Application has caused and will continue to cause Vertical Bridge irreparable harm as Vertical Bridge and the Carrier cannot provide improved wireless service without the Proposed Tower.

57. The County Defendants' denial was illegal, null, and void because the County failed to follow its own procedure for the approval of wireless telecommunications towers with respect to the Application, failed to provide a written basis for denial, violated the TCA, lacked discretion to deny the Application, and, in turn, failed to perform the ministerial act of approving the site plan sought by the Application.

58. All conditions precedent to the relief demanded herein have been performed.

WHEREFORE, Vertical Bridge requests that this Honorable Court:

- (i) Issue an Order requiring the County Defendants to complete the ministerial act of approving the Application;
- (ii) Issue a writ of mandamus and/or mandamus directing the County Defendants to discharge their duties properly and to approve the Application;
- (iii) Issue an Order requiring the County Defendants to certify to this Court a true, full, and complete copy of the record of the acts and procedures involved in the Denial of Vertical Bridge's Application so that this Court may review the data and records and adjudicate upon the legality of said proceedings under the TCA;
- (iv) Issue an Order reserving jurisdiction to this Court to resolve any issues between the parties as to further permit issues; and
- (v) Provide for such other and further relief as the Court deems just and proper.

DATED this 13th day of July 2023.

Respectfully Submitted,

/s/ F. Samuel Byrer

F. Samuel Byrer (WV State Bar #571)

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Staff Report
 Jefferson County Planning Commission Meeting
 June 13, 2023

Shannondale Lake Telecommunication Tower Concept Plan (23-3-SP)

Item #3: Public Workshop: Request by Smartlink Group for approval of the Shannondale Lake Telecommunication Tower Concept Plan to allow a 100' Monopole Telecommunications Tower to include 9 Antennas and consist of one 10' x 3' concrete equipment pad and one 7' x 4' wide concrete equipment pad within a 50' x 50' fenced compound area.

Applicant	Smartlink Group / Sonya Hemphill	
Owner	Shannondale Enterprises Inc. / Jeff Shores	
Surveyor/Engineer	Morris and Ritchie Associates, Inc	
Parcel Information and Location	1329 Lakeside Drive, Harpers Ferry, WV 25425; Parcel ID; 06000600090000; Size: ~68 acres; Zoning District: Rural	
		
Adjacent Zoning	<i>North, South, East, and West: Rural</i>	
Proposed Activity	100' Monopole Telecommunications Tower	
Concept Plan Status:	Submitted:	4/26/2023
	1 st Submittal deemed sufficient provided FCC license is submitted:	5/5/2023
	2 nd Submission including FCC license:	5/10/2023
	3 rd Submission:	5/19/2023

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Summary of Request

Smartlink Group is proposing to construct a 100' Monopole Telecommunications Tower to include 9 Antennas and consist of one 10' x 3' concrete equipment pad and one 7' x 4' wide concrete equipment pad within a 50' x 50' fenced compound area. The proposal includes area for three future carriers for co-location.

The subject property is owned by Shannondale Enterprises Inc., located at 1329 Lakeside Dr., Harpers Ferry and is comprised of 68 acres, approximately 55 of which consist of the lake itself.

The Concept Plan is the first step required by the Zoning Ordinance, followed by a Minor Site Development Process with a Full Site Plan in accordance with the Subdivision and Land Development Regulation, which is administratively processed. This Staff Report addresses the Concept Plan criteria only.

Article 4B Purpose Statement

The purpose of Article 4B, Wireless Telecommunication Facilities, is to balance the needs of residents of and visitors to Jefferson County for reliable access to wireless telecommunication networks and services with the community's desire to preserve the County's rural, historic and agricultural character and the quality of its residential neighborhoods.

Site Plan Category

Article 4B, Sections 4B.2 and 4B.7, of the Zoning Ordinance requires that a site plan for a proposed Wireless Telecommunications Tower shall process under the Subdivision and Land Development Regulation as a minor site development with a Full Site Plan. Prior to submission of the Full Site Plan, a Concept Plan is required, subject to a Public Workshop before the Planning Commission.

The Ordinance specifies that submittal and review of a Concept Plan for a tower shall follow the review process and timeline established in Sections 24.119 – 24.122, with certain exceptions.

Staff Determination of Application Sufficiency

Prior to scheduling a Concept Plan Public Workshop before the Planning Commission, staff must determine that the plan submitted by the applicant is “sufficient and complete” – i.e. meeting all relevant requirements of the Subdivision Regulations and Section 4B.7 of the Zoning Ordinance. Staff deemed the concept plan sufficient on 05/05/2023.

Because telecommunication towers have unique characteristics that distinguish them from other types of development (such as height and visual impact), the Zoning Ordinance specifies additional submittal requirements for telecommunication towers that are required to be shown on a Concept Plan. These requirements are as follows:

Zoning Ordinance Required Item	Description	Comment
a. Dimensions, use, and setbacks	Outside dimensions, use, and setbacks of all existing and proposed buildings, structures, towers, antennas, utility lines, driveways, and parking areas.	Meets ordinance requirements. Fall radius area is completely within subject parcel.
b. Height	Height of the proposed tower measured from ground level at the center of the proposed structure, and height comparison to any nearby buildings or trees, or other	In the Rural zoning district, the permitted tower height is 100', which is the proposed height.

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Shannondale Lake Telecommunication Tower Concept Plan (23-3-SP)

	applicable structures and natural landforms part of the site's background and foreground landscape.	
c. Elevations and cross-section	Elevations and Cross-Section: Display topography with all proposed facilities including tower, equipment shelter and existing buildings.	Meets ordinance requirements.
d. Antenna features	Number, size and location of proposed and existing antennas; number of co-locations possible.	Proposed 100' tower will include 9 antennas mounted at 95' for Verizon Wireless; related concrete equipment pads; and enclosed in a 50' x 50' fenced compound area. Three future carrier spaces are provided at 85', 75', and 65'.
e. Method of camouflage	Method of camouflage (if any).	The proposed tower will have a galvanized finish and be screened by an 8' chain link fence, with dark green PVC strips, topped by 1' of barbed wire.
f. Historic structures	Locations of known historic structures.	The Concept Plan Narrative notes that the nearest Class II Historic Resource is 0.5 miles from the proposed monopole.
g. Development Schedule	A description of the anticipated construction and installation schedule.	The Concept Plan Narrative states construction is expected to be completed within 6 months after all jurisdictional approvals and building permits are obtained.
h. FCC Compliance	Documentation verifying compliance with applicable Federal Communications Commission (FCC) standards and requirements to provide the proposed services.	FCC license for Verizon Wireless, as Verizon Wireless is the d/b/a for Cellco Partnership was submitted.
i. Design criteria	Narrative addressing the design criteria of Section 4B.7.	Provided.
j. Balloon test information	Dates, address list, and notice for Balloon Test.	Provided.
k. Balloon test exhibits	Balloon Test exhibits as required in subsection G of Section 4B.7.	Balloon Test occurred on 4/15/23; photos provided.
l. Propagation maps	Propagation maps as required in subsection F of Section 4B.7.	Provided.
m. Additional information	Any other relevant information.	Narrative says N/A
n. Preferred Structures and Locations Policy	Additional application requirements of subsection H (Preferred Structures and Locations Policy)	Page 9 of Narrative.

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Other required elements for a Wireless Telecommunications Tower Concept Plan are the same as for a site plan submittal as established in the Subdivision Regulations, Appendix A, Sec. 1.3A, with the exception of Subsections 1.3A.20-22, 24-29, 31-35.

External Agency Reviews

Most external agency reviews are not applicable, per Section 4B.7 of the Zoning Ordinance. As required by this section, Staff notified the Jefferson County Historic Landmarks Commission (JCHLC) of the application on 05/10/23.

Planning Commission Public Workshop Scope of Review

For a Wireless Telecommunications Tower, the Concept Plan Public Workshop is the only Planning Commission meeting during which the Planning Commission reviews the proposed plan. The scope of the Public Workshop includes the following:

1. A demonstration of need, as required by Article 4B;
2. Neighborhood compatibility;
3. Impact on cultural and historic resources;
4. Visual mitigation;
5. The submittal and design criteria of Article 4B;
6. The compatibility of the facility proposal with the Comprehensive Plan; and
7. Any relevant information presented by any person that addresses the purpose and intent of Article 4B.

The applicant addressed the above criteria on the first 10 pages of the Concept Plan Narrative and on the Concept Plan. Individual components have been noted as complete in the chart on pages 2 and 3 of this report.

1. A demonstration of need as required by Article 4B

The purpose of the “demonstration of need” requirement is for the applicant to demonstrate that the proposed tower is necessary for coverage purposes, at the proposed height and at the proposed location. Implicit in this requirement is a demonstration that there are no other feasible alternatives to building a tower, such as co-location of antennas on an existing structure.

2. Neighborhood compatibility

Adjacent land uses surrounding the site include numerous residential lots that are a part of a large development created in the mid 1960’s and 1970’s, known as the Shannondale Subdivision, which includes a 55 acre lake and related 5 ac +/- “club area” and beach across the lake from the proposed tower site. The Tower is proposed to be located on a portion of the 10 acre +/- section of the Shannondale Enterprises Inc property that includes the dam which impounds the lake. The entire area is zoned Rural. The Zoning Ordinance does not provide explicit standards for neighborhood compatibility for wireless facilities.

3. Impact on cultural and historic resources

The only outside agency required by the Zoning Ordinance to be contacted for this Concept Plan is the Jefferson County Historic Landmarks Commission (JCHLC). The JCHLC was notified by the applicant during the Balloon Test and again by staff on 05/10/2023. No comments were received related to this project.

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The site for the proposed tower is not located in the Harpers Ferry Overlay District or within 1 mile of the Appalachian Trail.

4. Visual mitigation

The proposed tower is designed as a 100' monopole tower with Verizon Wireless as the first provider with nine antennas at the 95' height. Space for co-location has been designated for three future carriers.

The applicant conducted the required balloon test for the Concept Plan. Exhibits depicting the required balloon test and photo simulations of the monopole tower from various locations and distances are attached. The monopole is proposed to be galvanized finish which is intended to minimize the visual impact.

The application does not show any landscaping around the outside of the leased compound area, which should be discussed as a part of the Workshop. Below is an excerpt from the Zoning Ordinance, addressing fencing requirements for new towers:

7. Fencing

Towers, equipment enclosures and other improvements shall be enclosed within a security fence consisting of chain link fencing at least eight (8) feet in height. The Planning Commission may require as a condition of approval that the fencing be screened by a landscaped buffer of at least 10 feet in width planted along the entire exterior perimeter of the fence. Such a buffer must contain at least one row of native vegetation and form a continuous screen at least 6 feet in height at planting. All buffer yards shall be maintained by the property owner. It will be the responsibility of the property owner to maintain the buffer yard and to replace any trees or shrubs that die.

The Planning Commission may waive or modify the fencing requirement upon a determination that doing so will enhance the overall appearance of the facility without any compromise in safety or security.

5. The submittal and design criteria of Article 4B

Article 4B of the Zoning Ordinance states that the required submittal elements for a Wireless Telecommunications Tower Concept Plan shall be the same as for a Site Plan as established in the Subdivision Regulations, Appendix A, Sec. 1.3A (with certain exceptions). In addition, other elements are required such as elevations and cross-section, locations of known historic structures, Balloon Test exhibits, and other information. Staff finds the application complete with regard to the required submittal elements.

Design criteria (height, color, fall zone, lighting and marking, fencing, and other elements) are established in Section 4B.7.J. Staff finds that the proposed tower design meets these criteria. The Zoning Ordinance requires that wireless telecommunication towers be set back from all property lines a distance to 110% of tower height, measured from the base of the structure to its highest point, and allows easements to be acquired on adjacent properties to meet the fall zone requirement. The required fall zone is provided completely within subject parcel.

6. The compatibility of the facility proposal with the Comprehensive Plan

a. Staff Analysis

The *Envision Jefferson 2035 Comprehensive Plan* includes some discussion of telecommunications facilities under the "Economic Development, Employment, and

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Infrastructure Element". The Plan identifies improvements to the County's telecommunications network, particularly wireless technology and any advanced technologies, as one of the major public infrastructure projects needed to support the success of future economic growth.

The following recommendations are found under the Infrastructure and Technology Recommendations on pages 93-94 of the Plan:

"9. Collaborate with local economic development agencies and Information Technology (IT) providers to ensure that the current and future needs of small businesses within Jefferson County are met.

- a. Ensure that all areas of Jefferson County are served by high speed wireline and/or wireless services and other advanced technologies.
- b. Encourage private sector investment to improve wireless internet service availability in Jefferson County and the Eastern Panhandle.
- c. Ensure that, as next-generation wireless and cellular services are implemented, Jefferson County collaborates with providers, including any necessary regulatory changes, to ensure that providers are able to provide these services at the same time as other communities in the Washington, D.C. and Baltimore, MD Metropolitan Areas."

Providing wireless telecommunication services to an area of the County that is currently underserved supports the recommendations of the Comprehensive Plan.

7. Any relevant information presented by any person that addresses the purpose and intent of Article 4B

To date, no agency comments have been submitted to our Office.

The Planning Commission may consider testimony at the Public Workshop regarding the purpose and intent of Article 4B of the Zoning Ordinance.

Staff Recommendation

The Planning and Zoning Staff finds the proposed Shannondale Lake Telecommunication Tower Concept Plan to be:

- Complete based on the information provided related to the required criteria outlined in the Subdivision Regulations and the Zoning Ordinance; and Consistent with the Comprehensive Plan.
- As provided for in Section 4B.7.B.2.J.7 of the Zoning Ordinance, the Planning Commission has the discretion to require that fencing be screened by a landscape buffer of at least 10 feet in width, planted along the entire exterior perimeter of the fence.

Planning Commission Direction

The Concept Plan Public Workshop allows for the Planning Commission and the general public to comment on the proposed plan. The Subdivision Regulations outline the procedure:

1. The applicant makes a short presentation.
2. Staff explains outside agency comments and whether the plan has met the standards of the Zoning Ordinance.

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Shannondale Lake Telecommunication Tower Concept Plan (23-3-SP)

3. Public comment is solicited.

Following the applicant's presentation, staff's explanation, and the solicitation of public comment, the Planning Commission shall:

- Review the Concept Plan for compliance with the standards in Article 4B and, if applicable, provide direction in the form of conditions relevant to the scope of the public workshop and/or unique characteristics of the proposed development site, to be addressed in the Department's approval of the site plan; and
- Determine, by a majority vote, that the Concept Plan application complies with Article 4B of the Zoning Ordinance, and that the application is consistent with the Comprehensive Plan.

The Commission has the option of providing direction at the same meeting during which the Concept Plan Public Workshop takes place, or at a subsequent meeting that occurs within 14 days of the meeting, at which the Concept Plan Public Workshop is closed.

The Subdivision Regulations outline the direction to be provided to the applicant:

"The Planning Commission shall direct the preparation of a site plan subject to conditions to be addressed in the site plan application. The purpose of this review is to guide the developer so that when the site plan application is formally reviewed by the staff, there should not be a whole range of issues being raised for the first time. The developer shall cite conditions and demonstrate that they have been met or otherwise addressed."

The direction provided to the applicant during the Concept Plan Public Workshop shall be applicable for a period of two years, with the provision that any amendments to the Subdivision Regulations or the Zoning Ordinance in the second year shall be applicable.

Should the Planning Commission vote to find the application consistent with the Comprehensive Plan, the applicant will submit a minor site plan to the Department of Engineering, Planning, & Zoning for administrative review and approval. The site plan shall address the conditions (if any) identified by the Planning Commission.

ATTACHMENTS:

- Concept Plan
- Concept Plan Narrative, including:
 - Exhibit B "Balloon Test and Monopole Photo Simulations"
 - Exhibit C "Propagation Maps" and Study Affidavit

Meeting Minutes
Jefferson County Planning Commission
June 13, 2023

The Jefferson County Planning Commission met on June 13, 2023 at 7:00 pm with the following Planning Commission members present: Mike Shepp, President; Wade Louthan, Secretary; Jack Hefestay; Tim Smith; Aaron Howell; Donnie Fisher were present in person. Matt Knott, Vice President was present online via Zoom.

Steve Stolipher, County Commission Liaison was absent with notice.

J. Ware was absent without notice.

Staff members present included: Jennifer Brockman, Chief County Planner; Luke Seigfried, County Planner; Alexandra Beaulieu, Deputy Director and Zoning Administrator; Jonathan Saunders, County Engineer; Nathan Cochran, Prosecuting Attorney; Steve Groh, Assistant Prosecuting Attorney; Michelle Evers, Planning Clerk; Joe Guttmann and Shenandoah Ragle, Comprehensive Plan staffers.

Mr. Shepp called the meeting to order at 7:00 pm. and confirmed a quorum was present.

1. **Approval of Meeting Minutes: May 9, 2023**

Mr. Shepp stated that the minutes stand approved without objection.

2. **Request for postponement.**

3. **Public Workshop:** Concept Plan for the Shannondale Lake Telecommunications Tower consisting of a 100' Monopole Telecommunications Tower to include 9 Antennas, one 10' x 3' concrete equipment pad and one 7' x 4' wide concrete equipment pad within a 50' x 50' fenced compound area. Applicant: Smartlink Group, Attn: Sonya Hemphill; Property Owner: Shannondale Enterprises Inc., Attn: Jeff Shores; Property Location: 1329 Lakeside Drive, Harpers Ferry, WV; Parcel ID: 06000600090000; Size: ~68 acres; Zoning District: Rural (File: 23-3-SP).

Planning Commission member Aaron Howell recused himself from the meeting.

Ms. Brockman provided an overview of the staff report. Ms. Brockman explained that the project is a Principal Permitted Use and provided an overview of the Public Workshop process.

The applicant's attorney Sam Byrer and Matt Grugan with Vertical Bridge, the company that would own and operate the tower, explained the nature of the request to the Planning Commission. Beth Schull with Smartlink and Brian Siverling, Engineer from Morris Ritchie Associates were also in attendance.

Mr. Shepp opened the Public Workshop.

- Mr. Dan Kaseman (Opposed). Ms. Rachel Shub (Opposed), Ms. Charlotte Fremaux (Opposed), Ms. Laura VanVuurran (Opposed), Mr. Brent Ricketts (Opposed), Mr. Randy R. Creller (Supports), Mr. Alex Korovin (Opposed), Mr. Jack Hahn (Opposed), Mr. Mark Currin (Supports), and Ms. Cheryl Avery (Opposed) provided public comment.

Planning Commission Minutes

June 13, 2023

Page 2 of 6

Mr. Shepp confirmed that no one else in the room wanted to provide comment. Mr. Shepp closed the Public Workshop.

Mr. Byrer and Mr. Grugen provided a rebuttal and responded to questions and concerns presented by the public.

The Planning Commission asked the applicant several questions.

Ms. Brockman reiterated that the project is a Principal Permitted Use and provided an overview of what the Planning Commission should review when making their decision.

Mr. Knott made a motion to approve the request based on it being in compliance with the Zoning Ordinance and consistent with the Comprehensive Plan. Mr. Shepp seconded the motion, the motion failed with the vote 2 to 4 (Mr. Louthan, Mr. Hefestay, Mr. Fisher, and Mr. Smith were in opposition).

Planning Commission member Aaron Howell rejoined the meeting.

4. **Public Hearing:** Request for a Waiver from Section 21.101A, which requires blocks to not exceed six lots in length on one side of the street, to allow a mixture of lot numbers along both sides of the streets for the proposed Hunter Hills Subdivision (File: 21-21-SD). Property Owner/Applicant: ILA Properties, Inc.; Property Location: 4469 Charles Town Road, Kearneysville, WV; Parcel ID: 0700010002000; Size: ~107 acres; Zoning District: Residential-Light Industrial-Commercial (File: 23-10-PCW).

Ms. Brockman provided an overview of the staff report.

The applicant's consultant, Paul Raco with P.J. Raco Consulting, explained the nature of the request to the Planning Commission.

Mr. Shepp opened the Public Hearing. There was no public comment. Mr. Shepp closed the Public Hearing.

Ms. Brockman made a staff recommendation for sidewalk access to the nearby park.

Mr. Fisher made a motion to approve the waiver as presented. Mr. Hefestay seconded the motion, which carried unanimously.

5. **Public Hearing:** Request for a Waiver from Section 20.102B to allow site grading and utility work to commence prior to Final Plat approval for the proposed four-lot Country Club Commons Nonresidential Subdivision (19-17-SD). Property Owner/Applicant: B.C. Partners / Dan Snyder, P.E; Property Location: Vacant lot NE corner of Route 340 and WV 24 (Country Club Road), Charles Town, WV; Parcel ID: 04001100110000; Size: 9.54 acres; Zoning District: Residential-Light Industrial-Commercial (File: 23-11-PCW).

Ms. Brockman provided an overview of the staff report.

Mr. Saunders County Engineer, supported the requested waiver based on the fact that all comments have been addressed other than the DOH permit.

The applicant's consultant, Paul Raco with P.J. Raco Consulting, and the Property Owner Dan Snyder, explained the nature of the request to the Planning Commission.

Planning Commission Minutes
June 13, 2023
Page 3 of 6

Mr. Shepp opened the Public Hearing. There was no public comment. Mr. Shepp closed the Public Hearing.

Mr. Shepp reiterated that the applicant understands the request to begin the work prior to final approval is at their own risk.

Mr. Hefestay made a motion to approve the waiver as presented. Mr. Fisher seconded the motion, which carried unanimously.

6. **Public Hearing:** Request for a Waiver from Section 20.201A2 to reduce the width of the required access easement from 50' to 40' for a proposed four lot minor subdivision. Property Owner: Howard Wines and Regina Northcraft; Applicant: David Lutman; Property Location: 389 Billmyer Mill Road, Shepherdstown, WV; Parcel ID: 09000700150005; Size: 10.11+- acres; Zoning District: Residential Growth (File: 23-12-PCW).

Ms. Brockman provided an overview of the staff report.

The applicant, David Lutman and Property Owner, Howard Wines, explained the nature of the request.

Mr. Shepp opened the public hearing.

- Mr. Steve Secrist, Ms. Erin Matthias, and Mr. Norman Secrist provided public comment.

Mr. Shepp confirmed that no one else in the room wanted to provide comment. Mr. Shepp closed the Public Hearing.

The applicants provided a rebuttal and responded to questions and concerns presented by the public.

The Planning Commission asked the applicant and staff several questions.

Mr. Fisher made a motion to approve the waiver as presented. Mr. Hefestay seconded the motion, which carried unanimously.

7. **Public Hearing:** Request for a Waiver from Section 20.102B to allow site grading and footings to commence prior to Site Plan approval for the proposed Phase II of the AMP at Sam Michaels Park due to grant deadlines (File: 22-2-SP). Property Owner: Jefferson County Commission; Applicant: Jefferson County Parks & Recreation Commission; Property Location: 235 Sam Michaels Ln, Shenandoah Junction, WV; Parcel ID: 02000300120000; Size: 136.6 acres; Zoning District: Rural (File: 23-13-PCW).

Ms. Brockman provided an overview of the staff report.

The applicant's representative, Becki Zaglifa, explained the nature of the request. Ms. Zaglifa also discussed her concerns regarding the grant they received for the project expiring, if the waiver was not approved. Marcus Spina, Engineer from Civil Environmental Consultants, was also present on behalf of the applicant. Mr. Spina stated to the Planning Commission that the site plan would be submitted within a month for initial review.

Mr. Shepp opened the Public Hearing. There was no public comment. Mr. Shepp closed the Public Hearing.

Planning Commission Minutes

June 13, 2023

Page 4 of 6

Mr. Saunders, County Engineer, asked clarifying questions to the applicant's representatives regarding the grant. Mr. Saunders also provided staff recommendations to move forward with a motion to approve the waiver as presented as the Parks and Recreation Commission is a County agency and the work is at the Commission's risk.

Mr. Hefestay made a motion to approve the waiver as presented. Mr. Louthan seconded the motion, which carried unanimously.

8. **Public Hearing:** Waiver from Section 24.202A of the 2008 Subdivision Regulations, which requires "an amendment to a subdivision plat to process in the same manner as the plat was originally approved". The Waterside Reserve Subdivision (Files #02-37 and 05-19) processed under the 1979 Subdivision Ordinance, which required both the Community Impact Statement (CIS) and Final Plat to be considered during a Public Hearing before the Planning Commission. The applicant is requesting permission to amend the CIS and Final Plat for the purpose of excluding the Open Space parcel from the Waterside Reserve subdivision to allow for the continued use of an existing nonconforming campground and to allow said amendment to process administratively.; Property Owner: Whisper Ridge, LLC; Applicant: Panhandle Legal / Christopher P. Stroech; Property Location: Vacant parcel on Wilt Road, Charles Town, WV; Parcel ID: 02020B0OS10000; Size: 6.08 acres; Zoning District: Rural (File: 23-14-PCW).

Mr. Cochran, Prosecuting Attorney asked the Planning Commission to allow Steve Groh, Assistant Prosecuting Attorney, to provide legal counsel on his behalf. Mr. Cochran stated the applicant's matter came before the BZA and that Mr. Groh was more familiar with the applicant's requests. Mr. Cochran also stated there may be a conflict of interest which would require him to recuse himself.

Ms. Brockman provided an overview of the staff report.

Ms. Patricia Sanderson, Mr. David Leonard and Attorney Christopher Stroech were present on behalf of Whisper Ridge LLC. Mr. Stroech, explained the nature of the request.

Mr. Shepp opened the Public Hearing.

- Ms. Jean Cross, Ms. Laurie Cook, Ms. Karla Hanes, Mr. Jeff Whitten, Ms. Hazel Myers, and Mr. Wade Sanderson provided public comment.

Mr. Shepp confirmed that no one else in the room wanted to provide comment.

- Ms. Maris Keiter provided public comment.

Mr. Shepp closed the Public Hearing.

Ms. Brockman and Mr. Groh provided staff recommendations.

Mr. Hefestay made a motion to approve the waiver as presented. Mr. Louthan seconded the motion, which carried unanimously.

9. **Discussion and Possible Direction:** Letter from Mayor Auxer, Shepherdstown, dated 5/9/23 requesting a Memorandum of Understanding regarding agenda items within Shepherdstown Growth Management Boundary.

Planning Commission Minutes

June 13, 2023

Page 5 of 6

Mr. Shepp postponed discussion until Mr. Cochran rejoined the meeting (see below).

10. **Discussion and Possible Direction:** Draft policy related to changes to WV Code 8A regarding delegating to staff the authority to determine completeness of Preliminary Plats and/or Major Site Plans, while Subdivision Regulation Text Amendment is being processed. *(to be distributed at meeting)*

Ms. Brockman provided her recommended language for the updated WV Code 8A.

Mr. Fisher made a motion to adopt the policy as staff has written. Mr. Howell seconded the motion, which carried unanimously.

11. **Discussion and Possible Direction:** Determination regarding contracts to hire a social media marketing firm to increase Public Outreach for the Comprehensive Plan Update. *(to be distributed at meeting)*

Mr. Shepp postponed discussion until Mr. Cochran rejoined the meeting (see below).

12. **Reports from Legal Counsel**

- a. Discuss and review Jefferson County Circuit Court Civil Action No. 2021-C-109.
- b. Review of Zoning Text Amendment File #ZTA19-03 related to solar energy facilities, including discussion of Jefferson County Circuit Court Civil Action No.'s 2021-C- 33 through 37 and Jefferson County Circuit Court Civil Action No.'s 2021- C-46 through 50, and WV Supreme Court No.'s 21-0727, 21-0728, and 21-0731.
- c. Jefferson County Circuit Court Case #CC-19-2022-C-81 (RE: ZTA22-01 Solar Energy Facilities).
- d. Discuss and review for possible action Jefferson County Circuit Court Civil Action No. 2022-C-85.

13. **Planner's Memo.**

Ms. Brockman reminded the Planning Commission about the upcoming regular Planning Commission Meeting on July 11, 2023.

14. **President's Report.**

15. **Actionable Correspondence.**

16. **Non-Actionable Correspondence.**

- Email from Alan Dattelbaum Re: Dust Control for Large Scale Projects.

Agenda Item #9 Discussion and Possible Direction: Letter from Mayor Auxer, Shepherdstown, dated 5/9/23 requesting a Memorandum of Understanding regarding agenda items within Shepherdstown Growth Management Boundary.

Mr. Cochran provided recommendations regarding the request from Mayor Auxer, Shepherdstown.

Mr. Fisher made a motion to deny the request. Mr. Louthan seconded the motion, which carried unanimously.

Planning Commission Minutes

June 13, 2023

Page 6 of 6

Agenda Item #10 Discussion and Possible Direction: Determination regarding contracts to hire a social media marketing firm to increase Public Outreach for the Comprehensive Plan Update.

Mr. Seigfried presented the options for social media marketing firms. Mr. Seigfried also discussed keeping marketing in house using freelance services for specific projects that was recommended by staff.

The Planning Commission asked staff questions regarding contracts with the social media marketing firms.

Mr. Cochran provided his legal recommendations and suggested researching the contracts with each option before making a decision.

The Planning Commission gave staff permission to choose the marketing option, but to discuss any legal contracts with the Planning Commission prior to signing any agreements.

Mr. Smith made a motion to adjourn the meeting at 9:25pm. Mr. Louthan seconded the motion, which carried unanimously.

These minutes were prepared by Michelle Evers, Planning Clerk.

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON NEXT PAGE OF THIS FORM.)

<p>I. (a) PLAINTIFFS VB BTS, LLC,</p> <p>(b) County of Residence of First Listed Plaintiff _____ (EXCEPT IN U.S. PLAINTIFF CASES)</p> <p>(c) Attorneys (Firm Name, Address, and Telephone Number) F. Samuel Byrer, Law offices of F. Samuel Byrer, PLLC 202 West Liberty Street, Charles Town, WV 25414</p>	<p>DEFENDANTS Jefferson County, West Virginia and The Jefferson County Planning Commission County of Residence of First Listed Defendant <u>Jefferson County, WV</u> (IN U.S. PLAINTIFF CASES ONLY)</p> <p>NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE TRACT OF LAND INVOLVED.</p> <p>Attorneys (If Known)</p>
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<p>II. BASIS OF JURISDICTION (Place an "X" in One Box Only)</p> <p><input type="checkbox"/> 1 U.S. Government Plaintiff</p> <p><input type="checkbox"/> 2 U.S. Government Defendant</p> <p><input checked="" type="checkbox"/> 3 Federal Question (U.S. Government Not a Party)</p> <p><input type="checkbox"/> 4 Diversity (Indicate Citizenship of Parties in Item III)</p>	<p>III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"></td> <td style="width:10%; text-align: center;">PTF</td> <td style="width:10%; text-align: center;">DEF</td> <td style="width:33%;"></td> <td style="width:10%; text-align: center;">PTF</td> <td style="width:10%; text-align: center;">DEF</td> </tr> <tr> <td>Citizen of This State</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td style="text-align: center;"><input type="checkbox"/> 1</td> <td>Incorporated or Principal Place of Business In This State</td> <td style="text-align: center;"><input type="checkbox"/> 4</td> <td style="text-align: center;"><input type="checkbox"/> 4</td> </tr> <tr> <td>Citizen of Another State</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td style="text-align: center;"><input type="checkbox"/> 2</td> <td>Incorporated and Principal Place of Business In Another State</td> <td style="text-align: center;"><input type="checkbox"/> 5</td> <td style="text-align: center;"><input type="checkbox"/> 5</td> </tr> <tr> <td>Citizen or Subject of a Foreign Country</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> <td style="text-align: center;"><input type="checkbox"/> 3</td> <td>Foreign Nation</td> <td style="text-align: center;"><input type="checkbox"/> 6</td> <td style="text-align: center;"><input type="checkbox"/> 6</td> </tr> </table>		PTF	DEF		PTF	DEF	Citizen of This State	<input type="checkbox"/> 1	<input type="checkbox"/> 1	Incorporated or Principal Place of Business In This State	<input type="checkbox"/> 4	<input type="checkbox"/> 4	Citizen of Another State	<input type="checkbox"/> 2	<input type="checkbox"/> 2	Incorporated and Principal Place of Business In Another State	<input type="checkbox"/> 5	<input type="checkbox"/> 5	Citizen or Subject of a Foreign Country	<input type="checkbox"/> 3	<input type="checkbox"/> 3	Foreign Nation	<input type="checkbox"/> 6	<input type="checkbox"/> 6
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IV. NATURE OF SUIT (Place an "X" in One Box Only) Click here for: [Nature of Suit Code Descriptions.](#)

CONTRACT	TORTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES	
<input type="checkbox"/> 110 Insurance <input type="checkbox"/> 120 Marine <input type="checkbox"/> 130 Miller Act <input type="checkbox"/> 140 Negotiable Instrument <input type="checkbox"/> 150 Recovery of Overpayment & Enforcement of Judgment <input type="checkbox"/> 151 Medicare Act <input type="checkbox"/> 152 Recovery of Defaulted Student Loans (Excludes Veterans) <input type="checkbox"/> 153 Recovery of Overpayment of Veteran's Benefits <input type="checkbox"/> 160 Stockholders' Suits <input type="checkbox"/> 190 Other Contract <input type="checkbox"/> 195 Contract Product Liability <input type="checkbox"/> 196 Franchise	<p>PERSONAL INJURY</p> <input type="checkbox"/> 310 Airplane <input type="checkbox"/> 315 Airplane Product Liability <input type="checkbox"/> 320 Assault, Libel & Slander <input type="checkbox"/> 330 Federal Employers' Liability <input type="checkbox"/> 340 Marine <input type="checkbox"/> 345 Marine Product Liability <input type="checkbox"/> 350 Motor Vehicle <input type="checkbox"/> 355 Motor Vehicle Product Liability <input type="checkbox"/> 360 Other Personal Injury <input type="checkbox"/> 362 Personal Injury - Medical Malpractice	<p>PERSONAL INJURY</p> <input type="checkbox"/> 365 Personal Injury - Product Liability <input type="checkbox"/> 367 Health Care/Pharmaceutical Personal Injury Product Liability <input type="checkbox"/> 368 Asbestos Personal Injury Product Liability	<input type="checkbox"/> 625 Drug Related Seizure of Property 21 USC 881 <input type="checkbox"/> 690 Other	<input type="checkbox"/> 422 Appeal 28 USC 158 <input type="checkbox"/> 423 Withdrawal 28 USC 157 <p style="text-align: center;">INTELLECTUAL PROPERTY RIGHTS</p> <input type="checkbox"/> 820 Copyrights <input type="checkbox"/> 830 Patent <input type="checkbox"/> 835 Patent - Abbreviated New Drug Application <input type="checkbox"/> 840 Trademark <input type="checkbox"/> 880 Defend Trade Secrets Act of 2016 <p style="text-align: center;">SOCIAL SECURITY</p> <input type="checkbox"/> 861 HIA (1395ff) <input type="checkbox"/> 862 Black Lung (923) <input type="checkbox"/> 863 DIWC/DIWW (405(g)) <input type="checkbox"/> 864 SSID Title XVI <input type="checkbox"/> 865 RSI (405(g))	<input type="checkbox"/> 375 False Claims Act <input type="checkbox"/> 376 Qui Tam (31 USC 3729(a)) <input type="checkbox"/> 400 State Reapportionment <input type="checkbox"/> 410 Antitrust <input type="checkbox"/> 430 Banks and Banking <input type="checkbox"/> 450 Commerce <input type="checkbox"/> 460 Deportation <input type="checkbox"/> 470 Racketeer Influenced and Corrupt Organizations <input type="checkbox"/> 480 Consumer Credit (15 USC 1681 or 1692) <input type="checkbox"/> 485 Telephone Consumer Protection Act <input type="checkbox"/> 490 Cable/Sat TV <input type="checkbox"/> 850 Securities/Commodities/Exchange <input checked="" type="checkbox"/> 890 Other Statutory Actions <input type="checkbox"/> 891 Agricultural Acts <input type="checkbox"/> 893 Environmental Matters <input type="checkbox"/> 895 Freedom of Information Act <input type="checkbox"/> 896 Arbitration <input type="checkbox"/> 899 Administrative Procedure Act/Review or Appeal of Agency Decision <input type="checkbox"/> 950 Constitutionality of State Statutes
<p>REAL PROPERTY</p> <input type="checkbox"/> 210 Land Condemnation <input type="checkbox"/> 220 Foreclosure <input type="checkbox"/> 230 Rent Lease & Ejectment <input type="checkbox"/> 240 Torts to Land <input type="checkbox"/> 245 Tort Product Liability <input type="checkbox"/> 290 All Other Real Property	<p>CIVIL RIGHTS</p> <input type="checkbox"/> 440 Other Civil Rights <input type="checkbox"/> 441 Voting <input type="checkbox"/> 442 Employment <input type="checkbox"/> 443 Housing/Accommodations <input type="checkbox"/> 445 Amer. w/Disabilities - Employment <input type="checkbox"/> 446 Amer. w/Disabilities - Other <input type="checkbox"/> 448 Education	<p>PRISONER PETITIONS</p> <p>Habeas Corpus:</p> <input type="checkbox"/> 463 Alien Detainee <input type="checkbox"/> 510 Motions to Vacate Sentence <input type="checkbox"/> 530 General <input type="checkbox"/> 535 Death Penalty <p>Other:</p> <input type="checkbox"/> 540 Mandamus & Other <input type="checkbox"/> 550 Civil Rights <input type="checkbox"/> 555 Prison Condition <input type="checkbox"/> 560 Civil Detainee - Conditions of Confinement	<p style="text-align: center;">LABOR</p> <input type="checkbox"/> 710 Fair Labor Standards Act <input type="checkbox"/> 720 Labor/Management Relations <input type="checkbox"/> 740 Railway Labor Act <input type="checkbox"/> 751 Family and Medical Leave Act <input type="checkbox"/> 790 Other Labor Litigation <input type="checkbox"/> 791 Employee Retirement Income Security Act		
			<p style="text-align: center;">IMMIGRATION</p> <input type="checkbox"/> 462 Naturalization Application <input type="checkbox"/> 465 Other Immigration Actions	<p style="text-align: center;">FEDERAL TAX SUITS</p> <input type="checkbox"/> 870 Taxes (U.S. Plaintiff or Defendant) <input type="checkbox"/> 871 IRS—Third Party 26 USC 7609	

V. ORIGIN (Place an "X" in One Box Only)

1 Original Proceeding 2 Removed from State Court 3 Remanded from Appellate Court 4 Reinstated or Reopened 5 Transferred from Another District (specify) 6 Multidistrict Litigation - Transfer 8 Multidistrict Litigation - Direct File

VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing (Do not cite jurisdictional statutes unless diversity):
 47 U.S.C § 332

Brief description of cause:
 Violation of the Telecommunications Act of 1996

VII. REQUESTED IN COMPLAINT: CHECK IF THIS IS A CLASS ACTION UNDER RULE 23, F.R.Cv.P. **DEMAND \$** _____ CHECK YES only if demanded in complaint:
JURY DEMAND: Yes No

VIII. RELATED CASE(S) IF ANY (See instructions): JUDGE _____ DOCKET NUMBER _____

DATE: July 13, 2023 SIGNATURE OF ATTORNEY OF RECORD: /s/ F. Samuel Byrer

FOR OFFICE USE ONLY

RECEIPT # _____ AMOUNT _____ APPLYING IFP _____ JUDGE _____ MAG. JUDGE _____

Non-Actionable Correspondence

Jefferson County Planning Commission
116 East Washington Street, Suite 200
Charles Town, WV 25414

RECEIVED
AUGUST 16, 2023
Jefferson County, WV
Office of Planning & Zoning

Dear Planning Commissioners,

I'm writing to commend you on your June decision to reject the application by Vertical Bridge to build a monopole cell tower on Lake Shannondale. I am the founder and owner of Mountain Mama, a vacation rental company, and a proud resident of Jefferson County. We manage 23 vacation homes (and counting) in the Harpers Ferry area, and represent over a dozen homeowners within Jefferson County who partner with us to rent out their vacation homes whenever they are not enjoying them themselves. The vacation rentals we manage are concentrated on and around Lake Shannondale, and in these vacation homes we host thousands of visitors to Jefferson County every year.

Beautiful scenery and outdoor recreation opportunities drive tourism in Jefferson County. It's the reason tourists from the Washington D.C. area and from across the country visit Shannondale, and it's one of the greatest quality-of-life assets our county has. Lake Shannondale, the jewel of the Blue Ridge, is Shannondale's greatest treasure. A large monopole cell tower installed near the Lake Shannondale dam, as Vertical Bridge proposed, would be inconsistent with the environment. The proposed tower would irreparably mar the viewshed of the lake. Residents and visitors alike who visit the lake clubhouse, swim in or boat on the lake's waters, or otherwise enjoy the neighboring properties would find themselves staring at an ugly monopole towering over them at nearly twice the height of the surrounding tree line. The tower would harm tourism, a priority industry for Jefferson County and a significant source of tax revenue.

I am in favor of improving cell coverage in the areas of Shannondale where it may be lacking. However, site selection is of utmost importance, and the proposed site is inappropriate. Vertical Bridge or another builder could be encouraged to continue seeking other possible sites in the area, sites which are not prominently located within important viewsheds such as those near Lake Shannondale. As I understand the ordinances, a large monopole is supposed to be a last-ditch option on sites outside commercial or industrial areas, sought only after a good faith effort has exhausted all possible alternatives. The proposal from Vertical Bridge did not meet those requirements in my estimation.

Thank you for all you do for Jefferson County, and know that you have lots of support for this recent decision.

Sincerely,



Eddie Love

Founder & CEO, Mountain Mama Vacation Homes

Planning Department

From: John Freiler <johnlfreiler@gmail.com>
Sent: Sunday, August 20, 2023 2:25 PM
To: Planning Department
Subject: Fwd: Shannondale Vista Association

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Copying you folks of my message to SVA regarding the Shannondale Cell Phone Tower. I support the building of the tower.

----- Forwarded message -----

From: John Freiler <johnlfreiler@gmail.com>
Date: Sun, Aug 20, 2023 at 2:18 PM
Subject: Shannondale Vista Association
To: svainfo64@gmail.com <svainfo64@gmail.com>

You do not speak for me. I would welcome the planned cell phone tower. I understand you think you're helping the community, but you're actually harming us by discouraging investment and modernization. Unlike the misleading photo you've posted, we've seen from the lake club owners themselves what the tower would look like:

1. It's not unsightly
2. It's not an "Industrial eyesore" (seriously, where do you get that idea?)
3. It will not ruin the scenery.
4. The tower will improve cell phone reception on the mountain which will be a boon to safety and comfort.
5. The tower is not a hindrance to the Helicopter landing zone any more than the trees growing on our mountain.
6. Property values are more impacted by a lack of connectivity than they would be by the towers that provide it. Hysterical claims of decreased property values are unsubstantiated.
7. Speaking of unsubstantiated claims, the wholly unnecessary scare tactic of "harmful radiation" is not at all supported by the facts.
8. Finally, there is precisely zero reality to the idea that a cell phone tower will discourage tourism. What will discourage tourism is an adversarial and dishonest campaign against good and reasonable improvements to the neighborhood like the one you are leading.

Please cease this needless campaign. I wish there was an organization to oppose you so I could donate to them. Alas, the best I can do is to voice my opposition to your misguided organization.

Regards,
John Freiler

Planning Department

From: Charlotte Fremaux <cmfremaux@gmail.com>
Sent: Monday, August 21, 2023 12:30 PM
To: Steve Stolipher; Tricia Jackson Commissioner; ckrouse@gmail.com; Jane Tabb Commissioner; donnie@rpswv.com; Planning Department; Planning and. Zoning Complaints; Zoning
Subject: Urgent Constituent Help Request
Attachments: EddieLoveLetter to Planning Commission - Vertical Bridge Decision (8-16-23).pdf; Shannondale Flyer- final 8-8.pdf

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

August 21, 2023

Jefferson County Commission
124 E. Washington Street
P.O. Box 250
Charles Town, WV 25414

Jefferson County Office of Planning and Zoning
The Mason Building,
2nd Floor
116 East Washington Street, Suite 200
Charles Town, WV 25414

Attn: County Commissioners:
Steve Stolipher, President; Tricia Jackson, Harpers Ferry District; Jennifer Krouse, Shepherdstown District; and Jane M. Tabb, Middleway District

Attn: Planning Commissioners:
Mike Shepp, President; Matt Knott, Vice President; Wade Louthan, Secretary; Aaron Howell; Donnie Fisher; J. Ware; Tim Smith; Jack Hefestay

Dear Commissioners,

As long-time residents of Shannondale, we are taking the extraordinary step of reaching out to you individually to ask you to please intervene to prevent an end run on the Planning Commission's consideration of Vertical Bridge's proposal to build a 100' monopole cell tower on Lake Shannondale's most scenic spot, next to the dam/spillway. (Please see our attached fact sheet for further information.)

You may recall that in June 2023, the Planning Commission properly rejected this ill-founded concept plan. Soon thereafter, the tower builder took the matter to Federal Court. While we were prepared to present our views and analysis in that context, we have now learned that the Planning Commission has scheduled a special meeting on Tuesday, August 29, concerning a “settlement proposal,” with no opportunity for residents or the public to review the offer, speak, or even provide any advance views that would be considered in any decision. We are shocked and dismayed by this utter disrespect for those most familiar with the site and whose quality of life, real estate values and enjoyment of West Virginia’s tourism would be permanently damaged by an arbitrary and unjustified reversal of the Planning Commission decision.

We ask that you please organize a meeting with at least some of the Planning Commission members this week and interested residents, so that we can understand the “settlement proposal,” convey our initial abiding concerns, look into this unfortunate situation, and ensure that appropriate public review and due process are safeguarded.

At the Planning Commission’s meeting on June 13, 2023, we were impressed that, despite a shallow application and a deferential staff report, members of the Planning Commission listened carefully to the many concerns voiced by the public concerning the incompatibility of the plan with the historic recreational purpose of Lake Shannondale and its pristine setting. In June, the Planning Commission correctly balanced that policy with the need to preserve the quality of the residential neighborhood. We support access to reliable and robust wireless communications—but as you know, these can be further enhanced through less intrusive approaches, as provided in the County rules. Vertical Bridge’s business model is to build towers, which may be appropriate in other county locations, but not this one.

At the hearing, the most prominent questions by the Commission focused on the sheer ugliness and intrusiveness of an unconcealed tower rising twice the height of the tree canopy, and the more important use, for decades, of the area as a medical evacuation helipad and site for emergency vehicles for rescues and fires. These remain vital concerns, but they are only the most obvious elements lacking in an application that was otherwise very inadequate and missing many legally required pieces of information. (We can provide more information upon request.) Moreover, given how the County is aiming to attract tourism and additional residents, it would be a very unfortunate message to approve an intrusive tower that would ruin the scenic beauty of the Lake. (For further information on Shannondale tourism, please see attached letter from Mr. Eddie Love, CEO of Mountain Mama Vacation Homes, to the Planning Commission.)

We urge you not to foreclose public participation and consideration of further information; we believe this is already undermining the fair, democratic and transparent processes that we all value deeply in this community. We hope you can do everything you can to ensure that the Planning Commission’s balanced and thoughtful decision is preserved, and that the natural beauty and recreational character of the area remains within the authority of its planners, not victim to the inappropriate and unnecessary maneuvers of out-of-state actors.

Thank you for your kind consideration,

Emmett Fremaux
594 Shannondale Road
Harpers Ferry, WV 25425

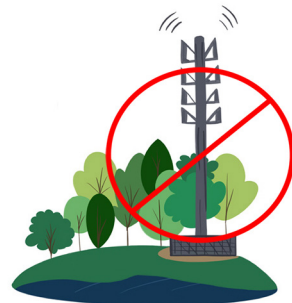
Lani Fremaux
594 Shannondale Road
Harpers Ferry, WV 25425

Rob Montague
1244 Johnnycake Lane
Harpers Ferry, WV 25425

Charlotte Fremaux
175 Fern Drive
Harpers Ferry, WV 25425

STOP THE TOWER! *Save the Lake!*

The owners of The Mountain Lake Club (MLC), along with Vertical Bridge (VB), a tower-building company, and Verizon want to build a 100-foot unsightly and unnecessary cell tower right next to the Shannondale dam. It's hard to believe anyone would want to impose an **industrial eyesore** that would **ruin our beautiful view of the lake and surrounding scenery** – the vista intended for our community when the lake was built almost sixty years ago (whether from the lake or the mountain).



On June 13, four of the six Jefferson County Planning Commissioners sided with residents and voted to oppose the application to build the tower next to the dam on Lake Shannondale. But now Vertical Bridge has filed suit in Federal Court to overturn the Planning Commission's decision! We have formed the ***Shannondale Vista Association (SVA)*** to oppose this hulking tower. ***Please join us to protect our community.***

There is no need for the tower:

On its own website, Verizon already boasts that they have no significant gaps in coverage, and other well-known cell providers are widely available in the area. Tall towers are meant to be placed in commercial areas, not residential or scenic recreational spots like Shannondale Lake. In residential areas, companies are supposed to use existing structures such as electrical poles and water silos.

The tower will not only ruin our beautiful views:

- It could hinder critical **helicopter emergency** and EMT rescues for which the area has been used for decades.
- Large visible towers in residential zones can **reduce house property values** by 20% or more.
- It could potentially be unsafe from harmful levels of radio frequency **radiation**, as shown in evolving studies (although our Federal Government has not updated its safety standards in three decades.)

Once a tower is built, the owners are allowed to add 20ft of height and many additional industrial elements and antennae without requesting permission. Given rapidly improving technology, in just a few years a cell tower **will likely be obsolete and fall into disuse**, but Lake Shannondale's natural beauty and tourist appeal would be permanently damaged by this unnecessary structure.

The new owners of the MLC made a good start in encouraging tourism and restoring the beach area to its intended recreational use. We hope they will see that building a 120-foot tower on the scenic vista would, however, **discourage growing recreational tourism** in the area. This is not the right message for Jefferson County to be sending to visitors and prospective residents who are seeking a place of natural beauty and historic value.

PLEASE contact us at: SVAinfo64@gmail.com

Join our Lake Shannondale Vista Facebook group: https://www.facebook.com/groups/248875511418389/?ref=share_group_link

AND JOIN OUR EFFORTS TO SAVE OUR BEAUTIFUL COMMUNITY!



Jefferson County Planning Commission
116 East Washington Street, Suite 200
Charles Town, WV 25414

RECEIVED
AUGUST 22, 2023
Jefferson County, WV
Office of Planning & Zoning

Dear Planning Commissioners,

I'm writing to commend you on your June decision to reject the application by Vertical Bridge to build a monopole cell tower on Lake Shannondale. I am the founder and owner of Mountain Mama, a vacation rental company, and a proud resident of Jefferson County. We manage 23 vacation homes (and counting) in the Harpers Ferry area, and represent over a dozen homeowners within Jefferson County who partner with us to rent out their vacation homes whenever they are not enjoying them themselves. The vacation rentals we manage are concentrated on and around Lake Shannondale, and in these vacation homes we host thousands of visitors to Jefferson County every year.

Beautiful scenery and outdoor recreation opportunities drive tourism in Jefferson County. It's the reason tourists from the Washington D.C. area and from across the country visit Shannondale, and it's one of the greatest quality-of-life assets our county has. Lake Shannondale, the jewel of the Blue Ridge, is Shannondale's greatest treasure. A large monopole cell tower installed near the Lake Shannondale dam, as Vertical Bridge proposed, would be inconsistent with the environment. The proposed tower would irreparably mar the viewshed of the lake. Residents and visitors alike who visit the lake clubhouse, swim in or boat on the lake's waters, or otherwise enjoy the neighboring properties would find themselves staring at an ugly monopole towering over them at nearly twice the height of the surrounding tree line. The tower would harm tourism, a priority industry for Jefferson County and a significant source of tax revenue.

I am in favor of improving cell coverage in the areas of Shannondale where it may be lacking. However, site selection is of utmost importance, and the proposed site is inappropriate. Vertical Bridge or another builder could be encouraged to continue seeking other possible sites in the area, sites which are not prominently located within important viewsheds such as those near Lake Shannondale. As I understand the ordinances, a large monopole is supposed to be a last-ditch option on sites outside commercial or industrial areas, sought only after a good faith effort has exhausted all possible alternatives. The proposal from Vertical Bridge did not meet those requirements in my estimation.

Thank you for all you do for Jefferson County, and know that you have lots of support for this recent decision.

Sincerely,



Eddie Love

Founder & CEO, Mountain Mama Vacation Homes

From: Corey Ash <ctash2@gmail.com>
Sent: Wednesday, August 23, 2023 7:50 PM
To: Planning Department
Subject: Re: Attn.: Alex Beaulieu (Corey Ash, Medical Info and Healthnet)

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Hi Alex,

Below is the cover letter I would like to go in front of the emails I sent you. If you could attach it, that would be great. Thanks again for the cooperation:

Dear Planning Commission Members,

I am writing with respect to the meeting on August 29th to consider a “settlement proposal” for a cell tower on Shannondale Lake; and to inform you of my personal conversations with members of Healthnet (the company who manages our MedEvac helicopters) concerning the issues raised about EMS and the potential loss of a landing zone at the June 13th hearing. Initially, Healthnet 8 (Martinsburg location), was fairly confident they could land in the gravel lot adjacent to the spillway with no problem, as long as the tower was logged in their system and a FAA approved beacon was attached to the top. As more parties from Healthnet along with information from the Safety Coordinator in Charleston, WV became involved; there was a definite conflict in viewpoints as to whether or not the landing zone would be lost. As I addressed additional concerns in response to their answers, Healthnet held an internal meeting about alternate landing zones to replace the gravel lot area while assuring me that losing landing zones is a common occurrence for various reasons, and it happens all the time. In light of this, my worries about the landing zone increased.

I read through the details of the meeting sent to me, only to have more questions about the validity of the alternate sites (i.e. out of date aerial pictures that do not show existing fence lines, and proper topography, superimposed landing zones not to scale, inability of fire trucks to fill on the peninsula while a MedEvac is occupying the road or peninsula, and alternate zones that were simply farther away thus adding more response time and risk to critical patients due to extended travel). The last email I received in response to the above was subpar at best in answering my concerns and still failed to provide a clear confident answer as to the main landing zone in question being compromised. I then replied to this email with additional details but never received any response. As a result, I am doubtful that this issue can be resolved in a way that ensures current residents and visitors have access to quality MedEvac services that have been present for many years.

It is for these reasons above that I am attaching my entire email conversation with Healthnet and so each commissioner can read for themselves while gaining a complete understanding of what transpired. I thank you for your initial decision on June 13th of rejecting the tower proposal and hope that you will continue to fight and defend your position that is supported by many on the mountain.

Regards, Corey and Tommy Ash

Planning Department

From: Corey Ash <ctash2@gmail.com>
Sent: Monday, August 21, 2023 7:17 PM
To: Planning Department
Subject: Attn.: Alex Beaulieu (Corey Ash, Medical Info and Healthnet)
Attachments: Landing Medevac near a 5G Communications Tower.eml; HealthNet Executive Follow-Up Cellular Site Concern.eml; 40201_2016_Article_253.pdf; s41598-017-16623-8 (1).pdf; medscimonitbasicres-19-141.pdf

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Hi Alex,

This is Corey Ash. Just wanted to send a confirmation that I have submitted documentation in both hard and digital copy form to the Planning Commission on 8/21/23. If anything else is needed, please let me know.

Regards, Corey Ash

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What is the impact of electromagnetic waves on epileptic seizures?

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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RECEIVED
AUGUST 21, 2023
Jefferson County, WV
Office of Planning & Zoning

Corresponding Author: Nilgun Cinar, e-mail: cinarnilgun@gmail.com
Source of support: Self financing

Background: The effects of electromagnetic waves (EMWs) on humans and their relationship with various disorders have been investigated. We aimed to investigate the effects of exposure to different frequencies of EMWs in various durations in a mouse epilepsy model induced by pentylenetetrazole (PTZ).





Material/Methods: A total of 180 4-week-old male mice weighing 25–30 g were used in this study. Each experimental group consisted of 10 mice. They were exposed to 900, 700, 500, 300, and 100 MHz EMWs for 20 hours, 12 hours and 2 hours. Following electromagnetic radiation exposure, 60 mg/kg of PTZ was injected intraperitoneally to all mice. Each control was also injected with PTZ without any exposure to EMW. The latency of initial seizure and most severe seizure onset were compared with controls.

Results: The shortest initial seizure latency was noted in the 12-hour group, followed by the 700 MHz. The mean initial seizure latencies in the 2-hour EMW exposed group was significantly shorter compared to that in the 12- and 20-hour groups. There was no significant difference between 12- and 20-hour EMW exposed groups. There was a significant difference between control and 2- and 10-hour EMW exposed groups. No statistically significant differences were noted in mean latencies of the most severe seizure latency, following 20-, 12-, and 2-hour EMW exposed groups and control groups.

Conclusions: Our findings suggest that acute exposure to EMW may facilitate epileptic seizures, which may be independent of EMW exposure time. This information might be important for patients with epilepsy. Further studies are needed.

Key words: **epilepsy • pentylenetetrazole • mice • electromagnetic waves**

Full-text PDF: <http://www.medscimonit.com/download/index/idArt/883907>

 1663  2  —  28

Background

The effects of electromagnetic waves (EMWs) on humans and the relationship of EMSs with various disorders have been investigated [1]. As a result of advances in technology, people are constantly exposed to EMW. Alternating electric currents, computer screens, radio, television, cell phones, and radar devices are examples of sources of electromagnetic fields. All of these EMW sources operate at different frequencies. Several studies have suggested serious negative effects of EMWs on health [2–4].

We aimed to investigate the effects of different frequencies of EMWs at various durations on time of seizure onset (seizure latency) and the most severe seizure latency in a mouse model of epilepsy induced by pentylenetetrazole (PTZ) and to compare these results with controls.

Material and Methods

Study groups

The study was approved by our local Animal Ethics Committee. It was conducted on 180 4-week-old male albino mice weighing 25–30 g. Experiments were started after 10 A.M. Animals were kept at 24±1°C in a 12–12 hour light-dark cycle and were provided with water and food before and during the study.

Six experimental groups were established, including controls. Each group consisted of 10 mice. They were exposed to 900, 700, 500, 300 and 100 MHz EMW for 20, 12, and 2 hours. Following the exposure, 60 mg/kg of PTZ was injected intraperitoneally (IP) into all mice. PTZ was injected into the controls after the same periods without exposure to EMWs. All mice were then monitored and seizures were scored. Time to the first myoclonic jerk was recorded as initial seizure latency. Seizure severity was scored on a scale from 0 to 6.

Generation of EMWs

An antenna was used to generate EMWs. The antenna intercepts the EMWs and converts them into electrical currents. A 0.5-mm diameter transmitter dipole antenna with electromagnetic field frequencies of 900, 700, 500, 300, 100 MHz was fabricated for use in this experimental study [5]. Electromagnetic wave frequency was measured by a spectrum analyzer and frequency meter before the dipole antenna generated electromagnetic waves.

Administration of pentylenetetrazole (PTZ)

PTZ is a convulsant drug used in experimental epileptic seizure models, which causes convulsions similar to absence and myoclonic type seizures in humans when administered

subcutaneously, intravenously, or intraperitoneally in mice and rats [6]. PTZ acts by binding to the GABA-A/benzodiazepine receptor complex and blocks the GABA-gated chloride channels. Drugs effective against PTZ model exert their anticonvulsant effects through their effects on T-type Ca²⁺ currents and GABA-A [7]. In this study, PTZ was administered at a dose of 60 mg/kg IP in mice.

Evaluation of seizures

After 20-hours, 12-hours and 2-hours groups of mice were exposed to 900, 700, 500, 300, and 100 MHz electromagnetic wave fields respectively, 60 mg/kg of PTZ was injected intraperitoneally. The control groups were also injected with 60 mg/kg of PTZ. All mice were monitored for 20 minutes. The seizure score was recorded according to the following scale; 0: No response, 1: Ear and facial twitching, 2: Mild myoclonic jerks of the limbs, 3: Severe myoclonic jerks of the limbs and rearing, 4: Forelimb convulsions, 5: Increase in general muscle tone in combination with rearing and falls, and 6: Status epilepticus and death [8].

Time to onset of initial myoclonic jerk was defined as first seizure onset latency. Mice were kept in a bell glass for 20 minutes following PTZ injection and the highest score (most severe seizure onset latency) was recorded [9].

Statistical analysis

SPSS 13.0 for Windows software was used for analysis. Groups were compared using one-way ANOVA, Kruskal Wallis test and chi-square tests.

Results

The shortest initial seizure latency was noted at 500 MHz (p<0.05) and the longest at 300 MHz (p<0.05) in the 2-hour group. The shortest initial seizure latency was noted at 700 MHz (p<0.05) and the longest in the control group, followed by 100 MHz (p<0.05) in the 12-hour group. The shortest initial seizure latency was noted at 300 MHz (p<0.05) and the longest in the 500 MHz (p<0.05) in the 20-hour group.

The shortest initial seizure latency was noted in the 12-hour group, followed by 700 MHz and the longest in the 20-hour group, followed by the 500 MHz. Mean initial seizure latencies of EMW-exposed groups were; 2 hour-group: 18.5 s, 12-hour group: 22.3 s, and 20-hour group: 27.2 s. The mean initial seizure latencies of the 2-hour EMW exposed group was significantly shorter compared to that in the 12- and 20-hour groups (p<0.05). There was no significant difference between 12- and 20-hour EMW exposed groups (p>0.05). There was a significant difference between the control group and the 2- and 10-hour

Table 1. Comparison of the initial seizure latencies (sec) without EMW exposure and with 900, 700, 500, 300, 100 MHz EMW exposure in the 2, 12 and 20-hours experimental groups and controls.

Exposure Duration (hours)	Latency in 900 MHz (mean second ±SD)	Latency in 700 MHz (mean second ±SD)	Latency in 500 MHz (mean second ±SD)	Latency in 300 MHz (mean second ±SD)	Latency in 100 MHz (mean second ±SD)	Seizure latency in Controls (sec) ±SD)
2	25.9±15.3	15.2±11.5	11.9±7.3*	27.2±15.1*	12.6±7.4	19.8±7.8
12	22.4±20.4	9.5±12.9*	26.5±29.7	14.4±18.7	38.8±23.7	39.4±26.3*
20	11.5±11.2	44.5±17	57±28*	9.9±5.4*	13.1±18.8	22.4±20.4

*The shortest and the longest latencies.

Table 2. Comparison of the latency of the most severe seizure (sec) following 900, 700, 500, 300, 100 MHz EMW exposure in the 2, 12, 20 hours experimental groups and controls.

Duration of EMW exposure (hours)	Latency in 900 MHz (mean second ± SD)	Latency in 700 MHz (mean second ± SD)	Latency in 500 MHz (mean second ± SD)	Latency in 300 MHz (mean second ± SD)	Latency in 100 MHz (mean second ± SD)	Seizure latency in Controls (sec)
2	317.7±218.2	263±225.2	219.2±98.7	299.9±272.7	292.2±118.8	172.9±137.3
12	385.3±312.12	317.7±298.6	403.8±351.2	161.6±96.2	314.7±311.5	331.5±361.6
20	321.2±185.9	189.4±174.9	250.2±221.06	288.7±230.10	261.1±234.32	313.8±214.31

EMW exposed groups, and no significant difference between controls and the 12-hour EMW exposed group (Table 1). No statistically significant difference was noted in the mean latencies of the most severe seizure latency following 20-, 12-, 2-hour groups and the control groups (Table 2).

Discussion

There are several published studies on the effect of EMWs on tumors [10,11], but there has not yet been a detailed study on EMWs and epilepsy. We investigated different frequencies of EMW on seizures in this comparative experimental epilepsy model. Five different frequencies (100, 300, 500, 700, 900 MHz) of EMWs were applied for 3 different time periods (2, 12, and 20 hours).

The shortest initial latency was observed in the 12-hour group, followed by the 700 MHz in our study. Tattersall et al. found excitability changes in rat hippocampal tissue exposed to 700 MHz radiofrequency without heating effect [12]. Our finding is compatible with results of that study.

EMWs are known to have a heating effect, which is more prominent at higher frequencies [13]. Previous studies have reported that radiofrequency leads to an increase in body core temperature [14]. It has been shown that energy absorption occurs

via radiofrequency waves in target organs, the hypothalamic thermoregulatory center, and peripheral regions. Adair et al. used 450 MHz and 2450 MHz magnetic waves applied in humans, and found an increase in skin temperature [15]. Chou et al., exposed rats to 2450 MHz microwaves, and found that tail regions of the rats absorbed more energy than the head or other body regions, and that specific absorption rates (SAR) were higher in the anterior hypothalamus compared to other brain regions [16]. The role of the tail and anterior hypothalamus in the temperature regulation system should be considered during interpretation of these results. In our study, no specific body region was chosen as the target region. Whole body application of EMWs can eliminate the misinterpretation caused by regional applications. Carratala and Moya used microwaves as an indicator of febrile seizures in neonatal mice and concluded that they had no harmful effects [17]. Body temperature was not measured in the current study. Different effects of EMW exposure on seizure latency might be attributed to blood-brain barrier (BBB) damage caused by heating effect of EMWs, but this effect was reported in studies using gigahertz-levels of EMWs [18,19]. We did not perform any histological examination of BBB damage.

There have been some electroencephalography (EEG) studies of EMW exposure [20,21]. For example, awake and healthy individuals were exposed to 900 MHz EMW and no significant

EEG changes were noted [21]. Hietanen et al. used 5 different models of cell phones and did not find any significant changes in resting EEG, but noted some EEG changes during memory tests [22]. Vorobyov et al. compared the effect of scopolamine in the electroencephalogram of rats and found that repeated low-level exposure to extremely low frequency microwaves can alter activity of the cholinergic system in the brain [23]. In our study we did not perform EEG recording.

Some studies have investigated the effects of EMWs on nervous system tissue. Carballo-Quintás et al. found *c-fos* and glial markers were increased by the combined stress of non-thermal irradiation and the toxic effect of picrotoxin on cerebral tissues exposed to 900 MHz [24]. In study of López-Martín et al., 900 MHz GSM radiation stimulated *c-fos* expression in different areas of the limbic system and triggered a marked increase in neuronal excitability in seizure-prone rats [4]. Ammari et al. showed that sub-chronic exposures to a 900 MHz EMF signal for 2 months could adversely affect rat brains (indicating potential gliosis) [25]. Also, adverse effects of free radicals on myocardium have been shown previously [26]. Tissue investigation was not performed in our study.

Servantie et al. investigated the effects of 5 ± 1 mW/cm² EMW on PTZ-induced seizure latency in mice. Chronic EMW exposure of different durations were tested, and the most significant shortening in latency was noted at day 27 [27]. Although the shortest latencies were recorded in the 2-hour group in our study, obvious short latencies were also recorded in the 12- and 20-hour groups. These results suggest that the duration of EMW exposure is not the only factor affecting the occurrence of epileptic seizures.

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Conclusions

Our findings suggest that acute exposure to EMWs may facilitate occurrence of epileptic seizures and that this could be independent of EMW exposure time. This information might be important for patients with epilepsy. Further studies are needed to evaluate the acute effects of EMW exposure generated by cell phones and other electromagnetic devices used in everyday modern daily life.

Statement

There is no conflict of interest in this study.

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Effect of radiofrequency radiation from Wi-Fi devices on mercury release from amalgam restorations

RECEIVED
AUGUST 21, 2023
Jefferson County, WV
Office of Planning & Zoning

Maryam Paknahad¹, S. M. J. Mortazavi^{2,3*} , Shoaleh Shahidi^{1,4}, Ghazal Mortazavi³ and Masoud Haghani³

Abstract

Background: Dental amalgam is composed of approximately 50% elemental mercury. Despite concerns over the toxicity of mercury, amalgam is still the most widely used restorative material. Wi-Fi is a rapidly using local area wireless computer networking technology. To the best of our knowledge, this is the first study that evaluates the effect of exposure to Wi-Fi signals on mercury release from amalgam restorations.

Methods: Standard class V cavities were prepared on the buccal surfaces of 20 non-carious extracted human premolars. The teeth were randomly divided into 2 groups ($n = 10$). The control group was stored in non-environment. The specimens in the experimental groups were exposed to a radiofrequency radiation emitted from standard Wi-Fi devices at 2.4 GHz for 20 min. The distance between the Wi-Fi router and samples was 30 cm and the router was exchanging data with a laptop computer that was placed 20 m away from the router. The concentration of mercury in the artificial saliva in the groups was evaluated by using a cold-vapor atomic absorption Mercury Analyzer System. The independent t test was used to evaluate any significant differences in mercury release between the two groups.

Results: The mean (\pm SD) concentration of mercury in the artificial saliva of the Wi-Fi exposed teeth samples was $0.056 \pm .025$ mg/L, while it was only $0.026 \pm .008$ mg/L in the non-exposed control samples. This difference was statistically significant ($P = 0.009$).

Conclusion: Exposure of patients with amalgam restorations to radiofrequency radiation emitted from conventional Wi-Fi devices can increase mercury release from amalgam restorations.

Keywords: Amalgam, Wi-Fi, Mercury release, Radiofrequency, Electromagnetic fields

Background

Dental amalgam is still the most widely used restorative material in the last 150 years especially in posterior teeth because of its high mechanical strength, durability, ease of manipulation, and low cost [1–5]. Dental amalgam is an alloy comprised of 50 % elemental mercury and a mixture of other metals such as silver, tin, copper, and sometimes palladium, indium and zinc [6–8]. Dental

amalgam is considered as the primary source of continuous mercury exposure in general population [1, 9–11]. Mercury is a toxic element which can damage various organs such as central nervous system, renal, respiratory and hematologic systems [12, 13]. Because of the mercury toxicity, the use of mercury has been banned in some European countries [14]. The amount of mercury which releases from amalgam restorations depends on several factors such as number and size of the fillings, composition of amalgam, any other factors that causes load over the restorations like tooth brushing, chewing habits, and bruxism [8, 15].

Wi-Fi is a local area wireless computer networking technology and has been used drastically in houses and public places such as schools and hospitals during recent

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years [16]. It allows electronic devices such as personal computers, video-game consoles, smart phones, digital cameras and tablet computers to network using Institute of Electrical and Electronics Engineers (IEEE) 802.11 standards. These standards mainly use the 2.5 gigahertz (12 cm) UHF and 5 gigahertz (6 cm) SHF ISM radio bands [17]. The lower cost and easier deployment of these devices than wired computer networks lead to rapidly increase of Wi-Fi devices [18]. However, this also raised great public concern about the potential adverse effects of exposure to electromagnetic fields (EMFs) emitted from these devices [19].

The adverse health impacts associated to exposure to some common sources of electromagnetic fields including laptop computers, mobile phones, MRI and mobile phone jammers have been evaluated by our laboratory in our previous investigations [20–24]. To the best of our knowledge, this is the first study that evaluates the effect of exposure to Wi-Fi signals on mercury release from amalgam restorations.

Methods

Teeth samples

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences. Twenty non-carious premolar teeth which were extracted as a part of orthodontic treatment were used in this study. The teeth were stored in isotonic saline solution for not longer than 3 months after surface debridement. The teeth were randomly divided into 2 groups of exposure and control, each containing 10 teeth.

Amalgam fillings

Standard class V cavities (3mm length, 2mm depth and 5 mm width) were prepared on the buccal surface using carbide burs (SS White Burs, Lakewood, NJ) and a high speed turbine under water spray. The cavities were

restored with Cinalux (non-gama-2, spherical amalgam, Faghihi Dental, Tehran, Iran) amalgam. The amalgams were triturated according to manufacturers' directions, and then they were condensed incrementally towards the cavity walls. All the procedures for restoration of the cavities were performed by the same clinician. The restored teeth were plunged in saline solution at 37° C for 14 days because as it was discussed by Muller Miny et al., the mercury release from amalgam restorations decrease gradually to a constant level 14 days after the filling [25]. Following that and before exposing the teeth, samples were poured into plastic tubes filled with artificial saliva. The thickness of the artificial saliva covered over teeth samples was 1.5 cm to mimic soft tissue.

Wi-Fi exposure

The exposure group was exposed to radiofrequency radiation emitted from standard Wi-Fi devices at 2.4 GHz for 20 min. The distance between the Wi-Fi router (D-Link, China) and samples was 30 cm and the router was exchanging data with a laptop computer that was placed 20 m away from the router. The control group was kept outside the experiment room. The geometry used for exposure is shown in Fig. 1.

Mercury measurement

Based on our previous experiments, it was clearly revealed that the pre-exposure mercury concentration in the saliva containing teeth samples with exactly identical fillings (the same cavities and amalgam type), was the same for all samples (the differences were not statistically significant). Therefore, the mercury levels were measured in the artificial saliva after exposure by cold vapor atomic absorption spectrometry (CVAAS; Analytical Jena, vario 6, Germany).

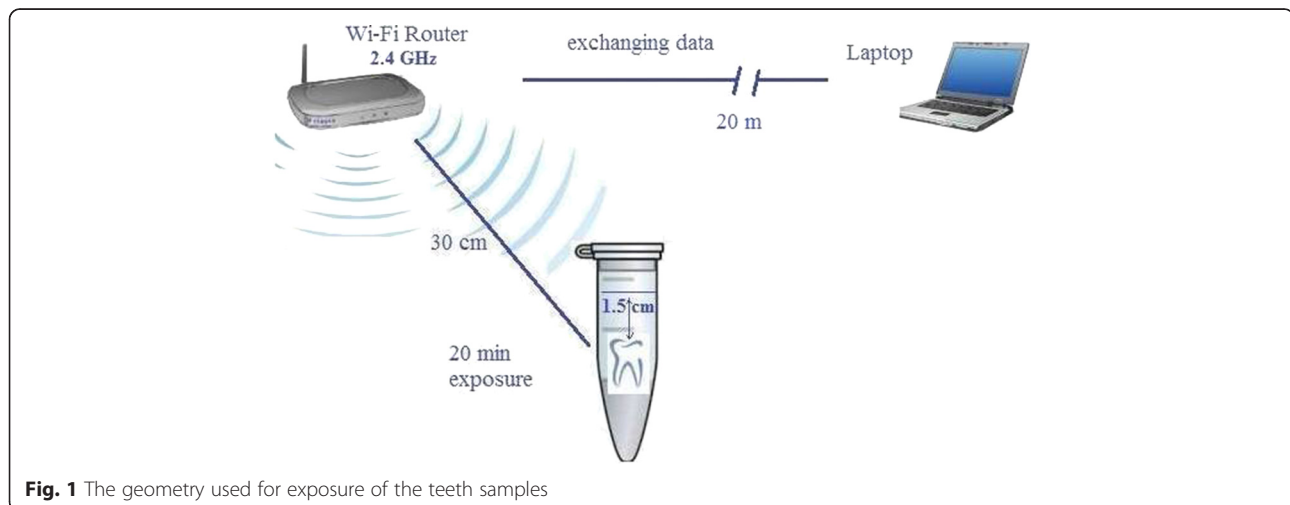


Fig. 1 The geometry used for exposure of the teeth samples

Statistical analysis

The data were statistically analyzed using SPSS version 16.0 (SPSS Inc., Chicago, IL) (<http://www-01.ibm.com/software/analytics/spss>). The independent *t* test was used to compare the level of mercury release in the exposure and control groups to identify any statistically significant differences. *P* value <0.05 was considered significant.

Results

Descriptive statistics were presented as the mean, standard deviation, minimum and maximum in Table 1. The mean (\pm SD) concentration of mercury in the artificial saliva of the Wi-Fi exposed group was $0.056 \pm .025$ mg/L, while it was only $0.026 \pm .008$ mg/L in the non-exposed control samples. Therefore, the mean concentration of mercury in the Wi-Fi group was about twice of the control group. The observed difference in the concentration of mercury in the artificial saliva of the exposure and control group was statistically significant (*P* =0.009).

Discussion

Public concern about the possible adverse health effects of using Wi-Fi technology is increasing because of the widespread use of wireless communication systems [19]. In the present study, it was concluded that radiofrequency radiation emitted from Wi-Fi devices significantly increased mercury release from amalgam restorations.

Mortazavi and Mortazavi have recently reviewed the published reports on the increased release of mercury from dental amalgam fillings after exposure to different sources of electromagnetic fields (e.g. MRI, mobile phones) [26]. These studies are summarized in Table 2. The first report on the role of exposure to MRI or microwave radiation emitted by mobile phones in increasing the release of mercury from dental amalgam filling was published by Mortazavi et al. in 2008 [27]. To overcome the limitations of their previous study, Mortazavi and his colleagues have recently studied the effects of stronger magnetic fields (1.5 T in their recent study vs. 0.25 T in their previous report). This study confirmed the previous findings and provided further support for increased release of mercury from dental amalgam fillings after MR imaging [28].

It should be noted that the results obtained in the studies performed on the role of exposure to

electromagnetic fields in magnetic resonance imaging on the microleakage of amalgam are strongly in line with the findings of Mortazavi et al. [29, 30]. To the best of our knowledge, our current study is the first study that investigates the effect of radiofrequency radiation emitted by Wi-Fi routers on mercury release from amalgam restorations.

Mercury is a toxic element which has adverse biological effects even at low doses [31]. Therefore, it seems to be necessary to apply a sensitive and reliable analytical technique to determine mercury content. Various analytical techniques has been used previously for the determination of mercury in environmental and biological samples such as cold vapor atomic absorption spectrometry (CVAAS), cold vapor fluorescence spectrometry (CVAFS), inductively coupled plasma optical emission spectrometry (ICP OES), electrothermal atomic absorption spectrometry (ET AAS), neutron activation analysis, mass spectrometry, anodic stripping voltammetry, and cold vapor inductively coupled plasma mass spectrometry (CV ICP-MS) [32–35]. This study employed CVAAS method for measuring mercury released from dental amalgam. Because CVAAS is the most widely technique used in previous studies for detecting this element at low concentrations due to its high sensitivity and selectivity and because of its low cost [36, 37].

To improve the outcome of the west possible mercury release, we did not polish the cavities after restoration, because according to Ferracane et al. greater amounts of mercury would release from unpolished than polished surfaces [38].

Although the adverse health effects of the exposure to radiofrequency radiation emitted by Wi-Fi routers on some challenging phenomena such as human reproductive capabilities is well documented by some researchers around the world [39, 40], as far as we know, there is no report on the role of Wi-Fi radiation on the release of mercury from amalgam restorations. The mercury release from dental amalgam into saliva has been evaluated in previous studies both *in vitro* and *in vivo* conditions [25, 31, 41–43]. One of the limitation of *in vivo* studies, as Mortazavi et al. discussed in their study, was that the participants were referred by their own physicians and the investigators did not have control over the number and surface of amalgam fillings [41]. However, in our *in vitro* study, we could control these factors by using identical class V fillings with the same dimensions through application of a template during cavity preparations since the mercury exposure correlates significantly to the number and surface of fillings [8, 15]. We also could control some other confounding factors which differ inter individually such as chewing

Table 1 The mean, standard deviation, minimum and maximum of the mercury release in the two groups

Mercury release (mg/L)	Group		(P-value)
	Control	Wi-Fi	
Mean \pm SD	0.026 \pm .008	0.056 \pm .025	0.009
(Range: min -max)	(0.016 – 0.039)	(0.020-0.100)	

Table 2 Comparison of the findings of current study with other studies performed either on mercury release or amalgam microleakage after exposure to electromagnetic fields

Radiation source	Endpoint	Methods	Basic finding	Reference
Mobile Phone	Release of Mercury	Urine samples were collected from 14 female students	A statistically significant ($p < 0.05$) higher concentration of mercury was observed in the students who used mobile phones.	Mortazavi et al. [27]
MRI (0.23 T)	Release of Mercury	Stimulated saliva collected in 30 persons	Elevated urinary mercury concentration in the exposed group	Mortazavi et al. [27]
MRI (1.5 T)	Release of Mercury	Urinary concentrations of mercury in the MRI exposed and control subjects	The urinary mercury in the exposed group, 72 h after MRI (96 h after restoration), was significantly higher ($p = 0.046$).	Mortazavi et al. [28]
X-ray	Release of Mercury	Teeth samples were exposed to X-rays in a soft tissue-equivalent material	A significant increase in mercury was observed in the X-ray-exposed group ($p \leq 0.05$).	Kursun et al. [42]
MRI	Release of Mercury	Teeth samples were exposed to MRI in a soft tissue-equivalent material	No significant difference was found in the MRI-exposed group.	Kursun et al. [42]
MRI (3 T)	Microleakage of amalgam	60 extracted teeth divided into experimental and control groups exposed/shamexposed to a magnetic field of 3 T for 20 min	significant differences in microleakage between the groups exposed to MRI and controls, whereas differences in microleakage between amalgam types were insignificant.	Yilmaz and Misirlioglu [30]
MRI (1.5 T)	Microleakage of amalgam	63 human freshly extracted premolars were divided into 3 groups (3 different amalgams). In each group, 50% of the samples were exposed to MRI.	Differences in microleakage within each group following MRI were significant in the GS-80 and Vivacap groups but not in the Cinalux group.	Shahidi et al. [29]
MRI (1.5 T)	Microleakage of amalgam	40 teeth were randomly divided into four groups.. The first and third groups were exposed to MRI.	No significant differences of occlusal and gingival surface microleakage after MRI exposure were observed.	Akgun et al. 2014 [29]
Wi-Fi	Mercury release	20 extracted teeth were randomly divided into 2 groups of Wi-Fi exposure and control.	A significant increase in mercury release was observed in Wi-Fi exposed group.	Current study

habits and thermal effects [15, 44]. On the other hand some factors that may decrease the mercury release such as the liberation of corrosive products by contact of food and bacteria did not also interference with our findings.

Conclusion

To the best of our knowledge, this is the first study which assesses the effect of exposure to Wi-Fi signals on mercury release from amalgam restorations. We speculated that exposure to radiofrequency emitted from Wi-Fi devices may result in mercury release from amalgam restorations. Further *in vitro* and *in vivo* studies are necessary to prove this contention.

Abbreviations

CV ICP-MS, cold vapor inductively coupled plasma mass spectrometry; CVAAS, cold vapor atomic absorption spectrometry; CVAFS, cold vapor fluorescence spectrometry; EMF, electromagnetic fields; ET AAS, electrothermal atomic absorption spectrometry; ICP OES, inductively coupled plasma optical emission spectrometry; MRI, magnetic resonance imaging; SHF, super high frequency; UHF, ultra high frequency; Wi-Fi, wireless fidelity.

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Availability of data and materials

The authors agree to make the raw data and materials described in their manuscript freely available to any scientist wishing to use them for non-commercial purposes (<http://crrs.sums.ac.ir/fa/index.html>).

Authors' contributions

MP carried out the filling of the teeth and drafted the manuscript. SMJM participated in the design of the study and carried out the exposures and revised the manuscript. GM and MH performed the exposures and mercury measurements. Shoaleh Shahidi participated in the design of the study. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

This study was approved by the medical ethics committee of Shiraz University of Medical Sciences (No. 91-01-75).

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Exposure to Magnetic Field Non-Ionizing Radiation and the Risk of Miscarriage: A Prospective Cohort Study

De-Kun Li, Hong Chen, Jeannette R. Ferber, Roxana Odouli & Charles Quesenberry

Magnetic field (MF) non-ionizing radiation is widespread and everyone is exposed to some degree. This prospective cohort study of 913 pregnant women examined the association between high MF exposure and miscarriage risk. Cox (proportional hazards) regression was used to examine the association. After controlling for multiple other factors, women who were exposed to higher MF levels had 2.72 times the risk of miscarriage (hazard ratio = 2.72, 95% CI: 1.42–5.19) than those with lower MF exposure. The increased risk of miscarriage associated with high MF was consistently observed regardless of the sources of high MF. The association was much stronger if MF was measured on a typical day of participants' pregnancies. The finding also demonstrated that accurate measurement of MF exposure is vital for examining MF health effects. This study provides fresh evidence, directly from a human population, that MF non-ionizing radiation could have adverse biological impacts on human health.

Magnetic field (MF) non-ionizing radiation is a ubiquitous environmental exposure and a serious looming public health challenge. MFs are emitted from both traditional sources that generate low frequency MFs (e.g., power lines, appliances, transformers, etc.) and from emerging sources that generate higher frequency MFs (e.g., wireless networks, smart meter networks, cell towers, wireless devices such as cell phones, etc.). Humans are now widely exposed to MF with ever-increasing intensity, due to the proliferation of MF-generating apparatuses.

The steep increase in MF exposure has renewed concerns about the potential health effects of this invisible, man-made environmental exposure. A recent NIEHS multi-year project conducted by the National Toxicology Program (NTP) has revealed an increased risk of cancer associated with MF non-ionizing radiation exposure^{1,2}. More specifically, the NTP study found that the cancer risk due to MF exposure observed in their experimental animals matched the cancer cell types that had been reported in previous epidemiologic studies in human populations¹. This finding has made it more difficult to continue to dismiss possible biological effects of MF exposure. Such outright dismissal could be especially troublesome given the high prevalence of human exposure (with almost everyone being exposed to MF non-ionizing radiation to some degree). This includes vulnerable populations such as pregnant women and young children. The International Agency for Research on Cancer (IARC) has classified MF as a possible carcinogen^{3,4}.

Miscarriage is one of the potential adverse health outcomes that are sensitive to MF exposure and also an endpoint that the WHO has recommended to be further studied in the context of MF health effects⁵. Over the years, a few observational studies in human populations have suggested a possible link between MF exposure during pregnancy and an increased risk of miscarriage^{6–11} including two studies published in 2002 that increased the public awareness of such an association^{12,13}. In addition, one study examined human embryonic tissues to assess the association between EMF exposure and embryonic growth, and observed an increased risk of impaired embryonic bud growth and apoptosis associated with exposure to higher MF level¹⁴, providing some direct evidence of adverse biological impact of EMF exposure on embryonic development.

Nevertheless, the association between MF exposure and risk of miscarriage remains largely unknown and overlooked. We conducted this prospective cohort study among a large population of pregnant women to further examine whether exposure to MF non-ionizing radiation during pregnancy increases the risk of miscarriage.

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Materials and Methods

This prospective cohort study was approved by the Kaiser Permanente Northern California (KPNC) Institutional Review Board and conducted among KPNC's pregnant members in the San Francisco Bay Area, all of whom provided informed consent. The study was performed in accordance with all relevant guidelines and regulations. KPNC is an integrated health care delivery system whose members comprise 28–30% of the population in the catchment area and have consistently been shown to be representative of the underlying population^{15,16}.

Study population. All pregnant women, aged 18 years or older, and residing in the participating Bay Area counties, were identified through the KPNC electronic medical record (EMR) laboratory database based on positive pregnancy tests. At KPNC, all women suspected to be pregnant were routinely asked to have a pregnancy test done at a KPNC facility. Flyers informing women about the study were posted at the participating facilities and given to women at the time of their pregnancy test. Given that miscarriage can occur very early in pregnancy, recruiting pregnant women as early as possible in their pregnancy was crucial to ensuring as complete ascertainment of miscarriage as possible. Our identification of pregnant women through positive pregnancy lab tests ensured early recruitment. To determine whether a woman's recurrent miscarriage(s), an indication of higher susceptibility to miscarriage, increases her vulnerability to MF exposure, we oversampled women with two or more prior miscarriages. The pregnant women identified were contacted by a trained recruiter/interviewer to determine their eligibility and willingness to participate in the study. Those who indicated their intention to carry the pregnancy to term and whose gestational age at identification was less than 10 completed weeks (still at risk for miscarriage) were invited to participate in the study. Among 1,627 eligible pregnant women, 1,054 agreed to participate in the study.

Measuring magnetic field exposure during pregnancy. All participating pregnant women were asked to carry an EMDEX Lite meter (Enertech Consultants Inc.) for 24 hours during pregnancy. The EMDEX Lite meter is specifically designed to measure MF, which is measured in milligauss (mG).

To ensure better representation of MF exposure during pregnancy and to apply the knowledge gained from the previous study¹², we designed the MF measurement to be conducted on a typical day (a day reflecting participants' typical pattern of work and leisure activities during pregnancy). In the event that a participant's daily activities might have been altered from what was originally planned, we also verified with the participants, at the end of the measurement period, whether the measurement day was indeed a typical day of their pregnancy. If not, the measurement day was classified as non-typical.

The EMDEX Lite meter was used to measure MF exposure levels by participating pregnant women from all emitting sources. Participants were also asked to keep a diary during the 24-hour measurement period to allow the researchers to (1) identify locations of daily activities (at home, at home in bed, in transit, at work, and other), (2) verify if activities were reflective of a typical day, and (3) examine if locations and activities were associated with high MF exposure.

MF data together with participants' diary of activities on the measurement day were examined for quality control, including consistency and potential errors. We excluded 31 subjects who failed to carry the meter as instructed. We also excluded 107 subjects who had incomplete (<90% of their 24-hour measurements) MF measurement data. Those exclusions were made without knowledge of subjects' pregnancy outcomes.

Previous studies have found that the highest MF levels that pregnant women encounter are the most relevant to miscarriage risk^{12,13}, indicating a possible threshold effect at a given MF level above which developmental embryos may cease to be viable. Thus, this study focused on high levels of MF exposure. We used the 99th percentile of MF measurements during the 24-hour period to classify exposure level, balancing between the need to examine as high of MF level as possible and, at the same time, avoid using less stable indices (e.g., maximum exposure level).

To more accurately reflect participants' true MF exposure during pregnancy, we made significant efforts to separate those participants whose measurements were conducted during a typical day of their pregnancy from those whose measurements were not conducted on a typical day. Measurements obtained on a *typical day* are likely more representative of MF exposure during pregnancy while measurements obtained on a *non-typical day* are more subject to misrepresentation of the true MF exposure level during pregnancy, resulting in misclassifying participants into incorrect MF exposure categories. Such misclassification usually reduces scientists' ability to detect an underlying association. As demonstrated in a previous study, measurements conducted on a typical day showed a stronger association between MF exposure and miscarriage risk, while measurements conducted on a non-typical day showed virtually no association due to incorrectly classifying participants into MF exposure categories¹².

Measurement of miscarriage. Using KPNC EMR data, we were able to identify participants' pregnancy immediately after a positive pregnancy test, thereby starting follow-up at an earlier gestational age than the first prenatal visit, the earliest time at which most other studies have been able to identify pregnant women. This early follow-up allowed us to ascertain early miscarriages that most other studies would have missed, making it an important strength of this study.

All participants were followed for their pregnancy outcomes from the time of their positive pregnancy test to the end of their pregnancy. In the case of miscarriage, this is, by definition, before 20 completed weeks of gestation. We ascertained pregnancy outcomes through the KPNC EMR databases. For participants whose outcomes were not available in the EMR, we contacted them directly. We were able to identify pregnancy outcomes for all participants except one who had moved out of the area, thus she was excluded from further analysis.

In-person interview. An *in-person* interview was conducted with all participants to ascertain extensive information on potential confounders, including pregnancy history and risk factors for miscarriage. Previous studies have shown that MF exposure level is seldom related to common socio-demographic characteristics and risk factors^{12,17,18}; thus, the number of potential confounders in this study was small. Nevertheless, we still collected many factors for examination to ensure thorough control of confounders. Two participants were not able to complete the interview, thus they were excluded from the analyses.

The prospective study design also ensured that the *in-person* interview was blinded to MF exposure for both interviewers and participants, since the EMF measurement was conducted after the interview. This study design enhances the quality of the study findings.

Statistical analysis. We used the Cox Proportional Hazards regression model, with accommodation for left truncation, to examine the association between MF exposure level and miscarriage. Hazard ratios with 95% confidence intervals were used to determine the magnitude and significance of associations. Left truncation arises when study participants enter observation at a point in time (i.e. gestational age at cohort entry) after the time of origin, conception. Participants were followed until either (a) miscarriage, (b) end of pregnancy due to other outcomes (e.g., ectopic pregnancy), at which point they were censored or (c) 20 weeks of gestation, for participants who remained pregnant at that time.

We examined confounders using the change-in-estimate criterion, including the confounder if the miscarriage hazard ratio (HR) for MF changed by 10% or more. While most factors examined were not confounders due to a lack of association with MF exposure, we nevertheless included in the model commonly known risk factors for miscarriage and socio-demographic characteristics.

Given the previous finding that the strength of association between MF and miscarriage varied by whether the MF measurements were taken on a typical or non-typical day¹², we first conducted analyses separately by day type. The previous finding was confirmed in the current study, and we therefore conducted the remaining analyses only among those whose MF exposure was measured on *a typical day* of their pregnancy.

Since we oversampled those with multiple prior miscarriages, we first stratified analysis by those with and without multiple prior miscarriages to determine if the MF association with miscarriage risk differed between these two groups. Once it was determined that the observed associations were largely similar, we included all participants in the analyses and adjusted for prior miscarriage in all the models.

A total of 913 subjects with valid MF measurements and pregnancy outcomes were included in the final analysis.

Statistical analyses were conducted using SAS 9.3.

Results

Table 1 presents the description and characteristics of participants based on their MF exposure levels (high vs. low). The low MF exposure group consisted of women whose 99th percentile of MF exposure levels was in the lowest quartile (<2.5 mG), while those in the higher three quartiles were classified in the high MF exposure group. There were no noticeable associations or consistent patterns between MF exposure level and most of the factors examined, including risk factors for miscarriage (Table 1).

After adjustment for maternal age, race, education, smoking during pregnancy, and prior miscarriage, overall, pregnant women who had higher MF exposure during pregnancy (higher 3 quartiles) had a 48% greater risk of miscarriage than women who had lower MF exposure (in the lowest quartile): adjusted HR = 1.48, 95% confidence interval (CI): 1.03–2.14 (Table 2). Notably, consistent with the finding in a prior study¹², the observed association was much stronger among participants whose MF exposure was measured on a typical day of the pregnancy (aHR = 2.72, 1.42–5.19). In contrast, there was no observed association among those whose MF was measured on a non-typical day (Table 2). Thus, the following analyses were restricted to those whose MF was measured on a typical day of their pregnancy.

Next, we examined the association separately among women with and without multiple prior miscarriages (≥ 2). Table 3 showed that the association was largely similar between these two groups, with the association being slightly stronger among women without multiple prior miscarriages.

Table 4 shows the possible dose-response relationship by examining the association for each quartile using the lowest quartile (2.5 mG) as the reference group. While all higher quartiles showed an increased risk of miscarriage compared to the lowest MF exposure group, there was no dose-response relationship observed. These results are similar to those of a prior study¹².

The above-observed association was consistent regardless of the source of the MF. Although we did not have information on the exact sources from which MF was generated, based on participants' diary, we were able to examine whether MF exposure was from any of the following location categories: at home, at home in bed, at work, in transit, or from other sources. The association was observed consistently, regardless of the location. In addition to the adjusted variables mentioned above, further adjustment for nausea and vomiting as well as the following variables did not change the results in Tables 2–4: maternal income, marital status, maternal nausea/vomiting, alcohol use, caffeine intake, maternal fever, vaginal bleeding, urinary tract infection, carrying loads > 10 pounds, exposure to solvents or degreasers, vitamin intake, and Jacuzzi/hot tub/steam room/sauna use during pregnancy.

Discussion

After initial reports that provided evidence of an increased risk of miscarriage associated with high MF exposure during pregnancy^{12,13}, the current NIEHS-funded study provides additional evidence that exposure to high MF levels in pregnancy is associated with increased risk of miscarriage. This finding is also supported by four other studies published during the past 15 years that examined the relationship between high MF exposure and the risk of miscarriage^{8–11,19}. Two of those studies measured EMF both inside, and in the surrounding areas, of the

Characteristic	Total N (N = 913) ^a	99 th Percentile MF Level			
		Lowest quartile (N = 219)		Higher quartiles (N = 694)	
		N	%	N	%
Maternal age					
<30	296	61	27.9%	235	33.9%
30–34	288	71	32.4%	217	31.3%
≥35	329	87	39.7%	242	34.9%
Race					
White	326	91	41.7%	235	34.0%
Black	90	16	7.3%	74	10.7%
Hispanic	226	51	23.4%	175	25.3%
Asian /Pacific Islander	202	44	20.2%	158	22.8%
Other	66	16	7.3%	50	7.2%
Education					
<High school	42	5	2.3%	37	5.4%
High school or GED	142	32	14.7%	110	15.9%
Trade/Technical school	46	5	2.3%	41	5.9%
College degree	495	128	58.7%	367	53.1%
Graduate school	184	48	22.0%	136	19.7%
Marital Status					
Single	72	12	5.5%	60	8.7%
Partnered	147	31	14.2%	116	16.8%
Married	690	175	80.3%	515	74.5%
Worked in last year					
No	183	47	21.6%	136	19.7%
Yes	727	171	78.4%	556	80.3%
Smoked since LMP					
No	807	196	91.2%	611	89.3%
Yes	92	19	8.8%	73	10.7%
Coffee intake since LMP					
0 cup/day	637	142	64.8%	495	71.3%
0–1 cup/day	201	52	23.7%	149	21.5%
>1 cups/day	75	25	11.4%	50	7.2%
Alcohol use since LMP					
No	514	127	58.3%	387	55.8%
Yes	397	91	41.7%	306	44.2%
Number of previous pregnancies					
0	94	21	9.6%	73	10.5%
1	103	18	8.2%	85	12.2%
2	140	36	16.4%	104	15.0%
≥3	576	144	65.8%	432	62.2%
Number of previous miscarriages					
0	276	60	27.4%	216	31.1%
1	79	21	9.6%	58	8.4%
2	403	101	46.1%	302	43.5%
≥3	155	37	16.9%	118	17.0%
History of subfertility					
No	633	147	67.1%	486	70.0%
Yes	280	72	32.9%	208	30.0%
Vaginal bleeding since LMP					
No	670	165	75.7%	505	72.9%
Yes	241	53	24.3%	188	27.1%
Urinary tract infection since LMP					
No	860	211	96.8%	649	93.9%
Yes	49	7	3.2%	42	6.1%
Fever since LMP					
No	851	198	92.1%	653	94.8%
Continued					

Characteristic	Total N (N = 913) ^a	99 th Percentile MF Level			
		Lowest quartile (N = 219)		Higher quartiles (N = 694)	
		N	%	N	%
Yes	53	17	7.9%	36	5.2%
Carry loads (>10 pounds) since LMP					
No	416	92	42.2%	324	46.8%
Yes	494	126	57.8%	368	53.2%
Used Jacuzzi/hot tub/steam room/sauna since LMP					
No	807	200	91.7%	607	87.7%
Yes	103	18	8.3%	85	12.3%
Exposure to solvents or degreasers since LMP					
No	609	148	68.5%	461	67.7%
Yes	288	68	31.5%	220	32.3%
Vitamin use since LMP					
No	91	16	7.3%	75	10.8%
Yes	820	202	92.7%	618	89.2%
Gestational age at study entry					
0–48 days	763	173	79.0%	590	85.0%
49–69 days	135	41	18.7%	94	13.5%
≥70 days	15	5	2.3%	10	1.4%

Table 1. Characteristics of the Study Population by Daily Magnetic Field Exposure Level (Lowest or Higher Quartiles of MF 99th Percentile). Abbreviation: LMP, Last menstrual period. ^aThe numbers in each individual category may not sum to the total number because of missing data.

99 th Percentile MF Level	Total N	Miscarriage N (%)	cHR (95% CI)	aHR ^a (95% CI)
Among all participants				
Lowest quartile	219	36 (16.4%)	Ref	Ref
Higher quartiles	694	164 (23.6%)	1.43 (1.00–2.06)	1.48 (1.03–2.14)
MF measured on typical days				
Lowest quartile	106	11 (10.4%)	Ref	Ref
Higher quartiles	347	84 (24.2%)	2.46 (1.31–4.62)	2.72 (1.42–5.19)
MF measured on non-typical days				
Lowest quartile	113	25 (22.1%)	Ref	Ref
Higher quartiles	347	80 (23.1%)	1.02 (0.65–1.62)	1.08 (0.67–1.73)

Table 2. Exposure to High Magnetic Fields (MFs) During Pregnancy and the Risk of Miscarriage. cHR: crude (unadjusted) hazard ratio; aHR: adjusted hazard ratio. 95% CI: 95% Confidence interval. ^aAdjusted for maternal age at interview, race, education, smoking since LMP and prior miscarriage. Further adjustment for the following variables did not change the results: maternal nausea/vomiting, maternal income, marital status, alcohol use, caffeine intake, maternal fever, vaginal bleeding, urinary tract infection, carrying loads > 10lbs, exposure to solvents or degreasers, vitamin intake and Jacuzzi/hot tub/steam room/sauna use during pregnancy.

residence of participating pregnant women, and observed a higher risk of miscarriage associated with higher EMF exposure levels^{8,9}. Two other studies examined the impact of EMF emitted from cell phones and wireless networks, and observed that more frequent cell phone use and close proximity to wireless base stations were both associated with an increased risk of miscarriage^{10,11}. Although none of these studies conducted any personal MF measurements to capture actual MF exposure from all sources, as the current study has done, all four studies reported an increased risk of miscarriage associated with high MF exposure.

One of the most challenging aspects of assessing the health impact of MF exposure is the ability to measure MF exposure accurately as well as in the relevant etiological period. Prospectively measuring MF exposure in the etiologically relevant timeframe is essential and preferable to retrospective measurements. It is especially problematic to ascertain MF exposure long after the relevant window of exposure has passed. While logistically challenging, a prospective study design with a device that captures actual MF levels from all emitting sources in an etiologically relevant period will notably improve the accuracy of MF exposure assessment in epidemiological studies in a human population. In addition, as both this study and a previous study¹² demonstrated, even with a prospective design, if measurements were not conducted on a typical day to reflect true MF exposure during pregnancy, such study design could still fail to detect any MF health risk due to misclassification of MF exposure (see Table 2). Therefore, to ensure accurate exposure assessment, MF measurements need to be conducted prospectively during an etiologically relevant window *and* to reflect a participant's typical MF exposure patterns. The

99 th Percentile MF Level	Total N	Miscarriage N (%)	cHR (95% CI)	aHR ^a (95% CI)
<u>≤1 prior miscarriages</u>				
Lowest quartile	39	3 (7.7%)	Ref	Ref
Higher quartiles	143	27 (18.9%)	2.69 (0.82–8.87)	3.76 (1.07–13.18)
<u>≥2 prior miscarriages</u>				
Lowest quartile	67	8 (11.9%)	Ref	Ref
Higher quartiles	204	57 (27.9%)	2.43 (1.16–5.11)	2.56 (1.19–5.50)

Table 3. Exposure to High Magnetic Fields (MFs) During Pregnancy and the Risk of Miscarriage, Stratified by Number of Prior Miscarriages, *MF Measured on Typical Days Only*. cHR: crude (unadjusted) hazard ratio; aHR: adjusted hazard ratio. 95% CI: 95% Confidence interval. ^aAdjusted for maternal age at interview, race, education, smoking since LMP, and gravidity. Further adjustment for the following variables did not change the results: maternal nausea/vomiting, maternal income, marital status, alcohol use, caffeine intake, maternal fever, vaginal bleeding, urinary tract infection, carrying loads > 10lbs, exposure to solvents or degreasers, vitamin intake and Jacuzzi/hot tub/steam room/sauna use during pregnancy.

99 th Percentile MF Level	Total N	Miscarriage N (%)	cHR (95% CI)	aHR ^a (95% CI)
1 st quartile (<2.5 mG)	106	11 (10.4%)	Ref	Ref
2 nd quartile (2.5–3.6 mG)	116	32 (27.6%)	2.87 (1.45–5.70)	3.29 (1.59–6.79)
3 rd quartile (3.7–6.2 mG)	119	31 (26.1%)	2.70 (1.36–5.39)	3.01 (1.48–6.12)
4 th quartile (≥6.3 mG)	112	21 (18.8%)	1.83 (0.88–3.79)	2.02 (0.95–4.28)

Table 4. Exposure to High Magnetic Fields (MFs) During Pregnancy and the Risk of Miscarriage – Assessing Dose-Response, *MF Measured on Typical Days Only*. cHR: crude (unadjusted) hazard ratio; aHR: adjusted hazard ratio. 95% CI: 95% Confidence interval. ^aAdjusted for maternal age at interview, race, education, smoking since LMP, and prior miscarriage. Further adjustment for the following variables did not change the results: maternal nausea/vomiting, maternal income, marital status, alcohol use, caffeine intake, maternal fever, vaginal bleeding, urinary tract infection, carrying loads > 10lbs, exposure to solvents or degreasers, vitamin intake and Jacuzzi/hot tub/steam room/sauna use during pregnancy.

determination of whether the activity pattern was typical needs to be verified after measurement is complete since planned activities can change during the measurement day. It is clear that, if MF exposure is measured subjectively (e.g., interview based on participants' recall) or based on surrogate measures (e.g., wire codes, distance from power lines, job matrix, spot measurement at home, etc.), it would be very difficult for such studies to detect any MF health effect in epidemiological studies due to gross inaccuracies in measuring actual MF exposure levels. By definition, inaccurate MF measures lead to misclassification of MF exposure, which generally result in null findings. Unfortunately, the vast majority of epidemiological studies on MF health effects in the literature so far have been based on subjective and unreliable MF measurements. Thus, it is not surprising that many of the past studies failed to detect MF health effects. In addition, the focus on studying MF effects on cancer has exacerbated the problem, since the development of cancer usually has a long latency period between exposure and outcome that could span several decades. This has made accurately measure MF exposure in the etiologically relevant period (decades before the diagnosis of cancer) almost impossible. Those “null findings” have left a false impression of the “safety” of MF exposure.

The strength of this current study is that, in addition to using an objective measuring device (EMDEX Lite meter), we examined an outcome (miscarriage) with a short latency period (days or weeks rather than years or decades as in the case of cancers or autoimmune diseases). Thus, we were able to measure MF exposure prospectively in the relevant time period (during pregnancy). Furthermore, at the end of the measurement day, we ascertained whether activity patterns on that day reflected a typical day, which allowed us to identify participants with MF exposure measurements that more accurately reflected MF exposure during their pregnancies.

In this study, we found an almost three-fold increased risk of miscarriage if a pregnant woman was exposed to higher MF levels compared to women with lower MF exposure. The association was independent of any specific MF exposure sources or locations, thus removing the concern that other factors connected to the sources of the exposure might account for the observed associations. While nausea and vomiting were hypothesized to be potential confounders, adjustment for both nausea and vomiting did not change the results in this study or in a previous study²⁰. Although we did not observe a dose-response relationship for MF exposure above 2.5 mG, this could be due to a threshold effect of MF exposure in which MF levels at or above 2.5 mG could lead to fetal demise, thus examining further higher levels of MF exposure were not able to confer additional risk.

Given the ubiquitous nature of exposure to this non-ionizing radiation, a small increased risk due to MF exposure could lead to unacceptable health consequences to pregnant women. Although the number of epidemiological studies examining the adverse impact of MF exposure in humans remains limited, the findings of this study should bring attention to this potentially important environmental hazard to pregnant women, at least in the context of miscarriage risk, and stimulate much needed additional research.

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Author Contributions

De-Kun Li conceived the concept, designed the study, obtained funding, oversaw the data gathering and analyses, and is responsible for the interpretation of results, and drafting and finalizing the manuscript. Jeannette Ferber and Hong Chen were responsible for data management. Hong Chen was involved in data analysis and interpretation of the results. Roxana Odouli was involved in the study management and preparation of the manuscript. Charles Quesenberry was involved in interpretation of results and preparation of the manuscript. De-Kun Li is the guarantor of this paper who took full responsibility for the conduct of the study, had access to the data, and controlled the decision to publish.

Additional Information

Competing Interests: The authors declare that they have no competing interests.

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RECEIVED
AUGUST 21, 2023
Jefferson County, WV
Office of Planning & Zoning

Landing Medevac near a 5G Communications Tower

4 messages

Corey Ash <ctash2@gmail.com>
To: ciara.boggs@healthnetcct.com

Thu, Jun 22, 2023 at 2:16 PM

Ciara,

My name is Corey Ash and I along with many other residents of Shannondale subdivision are concerned about a potential 100 ft 5G communications tower right next to an area that has been used to land the Medevac for 30+ years (1329 Lakeside Drive, Harpers Ferry, WV 25425). I am wondering if you or someone you know could supply me with any information regarding any hazards when landing next to one of these towers (i.e. minimum distances, dimensions of required landing zones, EMF interference issues, etc...).

1

I have attached the current concept plan for this tower along with an FAA bulletin discussing their concern with EMF interference with altimeters and other equipment. In the concept plan it shows the gravel lot with the proposed tower, as well as another lot opposite the road (peninsula on the lake). This is also used as a helipad for emergencies. While I think the peninsula will not be affected by the tower, it isn't always available for landing (i.e. also used as an emergency filling station for fire trucks, or when two medevacs are needed simultaneously which happened about two years ago).

I thank you for your time and efforts looking into this matter. Lastly, if this is not the correct department to send this request to, please let me know and kindly suggest the correct department.

Regards, Corey

2 attachments

FRC_Document_AD-2021-01170-R-D.pdf
762K

233SP Shannondale Lake Tel.pdf
12940K

Ciara Boggs <Ciara.Boggs@healthnetcct.com>
To: Corey Ash <ctash2@gmail.com>

Mon, Jun 26, 2023 at 6:09 PM

CAUTION: DO NOT giveaway your username and password or click on suspicious links or attachments even if you know the sender

Good evening, Corey

The proposed tower would not be in the direct flight pathway if it is placed within the trees. As long as there is a beacon and we know it is there, it is easily avoidable. However, if it is placed at the peninsula or in the middle of the "parking lot", that is considered a designated LZ within our system, and we would more than likely have to land in the roadway (or create a new landing zone all together). In regard to the 5g towers and altimeters, the likelihood of that being an issue is slim due to the fact there is no designated approach, and we would not be landing there as an instrument flight rule landing (that LZ is strictly used only for visual flight rules). I am also a resident of Shannondale and completely understand this concern. I hope to be kept in the loop if it is placed. Please let me know if you have any further questions. Thank you for reaching out!

2

From: Corey Ash <ctash2@gmail.com>
Sent: Thursday, June 22, 2023 2:16 PM
To: Ciara Boggs <Ciara.Boggs@healthnetcct.com>
Subject: Landing Medevac near a 5G Communications Tower

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[Quoted text hidden]

1

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Corey Ash <ctash2@gmail.com>
To: Ciara Boggs <Ciara.Boggs@healthnetcct.com>

Mon, Jul 3, 2023 at 11:35 AM

Hi Ciara,

3 I hope you are having a good Fourth of July weekend. I wanted to dig a bit deeper on this helipad issue with regards to your statement that, "the likelihood of that being an issue is slim due to the fact there is no designated approach." Does this mean in incidences of heavy fog, inclement weather, or insufficient lighting (i.e. failure of lighting systems), you would still not use an altimeter and strictly rely on visual flight rules?

Also, I wonder if there would be any possibility of signal interference with other electronic devices equipped on the medevac or even fire trucks for that matter? Another issue is that I have received additional information from someone speaking with a Safety Coordinator in Charleston, WV in regards to minimum distance requirements when landing in the vicinity of a tower (i.e. must be a minimum of ~75ft from the closest point on the chopper to the tower, and a clear 100' x 100' landing zone). Although this is not confirmed yet, I was wondering if you could shed some light on this.

Lastly, my other fear regarding EMS issues with this tower is that typically, the initial site plans always get expanded upon to add additional structure. In light of this, I am concerned that the tower/compound will eventually bleed into the gravel lot, thus causing physical interference with the LZ as previously mentioned. Again, thanks for your time and informed responses. I hope to hear from you soon so we can set the record straight.

Regards, Corey

[Quoted text hidden]

Corey Ash <ctash2@gmail.com>
To: Ciara Boggs <Ciara.Boggs@healthnetcct.com>

Mon, Jul 10, 2023 at 8:43 PM

Hi Ciara,

4 I was wondering if it is possible to get a screenshot or pdf version of the LZ database showing 1329 Lakeside Drive as a documented LZ, as well as the flight log data for current and past medevac events at that location? Please let me know if this is possible.

Regards, Corey

[Quoted text hidden]



Corey Ash <ctash2@gmail.com>

HealthNet Executive Follow-Up: Cellular Site Concern

6 messages

Clinton Burley <Clinton.Burley@healthnetcc.com>
 To: "ctash2@gmail.com" <ctash2@gmail.com>
 Cc: Ciara Boggs <Ciara.Boggs@healthnetcc.com>

Sat, Jul 8, 2023 at 2:32 PM

CAUTION: DO NOT giveaway your username and password or click on suspicious links or attachments even if you know the sender

Mr. Ash:

Early last week your email to Ciara Boggs regarding air medical operations in Jefferson County, WV (embedded wholly below) was shared with me for review and follow-up. After the holiday I met with our program's aviation leader to discuss your concern/inquiries, and I'm now prepared to share factual, meaningful responses. I will attempt to respond to each point individually (with your text appearing in italics), providing a detailed response to each, and additional context as necessary.

5 *I wanted to dig a bit deeper on this helipad issue with regards to your statement that, "the likelihood of that being an issue is slim due to the fact there is no designated approach." Does this mean in incidences of heavy fog, inclement weather, or insufficient lighting (i.e. failure of lighting systems), you would still not use an altimeter and strictly rely on visual flight rules?*

In her quoted response, Ciara shared that the use of a radar altimeter in areas without a precision GPS approach to a given point in space, was not a critical operational safety factor. This is the case for the location in question and in fact, for the entirety of Jefferson County. Unlike many communities across our vast service area, Jefferson County is void of precision approach plans for designated landing sites. In fact, the local hospital in your community does not have a precision approach. As a result, all air medical flight operations in your home county are conducted under visual flight rules with minimum acceptable weather standards (forward visibility and cloud deck height above tallest terrain/obstacle), being more conservative than those published by the FAA for Federal Air Regulation Part 135 operations. So, operations in "heavy fog, inclement weather" would not occur as such instances would not clear pre-flight weather screening. Should an aviator encounter such condition when he/she arrived at a remote landing zone, the flight would be aborted, and the patient transported to the closest hospital by ground EMS without clinical flight team interaction.

Nighttime lighting failure is also of no concern. HealthNet was the first air medical program east of the Mississippi River to adopt night vision goggles in all phases of flight operations. That occurred in 2003. A lighting failure would be inconsequential and in fact, many times aviators will ask those on the scene to extinguish ground lighting to minimize over amplification of ambient light within the night vision goggle devices. Again, in visual flight operations an air medical pilot maintains visual reference to his/her distance from the ground, and do not exclusively rely on the effectiveness of a radar altimeter or lack thereof.

Also, I wonder if there would be any possibility of signal interference with other electronic devices equipped on the medevac or even fire trucks for that matter?

While I cannot respond to your inquiry related to the impact of signal interference on fire apparatus and would refer you to local responders for that inquiry, I can factually reply to your concern about signal interference with medical or similar electronic devices. In fact, there is no impact on such devices within our space and we have had zero safety reports to the contrary. Our concerns in this regard do not surround any landing at scene locations as is questioned here, but rather at hospitals. We are highly cautious at hospitals having MRI devices adjacent to hospital helipads because there are proven cases of signal interference. Even then, such interference does not impede aviation or clinical operations, we simply document where interference is a factor, crews are trained as to those found within their response area, and there is higher team awareness when operating at those specific locations. We operate in such circumstances every week and have for decades.

Another issue is that I have received additional information from someone speaking with a Safety Coordinator in Charleston, WV in regards to minimum distance requirements when landing in the vicinity of a tower (i.e. must be a minimum of ~75ft from the closest point on the chopper to the tower, and a clear 100' x 100' landing zone). Although this is not confirmed yet, I was wondering if you could shed some light on this.

5 The data points you reference are simply our organization's standard landing zone preparation guidelines. If a cell tower would be constructed on the edge of an established landing zone, we would select an alternate suitable site in nearby proximity. This too is a normal course of business. Existing landing zones are lost due to building construction, road construction, overhead wire placement, heavy growth for hay in summer months etc. We have no ability to restrict these activities simply because we occasionally use a site for air medical evacuation. We just endeavor to be good neighbors and identify another site in that specific area.

Lastly, my other fear regarding EMS issues with this tower is that typically, the initial site plans always get expanded upon to add additional structure. In light of this, I am concerned that the tower/compound will eventually bleed into the gravel lot, thus causing physical interference with the LZ as previously mentioned.

Please refer to my response to the previous inquiry.

Speaking generally, and within our program, the construction of cell towers as their impact on air medical operations has been successfully managed. To be clear, the advent of 5G sites congruent to those hospitals (or airports) having precision GPS approaches to their landing areas is problematic if we are flying an instrument approach. For both remote scene landing zones and hospitals without approaches, our aviators fly the visual approach no differently than if they were approaching a similar location without a 5G site nearby. In fact, flying over a tower, the aviator has no idea if a given tower has 5G capability. They simply fly the visual approach. We routinely (nearly daily) fly into a trauma center that does not have a precision approach. The standard visual approach to that site takes the aircraft directly over top an "antenna farm" with VHF, UHF and 5G cellular functionality. This "farm" is less than 0.5 air miles from the trauma center's helipad. It has no impact on operations.

I trust this information is helpful and alleviates your concerns related to air medical helicopter safety around cellular transmission sites. I appreciate your interest and stand ready to assist you further as you may require. My contact information is embedded below.

Respectfully,

Clinton Burley

4

Corey Ash <ctash2@gmail.com>
To: Clinton Burley <Clinton.Burley@healthnetcct.com>

Sat, Jul 8, 2023 at 7:55 PM

Clinton,

6
Thankyou for the detailed response to each of my concerns. I'm relieved that the chopper has no problem (at least in this area) landing next to a tower with regards to altimeter interference. In addition, it's nice to know that lighting is not an issue. My main concern now is your statement about having to move the pad if the tower is built. This alone seems to be a legitimate concern and potential grounds to argue the construction of the tower since Shannondale is a unique area with no other practical LZ. The only area is the peninsula across the road next to the lake which is frequently occupied by fire trucks since it is a designated filling area. Furthermore, there have been instances of 2 choppers landing simultaneously, which cannot happen if the current LZ is compromised. I understand you and your department do not have the authority to argue this point, but if the current tower proposal gets returned to the planning commission (it was rejected and now must be appealed in circuit court), I and many others are willing to bring this up as a concern if need be. Especially since our ambulance services have been removed from the mountain. Thanks again for your time and I hope to hear your thoughts on this matter.

Regards, Corey

[Quoted text hidden]

2 attachments



image001.png
25K



image001.png
25K



Clinton Burley <Clinton.Burley@healthnetcct.com>
To: Corey Ash <ctash2@gmail.com>
Cc: Ciara Boggs <Ciara.Boggs@healthnetcct.com>

Mon, Jul 17, 2023 at 10:42 AM

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Mr. Ash,

7
In response to your follow-up email of July 8, 2023 (below), an assessment was conducted to determine the appropriateness of medical helicopter landing areas in the Shannondale community. Three options have been found and assessed with basic summary information for each attached to this email as a PDF. Each location is in close proximity to the community, and each would require minimal preparation and associated cost. I will address each individually:

Option 1 -- Peninsula Lot

Hi Ciara,

I hope you are having a good Fourth of July weekend. I wanted to dig a bit deeper on this helipad issue with regards to your statement that, "the likelihood of that being an issue is slim due to the fact there is no designated approach." Does this mean in incidences of heavy fog, inclement weather, or insufficient lighting (i.e. failure of lighting systems), you would still not use an altimeter and strictly rely on visual flight rules?

Also, I wonder if there would be any possibility of signal interference with other electronic devices equipped on the medevac or even fire trucks for that matter? Another issue is that I have received additional information from someone speaking with a Safety Coordinator in Charleston, WV in regards to minimum distance requirements when landing in the vicinity of a tower (i.e. must be a minimum of ~75ft from the closest point on the chopper to the tower, and a clear 100' x 100' landing zone). Although this is not confirmed yet, I was wondering if you could shed some light on this.

Lastly, my other fear regarding EMS issues with this tower is that typically, the initial site plans always get expanded upon to add additional structure. In light of this, I am concerned that the tower/compound will eventually bleed into the gravel lot, thus causing physical interference with the LZ as previously mentioned. Again, thanks for your time and informed responses. I hope to hear from you soon so we can set the record straight.

Regards, Corey

Clinton Burley

President and CEO

HealthNet Aeromedical Services, Inc.

110 Wyoming Street

Charleston, WV 25302

304.340.8000 (Office)

304.360.5195 (Cell)

Assistant: Julie Watkins



6

CONFIDENTIALITY NOTICE: The information contained in this message may be privileged and confidential. If this e-mail contains protected health information, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited, except as permitted by law. If you have received this communication in error, please notify the sender immediately by replying to this message and deleting it from your computer. Thank you.

The existing landing area is located at a distance from the proposed cellular tower that the tower would have no impact on flight operations. In our initial discussions, and not knowing area, I believed the aircraft landed in the "cutout" area adjacent to the forest. I have since learned that is not the case, the aircraft lands on the peninsula lot. Adequate space is found there for an aircraft to operate and still allow fire apparatus to access the water level for tank fill from the lake or the fire hydrant. The landing area could be paved and duly designated as a helipad or simply remain unimproved.

Option 2 - Tennis Courts

The former tennis court area is worthy of serious consideration as a permanent landing zone -- with or without a cellular tower in the area. It is paved, is in closer proximity to the beach area and has good road access. Tree removal would be required as would ground level barriers and paint to designate the site.

Option 3 - Former Softball Field at Mount Mission Park

7
Located a mere 1.8 miles from the community, this site would serve the area well. Improvements are not required but simple mowing would be necessary throughout the summer months. Many of HealthNet's landing zones are located on similar sites.

In short, there are safe and viable options that will allow for the continued response of medical helicopters to your community, with or without the addition of a cellular tower. If officials wish to pursue these options following a final decision on the tower, please do not hesitate to contact me.

I have also learned that property owner Matt Barager has reached agreement with Verizon reflecting that should a tower be built, it will be sited in an area that will not preclude the operation of medical helicopters as currently delivered. I have not seen the agreement and it is of no consequence to HealthNet, I merely am sharing information with you related a reported willingness to assure uninterrupted emergency air response in your community.

Respectfully,

Clinton Burley

** See Landing Zones OM
Back.

From: Corey Ash <ctash2@gmail.com>
Sent: Saturday, July 8, 2023 7:56 PM
To: Clinton Burley <Clinton.Burley@healthnetct.com>
Subject: Re: HealthNet Executive Follow-Up: Cellular Site Concern

CAUTION: This email originated outside of HEALTHNET. If you do not recognize the sender do not click links or open attachments.

[Quoted text hidden]

[Quoted text hidden]

 **Landing Site Options - Shannondale Lake Community.pdf**
 939K

Corey Ash <ctash2@gmail.com>
 To: Clinton Burley <Clinton.Burley@healthnetct.com>
 Cc: Ciara Boggs <Ciara.Boggs@healthnetct.com>

Tue, Jul 18, 2023 at 4:44 PM

Clinton,

I appreciate your response and would like to address all options accordingly.

8 Option 1: The photo you are using is old and out of date. There is currently a metal fence across the entire entrance with a 16ft entrance in the center. This alone will make it difficult (even with the landing zone to one side) for the full size fire engines (especially multiple) to enter, fill, and turn around to exit. Another reason I say this is because the aerial view can be deceiving since the outer rim of the peninsula has a steep dropoff that a fire engine cannot traverse. Thus, making that area smaller than it appears. In addition, the state of the gravel there is poor at best. Nothing has been done for 2 years to improve that area. Thus, landing there creates a brown-out situation (see pic). Also, whomever you received the information that the helicopter doesn't land in the gravel lot where the tower is proposed is either highly misinformed or is blatantly lying to you. I have watched choppers land there for close to 3 decades along with my family who has resided here longer than I. The majority of the time, the chopper(s) land in the gravel lot opposite the peninsula and the roadway (which would prohibit the fire engines from accessing the hydrant efficiently).



Option 2: Again, this photo is also out of date as there is now a custom built fence on the 3 sides (2 sides are into the parking lot) where you want to land the chopper. In addition, the entrance is now blocked off by a locked gate. Also, it has been noted by the owners that this area is to be used (and has been several times) as a community event center for weddings, farmer's markets, pickleball, etc.... Furthermore, there is currently a 40ft container in the parking lot that may be in the way. However, I agree this is easily moved and just wanted to bring it to light.

Option 3: While this is an option and I believe it has been used in the past, it presents a few issues:

1. You are now landing further away from an ideal central location to Shannondale, thus costing valuable, life-saving time to be lost transporting any patient from Gate 3 (mailbox location) all the way to the end of Shannondale and other communities within.
2. Throughout the years (most recently 2 years ago), 2 choppers landed simultaneously at the lake area. If only 1 LZ is available at that time (perhaps 0 if the fire trucks occupy the peninsula), you now have 2 choppers landing in different areas approximately 1.8 miles away. While this doesn't sound all that far, if the areas are separated by several S-turns and a 4 way stop (which I understand an emergency vehicle can pass through without stopping unless cars are in the intersection) which adds more transport time and risk of patient injury having to traverse additional sharp turns and potholes. Lastly, an ambulance has 2 options:

A. park in the parking lot along John Brown Farms Road and traverse the patient through the playground equipment, down the hill, and into the chopper.

B. Go to the pavilion side entrance, stop, open the gate, and drive onto the landing site to transfer the patient.

In conclusion, each picture showing the proposed landing zones has a note stating that the zone and image are not to scale. As a result, it is hard to visualize how the chopper/zone would look in reality. I understand that ultimately, you do not have a say if a landing zone is lost. Also, I am not trying to be hasty or argumentative in any way. I am simply concerned about my family and the neighborhood and want to do my best to provide current and accurate information to you from someone who has been here all my life and knows the layout of the area here. I would like to add that through my previous conversation with Ciara Boggs, I learned that EMF interference would not be an issue when landing since Healthnet does not use instrumental approach procedures. Additionally, inclement weather and lighting failure are also not an issue due to the use of night vision goggles. I was thrilled to mark these concerns off my list. Where I started to get conflicting information about the feasibility of landing next to the tower was when multiple people involved in different positions of authority pertaining to the Medevac presented different viewpoints on whether or not the chopper could safely land next to the tower. Some were confident that the chopper could land as long as it had a red beacon on top and Healthnet was notified of the tower location. Others, including yourself, addressed the issue of having to permanently move the landing zone due to the location of the tower/compound area. This is why I have continued to address this issue as a concern for the neighborhood. My goal here is not to twist or exaggerate the truth, but to fully understand and investigate every detail on this matter so the whole truth can be found. I would greatly appreciate your response to this information.

Regards, Corey

[Quoted text hidden]

Ciara Boggs <Ciara.Boggs@healthnetct.com>
To: Corey Ash <ctash2@gmail.com>
Cc: Clinton Burley <Clinton.Burley@healthnetct.com>

Fri, Jul 21, 2023 at 9:35 AM

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Corey,

As Flight Team Leader and clinical Flight Nurse at HealthNet 8, I was the person who provided Mr. Burley the information about the other parking lot. While I agree they have landed there before, it is presently not to be used as an LZ and the peninsula is to be used for those purposes. There are brush piles, gravel piles, and occasionally vehicles in that lot (that was a concern I brought to the property owners). After a thorough discussion with the property owners, it was decided the peninsula would be the official LZ location. Brown-out situations could occur (and routinely occur at other landing sites across our region), however, I have been in contact with local fire departments to ensure that if the area is dry it is sprayed down with water. Respectfully, I am sharing truth to my direct experiences, on-board an aircraft landing at that site; the peninsula site is safe and acceptable for helicopter operations.

The second option (tennis courts) would need further planning with the property owners to be considered an official landing zone, but it is possible and viable and shouldn't be discarded. With that being said, if we're looking for a "quick fix", this is not it and this can be discussed at another time.

The third option being the softball field, and your concern with ambulance travel. The entire Shannondale area is filled with many S turns and "mountainous" roadways. In fact, this is routine across HealthNet's entire service area in Central Appalachia. This is where we live and work. Using that analogy does not take in to account the area in which the emergency is happening. If the emergent situation were to happen in John Brown Farm, Riverside (or any other community further down Mission Road) that same argument could be given with using the lake as the official LZ. Those patients are brought up the mountain to the landing zone. I do believe the more options for landing zones we have the better and everyday ambulances traverse country roads to reach our aircraft and crews.

When there are several helicopters dispatched to a space restricted scene (I have been on one with 5 at one time), aircraft orbit the area until the previous aircraft has packaged their patient and has lifted. This process has proven to be successful throughout the nation and we, at HealthNet, have done this with many other flight organizations across our area. We even do the same thing delivering patients to hospitals. Most hospitals have but one helipad and aircraft "stack and circle" waiting their turn to land. This is not unusual, and processes are in place to assure coordination and safety. That is our daily work.

For the softball field, both options would be suitable for the ambulance to meet us, and the distance is not far. If a patient is developing further injuries from transport via ambulance, that is an entirely different issue, one I hope never happens.

While I understand Mr. Burley may not have a full understanding of Shannondale and its surrounding areas, he and I have been in close discussion due to me being a resident of Shannondale for 35 years and an active clinician for the critical care transport organization in which he is the CEO. He served on an aircraft for 17 years and completed over 3,000 patient missions. He understands how our operational processes work and how they are adjusted due to changing landing site scenarios. Literally every week landing zone sites change across our service area. I do not believe this is a lack of education and understanding of

geographical areas on the part of our leaders, but rather a misunderstanding of helicopter EMS and our capabilities to operate safely and efficiently in relation to landing zone change.

9 While I am understanding of your concerns about a tower placement, HealthNet is going to safely do what we need to do for a patient to receive quick access to critical care transport, wherever that landing zone may be. The options given were in the event that we would have to relocate, however, none of is "set in stone". We are trying to be forward thinking and offer safe options that can be used as needed. And there are multiple safe options in close proximity to our neighbors that will not impede patient care or operational effectiveness. As I've stated before, the more options we have (thankfully close) the better off we are - and we have them.

Thank you,

Ciara

Ciara Boggs, RN, CCRN, CFRN
Flight Team Leader
HealthNet Aeromedical Services
Base 8 Martinsburg, WV
[304-579-0991](tel:304-579-0991)

On Jul 18, 2023, at 16:45, Corey Ash <ctash2@gmail.com> wrote:

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[Quoted text hidden]



359758605_724589009470379_1184469892837116738_n.jpg
6K

Corey Ash <ctash2@gmail.com>
To: Ciara Boggs <Ciara.Boggs@healthnetct.com>
Cc: Clinton Burley <Clinton.Burley@healthnetct.com>

Sun, Jul 23, 2023 at 9:04 PM

Ciara,

Thanks for the detailed response. In light of this new information, I would like to respond to each issue in the order they are presented.

10 Gravel Lot: This area, despite you saying it is "not to be used", has been used more often than not. I am not denying that it doesn't land on the peninsula. However, that is a rare occurrence. Like you, I am also sharing direct truth to my experiences living next to this area my entire life and observing where the chopper lands, which is primarily in the gravel lot and road area followed by the peninsula. With that said, I am not sure if there is a disconnect between where Healthnet wants to land and where the chopper ends up landing, but I have no reason to lie to anyone about this fact. As for the brown-out conditions, I am frustrated with the club owners since my company built the fence there two years ago and nothing has been done to improve the area they are "so worried" about. If the local fire department can ensure that it is watered down, then that issue should be resolved.

Second Option: We seem to be in agreement that it requires further conversation and is not currently a viable option.

Third Option: I fully understand the mountain consists of S-turns and potholes. The point I was trying to make is that any patient located at gate 3 and beyond (away from John Brown Farms) now has to be transported further to make it to the LZ. Thus,

additional potholes and S-turns are introduced due to the increased distance. This was also a concern from our local Fire Chief. Furthermore, my answer to Riverside all the way to JBF is for the chopper to land at the playground in that situation.

Paragraph 4 (multiple choppers): The process of circling choppers makes sense. However, my concern is losing the ability to land multiple choppers at our location if the LZ is moved. Even though the choppers may still have to circle at the hospital, at least the patient occupying the second chopper would potentially make it to the hospital sooner as long as the first chopper leaves the hospital helipad in a reasonable amount of time.

Paragraph 6 (changing LZ's): Mr. Burley has emphasized several times that changing LZ's is a common practice in this industry and even cited specific examples of losing and re-establishing LZ's. I get it. It is ultimately out of your control as to whether or not this LZ stays or goes. I am not asking anyone at Healthnet to take a side and fight for it. My main objective is to have a detailed discussion (which we are having) in order to address the community's concerns about losing an LZ in exchange for one in a different location that would make response times longer. Also, I have no doubt that Healthnet can operate their aircraft safely and efficiently in times of need. I and others just see our current setup being downgraded in regards to location, accessibility (mainly tennis court location), and response time (multiple choppers landing in two separate locations or having to "stack and circle", extended ground transport times, etc...).

At the end of the day, Healthnet and I will agree and disagree on some things. However, I am glad to have the opportunity to discuss the community's many concerns on this matter. When the dust settles, I hope and pray our Medevac services are able to continue to provide quality service to the mountain, especially with the current ambulance situation.

Regards, Corey

[Quoted text hidden]

10

11



Landing Site Option 1 Peninsula Lot

- Gravel landing area or paved/concrete helipad
- 30' x 30' space
- Positioned to southwest side of lot
- Aircraft would approach/depart from southeast
- Adequate space for fire apparatus to reach waterside

Map/landing area not to scale

Landing Site Option 2 Former Tennis Court Space



- Existing pavement transitioned to helipad - 30' x 30' space
- Aircraft would approach/depart from west
- Tree removal required from areas adjacent to landing site
- Area would require paint application
- If this space used for parking, some ground level barriers would be required

Map/landing area not to scale

Landing Site Option 3
Former Softball Field at Mount Mission Park

- **No improvement required**
- **Routine mowing required**



Map/landing area not to scale

Good Evening. My name is Jon Avery and I reside at 387 Laurel Hill Rd. in Shannondale. My house is probably the closest residence to the proposed tower.

I appreciate the opportunity to speak on the topic of tonight's meeting, the "settlement offer" by Vertical Bridge to the Commission. I find it difficult to speak specifically on that topic since the "settlement offer" has been concealed from the public. However I will try.

If the "settlement offer" calls for some quid-pro-quo with Vertical Bridge offering to withdraw their lawsuit if the Planning Commission changes their previous decision to reject the proposal, then I request that the commission reject such outright bullying and stand by their previous public decision.

If the "settlement offer" attempts to make a case for improved cellular coverage and performance of the Verizon cellular network, then I request that the commission table the consideration of the "settlement offer" and request presentations by other cellular carriers, to specifically include T-Mobile, of their current cellular coverage and performance in the Shannondale lake and residential community WITHOUT a new tower in the proposed location.

If the "settlement offer" attempts to minimize the harmful effects of degrading the authorized heliport locations for emergency medevac helicopter operations, then I request the commission consider the already degraded ambulance service that occurred as a result of Jefferson County's Emergency Service's reallocation of ambulances and EMS personnel farther away from the mountain. Do not further degrade emergency service options by placing a flight-hazardous 100 ft tower near the current authorized heliport locations.

If the "settlement offer" calls for camouflaging the 100 ft. tower, then I request that the commission reject the offer because Vertical Bridge representatives stated, at the previous meeting, that their camouflage attempts look ugly. A key element of the public's opposition to the tower is the ugly appearance of the tower in an otherwise beautiful lake and residential community. An even uglier tower benefits no one.

If the "settlement offer" calls for camouflaging the fence around the base of the tower with strips of green plastic threaded through the fence links, then I request that the commission reject the offer because such a pitiful camouflage attempt does nothing to reduce the ugliness of the tower.

If the "settlement offer" calls for relocation of the proposed tower to a commercial/ industrial site that does not destroy the natural beauty of the lake and the surrounding residential community, then I request the commission take the offer under advisement and schedule a new series of hearings with public comment.

I hope that the Commission continues to show their integrity and respect for their constituents and stands by their previous rejection of any proposal that puts a 100 ft tower in a beautiful lake and residential community area.

RECEIVED
AUGUST 23, 2023
Jefferson County, WV
Office of Planning & Zoning

From: robertbergesq@aol.com
Sent: Thursday, August 24, 2023 1:36 AM
To: Nathan Cochran; Planning Department; Robert Berg
Subject: Attention: Mike Shepp, President, Jefferson County Planning Commission - Letter regarding Planning Commission Meeting on August 29, 2023
Attachments: Letter to President of Jefferson County Planning Commission.docx

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Dear President Shepp, I represent the Shannondale Vista Association and a number of residents and property owners who live adjacent to or with the viewshed of the proposed Vertical Bridge cell tower site at 1329 Lakeside Drive, Harpers Ferry, West Virginia. Please review the attached letter prior to the Planning Commission meeting on August 29, 2023, and please be sure to distribute it to the other members of the Planning Commission. Thank you for your kind attention to this matter. Best, Robert J. Berg

Robert J. Berg, Esq.
Law Office of Robert J. Berg PLLC
19 Carriage House Lane
Mamaroneck, New York 10543
(914) 522-9455
robertbergesq@aol.com

RECEIVED
AUGUST 24, 2023
Jefferson County, WV
Office of Planning & Zoning

*Law Office of Robert J. Berg PLLC
19 Carriage House Lane
Mamaroneck, New York 10543
(914) 522-9455
robertbergesq@aol.com*

RECEIVED
AUGUST 24, 2023
Jefferson County, WV
Office of Planning & Zoning

August 23, 2023

BY EMAIL

Mike Shepp, President
Jefferson County Planning Commission
Office of Planning & Zoning
116 E. Washington Street
Charles Town, West Virginia 25414

**Re: Jefferson County Planning Commission Meeting
Tuesday, August 29, 2023 at 7:00 P.M.**

***Discussion of VB BTS, LLC v. Jefferson County, West Virginia &
The Jefferson County Planning Commission, Case No. 3:23-CV-171
(N.D. W. Va.)***

Dear President Shepp and Honorable Members
of the Jefferson County Planning Commission:

I am Robert J. Berg, an attorney admitted to the New York and New Jersey bars, who has been retained by the Shannondale Vista Association and a number of property owners and residents whose properties abut or are within the viewshed of the site located at 1329 Lakeside Drive, parcel ID number 06000600060000, Jefferson County, West Virginia, upon which VB BTS, LLC ("Vertical Bridge") proposes to build and operate a 100-foot tall cell tower.

My clients provided public comments in opposition to this ill-conceived project at the Public Workshop which the Jefferson County Planning Commission (the "Commission") held on June 13, 2023 -- its single public meeting to address the Vertical Bridge project. At the conclusion of the Public Workshop, the Commission voted 4-2 to deny Vertical Bridge's application for the proposed tower, finding that the proposed tower fails to meet the requirements of Article 4B, Wireless Telecommunications Facilities, of the County Zoning Code, and the County Comprehensive Plan. We thank the Commission for appropriately denying this project.

On July 13, 2023, Vertical Bridge filed a lawsuit in the United States District Court for the Northern District of West Virginia against Jefferson County and the Commission, alleging that the Commission's June 13, 2023 denial of Vertical Bridge's proposed tower application violates the federal Telecommunications Act of 1996 (the "TCA") because the denial purportedly

is not based on substantial evidence in the record and allegedly constitutes an effective prohibition of the provision of personal wireless service.

Vertical Bridge's meritless action comes as no surprise. This is what nearly all unsuccessful cell tower companies do when a local government appropriately exercises its local zoning authority under the TCA. In fact, Congress expressly preserves in Section 332(c)(7)(A) of the TCA the authority of "a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless facilities," subject to certain limitations. *See* 47 U.S.C. §332(c)(7)(A). Nevertheless, the deep-pocketed tower companies race to federal court and try to intimidate overburdened local government attorneys with a complex federal lawsuit that the government attorneys often mistakenly believe may bankrupt the local governments with massive monetary damages and attorney's fees and costs should the local governments lose. But this is only a bluff! Local government attorneys fall for it all the time, and they rush to settle cases like Vertical Bridge's instant case when they should, instead, stand up for rightful decisions made by government officials in the public interest.

Notably, the TCA does not provide successful telecom plaintiffs with monetary damages or an award of attorneys' fees and expenses. The U.S. Supreme Court held in *City of Rancho v. Abrams*, 544 U.S. 113 (2005), that an action under 42 U.S.C. § 1983 does not lie to enforce an action for violations of §332(c)(7) of the TCA. *Simply put, no monetary damages or attorneys' fees may be recovered for a successful prosecution of §332(c)(7) of the TCA.* The only relief available to a successful plaintiff is injunctive and declaratory relief. The bottom line is that in the unlikely event that Vertical Bridge prevails in the federal court litigation -- the worst that can happen is that the court orders this Commission to approve the project that it denied on June 13. That's it. Jefferson County may have to expend some monies defending the lawsuit -- if, for some reason, the County's liability insurance policy doesn't cover the claim. But the federal court must process the lawsuit on an expedited basis, and little discovery generally takes place so any attorneys' fees are generally modest. Thus, this Commission should simply do its job as best it can, unintimidated by Vertical Bridge's federal lawsuit. And that job is defending the lawsuit and protecting the public interest which the Commission did by denying Vertical Bridge's application in the first place.

However, recent developments leave my clients very concerned that the County and the Commission may be falling for Vertical Bridge's blatant subterfuge. Certainly, placing Vertical Bridge's "potential resolution/settlement offer" before the Commission on the August 29, 2023 meeting agenda -- without any disclosure to the public about the nature of the settlement offer and without permitting any public comment -- is both quite odd and non-transparent. It's particularly alarming since Vertical Bridge's lawsuit literally has just begun, and nothing has yet occurred in the litigation which would warrant such an early settlement. Most distressing is the prospect that the Commission might act without fully engaging in an open discussion with the public about whatever the settlement might entail.

My clients' attempts to gather any useful information about the August 29, 2023 Planning Commission meeting or the settlement offer have been unproductive. However, the Mountain Lake Club, the owner of the property where the tower is proposed to be located, posted on

Facebook five days ago a "photo" showing a proposed monopine cell tower at the site along with some comments suggesting that a monopine will solve all of the Commission's concerns. A monopine cell tower is simply a monopole cell tower camouflaged badly as a fake pine tree. *Even on the Mountain Lake Club's Facebook post, the photo-simulation of the 100-foot tall monopine looks like a giant vertical toilet bowl brush head.* This unnaturally tall mutant industrial tree soars high above the backdrop of the natural treeline behind it. But worst of all, nothing stands between the green monster and the shoreline of Lake Shannondale itself, ensuring that all property owners and visitors looking towards the north shore of the lake will be forced to view the fake tree cell tower in all its glory. Ironically, at the June 13, 2023 Public Workshop, even Verizon's representative acknowledged that dressing up the cell tower as a phony pine tree is just putting lipstick on a pig. He stated, in a rare moment of honesty:

It's not, it's not pretty. It's awful to be honest. I've only been in the business for three years, and every monopine I have seen has been worse than a monopole. So I can discourage that. I mean, you would think that it would help because it's going to have branches, but those are an eyesore, and they're not typically a help. And they look more like a cell tower than a cell tower.

From a viewshed degradation perspective, the monopine is just as bad as its failed predecessor -- a bald metal cell tower. Neither version comports with the purpose and legislative intent behind the Zoning Ordinance. Section 4B.1 states that "[t]he purpose of Article 4B, Wireless Telecommunications Facilities, is to balance the needs of residents of and visitors to Jefferson County for reliable wireless telecommunications networks and services *with the community's desire to preserve the County's rural, historic and agricultural character and the quality of its residential neighborhoods.*" Sticking an industrial, giant fake pine tree cell tower in a beautiful residential lakefront setting is not a balancing of needs -- it's simply accommodating greed.

The proposed location, in this lakeside rural mountain community, a mile or so from the historic Appalachian Trail and just outside the boundaries of the Harpers Ferry National Historic Park, the Shannondale Springs Wildlife Management Area, and the ruins of the historic Shannondale Lodge runs so counter to the goals of Article 4B that it is laughable. The proposed facility, even cloaked as a fake pine tree, doesn't belong in a residential area, especially not one prized for its open lakefront and mountain views.

Nor does it belong adjacent to a major State-owned wildlife management area. According to the Potomac Valley Audubon Society, the Shannondale Springs Wildlife Management Area, located just yards away from the proposed tower site, is a prime stopover and breeding ground for a large number of migratory bird species, including Prothonotary, yellow, and yellow-throated warblers, yellow-breasted chat, American redstart, Louisiana water thrush, Northern Parula and Common Yellowthroat, along with rarer warbler varieties. Great blue heron, green heron, great egret, double-breasted cormorant, common and red-breasted merganser and occasionally, tundra swan and grebes use the area from late summer to early winter. In a recent landmark paper, "Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment," *Rev Environ Health*, 2021 May 27; 37(1):81-122, renowned researchers BB Levitt, Henry Lai, and Albert Manville reviewed over 1200

research studies and concluded that that current low-level EMF exposures from cell towers and other wireless communications facilities can have myriad adverse and synergistic effects, including on orientation and migration, food finding, reproduction, mating, nest and den building, territorial maintenance and defense, and on vitality, longevity and survivorship itself on wildlife. Such serious effects have been observed in mammals such as bats, cervids, cetaceans, and pinnipeds, among others, and on birds, insects, amphibians, reptiles, microbes and many species of flora. A 100-foot tall cell tower, whether bare or dressed as a fake pine tree, has no place next to a biodiverse wildlife management area, the iconic Appalachian Trail, and the Harpers Ferry National Historic Park.

But beyond the destruction of magnificent views -- which will cause substantial devaluation of nearby property owners' property values -- and the danger to flora and fauna -- a 100-foot tall monopine which is located just a couple of feet from a clean freshwater lake and very close to Furnace Run, a stream, is an environmental disaster waiting to happen on another front. A monopine cell tower is, as stated above, a monopole cell tower which is cloaked in fake pine branches and limbs which are themselves covered by fake pine needles. The phony pine branches and limbs are generally made of fiberglass reinforced plastic ("FRP"). The fake pine needles are made out of PVC, and are glued onto the fake pine branches. Lots of fake PVC pine needles are required to hide a 100-foot tall cell tower and all of the antennas and associated equipment. Indeed, in my experience, Vertical Bridge's proposed 100-foot cell tower, if built as a monopine, will require about 10,000 pounds of fake PVC pine needles to "camouflage" the tower.

Now, here's what happens when a monopine is installed in the real-world. The PVC fake pine needles and the plastic branches and limbs are exposed to the elements 24/7. In the Harpers Ferry area, this monopine will endure harsh environmental conditions. It will be subjected to severe winds, thunderstorms, possible tornados, wind shear, tropical storms or hurricanes, snowstorms, ice storms, snow and ice loads, extreme temperature variations, and high UV exposure. The PVC fake pine needles in particular become extremely brittle as a result of environmental exposure, and they snap apart into fragments very easily at the slightest touch. As a consequence, pieces of the PVC branches and sprigs of PVC pine needles and individual PVC pine needles will break off the monopine frequently, especially during severe weather events. The plastic fragments will be carried away from the monopine by wind and gravity, falling across a wide debris field below. Given the close proximity of the proposed tower to Lake Shannondale and to Furnace Run, substantial quantities of PVC pine needle fragments will inevitably fall or be carried by the wind and run-off into the Lake and into the stream. The "shedding" from these monopines is so rapid and severe that the monopines must be re-foliated every two or three years. The discharge of PVC material from these monopine towers constitutes a major uncontrolled solid waste discharge that is prohibited under the federal Clean Water Act, and undoubtedly, under the environmental pollution laws of the State of West Virginia. Moreover, the PVC waste breaks down into smaller and smaller fragments, which further degrade into microplastics, and eventually will wind up in Lake Shannondale and Furnace Run, as well as contaminating the soil in the debris field around the tower. Furnace Run is a tributary of the nearby Shenandoah River, and PVC and FRP shards and fragments that fall or run off into Furnace Run will be carried downstream into the Shenandoah River.

Microplastics contamination is a relatively new discovery, but poses a serious risk to the fish and amphibians that ingest the microplastics either directly or indirectly through the food chain. Humans too are at risk from ingesting such microplastics by eating fish or by other exposure in the Lake or its environs. Recently released peer-reviewed studies have found microplastics present in human blood, human lung tissue, and in the placentas of pregnant women. See Heather A. Leslie, *et al.*, "Discovery and Quantification of Plastic Particle Pollution in Human Blood," Vol. 163 *Environment International* 107199 (May 2022).

Thus, camouflaging Vertical Bridge's original 100-foot tall monopole as a monopine is no solution, and actually exacerbates the problem by creating significant additional environmental hazards -- solid waste pollution and microplastics pollution. If a "monopine" is Vertical Bridge's proposed settlement offer, this Commission must seriously examine the negative impacts that a monopine will cause, while still not solving the visual degradation and property devaluation issues, among others, that caused the Commission to deny the project in the first instance.

We hope and expect that the Commission will engage in an open process with the community and the public in addressing this important matter. In any event, my clients are planning to file a motion for intervention in the federal court action in order to assure that their interests are adequately protected. My clients look forward to attending the Commission's meeting on August 29, 2023. In the meantime, should the County Attorney wish to speak with me, he should feel free to do so.

Respectfully,

/s Robert J. Berg

cc: Nathan Cochran, Esq.

From: Rachel Grogan <rachelgroganubam@gmail.com>
Sent: Thursday, August 24, 2023 11:28 AM
To: Planning Department
Subject: August 29 meeting on Shannondale Tower

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Dear Commissioners,

Please DO NOT reverse your earlier decision to oppose the cell tower on beautiful lake Shannondale. The Jefferson County lawyers should be asked to vigorously defend this well-founded decision in court, not cave as soon as the company files a case against it. Please DO NOT agree to this settlement. If there are any new parts to the proposal, it should be notified for full public comment and participation.

We are not against connectivity, but Vertical Bridge’s only business model is building towers. We are sure that Verizon can use less intrusive technologies, like those on utility poles, rather than a hulking tower that ruins the scenery and community forever.

If Mountain Lake Club were truly about community and offering an option for emergency services regarding servicing issues, and being able to reach 911 with ease, an easy out would be Starlink but here they are drowning in debt fighting for a tower that will easily pay them \$3000-\$4000 a month and that’s what this is truly about for them. It’s not about the community, it’s not about helping the residents; especially when our property values drop. It’s simply about money!

Best regards,
Rachel Grogan of Mountain Dew Lane

From: Adam McDowell <adamwmcdowell@yahoo.com>
Sent: Thursday, August 24, 2023 11:47 AM
To: Planning Department
Cc: Rachel Shub; Corey Ash; Rachel Grogan; Lake Dan Kaseman; Charlotte Fremaux; Emmett Fremaux; Lani Fremaux; Jack Hahn; Adam McDowell; nutkin10@yahoo.com; Eddie Love
Subject: August 29 Meeting - To be included in the Agenda Package - Shannondale Tower proposal
Attachments: SVAsubmissionAugust24finalPDF.pdf; BergltrtoSheppAug23finalpdf.pdf

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or on clicking links from unknown senders.

Dear Alex,

I am attaching two documents for your review and incorporation into the Agenda Package for the upcoming August 29 meeting related to the Shannondale Tower proposal. This information is being sent on behalf of the Shannondale Vista Association members copied herein. We look forward to the meeting on August 29th.

Please kindly confirm receipt.

Respectfully,

Adam McDowell

RECEIVED
AUGUST 24, 2023
Jefferson County, WV
Office of Planning & Zoning

August 24, 2023

By email

Jefferson County Planning Commission
Office of Planning & Zoning
116 E. Washington Street
Charles Town, West Virginia 25414

Dear Commissioners,

We are residents and property owners in Shannondale who support your well-founded vote on June 13 against the application for a 100 ft monopole cell tower next to Shannondale's scenic dam/spillway. We formed the Shannondale Vista Association upon news that the Applicant, tower builder Vertical Bridge, was intending to appeal your decision. We were shocked to have learned last week that, rather than file a simple response in Federal Court on the due date, August 18, the Planning Commission is instead entertaining a "settlement offer" by Vertical Bridge that has not even been published for consideration by the public, let alone been submitted for consideration in accordance with normal rules. ***We urge you to reject this offer, because your vote was the right one for our community, well-justified under Jefferson County rules and consistent with the Comprehensive Plan.***

Since the June 13 hearing we have become even more aware of the defects in the original application's file-- inadequacies and inconsistencies that confirm the wisdom of your decision. Moreover, from what we have heard from the Mountain Lake Club owners about the settlement offer, it should be treated and processed as a new application. But, ***as explained amply in the accompanying submission by our lawyer, Mr. Robert Berg, this new "Monopine" proposal only adds to our—and your—original concerns***; it does not offer a solution to address the basic problem of imposing an ugly, intrusive, and hulking tower in an area built specifically for its scenic view and enjoyment of the lake. As set out further below, and in the accompanying submission by Mr. Berg, there is no reason to accede to the demands of Vertical Bridge.

Please do not reverse your decision that is so important for Jefferson County residents and property owners, whose quality of life, real estate values and enjoyment of West Virginia's tourism would be permanently damaged by an arbitrary and unjustified reversal of the Planning Commission decision.

A. Monopine proposal

We received no information from the Planning Commission regarding the content of the settlement proposal. However, we recently learned that prior to the due date for filing a response in Federal Court, the Applicant had provided new documentation to the Planning Commission's legal counsel, including a photoshopped picture of the tower to include "camouflage" in the form of a plastic "monopine". As described in the attached letter by Mr. Berg, the monopine would only be adding innumerable problems to the original application.

First, the structure would still be well above the 50 ft tree canopy and out of character with surrounding vegetation. Even if the plastic were not so obviously a fake agglomeration of plastic, the woodlands around the lake have almost no tall pine trees. There are only some small Eastern red cedars, and the larger canopy trees are oak, hickory, big tooth aspen, and tulip. Smaller understory trees are dogwood, sassafras and cherry. None of the trees in this area approach anywhere near the 100 ft height of the monopine proposed. A 100 ft monopine would be startlingly out of character.

Second, the composition and physical attributes of this “camouflage” has not previously been considered by the Planning Commission. These structures start to shed plastic “needles” with any strong weather events, such as wind, storms, snow etc. and start to leech into the surrounding groundwater, lake, streams etc. How can such a potential environmental disaster even be considered for an area that prides itself on the clean waters of Lake Shannondale and surrounding Shenandoah River?

Therefore, the “settlement offer” is in effect a new proposal for which no procedural and regulatory safeguards—including transparency, public inputs and participation, and environmental assessments-- have been undertaken. For many reasons more amply described by Mr. Berg, this element provides yet another reason for the Commission’s taking a “better safe than sorry” approach. It is not a viable alternative.

B. Some of the obvious deficiencies in the Vertical Bridge Concept Plan

In case anyone on the Commission or the Staff wrongly recalls that aesthetic concerns were the only reasons for opposing the application, we are presenting a few obvious deficiencies in the original application. The Planning Commission’s June 13 decision to deny the application was correct and appropriate under the Jefferson County Zoning Ordinance, given the size, the area and location of the proposed tower. Vertical Bridge’s application was very cursory, missed basic requirements, and did not meet the burden of proof required by the Ordinance.

The Jefferson County ordinance required a demonstration of a “bona fide need” by the Applicant for the height and location of a proposed tower, and to prove that a substantial gap in current coverage exists to justify need for the tower. Section 4B.7.D. imposes an “Applicant’s Burden of Proof” for “**demonstrating by substantial evidence in a written record that a bona fide need exists for the proposed structure at its proposed height and location.**” This drives home the point that the applicant must fully demonstrate need for both the proposed height and the location.

Vertical Bridge did not meet these criteria, relying merely on unfounded assertions. There was no actual showing of a gap. Nor, despite the County’s preference for collocation on existing structures, did the applicant examine any alternative deployment configurations, specifically “small cells” on existing utility poles to assure a least intrusive, technologically feasible solution.

While the various defects in propagation maps require a technical consultant (that was not sought by the Planning Commission staff, but could have been under Section 4 and chargeable at Applicant’s expense), some basic problems were evident upon closer examination.

- The propagation modeling was described as presenting effects both with and without the proposed Lake Shannondale tower, assuming only a single option for an antenna centerline height of 95 feet. There was apparently no additional modeling performed for comparative purposes at lower antenna centerlines to determine how adjustments to antenna height might impact the alleged coverage gap.
- Likewise (as detected by Commissioner Fisher's question about whether a 50 ft monopole was considered), the only option Vertical Bridge analyzed is a single tower instead of several lower height facilities (such as so called "small cell" antennas mounted on utility poles within the public right of way along Mission Road.) In fact, there was apparently never any consideration of small cell wireless facilities mounted in the public right of way, despite repeated mentions in the Jefferson County ordinance that small cells are an encouraged technology deployment. Apparently, small cell deployments are not a focus of the Vertical Bridge business model and, hence, were never given any consideration.¹
- Nine other nearby towers with Verizon antennas (arrayed in a rough semi-circle in two states) were described as "included" in the modeling. Those nine various antenna locations are depicted by small "bullseyes" on the two propagation maps presented to the Planning Commission.² However, the Commission was provided with no information about the number, types, heights, power output and broadcast frequencies of those existing antennas, nor whether Verizon has or would consider changes to existing antenna configurations (including additional antennas or increased broadcast power) at, or on, those other existing sites to help improve coverage within the Lake Shannondale vicinity.
- Moreover, there was **no engineer** affidavit attesting to the parameters or variables used to create the maps as required by Section 4B.7.F.

Another deficit under the ordinance is that there was nothing in the application that considered applications approved and in train, as required by Section 4B.7.F: "maps shall identify **all** adjacent sites whether existing, **approved** or **proposed**" (emphasis added). Apparently, none of the towers recently approved by the Planning Commission or in the process of application that could accommodate Verizon antennas were included as "proposed." Nor was there attestation about towers in nearby Virginia locations that might have been recently proposed or approved.

Yet another missing piece was that, unlike other applications to the Planning Commission, the May 8 Verizon transmittal letter does not offer any **narrative conclusions** regarding the radio propagation studies, nor does it definitively certify whether antennas at 95' centerline will solve any alleged gap(s) in coverage. In the absence of narrative conclusions, it was left to Staff --and ultimately the Planning Commission--to determine coverage gaps and to locate where and how those alleged gaps might be reduced or eliminated by the proposed monopole. Evidently this potential additional Staff analysis was not done.

¹ Vertical Bridge describes itself as "the largest private owner and master-lease resource of broadband towers in the country, and we own the nation's largest portfolio of broadcast towers. Our multi-tenant, long-term leasing model ensures that carriers always have new site options and the ability to connect with their customers."

² The letter lists "Verizon's existing Rippon, Summit Point, Kabletown, Charles Town South and Mannings sites in Jefferson County, WV and Battletown and Acadia Farms in Clarke County, VA and Short Hill and Round Hill in Loudoun County, VA."

In the context of the hearing, speakers expressed confusion about the *propagation maps* presented by the applicants. An independent internet search shows the propagation map as presented to the Planning Commission without the proposed Shannondale tower is markedly different than coverage shown on FCC's official National Broadband Map prepared using data (as submitted by Verizon) dated as of December 31, 2022 (also without the Shannondale tower.)

- For this purpose, suffice it to say that FCC maps clearly illustrate that **there is in fact 4G coverage for almost all the Shannondale areas** with exception of a very narrow strip running roughly along Mission Road, and in the low-lying areas along the Shenandoah River on opposite side of the approximately 250' high foothill that separates the River from the Lake area. The areas east of the Lake are clearly shown in the official FCC maps as having ample Verizon coverage.
- Overall, consistent with the experiences of the residents who spoke at the hearing, unlike the map presented by Applicant to the Planning Commission, **there is comparatively little "white space"** discernible in the FCC National Broadband mobile service coverage map.
- The apparent lack of any "significant" gaps in Verizon's 4G LTE coverage is even more apparent when viewing the Lake Shannondale area using Verizon's own website that contains fully interactive mapping tools.³ **There, Verizon is plainly representing today that 4G LTE is available in all the Lake Shannondale environs with no discernable gaps visible.**

We do not know whether Vertical Bridge or Verizon offered to provide Staff with links to the FCC or the Verizon website mapping tools for comparative purposes. Both are easily accessible on public websites and should have been part of Staff's evaluation of the Concept Plan. Regardless, apparently neither the FCC nor Verizon.com maps were shown to the Planning Commission. These major discrepancies between maps have not been explained. But it is highly doubtful that Vertical Bridge can accurately **assert on behalf of Verizon** (which is not a party in the Federal complaint) that they have a "substantial gap in coverage" based solely on its uncertified and unsubstantiated mapping, particularly when compared to FCC maps and Verizon's own currently available marketing resources.

We also noticed **numerous discrepancies in the information provided in the balloon tests**, which was confusing to the public prior to the June 13 hearing. For example, photos and mockups for only 5 locations out of the 12 numbered yellow markers set out on the "Balloon Test Location Map (page 35 of the June 13 Meeting Packet) were provided to the Commission, without explanation. Moreover, Section 4B.7.G requires photos from "each publicly used road from which the balloon is visible"—but these additional photos required by the Ordinance were apparently not presented to the Planning Commission.

A close examination of Google Maps identifies several roads (particularly at higher elevations east of the proposed site location) where the balloon could reasonably be expected to be visible. No photos were taken in these locations. All of the locations where photos are presented are only on sites on or directly off of Lakeside Drive. Balloon shots from Fern Drive and Laurel Hill Road are not included, nor are there shots from streets at higher elevations east

³ (Ookla/MapBox using 2022 data) <https://www.verizon.com/coverage-map/>

of (and uphill from) Lake Shannondale where there could be greater panoramic views from roadways to the proposed Tower, including Eagles Nest, Rebels Roost, and Alta Vista.

These were only some of the inadequacies in the application, which in addition to the significant aesthetic concerns, provide a strong foundation for the Commission's vote against the original Concept Plan.

C. Conclusion

At the Planning Commission's meeting on June 13, 2023, we were impressed that, despite a shallow application and a resulting minimalist Staff report, members of the Planning Commission listened carefully to the many concerns voiced by the public concerning the incompatibility of the plan with the historic recreational purpose of Lake Shannondale and its pristine setting. And, at the June 13 meeting, the Planning Commission's decision correctly ascribed value to the need to preserve the quality of the residential neighborhood, consistent with the Ordinance and Comprehensive Plan. We support access to reliable and robust wireless communications—but as you know, these can be further enhanced through less intrusive approaches, as provided in the County rules.

We urge you to reject Vertical Bridge's application and the monopine settlement proposal, and invite them to apply elsewhere out of viewshed of Lake Shannondale. Vertical Bridge's business model is to build large towers loaded with racks of bulky antennas, which may be appropriate in other Jefferson County locations, but not this one.

Thank you for your kind consideration.

Shannondale Vista Association members (property owners): Corey Ash, Charlotte Fremaux, Emmett Fremaux, Lani Fremaux, Rachel Grogan, Jack Hahn, Daniel Kaseman, Eddie Love, Adam McDowell, Robert Montague, Rachel Shub

Attachment: Letter from Law Office of Robert J. Berg, PLLC, dated August 23, 2023

*Law Office of Robert J. Berg PLLC
19 Carriage House Lane
Mamaroneck, New York 10543
(914) 522-9455
robertbergesq@aol.com*

August 23, 2023

BY EMAIL

Mike Shepp, President
Jefferson County Planning Commission
Office of Planning & Zoning
116 E. Washington Street
Charles Town, West Virginia 25414

**Re: Jefferson County Planning Commission Meeting
Tuesday, August 29, 2023 at 7:00 P.M.**

***Discussion of VB BTS, LLC v. Jefferson County, West Virginia &
The Jefferson County Planning Commission, Case No. 3:23-CV-171
(N.D. W. Va.)***

Dear President Shepp and Honorable Members
of the Jefferson County Planning Commission:

I am Robert J. Berg, an attorney admitted to the New York and New Jersey bars, who has been retained by the Shannondale Vista Association and a number of property owners and residents whose properties abut or are within the viewshed of the site located at 1329 Lakeside Drive, parcel ID number 06000600060000, Jefferson County, West Virginia, upon which VB BTS, LLC ("Vertical Bridge") proposes to build and operate a 100-foot tall cell tower.

My clients provided public comments in opposition to this ill-conceived project at the Public Workshop which the Jefferson County Planning Commission (the "Commission") held on June 13, 2023 -- its single public meeting to address the Vertical Bridge project. At the conclusion of the Public Workshop, the Commission voted 4-2 to deny Vertical Bridge's application for the proposed tower, finding that the proposed tower fails to meet the requirements of Article 4B, Wireless Telecommunications Facilities, of the County Zoning Code, and the County Comprehensive Plan. We thank the Commission for appropriately denying this project.

On July 13, 2023, Vertical Bridge filed a lawsuit in the United States District Court for the Northern District of West Virginia against Jefferson County and the Commission, alleging that the Commission's June 13, 2023 denial of Vertical Bridge's proposed tower application violates the federal Telecommunications Act of 1996 (the "TCA") because the denial purportedly

is not based on substantial evidence in the record and allegedly constitutes an effective prohibition of the provision of personal wireless service.

Vertical Bridge's meritless action comes as no surprise. This is what nearly all unsuccessful cell tower companies do when a local government appropriately exercises its local zoning authority under the TCA. In fact, Congress expressly preserves in Section 332(c)(7)(A) of the TCA the authority of "a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless facilities," subject to certain limitations. *See* 47 U.S.C. §332(c)(7)(A). Nevertheless, the deep-pocketed tower companies race to federal court and try to intimidate overburdened local government attorneys with a complex federal lawsuit that the government attorneys often mistakenly believe may bankrupt the local governments with massive monetary damages and attorney's fees and costs should the local governments lose. But this is only a bluff! Local government attorneys fall for it all the time, and they rush to settle cases like Vertical Bridge's instant case when they should, instead, stand up for rightful decisions made by government officials in the public interest.

Notably, the TCA does not provide successful telecom plaintiffs with monetary damages or an award of attorneys' fees and expenses. The U.S. Supreme Court held in *City of Rancho v. Abrams*, 544 U.S. 113 (2005), that an action under 42 U.S.C. § 1983 does not lie to enforce an action for violations of §332(c)(7) of the TCA. *Simply put, no monetary damages or attorneys' fees may be recovered for a successful prosecution of §332(c)(7) of the TCA.* The only relief available to a successful plaintiff is injunctive and declaratory relief. The bottom line is that in the unlikely event that Vertical Bridge prevails in the federal court litigation -- the worst that can happen is that the court orders this Commission to approve the project that it denied on June 13. That's it. Jefferson County may have to expend some monies defending the lawsuit -- if, for some reason, the County's liability insurance policy doesn't cover the claim. But the federal court must process the lawsuit on an expedited basis, and little discovery generally takes place so any attorneys' fees are generally modest. Thus, this Commission should simply do its job as best it can, unintimidated by Vertical Bridge's federal lawsuit. And that job is defending the lawsuit and protecting the public interest which the Commission did by denying Vertical Bridge's application in the first place.

However, recent developments leave my clients very concerned that the County and the Commission may be falling for Vertical Bridge's blatant subterfuge. Certainly, placing Vertical Bridge's "potential resolution/settlement offer" before the Commission on the August 29, 2023 meeting agenda -- without any disclosure to the public about the nature of the settlement offer and without permitting any public comment -- is both quite odd and non-transparent. It's particularly alarming since Vertical Bridge's lawsuit literally has just begun, and nothing has yet occurred in the litigation which would warrant such an early settlement. Most distressing is the prospect that the Commission might act without fully engaging in an open discussion with the public about whatever the settlement might entail.

My clients' attempts to gather any useful information about the August 29, 2023 Planning Commission meeting or the settlement offer have been unproductive. However, the Mountain Lake Club, the owner of the property where the tower is proposed to be located, posted on

Facebook five days ago a "photo" showing a proposed monopine cell tower at the site along with some comments suggesting that a monopine will solve all of the Commission's concerns. A monopine cell tower is simply a monopole cell tower camouflaged badly as a fake pine tree. *Even on the Mountain Lake Club's Facebook post, the photo-simulation of the 100-foot tall monopine looks like a giant vertical toilet bowl brush head.* This unnaturally tall mutant industrial tree soars high above the backdrop of the natural treeline behind it. But worst of all, nothing stands between the green monster and the shoreline of Lake Shannondale itself, ensuring that all property owners and visitors looking towards the north shore of the lake will be forced to view the fake tree cell tower in all its glory. Ironically, at the June 13, 2023 Public Workshop, even Verizon's representative acknowledged that dressing up the cell tower as a phony pine tree is just putting lipstick on a pig. He stated, in a rare moment of honesty:

It's not, it's not pretty. It's awful to be honest. I've only been in the business for three years, and every monopine I have seen has been worse than a monopole. So I can discourage that. I mean, you would think that it would help because it's going to have branches, but those are an eyesore, and they're not typically a help. And they look more like a cell tower than a cell tower.

From a viewshed degradation perspective, the monopine is just as bad as its failed predecessor -- a bald metal cell tower. Neither version comports with the purpose and legislative intent behind the Zoning Ordinance. Section 4B.1 states that "[t]he purpose of Article 4B, Wireless Telecommunications Facilities, is to balance the needs of residents of and visitors to Jefferson County for reliable wireless telecommunications networks and services *with the community's desire to preserve the County's rural, historic and agricultural character and the quality of its residential neighborhoods.*" Sticking an industrial, giant fake pine tree cell tower in a beautiful residential lakefront setting is not a balancing of needs -- it's simply accommodating greed.

The proposed location, in this lakeside rural mountain community, a mile or so from the historic Appalachian Trail and just outside the boundaries of the Harpers Ferry National Historic Park, the Shannondale Springs Wildlife Management Area, and the ruins of the historic Shannondale Lodge runs so counter to the goals of Article 4B that it is laughable. The proposed facility, even cloaked as a fake pine tree, doesn't belong in a residential area, especially not one prized for its open lakefront and mountain views.

Nor does it belong adjacent to a major State-owned wildlife management area. According to the Potomac Valley Audubon Society, the Shannondale Springs Wildlife Management Area, located just yards away from the proposed tower site, is a prime stopover and breeding ground for a large number of migratory bird species, including Prothonotary, yellow, and yellow-throated warblers, yellow-breasted chat, American redstart, Louisiana water thrush, Northern Parula and Common Yellowthroat, along with rarer warbler varieties. Great blue heron, green heron, great egret, double-breasted cormorant, common and red-breasted merganser and occasionally, tundra swan and grebes use the area from late summer to early winter. In a recent landmark paper, "Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment," *Rev Environ Health*, 2021 May 27; 37(1):81-122, renowned researchers BB Levitt, Henry Lai, and Albert Manville reviewed over 1200

research studies and concluded that that current low-level EMF exposures from cell towers and other wireless communications facilities can have myriad adverse and synergistic effects, including on orientation and migration, food finding, reproduction, mating, nest and den building, territorial maintenance and defense, and on vitality, longevity and survivorship itself on wildlife. Such serious effects have been observed in mammals such as bats, cervids, cetaceans, and pinnipeds, among others, and on birds, insects, amphibians, reptiles, microbes and many species of flora. A 100-foot tall cell tower, whether bare or dressed as a fake pine tree, has no place next to a biodiverse wildlife management area, the iconic Appalachian Trail, and the Harpers Ferry National Historic Park.

But beyond the destruction of magnificent views -- which will cause substantial devaluation of nearby property owners' property values -- and the danger to flora and fauna -- a 100-foot tall monopine which is located just a couple of feet from a clean freshwater lake and very close to Furnace Run, a stream, is an environmental disaster waiting to happen on another front. A monopine cell tower is, as stated above, a monopole cell tower which is cloaked in fake pine branches and limbs which are themselves covered by fake pine needles. The phony pine branches and limbs are generally made of fiberglass reinforced plastic ("FRP"). The fake pine needles are made out of PVC, and are glued onto the fake pine branches. Lots of fake PVC pine needles are required to hide a 100-foot tall cell tower and all of the antennas and associated equipment. Indeed, in my experience, Vertical Bridge's proposed 100-foot cell tower, if built as a monopine, will require about 10,000 pounds of fake PVC pine needles to "camouflage" the tower.

Now, here's what happens when a monopine is installed in the real-world. The PVC fake pine needles and the plastic branches and limbs are exposed to the elements 24/7. In the Harpers Ferry area, this monopine will endure harsh environmental conditions. It will be subjected to severe winds, thunderstorms, possible tornados, wind shear, tropical storms or hurricanes, snowstorms, ice storms, snow and ice loads, extreme temperature variations, and high UV exposure. The PVC fake pine needles in particular become extremely brittle as a result of environmental exposure, and they snap apart into fragments very easily at the slightest touch. As a consequence, pieces of the PVC branches and sprigs of PVC pine needles and individual PVC pine needles will break off the monopine frequently, especially during severe weather events. The plastic fragments will be carried away from the monopine by wind and gravity, falling across a wide debris field below. Given the close proximity of the proposed tower to Lake Shannondale and to Furnace Run, substantial quantities of PVC pine needle fragments will inevitably fall or be carried by the wind and run-off into the Lake and into the stream. The "shedding" from these monopines is so rapid and severe that the monopines must be re-foliated every two or three years. The discharge of PVC material from these monopine towers constitutes a major uncontrolled solid waste discharge that is prohibited under the federal Clean Water Act, and undoubtedly, under the environmental pollution laws of the State of West Virginia. Moreover, the PVC waste breaks down into smaller and smaller fragments, which further degrade into microplastics, and eventually will wind up in Lake Shannondale and Furnace Run, as well as contaminating the soil in the debris field around the tower. Furnace Run is a tributary of the nearby Shenandoah River, and PVC and FRP shards and fragments that fall or run off into Furnace Run will be carried downstream into the Shenandoah River.

Microplastics contamination is a relatively new discovery, but poses a serious risk to the fish and amphibians that ingest the microplastics either directly or indirectly through the food chain. Humans too are at risk from ingesting such microplastics by eating fish or by other exposure in the Lake or its environs. Recently released peer-reviewed studies have found microplastics present in human blood, human lung tissue, and in the placentas of pregnant women. See Heather A. Leslie, *et al.*, "Discovery and Quantification of Plastic Particle Pollution in Human Blood," Vol. 163 *Environment International* 107199 (May 2022).

Thus, camouflaging Vertical Bridge's original 100-foot tall monopole as a monopine is no solution, and actually exacerbates the problem by creating significant additional environmental hazards -- solid waste pollution and microplastics pollution. If a "monopine" is Vertical Bridge's proposed settlement offer, this Commission must seriously examine the negative impacts that a monopine will cause, while still not solving the visual degradation and property devaluation issues, among others, that caused the Commission to deny the project in the first instance.

We hope and expect that the Commission will engage in an open process with the community and the public in addressing this important matter. In any event, my clients are planning to file a motion for intervention in the federal court action in order to assure that their interests are adequately protected. My clients look forward to attending the Commission's meeting on August 29, 2023. In the meantime, should the County Attorney wish to speak with me, he should feel free to do so.

Respectfully,

/s Robert J. Berg

cc: Nathan Cochran, Esq.