1. 8:00 A.M. 7-24-19 Packet

   Documents:

   PACKET.PDF

2. Handouts

   Documents:

   TVC-2010-ALP-UPDATE_SH14_2019-07-16.PDF
   28-01 TVC AAP_2018_1-2.PDF
   TVC GTC PRESENTATION_20190702.PDF

GRAND TRAVERSE COUNTY BOARD OF COMMISSIONERS
STUDY SESSION

Wednesday, July 24, 2019
8:00 a.m.

Governmental Center, Commission Chambers
400 Boardman Avenue
Traverse City, Michigan 49684

A Study Session is held for review and discussion of information only. This study session is being held to receive an update regarding the Airport.

If you are planning to attend and you have a disability requiring any special assistance at the meeting, please notify the County Clerk immediately at 922-4760.

AGENDA

1. OPENING CEREMONIES OR EXERCISES

2. ROLL CALL

3. FIRST PUBLIC COMMENT

   Any person shall be permitted to address a meeting of the Board of Commissioners which is required to be open to the public under the provision of the Michigan Open Meetings Act. Public Comment shall be carried out in accordance with the following Board Rules and Procedures:

   Any person wishing to address the Board shall state his or her name and address.

   No person shall be allowed to speak more than once on the same matter, excluding time needed to answer Commissioners' questions, if any. The Chairperson shall control the amount of time each person shall be allowed to speak, which shall not exceed three (3) minutes. The Chairperson may, at his or her discretion, extend the amount of time any person is allowed to speak.

   Public comment will be solicited during the two public comment periods noted in Rule 5.4, Order of Business. However, public comment will generally be received at any time during the meeting regarding a specific topic currently under discussion by the board. Members of the public wishing to comment should raise their hand or pass a note to the clerk in order to be recognized, and shall not address the board until called upon by the chairperson. Please be respectful and refrain from personal or political attacks.

4. Airport Update – Maintaining/Improving Land Use and Obstructions

5. SECOND PUBLIC COMMENT (Refer to Rules under Public Comment above)

6. ADJOURNMENT

Cherry Capital Airport

AIRPORT UPDATE

MAINTAINING- IMPROVING LAND USE & OBSTRUCTIONS

Northwestern Regional Airport Commission

NRAC as directed by the Leelanau and Grand Traverse Counties

- Pursuant to Ch. 7 of the Michigan Aeronautics Code section 134
  - Acquire, establish, construct, enlarge, improve, maintain, equip, operate, regulate the Cherry Capital Airport and other aeronautical facilities and property incidental to its' operation per Public Act 327 of the Michigan Aeronautics Code
  - It is expressly understood that the NRAC shall comply with all laws and regulations, municipal, state, and federal

Public Act 327

- Directs governmental control to the NRAC to:
  - Act on behalf of the political subdivisions (Grand Traverse County and Leelanau County)acting jointly by which the NRAC is appointed all the powers of each such political subdivisions granted by this act

Goals

- Northwestern Regional Airport Commission Goals
  - Safe
  - Secure
  - Self Sufficient

TVC – 2018/2019

- 2018
- 96,189 Aircraft Operations
- 500,416 Total Passengers
- 2.2 Million Pounds of Cargo

- 2019
- Total Passenger Up 12.5%
  - June Up 24.8%
- Airline Operations Up 10.7%
- 216,571 Pounds of Cargo in June Up 5.1%

Airport Finance

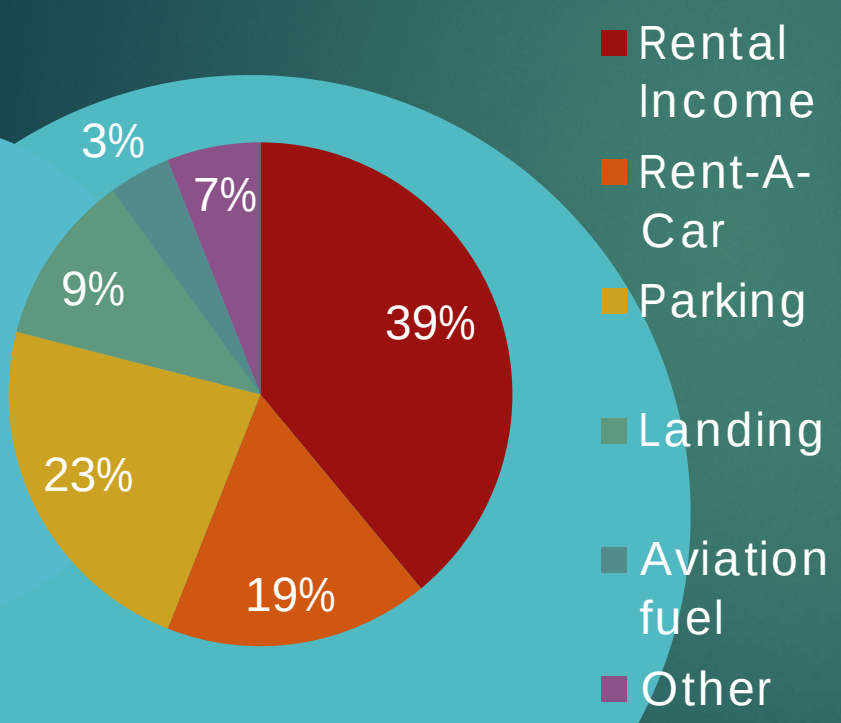
- Operating Budget - $6.4 million
  - Supported by landing fees, aircraft and vehicle parking fees, rental fees, land rent, and concessionaire fees –those that use the airport support the airport
  - NO LOCAL TAX DOLLARS
  - Cherry Capital Airport is completely self sufficient

Airport Finance

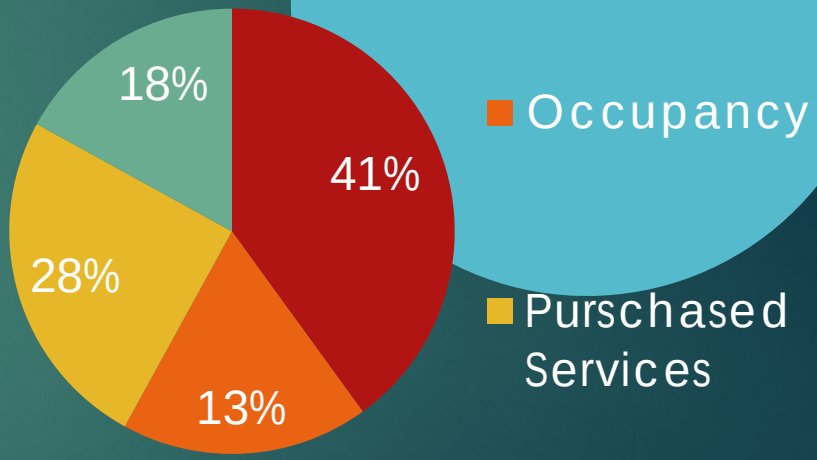
- Capital Budget $2.0 million per year
  - Funding
    - Airport Improvement Program (AIP) money is made up from the tax on an airline ticket
    - Passenger Facility Charges - $4.50 per passenger
    - Funding is from the users of the airport system, no local tax dollars are used to support Cherry Capital Airport

Northwestern Regional Airport Commission

Operating Revenues



Operating Expenses



Airport Economic Impact

- Michigan Department of Transportation – Office of Aeronautics – Community Benefits Assessment 2017
  - Determined that TVC annual economic Impact is $991,364,000 ranking TVC 3rd in the state behind DTW and GRR
  - Average visitor spending per person is $752.00 ranking TVC number 1 in the state
  - Local jobs 2,199

Airline Service – 5 Airlines, 14 Cities

allegiant

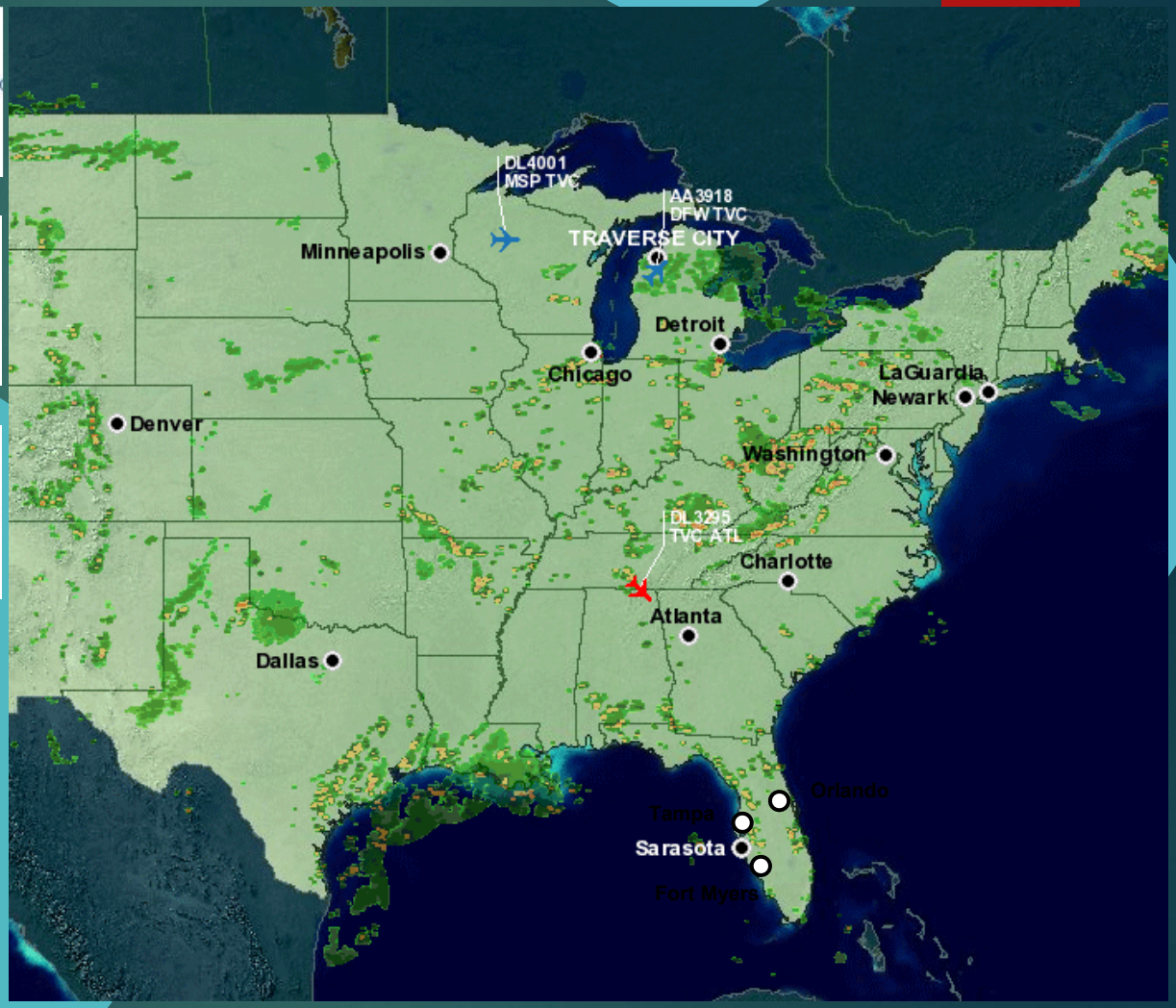
American

DELTA

Elite Airways

UNITED

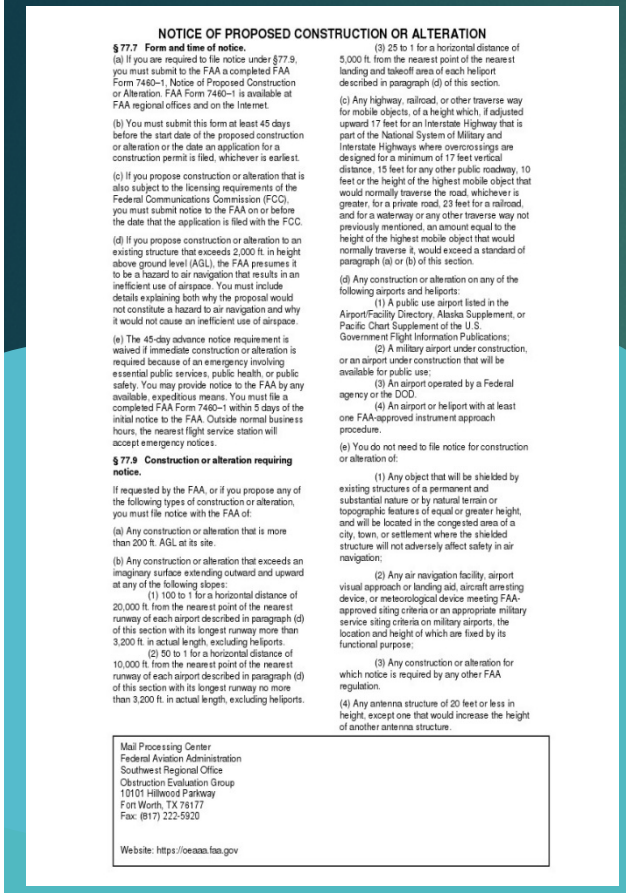
TVC



Compatible Land Use

- Land use on and in the vicinity of Airports (natural and man made) must be reserved for compatible uses to provide for the health, safety, and general welfare of the public
  - This is accomplished through Federal Aviation Regulations, Part 77 and 139, Michigan Aeronautics Code, Michigan Zoning Enabling Act
  - Local zoning also recognizes these hazards and regulates them
    - East Bay Township
    - Garfield Township
    - City of Traverse City
    - Acme Township
    - Peninsula Township
    - Elmwood Township

FAA Form 7460-1Notice of Proposed Construction or Alteration



NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460–1, Notice of Proposed Construction or Alteration. FAA Form 7460–1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460–1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177
Fax: (817) 222-5920

Website: https://oeaaa.faa.gov

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. NewConstruction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High Intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held G P S instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 173" rounds to 17', 176" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.

ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 173" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at "http://store.usgs.gov". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

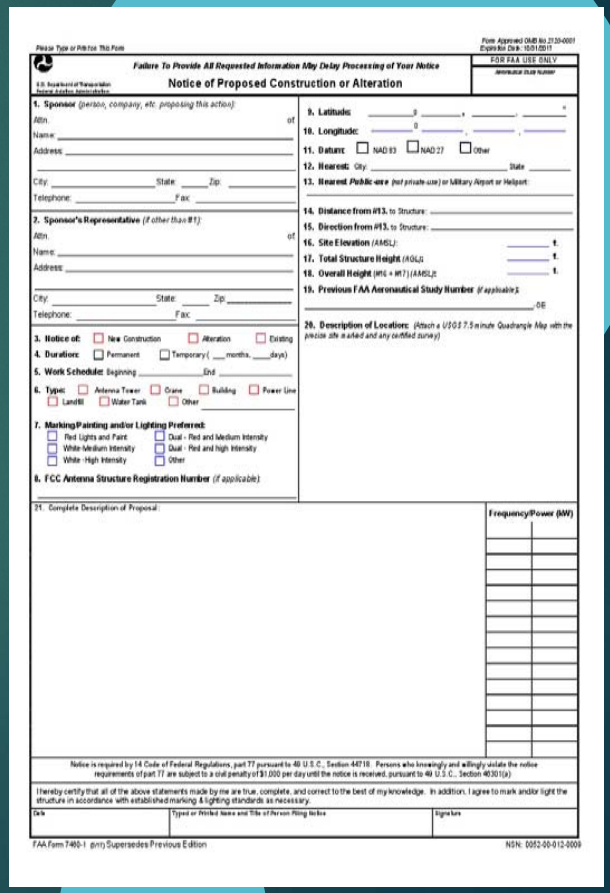
ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

Paperwork Reduction Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory or anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB control number associated with this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-110.

Form 7460-1 (6/17) Superseded Previous Editio | Electronic Variable (fillable) | NSN: 0052-00-012-0009



Please Type or Print on This Form

Form Approved OMB No. 2120-0001
Expiration Date: 10/31/2017

FOR FAA USE ONLY

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

1. **Sponsor** *(person, company, etc. proposing this action)*:
Attn. of
Name:
Address:
City: State: Zip:
Telephone: Fax:

2. **Sponsor's Representative** *(if other than #1)*:
Attn. of
Name:
Address:
City: State: Zip:
Telephone: Fax:

3. **Notice of:** New Construction Alteration Existing
4. **Duration:** Permanent Temporary (___months, ___days)
5. **Work Schedule:** Beginning End
6. **Type:** Antenna Tower Crane Building Power Line Landfill Water Tank Other
7. **Marking/Painting and/or Lighting Preferred:** Red Lights and Paint; Dual - Red and Medium Intensity; White-Medium Intensity; Dual - Red and high Intensity; White -High Intensity; Other
8. **FCC Antenna Structure Registration Number** *(if applicable)*

9. **Latitude:** ° ' "
10. **Longitude:** ° ' "
11. **Datum:** NAD 83 NAD 27 Other
12. **Nearest:** City: State
13. **Nearest Public-use** *(not private-use)* or Military Airport or Heliport:
14. **Distance from #13.** to Structure:
15. **Direction from #13.** to Structure:
16. **Site Elevation** *(AMSL)*: ft.
17. **Total Structure Height** *(AGL)*: ft.
18. **Overall Height** *(#16 + #17)* *(AMSL)*: ft.
19. **Previous FAA Aeronautical Study Number** *(if applicable)*: OR
20. **Description of Location:** *(Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey)*

21. Complete Description of Proposal:

Frequency/Power (kW)

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date	Typed or Printed Name and Title of Person Filing Notice	Signature

FAA Form 7460-1 (mm) Supersedes Previous Edition NSN: 0052-00-012-0009

Federal Regulations and Standards

- **Federal Aviation Regulation Part 139 – Certification of Airports**
  - In a manner authorized by the Administrator, each certificate holder must ensure that each object in each area within its authority that has been determined by the FAA to be an obstruction is removed, marked, or lighted, unless determined to be unnecessary by an FAA aeronautical study. FAA Advisory Circulars contain methods and procedures for the lighting of obstructions that are acceptable to the Administrator.
- **Protecting for Federal Aviation Regulation Part 77**
  - The size of each Part 77 imaginary surface is based on the category of each runway.
  - Categories are based on the type of runway – utility or non-utility and type of runway approach – visual, non-precision or precision instrument.
  - This information must be shown on your Airport Layout Plan (ALP) and kept current.
  - The FAA 5010 Airport Master Report (lines 50-58) identify obstruction data related to Part 77 Approach Surface.
- **Application of Table 3-2 in FAA's AC 150/5300-13A "Design AC".**
  - Table 3-2 Approach/departure standards table (aka "TSS").
  - Per a specific runway type (nine categories in table) based on visual or instrument approach, type of aircraft, and visibility minimums.
  - More recently updated ALPs are showing the application of TSS. TSS cannot be applied to a runway unless shown on an approved ALP.

OBSTRUCTION IDENTIFICATION SURFACES FEDERAL AVIATION REGULATIONS PART 77								
DIM	ITEM	DIMENSIONAL STANDARDS (FEET)						
		VISUAL RUNWAY		NON - PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY PIR	
		A	B	A	B			
					C	D		
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000	
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000	
		VISUAL APPROACH		NON - PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH	
		A	B	A	B			
					C	D		
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000	
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*	
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*	

- A - UTILITY RUNWAYS
- B - RUNWAYS LARGER THAN UTILITY
- C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
- D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
- * - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

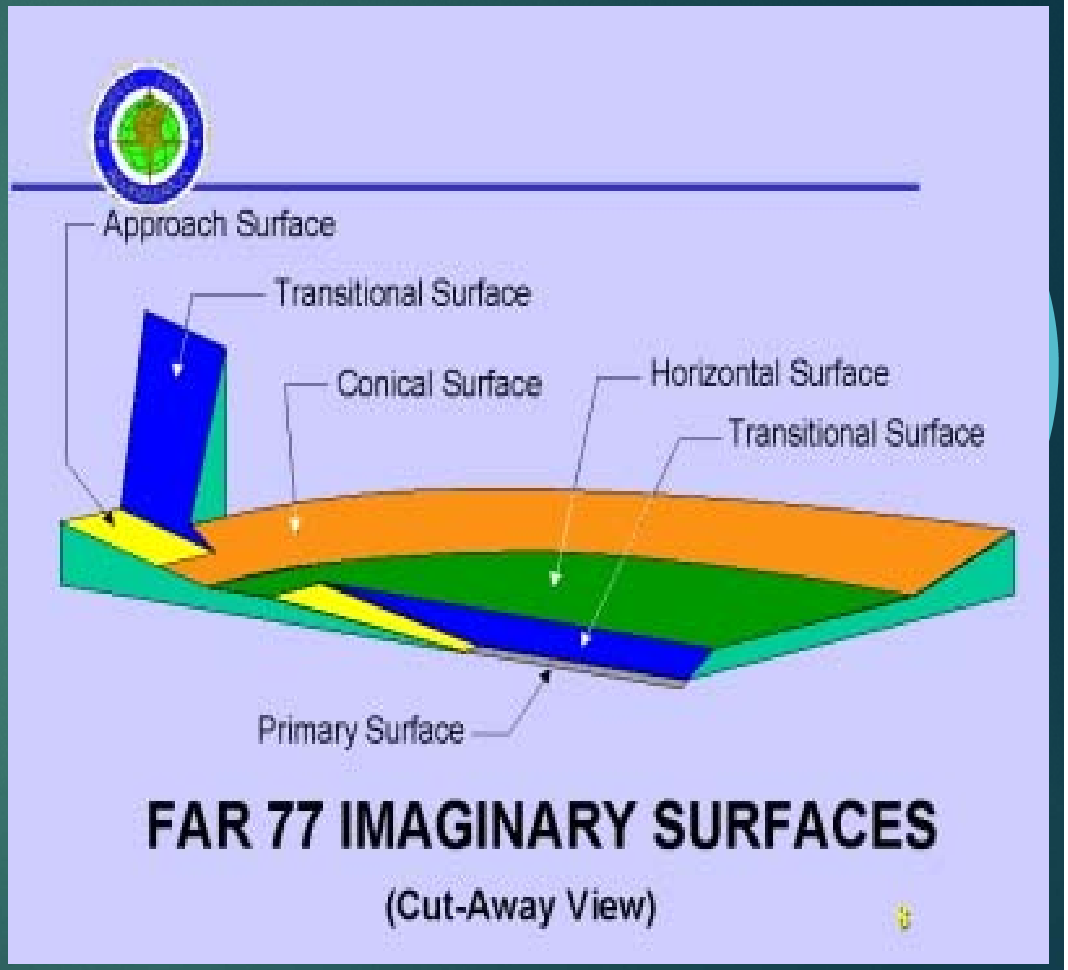


Table 3-2. Approach and Departure Standards Table [1, 2]

	Runway Type	DIMENSIONAL STANDARDS* Feet (Meters)					Slope
		A	B	C	D	E	
1	Approach end of runways expected to serve small airplanes with approach speeds less than 50 knots. (Visual runways only, day/night).	0 (0)	120 (37)	300 (91)	500 (152)	2,500 (762)	15:1
2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more. (Visual runways only, day/night).	0 (0)	250 (76)	700 (213)	2,250 (686)	2,750 (838)	20:1
3	Approach end of runway expected to serve large airplanes. (Visual runways only, day/night).	0 (0)	400 (122)	1,000 (305)	1,500 (457)	8,500 (2591)	20:1
4	Approach end of runways expected to accommodate instrument approaches having visibility greater than or equal to 3/4 statute mile. [3]	200 (61)	400 (122)	3,400 (1158)	10,000 [4] (3048)	0 (0)	20:1
5	Approach end of runways expected to accommodate instrument approaches having visibility minimums less than 3/4 statute mile.	200 (61)	800 (244)	3,400 (1158)	10,000 [4] (3048)	0 (0)	34:1
6 [5]	Approach end of runways expected to accommodate instrument approaches with vertical guidance.	0 (0)	Runway width 200 (61)	1520 (463)	10,000 [4] (3048)	0 (0)	30:1
7	Departure runway ends used for any instrument operations.	0 [6] (0)	See Figure 3-4.				40:1

* The letters are keyed to those shown in Figure 3-2 of AC 150/5300-13A.

General Notes:

1. This table presents the dimensional standards applicable to varying runway types based on normal conditions (e.g. standard 3-degree glidepath angle). Meeting the requirements of this table will protect the use of the runway in both visual and instrument meteorological conditions near the airport while ensuring maximum runway utility. Final published visibility minimums are determined, in part, by applying the criteria described in FAA Order 8260.3.
2. For planning purposes, objects must remain clear of the surfaces provided in this table. The FAA Flight Procedures Team must mitigate existing obstacles that penetrate instrument procedures that cannot be removed, relocated, or lowered. A modification of standards is not issued for the surfaces described in this table, in accordance with FAA Order 5300.1.
3. Marking and lighting of obstacle penetrations to this surface or the use of a Visual Guidance Slope Indicator (VGSI), may avoid displacing the threshold. Contact the Flight Procedures Team if existing obstacles penetrate this surface.
4. 10,000 feet (3048 m) represents a nominal value for planning purposes. For runways with only straight-in approaches, the length is dependent on the TERPS visual descent point or DA point. For runways with both circling and straight-in approaches, the length is the greater of 10,000 feet or the TERPS visual descent point/DA point.
5. The criteria in Row 6 is required in addition to the applicable approach surface established within the table. Applicable to ILS, GLS, LPV, LNAV/VNAV, and RNP lines of minima.
6. Dimension A is measured relative to the TODA (to include clearway).

Federal grant assurances directly related to approaches.....

- Airport sponsors accepting federal AIP funding must agree to certain obligations and conditions associated with receiving the funds. These assurances require the grant recipients to maintain and operate their airports safely & efficiently and in accordance with specified conditions.
- Effective operation & maintenance of airport (#19)
- Hazard removal - Protection of approaches to airport (#20)
- Ensure compatible land use and zoning (#21)
- Adherence to the approved Airport Layout Plan (#29)

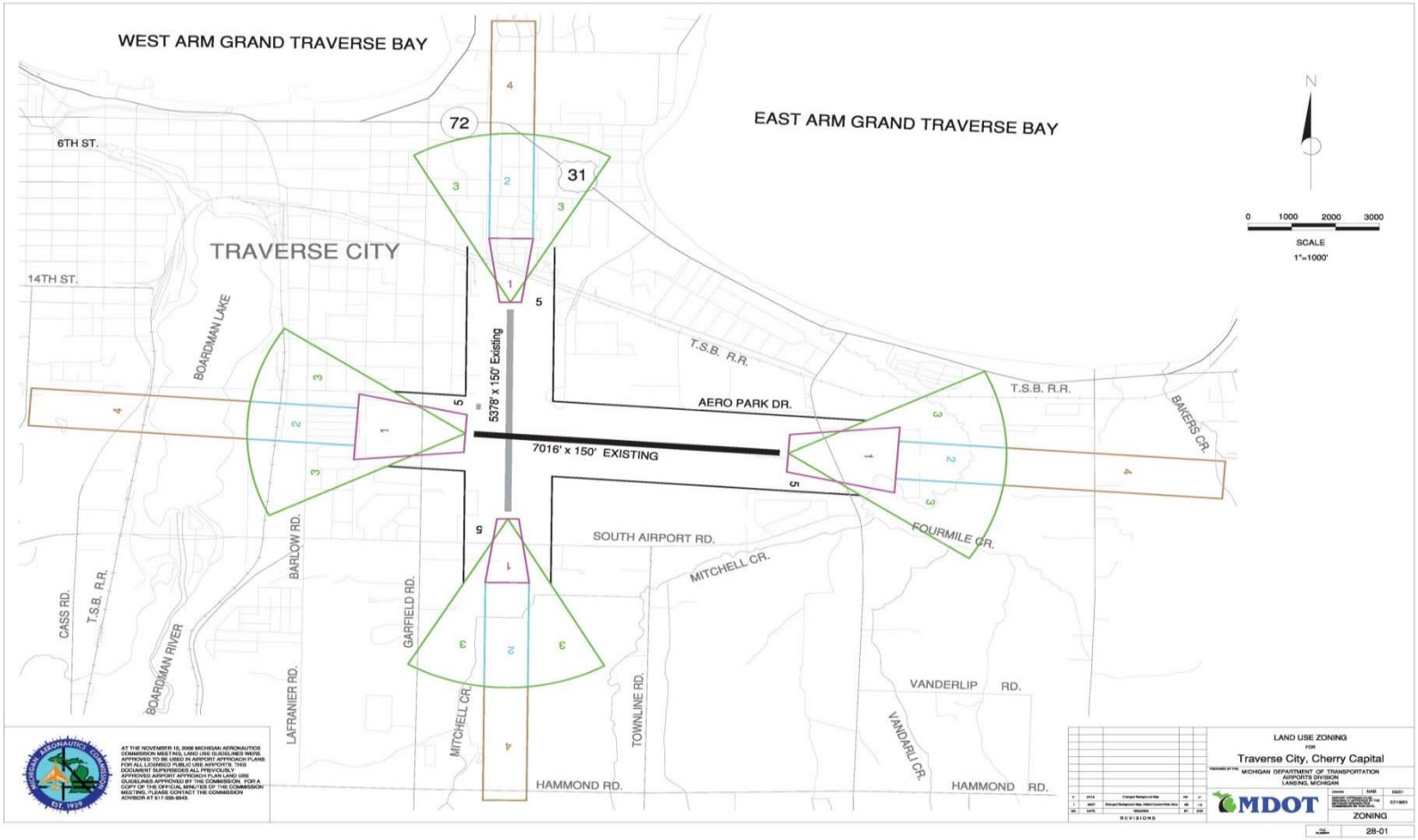
FAA Airport Inspection

- When an FAA Airport Inspector does an inspection at your airport, they provide you with an inspection report and an updated FAA 5010 Airport Master Record.
- They will provide comments about any deficiencies with meeting FAA standards.
- They are reporting Part 77 Obstruction Data on the Airport Master Record 5010 (lines 50-58) among other data updates. It's important for sponsors to review their inspection report and the 5010 in coordination with their current ALP.
- It's important to follow through in a timely manner with taking action on those obstructions identified that affect Part 77 Surfaces.

ALP Obstruction Tables & Approach Sheets

- The sponsor is required by grant assurances to maintain a current Airport Layout Plan (ALP).
- ALPs show runway surface obstruction tables. These tables show a proposed disposition (such as remove, lower, relocate, trim, DONH, etc.) for identified obstructions to Part 77 and TSS, if applied.
- The sponsor is responsible for evaluating their obstruction tables and taking timely action to follow through with the proposed disposition. A review of these tables will be done annually at the MAP meeting.
- If a Part 77 obstruction cannot be resolved or mitigated with the application of TSS, the sponsor may need to have further evaluation done through a FAA Aeronautical Study.
- Any identified obstruction to the TSS should be mitigated as soon as possible.
- The sponsor's ALP should be updated as these obstructions are resolved.

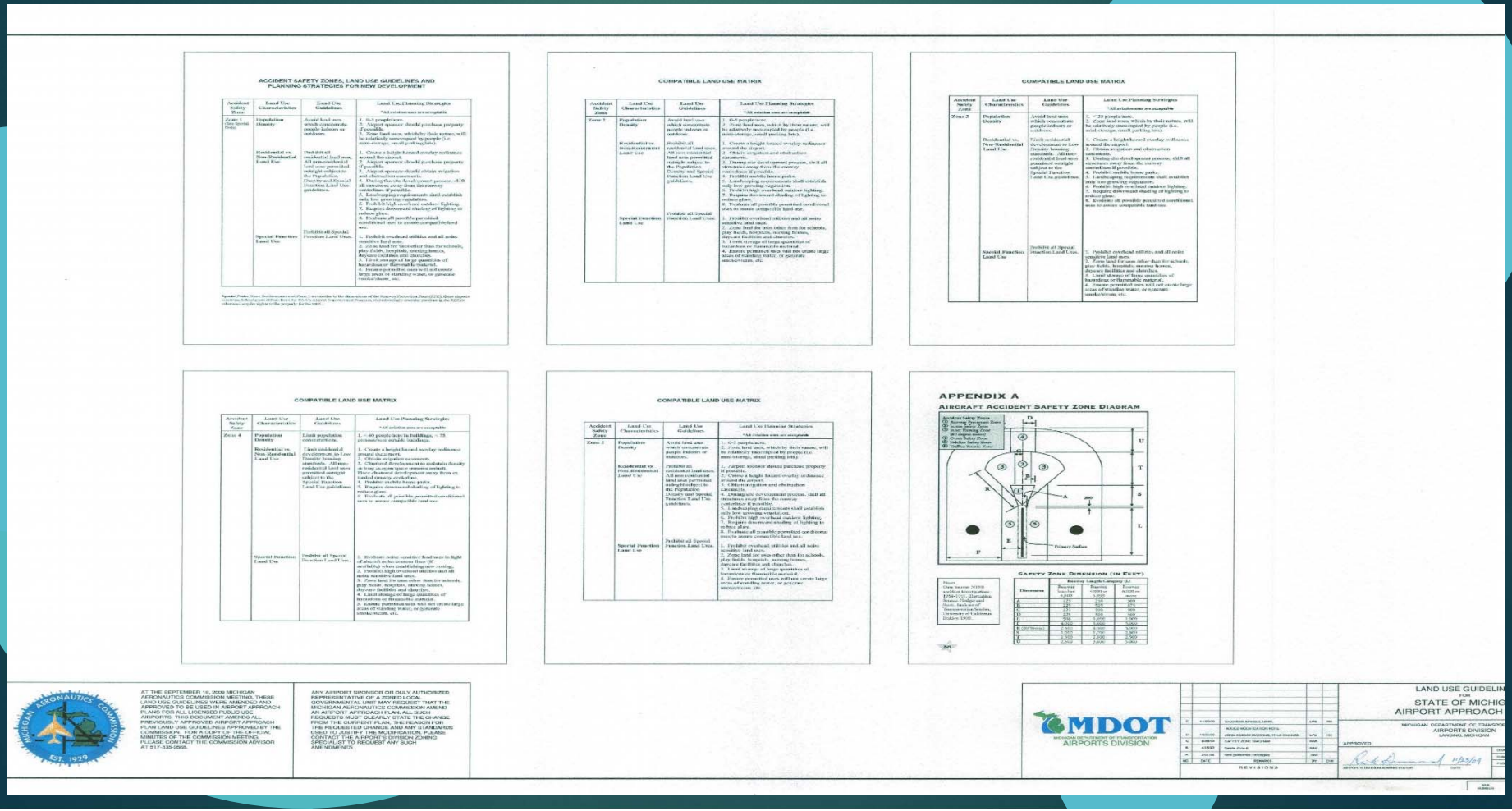
Michigan Approach Plan For TVC



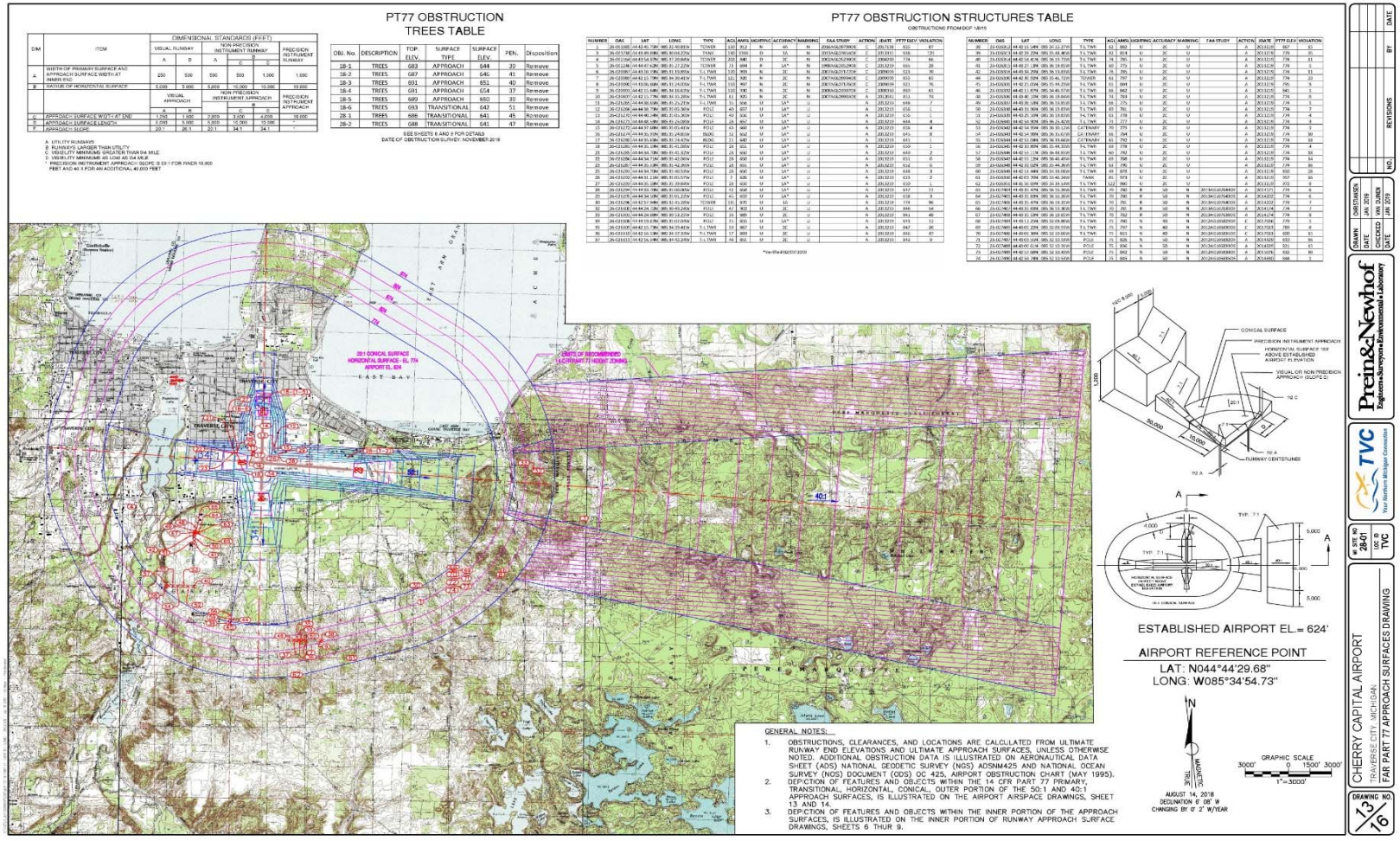
TVC

Michigan Approach Plan For TVC

- Land Use Characteristics
- Land Use Guidelines
- Land Use Planning Strategies



Updated ALP Part 77 Obstruction Plan



DRAFT

Thank You

DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		A	B	A	B		
					C	D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
					B		
		A	B		C	D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

A- UTILITY RUNWAYS
B- RUNWAYS LARGER THAN UTILITY
C- VISIBILITY MINIMUMS GREATER THAN 3\4 MILE
D- VISIBILITY MINIMUMS AS LOW AS 3\4 MILE
* PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

PT77 OBSTRUCTION TREES TABLE

OBJ. No.	DESCRIPTION	TOP. ELEV.	SURFACE TYPE	SURFACE ELEV.	PEN.	Disposition
18-1	TREES	683	APPROACH	644	39	Remove
18-2	TREES	687	APPROACH	646	41	Remove
18-3	TREES	691	APPROACH	651	40	Remove
18-4	TREES	691	APPROACH	654	37	Remove
18-5	TREES	689	APPROACH	650	39	Remove
18-6	TREES	693	TRANSITIONAL	642	51	Remove
28-1	TREES	686	TRANSITIONAL	641	45	Remove
28-2	TREES	688	TRANSITIONAL	641	47	Remove

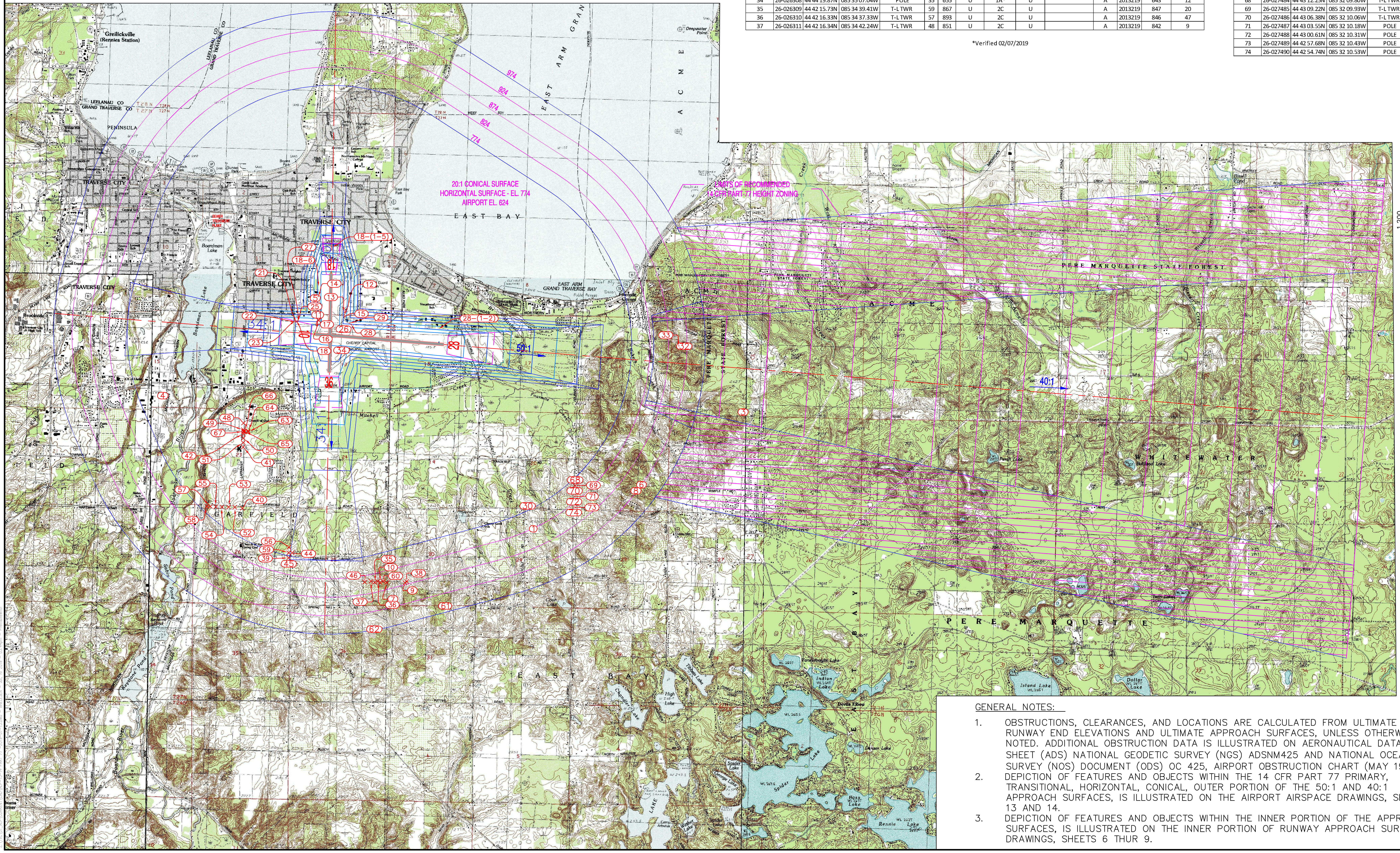
SEE SHEETS 8 AND 9 FOR DETAILS
DATE OF OBSTRUCTION SURVEY: NOVEMBER 2018

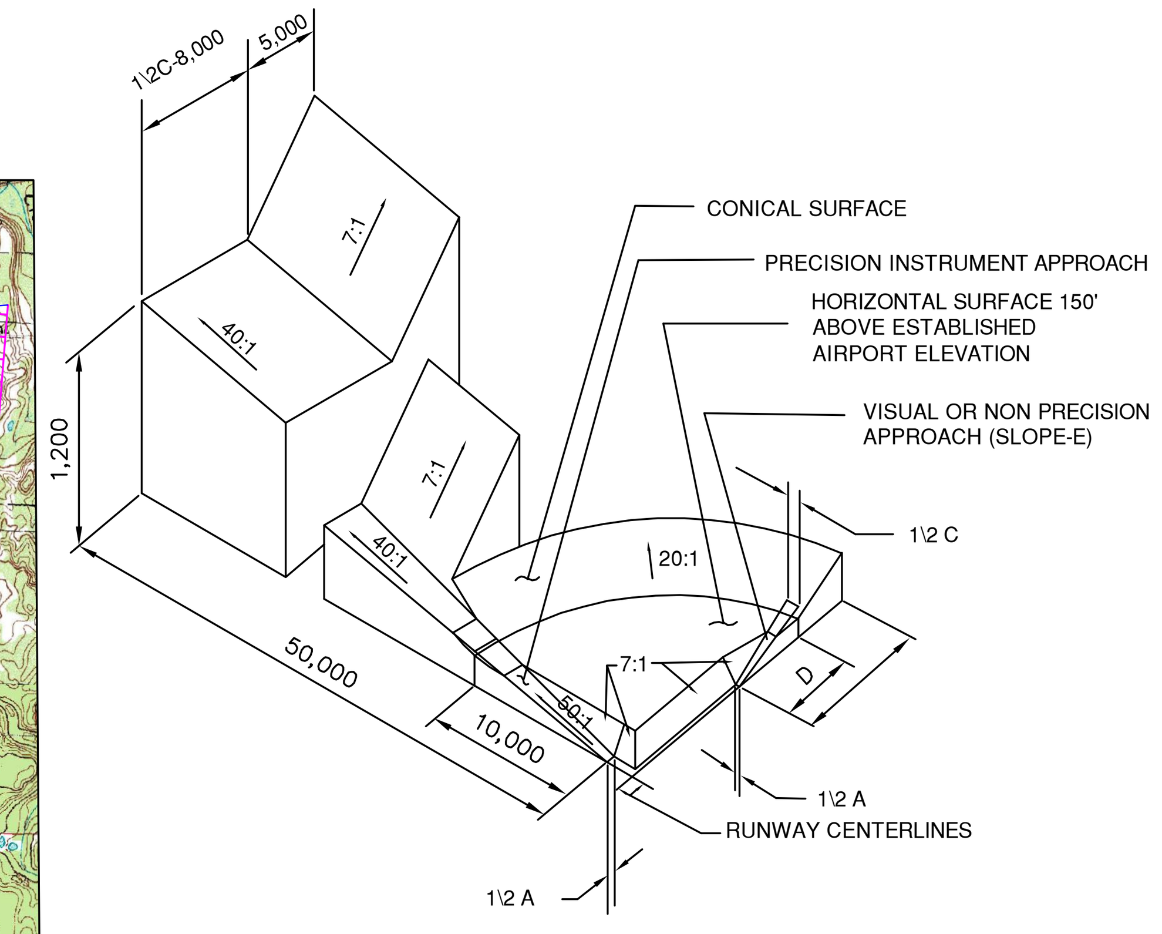
PT77 OBSTRUCTION STRUCTURES TABLE

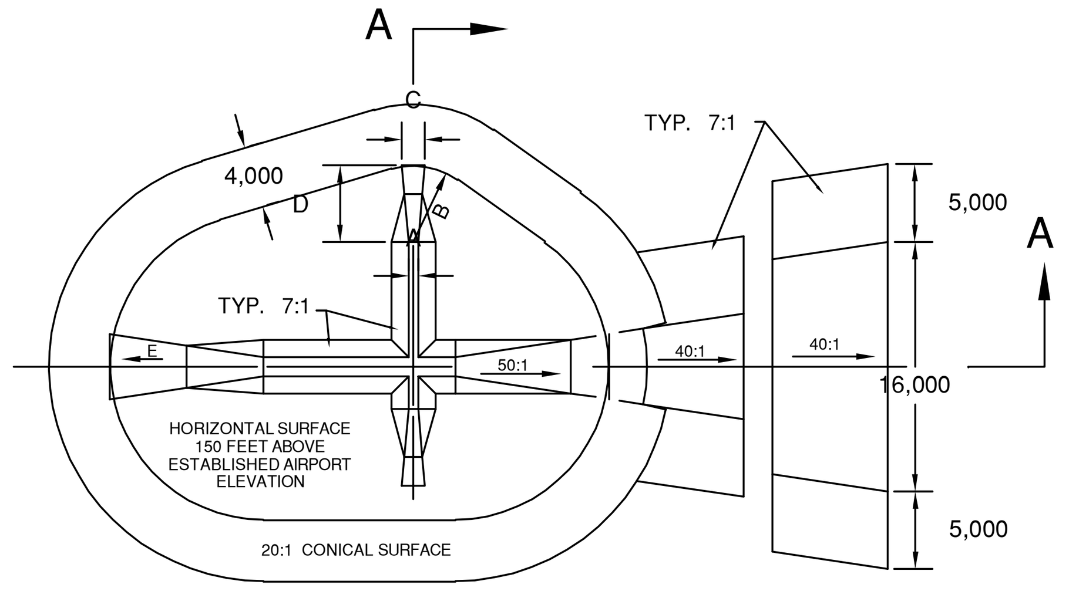
OBSTRUCTIONS FROM DOF 1/8/19

NUMBER	OAS	LAT	LONG	TYPE	AGL	AMSL	LIGHTING	ACCURACY	MARKING	FAA STUDY	ACTION	JDATE	PT77 ELEV	VIOLATION
1	26-001385	44 42 45.75N	085 32 40.81W	TOWER	150	912	N	4A	N	2016AGL09790OE	C	2017138	825	87
3	26-001738	44 43 49.89N	085 30 04.22W	TANK	130	1059	D	1A	N	2013AGL07654OE	C	2013331	938	121
4	26-002164	44 43 54.07N	085 37 20.84W	TOWER	202	840	D	2C	N	2002AGL05290OE	C	2004200	774	66
5	26-002246	44 44 47.62N	085 35 27.22W	TOWER	73	694	R	1A*	N	1998AGL03529OE	C	2013219	665	28
6	26-020087	44 43 10.19N	085 31 19.89W	T-L TWR	120	993	N	2C	N	2007AGL07177OE	C	2009009	923	70
7	26-020089	44 42 15.79N	085 34 30.41W	T-L TWR	121	920	N	2C	N	2007AGL09904OE	C	2009009	855	65
8	26-020090	44 43 06.86N	085 31 24.03W	T-L TWR	110	997	N	2C	N	2007AGL07176OE	C	2009009	921	76
9	26-020091	44 42 15.84N	085 34 16.63W	T-L TWR	110	930	N	2C	N	2008AGL01907OE	C	2008360	869	61
10	26-020807	44 42 15.77N	085 34 35.28W	T-L TWR	81	925	N	2C	N	2007AGL09903OE	A	2012081	851	74
11	26-026265	44 44 38.65N	085 35 25.21W	T-L TWR	35	656	U	1A*	U		A	2013219	648	7
12	26-026266	44 44 38.79N	085 35 05.36W	POLE	40	657	U	1A*	U		A	2013219	656	1
13	26-026270	44 44 40.34N	085 35 05.36W	POLE	40	656	U	1A*	U		A	2013219	656	1
14	26-026271	44 44 48.53N	085 35 25.08W	POLE	28	657	U	1A*	U		A	2013219	644	4
15	26-026272	44 44 37.68N	085 35 05.41W	POLE	43	660	U	1A*	U		A	2013219	656	4
16	26-026274	44 44 35.91N	085 35 24.85W	BLDG	32	652	U	1A*	U		A	2013219	645	8
17	26-026280	44 44 35.63N	085 35 24.42W	BLDG	21	642	U	1A*	U		A	2013219	641	1
18	26-026281	44 44 35.19N	085 35 41.08W	POLE	28	651	U	1A*	U		A	2013219	650	1
21	26-026285	44 44 34.70N	085 35 41.32W	POLE	28	650	U	1A*	U		A	2013219	649	2
22	26-026286	44 44 34.71N	085 35 42.06W	POLE	28	650	U	1A*	U		A	2013219	651	0
23	26-026287	44 44 35.33N	085 35 42.36W	POLE	28	651	U	1A*	U		A	2013219	652	0
25	26-026291	44 44 34.70N	085 35 40.53W	POLE	28	650	U	1A*	U		A	2013219	648	3
26	26-026292	44 44 31.21N	085 35 05.57W	POLE	7	626	U	1A*	U		A	2013219	623	2
27	26-026293	44 44 35.18N	085 35 39.84W	POLE	28	650	U	1A*	U		A	2013219	650	1
28	26-026294	44 44 33.70N	085 35 00.00W	POLE	42	658	U	1A*	U		A	2013219	647	11
29	26-026295	44 44 34.50N	085 35 01.22W	POLE	45	659	U	1A*	U		A	2013219	658	3
30	26-026296	44 42 57.94N	085 32 45.28W	TOWER	131	870	U	1A	U		A	2013219	774	96
32	26-026300	44 44 24.72N	085 30 49.24W	POLE	47	902	U	2C	U		A	2013219	848	54
33	26-026301	44 44 24.88N	085 30 53.25W	POLE	36	889	U	2C	U		A	2013219	841	48
34	26-026308	44 44 19.87N	085 35 07.04W	POLE	35	655	U	1A*	U		A	2013219	643	12
35	26-026309	44 42 15.73N	085 34 39.41W	T-L TWR	59	867	U	2C	U		A	2013219	847	20
36	26-026310	44 42 16.33N	085 34 37.33W	T-L TWR	57	893	U	2C	U		A	2013219	846	47
37	26-026311	44 42 16.34N	085 34 42.24W	T-L TWR	48	851	U	2C	U		A	2013219	842	9
38	26-026312	44 42 16.54N	085 34 15.27W	T-L TWR	62	882	U	2C	U		A	2013219	867	15
39	26-026313	44 42 28.22N	085 35 44.40W	T-L TWR	82	814	U	2C	U		A	2013219	779	35
40	26-026314	44 42 54.41N	085 36 19.73W	T-L TWR	74	785	U	2C	U		A	2013219	774	11
41	26-026315	44 43 27.13N	085 36 19.85W	T-L TWR	60	775	U	2C	U		A	2013219	774	1
42	26-026316	44 43 34.29N	085 36 19.83W	T-L TWR	76	785	U	2C	U		A	2013219	774	11
44	26-026330	44 42 30.92N	085 35 41.72W	TOWER	61	797	U	2C	U		A	2013219	774	23
45	26-026331	44 42 25.05N	085 35 44.23W	T-L TWR	65	804	U	2C	U		A	2013219	795	9
46	26-026332	44 42 15.87N	085 34 46.97W	T-L TWR	66	842	U	2C	U		A	2013219	841	1
48	26-026336	44 43 40.10N	085 36 19.84W	T-L TWR	74	783	U	2C	U		A	2013219	774	9
49	26-026337	44 43 36.53N	085 36 19.85W	T-L TWR	66	775	U	2C	U		A	2013219	774	1
50	26-026338	44 43 31.96N	085 36 19.83W	T-L TWR	69	781	U	2C	U		A	2013219	774	7
51	26-026339	44 43 29.59N	085 36 19.83W	T-L TWR	61	778	U	2C	U		A	2013219	774	4
52	26-026341	44 42 54.90N	085 36 25.42W	T-L TWR	71	777	U	2C	U		A	2013219	774	3
53	26-026342	44 42 54.95N	085 36 30.12W	CATENARY	70	779	U	2C	U		A	2013219	774	5
54	26-026343	44 42 54.98N	085 36 35.07W	CATENARY	66	784	U	2C	U		A	2013219	774	10
55	26-026344	44 42 55.04N	085 36 39.66W	CATENARY	65	792	U	2C	U		A	2013219	774	18
56	26-026345	44 42 33.89N	085 35 44.33W	T-L TWR	69	778	U	2C	U		A	2013219	774	4
57	26-026346	44 42 55.11N	085 36 43.85W	T-L TWR	60	792	U	2C	U		A	2013219	774	18
58	26-026347	44 42 55.12N	085 36 46.43W	T-L TWR	69	788	U	2C	U		A	2013219	774	14
59	26-026348	44 42 31.02N	085 35 44.36W	T-L TWR	63	790	U	2C	U		A	2013219	774	16
60	26-026349	44 42 16.44N	085 34 33.06W	T-L TWR	49	878	U	2C	U		A	2013219	850	28
61	26-026350	44 42 03.70N	085 33 46.24W	TANK	85	973	U	2C	U		A	2013219	957	16
62	26-026351	44 41 50.69N	085 34 39.14W	T-L TWR	122	980	U	2C	U		A	2013219	972	8
63	26-027404	44 43 35.47N	085 36 16.26W	T-L TWR	70	780	R	5D	N	2013AGL07644OE	A	2014171	774	6
64	26-027405	44 43 35.83N	085 36 16.26W	T-L TWR	70	780	R	5D	N	2013AGL07643OE	A	2014202	774	6
65	26-027406	44 43 35.47N	085 36 19.31W	T-L TWR	70	781	R	5D	N	2013AGL07640OE	A	2014202	774	7
66	26-027407	44 43 35.83N	085 36 19.30W	T-L TWR	70	781	R	5D	N	2013AGL07639OE	A	2014174	774	7
67	26-027408	44 43 35.53N	085 36 19.85W	T-L TWR	70	782	R	5D	N	2013AGL07638OE	A	2014174	774	8
68	26-027484	44 43 12.25N	085 32 09.80W	T-L TWR	75	780	N	4D	N	2012AGL06829OE	C	2017026	779	1
69	26-027485	44 43 09.22N	085 32 09.93W	T-L TWR	75	797	N	4D	N	2012AGL06830OE	C	2017023	789	8
70	26-027486	44 43 06.38N	085 32 10.06W	T-L TWR	75	815	N	4D	N	2012AGL06831OE	C	2017023	800	15
71	26-027487	44 43 03.55N	085 32 10.18W	POLE	75	826	N	5D	N	2012AGL06832OE	A	2014329	810	16
72	26-027488	44 43 00.61N	085 32 10.31W	POLE	75	836	N	5D	N	2012AGL06833OE	A	2014329	821	15
73	26-027489	44 42 57.68N	085 32 10.43W	POLE	75	842	N	5D	N	2012AGL06834OE	A	2015076	832	10
74	26-027490	44 42 54.74N	085 32 10.53W	POLE	75	845	N	5D	N	2012AGL06835OE	A	2014330	844	1

*Verified 02/07/2019







ESTABLISHED AIRPORT EL.= 624'

AIRPORT REFERENCE POINT
LAT: N044°44'29.68"
LONG: W085°34'54.73"

GENERAL NOTES:

1. OBSTRUCTIONS, CLEARANCES, AND LOCATIONS ARE CALCULATED FROM ULTIMATE RUNWAY END ELEVATIONS AND ULTIMATE APPROACH SURFACES, UNLESS OTHERWISE NOTED. ADDITIONAL OBSTRUCTION DATA IS ILLUSTRATED ON AERONAUTICAL DATA SHEET (ADS) NATIONAL GEODETIC SURVEY (NGS) ADSNM425 AND NATIONAL OCEAN SURVEY (NOS) DOCUMENT (ODS) OC 425, AIRPORT OBSTRUCTION CHART (MAY 1995).
2. DEPICTION OF FEATURES AND OBJECTS WITHIN THE 14 CFR PART 77 PRIMARY, TRANSITIONAL, HORIZONTAL, CONICAL, OUTER PORTION OF THE 50:1 AND 40:1 APPROACH SURFACES, IS ILLUSTRATED ON THE AIRPORT AIRSPACE DRAWINGS, SHEET 13 AND 14.
3. DEPICTION OF FEATURES AND OBJECTS WITHIN THE INNER PORTION OF THE APPROACH SURFACES, IS ILLUSTRATED ON THE INNER PORTION OF RUNWAY APPROACH SURFACE DRAWINGS, SHEETS 6 THUR 9.

N
MAGNETIC
TRUE
AUGUST 14, 2018
DECLINATION 6° 08' W
CHANGING BY 0° 2' W/YEAR

GRAPHIC SCALE
3000' 0 1500' 3000'
1"=3000'

NO.	REVISIONS	BY	DATE

DRAWN CHRISTIANSEN
DATE JAN 2019
CHECKED VAN DUINEN
DATE JAN 2019

Prein&Newhof
Engineers ■ Surveyors ■ Environmental ■ Laboratory

TVC
Your Northern Michigan Connection

MI SITE NO 28-01
LOC ID TVC

CHERRY CAPITAL AIRPORT
TRAVERSE CITY, MICHIGAN
FAR PART 77 APPROACH SURFACES DRAWING

DRAWING NO. 13/16

WEST ARM GRAND TRAVERSE BAY

EAST ARM GRAND TRAVERSE BAY

TRAVERSE CITY

6TH ST.

14TH ST.

BOARDMAN LAKE

72

31

AERO PARK DR.

T.S.B. R.R.

T.S.B. R.R.

BAKERS CR.

5378' x 150' Existing

7016' x 150' EXISTING

SOUTH AIRPORT RD.

MITCHELL CR.

FOURMILE CR.

CASS RD.

T.S.B. R.R.

BOARDMAN RIVER

BARLOW RD.

GARFIELD RD.

LAFRANIER RD.

MITCHELL CR.

TOWNLINE RD.

VANDERLIP RD.

VANDARLI CR.

HAMMOND RD.

HAMMOND RD.

N

0 1000 2000 3000

SCALE

1"=1000'

AT THE NOVEMBER 15, 2006 MICHIGAN AERONAUTICS COMMISSION MEETING, LAND USE GUIDELINES WERE APPROVED TO BE USED IN AIRPORT APPROACH PLANS FOR ALL LICENSED PUBLIC USE AIRPORTS. THIS DOCUMENT SUPERSEDES ALL PREVIOUSLY APPROVED AIRPORT APPROACH PLAN LAND USE GUIDELINES APPROVED BY THE COMMISSION. FOR A COPY OF THE OFFICIAL MINUTES OF THE COMMISSION MEETING, PLEASE CONTACT THE COMMISSION ADVISOR AT 517-335-9943.

NO.	DATE	REMARKS	BY	CHK
2	07/18	Changed Background Map	NB	JF
1	03/07	Changed Background Map, Added Current Slds, Note	NB	LS

REVISIONS

LAND USE ZONING

FOR

Traverse City, Cherry Capital

PREPARED BY THE: MICHIGAN DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
LANSING, MICHIGAN

MDOT

DRAWN	NAB	04/01
AIRPORT APPROACH PLAN ORIGINALLY APPROVED BY THE MICHIGAN AERONAUTICS COMMISSION ON THIS DATE:		07/19/01

ZONING

FILE NUMBER: 28-01

ACCIDENT SAFETY ZONES, LAND USE GUIDELINES AND PLANNING STRATEGIES FOR NEW DEVELOPMENT

Accident Safety Zone	Land Use Characteristics	Land Use Guidelines	Land Use Planning Strategies *All aviation uses are acceptable
Zone 1 (See Special Note)	Population Density	Avoid land uses which concentrate people indoors or outdoors.	1. 0-5 people/acre. 2. Airport sponsor should purchase property if possible. 3. Zone land uses, which by their nature, will be relatively unoccupied by people (i.e. mini-storage, small parking lots).
	Residential vs. Non-Residential Land Use	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines.	1. Create a height hazard overlay ordinance around the airport. 2. Airport sponsor should purchase property if possible. 3. Airport sponsor should obtain avigation and obstruction easements. 4. During the site development process, shift all structures away from the runway centerlines if possible. 5. Landscaping requirements shall establish only low growing vegetation. 6. Prohibit high overhead outdoor lighting. 7. Require downward shading of lighting to reduce glare. 8. Evaluate all possible permitted conditional uses to assure compatible land use.
	Special Function Land Use	Prohibit all Special Function Land Uses.	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable material. 4. Ensure permitted uses will not create large areas of standing water, or generate smoke/steam, etc.

Special Note: Since the dimensions of Zone 1 are similar to the dimensions of the Runway Protection Zone (RPZ), those airports receiving federal grant dollars from the FAA's Airport Improvement Program, should strongly consider purchasing the RPZ or otherwise acquire rights to the property for the RPZ.

COMPATIBLE LAND USE MATRIX

Accident Safety Zone	Land Use Characteristics	Land Use Guidelines	Land Use Planning Strategies *All aviation uses are acceptable
Zone 2	Population Density	Avoid land uses which concentrate people indoors or outdoors.	1. 0-5 people/acre. 2. Zone land uses, which by their nature, will be relatively unoccupied by people (i.e. mini-storage, small parking lots).
	Residential vs. Non-Residential Land Use	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines.	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation and obstruction easements. 3. During site development process, shift all structures away from the runway centerlines if possible. 4. Prohibit mobile home parks. 5. Landscaping requirements shall establish only low growing vegetation. 6. Prohibit high overhead outdoor lighting. 7. Require downward shading of lighting to reduce glare. 8. Evaluate all possible permitted conditional uses to assure compatible land use.
	Special Function Land Use	Prohibit all Special Function Land Uses.	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable material. 4. Ensure permitted uses will not create large areas of standing water, or generate smoke/steam, etc.

COMPATIBLE LAND USE MATRIX

Accident Safety Zone	Land Use Characteristics	Land Use Guidelines	Land Use Planning Strategies *All aviation uses are acceptable
Zone 3	Population Density	Avoid land uses which concentrate people indoors or outdoors.	1. < 25 people/acre. 2. Zone land uses, which by their nature, will be relatively unoccupied by people (i.e. mini-storage, small parking lots).
	Residential vs. Non-Residential Land Use	Limit residential development to Low Density housing standards. All non-residential land uses permitted outright subject to the Special Function Land Use guidelines.	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation and obstruction easements. 3. During site development process, shift all structures away from the runway centerlines if possible. 4. Prohibit mobile home parks. 5. Landscaping requirements shall establish only low growing vegetation. 6. Prohibit high overhead outdoor lighting. 7. Require downward shading of lighting to reduce glare. 8. Evaluate all possible permitted conditional uses to assure compatible land use.
	Special Function Land Use	Prohibit all Special Function Land Uses.	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable material. 4. Ensure permitted uses will not create large areas of standing water, or generate smoke/steam, etc.

COMPATIBLE LAND USE MATRIX

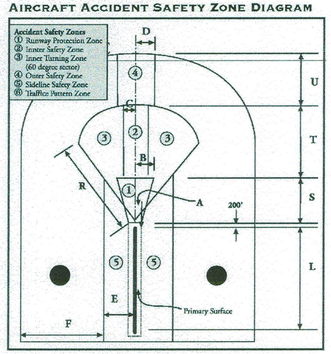
Accident Safety Zone	Land Use Characteristics	Land Use Guidelines	Land Use Planning Strategies *All aviation uses are acceptable
Zone 4	Population Density	Limit population concentrations.	1. < 40 people/acre in buildings; < 75 persons/acre outside buildings.
	Residential vs. Non-Residential Land Use	Limit residential development to Low Density housing standards. All non-residential land uses permitted outright subject to the Special Function Land Use guidelines.	1. Create a height hazard overlay ordinance around the airport. 2. Obtain avigation easements. 3. Clustered development to maintain density as long as open space remains unbuilt. Place clustered development away from extended runway centerline. 4. Prohibit mobile home parks. 5. Require downward shading of lighting to reduce glare. 6. Evaluate all possible permitted conditional uses to assure compatible land use.
	Special Function Land Use	Prohibit all Special Function Land Uses.	1. Evaluate noise sensitive land uses in light of aircraft noise contour lines (if available) when establishing new zoning. 2. Prohibit high overhead utilities and all noise sensitive land uses. 3. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 4. Limit storage of large quantities of hazardous or flammable material. 5. Ensure permitted uses will not create large areas of standing water, or generate smoke/steam, etc.

COMPATIBLE LAND USE MATRIX

Accident Safety Zone	Land Use Characteristics	Land Use Guidelines	Land Use Planning Strategies *All aviation uses are acceptable
Zone 5	Population Density	Avoid land uses which concentrate people indoors or outdoors.	1. 0-5 people/acre. 2. Zone land uses, which by their nature, will be relatively unoccupied by people (i.e. mini-storage, small parking lots).
	Residential vs. Non-Residential Land Use	Prohibit all residential land uses. All non-residential land uses permitted outright subject to the Population Density and Special Function Land Use guidelines.	1. Airport sponsor should purchase property if possible. 2. Create a height hazard overlay ordinance around the airport. 3. Obtain avigation and obstruction easements. 4. During site development process, shift all structures away from the runway centerlines if possible. 5. Landscaping requirements shall establish only low growing vegetation. 6. Prohibit high overhead outdoor lighting. 7. Require downward shading of lighting to reduce glare. 8. Evaluate all possible permitted conditional uses to assure compatible land use.
	Special Function Land Use	Prohibit all Special Function Land Uses.	1. Prohibit overhead utilities and all noise sensitive land uses. 2. Zone land for uses other than for schools, play fields, hospitals, nursing homes, daycare facilities and churches. 3. Limit storage of large quantities of hazardous or flammable material. 4. Ensure permitted uses will not create large areas of standing water, or generate smoke/steam, etc.

APPENDIX A

AIRCRAFT ACCIDENT SAFETY ZONE DIAGRAM



Note:
Data Source: NTSB accident investigations 1984-1991. Illustration Source: Hodges and Shutt, Institute of Transportation Studies, University of California, Berkley. 1993.

SAFETY ZONE DIMENSION (IN FEET)

Dimension	Runway Length Category (L)		
	Runway less than 4,000	Runway 4,000 to 5,999	Runway 6,000 or more
A	125	250	500
B	225	505	875
C	225	500	900
D	225	500	500
E	500	1,000	1,000
F	4,000	5,000	5,000
R (50°Sector)	2,500	4,500	5,000
S	1,000	1,700	2,500
T	1,500	2,600	2,500
U	2,500	3,000	5,000

AT THE SEPTEMBER 16, 2009 MICHIGAN AERONAUTICS COMMISSION MEETING, THESE LAND USE GUIDELINES WERE AMENDED AND APPROVED TO BE USED IN AIRPORT APPROACH PLANS FOR ALL LICENSED PUBLIC USE AIRPORTS. THIS DOCUMENT AMENDS ALL PREVIOUSLY APPROVED AIRPORT APPROACH PLAN LAND USE GUIDELINES APPROVED BY THE COMMISSION. FOR A COPY OF THE OFFICIAL MINUTES OF THE COMMISSION MEETING, PLEASE CONTACT THE COMMISSION ADVISOR AT 517-335-9568.

ANY AIRPORT SPONSOR OR DULY AUTHORIZED REPRESENTATIVE OF A ZONED LOCAL GOVERNMENTAL UNIT MAY REQUEST THAT THE MICHIGAN AERONAUTICS COMMISSION AMEND AN AIRPORT APPROACH PLAN. ALL SUCH REQUESTS MUST CLEARLY STATE THE CHANGE FROM THE CURRENT PLAN, THE REASON FOR THE REQUESTED CHANGE, AND ANY STANDARDS USED TO JUSTIFY THE MODIFICATION. PLEASE CONTACT THE AIRPORT'S DIVISION ZONING SPECIALIST TO REQUEST ANY SUCH AMENDMENTS.

MDOT
MICHIGAN DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION

NO.	DATE	REMARKS	BY	CHK
E	11/23/09	CHANGED SPECIAL NOTE; ADDED MODIFICATION NOTE	LPS	RH
D	10/30/06	ZONE 5 MODIFICATIONS, TITLE CHANGE	LPS	RH
C	8/26/03	SAFETY ZONE DIAGRAM	NAB	
B	4/16/02	Delete Zone 6	NAB	
A	3/01/02	New guidelines / strategies	NAB	

REVISIONS

LAND USE GUIDELINES
FOR
STATE OF MICHIGAN AIRPORT APPROACH PLANS

MICHIGAN DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
LANSING, MICHIGAN

APPROVED

Rick Hammond 11/23/09
AIRPORTS DIVISION ADMINISTRATOR — DATE

DRAWN	NAB 8/03
CHECKED	
PLOTTED	

FILE NUMBER 00-00

Cherry Capital Airport

AIRPORT UPDATE

MAINTAINING- IMPROVING LAND USE & OBSTRUCTIONS

Northwestern Regional Airport Commission Since 1971

NRAC as directed by the Leelanau and Grand Traverse Counties

- Pursuant to Ch. 7 of the Michigan Aeronautics Code section 134
  - Acquire, establish, construct, enlarge, improve, maintain, equip, operate, regulate the Cherry Capital Airport and other aeronautical facilities and property incidental to its' operation per Public Act 327 of the Michigan Aeronautics Code
  - It is expressly understood that the NRAC shall comply with all laws and regulations, municipal, state, and federal

Public Act 327

- Directs governmental control to the NRAC to:
  - Act on behalf of the political subdivisions (Grand Traverse County and Leelanau County)acting jointly by which the NRAC is appointed all the powers of each such political subdivisions granted by this act

Goals

- Northwestern Regional Airport Commission Goals
  - Safe
  - Secure
  - Self Sufficient

TVC – 2018/2019

- 2018
- 96,189 Aircraft Operations
- 500,416 Total Passengers
- 2.2 Million Pounds of Cargo

- 2019
- Total Passenger Up 12.5%
  - June Up 24.8%
- Airline Operations Up 10.7%
- 216,571 Pounds of Cargo in June Up 5.1%

TVC

Airport Finance

- Operating Budget - $6.4 million
  - Supported by 114 tenants, landing fees, aircraft and vehicle parking fees, rental fees, land rent, and concessionaire fees –those that use the airport support the airport
  - NO LOCAL TAX DOLLARS
  - Cherry Capital Airport is completely self sufficient

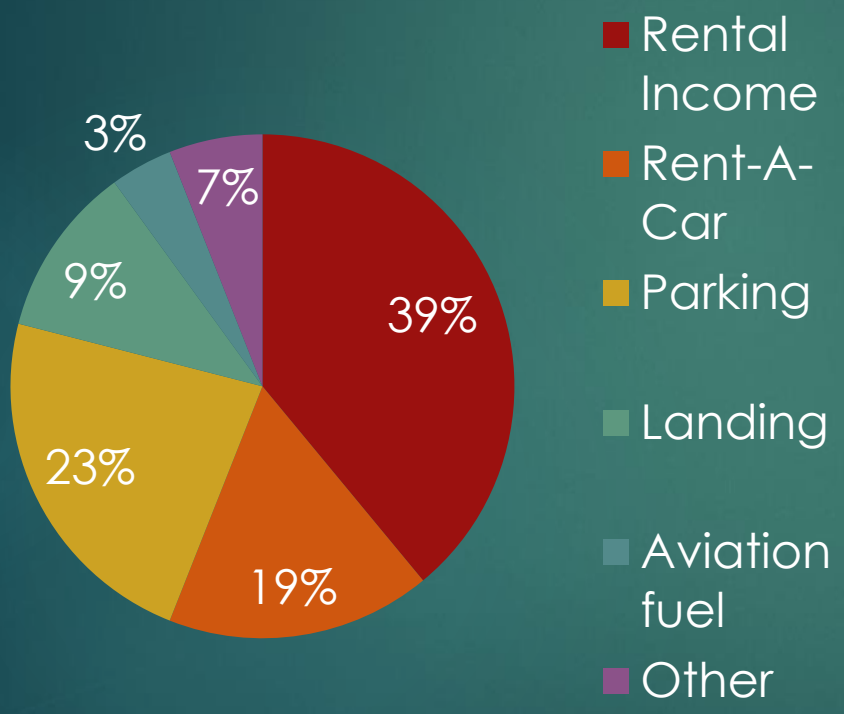
TVC

Airport Finance

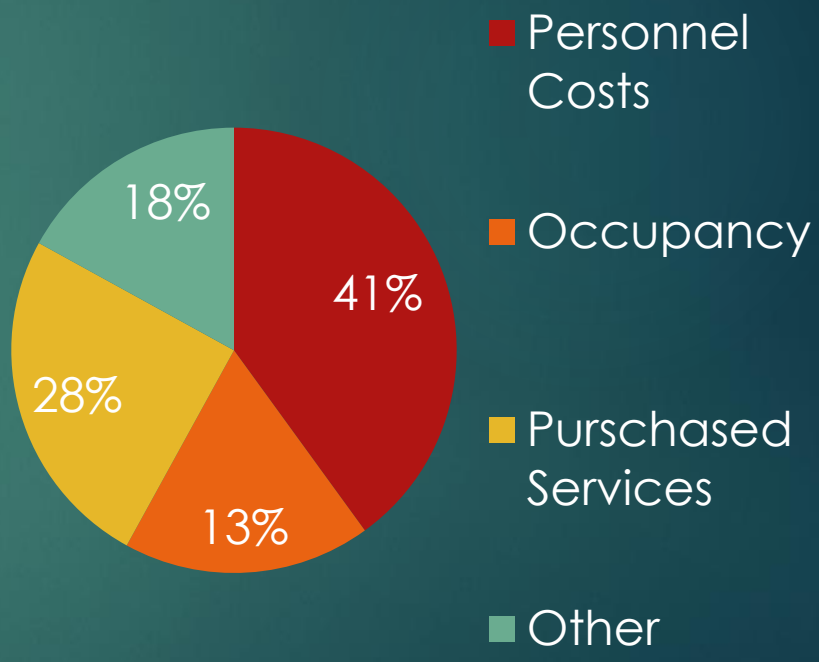
- Capital Budget $2.0 million per year
  - Funding
    - Airport Improvement Program (AIP) money is made up from the tax on an airline ticket
    - Passenger Facility Charges - $4.50 per passenger
    - Funding is from the users of the airport system, no local tax dollars are used to support Cherry Capital Airport

Northwestern Regional Airport Commission

Operating Revenues



Operating Expenses



Airport Economic Impact

- Michigan Department of Transportation – Office of Aeronautics – Community Benefits Assessment 2017
  - Determined that TVC annual economic Impact is $991,364,000 ranking TVC 3rd in the state behind DTW and GRR
  - Average visitor spending per person is $752.00 ranking TVC number 1 in the state
  - Local jobs 2,199

- U.S. Senator Gary Peters, has expressed support for several TVC (Cherry Capital Airport) programs and projects. He sits on the Commerce, Science and Transportation committee and is also Ranking Member on the US Senate Homeland Security and Governmental Affairs committee. From the Airport Improvement Program to Small Community Air Service Development Program, he has worked with the FAA and DOT to provide quality service to Northern Michigan here at TVC. Many of the regulatory guidelines that TVC operated under are federal in nature, which is why TVC is glad to work with Senator Peters to meet a wide verity of operational objectives. In the past Senator Peters has said that TVC has the expertise and community support required to successfully implement plans.

Airline Service – 5 Airlines, 14 Cities

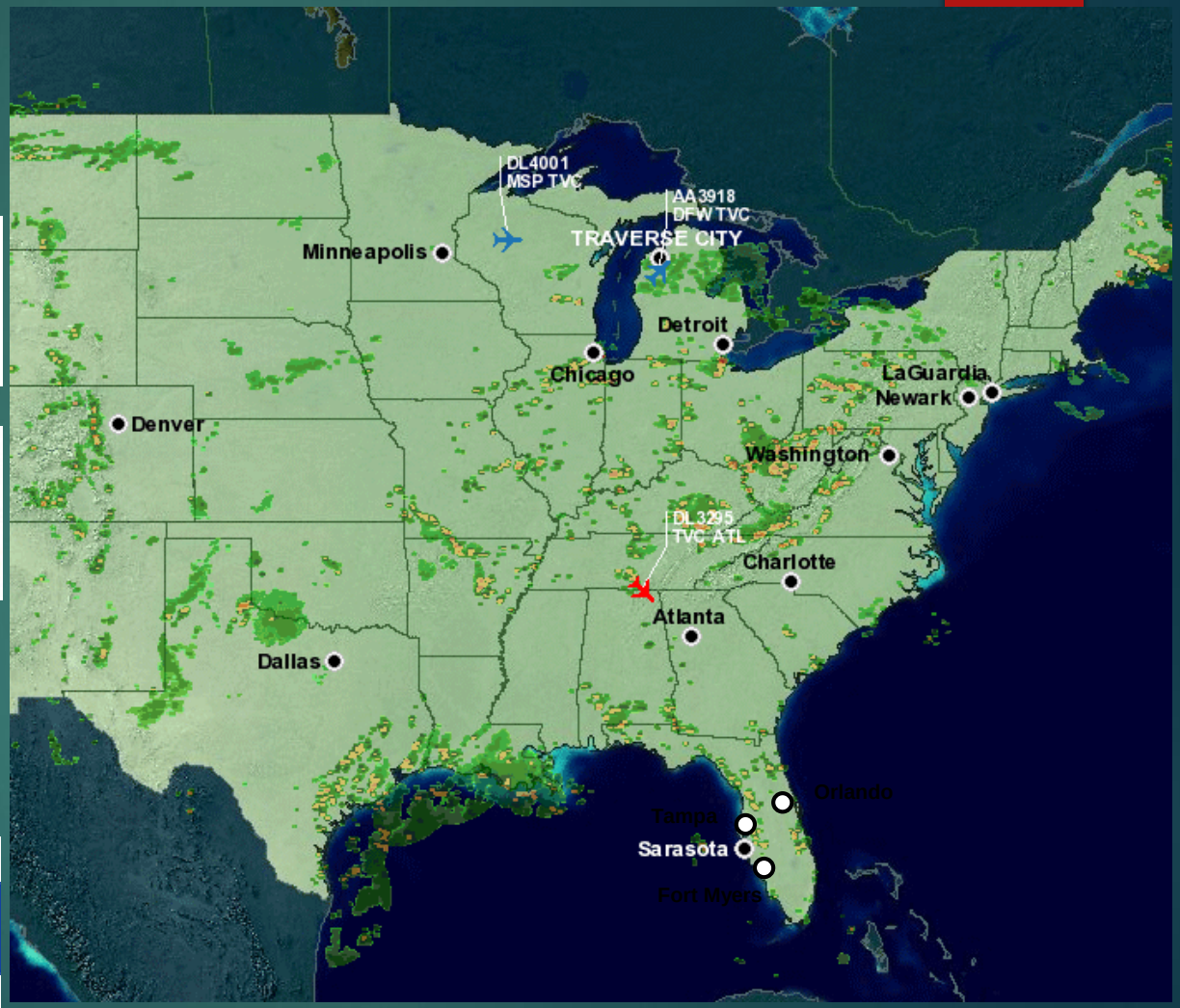
allegiant

American

DELTA

Elite Airways

UNITED



TVC

Compatible Land Use

- Land use on and in the vicinity of Airports (natural and human made) must be reserved for compatible uses to provide for the health, safety, and general welfare of the public
  - This is accomplished through Federal Aviation Regulations, Part 77 and 139, Michigan Aeronautics Code, Michigan Zoning Enabling Act
  - Local zoning also recognizes these hazards and regulates them
    - East Bay Township
    - Garfield Township
    - City of Traverse City
    - Acme Township
    - Peninsula Township
    - Elmwood Township

FAA Form 7460-1Notice of Proposed Construction or Alteration

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§ 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460–1, Notice of Proposed Construction or Alteration. FAA Form 7460–1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earlier.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460–1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

§ 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177
Fax: (817) 222-5920

Website: https://oeaaa.faa.gov

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. NewConstruction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if tiling on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held G P S instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.
ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.
ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 17'3" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at http://store.usgs.gov/. If available, attach a copy of a document ed site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

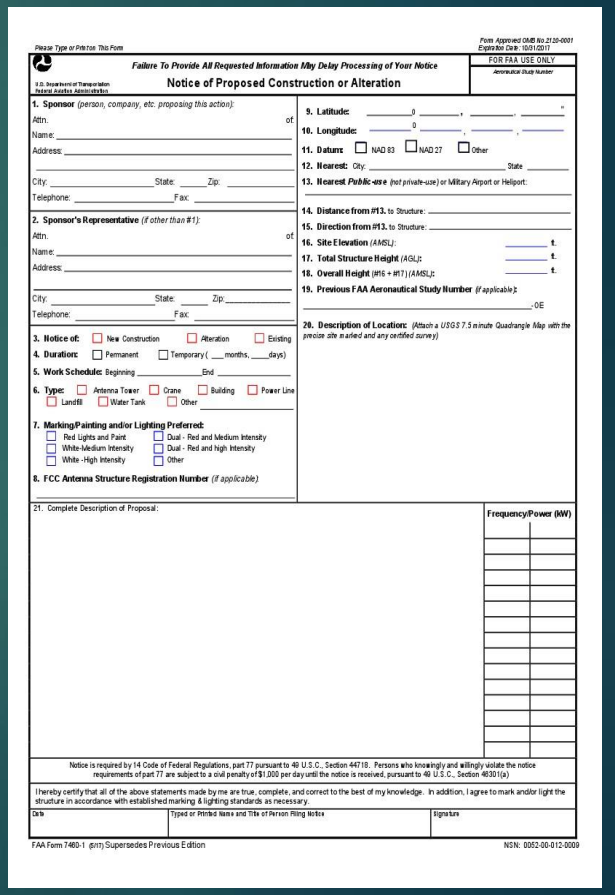
ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

Paperwork Reduction Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory or anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 19 minute per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB control number associated with this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

Form 7460-1 (5/17) Supersedes Previous Edition | Electronic Variable (Adobe) | NSN: 0052-00-012-0009



Please Type or Print on This Form

Form Approved OMB No.2120-0001
Expiration Date: 10/31/2017

Failure To Provide All Requested Information May Delay Processing of Your Notice

FOR FAA USE ONLY
Aeronautical Study Number

U.S. Department of Transportation
Federal Aviation Administration

Notice of Proposed Construction or Alteration

1. Sponsor *(person, company, etc. proposing this action):*
Attn. of:
Name:
Address:
City: State: Zip:
Telephone: Fax:

2. Sponsor's Representative *(if other than #1):*
Attn. of:
Name:
Address:
City: State: Zip:
Telephone: Fax:

3. Notice of: ☐ New Construction ☐ Alteration ☐ Existing
4. Duration: ☐ Permanent ☐ Temporary (____months, ____days)
5. Work Schedule: Beginning End
6. Type: ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line ☐ Landfill ☐ Water Tank ☐ Other
7. Marking/Painting and/or Lighting Preferred:
☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity
☐ White-Medium Intensity ☐ Dual - Red and High Intensity
☐ White -High Intensity ☐ Other
8. FCC Antenna Structure Registration Number *(if applicable)*

9. Latitude: ____° ____' ____.____"
10. Longitude: ____° ____' ____.____"
11. Datum: ☐ NAD 83 ☐ NAD 27 ☐ Other
12. Nearest: City: State
13. Nearest *Public-use* *(not private-use)* or Military Airport or Heliport:
14. Distance from #13. to Structure:
15. Direction from #13. to Structure:
16. Site Elevation *(AMSL)*: ft.
17. Total Structure Height *(AGL)*: ft.
18. Overall Height *(#16 + #17) (AMSL)*: ft.
19. Previous FAA Aeronautical Study Number *(if applicable)*: OE
20. Description of Location: *(Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey)*

21. Complete Description of Proposal:

Frequency/Power (kW)

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a)

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date | Typed or Printed Name and Title of Person Filing Notice | Signature

FAA Form 7460-1 (5/17) Supersedes Previous Edition NSN: 0052-00-012-0009

Federal Regulations and Standards

- **Federal Aviation Regulation Part 139 – Certification of Airports**
  - In a manner authorized by the Administrator, each certificate holder must ensure that each object in each area within its authority that has been determined by the FAA to be an obstruction is removed, marked, or lighted, unless determined to be unnecessary by an FAA aeronautical study. FAA Advisory Circulars contain methods and procedures for the lighting of obstructions that are acceptable to the Administrator.
- **Protecting for Federal Aviation Regulation Part 77**
  - The size of each Part 77 imaginary surface is based on the category of each runway.
  - Categories are based on the type of runway – utility or non-utility and type of runway approach – visual, non-precision or precision instrument.
  - This information must be shown on your Airport Layout Plan (ALP) and kept current.
  - The FAA 5010 Airport Master Report (lines 50-58) identify obstruction data related to Part 77 Approach Surface.
- **Application of Table 3-2 in FAA's AC 150/5300-13A "Design AC".**
  - Table 3-2 Approach/departure standards table (aka "TSS").
  - Per a specific runway type (nine categories in table) based on visual or instrument approach, type of aircraft, and visibility minimums.
  - More recently updated ALPs are showing the application of TSS. TSS cannot be applied to a runway unless shown on an approved ALP.

OBSTRUCTION IDENTIFICATION SURFACES FEDERAL AVIATION REGULATIONS PART 77							
DIM	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON - PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY PIR
		A	B	A	B C	B D	
A	WIDTH OF PRIMARY SURFACE AND APPROACH SURFACE WIDTH AT INNER END	250	500	500	500	1,000	1,000
B	RADIUS OF HORIZONTAL SURFACE	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON - PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT APPROACH
		A	B	A	B C	B D	
C	APPROACH SURFACE WIDTH AT END	1,250	1,500	2,000	3,500	4,000	16,000
D	APPROACH SURFACE LENGTH	5,000	5,000	5,000	10,000	10,000	*
E	APPROACH SLOPE	20:1	20:1	20:1	34:1	34:1	*

- A - UTILITY RUNWAYS
- B - RUNWAYS LARGER THAN UTILITY
- C - VISIBILITY MINIMUMS GREATER THAN 3/4 MILE
- D - VISIBILITY MINIMUMS AS LOW AS 3/4 MILE
- * - PRECISION INSTRUMENT APPROACH SLOPE IS 50:1 FOR INNER 10,000 FEET AND 40:1 FOR AN ADDITIONAL 40,000 FEET

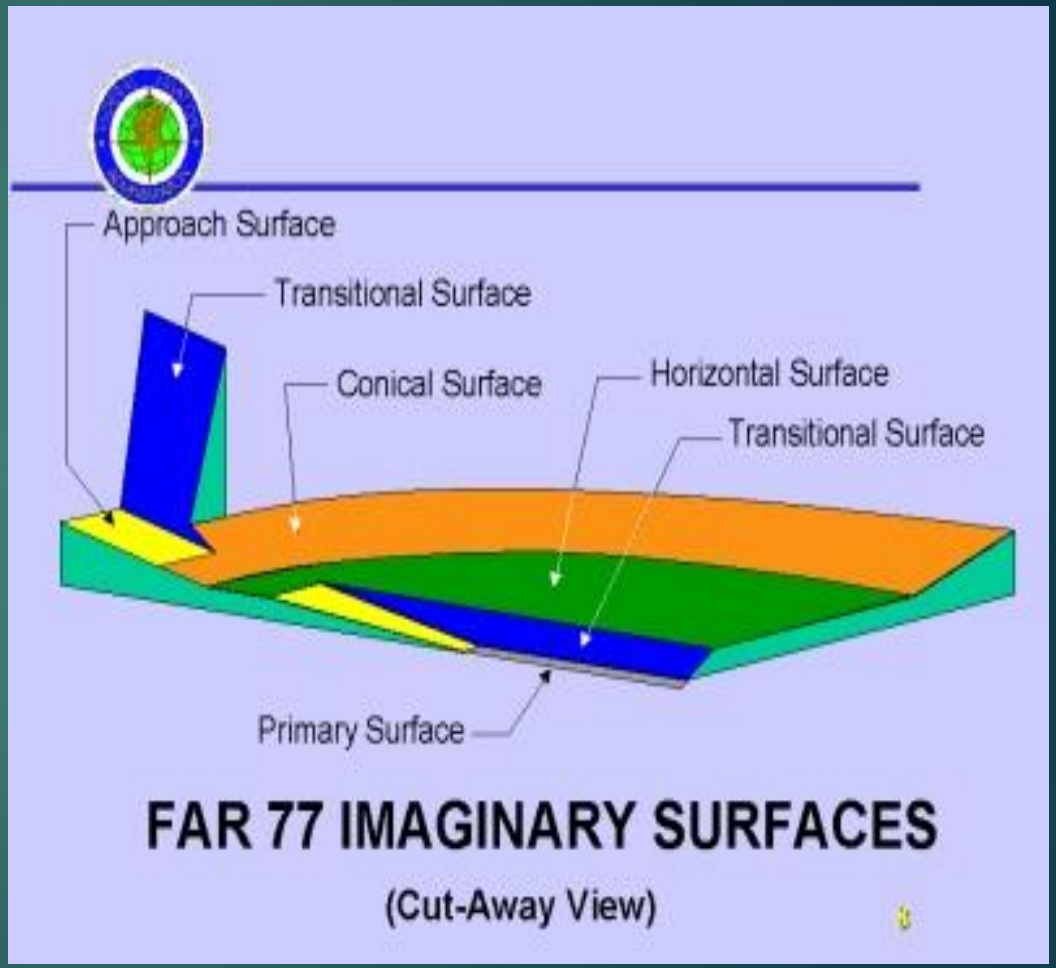


Table 3-2. Approach and Departure Standards Table [1, 2]

	Runway Type	DIMENSIONAL STANDARDS* Feet (Meters)					Slope
		A	B	C	D	E	
1	Approach end of runways expected to serve small airplanes with approach speeds less than 50 knots. (Visual runways only, day/night).	0 (0)	120 (37)	300 (91)	500 (152)	2,500 (762)	15:1
2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more. (Visual runways only, day/night).	0 (0)	250 (76)	700 (213)	2,250 (686)	2,750 (838)	20:1
3	Approach end of runway expected to serve large airplanes. (Visual runways only, day/night).	0 (0)	400 (122)	1,000 (305)	1,500 (457)	8,500 (2591)	20:1
4	Approach end of runways expected to accommodate instrument approaches having visibility greater than or equal to 3/4 statute mile. [3]	200 (61)	400 (122)	3,400 (1158)	10,000 [4] (3048)	0 (0)	20:1
5	Approach end of runways expected to accommodate instrument approaches having visibility minimums less than 3/4 statute mile.	200 (61)	800 (244)	3,400 (1158)	10,000 [4] (3048)	0 (0)	34:1
6 [5]	Approach end of runways expected to accommodate instrument approaches with vertical guidance.	0 (0)	Runway width 200 (61)	1520 (463)	10,000 [4] (3048)	0 (0)	30:1
7	Departure runway ends used for any instrument operations.	0 [6] (0)	See Figure 3-4.				40:1

* The letters are keyed to those shown in Figure 3-2 of AC 150/5300-13A.

General Notes:

1. This table presents the dimensional standards applicable to varying runway types based on normal conditions (e.g. standard 3-degree glidepath angle). Meeting the requirements of this table will protect the use of the runway in both visual and instrument meteorological conditions near the airport while ensuring maximum runway utility. Final published visibility minimums are determined, in part, by applying the criteria described in FAA Order 8260.3.
2. For planning purposes, objects must remain clear of the surfaces provided in this table. The FAA Flight Procedures Team must mitigate existing obstacles that penetrate instrument procedures that cannot be removed, relocated, or lowered. A modification of standards is not issued for the surfaces described in this table, in accordance with FAA Order 5300.1.
3. Marking and lighting of obstacle penetrations to this surface or the use of a Visual Guidance Slope Indicator (VGSI), may avoid displacing the threshold. Contact the Flight Procedures Team if existing obstacles penetrate this surface.
4. 10,000 feet (3048 m) represents a nominal value for planning purposes. For runways with only straight-in approaches, the length is dependent on the TERPS visual descent point or DA point. For runways with both circling and straight-in approaches, the length is the greater of 10,000 feet or the TERPS visual descent point/DA point.
5. The criteria in Row 6 is required in addition to the applicable approach surface established within the table. Applicable to ILS, GLS, LPV, LNAV/VNAV, and RNP lines of minima.
6. Dimension A is measured relative to the TODA (to include clearway).

Federal grant assurances directly related to approaches…….

- Airport sponsors accepting federal AIP funding must agree to certain obligations and conditions associated with receiving the funds. These assurances require the grant recipients to maintain and operate their airports safely & efficiently and in accordance with specified conditions.
- Effective operation & maintenance of airport (#19)
- Hazard removal - Protection of approaches to airport (#20)
- Ensure compatible land use and zoning (#21)
- Adherence to the approved Airport Layout Plan (#29)

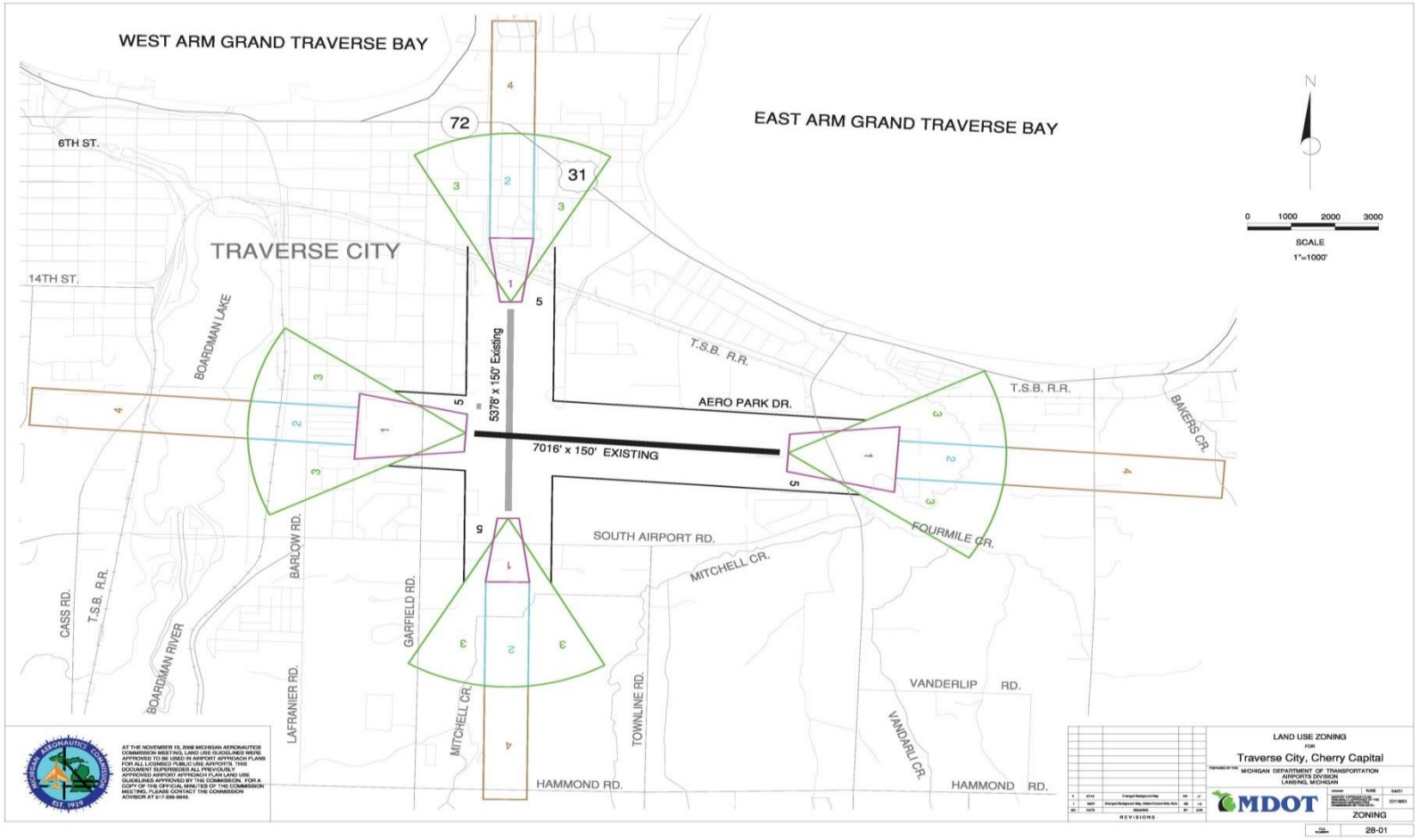
FAA Airport Inspection

- When an FAA Airport Inspector does an inspection at your airport, they provide you with an inspection report and an updated FAA 5010 Airport Master Record.
- They will provide comments about any deficiencies with meeting FAA standards.
- They are reporting Part 77 Obstruction Data on the Airport Master Record 5010 (lines 50-58) among other data updates. It's important for sponsors to review their inspection report and the 5010 in coordination with their current ALP.
- It's important to follow through in a timely manner with taking action on those obstructions identified that affect Part 77 Surfaces.

ALP Obstruction Tables & Approach Sheets

- The sponsor is required by grant assurances to maintain a current Airport Layout Plan (ALP).
- ALPs show runway surface obstruction tables. These tables show a proposed disposition (such as remove, lower, relocate, trim, DONH, etc.) for identified obstructions to Part 77 and TSS, if applied.
- The sponsor is responsible for evaluating their obstruction tables and taking timely action to follow through with the proposed disposition. A review of these tables will be done annually at the MAP meeting.
- If a Part 77 obstruction cannot be resolved or mitigated with the application of TSS, the sponsor may need to have further evaluation done through a FAA Aeronautical Study.
- Any identified obstruction to the TSS should be mitigated as soon as possible.
- The sponsor's ALP should be updated as these obstructions are resolved.

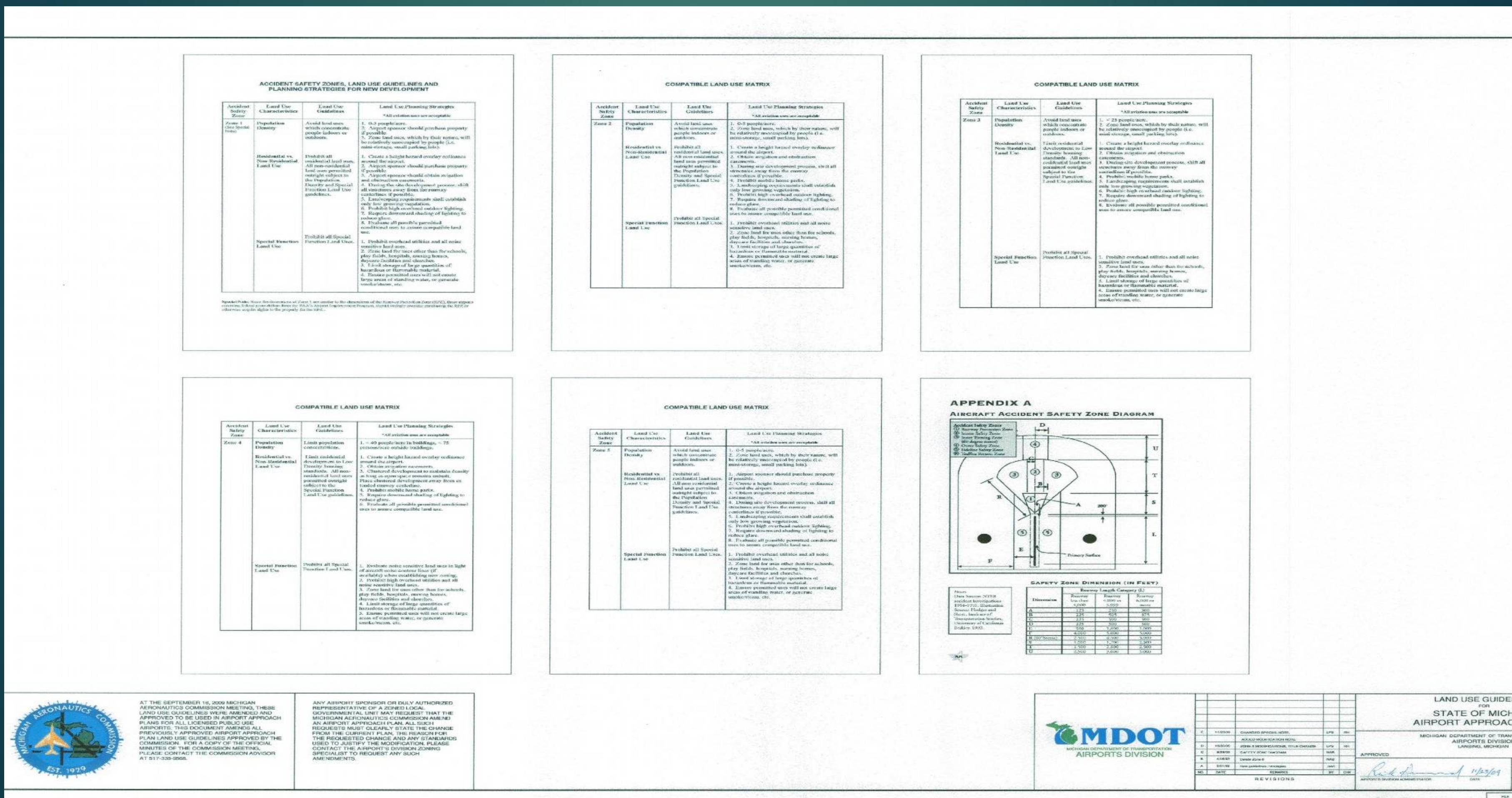
Michigan Approach Plan For TVC



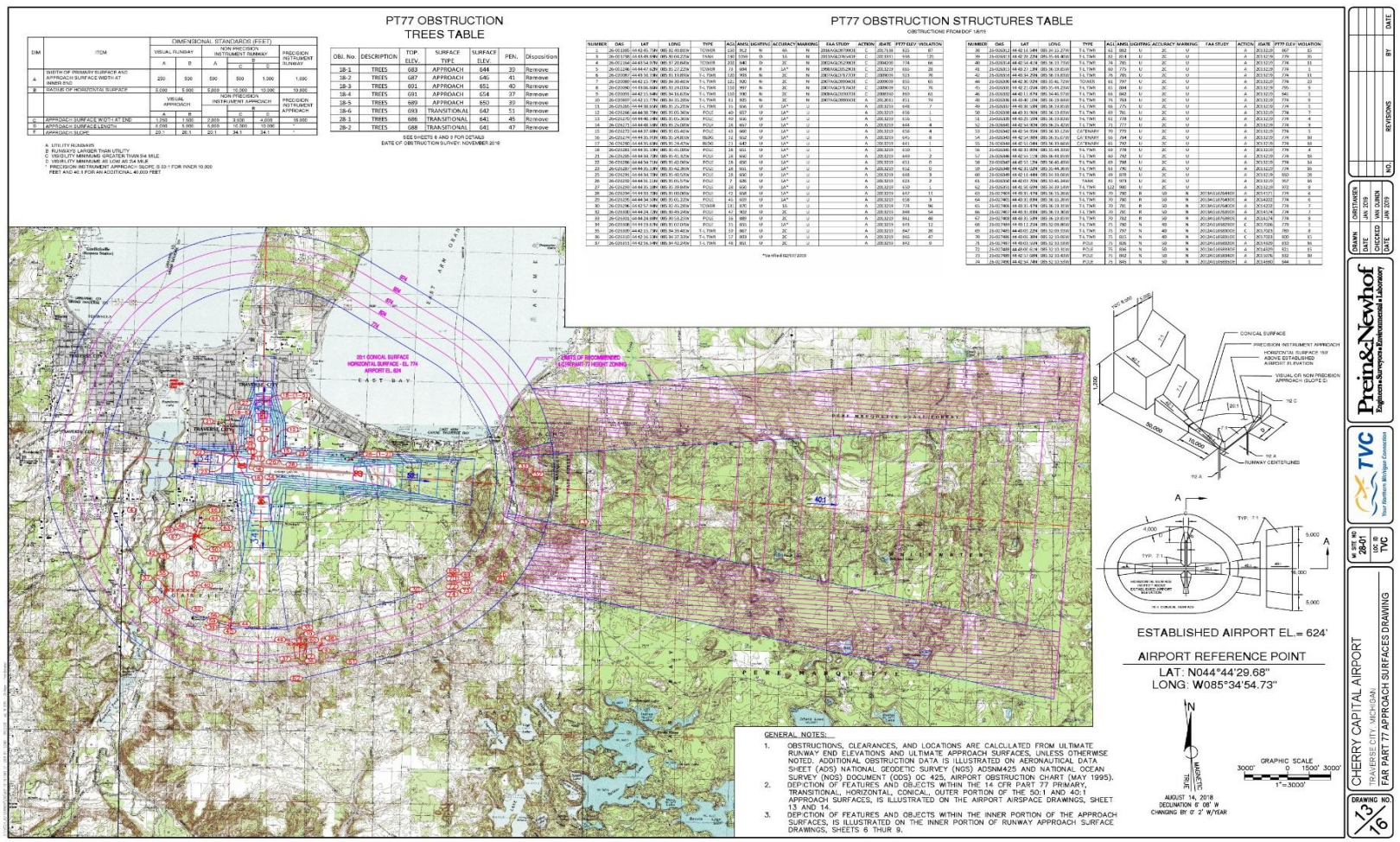
TVC

Michigan Approach Plan For TVC

- Land Use Characteristics
- Land Use Guidelines
- Land Use Planning Strategies



Updated ALP Part 77 Obstruction Plan



DRAFT

Thank You