

**BEFORE
THE OHIO POWER SITING BOARD**

In the Matter of the Application of)
REPUBLIC WIND, LLC for a Certificate of)
Environmental Compatibility and Public Need) Case No. 17-2295-EL-BGN
for a Wind-Powered Electric Generating)
Facility in Republic and Sandusky Counties,)
Ohio.)

**SUPPLEMENTAL
DIRECT TESTIMONY OF**

**Benjamin M. Doyle
Capitol Airspace Group**

**on the behalf of
Republic Wind, LLC**

October 28, 2019

1 **Q-1. Please state your name, current title, and business address.**

2 **A-1.** My name is Benjamin M. Doyle. I am the President of Capitol Airspace Group (“Capitol
3 Airspace”), located at 5400 Shawnee Road, Suite 304, Alexandria, VA 22312

4 **Q-2. Are you the same Benjamin M. Doyle who filed direct testimony in this matter on**
5 **October 21, 2019?**

6 **A-2.** Yes, I am.

7 **Q-3. What is the purpose of your supplemental direct testimony?**

8 **A-3.** The Ohio Power Siting Board’s (“OPSB” or “Board”) staff (“Staff”) filed a Supplement to
9 the Staff Report (“Supplemental Staff Report”) in this matter on October 18, 2019. It was
10 not provided to Republic Wind LLC (“Applicant” or “Republic Wind”) until Monday,
11 October 21, 2019, the date my direct testimony was required to be filed. The purpose of
12 my supplemental testimony is to address the aviation issues contained in the Supplemental
13 Staff Report and:

- 14 • Explain why the alleged concerns of Fostoria Metropolitan Airport are unfounded;
- 15 • Explain why the Board should reject the Ohio Department of Transportation Office
16 of Aviation’s (“ODOT”) positions; and
- 17 • Explain why the Board should not accept new Condition 59, which Staff now
18 recommends.

19 **Q-4. What have you reviewed to prepare your supplemental direct testimony?**

20 **A-4.** I’ve reviewed the Supplemental Staff Report and ODOT’s letter of September 27, 2019,
21 which was received from a public records request made by Republic Wind and is attached
22 as Supplemental Attachment BMD-1. I also reviewed the letter of Dave Sniffen, manager
23 of the Fostoria Metropolitan Airport that was filed in the public comments portion of this
24 docket on August 15, 2019. The letter is attached as Supplemental Attachment BMD-2.

1 **Q-5. By way of background could you recap from your direct testimony the FAA, ODOT**
2 **and Staff findings with respect to the 50 proposed turbines as part of ODOT's July**
3 **18, 2019 letter and the July 25, 2019 Staff Report?**

4 **A-5.** Yes. The FAA, ODOT and Staff concluded that all 50 turbines exceeded the surface
5 standards of 14 CFR 77.17(a)(1). They concluded that four turbines exceeded the surface
6 standards of 14 CFR 77.17(a)(2), and that 33 turbines exceeded the surface standards of 14
7 CFR 77.17(a)(3).

8 **Q-6. As part of ODOT's July 18, 2019 letter and the July 25, 2019 Staff Report, did ODOT**
9 **request or Staff recommend any conditions for constructing the proposed 50 turbines,**
10 **as they relate to the 14 CFR 77.17(a)(1) surface standards?**

11 **A-6.** No. ODOT and Staff did not recommend any conditions to the construction of these 50
12 turbines as proposed based upon these surface standards.

13 **Q-7. As part of ODOT's July 18, 2019 letter and the July 25, 2019 Staff Report, did ODOT**
14 **request or Staff recommend any conditions for constructing the proposed four**
15 **turbines, as they relate to the 14 CFR 77.17(a)(2) surface standards?**

16 **A-7.** Yes, with respect to each of the four turbines: T1, T8, T48, and T49 (which Staff identifies
17 as T3, T10, T1, and T2, respectively).

18 **Q-8. As part of ODOT's July 18, 2019 letter and the July 25, 2019 Staff Report, did ODOT**
19 **request or Staff recommend any conditions for constructing the proposed 33 turbines,**
20 **as they relate to the 14 CFR 77.17(a)(3) surface standards?**

21 **A-8.** Yes; but, only with respect to one turbine, T1.

22 **Q-9. Did ODOT in its September 27, 2019 letter and Staff in the Supplemental Staff Report**
23 **revisit any of the recommendations?**

24 **A-9.** Yes, but only with respect to 30 of the 33 turbines related to the 14 CFR 77.17(a)(3)
25 surface standards. As I stated previously, ODOT and Staff already had addressed turbine
26 T1 (which Staff identifies as T3) in ODOT's July 18, 2019 letter and the July 25, 2019
27 Staff Report. According to the Supplemental Staff Report (page 5) Seneca County Airport
28 did not raise any objections related to turbines T44 and T45 (which Staff identifies at T47
29 and T48, respectively), and neither Staff nor ODOT addressed them further.

Q-10. Can you identify all of these 30 turbines?

A-10. There appears to be some confusion as to the numbering of the individual turbines. Staff has supplied a cross reference table in the Supplemental Staff Report as to OPSB identified turbines and FAA identified turbines. I will provide the same cross references in the chart below for the 30 turbines that are the subject of the Supplemental Staff Report.

OPSB	FAA		OPSB	FAA		OPSB	FAA
T12	T10*		T22	T20*		T33	T30+
T13	T11*		T23	T21+		T34	T31+
T14	T12+		T24	T22*		T35	T32+
T15	T13*		T25	T23+		T38	T35+
T16	T14+		T26	T24+		T40	T37+
T17	T15+		T27	T25+		T41	T38+
T18	T16+		T29	T26*		T6	T4*
T19	T17*		T30	T27+		T28	T50+
T20	T18*		T31	T28+		T9	T7*
T21	T19*		T32	T29+		T11	T9*

Q-11. What is the significance of the asterisk beside 12 of the turbines?

A-11. The asterisks denote the turbines that were claimed to affect the minimum vectoring altitudes for the Fostoria Metropolitan Airport in the letter dated August 1, 2019 and filed August 15, 2019 by Mr. Sniffen in the public comment portion of the docket. See Supplemental Attachment BMD-2.

Q-12. What is the basis of Mr. Sniffen's objection?

A-12. Mr. Sniffen expressed concern that the turbines in question would prevent air traffic controllers from vectoring aircraft to the final approach course ("Vectors to Final") instead of flying full approaches. "Vectors to Final" is a procedure used by air traffic controllers to

1 sequence traffic to an airport for descent to land. I have attached a graphic to depict Vectors
2 to Final at Fostoria Metropolitan Airport as Supplemental Attachment BMD-3.

3 Mr. Sniffen's concern is that air traffic control would be prevented from performing this
4 procedure due to the location and height of the proposed turbines. Mr. Sniffen's concern is
5 unfounded. While these turbines will result in an increase to the minimum descent altitude
6 used by pilots during the early stages (initial and hold-in-lieu segments) of the approach to
7 the airport, the turbines will not increase the minimum vectoring altitude used by air traffic
8 controllers to vector aircraft to final during descent to land. Since the minimum vectoring
9 altitude ("MVA") will be unaffected, the "vectors to final" operation referenced in Mr.
10 Sniffen's letter would also be unaffected.

11 **Q-13. Can you describe what these minimum altitudes are currently and what would be**
12 **required under the FAA's analysis in its Determination of No Hazard ("DNH")?**

13 **A-13.** Instrument approach procedures are comprised of multiple phases of flight. These phases,
14 or segments, are used to progressively step aircraft down from higher, en-route altitudes to
15 lower altitudes in preparation for landing. As such, each phase of flight has a lower
16 minimum altitude than the preceding phase. This stepping down continues until the aircraft
17 is low enough that the pilot can see the runway and land visually. Currently, during the
18 initial approach phases to Seneca and Fostoria Airports, the pilot must maintain 2400 feet
19 above mean sea level ("AMSL") per the published instrument approach procedures to these
20 airports. In order to protect the aircraft during this phase of flight, the FAA requires that
21 there be 1,000 of clearance between terrain/obstacles and aircraft. As a result, the 2,400
22 foot minimum descent altitude published in the procedure equates to a "no effect height" or
23 "NEH" of 1400 feet AMSL for the wind turbines. Mr. Sniffen asserts that aircraft landing
24 at Fostoria would be prevented from receiving "Vectors to Final" by air traffic control.
25 Vectors to Final is a procedure that air traffic controllers use to manually direct an aircraft
26 to the final approach course. Instead of the pilot flying a published route, he follows verbal
27 direction from air traffic controllers. This serves to truncate a published instrument
28 approach procedure resulting in reduced flight time. Under the FAA's proposal, an increase
29 to the published minimum descent altitude from 2400 feet to 2500 feet AMSL in the initial
30 segments of the instrument approach procedure would not affect the Minimum Vectoring

1 Altitudes (MVA) used by air traffic control to vector aircraft to the final approach course.
2 The MVA will remain at 2400 feet and air traffic control will still be able to vector aircraft
3 to final at Fostoria Airport. Supplemental Attachment BMD-4 is a graphic that depicts the
4 hold-in-lieu pattern for Fostoria Metropolitan Airport, and Supplemental Attachment
5 BMD-5 is a graphic that depicts the Required Obstacle Clearance, or minimum flight
6 altitude for hold-in-lieu patterns and MVA, for the Fostoria and Seneca County airports.

7 **Q-14. Did Capitol Airspace prepare a report for Republic Wind on these issues?**

8 **A-14.** Yes. I've attached the report as Supplemental Attachment BMD-6.

9 **Q-15. I note that the report is signed by Joe Anderson, can you identify him and his**
10 **position?**

11 **A-15.** Yes. He is one of my employees and serves as a Project Manager & Airspace Specialist.
12 He prepared the report at my direction. I reviewed and approved it.

13 **Q-16. Does Mr. Sniffen's letter of August 1, ODOT's letter of September 27, 2019 or Staff's**
14 **Supplemental Staff Report affect your analysis in this report?**

15 **A-16.** No.

16 **Q-17. What did ODOT advise as to the 12 turbines addressed in Mr. Sniffen's letter?**

17 **A-17.** It states that the 12 turbines should be eliminated from the Project or reduced in height to
18 the "no effect height of 1400 AMSL," which, ODOT claims, would be necessary to
19 eliminate the obstructions and their impacts to the Fostoria Metropolitan Airport.

20 **Q-18. Does ODOT identify these impacts?**

21 **A-18.** No. The impacts are identified in the DNHs and relate to missed approach holding patterns
22 and hold-in-lieu of procedure turn segments of various instrument approach procedures.

23 **Q-19. Can you explain how ODOT's recommendation that the 12 turbines not exceed the**
24 **"no effect height" is related to Mr. Sniffen's vectoring issue?**

25 **A-19.** I don't believe they are related. As I stated previously, air traffic control's current ability to
26 Vector to Final will not be affected whether the 12 proposed turbines identified in Mr.
27 Sniffen's letter are constructed or not. Increases in published minimum descent altitudes

1 from 2400 feet AMSL to 2500 feet AMSL as proposed by the FAA will have no effect on
2 Vectors to Final.

3 **Q-20. Did ODOT limit its reconsideration of its July 18, 2019 letter to the 12 turbines**
4 **identified by Mr. Sniffen?**

5 **A-20.** No. The Supplemental Staff Report states that ODOT received “clarification of the
6 objections to the wind turbines from the Seneca County Airport.” However, Republic Wind
7 has not been advised what these objections are. ODOT advises that an additional 18
8 turbines should be eliminated from the project or their height reduced to comply with a no
9 effect height of 1400 AMSL, which, ODOT claims, would be necessary to eliminate the
10 obstructions and their impacts to the Seneca County Airport. The turbines are denoted in
11 the chart above with a plus (+) sign.

12 **Q-21. Did the FAA address all 30 of these turbines in considering whether to issue the**
13 **DNHs?**

14 **A-21.** The FAA considered each of the turbines individually and then collectively when it issued
15 its determination of no hazard. The FAA took into consideration that the 30 turbines would
16 have an adverse effect on the initial approach, hold-in-lieu of procedure turn and missed
17 approach holding segments of various procedures. After assessing these impacts, the FAA
18 determined that it could amend the altitudes for these segments while, at the same time,
19 preserve the overall efficiency of the procedure. In doing so, the FAA has clearly shown
20 that there would be no impact to aviation safety or the efficiency of operations at either
21 Fostoria or Seneca Airports.

22 **Q-22. Do you agree with the FAA’s analysis?**

23 **A-22.** Yes.

24 **Q-23. Based upon ODOT’s advice, what does Staff recommend in its Supplemental Staff**
25 **Report?**

26 **A-23.** Staff bases its recommendations on each turbine location’s “no effect height.” It
27 recommends that the 30 turbines not be constructed above the no effect height of 1400 feet
28 AMSL. Under Staff’s identifiers, these are turbines: T6, T9, T11, T12, T13, T14, T15,

1 T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32,
2 T33, T34, T35, T38, T40 and T41. See Condition 59.

3 **Q-24. Do you agree with new Condition 59 as stated in the revised staff report?**

4 **A-24.** No. As I stated in my direct testimony, I don't believe that ODOT's recommendations
5 create a safer flying environment. Although both the FAA and ODOT agree that the
6 turbines to be constructed in the Project can technically be classified as an obstruction
7 under 14 CFR 77.17(a)(3), only the FAA considered whether the obstruction created a
8 substantial adverse impact on navigable airspace. The FAA's determination was based
9 upon sound aeronautical principles. As to the 30 turbines at issue, ODOT merely
10 concluded that those turbines constituted an obstruction and did not consider whether those
11 obstructions could be waived per the Ohio Revised Code, which requires that the criteria
12 for issuing a waiver to the obstruction standards be based on "sound aeronautical
13 principles, as set out in FAA technical manuals. These manuals include advisory circular
14 150/5300-12, "airport design standards;" 7400.2c "airspace procedures handbook;" and the
15 U.S. terminal procedures handbook." I should note that Chapter 6, Section 3
16 "Identifying/Evaluating Aeronautical Effect" of FAA JO 7400.2 outlines the FAA's
17 process and criterion for determining whether a structure has substantial adverse effect.

18 Lastly, it is important to recognize that neither air safety nor efficiency require that the
19 height or locations of the turbines be changed. The only effect of restricting wind turbine
20 placement to a greater degree than the FAA, would be to limit wind energy development in
21 Ohio. There would be zero benefit to aviation.

22 **Q-25. Does this conclude your testimony?**

23 **A-25.** Yes, it does, except that I reserve the right to update or supplement this testimony to
24 respond to any further testimony or reports offered in this case.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Testimony was served upon the following parties of record via regular or electronic mail this 28th day of October, 2019.



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September 27, 2019

Andrew Conway, P.E.
Public Utilities Commission of Ohio
Rates and Analysis Department
Siting, Efficiency, and Renewable Energy Division
180 East Broad Street
Columbus, Ohio 43215

Sent via electronic mail: Andrew.Conway@puco.ohio.gov

Subject: Application for certification of Republic Wind Farm Project
(Case No. 17-2295-EN-BGN)

Dear Mr. Conway,

Pursuant to Ohio Revised Code (ORC) §4561.341, the Ohio Department of Transportation, Office of Aviation (ODOT) has reviewed the application for certification submitted by Apex Clean Energy for the Republic Wind Farm to determine whether the proposed facility will constitute an obstruction to air space. Our office reviewed the fifty (50) aeronautical studies for the subject Case, all of which are wind turbine generators filed for a height of 606 feet above ground level (AGL). The structures have been assigned FAA aeronautical study numbers (ASNs) as detailed on the attached chart. The FAA issued a Determination of No Hazzard for all fifty structures on June 26, 2019.

Since the original determination letter issued by ODOT on July 18, 2019, a petition for discretionary review on the FAA determination was filed by the Airport Manager for Fostoria Metropolitan Airport. Although the petition was not accepted as valid by the FAA because it was received after the filing date, ODOT is willing to consider the comments provided and is amending our original determination.

ODOT ANALYSIS OF IMPACT OF THE FIFTY WIND TURBINE GENERATORS:

The location and height of all 50 wind turbine structures would exceed 499 feet above ground level (AGL) and would constitute an obstruction to air navigation by exceeding the 14 C.F.R. Part 77.17(a)(1) surface by 107 feet.

Additionally, the location and height of four (4) of the wind turbine structures, specifically structures T1, T8, T48 and T49, would constitute an obstruction to air navigation by exceeding

the 14 C.F.R. Part 77.17(a)(2) surface of the Sandusky County Regional Airport (S24) by heights between 139 feet and 221 feet. The specific impacts are detailed on the attached chart.

Finally, the location and height of thirty-three (33) of the structures would constitute an obstruction to air navigation by exceeding 14 C.F.R. Part 77.17(a)(3) for various Instrument Flight Rule (IFR) procedures for Seneca County Airport (1G5) and Fostoria Metropolitan Airport (FZI), which would result in an increase in various IFR terminal minimum altitudes. These impacts are identified in detail in the FAA's Determination of No Hazard and are identified generally in the attached chart. Structure T1 specifically impacts the Non-Directional Beacon (NDB) runway (RWY) 24 approach at 16G by 37 feet and would require an increase to the straight-in approach to RWY 24 and Category Aircraft (CAT) A, B, C and D circling Minimum Descent Altitude (MDA) from 1460 feet to 1500 feet above mean sea level (AMSL).

PUBLIC COMMENT:

Public comment was received by the FAA and reviewed by ODOT. Seneca County Airport (see attached letter from airport manager Brad Newman) specifically objects to the impacts which reduce the utility of their airport. Although Sandusky Airport has told us verbally that they have no objection to the proposed heights and location of these wind turbine generators, they have not submitted this in writing despite our request for them to do so.

Fostoria Metropolitan Airport (see attached letter dated August 1, 2019 from airport manager Dave Sniffen) specifically objects to 12 of the structures impacting the minimum vectoring altitudes for the runway 27 GPS instrument approach procedure.

ODOT DETERMINATION:

Pursuant to ORC 4561.341, "...if the office [of aviation] determines that the facility constitutes or will constitute an obstruction to air navigation, it shall provide, in writing, this determination and either the terms, conditions, and modifications that are necessary for the applicant to eliminate the obstruction or a statement that compliance with the obstruction standards may be waived."

Our office and the FAA have identified the same impacts of these structures. The difference is that the FAA makes their determination of no hazard based on a "no substantial adverse effect" standard whereas the ORC §4561.34 states "[T]he consideration of safety shall be paramount to considerations of economic or technical factors. In making a determination ... the department may consider findings and recommendations of other governmental entities and interested persons...".

Structure T1: Based upon the above, if written concurrence with the FAA determination of no hazard can be obtained from the Sandusky County Regional Airport Authority in the form of either a board resolution or signed letter stating that the board is willing to accept the impact to the navigable airspace, the reduction of the height of T1 by 37 feet to the no effect height of 1299 AMSL is necessary to eliminate this obstruction and its impact to 16G. Compliance with

the remaining obstruction standards may be waived as long as the conditions of the FAA are complied with.

If a written statement is not submitted by the Sandusky County Regional Airport Authority, the elimination of T1 from the project or the reduction of the height of T1 by 176 feet is necessary to eliminate this obstruction and its impacts to S24 and 16G. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived as long as the conditions of the FAA are complied with.

Structures T8, T48 and T49: Based upon the above, if written concurrence with the FAA determination of no hazard can be obtained from the Sandusky County Regional Airport Authority in the form of either a board resolution or signed letter stating that the board is willing to accept the impact to the navigable airspace, compliance with the obstruction standards may be waived as long as the conditions of the FAA are complied with.

If a written statement is not submitted by the Sandusky County Regional Airport Authority, the elimination of T8, T48 and T49 from the project or the reduction of the height of T8 by 139 feet, T48 by 200 feet and T49 by 221 feet is necessary to eliminate these obstructions and their impact to S24. If the heights of these three structures are reduced as indicated, compliance with the remaining obstruction standards may be waived as long as the conditions of the FAA are complied with.

Structures T4, T7, T9, T10, T11, T13, T17, T18, T19, T20, T22 and T26: The elimination of these 12 structures from the project or the reduction of the height of these 12 structures to the no effect height of 1400 AMSL is necessary to eliminate these obstructions and their impacts to FZI. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived as long as the conditions of the FAA are complied with.

Structures T12, T14, T15, T16, T21, T23, T24, T25, T27, T28, T29, T30, T31, T32, T35, T37, T38, T50 : The elimination of these 17 structures from the project or the reduction of the height of these 18 structures to the no effect height of 1400 AMSL is necessary to eliminate these obstructions and their impacts to the NDB RWY 24 approach to 16G. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived as long as the conditions of the FAA are complied with.

All other Structures: Compliance with the obstruction standards may be waived as long as the conditions of the FAA are complied with.

If you have any questions regarding this review and determination, please do not hesitate to contact our office.

Respectfully,

ODOT Office of Aviation
2829 W. Dublin Granville Road
Columbus, OH 43235

Attach: Republic Wind Summary, FAA Determination, Public Comments

Republic Wind Farm (OPSB Case No. 17-2295-EL-BGN)

FAA ASN	Structure Type	Structure Name	Status	Structure Height (AMSL)	Structure Height (AGL)	Latitude	Longitude	77.17(a)(1) Impact (ft)	77.17(a)(1) NEH (AMSL)	77.17(a)(2) Impact (ft)	77.17(a)(2) NEH (AMSL)	77.17(a)(3) Impact (ft)	77.17(a)(3) NEH (AMSL)
2018-WTE-11673-OE	Wind Turbine	T1	DET-DNH	1336	606	41-12-37.23N	83-04-03.47W	107	1229	176	1160	37	1299
2018-WTE-11674-OE	Wind Turbine	T10	DET-DNH	1412	606	41-10-45.43N	83-00-21.83W	107	1305	N/A	N/A	12	1400
2018-WTE-11675-OE	Wind Turbine	T11	DET-DNH	1428	606	41-10-26.99N	83-00-17.02W	107	1321	N/A	N/A	28	1400
2018-WTE-11676-OE	Wind Turbine	T12	DET-DNH	1494	606	41-08-33.95N	82-57-57.68W	107	1387	N/A	N/A	94	1400
2018-WTE-11677-OE	Wind Turbine	T13	DET-DNH	1472	606	41-09-23.84N	82-57-58.08W	107	1365	N/A	N/A	72	1400
2018-WTE-11678-OE	Wind Turbine	T14	DET-DNH	1490	606	41-08-13.29N	82-57-48.84W	107	1383	N/A	N/A	90	1400
2018-WTE-11679-OE	Wind Turbine	T15	DET-DNH	1468	606	41-08-59.01N	82-57-47.94W	107	1361	N/A	N/A	68	1400
2018-WTE-11680-OE	Wind Turbine	T16	DET-DNH	1496	606	41-08-32.55N	82-57-43.53W	107	1389	N/A	N/A	96	1400
2018-WTE-11681-OE	Wind Turbine	T17	DET-DNH	1456	606	41-09-56.42N	82-57-05.85W	107	1349	N/A	N/A	56	1400
2018-WTE-11682-OE	Wind Turbine	T18	DET-DNH	1456	606	41-10-19.54N	82-57-05.90W	107	1349	N/A	N/A	56	1400
2018-WTE-11683-OE	Wind Turbine	T19	DET-DNH	1458	606	41-10-13.78N	82-56-54.00W	107	1351	N/A	N/A	58	1400
2018-WTE-11684-OE	Wind Turbine	T2	DET-DNH	1400	606	41-11-35.43N	83-01-42.77W	107	1293	N/A	N/A	N/A	N/A
2018-WTE-11685-OE	Wind Turbine	T21	DET-DNH	1448	606	41-10-19.37N	82-56-11.92W	107	1341	N/A	N/A	N/A	1400
2018-WTE-11686-OE	Wind Turbine	T21	DET-DNH	1478	606	41-09-25.77N	82-56-38.69W	107	1371	N/A	N/A	78	1400
2018-WTE-11687-OE	Wind Turbine	T22	DET-DNH	1436	606	41-11-10.90N	82-56-05.13W	107	1329	N/A	N/A	36	1400
2018-WTE-11688-OE	Wind Turbine	T23	DET-DNH	1460	606	41-09-30.74N	82-56-00.47W	107	1353	N/A	N/A	60	1400
2018-WTE-11689-OE	Wind Turbine	T24	DET-DNH	1434	606	41-10-21.62N	82-55-55.84W	107	1327	N/A	N/A	34	1400
2018-WTE-11690-OE	Wind Turbine	T25	DET-DNH	1480	606	41-09-28.09N	82-55-46.14W	107	1373	N/A	N/A	80	1400
2018-WTE-11691-OE	Wind Turbine	T26	DET-DNH	1434	606	41-11-36.25N	82-55-37.06W	107	1327	N/A	N/A	34	1400
2018-WTE-11692-OE	Wind Turbine	T27	DET-DNH	1450	606	41-10-23.14N	82-55-29.26W	107	1343	N/A	N/A	50	1400
2018-WTE-11693-OE	Wind Turbine	T28	DET-DNH	1424	606	41-11-38.57N	82-54-58.92W	107	1317	N/A	N/A	24	1400
2018-WTE-11694-OE	Wind Turbine	T29	DET-DNH	1428	606	41-11-47.60N	82-54-51.93W	107	1321	N/A	N/A	28	1400
2018-WTE-11695-OE	Wind Turbine	T3	DET-DNH	1390	606	41-11-24.59N	83-01-38.02W	107	1283	N/A	N/A	N/A	N/A
2018-WTE-11696-OE	Wind Turbine	T30	DET-DNH	1422	606	41-12-25.06N	82-54-43.03W	107	1315	N/A	N/A	22	1400
2018-WTE-11697-OE	Wind Turbine	T31	DET-DNH	1424	606	41-12-02.13N	82-54-38.80W	107	1317	N/A	N/A	24	1400
2018-WTE-11698-OE	Wind Turbine	T32	DET-DNH	1426	606	41-11-40.37N	82-54-34.95W	107	1319	N/A	N/A	26	1400
2018-WTE-11699-OE	Wind Turbine	T33	DET-DNH	1385	606	41-15-38.49N	82-54-24.34W	107	1278	N/A	N/A	N/A	N/A
2018-WTE-11700-OE	Wind Turbine	T34	DET-DNH	1380	606	41-15-56.46N	82-54-24.42W	107	1273	N/A	N/A	N/A	N/A
2018-WTE-11701-OE	Wind Turbine	T35	DET-DNH	1408	606	41-14-08.52N	82-54-18.88W	107	1301	N/A	N/A	8	1400
2018-WTE-11702-OE	Wind Turbine	T36	DET-DNH	1382	606	41-15-37.57N	82-54-06.43W	107	1275	N/A	N/A	N/A	N/A
2018-WTE-11703-OE	Wind Turbine	T37	DET-DNH	1462	606	41-10-14.57N	82-53-27.66W	107	1355	N/A	N/A	62	1400
2018-WTE-11704-OE	Wind Turbine	T38	DET-DNH	1466	606	41-09-58.14N	82-53-19.70W	107	1359	N/A	N/A	66	1400
2018-WTE-11705-OE	Wind Turbine	T39	DET-DNH	1382	606	41-14-50.37N	82-52-25.36W	107	1275	N/A	N/A	N/A	N/A
2018-WTE-11706-OE	Wind Turbine	T4	DET-DNH	1406	606	41-10-38.60N	83-01-19.26W	107	1299	N/A	N/A	6	1400
2018-WTE-11707-OE	Wind Turbine	T40	DET-DNH	1384	606	41-15-05.72N	82-52-19.26W	107	1277	N/A	N/A	N/A	N/A
2018-WTE-11708-OE	Wind Turbine	T41	DET-DNH	1380	606	41-14-55.91N	82-52-11.95W	107	1273	N/A	N/A	N/A	N/A
2018-WTE-11709-OE	Wind Turbine	T42	DET-DNH	1366	606	41-15-06.22N	82-52-00.06W	107	1259	N/A	N/A	N/A	N/A
2018-WTE-11710-OE	Wind Turbine	T43	DET-DNH	1380	606	41-14-55.74N	82-51-52.65W	107	1273	N/A	N/A	N/A	N/A
2018-WTE-11711-OE	Wind Turbine	T44	DET-DNH	1406	606	41-13-49.46N	82-51-06.32W	107	1299	N/A	N/A	6	1400
2018-WTE-11712-OE	Wind Turbine	T45	DET-DNH	1406	606	41-14-03.74N	82-51-04.28W	107	1299	N/A	N/A	N/A	N/A
2018-WTE-11713-OE	Wind Turbine	T46	DET-DNH	1406	606	41-14-39.24N	82-51-04.55W	107	1287	N/A	N/A	N/A	N/A
2018-WTE-11714-OE	Wind Turbine	T47	DET-DNH	1392	606	41-14-48.98N	82-50-45.66W	107	1285	N/A	N/A	N/A	N/A
2018-WTE-11715-OE	Wind Turbine	T48	DET-DNH	1340	606	41-12-53.43N	83-04-09.64W	107	1233	200	1140	N/A	N/A
2018-WTE-11716-OE	Wind Turbine	T49	DET-DNH	1322	606	41-13-06.44N	83-04-09.61W	107	1215	221	1101	N/A	N/A
2018-WTE-11717-OE	Wind Turbine	T5	DET-DNH	1392	606	41-11-36.43N	83-01-18.76W	107	1285	N/A	N/A	36	1400
2018-WTE-11718-OE	Wind Turbine	T50	DET-DNH	1436	606	41-10-25.58N	82-55-42.88W	107	1329	N/A	N/A	N/A	N/A
2018-WTE-11719-OE	Wind Turbine	T6	DET-DNH	1394	606	41-11-24.61N	83-01-15.57W	107	1287	N/A	N/A	N/A	N/A
2018-WTE-11720-OE	Wind Turbine	T7	DET-DNH	1430	606	41-09-56.58N	83-00-36.58W	107	1323	N/A	N/A	30	1400
2018-WTE-11721-OE	Wind Turbine	T8	DET-DNH	1400	606	41-12-12.33N	83-00-36.22W	107	1293	139	1261	N/A	N/A
2018-WTE-11722-OE	Wind Turbine	T9	DET-DNH	1422	606	41-10-32.09N	83-00-31.46W	107	1315	N/A	N/A	22	1400

AMSL = Above Mean Sea Level

AGL = Above Ground Level

NEH = No Effect Height

N/A = Not Applicable



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Obstruction Evaluation Group
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Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-11673-OE

Issued Date: 06/26/2019

Dalton Carr
Republic Wind, LLC
310 4th St. N.E., Suite 300
Charlottesville, VA 22902

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine T1
Location:	Bellevue, OH
Latitude:	41-12-37.25N NAD 83
Longitude:	83-04-03.47W
Heights:	730 feet site elevation (SE) 606 feet above ground level (AGL) 1336 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4, 12 & 13 (Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

- ☒ At least 10 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 12/26/2020 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before July 26, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on August 05, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when

they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-11673-OE.

Signature Control No: 391750637-409836735

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Additional information for ASN 2018-WTE-11673-OE

Abbreviations

AGL - above ground level	AMSL - above mean sea level	RWY - runway
VFR - visual flight rules	IFR - instrument flight rules	NM - nautical mile
ASN- Aeronautical Study Number	CAT - category aircraft	NEH - no effect height
MDA - minimum descent altitude	DA - decision altitude	
W/2C - With the submission of an FAA 2C accuracy survey		
TPA - traffic pattern altitude		
Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace		

For the sake of efficiency, the 50 proposed wind turbines in this project that have similar impacts to Part 77 standards are included in this narrative.

1. LOCATION OF PROPOSED CONSTRUCTION

The proposed Republic Wind LLC wind turbine project lies approximately between 4.8 NM southwest to 10.5 NM south, southeast to 10.0 NM east of the Airport Reference Point (ARP) for the Sandusky County Regional Airport (S24), near Fremont, OH. The S24 elevation is 665 AMSL.

The 50 proposed wind turbines' described heights and locations are expressed in AGL/AMSL and latitude/longitude.

ASN	Structure Name	AGL/AMSL	LAT/LONG
2018-WTE-11673-OE	T1	606 / 1336	41-12-37.25N / 83-04-03.47W
2018-WTE-11674-OE	T10	606 / 1412	41-10-45.43N / 83-00-21.83W
2018-WTE-11675-OE	T11	606 / 1428	41-10-26.99N / 83-00-17.02W
2018-WTE-11676-OE	T12	606 / 1494	41-08-33.95N / 82-57-57.68W
2018-WTE-11677-OE	T13	606 / 1472	41-09-23.84N / 82-57-58.08W
2018-WTE-11678-OE	T14	606 / 1490	41-08-13.29N / 82-57-48.84W
2018-WTE-11679-OE	T15	606 / 1468	41-08-59.01N / 82-57-47.94W
2018-WTE-11680-OE	T16	606 / 1496	41-08-32.55N / 82-57-43.52W
2018-WTE-11681-OE	T17	606 / 1456	41-08-56.42N / 82-57-05.85W
2018-WTE-11682-OE	T18	606 / 1456	41-10-19.54N / 82-57-05.90W
2018-WTE-11683-OE	T19	606 / 1458	41-10-13.78N / 82-56-54.00W
2018-WTE-11684-OE	T2	606 / 1400	41-11-35.43N / 83-01-42.77W
2018-WTE-11685-OE	T20	606 / 1448	41-10-19.37N / 82-56-41.92W
2018-WTE-11686-OE	T21	606 / 1478	41-09-25.77N / 82-56-38.69W
2018-WTE-11687-OE	T22	606 / 1436	41-11-10.90N / 82-56-05.13W
2018-WTE-11688-OE	T23	606 / 1460	41-09-30.74N / 82-56-00.47W
2018-WTE-11689-OE	T24	606 / 1434	41-10-21.62N / 82-55-55.84W
2018-WTE-11690-OE	T25	606 / 1480	41-09-28.09N / 82-55-46.14W
2018-WTE-11691-OE	T26	606 / 1434	41-11-36.25N / 82-55-37.06W
2018-WTE-11692-OE	T27	606 / 1450	41-10-23.14N / 82-55-29.26W
2018-WTE-11693-OE	T28	606 / 1424	41-11-38.57N / 82-54-58.92W
2018-WTE-11694-OE	T29	606 / 1428	41-11-47.60N / 82-54-51.93W

2018-WTE-11695-OE	T3	606 / 1390	41-11-24.59N / 83-01-38.02W
2018-WTE-11696-OE	T30	606 / 1422	41-12-25.06N / 82-54-43.03W
2018-WTE-11697-OE	T31	606 / 1424	41-12-02.13N / 82-54-38.80W
2018-WTE-11698-OE	T32	606 / 1426	41-11-40.37N / 82-54-34.99W
2018-WTE-11699-OE	T33	606 / 1385	41-15-38.49N / 82-54-24.34W
2018-WTE-11700-OE	T34	606 / 1380	41-15-56.46N / 82-54-24.42W
2018-WTE-11701-OE	T35	606 / 1408	41-14-08.52N / 82-54-18.88W
2018-WTE-11702-OE	T36	606 / 1382	41-15-37.57N / 82-54-06.43W
2018-WTE-11703-OE	T37	606 / 1462	41-10-14.57N / 82-53-27.66W
2018-WTE-11704-OE	T38	606 / 1466	41-09-58.14N / 82-53-19.70W
2018-WTE-11705-OE	T39	606 / 1382	41-14-50.37N / 82-52-25.36W
2018-WTE-11706-OE	T4	606 / 1406	41-10-38.60N / 83-01-19.26W
2018-WTE-11707-OE	T40	606 / 1384	41-15-05.72N / 82-52-19.26W
2018-WTE-11708-OE	T41	606 / 1380	41-14-55.91N / 82-52-11.95W
2018-WTE-11709-OE	T42	606 / 1366	41-15-06.22N / 82-52-00.06W
2018-WTE-11710-OE	T43	606 / 1380	41-14-55.74N / 82-51-52.65W
2018-WTE-11711-OE	T44	606 / 1406	41-13-49.46N / 82-51-06.32W
2018-WTE-11712-OE	T45	606 / 1406	41-14-03.74N / 82-51-04.28W
2018-WTE-11713-OE	T46	606 / 1394	41-14-39.24N / 82-51-04.55W
2018-WTE-11714-OE	T47	606 / 1392	41-14-48.98N / 82-50-45.66W
2018-WTE-11715-OE	T48	606 / 1340	41-12-53.43N / 83-04-09.64W
2018-WTE-11716-OE	T49	606 / 1322	41-13-06.44N / 83-04-09.61W
2018-WTE-11717-OE	T5	606 / 1392	41-11-36.43N / 83-01-18.76W
2018-WTE-11718-OE	T50	606 / 1436	41-10-25.58N / 82-55-42.88W
2018-WTE-11719-OE	T6	606 / 1394	41-11-24.61N / 83-01-15.57W
2018-WTE-11720-OE	T7	606 / 1430	41-09-56.58N / 83-00-36.58W
2018-WTE-11721-OE	T8	606 / 1400	41-12-12.33N / 83-00-36.22W
2018-WTE-11722-OE	T9	606 / 1422	41-10-32.09N / 83-00-31.46W

2. OBSTRUCTION STANDARDS EXCEEDED

The following proposed turbines would exceed Part 77 standards as described below.

- a. Section 77.17(a)(1): The surface above 499 feet AGL, in which an object would be an obstruction to aircraft operating under VFR conditions in the en route phase of flight established under 77.17, 77.19, or 77.23.

All of the turbines listed in Section 1 of this narrative exceed the surface by 107 feet.

- b. Section 77.17(a)(2): A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.

ASN	Exceeds Section 77.17(a)(2) for S24 by (feet)
2018-WTE-11673-OE	176
2018-WTE-11715-OE	200

2018-WTE-11716-OE	221
2018-WTE-11721-OE	139

c. Section 77.17(a)(3) -- A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude.

2018-WTE-11673-OE At 1336 AMSL Seneca County (16G) Tiffin OH. NDB RWY 24 increase S-24 MDA from 1460 to 1560 No Effect Height (NEH) 1289 AMSL. With the submission of a 2C accuracy survey (W/2C) 1460 to 1500 NEH 1299 AMSL. Increase CAT A/B/C/D circling MDA from 1460/1460/1460/1460 to 1560 NEH 1289 AMSL W/2C 1460/1460/1460/1460 to 1500 NEH 1299 AMSL.

2018-WTE-11674-OE At 1412 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11675-OE At 1438 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11676-OE At 1494 AMSL Seneca County (16G) Tiffin OH. NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11677-OE At 1472 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11678-OE At 1490 AMSL Seneca County (16G) Tiffin OH. NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11679-OE At 1468 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11680-OE At 1496 AMSL Seneca County (16G) Tiffin OH. NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11681-OE At 1456 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11682-OE At 1456 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11683-OE At 1458 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11685-OE At 1448 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11686-OE At 1478 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11687-OE At 1436 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11688-OE At 1460 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11689-OE At 1434 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11690-OE At 1480 AMSL Seneca County (16G) Tiffin OH. NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11691-OE At 1434 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. /// Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11692-OE At 1450 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11693-OE At 1424 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11694-OE At 1428 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11696-OE At 1422 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11697-OE At 1424 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude

(MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11698-OE At 1426 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11701-OE At 1408 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11703-OE At 1462 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11704-OE At 1466 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11706-OE At 1406 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11711-OE At 1406 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11712-OE At 1406 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11718-OE At 1436 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11720-OE At 1430 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24

increase Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

2018-WTE-11722-OE At 1422 AMSL Seneca County (16G) Tiffin OH. RNAV (GPS) RWY 6 increase missed approach holding altitude at VOBRY from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 24 increase initial segment ELIJA to VOBRY and Hold-in-Lieu-of Procedure Turn Minimum Descent Altitude (MDA) from 2400 to 2500 NEH 1400 AMSL. /// NDB RWY 24 increase procedure turn MDA from 2400 to 2500 NEH 1400 AMSL. ### Fostoria Metropolitan (FZI) Fostoria OH. RNAV (GPS) RWY 9 increase missed approach holding altitude at ROPPE from 2400 to 2500 NEH 1400 AMSL. /// RNAV (GPS) RWY 27 increase Hold-in-Lieu-of Procedure Turn MDA from 2400 to 2500 NEH 1400 AMSL.

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: No significant adverse effect.: all of the proposed wind turbines would exceed Part 77 Section 77.17(a)(1) by 107 feet and would exceed Section 77.17(a)(2) by a maximum of 221 feet as described in section 2 of this narrative. No issues were raised during the public comment period.

There are no effects on the VFR traffic pattern.

The effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes: No significant adverse effect. : all of the proposed wind turbines would exceed Part 77 Section 77.17(a)(1) by 107 feet and would exceed Section 77.17(a)(2) by a maximum of 221 feet as described in section 2 of this narrative. No issues were raised during the public comment period.

Effects on any airspace and routes used by the military. All of the proposed structures would be located within the confines or near a military training route or military training area. The United States Department of Defense has determined this would not create a substantial adverse effect on their operations at this time.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: See section 2 of this narrative. No significant adverse effect. Affected procedures will be adjusted upon notification of construction of the proposed structure.

c. The impact on all planned public-use airports and aeronautical facilities: None.

d. The cumulative impact resulting from the proposed construction or alteration of a structure when combined with the impact of other existing or proposed structures: None.

RADAR

Analysis indicates that the proposed turbines in this project would be in the line of sight for the Mansfield, OH Airport Surveillance Radar-8 (ASR-8), the Toledo, OH Airport Surveillance Radar-9 (ASR-9) the Brecksville, OH (QBD) Common Air Route Surveillance Radar (CARSR however, Air Traffic has determined this would not create a substantial adverse impact on their operations at this time.

The Seneca County Airport (16G) Airport Master Record can be viewed/downloaded [http://www.gcr1.com/5010web/airport.cfm? Site=16G](http://www.gcr1.com/5010web/airport.cfm?Site=16G) . It states there are 25 single-engine, 9 multi-engine, 1 jet, 0 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 60,165 operations for the 12 months ending 4 October 2018 (latest information). The 06/24 oriented IFR/VFR asphalt runway is 4000 feet long x 75 feet wide.

The Forstoria Metropolitan Airport (FZI) Airport Master Record can be viewed/downloaded [http://www.gcr1.com/5010web/airport.cfm? Site=FZI](http://www.gcr1.com/5010web/airport.cfm?Site=FZI) . It states there are 13 single-engine, 1 multi-engine, 1 jet, 0 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 7,950 operations for the 12 months ending 4 October 2018 (latest information).

The Sandusky County Regional Airport (S24) Airport Master Record can be viewed/downloaded [http://www.gcr1.com/5010web/airport.cfm? Site=S24](http://www.gcr1.com/5010web/airport.cfm?Site=S24) . It states there are 8 single-engine, 2 multi-engine, 0 jet, 2 helicopter, 0 military, 0 ultra- light and 0 glider aircraft based there with 5,616 operations for the 12 months ending 3 October 2018 (latest information).

4. CIRCULATION AND COMMENTS RECEIVED

The proposal was circulated for public comment on 22 April 2019 and public comment period closed on 29 May 2019. One comment was received by 29 May 2019.

This comment stated concern regarding the raising of approach minimum altitudes that would result in loss of flights in adverse weather at Seneca County Airport and that the proposed structures would restrict helicopter life flight emergency evacuation flights from landing at locations.

The aeronautical study disclosed that the proposed structures would have the adverse effect as described above on IFR procedures. The increase to the 16G Minimum Descent Altitude of 40 feet for the NDB straight in RWY 24 and all category aircraft circling procedure is not considered excessive and would have a negligible effect on loss of flights in adverse weather. There are currently IAPs to both ends of the current primary runway, RWY 06/24. These are more precise procedures, and the FAA considers them to be preferred over the NDB IAP. This is in keeping with efforts to modernize the National Airspace System and favor IAPs that are based upon newer technology than the NDB.

With regard to the potential impact to the 16G NDB RWY 24, data provided from the FAA Traffic Flow Management System Counts (TFMSC) counted 459 IFR arrivals at 16G for the period beginning 1 May 2018 and ending 30 April 2019. The airport is served by four (4) terminal area IFR approach procedures: straight in RNAV approaches to both runway 06 and 24, a VOR approach to runway 06 and the NDB approach to runway 24.

Performance Data Analysis and Reporting System (PDARS) IFR flight trajectory data provided by the Airborne Tactical Advantage Company (ATAC) showed that few if any full NDB published approaches were flown to 16G and shows nearly all IFR approaches as straight in. Some overflight of the NDB are depicted but the actual published terminal procedure flight approach trajectory is missing. Toledo Terminal Radar Approach Control (TRACON) could not provide data showing specific approaches to 16G but did provide comment that few aircraft use the NDB approach. Specific data to verify the number of aircraft using this approach could not be obtained.

The other effects on the IFR procedures to 16G and FZI increase initial approach segments, procedure turn altitudes, approach and missed approach holding altitudes. These do not affect the altitude an aircraft needs to descend to acquire the airport visually and therefore would not cause loss of flights due to adverse weather.

The FAA acknowledges the importance of life flight access to all locations, however the number of these types of flights to specific repeat locations do not constitute a significant adverse effect.

5. DETERMINATION - NO HAZARD TO AIR NAVIGATION

The FAA has determined the proposed construction would not have a substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

6. BASIS FOR DECISION

Study for possible VFR effect disclosed that the proposed structures would have no substantial effect on any existing or proposed arrival or departure VFR operations or procedures. Aeronautical study found that the proposed structures would not conflict with airspace required to conduct normal VFR traffic pattern operations at any other known public use or military airport. At 606 feet above ground level, the proposed structures would not have a substantial adverse effect on VFR en route flight operations as there were no issues raised during the public comment period. There are no IFR effects as the affected airspace will be adjusted to mitigate the height of the structures and it was determined this would not have a substantial adverse effect.

The proposed structures must be appropriately obstruction marked and/or lighted to make them more conspicuous to airmen.

7. CONDITIONS

For the following studies as identified by their ASN, at least 10 days before the start of construction the proponent is required to file a FAA form 7460-2, Part 1, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This actual construction notification will be used to update published instrument flight procedures.

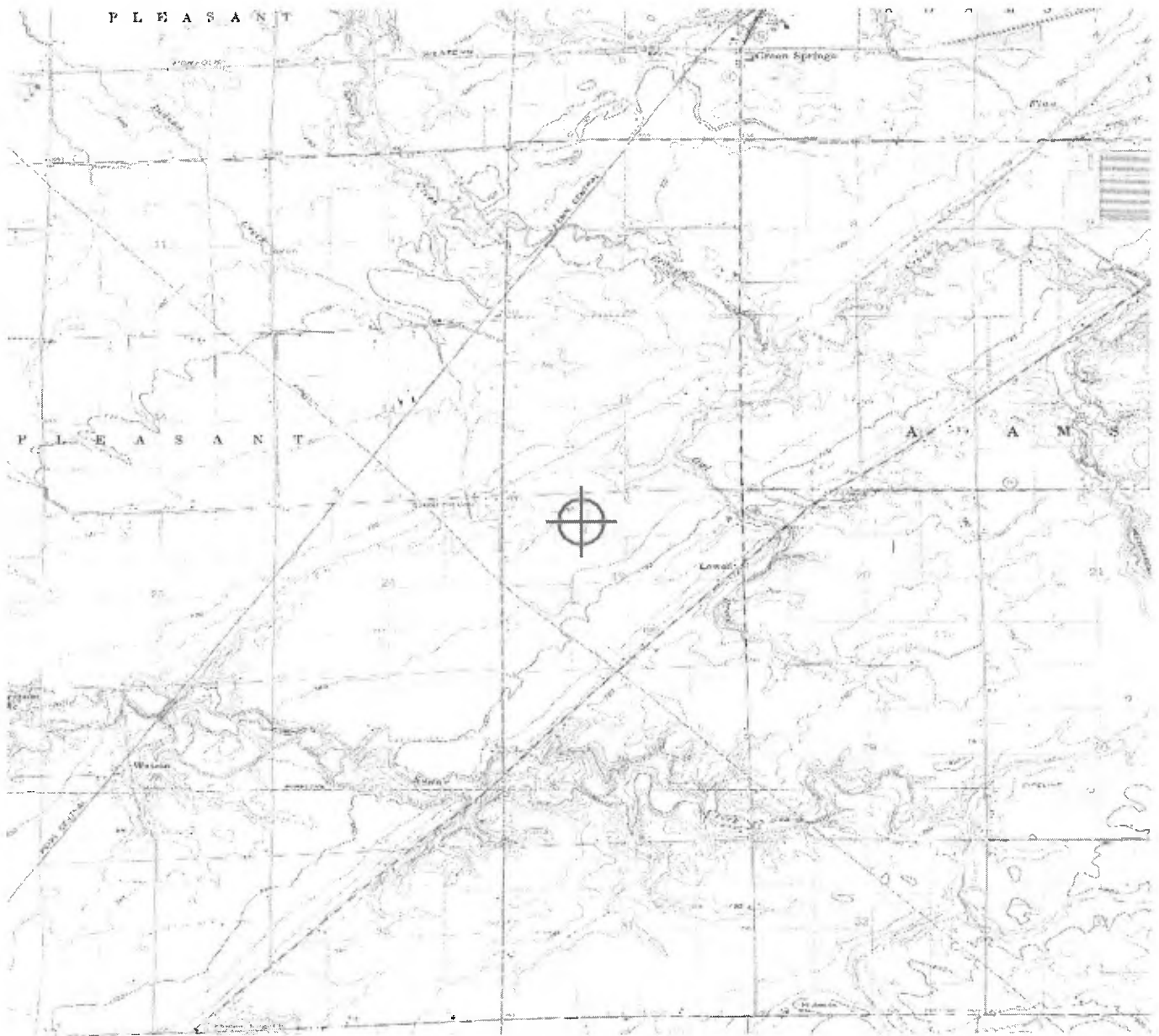
2018-WTE-11673-OE
2018-WTE-11674-OE
2018-WTE-11675-OE
2018-WTE-11676-OE
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2018-WTE-11706-OE
2018-WTE-11711-OE
2018-WTE-11712-OE
2018-WTE-11718-OE
2018-WTE-11720-OE
2018-WTE-11722-OE

Within five days after each structure reaches its greatest height, the proponent is required to file a FAA form 7460-2, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

OBSTRUCTION MARKING AND LIGHTING NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation.

TOPO Map for ASN 2018-WTE-11673-OE



From: Steve Shuff
To: Wheeler, Kent M (FAA)
Cc: Perez, Cesar CTR (FAA); Holmquist, Paul (FAA)
Subject: Aeronautical Study No. 2018-WTE-5607-OE and Study No. 2018-WTE-11673-OE
Date: Friday, May 17, 2019 11:47:38 AM

I request this e-mail be submitted as a comment to these studies. I live in Eden Township, Seneca County, Ohio. I respectfully request the FAA oppose the construction of these industrial wind turbines in Seneca County. There are major issues that will adversely affect the Seneca County airport (16G). Raising approach limits will result in loss of flights at the airport in adverse weather. The Seneca County airport is necessary for economic development of our area. The possible required changes of increases to an IFR terminal minimum altitude would result in less air traffic for our airport and the area businesses that rely on the airport. On a personal note, these industrial wind turbines (some 652 feet tall) will reduce the opportunity for life flight to land at locations to assist persons who need immediate medical care at a regional hospital. My daughter was one of these persons. She was able to be taken to Toledo by a life flight helicopter with life threatening injuries. That quick response probably saved her life. Thanks for your consideration of my comment.
Steve C. Shuff



April 11, 2018

Mr. Paul Holmquist
Specialist, Air Traffic Certification Branch
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Re: Aeronautical Study No. 2017-WTE-9117-OE

Mr. Holmquist:

Tiffin Aire, Inc./Seneca County Airport (16G)/Citizens who base their aircraft at 16G, submits the following comments in response to the Federal Aviation Administration's (FAA) Aeronautical Study No. 2017-WTE-9117-OE.

We, the aforementioned, are concerned about the impact of the proposed wind turbine project near Bellevue, OH. These wind turbines pose a threat to the safety and efficiency of the airspace in the large area where they are planned to be constructed. Two notable impacts have become apparent. First being the impact to the NDB RWY 24 approach at the Seneca County Airport (16G). This approach is the only ground-based approach to this runway and raising the minimums decreases the efficiency of the airport by requiring pilots to have better weather for landing. The second impact is to the amount of VFR traffic to 16G that is unfamiliar with the area. Seneca County Airport is also home to a popular propeller overhaul shop that draws customers from a large geographic area. The proposed turbines will be an additional obstruction and hazard to these transient pilots, as well as local pilots who use the area for training operations.

We appreciate the opportunity to submit comments on this proposed obstruction and urge the FAA to issue a finding of hazard to air navigation based on the impacts to the safety and efficiency to the aviation community and airspace of and around Sandusky Regional Airport (S24) and Seneca County Airport (16G).

Respectfully Submitted,

Bradley W. Newman, President
Tiffin Aire, Inc.



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**Federal Aviation
Administration**

OE/AAA

User: Brian Gibbs

Email: tai@tiffinaire.com

Date: 04/11/2018

Comment: This wind turbine would be detrimental to our aerial agricultural operation in the Seneca County, Ohio area. This aerial operation involves seeding and spraying of crops from an aircraft. The result would be loss of business for our company if we are unable to perform the job our customers have relied on us to do for 60 years.

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**Federal Aviation
Administration**

OE/AAA

User: Sarah Staudt
Email: sarah.staudt@aopa.org
Date: 04/11/2018
Comment: April 11, 2018

Mr. Paul Holmquist
Specialist, Air Traffic Certification Branch
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Re: Aeronautical Study No. 2017-WTE-9117-OE

Mr. Holmquist:

The Aircraft Owners and Pilots Association (AOPA), the world's largest aviation membership association, submits the following comments in response to the Federal Aviation Administration's (FAA) Aeronautical Study No. 2017-WTE-9117-OE.

AOPA is concerned about the impact the proposed wind turbine project proposed near Bellevue, OH. These wind turbines pose a threat to the safety and efficiency of the airspace in the large area where they are proposed. Two notable impacts have become known. The first is the impact to the NDB RWY 24 approach at the Seneca County Airport (16G). This approach is the only ground-based approach to this runway and raising the minimums decreases the efficiency of the airport by requiring pilots to have better weather for landing. The second impact is to the amount of VFR traffic to 16G, that is unfamiliar with the area. Seneca County Airport is also home to a popular propeller overhaul shop that draws customers from a large geographic area. The proposed turbines will be an additional obstruction and hazard to these transient pilots, as well as to local operators such as agricultural aerial applicators and flight training.

We appreciate the opportunity to submit comments on this proposed obstruction and urge the FAA issue a finding of hazard to air navigation based on the impacts to the safety and efficiency to the aviation community and airspace of and around Sandusky Regional Airport (S24) and Seneca County Airport (16G).

Sincerely,

Sarah E. Staudt
Senior Aviation Technical Specialist
Sarah.Staudt@aopa.org
301-695-2130

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Federal Aviation
Administration

OE/AAA

User: Bradley Newman

Email: tai@tiffinaire.com

Date: 04/10/2018

Comment: As the airport manager of the Seneca County Airport, Tiffin, Ohio (16G) and FAA Certified Pilot Examiner, this wind turbine would seriously interfere with our NDB Runway 24 approach into the airport. The location of this wind turbine needs to be moved so as not to affect our operations. This would also interfere with the agricultural aviation operations, seeding and spraying, of vegetable and grain crops in our area. In our private pilot training course, this will also interfere with ground reference maneuvers required in this and the commercial pilot course.

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Date Aug. 1, 2019

RE: 2018-WTE-5607-OE

It has come to my attention that the Bloomville location was erroneously reported as Bloomfield. While Bloomfield does not impact us, certainly Bloomville may, so I am petitioning to reopen the study. The basis for my petition is No.1: Location change and No. 2: The uncertainty of the impact to the FZI airspace of said location change.

RE: 2018-WTE-11674-OE
2018-WTE-11675-OE
2018-WTE-11677-OE
2018-WTE-11681-OE
2018-WTE-11682-OE
2018-WTE-11683-OE
2018-WTE-11685-OE
2018-WTE-11687-OE
2018-WTE-11691-OE
2018-WTE-11706-OE
2018-WTE-11720-OE
2018-WTE-11722-OE

The minimum vectoring altitude for Fostoria Metropolitan Airport (FZI) by Toledo Approach is 2400 ft MSL, which coincides with the initial approach altitude of the GPS 27 approach. Frequently, the need to do the approach procedure is mitigated by the availability of doing the approach visually. On the surface it seems this is just a convenience issue, however, safety comes to the forefront, especially during the winter months. An aircraft approaching FZI, as a destination, is able to reduce the time spent in IMC icing conditions because Toledo Approach is able to vector to final and ultimately descend the aircraft to 2300 ft MSL for the approach leg between ROPPE and SNIFFEN. Additionally, Bowling Green State University (BGSU) has 20+ aircraft that they use for instruction, including instrument instruction. Because of the instrument approaches available at FZI, the university uses the facility extensively for their instrument students. Any altitude increase to the instrument approaches requires them to spend more time in the icing conditions. Since 1971, the City of Fostoria has put significant effort and resources into the facility and surrounding airspace and is not in favor of relinquishing airspace protection, no matter how insignificant it may seem, to those who do not use the facility.

Respectfully Submitted,
Dave Sniffen,
Airport Manager
Fostoria Metropolitan Airport

FILE

17-2295-EL-B6N

18-0488-EL-B6N

Date Aug. 1, 2019

RE: 2018-WTE-5607-OE

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RE: 2018-WTE-11674-OE
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Respectfully Submitted,
 Dave Sniffen,
 Airport Manager
 Fostoria Metropolitan Airport

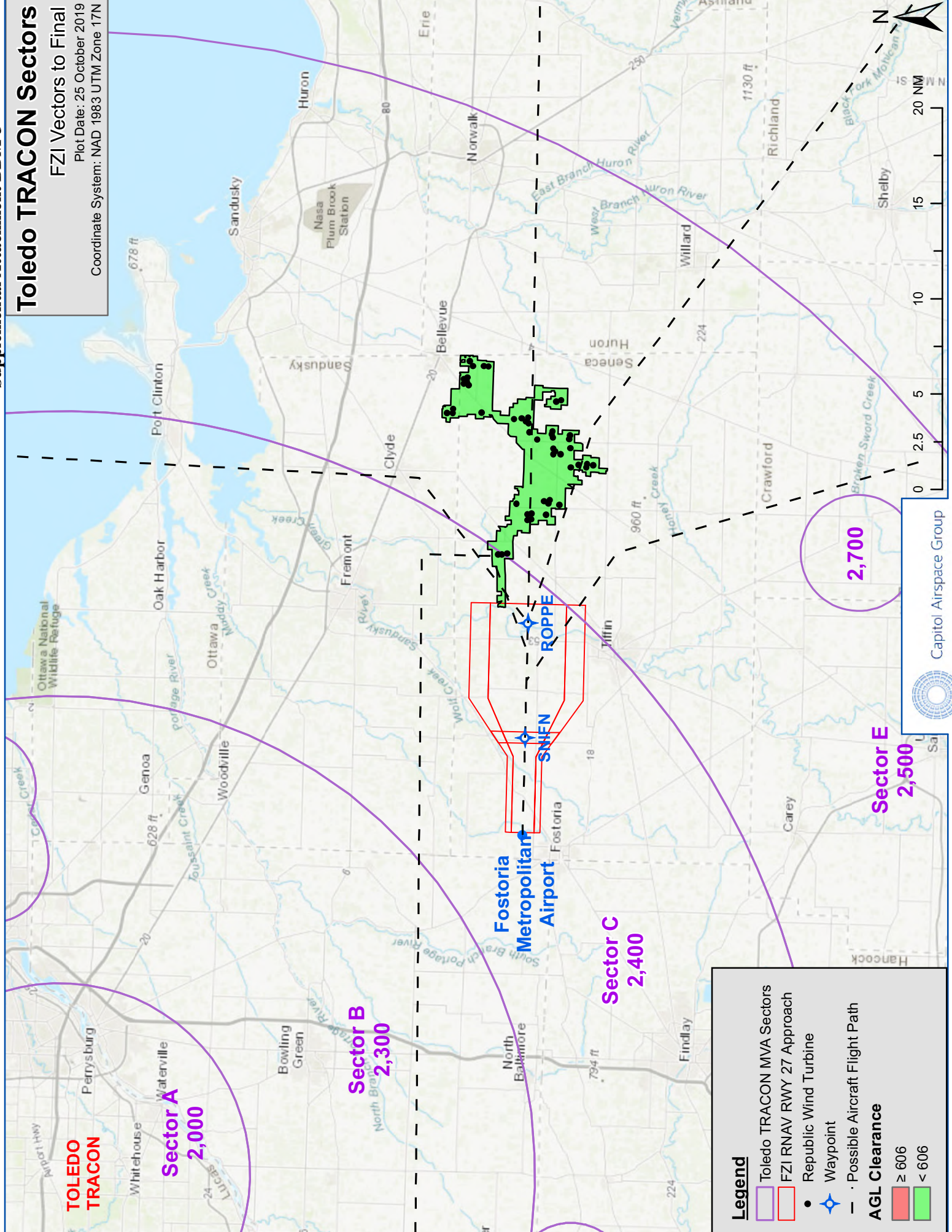
This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered in the regular course of business.
 Technician DM Date Processed 08/15/19

Toledo TRACON Sectors

FZI Vectors to Final

Plot Date: 25 October 2019

Coordinate System: NAD 1983 UTM Zone 17N



Legend

- Toledo TRACON MVA Sectors
- FZI RNAV RWY 27 Approach
- Republic Wind Turbine
- Waypoint
- Possible Aircraft Flight Path
- AGL Clearance**
 - ≥ 606
 - < 606

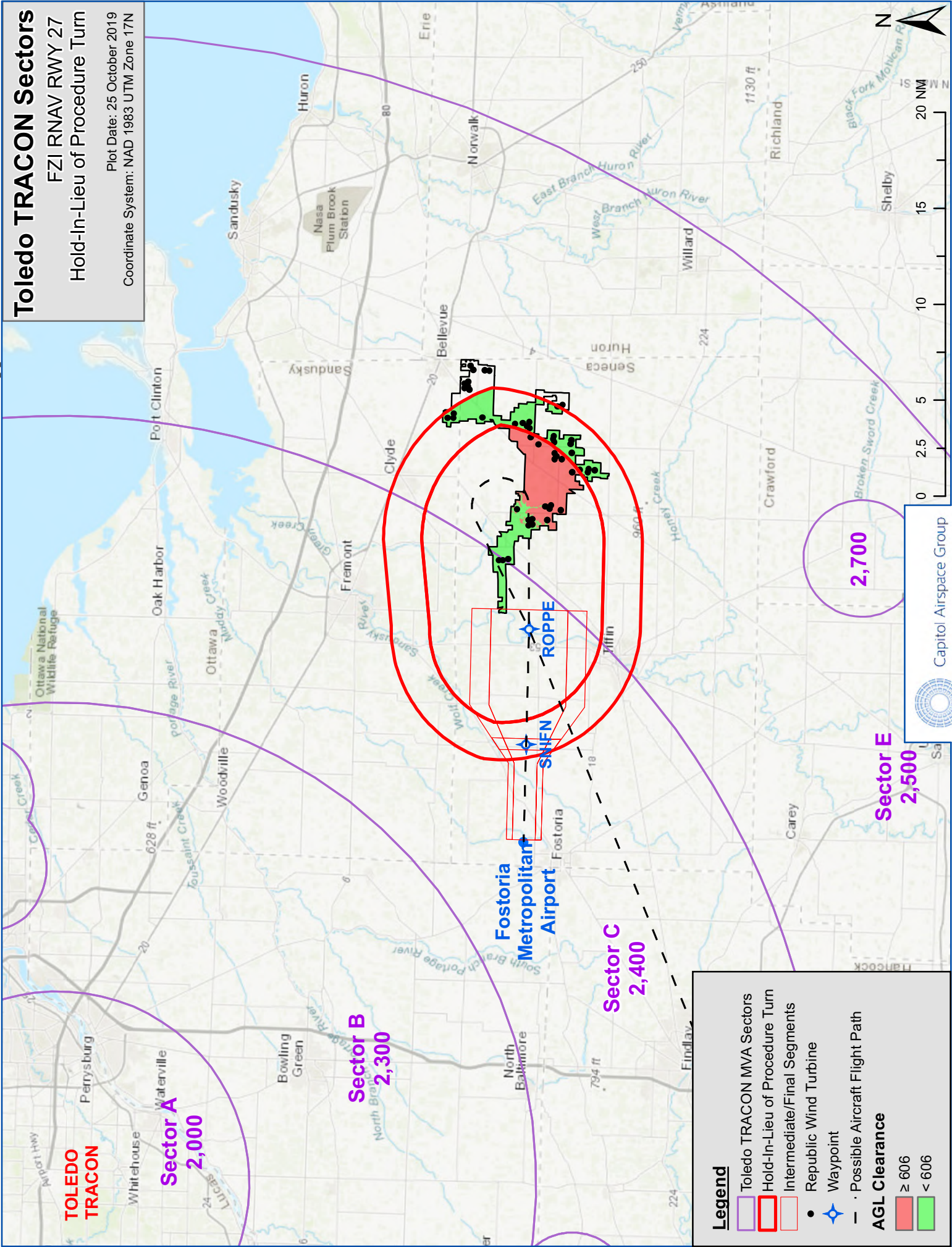


Capitol Airspace Group

Toledo TRACON Sectors

FZI RNAV RWY 27
Hold-In-Lieu of Procedure Turn

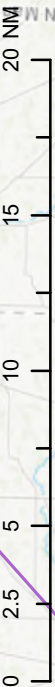
Plot Date: 25 October 2019
Coordinate System: NAD 1983 UTM Zone 17N



Legend

- Toledo TRACON MVA Sectors
 - Hold-In-Lieu of Procedure Turn
 - Intermediate/Final Segments
 - Republic Wind Turbine
 - Waypoint
 - Possible Aircraft Flight Path
- AGL Clearance**
- | | |
|-------|-------|
| ≥ 606 | < 606 |
|-------|-------|

Capitol Airspace Group



Required Obstacle Clearance (ROC)



2,400ft MSL: Minimum flight altitude for hold-in-lieu & MVA

- Holding pattern minimum altitude will be increased to 2,500 feet to accommodate wind turbines
- Results in an increased descent gradient from 16'-33'/NM (FAA IAP design criteria allows for up to 318'/NM*)
- No impact on the efficiency of the approach
- Flight in known or forecast icing conditions is prohibited per 14 CFR Part 91

ROC



1,449ft MSL: MVA obstacle clearance surface

1,400ft MSL: Hold-in-lieu obstacle clearance surface

*FAA Order 8260.3D, 2-5-3.d

Image not to scale



Capitol Airspace Group

5400 Shawnee Road, Suite 304
Alexandria, VA 22312

703-256-2485
capitolairspace.com

August 22, 2019

Dylan Fraser
Apex Clean Energy, Inc.
310 4th Street NE, Suite 300
Charlottesville, VA 22902

Re: Republic Wind Project (2018-WTE-11673 through 11722-OE)

Dear Mr. Fraser,

The Federal Aviation Administration (FAA) conducted a thorough aeronautical study of the Republic wind project; this included a public comment period meant to solicit feedback from the flying community. At the end of their aeronautical study, the FAA issued favorable Determinations of No Hazard (DNH) for each of the 50 wind turbines proposed at a height of 606 feet above ground level. These turbines were assigned aeronautical study numbers 2018-WTE-11673 through 11722-OE.

FAA's determinations indicate that 12 of the 50 proposed wind turbines would require a 100-foot increase to the ROPPE holding pattern's minimum altitude (an increase from 2,400 to 2,500 feet above mean sea level [AMSL]). This holding pattern supports two Fosteria Metropolitan Airport (FZI) instrument approach procedures, including the RNAV (GPS) Approach to Runway 27 "hold-in-lieu of a procedure turn" as well as the RNAV (GPS) Approach to Runway 09 "missed approach holding pattern."

By increasing the holding pattern's altitude from 2,400 to 2,500 feet AMSL, FAA's favorable determinations clearly show:

- 1) The increased minimum altitude will result in a descent gradient of 34 feet per nautical mile which is still well below FAA's optimum descent gradient in the intermediate segment (which is 150 feet per nautical mile). For example, instrument approach procedure design criteria would allow for an increased minimum altitude from 2,400 to 3,200 feet AMSL.¹ Further, this increase is not associated with the procedures' published minimum descent altitudes (MDA) which are the lowest altitudes a pilot can descend to without visually acquiring the runway environment. Accordingly, the FAA has stated "These [approach segments] do not affect the altitude an aircraft needs to descend to acquire the airport visually and therefore would not cause loss of flights due to adverse weather" (page 12, 2018-WTE-11674-OE).
- 2) There will be no impact on the safety of aircraft flying either instrument approach procedure. The appropriate safety "required obstacle clearance (ROC)" will be maintained.²
- 3) The minimum vectoring altitude (MVA) sector in the area of Fosteria Metropolitan Airport is unaffected and will remain at 2,400 feet AMSL. As a result, air traffic controllers can continue to provide radar vectoring services, as they have always done, for aircraft to intercept an extended centerline, before the final approach fix, at 2,400 feet AMSL.

¹ FAA Order 8260.3D 2-5-3(d)

² FAA Order 8260.3D 2-4-3(c)



Capitol Airspace Group

5400 Shawnee Road, Suite 304
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703-256-2485
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As a result, aircraft can continue to utilize each of the Fosteria Metropolitan Airport instrument approach procedures after the Republic wind project is built in the same manner that they do today.

Therefore, it is unnecessary to limit the proposed wind turbines' heights to lower than 606 feet AGL, as determined by the FAA on page one of each determination.

Please contact myself with any questions regarding this discussion at (703) 256-2485 or joe.anderson@capitolairspace.com.

Regards,

Digitally signed
by Joe Anderson
Date: 2019.08.22
13:04:00 -04'00'

Joe Anderson
Project Manager & Airspace Specialist

This foregoing document was electronically filed with the Public Utilities

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in

Case No(s). 17-2295-EL-BGN

Summary: Text Supplemental Testimony of Benjamin M. Doyle on behalf of Republic Wind, LLC electronically filed by Teresa Orahod on behalf of Devin D. Parram