Appendix H

Agency Correspondence

Aaron Lofurno

From: Ernest.Gubry@faa.gov
Sent: Tuesday, December 07, 2010 9:44 AM
To: Matthew L Bailey
Cc: Aaron Lofurno; David.Welhouse@faa.gov; Kevin Clarke; Ernest.Gubry@faa.gov
Subject: CVX review comments

Matthew
Attached are my comments on the working papers that we will discuss on Wed.
Dave Welhouse also sent comments

Table 2-3 "existing Aircraft Storage", Page 2-11. Do you want to include the TTF hangar space?

Section 2.10 "Environmental Considerations", page 2-38. Can you include a short review of threatened and endangered species in this section?

Section 3, Forecast of Aviation Demand". The FAA generally concurs with your analysis of based aircraft (Table 3-9), operations (Table 3-16), and enplanements (Table 3-20) forecast within this document (as summarized in Table 3-22). However, additional analysis is required on the future critical aircraft design group for the airport. Will this analysis be provided for in the next chapter?

Thanks

Ernest P. Gubry
DET ADO
734 229 2905

RW ARMSTRONG™

August 30, 2011

Ernie Gubry
Federal Aviation Administration
Detroit Airport Districts Office, DET-ADO-600
11677 South Wayne Road, Suite 107
Romulus, MI 48174

Subject: Charlevoix Municipal Airport (CVX) Master Plan Draft

Dear Ernie:

Within this package you will find a copy of the draft-final of the Charlevoix Municipal Airport (CVX) Master Plan Study (one hard copy and one digital copy). As you know, the ALP set (produced by QoE Consulting) should be arriving in the near future, as well. In the interest of keeping forward momentum of the project, we request that you review and provide comments by Friday, September 23rd, 2011. Comments can be directed to the following address:

ATTN: Aaron Lofurno
RW Armstrong
4080 Lafayette Center Dr., Suite 210 A
Chantilly, VA 20151
Fax: (703) 230-0299

If you have any questions, please contact me at 703-230-0300, extension 388, or Kevin Clarke at extension 390. Thanks Ernie, and we look forward to your comments.

Sincerely,

R.W. ARMSTRONG & ASSOC., INC.

Aaron J. Lofurno
Planner, Airports Division

CC: Matt Bailey (CVX)

4080 Lafayette Center Dr. / Suite 210 A / Chantilly, VA 20151
PH 703.230.0300 // FX 703.230.0299
rwArmstrong.com

U.S. Department
of Transportation
**Federal Aviation
Administration**

**Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, MI 48174**

January 18, 2012

Mr. Matthew L. Bailey, Airport Manager
Charlevoix Municipal Airport
210 State Street
Charlevoix, Michigan 49720

Dear Mr. Bailey:

Charlevoix Municipal Airport, Charlevoix, Michigan
Review Comments for the Draft Master Plan Report
Review Comments for the Draft Airport Layout Plan

We have reviewed the draft Master Plan (MP) report and draft Airport Layout Plan (ALP) for the above referenced airport. Based on the Federal Aviation Administration (FAA) Detroit Airports District Office (ADO) review, we offer the following comments:

Master Plan

1. The contents of the MP reflect the views of the airport sponsor, who is responsible for the accuracy of the document. The MP does not necessarily reflect the views or policies of the FAA, and this review does not imply that the FAA agrees with the MP conclusions and recommendations.

2. Before the FAA can approve any proposed MP development for construction, federal law requires us that an independent environmental review be completed. This could involve a Categorical Exclusion, Environmental Assessment or an Environmental Impact Statement. These processes involve public participation as well as extensive review of the justification, all feasible alternatives, environmental and socioeconomic issues. Refer to FAA Order 5050.4B "*National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*". The sponsor should plan for and allow adequate time to complete the environmental process for future development.

3. The FAA will include the proposed runway extension and crosswind runway in our Obstruction Evaluation Airport Airspace Analysis (OEAAA)[1] database. This will allow the FAA, to the extent possible, to protect the airspace for this development. The airport

[1] Public Web Site Address: http://www.OEAAA.FAA.Gov

sponsor should work with the local communities and zoning boards to ensure no structure is constructed that may interfere with the planned runway development.

4. Before any FAA environmental funding request, we will require additional justification of need for the project. At a minimum you will need to document that the longer runway is required for 500 aircraft operations a year. The analysis will need to quantify the cost and benefits of the development. We also need to understand the proposed runway development in terms of all desired/required development at the airport. These requirements can be discussed in detail at the next Michigan Airport Planning (MAP) meeting.

5. One purpose of an MP study is to identify needed long-term airport development. The MP guides airports in selecting cost-effective ways to satisfy aviation demand. The FAA encourages airport sponsors to consider the possible environmental and socioeconomic issues during the planning process. The MP should try to find the best possible means of avoiding, minimizing, or mitigating impacts to sensitive resources. The FAA does not require airports to build facilities. It is up to each airport sponsor to propose ways of providing enough capacity to meet aviation demand. The FAA provides guidance and oversight to ensure that proposed airport development is safe, efficient, and compliant with FAA design standards.

Chapter 1 Introduction

6. No comments.

Chapter 2 Inventory of Existing Facilities and Conditions

7. The airport's current approach ceiling and visibility minimums for the airport are described in Table 2-8, "Weather Classification Criteria", page 2-30. Currently, the Table provides data for 200' & 1000' and 1,000' & 3 miles. A breakout of IFR conditions for a ceiling 300' and visibility of a 1 mile would be useful in determining the benefits of developing approaches with lower minimums.

8. The wind rose data for the proposed crosswind runway will be required for the ALP and MP report. This data should be from the nearest data collection site and include the most recent 10 years of data available.

9. Section 2-8. "Off Airport Land Use Considerations", page 2-35. Do you want to add a paragraph on your grant assurances (number 20, 21) that describes your responsibilities and add a paragraph on the State of Michigan "Tall Structure Act" and the associated land uses/controls?

Chapter 3 Forecast of Aviation

10. Table 3-22 Summary of Forecasts, page 3-33. In general we find the data in this Table to be approvable as your locally developed forecast. Final forecast approval will be provided upon concurrence with the final Master Plan and ALP documents. Current data provided in this report (Appendix B, Table-B3) depicts 300 operations greater than the Airport Reference Code (ARC) B-II for 2009. The airport sponsor should proceed with caution, in designing future elements to B-II standards as you are close to meeting the substantial use threshold of 500 annual operations. Once exceeded the airport sponsor will be required to comply with the C-II design standards as depicted on sheet 5 of the ALP set. We recommend updating the Table to include the full year 2010 data and any 2011 data that is available.

Chapter 4 Facility Requirements

11. Section 4.1 "Airport Reference Code (ARC) and Critical Aircraft", page 4-2. In general, we concur with your determination an ARC of B-II for the existing main runway. We also concur with your long term plan of a C-II ARC for this runway. As we have discussed, the FAA has concerns with the proposed timing to increase the ARC from B-II to C-II. The airport sponsor is responsible for monitoring actual aircraft operations on each runway to ensure that each runway has the proper ARC design standards. The MP needs to discuss the current and future ARC for the crosswind runway. The ALP has A-I for the existing and future ARC. Would this be designed for small aircraft exclusively? We note that the operations in Table 4-1 do not seem to match the data provided in Appendix B.

12. Section 4.3.2 "Runway Length", page 4-10. We note the FAA is no longer supporting the Airport design software program. We suggest adding a footnote to this section that it is no longer in use.

13. Section 4. We recommend the land ownership and usage north of Runway 9 be explained. The ALP depicts the property line at the RSA boundary. However, it seems that the sponsor has additional land use controls in this area. An explanation in the MP report would clarify this apparent discrepancy.

14. Table 4-5 "Airplanes that Make Up 75 Percent and 100 Percent of the Fleet", page 4-12. Any proposed runway extension needs justification and the critical future ARC identified. Additional information would clarify how the CVX critical aircraft family was determined. The ARC for the aircraft in Table 4-5 is not identified. Because the MP is the sponsor planning document, the FAA generally has no issues with an ALP depicting a longer runway. However, if federal funding is to be used for the construction of the runway extension, the project must be eligible, justified, and have FAA environmental approval.

It is very important for the reader of the MP to understand the FAA viewpoint on runway extensions. To be eligible for FAA funding, the airport sponsor must demonstrate that the runway extension would be used by 500 aircraft operations per year of aircraft requiring that runway length. This data is normally provided via a user survey where the aircraft users describe the type of aircraft, and usage that the longer runway would provide.

To be considered for FAA funding the project must be justified. To make this determination the FAA will require development of accurate cost estimates for the project, including all related components of the project and any additional funding requirements at the airport. The financial information would also include non FAA funding sources. This could be extra funding provided by the State, tenants or local sponsor. If the funding plan request includes discretionary funding, or is a capacity project, the FAA will request a benefit cost analysis. The FAA is requesting a benefit cost analysis for any proposed runway extension project that is funded with FAA funds.

After the FAA has reviewed and concurred with these documents, the FAA would allow the airport sponsor to proceed with an environmental study for the proposed development. The environmental study would review: purpose and need, affected environment, alternatives and provide for public and resource agency comments. At the end of this study the FAA would determine if the project can be environmentally approved.

Also any runway extension or rehabilitation project requires the airport sponsor to bring the runway up to current FAA design standards (i.e., RSA, OFA, RPZ). If FAA design standards cannot be met the airport sponsor will need to request a waiver to design standards.

Therefore, we have no objections to the MP report stating a need for a future runway extension. However, the report should be clear, that at this time the FAA currently would not support the use of FAA funding for a runway extension. We understand that to achieve the current runway length of 4,550' local funds where used because it could not be justified for FAA funding. The MP report will also need to clarify the logic for determining the final runway length.

15. Section 4.4 "Crosswind Runway", page 4-19. Based upon the wind data the FAA concurs with your determination that a crosswind runway would be useful for *small aircraft* exclusively at the airport. As state above, the airport will need to present information on potential usage and cost prior to requesting FAA concurrence in the start of environmental review.

16. Figure 4-5 "Potential Crosswind Runway Orientation", page 4-20. Runway 15/33 orientation is not depicted.

17. Section 4.5.1 "Operational Capacity and Efficiency", page 4-24. FAA Order 5090.3c "*Field Formulation of the Nation Plan of Integrated Airport System (NPIAS)*" does not have the recommendation for a parallel taxiway with 20,000 annual operations. This

section should discuss the Runway to Taxiway separation distance and the impact on visibility minimums for the runway. A parallel taxiway at 300' separation would be required for ARC C-II aircraft. We concur with your determination that a parallel taxiway for the crosswind runway is not justified for this runway. We concur with your determination that the paved taxiway in the approach to Runway 27 should be removed. We would recommend the airport sponsor consider fixing this prior to the possible runway extension. This taxiway relocation may be accomplished as a stand alone project.

18. Section 4.9.2 "Part 77 Concerns", page 4-39. We have enclosed the FAA report from the OEAAA database for this airport. You should verify the report data and adjust the ALP if necessary.

19. Section 4.9.4 "Approach Upgrade Potential", page 4-40. The 0.6% from Table 2-8 is the time the weather minimums are below 200' and the visibility minimums are less than ½ mile, not the time that aircraft cannot land at the airport due to bad weather based upon your current approach minimums. We suggest you conduct an analysis of how much time the airport is closed due to weather minimums being below the current available approach minimums of 300' and 1 mile. This may provide the justification for improvements at the airport that would lower the minimums on the main runway. Additionally, a survey of the based aircraft and major aircraft users to determine if they currently have or would acquire any required navigational equipment so they are able to operate with the lower visibility minimums. Obtaining lower visibility minimums may result in additional runway/taxiway separation.

20. Figure 4-11 "Potential Obstructions to Airspace", page 4-42. The pink highlighted area is not identified in the legend. Are there obstructions issues with the Runway 9 end?

21. Section 4.11 "Summary of Facility Requirements", page 4-43. Overall this is the airport sponsors planning document. However, the FAA has questions/comments on the following items that did not appear to be discussed in the MP:

    - The ARC B-II aircraft that would generate 500 operations a year to justify the proposed runway extension to 5,500'.
    - Through-the-fence operations at the airport are not discussed.
    - Non aeronautical use of airport dedicated land.
    - Mineral rights issues. Does the airport own and control the minerals rights under the runway and associated airport land?
    - Taxiway in the Runway 27 RPZ.
    - Requirements for lower approach minimums for the airport are not discussed.

Chapter 5 Airport Development Concepts

22. Table 5-1 "Evaluation Criteria", page 5-2. We have explained the criteria for federal funding of projects. In general we have doubts to claims of "improves utility and operational margin of safety" as justification for a project. All operations at the airport

must be conducted in a safe manner. It is rare that safety is involved in justification of a runway extension.

23. Section 5.1.3 "Concept A2: 5,500 foot Runway with Declared Distances", page 5.5. Refer to FAA Advisory Circular 150/5300-13 "*Airport Design*". Appendix 14 paragraph 1 as it provides the criteria for the use of declared distances. Based upon this criterion, use of declared distance concept to increase runway length is not valid. Therefore, the FAA does not concur in the discussion of using declared distances to achieve a longer runway for this airport.

24. Table 5-2, "Primary Runway Impact and Cost Comparison", page 5-11. The cost data in this Table does not match the data in Appendix D.

25. Section 5.1.5 "Comparison and Recommendations, page 5-12. Your recommendation is for a 5,500' using the declared distance concept. The ALP that was developed depicts a 5,000' proposed runway. The MP needs to define the criteria the determination to use concept A-3 (proposed runway at 5,000'). Also note the FAA will not support the use of declared distances for the runway extension (see comment 23).

26. Figure 5-5 "Long Term Development Concept C-II Airfield", page 5-17. There are several errors with this drawing such as runway length and location.

27. Section 5.2 "Crosswind Runway", page 5-18. In addition to the October to April data that was provided for each alternative, the report will need to include the yearly data for crosswind coverage. The wind data for the proposed alignment will also need to be included on sheet 2 of 15 of the ALP set.

28. Section 5.2.6 "Comparison and Recommendation", page 5-27. We understand the planning assumptions that went into the airport sponsor decision to propose concept B-4. This is a proposed new crosswind runway alignment of 15/33 and length of 2,200'. The FAA will enter this runway data into the FAA's OEAAA database. This will allow the FAA to include the proposed runway in making determinations under 14 CFR Part 77. Prior to the initiation of the environmental review, the airport sponsor will need to provide additional information concerning project eligibility, justification, financial plans, and a benefit cost analysis.

29. Section 5-3 "Taxiway System", page 5-31. The taxiway located in the Runway 27 approach should be relocated with or without the runway extension, due to its current location. The MP states "The extension on the western end, if pursued in the near-term, should be designated to Approach Category B Standards (i.e. 240-foot separation distance) since this pavement would be likely have to be removed in the event of a future C-II upgrade (as shown in Figure 5-5)." We believe that any extension to the parallel taxiway should be planned at 300' of separation from the runway at this time. At the time of construction it may be prudent to construct with 240' of separation distance. We also

suggest including discussions concerning a taxiway separation that would allow for lower approach visibility minimums.

30. Section 5.4 "Terminal Building", page 5-31. The proposed design for the new terminal size is twice the 20-year projected need. General Aviation space in a commercial terminal is not eligible. Additional comments on the Terminal Study will be addressed in separate correspondence.

31. Section 5.5 "Apron and Aircraft Parking", page 5-35 does not define the design Aircraft Reference Code used.

32. Figure 5-14 "Midfield Area Development", page 5-40. No part of the apron can be located in the Runway Visibility Zone (RVZ).

33. Figure 5-15, "Northern Area Development", page 5-41. We recommend the MP discuss and the ALP depict the relocated taxiway to the existing runway end, as the timing of the future runway is not certain.

34. Section 5.9 "Airport Access", page 5-42. Hangar access for current tenants is not defined. Clarify the "rail spur" (i.e. real railroad track or a hiking trail) reference and provide information concerning any airport design surfaces. The location is not identified in any figure.

35. Section 5.11 "Preferred Airport Development Plan", page 5-43. We concur from your planning data to depict a runway extension on the ALP developed to the ARC C-II design standards. We attempted to include this information into the FAA OEAAA database, but were unable to due to data issues. (see ALP comments below) When correct data is provided, this proposed ultimate runway will be included in the database. See prior comments concerning taxiway development.

Chapter 6 Implementation Plan

36. Section 6.1 "Development Plan by Phase", page 6-1. We recommend inclusion of documentation such as user support of the planned runway length, financial plan, cost benefit analyst, etc. required to start the environmental review process

37. Section 6.1.1 "Phase 1: Near-Term Planning Horizon (0-5 Years)", page 6-1. Review the second paragraph on page 6-2 concerning the runway extension. It seems to be out of place. It should be noted that the decision to extend the runway is a sponsor decision. If the sponsor decides to extend the runway, then it must meet FAA airport design standards and have FAA environmental approval. The FAA reviews your justification /documentation, we do not develop it and our review does not guarantee its funding.

38. Section 6.1.2 "Phase 2 Mid-term Planning Horizon (5-10 years)", page 6-2. On page 6-3 in this document, you mention the "parks department" in conjunction with the DNR.

Identify the referenced "Park" near or on the airport and information on the proposed expansion. Note that a federal environmental finding is only valid for a three year period.

39. Table 6-1 "Preferred Development Plan and Preliminary Cost Estimates – by Phase", page 6-5. The costs in Appendix D do not match the latest ACIP submission. Based upon the anticipated cost of the crosswind runway, we recommend the development of an alterative where the existing crosswind runway remains open, as a new crosswind runway does not seem to be financially feasible.

40. Table 6-2- "Proposed 10 Year Airport Capital Improvement Program (ACIP)", page 6-7. Once the project is defined and the FAA has concurred with the project eligibility and justification, the MAP meeting should include discussions related to funding viability and phasing options. This would occur prior to starting the environmental study. Completing a thorough financial plan will assist the airport sponsor in developing a reasonable approach to completing the project. Inclusion of proposed runway project in the MP does not guarantee future federal funding.

    We note that in Appendix D, the construction estimate for Runway 9-27 is $2,020,000, in this Table, the cost for the runway and taxiway is $1,852,000. Please verify these figures and explain differences. We also note the construction cost for Runway 15/33 is estimated in Appendix D at $3,490,000 and in the Table it is $2,981,400. The land costs from Appendix D do not to match up with the cost in this Table. Explain the cost differences between the tables and appendices. The FAA will require a current detailed cost estimate of all projects and related components prior to starting any environmental review for a major project.

Chapter 7 Financial Analysis

41. Table 7-1 "ACIP Projects Costs and Funding Sources", page 7-1. See previous comments on funding.

42. Section 7.1.1 "Federal Grants", page 7-2. See previous comments on funding.

Chapter 8 Airport Plans

43. See detailed comments under ALP review section below. We would recommend including the ALP checklist in the Appendix I.

Appendix A to I

44. See detailed comments above concerning aircraft operations and cost estimates.

45. The MP report should discuss through-the-fence conditions and any wildlife hazard analysis work that has been done. A discussion of the ball fields needs to be included the MP report.

Airport Layout Plan Comments

Approval of the ALP is not a commitment of Federal funding for the proposed development. The Federal Aviation Administration (FAA) has agreed with the proposed development for planning purposes only, based on current safety, utility, and efficiency standards. Development should comply with approved standards applicable at the time of construction. The airport sponsor will need to provide additional information so project eligibility and justification can be determined before seeking FAA financial participation.

Title and Approval Sheet 1/15

46. The FAA will be the agency who formally approves the ALP set. We will require space for our approval letter on the cover sheet.

47. The Index of Sheets Table for sheet 12 does not match what is indicated on sheet 12.

Airport Data Sheet 2/15

48. Data for proposed Runway 15/33 should be included in the wind rose and a separate wind coverage data table.

49. The source (location) of the wind rose data should be referenced. The source should be located as close to the airport as possible and represent the last 10 years of data.

50. Ultimate Runway 15/33 end coordinate data is incorrect. This should be validated and resubmitted so the FAA can enter the proposed runway into the OEAAA database.

51. At our recent MAP meeting there was discussion of the need to lower the visibility minimums for Runway 9/27. This is not reflected in the future/ultimate Runway Data Table. If the minimums are lowered and **any** airport design standards are impacted (including RPZ's), subsequent sheets within the ALP need to be updated.

52. The design aircraft for existing Runway 4/22 is not identified.

Existing Airport Layout Plan Sheet 3/15

53. It appears the airport does not own or control the primary surface to the north of Runway 9/27. Based on discussions with the airport authority there is an easement or agreement associated with the primary surface, the existing fencing, and the adjacent property owner. Please add a footnote explaining this, or depict a property boundary line (or easement hatching) that portrays the airport authority control over this land. The MP report should also discuss this feature.

54. There appear to be ball fields located on the northwest portion of airport property. Further discussion with the ADO on this usage should occur. If this land is not being

used for, and has no foreseeable future need for aeronautical purposes, the potential for a concurrent use or land release from aeronautical purposes should be explored.

55. Clarify why there is a "red box" around the NDB.

56. The ground contours for the west side mining pit are hard to read. Please clarify.

Future Airport Layout Plan Sheet 4/15

57. The ADO understands that CVX is currently pursuing reduced minimums with a potential LPV approach. In the event that minimums are reduced below 1 mile, a larger RPZ would result (1,700' x 1,000' x 1,510'). CVX is responsible for controlling the RPZ, preferably in fee. Also, validate the impacts of lower minimums on the taxiway to runway separation. The FAA will not support lower approach minimums unless the runway can meet the new design standards including RPZ requirements.

58. If Runway 4/22 remains, verify the need to acquire additional land in the Runway 4 RPZ.

59. Prior to actual acquisition of property to the south of the runway, FAA will need to understand and concur with future aviation development.

60. Clarify the usage of the 50' railroad easement. The ALP should include a note on this item.

61. Clarify the easement over the RPZ for Runway 9. Note the relationship between the airport and land owner.

62. Clarify and identify the purpose of the taxiway from the ramp north of Runway 27. Identify if it is a private taxiway. If it is a private taxiway, then no Federal dollars can be used to maintain it. Clarify why the taxiway is located in the RPZ of Runway 27.

63. Verify if there will be any tail height issues with aircraft parked on the southwest corner of expanded apron and Runway 33.

64. Provide short-term options for the taxiway in the Runway 27 approach prior to any proposed runway extension. These options should eliminate the existing taxiway that crosses the RPZ.

65. The size of the RPZs should be included.

66. No apron can be constructed in the RVZ of Runway 9 and 33.

Potential Ultimate Airport Layout Plan Sheet 5/15

67. Runway 15/33 is mislabeled as 9/27.

68. Ultimate Runway 15/33 end coordinate data is incorrect.

69. US 131 appears to be located in the OFA of Runway 27. If this is correct, an airport design standards, modification to design standards will be required for US 131. The runway should be developed to allow for an interior service road in this area.

70. No service road around Runway 27 is depicted. If vehicles cross Runway 9/27 to get to/from the north/south side of the airport, an interior service road is strongly recommended. The depicted condition could increase the number of runway incursions at your airport.

71. The existing side walk in the Runway 27 approach relocation is not depicted.

72. Explain why part of the Runway 27 RPZ is not being acquired.

73. Add a note explaining the distance Runway 9 threshold is shifted to the east.

74. Explain what happened to taxiway from Runway 27 to hanger B as depicted on the previous sheet. It is no longer depicted.

75. Explain why hangars J and H appear to be in the OFA for Runway 9/27.

76. Prior to actual acquisition of property to south of the runway, FAA will need to understand and concur with future aviation development.

Airport Building Layout – West Side Sheet 6/15

77. We concur with the need to acquire land for Hangar "K". Prior to actual acquisition of property with the mini storage and the land to Bridge Street, the FAA will need to understand and concur with the proposed future aviation development.

78. This sheet only depicts future conditions. Depict and note any changes that will occur with the ultimate development. We need to ensure that buildings constructed would not have to be removed for ultimate development conditions. Describe the impacts, if any, from the existing crosswind runway. There is a chance that the building construction would occur prior to construction of the new crosswind runway.

79. Add note on the railroad easement.

80. Future apron cannot be constructed in the RVZ.

Airport Building Layout – East Side Sheet 7/15

81. This sheet only depicts future conditions. Depict and note any changes that will occur with the ultimate development. We need to ensure that building constructed would not have to be removed for ultimate development conditions. It appears that some of the future apron would be useless with ARC C-II design standards. The Ultimate conditions can be depicted on a separate sheet.

82. Describe the impacts to the terminal hangar A with construction of the proposed new terminal building.

83. Explain why the AWOS is being relocated.

84. Discuss why a taxiway goes from the hangar B area to the sidewalk inside the RPZ. A discussion of this situation was not in the MP report.

Existing Runway 9 and 27 Approach Sheet 8/15

85. See comment 85 concerning the taxiway from hangar B.

86. Include an aircraft and tail height on the existing taxiway in the RPZ. This should also be listed in the obstruction table. Identify if there is a penetration to the approach or departure surfaces.

87. Runway 9/27 approach slopes for FAR Part 77 should be 34:1 not 20:1[2]. The Runway 27 approach slope needs to be revised to reflect this. Identify any additional obstructions to the 34:1 approach surface.

Future Runway 9 and 27 Approach Sheet 9/15

88. We will require an ultimate Runway 9/27 approach sheet.

89. See comments 86-88.

90. Identify if there is a need to acquire a property interest in the Runway 9 approach.

Existing Runway 4-22 Approach Sheet 10/15

91. No comments.

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[2] The 20:1 surface is only for visual runway and utility runways. Runway 9/27 is a larger than utility runway with visibility minimums greater than ¾ mile.

Future Runway 15/33 Approach Sheet 11/15

92. If you will be requesting an approach with ¾ mile visibility minimums a clear 34:1 approach will be required.

Obstruction Table Sheet 12/15

93. A data table for Runway 27 Ultimate is required.

94. Clarify if you are requesting a determination of no hazard for any objects.

95. The Current Runway 9/27 approach slopes for FAR Part 77 should be 34:1 not 20:1[3]. This table needs to be revised to reflect this. Identify additional obstructions to the 34:1 approach surface and their proposed disposition.

FAR Part 77 Sheet 13/15

96. Data is enclosed from the OEAAA database of obstructions near the airport and should be reviewed for this sheet.

Land Use Plan Sheet 14/15

97. Explain how the noise contour was developed for this drawing. No support information is in the MP report for these contours. The year 2020 contour appears inconsistent with the aircraft types and operations for an airport of this size.

Airport Property Map Sheet 15/15

98. Identify if this plan sheet is for the future or ultimate development.

99. Data for existing land needs to be provided.

100. Additional information on the land ownership north of Runway 9 needs to be provided.

101. We recommend an aerial photograph sheet of the airport be included if available.

Summary

When the above comments have been incorporated into an updated ALP set, please forward one ALP set to my attention, along with a completed ALP checklist. When I receive the updated ALP set and the necessary changes have been verified, I will request 8 sets to initiate an airspace study.

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[3] The 20:1 surface is only for visual runway and utility runways. Runway 9/27 is a larger than utility runway with visibility minimums greater than ¾ mile.

Please contact me with any questions or to discuss any of the information or above comments in more detail.

Sincerely,

Ernest P. Gubry
Detroit Airports District Office

Enclosure: Part 77 obstruction data for CVX airport

cc: Mr. Mike Borta (QoE Consulting – Lansing, MI)
Mr. Mark Grennell (MDOT)

Federal Aviation Administration
Airport Part 77 Report (Civilian and Military)
Airport Name: CHARLEVOIX MUNI
Generated By Ernie Gubry on Tue Nov 22 15:11:21 EST 2011

Obstruction Evaluation

Locator ID:	CVX	**Latitude:**	45°18'17.20"N
Source:	NASR	**Longitude:**	85°16'31.20"W
Ownership Type:	Public	**Elevation:**	669
Facility Use Type:	Public	**City:**	CHARLEVOIX
Site Number:	09654.*A	**State:**	MI
SIAPs:	STANDARD		

Obstruction Standards for OE Cases

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
1994-AGL-2274-OE	OLD	Antenna - Side Mount	45°10'49.00"N	85°05'50.00"W	1074	602	1676
77.17(a)(1) - Exceeds By 103 feet							
1996-AGL-4098-OE	DET-NNR	Other w/o Antenna	45°19'01.02"N	85°18'02.25"W	601	315	916
77.17(a)(2) - Exceeds By 47 feet							
77.17(a)(2)(ARP) - Exceeds By 47 feet							
1998-AGL-2485-OE	DET-DNH	Other w/o Antenna	45°11'31.86"N	85°06'10.58"W	950	500	1450
77.17(a)(1) - Exceeds By 1 foot							
1998-AGL-3181-OE	DET-DNE	Other w/o Antenna	45°11'54.33"N	85°19'58.90"W	786	500	1286
77.17(a)(1) - Exceeds By 1 foot							
2001-AGL-2372-OE	DET-EBO	Other w/o Antenna	45°18'09.82"N	85°15'51.84"W	831	190	1021
77.17(a)(2) - Exceeds By -10 feet							
77.17(a)(2)(ARP) - Exceeds By -10 feet							
2001-AGL-2373-OE	DET-EBO	Other w/o Antenna	45°18'08.52"N	85°15'48.64"W	831	190	1021
77.17(a)(2) - Exceeds By -10 feet							
77.17(a)(2)(ARP) - Exceeds By -10 feet							
2001-AGL-2374-OE	DET-EBO	Other w/o Antenna	45°18'08.92"N	85°15'46.94"W	831	190	1021
77.17(a)(2) - Exceeds By -10 feet							
77.17(a)(2)(ARP) - Exceeds By -10 feet							
2001-AGL-2375-OE	DET-EBO	Other w/o Antenna	45°18'12.12"N	85°15'42.54"W	831	190	1021
77.17(a)(2) - Exceeds By -10 feet							
77.17(a)(2)(ARP) - Exceeds By -10 feet							
2001-AGL-3712-OE	DET-DPH	Other w/o Antenna	45°18'50.32"N	85°17'32.05"W	594	323	917
77.17(a)(2) - Exceeds By 48 feet							
77.17(a)(2)(ARP) - Exceeds By 48 feet							
2001-AGL-3713-OE	DET-DPH	Other w/o Antenna	45°18'56.72"N	85°17'41.85"W	594	323	917
77.17(a)(2) - Exceeds By 48 feet							
77.17(a)(2)(ARP) - Exceeds By 48 feet							
2001-AGL-3714-OE	DET-DPH	Other w/o Antenna	45°19'15.12"N	85°18'00.25"W	587	323	910
77.17(a)(2) - Exceeds By 41 feet							
77.17(a)(2)(ARP) - Exceeds By 41 feet							

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
2001-AGL-3715-OE	DET-DPH	Other w/o Antenna	45°19'07.62"N	85°18'09.55"W	593	323	916
77.17(a)(2) - Exceeds By 47 feet							
77.17(a)(2)(ARP) - Exceeds By 47 feet							
2001-AGL-3716-OE	DET-DPH	Other w/o Antenna	45°18'58.32"N	85°18'13.05"W	595	323	918
77.17(a)(2) - Exceeds By 49 feet							
77.17(a)(2)(ARP) - Exceeds By 49 feet							
2001-AGL-3717-OE	DET-DPH	Other w/o Antenna	45°18'48.62"N	85°18'26.05"W	588	323	911
77.17(a)(2) - Exceeds By 42 feet							
77.17(a)(2)(ARP) - Exceeds By 42 feet							
2001-AGL-3718-OE	DET-DPH	Other w/o Antenna	45°18'01.02"N	85°18'35.25"W	634	323	957
77.17(a)(2) - Exceeds By 88 feet							
77.17(a)(2)(ARP) - Exceeds By 88 feet							
2001-AGL-3719-OE	DET-DPH	Other w/o Antenna	45°18'00.72"N	85°18'50.05"W	630	323	953
77.17(a)(2) - Exceeds By 84 feet							
77.17(a)(2)(ARP) - Exceeds By 84 feet							
2001-AGL-3720-OE	DET-DPH	Other w/o Antenna	45°17'54.52"N	85°19'02.35"W	626	323	949
77.17(a)(2) - Exceeds By 80 feet							
77.17(a)(2)(ARP) - Exceeds By 80 feet							
2001-AGL-3721-OE	DET-DPH	Other w/o Antenna	45°17'47.52"N	85°19'12.55"W	615	323	938
77.17(a)(2) - Exceeds By 69 feet							
77.17(a)(2)(ARP) - Exceeds By 69 feet							
2001-AGL-3722-OE	DET-DPH	Other w/o Antenna	45°17'39.12"N	85°19'06.45"W	623	323	946
77.17(a)(2) - Exceeds By 77 feet							
77.17(a)(2)(ARP) - Exceeds By 77 feet							
2001-AGL-3723-OE	DET-DPH	Other w/o Antenna	45°17'28.12"N	85°19'07.05"W	619	323	942
77.17(a)(2) - Exceeds By 73 feet							
77.17(a)(2)(ARP) - Exceeds By 73 feet							
2001-AGL-3724-OE	DET-DPH	Other w/o Antenna	45°17'19.22"N	85°19'09.05"W	620	323	943
77.17(a)(2) - Exceeds By 74 feet							
77.17(a)(2)(ARP) - Exceeds By 74 feet							
2001-AGL-3725-OE	DET-DPH	Other w/o Antenna	45°17'10.42"N	85°19'23.65"W	629	323	952
77.17(a)(2) - Exceeds By 83 feet							
77.17(a)(2)(ARP) - Exceeds By 83 feet							
2001-AGL-3726-OE	DET-DPH	Other w/o Antenna	45°17'10.02"N	85°19'39.36"W	620	323	943
77.17(a)(2) - Exceeds By 74 feet							
77.17(a)(2)(ARP) - Exceeds By 74 feet							
2001-AGL-3727-OE	DET-DPH	Other w/o Antenna	45°17'09.01"N	85°19'54.46"W	621	323	944
77.17(a)(2) - Exceeds By 75 feet							
77.17(a)(2)(ARP) - Exceeds By 75 feet							
2001-AGL-3728-OE	DET-DPH	Other w/o Antenna	45°17'00.01"N	85°19'53.26"W	635	323	958
77.17(a)(2) - Exceeds By 89 feet							
77.17(a)(2)(ARP) - Exceeds By 89 feet							
2001-AGL-3729-OE	DET-DPH	Other w/o Antenna	45°16'49.21"N	85°19'53.86"W	643	323	966
77.17(a)(2) - Exceeds By 97 feet							
77.17(a)(2)(ARP) - Exceeds By 97 feet							

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
2002-AGL-5613-OE	DET-DPH	Antenna Tower	45°20'48.00"N	85°07'46.22"W	778	1700	2478
77.17(a)(1) - Exceeds By 1201 feet							
2002-AGL-6589-OE	DET-DPH	Antenna Tower	45°20'48.03"N	85°07'46.22"W	768	1569	2337
77.17(a)(1) - Exceeds By 1070 feet							
2003-AGL-1161-OE	DET-DPH	Antenna Tower	45°08'46.00"N	85°15'12.00"W	768	1560	2328
77.17(a)(1) - Exceeds By 1061 feet							
2003-AGL-3062-OE	DET-EBO	Antenna - Side Mount	45°10'49.00"N	85°05'50.20"W	1074	602	1676
77.17(a)(1) - Exceeds By 103 feet							
2009-WTE-3442-OE	DET-NPH	Wind Turbine	45°16'22.80"N	85°18'36.30"W	702	425	1127
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3443-OE	DET-NPH	Wind Turbine	45°16'23.80"N	85°18'13.60"W	690	425	1115
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3444-OE	DET-NPH	Wind Turbine	45°16'34.10"N	85°18'36.00"W	684	425	1109
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3445-OE	DET-NPH	Wind Turbine	45°16'43.20"N	85°18'30.30"W	673	425	1098
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3446-OE	DET-NPH	Wind Turbine	45°16'49.10"N	85°18'17.70"W	680	425	1105
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3447-OE	DET-NPH	Wind Turbine	45°16'58.40"N	85°18'35.20"W	673	425	1098
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3448-OE	DET-NPH	Wind Turbine	45°16'59.80"N	85°18'19.10"W	675	425	1100
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							
2009-WTE-3449-OE	DET-NPH	Wind Turbine	45°17'18.10"N	85°18'36.20"W	644	425	1069
77.17(a)(2) - Exceeds By 200 feet							
77.17(a)(2)(ARP) - Exceeds By 200 feet							
2009-WTE-3450-OE	DET-NPH	Wind Turbine	45°17'21.80"N	85°18'09.00"W	670	425	1095
77.17(a)(2) - Exceeds By 225 feet							
77.17(a)(2)(ARP) - Exceeds By 225 feet							

Part 77 Obstructions for OE Cases - Imaginary Surfaces

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
1990-AGL-1483-OE	OLD	Crane	45°18'06.00"N	85°16'54.00"W	650	170	820
77.19(a) - Horizontal Exceeds By 1 foot							
77.19(e) - Transitional Exceeds By 48 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 49 feet on Runway 09P/27P(OEAAA)							
1990-AGL-1923-OE	OLD	Other w/o Antenna	45°18'06.00"N	85°16'54.00"W	650	135	785
77.19(e) - Transitional Exceeds By 13 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 14 feet on Runway 09P/27P(OEAAA)							

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
1990-AGL-2392-OE	OLD	Other w/o Antenna	45°18'06.00"N	85°16'54.00"W	678	135	813
77.19(a) - Horizontal Exceeds By -6 feet							
77.19(e) - Transitional Exceeds By 41 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 42 feet on Runway 09P/27P(OEAAA)							
1996-AGL-4098-OE	DET-NNR	Other w/o Antenna	45°19'01.02"N	85°18'02.25"W	601	315	916
77.19(b) - Conical Exceeds By 52 feet							
1998-AGL-3594-OE	DET-DNE	Other w/o Antenna	45°18'07.36"N	85°16'29.56"W	677	43	720
77.19(e) - Transitional Exceeds By 14 feet on Runway 04/22(NASR)							
77.19(e) - Transitional Exceeds By 14 feet on Runway 04/22(OEAAA)							
2000-AGL-2719-OE	DET-EBO	Other w/o Antenna	45°18'09.82"N	85°15'51.69"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 55 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 69 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2720-OE	DET-EBO	Other w/o Antenna	45°18'08.58"N	85°15'48.44"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 28 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 42 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2721-OE	DET-EBO	Other w/o Antenna	45°18'08.97"N	85°15'46.70"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 28 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 42 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2722-OE	DET-EBO	Other w/o Antenna	45°18'12.32"N	85°15'46.71"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 75 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 89 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2723-OE	DET-EBO	Other w/o Antenna	45°18'12.11"N	85°15'42.23"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 59 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 73 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2724-OE	DET-EBO	Other w/o Antenna	45°18'14.17"N	85°15'40.45"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 83 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 97 feet on Runway 09P/27P(OEAAA)							
2000-AGL-2725-OE	DET-EBO	Other w/o Antenna	45°18'14.24"N	85°15'51.72"W	641	190	831
77.19(a) - Horizontal Exceeds By 12 feet							
77.19(e) - Transitional Exceeds By 39 feet on Runway 04/22(NASR)							
77.19(e) - Transitional Exceeds By 39 feet on Runway 04/22(OEAAA)							
77.19(e) - Transitional Exceeds By 118 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 132 feet on Runway 09P/27P(OEAAA)							
2001-AGL-2372-OE	DET-EBO	Other w/o Antenna	45°18'09.82"N	85°15'51.84"W	831	190	1021
77.19(a) - Horizontal Exceeds By 202 feet							
77.19(e) - Transitional Exceeds By 245 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 259 feet on Runway 09P/27P(OEAAA)							
2001-AGL-2373-OE	DET-EBO	Other w/o Antenna	45°18'08.52"N	85°15'48.64"W	831	190	1021
77.19(a) - Horizontal Exceeds By 202 feet							
77.19(e) - Transitional Exceeds By 218 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 231 feet on Runway 09P/27P(OEAAA)							

ASN	Status	Structure Type	Latitude	Longitude	SE	AGL	AMSL
2001-AGL-2374-OE	DET-EBO	Other w/o Antenna	45°18'08.92"N	85°15'46.94"W	831	190	1021
77.19(a) - Horizontal Exceeds By 202 feet							
77.19(e) - Transitional Exceeds By 218 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 232 feet on Runway 09P/27P(OEAAA)							
2001-AGL-2375-OE	DET-EBO	Other w/o Antenna	45°18'12.12"N	85°15'42.54"W	831	190	1021
77.19(a) - Horizontal Exceeds By 202 feet							
77.19(e) - Transitional Exceeds By 250 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 264 feet on Runway 09P/27P(OEAAA)							
2001-AGL-3712-OE	DET-DPH	Other w/o Antenna	45°18'50.32"N	85°17'32.05"W	594	323	917
77.19(a) - Horizontal Exceeds By 98 feet							
2001-AGL-3713-OE	DET-DPH	Other w/o Antenna	45°18'56.72"N	85°17'41.85"W	594	323	917
77.19(a) - Horizontal Exceeds By 98 feet							
2001-AGL-3715-OE	DET-DPH	Other w/o Antenna	45°19'07.62"N	85°18'09.55"W	593	323	916
77.19(b) - Conical Exceeds By 10 feet							
2001-AGL-3716-OE	DET-DPH	Other w/o Antenna	45°18'58.32"N	85°18'13.05"W	595	323	918
77.19(b) - Conical Exceeds By 39 feet							
2001-AGL-3717-OE	DET-DPH	Other w/o Antenna	45°18'48.62"N	85°18'26.05"W	588	323	911
77.19(b) - Conical Exceeds By 26 feet							
2001-AGL-3718-OE	DET-DPH	Other w/o Antenna	45°18'01.02"N	85°18'35.25"W	634	323	957
77.19(b) - Conical Exceeds By 60 feet							
2001-AGL-3719-OE	DET-DPH	Other w/o Antenna	45°18'00.72"N	85°18'50.05"W	630	323	953
77.19(b) - Conical Exceeds By 4 feet							
2009-WTE-3448-OE	DET-NPH	Wind Turbine	45°16'59.80"N	85°18'19.10"W	675	425	1100
77.19(b) - Conical Exceeds By 82 feet							
2009-WTE-3449-OE	DET-NPH	Wind Turbine	45°17'18.10"N	85°18'36.20"W	644	425	1069
77.19(b) - Conical Exceeds By 84 feet							
2009-WTE-3450-OE	DET-NPH	Wind Turbine	45°17'21.80"N	85°18'09.00"W	670	425	1095
77.19(b) - Conical Exceeds By 189 feet							
2010-AGL-4686-OE	DET-EBO	Antenna Tower	45°18'05.66"N	85°16'53.19"W	679	108	787
77.19(e) - Transitional Exceeds By 10 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 11 feet on Runway 09P/27P(OEAAA)							

Part 77 Obstructions for NRA Cases - Imaginary Surfaces

ASN	Status	Study Component Type	Latitude	Longitude	SE	AGL	AMSL
2004-AGL-51-NRA	EVL-Exam	Planning	45°18'17.20"N	85°16'31.20"W	669	0	669
77.19(c) - Primary Exceeds By 16 feet on Runway 09/27(NASR)							
77.19(c) - Primary Exceeds By 15 feet on Runway 09P/27P(OEAAA)							
2008-AGL-1764-NRA	DET-to-Prop	Construction Safety Plan	45°18'17.20"N	85°16'31.20"W	654	35	689
77.19(c) - Primary Exceeds By 36 feet on Runway 09/27(NASR)							
77.19(c) - Primary Exceeds By 35 feet on Runway 09P/27P(OEAAA)							
77.19(e) - Transitional Exceeds By 6 feet on Runway 15/33(OEAAA)							
2008-AGL-1831-NRA	EVL-Exam	Planning	45°18'17.20"N	85°16'31.20"W	669	0	669
77.19(c) - Primary Exceeds By 16 feet on Runway 09/27(NASR)							
77.19(c) - Primary Exceeds By 15 feet on Runway 09P/27P(OEAAA)							

ASN	Status	Study Component Type	Latitude	Longitude	SE	AGL	AMSL
2009-AGL-1129-NRA	DET-to-Prop	Construction Safety Plan	45°18'10.21"N	85°16'25.76"W	652	35	687
77.19(e) - Transitional Exceeds By -7 feet on Runway 04/22(NASR)							
77.19(e) - Transitional Exceeds By -7 feet on Runway 04/22(OEAAA)							
2009-AGL-1313-NRA	DET-to-Prop	Construction Safety Plan	45°18'11.00"N	85°16'23.00"W	646	25	671
77.19(e) - Transitional Exceeds By -5 feet on Runway 04/22(NASR)							
77.19(e) - Transitional Exceeds By -5 feet on Runway 04/22(OEAAA)							
77.19(e) - Transitional Exceeds By 2 feet on Runway 15/33(OEAAA)							

Obstruction Standards for DOFs

ORS Number/ ASN	Status	Obstacle Type	Latitude	Longitude	SE	AGL	AMSL
26-000861	Verified	Building	45°18'59.00"N	85°18'03.00"W	602	325	927
77.17(a)(2) - Exceeds By 58 feet							
77.17(a)(2)(ARP) - Exceeds By 58 feet							
26-002319	Verified	TOWER	45°11'32.00"N	85°06'11.00"W	950	500	1450
1998-AGL-2485-OE							
77.17(a)(1) - Exceeds By 1 foot							
26-002359	Verified	TOWER	45°11'54.00"N	85°19'59.00"W	786	500	1286
1998-AGL-3181-OE							
77.17(a)(1) - Exceeds By 1 foot							
26-001068	Verified	TOWER	45°10'49.00"N	85°05'50.20"W	1074	602	1676
2003-AGL-3062-OE							
77.17(a)(1) - Exceeds By 103 feet							

Part 77 Obstructions for DOFs - Imaginary Surfaces

ORS Number/ ASN	Status	Obstacle Type	Latitude	Longitude	SE	AGL	AMSL
26-000861	Verified	Building	45°18'59.00"N	85°18'03.00"W	602	325	927
77.19(b) - Conical Exceeds By 69 feet							
26-000887	Verified	ELEVATOR	45°18'59.00"N	85°17'47.00"W	594	228	822
77.19(b) - Conical Exceeds By -3 feet							
26-001487	Verified	TANK	45°18'06.00"N	85°16'54.00"W	679	106	785
1990-AGL-1483-OE							
77.19(e) - Transitional Exceeds By 13 feet on Runway 09/27(NASR)							
77.19(e) - Transitional Exceeds By 14 feet on Runway 09P/27P(OEAAA)							

Note: *Latitude/Longitude are in NAD83.*
Vertical datum is NGVD29 for all Site Elevation (SE), Structure Height (AGL), and Overall Structure Height (AMSL).
All units for Site Elevation (SE), Structure Height (AGL), and Overall Structure Height (AMSL) are in feet.

March 28, 2012

Mr. Ernest Gubry
Federal Aviation Administration
Detroit Airports District Office
11677 South Wayne Rd., Suite 107
Romulus, MI 48174

Subject: CVX Draft Master Plan and ALP – response to FAA comments dated 1-18-12

Mr. Gubry:

On behalf of the City of Charlevoix, RW Armstrong and QoE Consulting have evaluated your January 18th review comments on the draft Master Plan and Airport Layout Plan documents that were submitted in August 2011. Each of your comments is addressed below (in **bold green text**) where we have responded with actions taken or additional clarification/rationale of why things were presented as they were. Questions requiring a coordination or additional clarification with the FAA are listed below and highlighted in yellow within the responses. After you review these questions and responses, I suggest we hold a teleconference with the City to discuss any outstanding issues, questions or concerns before the Master Plan and ALP are finalized.

General Questions & Needed Clarification Prior to Finalizing Master Plan

1. Is the FAA requiring the purchase of additional weather data over that presented in the interim working papers, draft Master Plan and draft ALP? Refer to comments #7, 8, and 49.
2. Is the FAA requiring the purchase of additional IFR flight operations data to reflect a complete year 2010 and 2011. Refer to comment #10.
3. Is the development of "aligned taxiway" to runway 27 an acceptable interim solution? Refer to comments #17, 21, 29, 33 and 64.
4. Are the obstructions provided list "in place" or "as filed"? What specific Part 77 surfaces were evaluated? Please provide a legend or guidance on how to read this table. Refer to comments #18 and 96.
5. Which cost data does match the appendix? Refer to comments #24 and 39.
6. How should the ongoing discussion of the terminal building justification be addressed in the master plan so as not to hinder the plans completion? Refer to comment #30.
7. Based on our June 2011 discussions, the need for additional airspace drawings depicting the "potential ultimate" airfield scenario were not accounted for. Refer to comments #78, 88 and 93.

4080 Lafayette Center Dr. / Suite 210A / Chantilly, VA 20151
PH 703.230.0300 // FX 703.230.0299
rwArmstrong.com

Master Plan

1. The contents of the MP reflect the views of the airport sponsor, who is responsible for the accuracy of the document. The MP does not necessarily reflect the views or policies of the FAA, and this review does not imply that the FAA agrees with the MP conclusions and recommendations. **So noted**

2. Before the FAA can approve any proposed MP development for construction, federal law requires us that an independent environmental review be completed. This could involve a Categorical Exclusion, Environmental Assessment or an Environmental Impact Statement. These processes involve public participation as well as extensive review of the justification, all feasible alternatives, environmental and socioeconomic issues. Refer to FAA Order 5050.4B "*National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*". The sponsor should plan for and allow adequate time to complete the environmental process for future development. **So noted**

3. The FAA will include the proposed runway extension and crosswind runway in our Obstruction Evaluation Airport Airspace Analysis (OEAAA)1 database. This will allow the FAA, to the extent possible, to protect the airspace for this development. The airport sponsor should work with the local communities and zoning boards to ensure no structure is constructed that may interfere with the planned runway development. **So noted**

4. Before any FAA environmental funding request, we will require additional justification of need for the project. At a minimum you will need to document that the longer runway is required for 500 aircraft operations a year. The analysis will need to quantify the cost and benefits of the development. We also need to understand the proposed runway development in terms of all desired/required development at the airport. These requirements can be discussed in detail at the next Michigan Airport Planning (MAP) meeting. **Please note that the projection of operational need for a longer runway is based on the critical aircraft family listed in Table 4-2. These aircraft were identified from actual 2010 recorded flight plans. Table 4-7 identifies that a longer landing runway is needed for each of the aircraft in this family except for the King Air C-90. Using the forecasts presented in Chapter 3, as concurred upon by the FAA, the remaining 9 aircraft accounted for 566 total operations in 2010, which equates to 283 landing operations. At the standard FAA TAF growth rates, these landing operations are anticipated to reach more than 500 operations by 2019. This projection is provided in Attachment 1. Keep in mind that the FAA guidance on "substantial use" does not differentiate between takeoff and landing operations – it just states "operations." Regarding a benefit cost**

1 Public Web Site Address: http://www.OEAAA.FAA.Gov

analysis (BCA), we acknowledge that BCAs are a valuable tool in validating investment in a project, however in October 2011 the FAA published in the Federal Register a change in the project cost threshold requirement for performing BCAs from $5 million to $10 million. Considering that the proposed runway extension cost is approximately $4 million, including environmental evaluation and land/easement acquisition, preparation of a formal BCA may not be warranted.

5. One purpose of an MP study is to identify needed long-term airport development. The MP guides airports in selecting cost-effective ways to satisfy aviation demand. The FAA encourages airport sponsors to consider the possible environmental and socioeconomic issues during the planning process. The MP should try to find the best possible means of avoiding, minimizing, or mitigating impacts to sensitive resources. The FAA does not require airports to build facilities. It is up to each airport sponsor to propose ways of providing enough capacity to meet aviation demand. The FAA provides guidance and oversight to ensure that proposed airport development is safe, efficient, and compliant with FAA design standards. **So noted. The Master Plan as presented has factored human and environmental concerns into the development and evaluation of alternatives. The resultant recommended alternatives provide the most reasonable development program in regards to meeting public user and operational demands while minimizing impacts to the surrounding communities.**

Chapter 1 Introduction

6. No comments. **So noted**

Chapter 2 Inventory of Existing Facilities and Conditions

7. The airport's current approach ceiling and visibility minimums for the airport are described in Table 2-8, "Weather Classification Criteria", page 2-30. Currently, the Table provides data for 200' & 1000' and 1,000' & 3 miles. A breakout of IFR conditions for a ceiling 300' and visibility of a 1 mile would be useful in determining the benefits of developing approaches with lower minimums. **While the study team would have benefited from this comment following submission of Working Paper #1, at this point additional weather observation data from NOAA would have to be purchased at a cost of ±$300-350. Also, the Master Plan does not identify pursuing improved approach capability beyond the current 1-mile visibility minimums. With the current 250' HAT, a ¾ mile minimum is technically feasible without an approach lighting system, however at ¾ mile the Part 77 Primary Surface would increase to 1,000' width. Due to the potential impact on surrounding properties, the City and TAC concurred that the increased Part 77 requirements outweighed the potential benefit of improved visibility minimums. It should be noted that approach procedures could potentially**

be developed with visibility minimums of 7/8 miles without incurring increased Part 77 requirements.

8. The wind rose data for the proposed crosswind runway will be required for the ALP and MP report. This data should be from the nearest data collection site and include the most recent 10 years of data available. **Wind rose data for the proposed crosswind runway will be included in the Master Plan and ALP. However, weather data was obtained under the ALP Update Scope of Work and stated that 'if possible, CVX data would be used'. The data obtained from the CVX reporting station only went back to 2003 so all data available at that time was purchased and used for both the Master Plan and ALP. While this data is the most accurate for CVX, if the FAA desires a full 10 years of data, the additional data from a different source would cost $300-350 and all the analyses would have to be rerun. Unless directed otherwise by the FAA, the existing data will be used.**

9. Section 2-8. "Off Airport Land Use Considerations", page 2-35. Do you want to add a paragraph on your grant assurances (number 20, 21) that describes your responsibilities and add a paragraph on the State of Michigan "Tall Structure Act" and the associated land uses/controls? **Yes. A brief discussion on these items will be added.**

Chapter 3 Forecast of Aviation

10. Table 3-22 Summary of Forecasts, page 3-33. In general we find the data in this Table to be approvable as your locally developed forecast. Final forecast approval will be provided upon concurrence with the final Master Plan and ALP documents. Current data provided in this report (Appendix B, Table-B3) depicts 300 operations greater than the Airport Reference Code (ARC) B-II for 2009. The airport sponsor should proceed with caution, in designing future elements to B-II standards as you are close to meeting the substantial use threshold of 500 annual operations. Once exceeded the airport sponsor will be required to comply with the C-II design standards as depicted on sheet 5 of the ALP set. We recommend updating the Table to include the full year 2010 data and any 2011 data that is available. **Table B3 does identify ±300 operations in 2009 by aircraft greater than ARC B-II. However please refer to Table 4-1 that identifies the projected growth of operations by approach category C aircraft. Based on FAA TAF growth rates, the potential for reaching the substantial use threshold is not until after 2020. It must be acknowledged that a vast majority of the operations by C aircraft were performed by an aircraft based at CVX and there is little indication that the flying habits of that owner will change much in the near future. Considering that a runway extension is needed to accommodate the B-II aircraft identified in the critical family, and the FAA has expressed concern that a 5,000' runway would attract more operations by C-II aircraft, this Master Plan has identified the need for a subsequent master plan update after 2020 to reevaluate the operational demand for B-II and**

C-II aircraft at that time. In the interim, the proposed airport development (aprons, taxiways, hangars) including the runway extension to 5,000' and B-II standards, does not inhibit potential future development to C-II standards. FAA standard C-II setbacks, obstacle free areas, etc. have been accounted for in the conceptual plans. Since the proposed runway extension, for both B-II or C-II standards maintain the same centerline alignment, the investment in the proposed extension to 5,000' B-II standards would not be wasted as it would readily be incorporated into a potential C-II 5,000' runway if it were pursued at some point in the future. As you will recall, the C-II runway would entail widening and an eastward shift. Obtaining additional flight data for the years 2010 and 2011 would impose additional project costs, so this will not be pursued at this time unless the FAA can provide the data in similar format or provide the additional funds to acquire the data.

Chapter 4 Facility Requirements

11. Section 4.1 "Airport Reference Code (ARC) and Critical Aircraft", page 4-2. In general, we concur with your determination an ARC of B-II for the existing main runway. We also concur with your long term plan of a C-II ARC for this runway. As we have discussed, the FAA has concerns with the proposed timing to increase the ARC from B-II to C-II. **As with any long term plan, it must be kept in mind that development of CVX to a C-II airport is a potential concept to be reevaluated in the 7-10 year time frame as part of a future master plan update.** The airport sponsor is responsible for monitoring actual aircraft operations on each runway to ensure that each runway has the proper ARC design standards. **At an uncontrolled airport there are no mechanisms in place for the accurate recording or monitoring of actual runway usage on a day to day basis. Purchasing flight data of recorded IFR flight plans, or radar track data, during a master planning effort is likely the most representative method of identifying aircraft usage by volume and type. However these are also not conclusive as they may not capture all VFR or low level local operations.** The MP needs to discuss the current and future ARC for the crosswind runway. The ALP has A-I for the existing and future ARC. Would this be designed for small aircraft exclusively? **While the ARC is discussed in several places within the Master Plan we will make all references consistent between the Master Plan and ALP. The future crosswind runway should be designed to ARC A/B-I small aircraft standards**. We note that the operations in Table 4-1 do not seem to match the data provided in Appendix B. **Appendix B provides the raw recorded flight plan data and includes partial years for 2008 and 2010. Table 4-1 differs because it interpolates 2010 data to a full year (so the numbers will be slightly larger) and it only identifies turbo-prop and jet aircraft (so B-I aircraft listed in Table 4-1 does not include piston aircraft).**

12. Section 4.3.2 "Runway Length", page 4-10. We note the FAA is no longer supporting the Airport design software program. We suggest adding a footnote to this section that it is no longer in use. **A note will be added.**

13. Section 4. We recommend the land ownership and usage north of Runway 9 be explained. The ALP depicts the property line at the RSA boundary. However, it seems that the sponsor has additional land use controls in this area. An explanation in the MP report would clarify this apparent discrepancy. **The easement is disused in the "land use" section on page 2.35 and referenced in Section 5.1.6. We will add the easement boundary to Figure 2-20. It will also be added to the ALP per checklist item #17.**

14. Table 4-5 "Airplanes that Make Up 75 Percent and 100 Percent of the Fleet", page 4-12. Any proposed runway extension needs justification and the critical future ARC identified. Additional information would clarify how the CVX critical aircraft family was determined. The ARC for the aircraft in Table 4-5 is not identified. Because the MP is the sponsor planning document, the FAA generally has no issues with an ALP depicting a longer runway. However, if federal funding is to be used for the construction of the runway extension, the project must be eligible, justified, and have FAA environmental approval. **The future ARC and critical aircraft family are described throughout the document (recommended B-II, 5000', reevaluate in long-term for potential C-II standards). A description of how the critical aircraft family was determined is provided on page 4.3. ARC is not identified on Table 4-5, as this was taken directly from the FAA Design AC. The critical aircraft family has been highlighted in orange and Tables 4-2 and 4-7 identify their ARC.**

It is very important for the reader of the MP to understand the FAA viewpoint on runway extensions. To be eligible for FAA funding, the airport sponsor must demonstrate that the runway extension would be used by 500 aircraft operations per year of aircraft requiring that runway length. This data is normally provided via a user survey where the aircraft users describe the type of aircraft, and usage that the longer runway would provide. **User surveys were performed in 2006/7 and 2010. Both identified numerous respondents desiring/requiring additional runway length. The City has received several letters of support from users and local businesses supporting an extended runway and continued airport development. The surveys are summarized in Appendix C. We believe you have copies of the survey responses and letters of support. These will be included in the appendix. The City will continue to gather additional letters of support.**

To be considered for FAA funding the project must be justified. To make this determination the FAA will require development of accurate cost estimates for the project, including all related components of the project and any additional funding requirements at the airport. The financial information would also include non FAA

funding sources. This could be extra funding provided by the State, tenants or local sponsor. If the funding plan request includes discretionary funding, or is a capacity project, the FAA will request a benefit cost analysis. The FAA is requesting a benefit cost analysis for any proposed runway extension project that is funded with FAA funds. **Detailed cost estimates are provided in Appendix D. Preparing cost estimates to a higher degree than this would normally be performed during a project design. The project cost estimates included in the implementation plan include all construction, land/easement acquisition, NEPA and design costs related to the proposed runway extension. We acknowledge that BCAs are a valuable tool in validating investment in a project, however in October 2011 the FAA published in the Federal Register a change in the project cost threshold requirement for performing BCAs from $5 million to $10 million. Considering that the proposed runway extension cost is approximately $4 million, including environmental evaluation and land/easement acquisition, preparation of a formal BCA may not be warranted. If the FAA does require a BCA, maybe this can be combined with a separate AIP eligible "Feasibility Study" that would include a user survey element, BCA, preliminary design and cost estimates.**

After the FAA has reviewed and concurred with these documents, the FAA would allow the airport sponsor to proceed with an environmental study for the proposed development. The environmental study would review: purpose and need, affected environment, alternatives and provide for public and resource agency comments. At the end of this study the FAA would determine if the project can be environmentally approved.

Also any runway extension or rehabilitation project requires the airport sponsor to bring the runway up to current FAA design standards (i.e., RSA, OFA, RPZ). If FAA design standards cannot be met the airport sponsor will need to request a waiver to design standards. **So noted**

Therefore, we have no objections to the MP report stating a need for a future runway extension. However, the report should be clear, that at this time the FAA currently would not support the use of FAA funding for a runway extension. We understand that to achieve the current runway length of 4,550' local funds where used because it could not be justified for FAA funding. The MP report will also need to clarify the logic for determining the final runway length. **The final recommendation will be clarified. Semantics will be changed between "preferred" and "recommended". As you will recall from the TAC meetings, a 5,500' runway with declared distances is preferred because this concept has few additional community impacts above the 5,000' runway w/o declared distances and has a 500' runway length benefit which would provide operators larger payload. Because of the FAA's position that declared distances cannot be used in a runway extension, and the potential of attracting larger aircraft, the recommended concept is a 5,000' B-II runway. The master plan document interchanged the two terms.**

15. Section 4.4 "Crosswind Runway", page 4-19. Based upon the wind data the FAA concurs with your determination that a crosswind runway would be useful for *small aircraft* exclusively at the airport. As state above, the airport will need to present information on potential usage and cost prior to requesting FAA concurrence in the start of environmental review. **So noted. The City will continue to garner support for the proposed crosswind and coordinate land requirements with St. Mary's. Fairly detailed cost estimates are provided in Appendix D. Preparing cost estimates to a higher degree than this would normally be performed during a project design.**

16. Figure 4-5 "Potential Crosswind Runway Orientation", page 4-20. Runway 15/33 orientation is not depicted. **Runway 15/33 orientation is not specifically identified in Figure 4-5 as it falls between the two orientation limits that frame the area of 95% coverage.**

17. Section 4.5.1 "Operational Capacity and Efficiency", page 4-24. FAA Order 5090.3c "*Field Formulation of the Nation Plan of Integrated Airport System (NPIAS)*" does not have the recommendation for a parallel taxiway with 20,000 annual operations. **We will change the NPIAS Order reference as it appears the '20,000 operations rule of thumb' was from the previous 1985 version and not the latest. AC 150/5300-13 Paragraphs 204, 405 and Appendix 16 Tables 1A-1C will be referenced as well as the Michigan funding manual.** This section should discuss the Runway to Taxiway separation distance and the impact on visibility minimums for the runway. A parallel taxiway at 300' separation would be required for ARC C-II aircraft. **A sentence will be added.** We concur with your determination that a parallel taxiway for the crosswind runway is not justified for this runway. We concur with your determination that the paved taxiway in the approach to Runway 27 should be removed. We would recommend the airport sponsor consider fixing this prior to the possible runway extension. This taxiway relocation may be accomplished as a stand alone project. **With the exiting turf runway and ROFAs for both runways, realigning a northern taxiway to the existing end of Runway 27 is somewhat problematic. With a need and desire for a runway extension, it is preferred that the extension and removal of the end-around taxiway be accomplished together. Alternatively, an "aligned taxiway" could be developed that would configure the northern taxiway at right angles and enter Runway directly onto Runway 27. This aligned taxiway could be developed as the first step of the runway extension and be marked with or without a displaced threshold (as per AC 150/340-1k). If the taxiway issue were resolved in this manner, application of a displaced threshold and declared distances could provide the ancillary benefit of a longer runway at least for aircraft departing on Runway 27. To maximize use of federal funds, needed resolution of both the end-around taxiway and longer runway could be achieved by constructing both at the same time. Is development of an "aligned taxiway" to Runway 27 acceptable to the FAA**

(with or without the ability to use the pavement for runway length calculations) as a stand-alone project in the near term?

18. Section 4.9.2 "Part 77 Concerns", page 4-39. We have enclosed the FAA report from the OEAAA database for this airport. You should verify the report data and adjust the ALP if necessary. **Thank you, we are waiting clarification from you as to whether these obstacles are "in place" or "as filed" and for confirmation as to which Part 77 surfaces were evaluated.**

19. Section 4.9.4 "Approach Upgrade Potential", page 4-40. The 0.6% from Table 2-8 is the time the weather minimums are below 200' and the visibility minimums are less than ½ mile, not the time that aircraft cannot land at the airport due to bad weather based upon your current approach minimums. We suggest you conduct an analysis of how much time the airport is closed due to weather minimums being below the current available approach minimums of 300' and 1 mile. **Text will be adjusted for clarity, however to perform the additional analysis additional NOAA weather data would need to be purchased (refer to comment #7).** This may provide the justification for improvements at the airport that would lower the minimums on the main runway. Additionally, a survey of the based aircraft and major aircraft users to determine if they currently have or would acquire any required navigational equipment so they are able to operate with the lower visibility minimums.
Obtaining lower visibility minimums may result in additional runway/taxiway separation. **Also, the Master Plan does not identify pursuing improved approach capability beyond the current 1-mile visibility minimums. With the current 250' HAT, a ¾ mile minimum is technically feasible without an approach lighting system, however at ¾ mile the Part 77 Primary Surface would increase to 1,000' width. Due to the potential impact on surrounding properties, the City and TAC concurred that the increased Part 77 requirements outweighed the potential benefit of improved visibility minimums. It should be noted that approach procedures could potentially be developed with visibility minimums of 7/8 miles without incurring increased Part 77 requirements. Per AC 150/5300-13 runway to taxiway separation would only increase with minimums less than ¾ mile.**

20. Figure 4-11 "Potential Obstructions to Airspace", page 4-42. The pink highlighted area is not identified in the legend. Are there obstructions issues with the Runway 9 end? **We will revise the drawing and describe the airspace concerns more accurately in Section 4.9.2.**

21. Section 4.11 "Summary of Facility Requirements", page 4-43. Overall this is the airport sponsors planning document. However, the FAA has questions/comments on the following items that did not appear to be discussed in the MP:

- The ARC B-II aircraft that would generate 500 operations a year to justify the proposed runway extension to 5,500'. Please remember that the recommendation is 5,000'. **Refer to Tables 4-7 and 4-8 for the B-II aircraft in the critical family. Refer to Attachment 1 which will be added to the master plan. This identifies that in 2010 there were over 500 total annual operations by the B-II critical aircraft.**
- Through-the-fence operations at the airport are not discussed. **TTF is discussed in Sections 1.3 and 2.98. These properties are shown to be acquired on the ALP. The planned terminal replacement will accommodate the second airline and bring them onto airport property. Text will be adjusted to describe the airline situation and note that the TTF rights for the northeastern parcel do not transfer/convey.**
- Non aeronautical use of airport dedicated land. **We assume you are referring to the City ball fields. This is a long standing issue that is currently in discussion between the City and FAA. The master plan text will be edited to note this discussion but will not make any recommendations. As discussed during the TAC meetings, it is understood that the City intends to keep the ball fields in place and coordinate some sort of amenable agreement. The master plan and ALP reflect the ball fields remaining in place.**
- Mineral rights issues. Does the airport own and control the minerals rights under the runway and associated airport land? **Yes**
- Taxiway in the Runway 27 RPZ. **What taxiway are you referring to? The master plan discusses the end around taxiway and shows a plan for eliminating it. The runway extension/taxiway connection places the northern taxiway outside of the RPZ. An aligned taxiways, by design, would be within the RPZ. While not specifically stated in AC 150/5300-13, is the FAA saying that a taxiway at an uncontrolled airport may not be within an RPZ? If so, is this standard documented anywhere, is it policy or interpretation of a rule? Upon clarification by FAA we will add appropriate text to the master plan.**
- Requirements for lower approach minimums for the airport are not discussed. **Refer to comments #7 and #9, reduced minimums are not being pursued at this time.**

Chapter 5 Airport Development Concepts

22. Table 5-1 "Evaluation Criteria", page 5-2. We have explained the criteria for federal funding of projects. In general we have doubts to claims of "improves utility and operational margin of safety" as justification for a project. All operations at the airport must be conducted in a safe manner. It is rare that safety is involved in justification of a runway extension. **As described in Chapter 4, the existing runway does not meet the length requirements of the critical aircraft family (predominately B-II corporate aircraft) during wet and contaminated runway conditions. The airport experiences these conditions for more than half the year. In addition to meeting the landing requirements of the critical aircraft, these**

two items frame part of the "purpose" and benefits of a runway extension. Utility is increased as operators would be able to function with larger payloads providing them additional flight range. While the airport does operate safely and meets design and safety standards, the additional pavement would provide an increased operational "margin" of safety, whether real or perceived (particularly during inclement or windy conditions) which is consistent with the pilot responses received during the previous user surveys. As is well known in the industry, many corporate operators have established a minimum 5000' runway requirement in their operating procedures in the context of "safety".

23. Section 5.1.3 "Concept A2: 5,500 foot Runway with Declared Distances", page 5.5. Refer to FAA Advisory Circular 150/5300-13 "*Airport Design*". Appendix 14 paragraph 1 as it provides the criteria for the use of declared distances. Based upon this criterion, use of declared distance concept to increase runway length is not valid. Therefore, the FAA does not concur in the discussion of using declared distances to achieve a longer runway for this airport. **So noted. Please keep in mind that the recommendation is a 5,000' runway w/o declared distances. To support the vision and mission of the City by providing the most usable runway possible for corporate operators with the least impact to the surrounding communities, Alternative A2 provides a technically feasible concept that provides 5,500' of runway with minor additional impacts beyond the 5,000' alternative. The ROFA, RSA and RPZs remain the same between the two options.**

24. Table 5-2, "Primary Runway Impact and Cost Comparison", page 5-11. The cost data in this Table does not match the data in Appendix D. **What specifically does not match? Our calculations show that the table and appendix are consistent. Please note that the costs associated with "fees, services and clearing" are per parcel based and not included in the appendix spreadsheets.**

25. Section 5.1.5 "Comparison and Recommendations, page 5-12. Your recommendation is for a 5,500' using the declared distance concept. The ALP that was developed depicts a 5,000' proposed runway. The MP needs to define the criteria the determination to use concept A-3 (proposed runway at 5,000'). Also note the FAA will not support the use of declared distances for the runway extension (see comment 23**). Refer also to comment #14. The final recommendation will be clarified. Semantics will be changed between "preferred" and "recommended". As you will recall from the TAC meetings, a 5,500' runway with declared distances is preferred because this concept has few additional community impacts above the 5,000' runway w/o declared distances and has a 500' runway length benefit which would provide operators larger payload. Because of the FAA's position that declared distances cannot be used in a runway extension, and the potential of attracting larger aircraft, the recommended concept is a 5,000' B-II runway. The draft master plan document interchanged the two terms.**

26. Figure 5-5 "Long Term Development Concept C-II Airfield", page 5-17. There are several errors with this drawing such as runway length and location. **This exhibit builds upon the 5,500' "preferred" runway option with declared distances. It will be revised to build upon the 5,000' "recommended" runway option. The potential C-II concept will provide 5,000' operational length in both directions. The legend will also be revised for clarity.**

27. Section 5.2 "Crosswind Runway", page 5-18. In addition to the October to April data that was provided for each alternative, the report will need to include the yearly data for crosswind coverage. The wind data for the proposed alignment will also need to be included on sheet 2 of 15 of the ALP set. **These will be added accordingly. Refer also to comments #7 and #8 regarding available weather data and cost for additional data if required.**

28. Section 5.2.6 "Comparison and Recommendation", page 5-27. We understand the planning assumptions that went into the airport sponsor decision to propose concept B-4. This is a proposed new crosswind runway alignment of 15/33 and length of 2,200'. The FAA will enter this runway data into the FAA's OEAAA database. This will allow the FAA to include the proposed runway in making determinations under 14 CFR Part 77. Prior to the initiation of the environmental review, the airport sponsor will need to provide additional information concerning project eligibility, justification, financial plans, and a benefit cost analysis. **So Noted. Refer also to comment #15.**

29. Section 5-3 "Taxiway System", page 5-31. The taxiway located in the Runway 27 approach should be relocated with or without the runway extension, due to its current location. **Refer to comment #17 regarding the difficulty in realigning the northern taxiway to the existing Runway 27 end. Is development of an "aligned taxiway" acceptable?** The MP states "The extension on the western end, if pursued in the near-term, should be designated to Approach Category B Standards (i.e. 240-foot separation distance) since this pavement would be likely have to be removed in the event of a future C-II upgrade (as shown in Figure 5-5)." We believe that any extension to the parallel taxiway should be planned at 300' of separation from the runway at this time. At the time of construction it may be prudent to construct with 240' of separation distance. We also suggest including discussions concerning a taxiway separation that would allow for lower approach visibility minimums. As stated previously, improved minimums are not being pursued at this time and would only affect runway to taxiway separation if less than ¾ mile. **We could show the westerly taxiway extension at 300' separation however that would place a jog in the taxiway for approximately the last ±500' and place the pavement closer to a potential wetland area. If the runway were ever developed to C-II standards, the runway 9 end would shift ±700' eastward thus rendering that portion of the parallel taxiway abandoned – unless we were able to**

apply a displaced threshold to Runway 9 and claim additional 400' of takeoff length in that direction. If the FAA is acceptable to showing a displaced threshold on the potential C-II runway concept then we concur with showing an interim parallel westerly taxiway extension at 300' separation.

30. Section 5.4 "Terminal Building", page 5-31. The proposed design for the new terminal size is twice the 20-year projected need. General Aviation space in a commercial terminal is not eligible. Additional comments on the Terminal Study will be addressed in separate correspondence. **Keep in mind that that the master plan reflects a "minimum calculated need" based on industry standard planning assumptions. The previous preliminary terminal study performed by the City and FAA reflects site specific operational and user needs that indicate a requirement larger than that reflected in the master plan document. The terminal concept includes adequate space for the two airlines and needed baggage/freight handling as well as sufficient passenger holding space to account for peak periods that can be affected by varying weather conditions experienced at a lake front, Northern Michigan airport. It is our understanding that during the previous terminal study, at the suggestion of the FAA consideration was given to the terminal being able to accommodate up to 3 airlines/charter operators. The City and the design committee, however elected to be fiscally minded and only plan for accommodating 2 such tenants. This master plan supports the development of a larger terminal in approximately the same location as the existing terminal. Because of the additional terminal specific planning work that has been performed to date, and the current coordination with the FAA that includes programmed design funds – should the discussion of terminal sizing requirements be removed from the master plan?**

31. Section 5.5 "Apron and Aircraft Parking", page 5-35 does not define the design Aircraft Reference Code used. **From a planimetric standpoint, this section does discuss apron needs for both Group I and II aircraft. Text will be added regarding approach category B and C aircraft as it relates to maximum apron gradient (i.e. 2% for B and 1% for C).**

32. Figure 5-14 "Midfield Area Development", page 5-40. No part of the apron can be located in the Runway Visibility Zone (RVZ). **Conceptual bulk hangar configuration will be revised to remove apron edge from RVZ.**

33. Figure 5-15, "Northern Area Development", page 5-41. We recommend the MP discuss and the ALP depict the relocated taxiway to the existing runway end, as the timing of the future runway is not certain. **Refer to comments #17 and #19 regarding connecting a northern taxiway to the existing Runway 27 end and the potential development of an "aligned taxiway". An aligned taxiway could set the stage for the future extension, which is needed to support**

existing critical aircraft users. Should an aligned taxiway be depicted as an early phase stand alone project? Since this would be depicted similarly to the proposed concept, it may be prudent to deal with actual alignment during the taxiway design and leave the runway/taxiway concept depicted on the ALP as is. Development of an aligned taxiway with displaced threshold – similar to the recommended concept – could provide cost benefit though economies of scale and avoiding inflation of material costs as compared to building a longer taxiway now and replacing it during a runway extension in the future.

34. Section 5.9 "Airport Access", page 5-42. Hangar access for current tenants is not defined. Clarify the "rail spur" (i.e. real railroad track or a hiking trail) reference and provide information concerning any airport design surfaces. The location is not identified in any figure. **Text and graphics will be edited.**

35. Section 5.11 "Preferred Airport Development Plan", page 5-43. We concur from your planning data to depict a runway extension on the ALP developed to the ARC C-II design standards. We attempted to include this information into the FAA OEAAA database, but were unable to due to data issues. (see ALP comments below) When correct data is provided, this proposed ultimate runway will be included in the database. See prior comments concerning taxiway development. **So noted. Revised runway coordinates for the Potential Ultimate C-II, 5,000' runway concept will be provided on the ALP.**

Chapter 6 Implementation Plan

36. Section 6.1 "Development Plan by Phase", page 6-1. We recommend inclusion of documentation such as user support of the planned runway length, financial plan, cost benefit analyst, etc. required to start the environmental review process. **Text will be edited accordingly and an AIP eligible "Runway Extension Program Development" project will be added to the implementation plan/ACIP. Its conceived that this project would entail sufficient preliminary design (i.e. 30%) to support the NEPA process.**

37. Section 6.1.1 "Phase 1: Near-Term Planning Horizon (0-5 Years)", page 6-1. Review the second paragraph on page 6-2 concerning the runway extension. It seems to be out of place. It should be noted that the decision to extend the runway is a sponsor decision. If the sponsor decides to extend the runway, then it must meet FAA airport design standards and have FAA environmental approval. The FAA reviews your justification /documentation, we do not develop it and our review does not guarantee its funding. **As stated previously, the existing and forecast operations indicate more than 500 annual operations being performed by the critical B-II aircraft family that require additional landing runway length. Even if just the landing operations of the critical aircraft are considered, they**

could reach the substantial use by 2019 (see attachment 1). It is our understanding that FAA criteria does not distinguish between landing and departure operations in determining substantial use threshold – it references aggregate total operations by the aircraft types being considered. To prepare for this forecast demand and have facilities in place in a timely manner, the additional justification work (refer to comment #36) and environmental work will likely take several years to complete and will need to be accomplished in the near term to enable construction in the midterm. Please keep in mind that the whole development concept is organized to meet existing and anticipated user demand, support the regional and state (MASP) transportation plans and provide for the preserve the ability for long term development to C-II standards if it should become warranted in the future.

38. Section 6.1.2 "Phase 2 Mid-term Planning Horizon (5-10 years)", page 6-2. On page 6-3 in this document, you mention the "parks department" in conjunction with the DNR. Identify the referenced "Park" near or on the airport and information on the proposed expansion. Note that a federal environmental finding is only valid for a three year period**. Reference to park consolidation will be removed as this concept is in early discussion between St. Mary's and the Parks Department and it is a potential opportunity being explored by the City. Text will be changed to 3 years.**

39. Table 6-1 "Preferred Development Plan and Preliminary Cost Estimates – by Phase", page 6-5. The costs in Appendix D do not match the latest ACIP submission. **Please clarify which costs do not match. We will update Table 6-2 with figures from the latest ACIP for projects that are not a result of the recommendations of this Master Plan.** Based upon the anticipated cost of the crosswind runway, we recommend the development of an alterative where the existing crosswind runway remains open, as a new crosswind runway does not seem to be financially feasible. **There are already two alternatives provided in Section 5.2 that maintain the existing crosswind runway. The "No Development" concept which retains the turf runway and includes property acquisition for the RPZs and Concept B1 "Crosswind Runway 5-23" which paves the runway to ±1,600'. The vision and mission of the City is to provide the best aviation facilities possible. Based on the evaluation criteria, these two concepts are the least expensive but they do not support the other goals of the City and they do not optimize wind coverage or runway length. The proposed crosswind concept does that. Based on FAA review comments #3, #15, and #28 it appears that the FAA acknowledges the benefit for an improved crosswind runway.**

It is acknowledged that this concept is a substantial endeavor, will take several years to complete and would rely on support from St. Mary's. The implementation plan/financial plan is aggressive and relies on FAA discretionary funding for this project. This Master Plan demonstrates what it would take to achieve the desired outcome. It also prioritizes the terminal,

apron and primary runway development ahead of the crosswind runway development. The existing turf runway is currently operational and should continue to support at least some of the operational needs while the higher priority projects are pursued. The City and FAA may determine at some later date, possibly during the next master plan update, that it has become prudent and financially feasible to pursue one of the other two existing crosswind concepts instead of the "recommended" concept.

40. Table 6-2- "Proposed 10 Year Airport Capital Improvement Program (ACIP)", page 6-7. Once the project is defined and the FAA has concurred with the project eligibility and justification, the MAP meeting should include discussions related to funding viability and phasing options. This would occur prior to starting the environmental study. Completing a thorough financial plan will assist the airport sponsor in developing a reasonable approach to completing the project. Inclusion of proposed runway project in the MP does not guarantee future federal funding. **So noted. This master plan takes a long term, comprehensive look at the facilities that are needed to satisfy anticipated demand based on feasible planning and forecast assumptions. Continued coordination and prioritization of projects in the interim will be needed as available funding may fluctuate. However, momentum towards the long term vision must be kept or the goals of the City and benefit to the region will not be realized.**

We note that in Appendix D, the construction estimate for Runway 9-27 is $2,020,000, in this Table, the cost for the runway and taxiway is $1,852,000. **Appendix D cost includes design services. In table 6-2 these are broken out as a separate project.** Please verify these figures and explain differences. We also note the construction cost for Runway 15/33 is estimated in Appendix D at $3,490,000 and in the Table it is $2,981,400. **The appendix figure is the most current and includes design costs, however table 6-2 separates design into a separate project. We will update table 6-2 to include the latest cost estimates.** The land costs from Appendix D do not to match up with the cost in this Table. Explain the cost differences between the tables and appendices. The FAA will require a current detailed cost estimate of all projects and related components prior to starting any environmental review for a major project. **The land related costs in the appendix do not include acquisition services and clearing which is accounted for in Table 6-2. The master plan reflects reasonable planning level costs based on local land values, coordination with the City planning department, recent similar construction costs and preliminary engineers estimates based on similar projects. Preliminary design and further cost estimating is beyond the master planning scope and would be pursued in a separate AIP eligible "feasibility/program development" type project.**

Chapter 7 Financial Analysis

41. Table 7-1 "ACIP Projects Costs and Funding Sources", page 7-1. See previous comments on funding. **Refer to previous responses**

42. Section 7.1.1 "Federal Grants", page 7-2. See previous comments on funding. **Refer to previous responses**

Chapter 8 Airport Plans

43. See detailed comments under ALP review section below. We would recommend including the ALP checklist in the Appendix I. **The ALP update is being performed under a separate project than the master plan. A copy of the ALP checklist will be included in the final master plan document, Appendix I.**

Appendix A to I

44. See detailed comments above concerning aircraft operations and cost estimates. **Refer to previous responses**

45. The MP report should discuss through-the-fence conditions and any wildlife hazard analysis work that has been done. A discussion of the ball fields needs to be included the MP report. **Refer to comment #21- TTF is discussed in Sections 1.3 and 2.98. These properties are shown to be acquired on the ALP. The planned terminal replacement will accommodate the second airline and bring them onto airport property. Text will be adjusted to describe the airline situation and note that the TTF rights for the northeastern parcel do not transfer/convey.**

Refer also to comment #21 - This is a long standing issue that is currently in discussion between the City and FAA. The master plan text will be edited to note this discussion but will not make any recommendations. As discussed during the TAC meetings, it is understood that the City intends to keep the ball fields in place and coordinate some sort of amenable agreement. The master plan and ALP reflect the ball fields remaining in place.

Airport Layout Plan Comments

Approval of the ALP is not a commitment of Federal funding for the proposed development. The Federal Aviation Administration (FAA) has agreed with the proposed development for planning purposes only, based on current safety, utility, and efficiency standards. Development should comply with approved standards applicable at the time of construction. The airport sponsor will need to provide additional information so project eligibility and justification can be determined before seeking FAA financial participation.

Title and Approval Sheet 1/15

46. The FAA will be the agency who formally approves the ALP set. We will require space for our approval letter on the cover sheet. **So Noted. A space will be provided for the approval letter on the cover sheet.**

47. The Index of Sheets Table for sheet 12 does not match what is indicated on sheet 12. **The "Index of Sheets Table" will be updated to match Sheet 12.**

Airport Data Sheet 2/15

48. Data for proposed Runway 15/33 should be included in the wind rose and a separate wind coverage data table. **A separate "future" wind coverage table will be added to the data sheet for each wind rose. RW 15/33 will also be depicted on each windrose.**

49. The source (location) of the wind rose data should be referenced. The source should be located as close to the airport as possible and represent the last 10 years of data. **The Station will be clearly identified on the Data Sheet, with the Station Number. Additional data would need to be purchased to cover 10 year time frame. Refer to previous master plan comment responses.**

50. Ultimate Runway 15/33 end coordinate data is incorrect. This should be validated and resubmitted so the FAA can enter the proposed runway into the OEAAA database. **The ultimate RW 15/33 end coordinates will be re-calculated and updated on this sheet.**

51. At our recent MAP meeting there was discussion of the need to lower the visibility minimums for Runway 9/27. This is not reflected in the future/ultimate Runway Data Table. If the minimums are lowered and **any** airport design standards are impacted (including RPZ's), subsequent sheets within the ALP need to be updated. **Refer to previous master plan comments related to future approach capability. The City is not pursuing improved approaches and is not a recommendation of this Master Plan.**

52. The design aircraft for existing Runway 4/22 is not identified. **A design aircraft for the existing RW 4/22 will be identified as the Cessna 150.**

Existing Airport Layout Plan Sheet 3/15

53. It appears the airport does not own or control the primary surface to the north of Runway 9/27. Based on discussions with the airport authority there is an easement or

agreement associated with the primary surface, the existing fencing, and the adjacent property owner. Please add a footnote explaining this, or depict a property boundary line (or easement hatching) that portrays the airport authority control over this land. The MP report should also discuss this feature. **The property limits are depicted with a property boundary line and an easement hatching. The linework and hatching will be adjusted for clarity and a footnote will be added to explain it.**

54. There appear to be ball fields located on the northwest portion of airport property. Further discussion with the ADO on this usage should occur. If this land is not being used for, and has no foreseeable future need for aeronautical purposes, the potential for a concurrent use or land release from aeronautical purposes should be explored. **Refer to comments #21 and #45. Discussions with the FAA are ongoing.**

55. Clarify why there is a "red box" around the NDB. **The red box will be been removed.**

56. The ground contours for the west side mining pit are hard to read. Please clarify. **So noted. Some of the contour labels will be removed to more legibly display the contours.**

Future Airport Layout Plan Sheet 4/15

57. The ADO understands that CVX is currently pursuing reduced minimums with a potential LPV approach. In the event that minimums are reduced below 1 mile, a larger RPZ would result (1,700' x 1,000' x 1,510'). CVX is responsible for controlling the RPZ, preferably in fee. Also, validate the impacts of lower minimums on the taxiway to runway separation. The FAA will not support lower approach minimums unless the runway can meet the new design standards including RPZ requirements. **Refer to previous master plan comments related to future approach capability. The City is not pursuing improved approaches and it is not a recommendation of this Master Plan. Lowering the approach minimums to ¾ mile or above will not change the runway to taxiway separation standards.**

58. If Runway 4/22 remains, verify the need to acquire additional land in the Runway 4 RPZ. **The plan is for Runway 4/22 to be decommissioned and will be labeled as such on the "future" and "potential ultimate" ALP sheets. The land acquisition needs are identified in the master plan document should the City alternatively decide to pursue this option in the future. The ALP depicts recommended development plans not potential alternatives.**

59. Prior to actual acquisition of property to the south of the runway, FAA will need to understand and concur with future aviation development. **So noted.**

60. Clarify the usage of the 50' railroad easement. The ALP should include a note on this item. **A note will be provided on the ALP sheet. This existing 50-foot corridor will be converted for aviation use, and a replacement 50-foot corridor will be established.**

61. Clarify the easement over the RPZ for Runway 9. Note the relationship between the airport and land owner. **The easement boundary and hatch will be depicted in a more legible way. A note on the agreement between the City/Airport and the St. Mary's Cement Company will be added.**

62. Clarify and identify the purpose of the taxiway from the ramp north of Runway 27. Identify if it is a private taxiway. If it is a private taxiway, then no Federal dollars can be used to maintain it. Clarify why the taxiway is located in the RPZ of Runway 27. **This taxiway will be shown as existing infrastructure and noted as a "private taxiway". On the future ALP it will be shown as removed since the property which it accesses is marked for acquisition. This will also rectify the through-the-fence concern in this area.**

63. Verify if there will be any tail height issues with aircraft parked on the southwest corner of expanded apron and Runway 33. **There are no anticipated tail height issues with aircraft parked on the southwest corner of the expanded apron, as this apron is designed for Group-I aircraft only.**

64. Provide short-term options for the taxiway in the Runway 27 approach prior to any proposed runway extension. These options should eliminate the existing taxiway that crosses the RPZ. **Refer also to comments #17, #29, #33. With the exiting turf runway and ROFAs for both runways, realigning a northern taxiway to the existing end of Runway 27 is somewhat problematic. With a need and desire for a runway extension, it is preferred that the extension and removal of the end-around taxiway be accomplished together. Alternatively, an "aligned taxiway" could be developed that would configure the northern taxiway at right angles and enter Runway directly onto Runway 27. This aligned taxiway could be developed as the first step of the runway extension and be marked with or without a displaced threshold (as per AC 150/340-1k). If the taxiway issue were resolved in this manner, application of a displaced threshold and declared distances could provide the ancillary benefit of a longer runway at least for aircraft departing on Runway 27. . To maximize use of federal funds, needed resolution of both the end-around taxiway and longer runway could be achieved by constructing both at the same time. Is development of an "aligned taxiway" to Runway 27 acceptable to the FAA (with or without the ability to use the pavement for runway length calculations) as a stand-alone project in the near term.**

65. The size of the RPZs should be included. **The RPZs will be labeled with their dimensions.**

66. No apron can be constructed in the RVZ of Runway 9 and 33. **So Noted. This sheet will be updated to show these changes and no part of the apron will be located in the RVZ.**

Potential Ultimate Airport Layout Plan Sheet 5/15

67. Runway 15/33 is mislabeled as 9/27. **The Runway will be re-labeled to the "Runway 15/33."**

68. Ultimate Runway 15/33 end coordinate data is incorrect. **The Runway 15/33 end coordinates will be updated and will match the coordinates on the data sheet.**

69. US 131 appears to be located in the OFA of Runway 27. If this is correct, an airport design standards, modification to design standards will be required for US 131. The runway should be developed to allow for an interior service road in this area. **The layout plan will be updated. The runway will be shifted west so the OFA does not cross U.S. 31. An interior service road will be added that will provide north-south access.**

70. No service road around Runway 27 is depicted. If vehicles cross Runway 9/27 to get to/from the north/south side of the airport, an interior service road is strongly recommended. The depicted condition could increase the number of runway incursions at your airport. **An north-to-south side interior service road will be depicted on this drawing.**

71. The existing side walk in the Runway 27 approach relocation is not depicted. **The existing sidewalk will be depicted and marked for removal.**

72. Explain why part of the Runway 27 RPZ is not being acquired. **The property acquisition border and hatch will be updated so that the entire RPZ will be acquired.**

73. Add a note explaining the distance Runway 9 threshold is shifted to the east. **A note explaining the threshold shift distance will be added.**

74. Explain what happened to taxiway from Runway 27 to hanger B as depicted on the previous sheet. It is no longer depicted. **This pavement will be maintained and depicted on this drawing.**

75. Explain why hangars J and H appear to be in the OFA for Runway 9/27. **Hangars J and H are located in the OFA. Hangar J will be demolished and Hangar H will be partially demolished. This drawing will be updated to depict that.**

76. Prior to actual acquisition of property to south of the runway, FAA will need to understand and concur with future aviation development. **So Noted.**

Airport Building Layout – West Side Sheet 6/15

77. We concur with the need to acquire land for Hangar "K". Prior to actual acquisition of property with the mini storage and the land to Bridge Street, the FAA will need to understand and concur with the proposed future aviation development. **So Noted.**

78. This sheet only depicts future conditions. Depict and note any changes that will occur with the ultimate development. We need to ensure that buildings constructed would not have to be removed for ultimate development conditions. Describe the impacts, if any, from the existing crosswind runway. There is a chance that the building construction would occur prior to construction of the new crosswind runway. **There are several comments requesting additional depiction of potential ultimate configurations (building layout and inner approach and part 77 drawings). Going into and following our telephone discussion in June 2011, it has been our intent of depicting the potential ultimate scenario on the ALP and data sheets only. Since the need/justification for this level of development is still speculative, and it is recommended that this topic be revisited in the next master plan/ALP update (5-7 years out), we did not account for creating these additional sheets in the ALP or master plan projects scopes of work. The Potential Ultimate ALP Sheet can be referenced to evaluate any possible long term concern related to interim building development. The layouts depicted throughout the ALP drawing set have been prepared to preserve potential future development of the airfield to C-II standards should they become warranted in the future.**

79. Add note on the railroad easement. **A note will be added on the railroad easement (as addressed in Comment #60).**

80. Future apron cannot be constructed in the RVZ. **The proposed apron will be adjusted so that it will remain outside the RVZ.**

Airport Building Layout – East Side Sheet 7/15

81. This sheet only depicts future conditions. Depict and note any changes that will occur with the ultimate development. We need to ensure that building constructed would not have to be removed for ultimate development conditions. It appears that some of the future apron would be useless with ARC C-II design standards. The Ultimate conditions can be depicted on a separate sheet. **Refer to Comment # 78.**

82. Describe the impacts to the terminal hangar A with construction of the proposed new terminal building. **There is no impact to terminal hangar A.**

83. Explain why the AWOS is being relocated. **The AWOS is being relocated to make way for the future apron expansion. This will be explained clearly on this sheet.**

84. Discuss why a taxiway goes from the hangar B area to the sidewalk inside the RPZ. A discussion of this situation was not in the MP report. **This portion of the taxiway will be shown as "to be removed" - consistent with the purchase of the adjacent parcel.**

Existing Runway 9 and 27 Approach Sheet 8/15

85. See comment 85 concerning the taxiway from hangar B. **Refer to Comment #84.**

86. Include an aircraft and tail height on the existing taxiway in the RPZ. This should also be listed in the obstruction table. Identify if there is a penetration to the approach or departure surfaces. **An aircraft (with appropriate tail height) will be added to the profile view and obstruction table.**

87. Runway 9/27 approach slopes for FAR Part 77 should be 34:1 not 20:12. The Runway 27 approach slope needs to be revised to reflect this. Identify any additional obstructions to the 34:1 approach surface. **The approach on the profile view will be updated to show a 34:1 slope and the obstructions table will be updated to reflect any additional obstructions.**

Future Runway 9 and 27 Approach Sheet 9/15

2 The 20:1 surface is only for visual runway and utility runways. Runway 9/27 is a larger than utility runway with visibility minimums greater than ¾ mile.

88. We will require an ultimate Runway 9/27 approach sheet. **Refer to comment #78**

89. See comments 86-88. **Comment 85 – This comment will be addressed as it was on the "Existing Runway 9 and 27 Approach Sheet." Comment 86 – This taxiway will be removed so no aircraft will be shown on the profile view. Comment 87 – The approach slope will be displayed at a 34:1 slope.**

90. Identify if there is a need to acquire a property interest in the Runway 9 approach. **As long as the avigation easement / agreement is maintained with St. Mary's Cement Company, there is no need to acquire property in the Runway 9 approach.**

Existing Runway 4-22 Approach Sheet 10/15

91. No comments.

Future Runway 15/33 Approach Sheet 11/15

92. If you will be requesting an approach with ¾ mile visibility minimums a clear 34:1 approach will be required. **So Noted, however no instrument approaches are recommended at this time. This proposed crosswind runway includes visual approach capability only.**

Obstruction Table Sheet 12/15

93. A data table for Runway 27 Ultimate is required. **Refer to Comment #78**

94. Clarify if you are requesting a determination of no hazard for any objects. **We are not requesting any determinations at this time. Identified obstacles are proposed to be removed through an ongoing removal program that will be need to refined with further FAA coordination.**

95. The Current Runway 9/27 approach slopes for FAR Part 77 should be 34:1 not 20:13. This table needs to be revised to reflect this. Identify additional obstructions to the 34:1 approach surface and their proposed disposition. **The approach sheets and data table will be updated to reflect a 34:1 Part 77 approach, and any associated obstructions.**

3 The 20:1 surface is only for visual runway and utility runways. Runway 9/27 is a larger than utility runway with visibility minimums greater than ¾ mile.

FAR Part 77 Sheet 13/15

96. Data is enclosed from the OEAAA database of obstructions near the airport and should be reviewed for this sheet. **Refer also to comment #18, we are waiting clarification from you as to whether these obstacles are "in place" or "as filed" and for confirmation as to which Part 77 surfaces were evaluated by FAA.**

Land Use Plan Sheet 14/15

97. Explain how the noise contour was developed for this drawing. No support information is in the MP report for these contours. The year 2020 contour appears inconsistent with the aircraft types and operations for an airport of this size. **Detailed noise analysis was not included in the scope of work for this master plan, however noise contours were generated to meet ALP checklist requirements. The contours were calculated using the forecasts presented in Chapter 3 of the Master Plan document, that were deemed "approvable" by the FAA in the January 18, 2012 ALP review comment letter. The associated model data sheets are provided (Attachment 2) attached and will be included in an appendix to the master plan.**

Airport Property Map Sheet 15/15

98. Identify if this plan sheet is for the future or ultimate development. **This plan sheet represents "future" development. A note will be added to clarify this.**

99. Data for existing land needs to be provided. **In talking with the Michigan Bureau of Aeronautics, it is now understood that the standard procedure in Michigan is to maintain two separate property related drawings and there is some discrepancy between the naming of these drawings. The first drawing is the "Airport Property Map" which is identified on the FAA Great Lakes Region ALP Checklist (2006) and which was formerly known as the "Exhibit A". The second drawing is MDOT's "Property Plan". According to MDOT the "Property Plan" is to show future property acquisitions whereas the "Exhibit A" is to document existing property holdings. While the Master Plan scope of work assumed that there was only one property type drawing, prepared to FAA standards, that served both agencies (consistent with other FAA regions in the nation) – at this point QoE will prepare the two separate drawings using readily available data (per the ALP and Master Plan scopes of work).**

100. Additional information on the land ownership north of Runway 9 needs to be provided. **St. Mary's property boundary will be depicted and labeled on this sheet.**

101. We recommend an aerial photograph sheet of the airport be included if available. **We will add an aerial photograph sheet to be included in the set.**

Please contact me with at 800-321-6959, extension 390 or via email at kclarke@rwa.com. I look forward to working with you on this very important project.

Sincerely,

R.W. ARMSTRONG & ASSOC., INC.

Kevin S. Clarke
Manager of Airport Planning

Attachment 1

CVX - supporting comment #4
from Table 4.2 - those aircraft that require more than 4550' for landing (table 4.7) - does not include the King Air 90

ARC	aircraft	Type	Growth Rate	2010 total ops	2010 landing ops	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
	King Air 200/250	TP	2.1%	112	56	57	58	60	61	62	63	65	66	68	69	70	72	73	75	76	78
	King Air 350	TP	2.1%	134	67	68	70	71	73	74	76	77	79	81	82	84	86	88	90	92	93
B-II	Citation II/Bravo	Jet	4.7%	148	74	77	81	85	89	93	97	102	107	112	117	123	128	134	141	147	154
	Citation V / Ultra	Jet	4.7%	51	25.5	27	28	29	31	32	34	35	37	39	40	42	44	46	49	51	53
	Citation Excel 560 XL	Jet	4.7%	95	47.5	50	52	55	57	60	63	66	69	72	75	79	82	86	90	95	99
	Falcon 50	Jet	4.7%	26	13	14	14	15	16	16	17	18	19	20	21	22	23	24	25	26	27
	Challenger 300	Jet	4.7%	20	10	10	11	11	12	13	13	14	14	15	16	17	17	18	19	20	21
C-II	Citation Sovereign	Jet	4.7%	24	12	13	13	14	14	15	16	17	17	18	19	20	21	22	23	24	25
	Hawker 900XP	Jet	4.7%	108	54	57	59	62	65	68	71	74	78	82	85	89	94	98	103	108	113
				total	**359**	**373**	**387**	**402**	**417**	**433**	**450**	**468**	**486**	**505**	**525**	**546**	**567**	**590**	**613**	**638**	**664**
			B-II only	566	283	293	304	315	326	338	350	363	376	390	405	420	435	452	469	487	505

Aircraft Type	INM Type	Total Daily Ops	Arrivals Day	Arrivals Night	Departures Stage length	Departures Day	Departures Night
Single Engine - Piston							
Cessna 172	CNA172	23.4246575	10.5410959	1.1712329	1	10.5410959	1.1712329
Multi Engine- Piston							
Islander/Partenavia/Multi-Piston	BEC58P	33.5287671	15.0879452	1.6764384	1	15.0879452	1.6764384
Turbo - Prop							
BE90	CNA441	0.9726027	0.4376712	0.0486301	1	0.4376712	0.0486301
B250/B350	DHC6	1.4821918	0.6669863	0.0741096	1	0.6669863	0.0741096
Jet							
C550/C560/C56X	MU3001	2.3095890	1.0393151	0.1154795	1	1.0393151	0.1154795
CL60	CL601	0.1567216	0.0705247	0.0078361	1	0.0705247	0.0078361
C680	CIT3	0.1890411	0.0850685	0.0094521	1	0.0850685	0.0094521
H25B	LEAR35	1.0520548	0.4734247	0.0526027	1	0.4734247	0.0526027
Rotor							
Robinson R44	R44	0.616438356	0.2773973	0.0308219	1	0.2773973	0.0308219
Bell 407	B407	0.616438356	0.2773973	0.0308219	1	0.2773973	0.0308219
HH-65C Dolphin (rotor)	SA365N	1.369863014	0.6164384	0.0684932	1	0.6164384	0.0684932

65.718365

Attachment 2 (page 1 of 2)

Charlevoix Municipal Airport (CVX)
Master Plan Update
2020 Noise Model Inputs
(day-90%, night-10%)
June 2011

Aircraft Type	INM Type	Total Daily Ops	Arrivals Day	Arrivals Night	Departures Stage length	Departures Day	Departures Night
Single Engine - Piston							
Cessna 172	CNA172	23.4246575	10.5410959	1.1712329	1	10.5410959	1.1712329
Multi Engine- Piston							
Islander/Partenavia/Multi-Piston	BEC58P	29.6164384	13.3273973	1.4808219	1	13.3273973	1.4808219
Turbo - Prop							
BE90	CNA441	0.9726027	0.4376712	0.0486301	1	0.4376712	0.0486301
B250/B350	DHC6	1.4821918	0.6669863	0.0741096	1	0.6669863	0.0741096
Jet							
C550/C560/C56X	MU3001	1.5452055	0.6953425	0.0772603	1	0.6953425	0.0772603
CL60	CL601	0.1041096	0.0468493	0.0052055	1	0.0468493	0.0052055
C680	CIT3	0.1260274	0.0567123	0.0063014	1	0.0567123	0.0063014
H25B	LEAR35	0.7013699	0.3156164	0.0350685	1	0.3156164	0.0350685
Rotor							
Robinson R44	R44	0.616438356	0.2773973	0.0308219	1	0.2773973	0.0308219
Bell 407	B407	0.616438356	0.2773973	0.0308219	1	0.2773973	0.0308219
HH-65C Dolphin (rotor)	SA365N	1.369863014	0.6164384	0.0684932	1	0.6164384	0.0684932
		60.575342					

Charlevoix Municipal Airport (CVX)
Master Plan Update
2010 Noise Model Inputs
(day-90%, night-10%)
June 2011

RW ARMSTRONG™
Inspiration to reality.

Memo

TO: Matthew Bailey, City of Charlevoix
Ernie Gubry, FAA
Alex Erskine, FAA
Paul Shapter, QoE Consulting
Mike Borta, QoE Consulting

PROJECT NO.: 20104420

FROM: Aaron Lofurno, RW Armstrong

CC: Kevin Clarke, RW Armstrong
Paul Puckli, RW Armstrong

DATE: March 28, 2013

On May 24, 2012, a conference call was held to discuss the status of the Charlevoix Municipal Airport (CVX) Master Plan and Airport Layout Plan (ALP) final review and approval process. The following parties participated in this meeting:

- Ernie Gubry, Environmental Protection Specialist
  Federal Aviation Administration, Detroit ADO
- Alex Erskine, Program Manager
  Federal Aviation Administration, Detroit ADO
- Matthew Bailey, Airport Manager
  Charlevoix Municipal Airport (CVX), City of Charlevoix
- Aaron Lofurno, Airport Planner
  RW Armstrong
- Michael Borta, P.E., Manager
  QoE Consulting
- Paul Shapter, P.E., Project Manager
  QoE Consulting

This conference call was the result of an ongoing effort to finalize the Master Plan document and attain FAA approval of the ALP set. To this date, there has been a series of communications between the Airport sponsor (City of Charlevoix), the FAA Detroit ADO, QoE Consulting, and RW Armstrong. The draft Master Plan and ALP were submitted to the FAA in August 2011. The FAA issued official review comments in letter dated January 18, 2012. QoE Consulting and RW Armstrong reviewed these comments and prepared a response letter to the FAA (dated March 28, 2012) that addressed the actions taken or additional clarification/rationale relating to each particular comment. The March 28 letter (which includes both the original FAA comments and the consultant responses) will be included in an appendix to the final Master Plan document.

During the conference call, Mr. Gubry gave an overview of where things stand with the review and approval process. Specific comments were addressed and a strategy for moving forward was established. It was concluded that the FAA is generally satisfied with the Master Plan document and ALP set, as long

4080 Lafayette Center Dr. / Suite 210 A / Chantilly, VA 20151
PH 703.230.0300 // TF 800.321.6959 // FX 703.230.0299
rwArmstrong.com

as their March 28th comments, and the results of the May 24th teleconference, are incorporated into the final document. Mr. Gubry then asked that a revised copy of the ALP be submitted to the FAA for review by the airspace division. A set of revised ALP drawings was submitted to Mr. Gubry (May 31, 2012) for review prior to the eight sets being printed for FAA Airspace Review. A second submittal of the Master Plan document is not required. The FAA, did however, want the Airport sponsor and consultants to understand their position on the following considerations:

- ALP approval does not imply justification for funding. For example, the Runway 9-27 runway extension will require additional justification, including letters from operators stating their need for a longer runway. Justification efforts will need to be coordinated with the FAA.

- Airfield improvements should consider the long-term plan. Any airfield improvements made to B-II design standards should not inhibit the long-term development to C-II standards.

Other key discussion highlights are summarized below:

Primary Runway Extension:

- The FAA reiterated that careful consideration should be taken before extending the primary runway to 5,000 feet under B-II design standards. Their position is that a 5,000 foot runway has the potential to be more appealing to business jet aircraft, or more specifically, C-II business jet aircraft. If the proposed runway extension does increase the amount of C-II traffic to levels above the 500 annual itinerant operations threshold, the City will be expected to advance development of the airfield facilities to C-II design.

- As part of the future NEPA process for the proposed runway extension, the most current justification data, including aircraft operational counts, should be reviewed to confirm the appropriate ARC standards that the project should be designed to. Once the FAA environmental determination phase is complete, no more justification will be necessary, and the design and construction phase will be able to begin.

Crosswind Runway:

- The timing of the crosswind runway replacement should be carefully considered. The decommissioning of Turf Runway 4-22 should be implemented upon the construction of the new crosswind runway.

- Although no additional wind data or evaluation is currently needed for completion of the Master Plan, evaluation of the most current 10 years of wind/weather data will be required for justification of the crosswind runway.

- According to Mr. Gubry, at this point in time, the FAA considers this is a large cost project with a low AIP funding priority.

End-Around Taxiway:

- The existing end-around taxiway should be removed/relocated, but an aligned taxiway will not be an acceptable solution. Upon the FAA airspace division's approval of the ALP, no action to

relocate the taxiway will be needed until the runway extension is pursued. Removal of the end-around taxiway and the extension of the primary runway should be pursued together.

Forecasts of Aviation Demand:

- The forecasts were "generally concurred upon" by the FAA in December 2010. The FAA is still in agreement with the forecasts, as long as the potential for long-term airport development to C-II design standards is preserved.

Implementation Plan:

- The terminal building should be the focus of the Airport's implementation plan over the next few years.
- After the terminal project is complete, the focus of the Airport's improvements will be the primary runway extension. Coordination with the FAA regarding the ongoing development program should continue throughout this time and be addressed at the State's MAP meetings.

U.S. Department
of Transportation
**Federal Aviation
Administration**

**Detroit Airports District Office
11677 South Wayne Road
Suite 107
Romulus, MI 48174**

December 17, 2012

Mr. Rob Straebel, City Manager
Charlevoix Municipal Airport
210 State St.
Charlevoix, MI 49720

Dear Mr. Straebel:

Charlevoix Municipal Airport, Charlevoix, Michigan
Airport Layout Plan (ALP) Review
Airspace Case No. 2012-AGL-4318-NRA

The Federal Aviation Administration (FAA) has completed an aeronautical review of the ALP, dated September 2011, filed by QoE Consulting for the Charlevoix Municipal Airport (CVX).

Based on the study, the ALP is approved from an airspace utilization purpose only. The Airport Sponsor must review the ALP based upon the enclosed "ALP Comments" and make the appropriate changes.

If you have any questions, require clarification, or want additional information please contact me by e-mail at Ernest.Gubry@faa.gov or by phone at (734) 229-2905. When all comments from this review letter and subsequent phone conversations have been incorporated on all applicable sheets, please forward one ALP set for my review. I will verify the necessary changes have occurred and request eight ALP sets for final ALP approval.

Sincerely,

Ernest P. Gubry
Detroit Airports District Office
Enclosure (ALP comments)

cc: Mike Borta, QoE Consulting w/enclosures
Ralph Sims, State of Michigan w/enclosures
Mark Grennell, State of Michigan w/enclosures
FAA commenting LOBs w/enclosures

ALP Comments

Background Information

The last ALP was approved on May 2, 2004, under airspace case 2004-AGL-51-NRA. The FAA has provided comments on the Master Plan study and draft ALP by letter dated January 18, 2012.

Proposed Development

The major proposed development depicted on this ALP update is:

- Extension of Runway 9-27 from 4,550' to 5,000' at B-II design standards (future drawing).
- Construction of a new crosswind Runway 15-33 a 2,200' at A-I design standards (future drawing).
- Upgrading the extended Runway 9-27 from B-II to C- II design standards (ultimate drawing).
- Various taxiway and hangar projects (both drawings).

Based upon the wind data provided on the ALP and in the Master Plan Report, the FAA acknowledges your determination that a relocated crosswind runway will provide additional wind coverage. However, due to the projected cost involved, and FAA's low priority ranking for a new crosswind runway, the sponsor will need to maintain the current crosswind runway for the foreseeable future. Also, the airport sponsor must receive FAA concurrence prior to the start of any environmental review for this project, including but not limited to additional information on potential runway usage, justification, project costs, financial plans, and a benefit cost analysis for the project.

In general, the FAA concurs with your determination of an Airport Reference Code (ARC) of B-II for the existing Runway 9-27. We also concur with your long term plan of a C-II ARC for this runway. The airport sponsor is responsible for monitoring actual aircraft operations of the runway to ensure that the runway meets the proper ARC design standards. As we have previously discussed, the FAA has concerns with the proposed timing of the increase in ARC from B-II to C-II. Current data provided in your Master Plan Report, depicts 300 operations of aircraft greater than the ARC B-II for 2009. The airport sponsor should proceed with caution, in designing future elements to B-II standards as you are close to meeting the substantial use threshold of 500 annual operations. Once exceeded, the airport sponsor will need to comply with the greater design standards as depicted on Sheet 5 of the ALP set. For this reason the FAA has concerns with the runway extension project. Also, the airport sponsor must receive FAA concurrence prior to the start of any environmental review for this project, including but not limited to additional information on potential runway usage, justification, project costs, financial plans, and a benefit cost analysis for the project.

No service road connecting the north side aviation area to the south side of the airport is depicted for the ultimate ALP sheet. The current design could increase the number of vehicle runway crossings thus increasing the chance of runway incursions at your airport.

We expect the airport to limit the number of vehicles crossing Runway 9-27. Additional study of an interior service road is strongly recommended. The airport sponsor may wish to require all vehicles to use public roads when traveling from the north side to the south side of the airport.

Prior to actual acquisition of property to south of the runway, FAA will need to understand and concur with the future aviation development proposed for that land. We understand the sponsors desire to eliminate the "through-the-fence" to Hangar K and L. The sponsor will also need to resolve the status of the ball parks located on the north side of the airport. It will be difficult for the airport sponsor to justify land acquisition for the south property while the airport has leased property for non-aeronautical use (ballparks).

On the Future ALP (Sheet 4 of 15), the 50' easement will need FAA concurrence prior to occurring.

Design Group

The following design groups, runway lengths, aircraft weights or critical design aircraft was used for this study:

Runway	Length	Status (E or P)	Design Group	Weight	Approach Visibility Minimums
9/27	4,550'	E	B-II	>12,500	300'-1 mile/500'-1 mile
9/27	5,000'	P	B-II	>12,500	NPI/NPI
9/27[1]	5,000'	P	C-II	>12,500	NPI/NPI
4/22[2]	1,800'	E	A-I	<12,500	Visual/Visual
15/33	2,200'	P	A-I	>12,500	Visual/Visual

Results

Based upon the airspace study FAA identified these concerns that need to be resolved:

Airport Layout Plan Comments

Airport Data Sheet 2/15

1. Need to change the runway end coordinates for future Runway end 27. The FAA believes the correct coordinates to be 45° 18' 19.18" N and 89° 15' 59.56" W.

Existing Airport Layout Plan Sheet 3/15

2. Add note for ball parks "Existing non-aeronautical land use to be resolved with the FAA".

[1] Note the runway would be shifted 670' to east to achieve C-II design standards
[2] Turf runway

3. Add note for the private residential taxiway "Private Taxiway".

4. Add note for the through-the-fence taxiway "Private Taxiway".

Future Airport Layout Plan Sheet 4/15

5. Change current note concerning ball parks to "Existing non-aeronautical land use to be resolved with the FAA".

6. Future runway end coordinate for Runway 27 is incorrect. FAA believes the correct coordinates to be 45° 18' 19.18" N and 89° 15' 59.56" W.

7. The side walk will need to be relocated off airport property and outside the RPZ as part of the runway extension project. Another acceptable alternative would be to abandon the side walk.

Potential Ultimate Airport Layout Plan Sheet 5/15

8. Change current note concerning ball parks to "Existing non-aeronautical land use to be resolved with the FAA".

Airport Building Layout – East Side Sheet 7/15

9. Need to label the private residential taxiway "Private Taxiway".

Existing Runway 9 and 27 Approach Sheet 8/15

10. Need to provide obstruction number to the aircraft in the approach to Runway 27. This needs to be listed in the obstruction table on sheet 12 of 15.

11. Include the current hold line locations for the taxiway.

Land Use Sheet 14 of 15

12. Add note for ball parks "Existing non-aeronautical land use to be resolved with the FAA".

Airport Property Map Sheet 15/15

13. Change current note concerning ball parks to "Existing non-aeronautical land use to be resolved with the FAA".

General Comments to Guide Future Development

1. All projects depicted on the ALP will require **additional justification, airspace review, financial planning, and environmental approval** as the final project details are developed.

2. Prior to additional land acquisition, the airport sponsor must resolve all existing non-aeronautical land uses (ball parks) with the FAA.

3. The "Private Residential Taxiway" and "Private Taxiway" are not eligible for FAA AIP funding.

4. Approval of an ALP is not a commitment of Federal funding for the proposed development. The Federal Aviation Administration (FAA) has agreed with the proposed development for planning purposes only, based on current safety, utility, and efficiency standards. Development should comply with approved standards applicable at the time of construction.

5. Before the FAA can approve any proposed development depicted on this ALP for construction, federal law requires us that an independent environmental review be completed. This could involve a Categorical Exclusion, Environmental Assessment or an Environmental Impact Statement. These processes involve public participation as well as extensive review of the justification, all feasible alternatives, environmental and socioeconomic issues. Refer to FAA Order 5050.4B "*National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*". The sponsor should plan for and allow adequate time to complete the environmental process for future development. This would also apply to development projects, even if there were no FAA funding involved in the project.

6. The FAA has included the proposed runway extension and crosswind runway in our Obstruction Evaluation Airport Airspace Analysis (OEAAA)[3] database. This will allow the FAA, to the extent possible, to protect the airspace for this development. The airport sponsor should work with the local communities and zoning boards to ensure no structure is constructed that may interfere with the planned runway development.

7. The FAA will need to review and ensure that the lease for the land north of Runway 9-27 meets FAA requirements prior to any airport expansion.

[3] Public Web Site Address: http://www.OEAAA.FAA.Gov

Review Comments from FAA Lines of Business

Response from FAA Flight Procedures Office:

The CENTRAL Service Area Flight Procedures Team (FPT) has completed the ALP review for Charlevoix Muni, MI. Future structures and/or construction equipment were not evaluated as part of this study. The ALP as shown does not give the FPT all required information needed to complete a detailed evaluation of the IFR effects each proposed construction activity may have on existing and/or future instrument procedures for this airport. This does not mean all proposed activities shown will not affect existing or future instrument procedures at this airport. Each proposed construction activity must be studied as a separate airspace study and the FPT will provide effects the proposed construction activity may have on existing and/or future instrument procedures.

IFR EFFECT. The described future RWY 9/27 will require at the very least, a supplemental obstacle survey to support the required amendment instrument procedures. Procedures may require FDC NOTAMS.

1. Notification Requirements. If the proponent desires to update the official airport magnetic variation they must notify the Central FPT to initiate the request. Central FPT must be notified at (817) 321-7601 at least 5 days prior to the relocation of the thresholds. Proponent must provide the latitude/longitude and elevation of the displaced threshold location. (Notification time necessary for issuance of NOTAMS).

2. Letter Required. Review of this ALP does not constitute an automatic request for amended procedures. A letter must be submitted, to Central FPT, by the Airport Manager or ADO, requesting amendments to IAPs.

3. Timeline. Include construction/equipment relocation timeline if this ALP is approved. Identify when the construction will start, finish, when the equipment will be relocated, etc. This is critical for developing/amending procedures. We must know when different stages are planned to have our procedures ready when construction is complete. (Equipment relocation, threshold displacements, etc).

4. Survey Data. Changes in runway pavement length will result in survey data, which, IAW AC 150/5300-13.

5. Submit Proposed Equipment Relocation Data. Proponent must provide proposed relocation location/information of any equipment that will be relocated or added: Lighting, Localizer, AWOS, PAPIs, etc. Aeronautical Data and Airspace Team (Ron Steward @ 405.954.9124).

6. Publication. Publication of amended Instrument Approach Procedures could take from 18 months, up to 2 years, after runway data is submitted to AVN-210 and ATA-110.

7. FAA Form 5010-1. Proponent must update the airport FAA Form 5010-1 to reflect new runway data and updated runway changes.

Response from FAA Flight Standards System Office:

No objection to the proposed airport layout plan.

No requests for modifications of standards noted.

No objections to the request for a determination of no hazard as listed on sheet 12 based on the current conditions, which includes a PAPI serving runway 27, a future state with those obstructions cleared, the existing clear 20:1 surface for visual approaches, and no instrument approach procedures to the airport. The PAPI's should be commissioned with the FAA and obstacle clearance verified if this has not already been completed. Penetrations to the34:1 surface will negatively impact future instrument approach and departure procedures.

Response from FAA Tech Operations:

We have no objections to the proposed ALP update for CVX provided the following conditions must be implemented:

ENVIRONMENTAL STUDIES. Where navaids must be moved or reconstructed, or constructed for a new runway or runway extension , ensure the proposed NavAid installation(s) are compliant with the National Environmental Policy Act (NEPA) and FAA Order 1050.19B, Environmental Impacts: Policies and Procedures, by sufficiently completing the appropriate NEPA documentation. Attention should be given to, and if applicable, resolution(s) or mitigation(s) identified, for NavAid installation site(s) or action(s) which would impact any of the potential impact categories, such as: wetlands, floodplains, recreational public lands or parks, or areas with hazardous contamination.

If the navaids project is 100 percent NON-FED (work being performed by the airport with no FAA involvement), send the items identified in above to:

Terminal Team Lead
FAA-ATO Central Service Center
2601 Meacham Blvd.
Fort Worth, Tx 76137.

2. REIMBURSABLE AGREEMENT. Any displaced or relocated FAA facility such as runway 27 PAPI and its associated cables due to this ALP construction will require a signed and executed reimbursable agreement with the FAA. The request for a reimbursable agreement must be made by the airport in writing to the FAA Planning & Requirements office at:

NAS Planning and Integration Team
FAA-ATO Central Service Center
2601 Meacham Blvd.
Fort Worth, TX 76137.
817-222-4553

3. The ALP shows buildings are to be constructed to face runways. Buildings facing the runways have the potential to disturb future localizer signals by reflection or reradiation. Buildings facing the runway should be oriented such that a line drawn from the future localizer antenna at each end of the runway will be either parallel or perpendicular to the building walls. If a wall facing the runway must be parallel to the runway, the wall should be constructed of a material that will not reflect the localizer signal. In order of increasing reflectiveness, materials are fiberglass, wood, concrete block, reinforced concrete, and metal.

4. When runway and its RSA and OFA are extended, the spur road that runs from the access road to the shelters will lie inside the RSA and OFA. The FAA discourages the practice of placing roads and parking areas inside an RSA or OFA. Where feasible, future navaid access roads should not intersect with runways or taxiways.

5. Advance coordination with the FAA/Tech Ops Regional personnel will be required through the airspace process to facilitate the relocation of the AWOS facility.

6. Sponsor should be aware of appropriate FAA Advisory Circular for navigation facilities installation design. For lighted navigational facilities, the sponsor should refer to the Advisory Circular 150/5345-28E, "Precision Approach Path Indicator" (PAPI) Systems) and Advisory Circular 150-5340-30, "Economy Approach Lighting Aids". When designing and installing future lighted NAVAID's, the sponsor should be aware of FAA Order 6850.2A, "Visual Guidance Lighting Systems".

7. Each proposed construction activity identified on the subject ALP shall be submitted as a separate airspace case study. A safety phasing plan must be included as part of the airspace study and it must be approved by the Regional FAA/Tech Ops office before any construction activity can begin.

8. A copy of the **approved** ALP should be forwarded when available to Technical Operations OE/AAA Program Management, at: [4]

FAA-Technical Operations
Great Lakes Region, AGL-471
2300 East Devon Avenue
Des Plaines, IL 60018

Response from FAA Air Traffic Obstruction Evaluation Group

No objection. All structures listed on the Airport Part 77 report for CHARLEVOIX MUNI Airport generated on 08/07/2012 were checked for impact. The VFR traffic patterns were reviewed for CAT C. No action is required for any of the obstacles listed in the Part 77 report.

[4] The FAA ADO will take care of this requirement as part of the ALP approval process.

Aaron Lofurno

From: Paul Shapter <PShapter@QoEConsulting.com>
Sent: Tuesday, March 19, 2013 8:34 AM
To: Aaron Lofurno
Subject: FW: CVX ALP Status

Take a look at tell me what you think?

-----Original Message-----
From: Ernest.Gubry@faa.gov [mailto:Ernest.Gubry@faa.gov]
Sent: Monday, March 18, 2013 3:20 PM
To: Scott Woody
Cc: Rob Straebel; Mike Borta; Alex.Erskine@faa.gov; Ernest.Gubry@faa.gov
Subject: CVX ALP Status

The ADO review is complete

After we resolve the Future Runway 27 end coordinate (see below), please approve the ALP and send 8 copies to the State for their approval

After the State approves the ALP it should return all copies to the ADO so we can attach our Airspace approval letter to the ALP and distribute it.

The ALP that I received January 22, 2013, indicates the following:

Future Runway Ends 9 & 27 Sheet Two Runway Data Table

Runway 9 Future 45 18 15.03N, 85 17 8.89W

Runway 27 Future 45 18 19.18N 85 15 59.56W

The Same Data is presented on Sheet 4 for the Runway End Coordinates this data yields a runway length of 4,974' (see attached analysis)

I believe the correct Runway 27 data should be Future 45 18 19.18N 85 15 59.16W (see attached analysis)

If you agree with this, please make the changes per above (data table sheet 2 and sheet 4).

if you do not concur with this number please contact me .

thanks

Ernest P. Gubry
DET ADO
734 229 2905

(See attached file: Runway distance ADO.pdf)(See attached file: runway distance CVX.pdf)