



Lawrence J. Timmerman Airport Business Plan

Milwaukee, Wisconsin

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Engineering | Planning | Allied Services





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Executive Summary

Lawrence J. Timmerman Airport (MWC) has been owned by Milwaukee County since 1947. The primary runway length has been 4,103 feet since the late 1950s. Over the last 60 years, the general aviation fleet, especially those aircraft used in business aviation to transport the company decision-makers, has evolved from piston-powered twin engine aircraft to quieter, more fuel-efficient business jets. As a reliever airport for General Mitchell International Airport (MKE), MWC is intended to serve general aviation aircraft, including these business aircraft. Reliever airports are designed and designated to serve smaller aircraft to protect the capacity at the commercial service airport for the large aircraft.

While general aviation aircraft have evolved, the facilities at MWC have remained essentially unchanged, except for the addition of a few hangars. The lack of airfield development to keep pace with business aircraft requirements, along with improvements at other area general aviation airports, has resulted in a slow decline in based aircraft and operations at MWC over the last 20 years. To reverse this trend, the Milwaukee County Department of Transportation, Airport Division staff undertook a business plan for MWC. The purpose of the business plan was to identify how to re-energize and revitalize MWC to make it a better transportation and economic development tool for Milwaukee County, with a vision of being the premier general aviation airport for southeast Wisconsin.

This business plan identified two broad strategic goals:

- 1. Increase the attractiveness of MWC for aircraft operators through needed improvements to facilities**
- 2. Increase the awareness of MWC through rebranding and marketing in order to increase the activity and revenue generated at MWC**

To achieve these goals, the following strategic objectives were identified for implementation:

- 1. Rebrand/rename MWC**
- 2. Promote MWC as a corporate facility**
- 3. Develop a new modern terminal facility**
- 4. Increase the runway length and improve the instrument approaches**
- 5. Staff MWC with a manager to promote and champion the facility**
- 6. Improve financial self-sufficiency**
- 7. Strategically manage existing building assets**

Rebrand/Rename MWC

To make the location and services offered at MWC readily recognizable to pilots and aircraft schedulers around the country, it is recommended that MWC changes to a name that includes the location as well as indicates its support for corporate aviation, while retaining a connection to its history. Suggested names include Milwaukee Metropolitan Airport, Milwaukee County Regional Airport or Milwaukee County Executive Airport, with “at Timmerman Field” or “served by Timmerman Terminal” as part of the

name. The chosen name should also reflect the desired brand for MWC, and the brand should be carried through signage and all public relations aspects for the airport.

Rebrand/Rename MWC Implementation Recommendations

Renaming

1. Coordinate with appropriate stakeholders and select new name
2. Take official local action to adopt new name
3. Submit Federal Aviation Administration (FAA) Form 7480 to FAA with documentation of local approval of new name
4. Coordinate publication schedule for new name with FAA
5. Schedule unveiling of new name to align with FAA publication of new name
6. Plan signage updates at MWC to align with FAA publication of new name

Rebranding

1. Develop a work plan for rebranding/marketing to establish budget, airport staff responsibilities and need for outside services
2. Develop brand logo, colors and tagline
3. Develop key messaging
4. Establish brand standards for use of MWC brand

Promote MWC as a Corporate Facility

There are two key elements to promote MWC as a corporate facility: the first is an awareness of MWC as a viable option for corporate aircraft, and the second is facilities designed to serve corporate aircraft operations. Facilities take time to plan, design and construct, but a new brand and associated marketing campaign can be undertaken to increase awareness and encourage activity at MWC as the physical improvements are occurring. Spring City Aviation – East LLC (SCA) acquired the fixed-base operator (FBO) business at MWC in December 2016. Drawing on its experience of managing corporate aircraft and providing services at two other regional airports, SCA has been actively pursuing business aviation. The County’s rebranding and marketing for MWC will complement the efforts of the FBO, and both entities should work cooperatively in the rollout of the new MWC name and brand. The more aircraft the FBO serves, the more revenue that is generated for the Milwaukee County airport system. Growth in the corporate market will improve MWC revenues and provide a needed economic development boost for the metro area.

Implementation Recommendations to Promote MWC as a Corporate Facility

1. In coordination with SCA, continue marketing current airport and activities
2. Establish marketing plan for MWC now and with new name roll out
3. Launch new brand in coordination with new name
4. Measure success of objectives in marketing plan

Develop a New, Modern Terminal Facility

The terminal at MWC is housed in the original hangar facility. Initially constructed in 1928 for the assembly of aircraft, it has been expanded and modified over the years. As such, it does not offer the accessibility and modern facilities to serve as a great “front door” to Milwaukee County. Multiple alternatives were studied to improve, expand or replace the terminal on the north side of the airport.

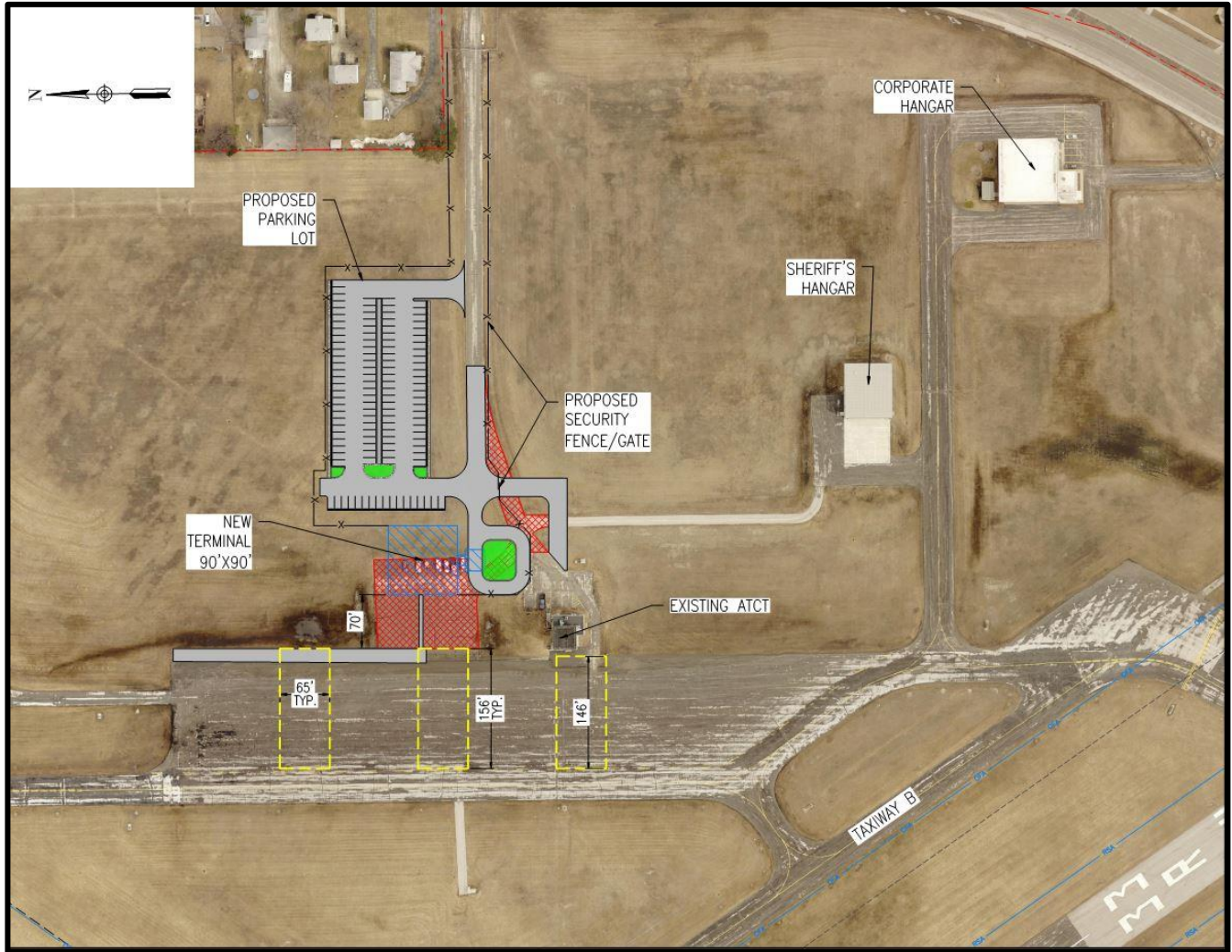


Figure ES1. East-Side Terminal — Initial Development

However, due to the terminal’s close proximity to the runways, all new development still resulted in a constrained site. To provide a location with expansion potential, the new terminal is planned to be developed on the east side of MWC to the north of the existing Air Traffic Control Tower (ATCT). Because the terminal will be on airport-owned land and utilize the existing entrance road and apron, its design can be immediately initiated. Funding assistance should be sought through the Wisconsin Department of Transportation Bureau of Aeronautics’ airport development grants for the new terminal.

The terminal is envisioned to be developed to include space for a café or restaurant. As an improved “front door,” the new terminal will assist in promoting MWC as a corporate facility. The build-out of the east-side terminal area is planned with community/event space along North 91st Street. This space will provide a connection to the community and an opportunity to showcase the history of MWC.

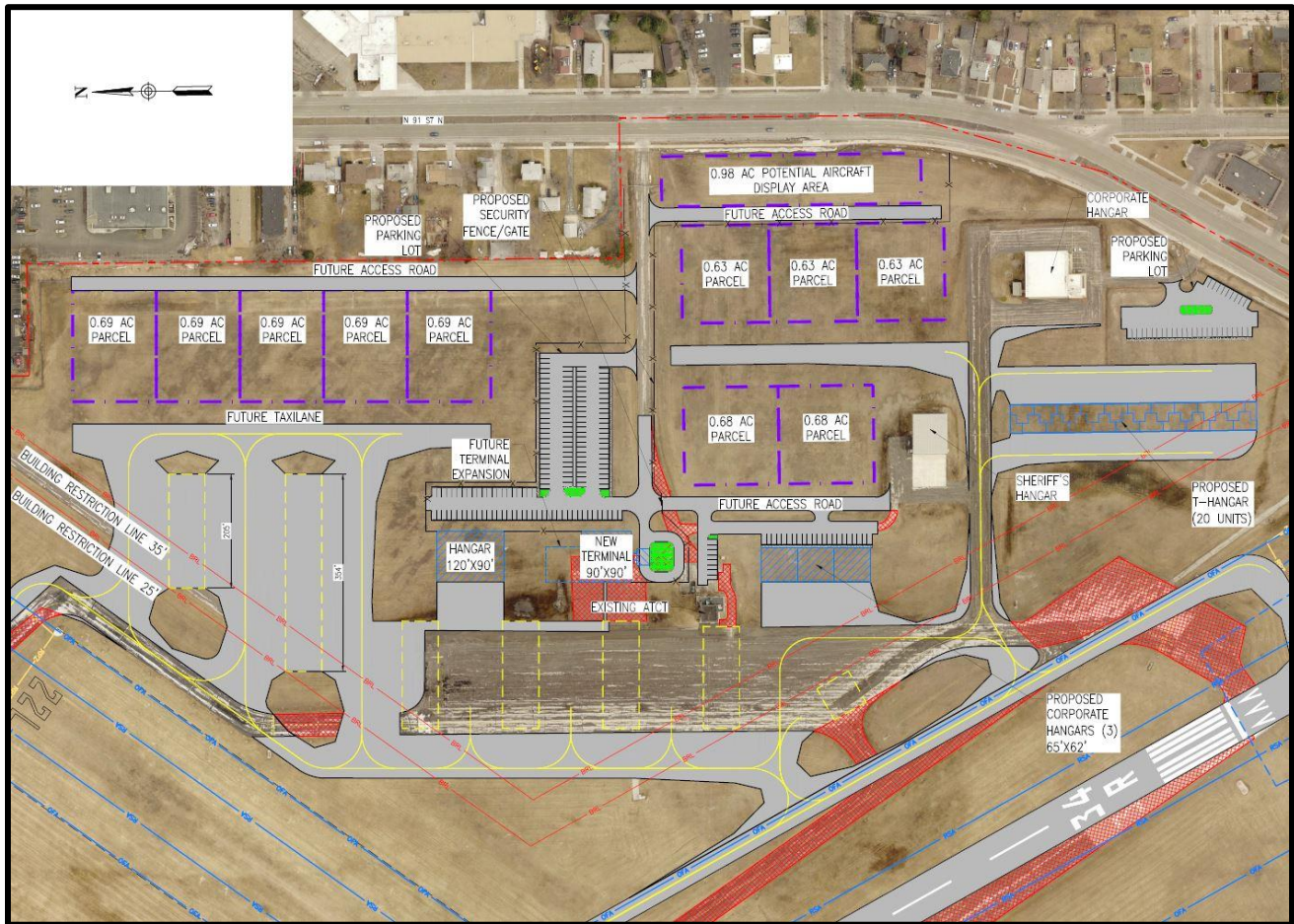


Figure ES2. East-Side Terminal Area Build-Out

Implementation Recommendations to Develop New Modern Terminal Facility

1. Submit revised airport layout plan to FAA showing east-side terminal area
2. Prepare environmental documentation for new terminal (categorical exclusion or environmental assessment short-form anticipated)
3. Design terminal building and associated site improvements
4. Pursue grants for terminal and eligible apron improvements
5. Construct initial east-side terminal development
6. Market availability of new terminal
7. Market east-side hangar development opportunities
8. Pursue corporate support for development of community/event space

Increase Runway Length and Improve the Instrument Approaches

In addition to general aviation business aircraft evolving, the FAA has also increased the required margin of safety for turbojet aircraft, by requiring that the operators of turbojet aircraft add 15 percent to the calculated landing distance when landing on a wet runway. Thus, many of the business aircraft that can operate at MWC in dry conditions on the 4,103-foot long primary runway are excluded from operating at MWC with a wet runway. To provide all-weather operating capability for these operators, a realigned Runway 16L/34R of 5,000 feet in length, (4,934 feet fully usable) is planned for MWC. When developing the realigned runway, it should include the grading necessary to also realign its parallel turf runway.

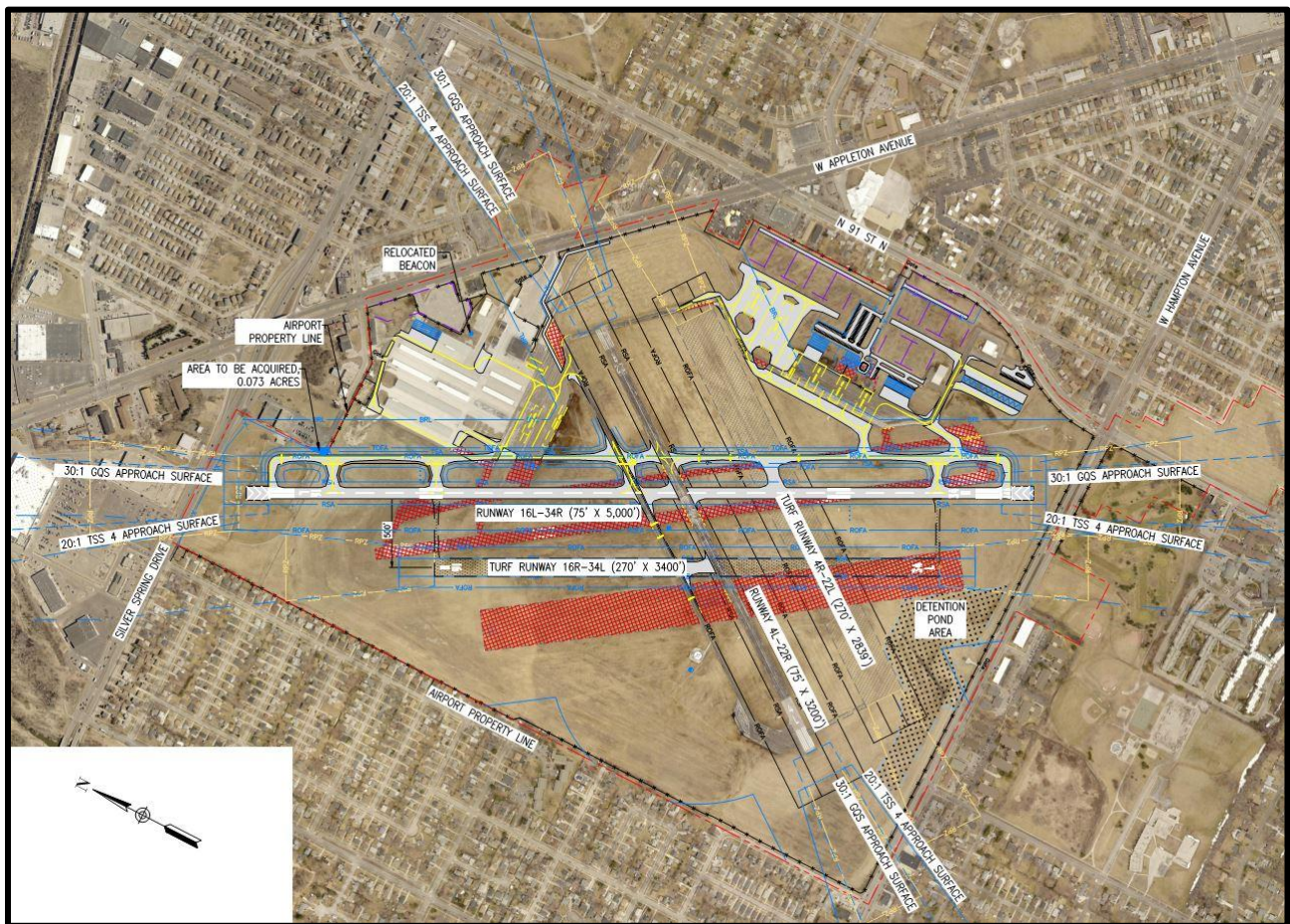


Figure ES3. Realigned Runway 16L/34R

The development of Runway 16L/34R is anticipated to be a five- to seven-year capital improvement program. After providing the FAA with an airport layout plan set of drawings depicting the proposed runway, an environmental assessment of the development will need to be prepared to ensure the new runway development occurs in the most environmentally conscious manner, while meeting the technical aviation needs and requirements. Concurrent with the environmental assessment study, the

airport staff should pursue grants for the realigned runway program to coordinate the timing and phasing of the construction with the availability of grants.

Implementation Recommendations for Realigned Runway

1. Submit revised airport layout plan to FAA for airspace approval of realigned Runway 16L/34R and associated development
2. Prepare environmental assessment for realigned Runway 16L/34R program (runway and all supporting infrastructure such as taxiways, modified apron connectors and turf runway)
3. Pursue FAA Airport Improvement Program grants
4. Design Runway 16L/34R program
5. Initiate process to modify instrument approach from Runway 15L/33R to 16L/34R
6. Construct Runway 16L/34R program, phased as needed to align with grants

MWC has an instrument approach to three of the four paved runway ends. The new NextGen global positioning system (GPS)-based technology should enable an instrument approach to be developed to the fourth paved runway end, Runway 33R. This will increase the margin of safety at MWC in instrument conditions by allowing pilots to use the runway with the most favorable winds (aircraft land into the wind for the lowest and safest ground speed). With support from the air traffic controllers at MKE and MWC, airport staff have made the online application to the FAA to initiate the approach development process and will obtain the necessary survey data to support the new approach development. When the realigned runway is being designed, a modification of the instrument approach to serve the new runway end will be coordinated with the FAA.

Implementation Recommendations for Instrument Approach to Runway 33R

1. Request instrument approach to Runway 33R via FAA's online system
2. Obtain letter from MKE and MWC tower in support of Runway 33R instrument approach
3. Show instrument approach to Runway 33R on revised airport layout plan
4. Conduct obstruction survey to support instrument approach in "leaf on" seasonal conditions, as required by FAA
5. Prepare categorical exclusion for establishment of approach to Runway 33R
6. Champion/monitor progress until instrument approach to Runway 33R is published

Staff MWC with a Manager to Promote and Champion the Facility

The transformation of MWC into a premier general aviation airport will be a multi-year process. To maintain and manage the process and market the facility to potential users, MWC needs a champion. Initially, this position is envisioned to manage and market general aviation operations at both Milwaukee County airports and transition full time to MWC as activity grows. An administrative assistant for MWC is also recommended. These positions are in addition to the existing two full-time and one part-time maintenance staff members at MWC. The general aviation manager would also assume the responsibility of planning and prioritizing the maintenance work at MWC and communication with tenants during any emergency or snow event.

Implementation Recommendations for Staffing MWC with a Manager

1. Develop job description including goals and responsibilities for general aviation manager position

2. Fill general aviation manager position in first quarter of 2018
3. Staff or identify administrative assistance resources for general aviation manager
4. Establish working relationship with FBO and MWC tenants

Implementation Recommendations for General Aviation Manager to Champion MWC

1. Advocate for MWC to other County staff, the business community and the local community at large
2. Coordinate projects for MWC, such as the pursuit of an instrument approach to Runway 33R, the pursuit of additional runway length and programming improvements for MWC in the capital and/or operating budget
3. Serve as a representative of MWC by speaking to the community about the benefits of MWC and hosting community educational opportunities, such as tours for school or youth groups
4. Coordinate closely with and maintain open communication with the FBO and other tenants at MWC about planned maintenance activities and improvement programs to minimize the impact on their operations
5. Coordinate marketing efforts between the County and FBO to increase the utilization of MWC
6. Market to potential business users of MWC to attract more aviation activity
7. Support customer service efforts in coordination with Spring City, to attract and retain return users
8. Manage the County maintenance functions at MWC to ensure the facility looks top-notch and to be a point of contact with tenants during snow events or other irregular operations to better meet the needs of the users
9. Function as the first point of contact for businesses interested in developing facilities at MWC
10. Respond to Airport as part of emergency response team.

Improve Financial Self-Sufficiency

MWC is part of a larger airport system that includes MWC and MKE. In the role of reliever, MWC is supported financially by users at MKE. This business plan is intended to develop solid recommendations that will move MWC toward improved financial self-sufficiency over time. By improving the financial self-sufficiency of MWC, both airports as well as airlines and tenants will benefit financially. The primary revenue generators at general aviation airports are the leasing of facilities for the storage of aircraft and aviation businesses and fuel flowage fees from the sale of fuel. To increase these revenues, the number of based aircraft and operations at a given airport need to increase. Making MWC more attractive, especially to corporate aircraft that need larger hangars and need to buy more fuel, is essential. The development of the new terminal, along with increased runway length on the realigned runway, will provide the modern facilities that will allow for increased operations. The rebranding, marketing and addition of an airport manager to help champion the facility will begin to ensure aircraft operators think of MWC first when flying to Milwaukee. Working cooperatively with the fixed-base operator is also essential to providing the expected level of customer service to increase utilization on MWC now and as physical improvements are implemented.

Implementation Recommendations Improving Financial Self-Sufficiency

1. Establish an asset management plan for existing buildings

2. Establish a development plan using best practices for aviation and non-aeronautical use of MWC property including establishment of return-on-investment goals for the County
3. Allocate and depict non-aeronautical land use on the airport layout plan
4. Obtain FAA land use approval for non-aeronautical use of MWC property
5. Use key performance indicators (KPI) as a management tool, some data will come from FBO
6. Re-lease east-side corporate hangar and sheriff's hangar for aviation use at market rate when current leases end within the next three years
7. Partner with fixed-base operator to implement FBO recommendations in business plan, working cooperatively on managerial, capital, financial, business development and marketing/branding goals for MWC

Strategically Manage Existing Building Assets

Maximizing the use of existing assets while improving the physical facilities at MWC is important to the successful implementation of this business plan. One of the elements of this business plan was to assess the condition of existing County assets to establish an asset management strategy. The current County-owned building assets at MWC vary in age from 20 to 90 years. The terminal, maintenance garage, airport traffic control tower and civil air patrol facility are assets that are recommended to be maintained long-term. Each has some deferred maintenance that needs to be accomplished on these facilities in the next couple of years. T-hangars G, M/N and O/P meet current T-hangar standards and are anticipated to be maintained long-term. However, their condition and utilization should be reassessed before starting the building renewal on each in approximately 2030. The other T-hangars are older and small by current standards. A progressive replacement program for these T-hangars is recommended after the new terminal and realigned runway are in place and demand for hangars at MWC is anticipated to increase. Any removal of existing hangars within the SCA lease will require negotiating a lease amendment. This type of a lease amendment should be more feasible after activity levels and fuel sales increase at MWC. Ultimately, fuel sales should become the primary revenue source for an FBO at MWC. Certain hangar facilities are recommended to be kept in place in the short-term, with replacement to occur on the east side of the airport as demand warrants and in coordination with the new runway.. This proposed strategy allows for these building assets to continue to generate revenue for the time being, but when the increased activity from the realigned runway begins to take place, newer, larger and more modern facilities will then be required.

Table ES1 summarizes the existing building asset recommendations.

Table ES1. Existing Building Asset Management Recommendations			
Asset	Short-term (7-year) Projected Investment	Revaluation Trigger	Recommended Asset Management Strategy
Terminal	\$900,000	None	Maintain
Maintenance garage	490,000	None	Maintain
Airport traffic control tower	267,000	None	Maintain
Civil air patrol	86,000	None	Maintain
Schwartzburg Hangar	37,000	New door in 2030	Potentially replace
T-hangar A/B	25,000	New roof/doors 2026	Replace after new runway
T-hangar C/D	32,000	New roof/doors 2026	Replace after new runway
T-hangar E/F	102,000	New doors 2026	Replace after new runway
T-hangar G	112,000	New doors in 2030	Maintain
T-hangar I/J	65,000	2026	Replace after new runway
T-hangar K/L North	234,000	Now or 2021 if repair in 2018	Replace in short-term
T-hangar K/L South	30,000	New doors 2026	Replace after new runway
T-hangar M/N	80,000	New doors in 2030	Maintain, but re-evaluate in 2030
T-hangar O/P	95,000	New doors in 2030	Maintain, but re-evaluate in 2030
Quonset Hut east	86,000	New doors in 2021	Continually evaluate use versus cost
Quonset Hut middle	56,000	New doors in 2021	Continually evaluate use versus cost
Quonset Hut west	62,000	Roofing, wiring in 2021	Remove for Taxilane OFA

Source: Hanson Professional Services Inc., August 2017.

Executive Summary Conclusions

Implementation of the recommendations in this business plan will require focused planning and development actions by airport staff and a financial investment by the County to make MWC a competitive general aviation airport in the region. MWC has a significant aviation history, and with the necessary investment, it has the potential to serve as a great transportation and economic development asset for Milwaukee County and the surrounding area.

1.0 Introduction

1.1 Background

Lawrence J. Timmerman Airport (MWC) has been serving Milwaukee County general aviation since the 1920s, when Milwaukee Air Terminals, Inc. purchased the land upon which it was built. The main hangar (terminal building) built in 1928 remains today, but with some additions through the years. In 1936, the Curtiss-Wright Corp. purchased the airport, which was then known as Curtiss-Wright Field. The airport continued to change hands, being purchased by Flightways, Inc. in 1945 and by Milwaukee County in 1947. In 1953, MWC was the birthplace of the Experimental Aircraft Association (EAA), which is still based in Wisconsin and is headquartered in Oshkosh, Wisconsin. MWC is home to EAA Chapter 18, with the motto of “it all started here.”

Through the years, hundreds of pilots have trained at MWC, and many companies have used the airport to move personnel and equipment in support of their businesses. However, as general aviation corporate aircraft evolved toward turbine-powered aircraft business jets and away from the piston-powered aircraft over the years, the airfield at MWC has remained essentially unchanged. When the FAA instituted the requirement for turbine-powered aircraft to add a 15-percent margin of safety for landing on wet pavements, this further challenged MWC in being able to accommodate today’s general aviation business aircraft. The declining levels of operations at MWC reflects the present airfield constraints on business aircraft operations and a general lack of investment in maintaining and updating facilities. The trends at MWC are in direct contrast to those at another regional airport, Waukesha County Airport (UES) that has invested in additional runway length and modern hangar facilities, becoming the busiest general aviation airport in Wisconsin. Some of the aircraft operations at UES could be better served at MWC due to its proximity to their final destinations, if the facility were to meet their needs.

MWC remains an important transportation asset for Milwaukee County. It serves as a reliever airport for MKE. As a reliever airport, its purpose is to accommodate operations by smaller general aviation aircraft, allowing more take-off and landing capacity to be available for airline and air cargo operations at MKE. In addition to accommodating smaller general aviation business aircraft, MWC is actively used for flight training. MWC is an excellent facility for flight training, because the pilots of tomorrow can experience operating in an air traffic control environment and on turf runways. Pilots trained at MWC may go on to a career in aviation or may become owners or co-owners of aircraft that could potentially rent hangar space at MWC, both a benefit to the aviation system.

While all aviation activity is important at MWC, the operations by the larger business aircraft are what generate the most revenue for the airport-based business and, in turn, Milwaukee County. Fuel sales are the primary revenue generator at a general aviation airport. The seller of the fuel makes money on the markup, and the county receives a fuel flowage fee of 10 cents per gallon at MWC. The more activity at MWC, the more fuel sales and the more revenue that is generated. Attracting additional business aviation operations that buy substantially more fuel, as compared to small piston-driven aircraft, is important to the future of MWC.

1.2 Purpose of Business Plan

Recognizing that MWC has received insufficient attention and investment in recent years, the Milwaukee County Department of Transportation, Airport Division staff (airport staff) undertook this business plan to identify a new vision and strategic goals for MWC.

The vision is for MWC to be the premier general aviation airport for southeast Wisconsin. To support that vision, two overarching strategic goals were identified: increasing the attractiveness of MWC for aircraft operators through needed improvements to facilities and increasing the awareness of MWC through rebranding and marketing to increase the activity and revenue generated at MWC. The financial planning elements of the business plan consider the projected capital and operating costs for MWC over the next 20 years to identify the investment that will be required and potential revenue sources. To support the physical facility and financial goals, operating best practices were also identified for implementation.

1.3 Scope and Process

The business planning process consisted of four elements:

- Stakeholder outreach and facility assessment
- Identification of strategic initiatives
- Develop framework for rebranding and marketing plan
- Operational and financial assessment

Stakeholder Outreach and Facility Assessment

Onsite stakeholder interviews and a facility assessment were conducted in January 2017. Further stakeholder outreach was conducted via telephone in a follow-up to the January site visit as additional existing and potential stakeholders were identified. The stakeholder outreach was conducted for airport stakeholders and businesses in the local community that could potentially use MWC. [Appendix A](#) contains a summary of the stakeholder outreach.

Stakeholder outreach responses include:

- Need a longer runway of 4,500 feet to 5,000 feet
- Need an instrument approach to Runway 33R
- Need upgraded fixed-base operator (FBO) facilities
- Need to upgrade hangar facilities
- Desire an on-airport restaurant in FBO facility
- Need marketing program to advertise airport services

Area business responses include:

- Not familiar with the services that are provided at MWC
- Use MKE (airlines) for their travel needs
- Interest by area hotels to cross-market their services
- Use MWC if we have customers that need to fly into or out of MWC

Milwaukee County has conducted a facility condition assessment (FCA) of all the county-owned buildings at MWC. These FCAs that include maintenance plans have been used in the financial

planning portion of this business plan study. The onsite facility assessment during the site visit in January 2017 was used to view each of the facilities. In addition, data on the size of the hangar units and the aircraft that can be accommodated in the hangar were gathered.

MWC VISION

Be the premier general aviation airport for southeast Wisconsin

Recognizing the previous lack of investment at MWC, Milwaukee County has been working to make improvements to extend the useful life of the existing assets. In 2016 and 2017, Milwaukee County has invested more than \$3 million, including FAA Airport Improvement Program grants, into improvements of existing facilities at MWC. These improvements include obstruction removal, apron resurfacing, Runway 15L/33R resurfacing, new terminal building roof, electrical panel upgrades and hangar painting. In addition, the FBO has invested in cosmetic updates inside the terminal building.

As part of assessing the current facility conditions, the aviation activity at MWC was also reviewed. The based aircraft at MWC has rebounded at the same time that improvements to the facility and the FBO ownership has transitioned. The activity at MWC is forecast to grow slowly, although the growth is anticipated to be accelerated with the implementation of the business plan. The current and projected aviation activity at MWC is discussed in detail in [Section 4.0](#).

MWC STRATEGIC GOALS

1. Increase the attractiveness of MWC for aircraft operators through needed facilities improvements.
2. Increase the awareness of MWC through rebranding and marketing to increase the activity and revenue generated at MWC.

Identification of Strategic Initiatives

Using the data from the stakeholder outreach and existing facility assessment, a daylong strategic planning charrette was conducted with airport staff and key stakeholders. The purpose of the planning charrette was to identify the mission and vision for MWC and to develop planning guidelines for the business plan recommendations. The minutes from the strategic planning charrette are included in [Appendix B](#), and the strategic initiatives identified during the charrette are detailed in [Section 2.0](#).

The strategic initiatives for the physical assets include the goal of extending the primary runway, improving the terminal facilities and developing or redeveloping hangar facilities. An alternatives analysis has been accomplished as part of the business plan to identify the preferred alternative for each of these improvements. The alternatives analysis is detailed in [Section 6.0](#), and the resulting capital project implementation plan is addressed in [Section 7.0](#). [Appendix C](#) contains the minutes of the alternatives workshop held in May 2017.

Develop Framework for Rebranding and Marketing Plan

To complement the physical facility improvements, there is a strategic initiative to increase the awareness of the facilities and services at MWC through a rebranding and marketing campaign and a manager to champion MWC. Confirmed by the stakeholder and business outreach, there is a general lack of knowledge of the facilities and services offered at MWC. To increase the awareness of MWC, a

rebranding and marketing campaign is needed. As part of the business plan, the framework for the rebranding and marketing campaign was developed to provide a guideline for airport staff to implement the process. A branding and marketing workshop was held in May 2017 with airport staff and key stakeholders to identify the key elements to be incorporated into the rebranding and marketing campaign. The minutes from the workshop are included in [Appendix D](#), and [Section 8.0](#) outlines the framework for the marketing and branding campaign.

Operations and Financial Assessment

For the business plan to be successful, it needs to be implementable. The operational and financial assessment portion of the process analyzed the administrative staffing and processes for MWC to identify and recommend changes to implement. Also, the operating costs and revenue generation were analyzed, and a 20-year profit and loss pro forma was prepared. This pro forma incorporates projections of potential increases in operations based on the probable timing of capital improvements. As part of the operations and financial assessment, key performance indicators to be used by county staff in active management were identified. The ability to measure progress is a key element to achieving continual improvement. [Section 9.0](#) presents the operational and financial plans, and [Appendix E](#) contains the minutes from the financial planning workshop held in June 2017.

The balance of this report provides details on the analysis and the findings and recommendations of the business plan.

2.0 Strategic Initiatives

As part of the business planning process, a strategic planning charrette was conducted; the minutes are included in [Appendix B](#). The purpose of this charrette was to obtain input from Milwaukee County airport staff and key stakeholders to identify a vision of MWC’s market role and strategic goals. Identification of the market role and the associated strategic goals is an essential foundation for the business plan, because it assists in prioritizing implementation actions.

As a result of the charrette, it was decided that the market role for MWC will be:

- Be the premier general aviation facility for southeast Wisconsin, serving as a towered, reliever airport to MKE, especially for Milwaukee’s northwest community
- Be a home to aviation businesses, serve business and other general aviation users, train the next generation of pilots and introduce the community to aviation through outreach and educational programs
- Be represented by a Milwaukee County staff member functioning as the airport manager, who will serve as the champion for MWC and work closely with the aviation businesses to coordinate improvements and activities at MWC and maintain a high level of customer service

MWC STRATEGIC INITIATIVES

1. Rebrand/Rename MWC
2. Promote MWC as a corporate facility
3. Increase the runway length and improve instrument approaches
4. Staff MWC with a manager to champion the facility
5. Develop a new terminal facility
6. Improve financial self-sufficiency
7. Strategically manage existing building assets

To support the market role, strategic initiatives were identified. Some of the implementation actions can be immediately initiated. Others may take longer to secure environmental approvals and grants to implement. Steady progress toward the MWC strategic goals can be made through increasing awareness of MWC in the aviation community in order to rebuild the brand vitality of MWC.

2.1 Rebrand/Rename MWC

MWC was named Lawrence J. Timmerman Airport after Lawrence J. Timmerman, a Milwaukee County supervisor and supporter of the airport. While affectionately nicknamed “Timmy” by users and the neighboring community, outside of this community, MWC’s name does not reflect its location or importance to the aviation system. Operators of general aviation business aircraft used for business purposes may employ schedulers and planners that may be unfamiliar with airports in the destination community. Also, the passengers on these business aircraft may be unfamiliar with the local aviation system and just want to know where they will land. A recognizable destination in the name and a reference to the level of service provided such as executive, regional, metropolitan or corporate can provide a higher level of confidence to the service they anticipate receiving upon arrival. To draw the attention of these planners to their airport and reassure business decision-makers utilizing the aircraft, communities have found it beneficial to change their airports’ names to reflect their locations and level of service.

Several recent examples of airports that have changed names include:

- Chicago Executive Airport, previously Palwaukee Municipal Airport (named for a road intersection)
- Indianapolis Executive Airport, previously Terry Airport (named for a person)
- Indianapolis Regional Airport, previously Mount Comfort Airport (named for unincorporated community)
- Waukegan National Airport, previously Waukegan Regional Airport (changed to better recognize role)
- Waukesha County Airport, previously Crites Field (named for aviation pioneers)

By using a name that readily identifies its location, these airports capture the interest of flight planners and corporate passengers, assisting in marketing the airport to users. The names also better reflect the airport's role in the aviation system. Some airports will keep a portion of their original name as part of their new name, such as Waukesha County Airport – Crites Field, to achieve the benefits of the readily recognizable name and retain a historical connection.

All of these Midwest airports that changed names support a high level of business general aviation activity. In addition, the fixed-base operator businesses located at the airports have benefitted from a greater recognition of the airport within the national general aviation market.

Multiple potential names were identified during the marketing and branding portion of the business plan (see [Section 8.0](#)). These names need to be evaluated and coordinated locally to identify the most appropriate. The proposed name should be finalized through coordination with the county supervisors and the airport division's marketing/branding department.

The renaming effort should be initiated immediately, because it will take up to a year after local approval of the new name before it can be used. The first step is to conduct the necessary local coordination to select a name. Then, official action by the county to rename MWC is needed. After county approval of the new airport name, coordination with the FAA is needed to provide the necessary documentation and establish a timeline of publication of the new name. An FAA 7480 form must be filed, along with a copy of the official county action to rename the airport. The actual renaming of the airport will be coordinated with the publication of FAA documents that include MWC, such as the instrument approach charts. To correlate with the FAA publication process, renaming an airport can take up to a year. It should be noted that renaming and rebranding are very closely tied and need to be considered as two critical steps in the same process.

The most important part of renaming MWC is to select a name and move forward.

RENAME AN AIRPORT IN 5 STEPS

- 1. Select new name**
- 2. Local official approval of new name**
- 3. Submit 7480 to FAA with new name**
- 4. Coordinate publication schedule for new name with FAA**
- 5. Institute new name per schedule set with the FAA**

2.2 Promote MWC's Role as a Corporate Aviation Facility

Through the stakeholder outreach, the lack of recognition of MWC as a corporate facility was validated. An updated brand and marketing plan is needed to reintroduce MWC's role as a business-class airport for Milwaukee County and northwest suburbs. This marketing campaign should start immediately, focused on existing activities to increase awareness of the airport and then grow to encompass the new name. The renaming and market/branding efforts should also be coordinated with the FBO to foster the most positive impacts. The planned facility improvements discussed below will further support MWC's role as a corporate aviation facility.

2.3 Increase Runway Length and Improve Instrument Approaches to Meet Market Role

The FAA defines critical aircraft as the most demanding aircraft type or grouping of aircraft with similar characteristics that make regular use of the airport. Regular use is 500 annual operations, including itinerant and local operations (takeoff and landings) but excluding touch-and-go operations. The critical aircraft for MWC was identified by reviewing the current operations with the FAA's data for instrument flight rule (IFR) flight plans to and from MWC. With the limited runway length at MWC, it is recognized that the existing operations reflect a constrained demand, but they still document the types of aircraft already using MWC that would increase their utilization with additional runway length. An aircraft operator is able to use a shorter runway length by operating at a lighter takeoff weight. This is usually accomplished by reducing the amount of fuel or number of passengers on board or by limiting operations to dry or cooler days. **Figure 2.1** shows the common critical aircraft using MWC.



Top left: Embraer Phenom 100; Top right Cessna CJ2; Bottom left: King Air 200, Bottom right: Cessna CJ1

Figure 2.1. Critical Aircraft at MWC

Source: www.wikipedia.com

MWC's critical aircraft are used to identify the appropriate planning and design standards and to determine the needed runway length. Reviewing the operating requirements for these critical aircraft, up to a 5,000-foot runway should be developed at MWC. Runway 15L/33R is the longest existing runway at MWC at 4,103 feet by 75 feet wide. It also has the greatest potential to be extended. [Section 6.3](#) details the analysis of runway extension alternatives for the primary runway at MWC. The preferred option being pursued is the realignment of Runway 15L/33R to Runway 16L/34R, with a total length of 5,000 feet and with 4,934 feet fully usable in both directions.

An instrument approach enables aircraft to electronically locate the airport and land in weather conditions with limited visibility. On Runway 15L/33R, only the Runway 15L end has an instrument approach. There are days when the winds favor the use of Runway 33R. In discussions with airport users, 33R is highly preferable as a landing option during much of the year. Therefore, to maximize the accessibility of MWC for its users, a straight-in instrument approach to Runway 33R should be immediately pursued. MKE and MWC are about 11 miles apart. MKE tower staff indicated it would be feasible to coordinate a Runway 33R approach at MWC with MKE traffic. With the use of global positioning system (GPS) as the basis for instrument procedures now, an instrument approach should be feasible for Runway 33R, where it may not have been feasible with the older, land-based navigational aids. To accomplish this, the Milwaukee County Airport Division should assign a staff member with aeronautical knowledge to champion this new approach until it is implemented.

The first step in pursuing an instrument approach to Runway 33R is to file an official request with the FAA through its website. A letter of support from MKE tower staff is also recommended to support this initiative. Airport staff should anticipate that the FAA will likely request new obstacle data, known as an approach survey, to be used in designing the approach. The FAA requires data containing height information to be flown in "leaf on" conditions to better capture the height of trees. If an approach survey is needed, that data collection can be coordinated with any other data collection associated with other planned improvements at MWC.

Runway 15L/33R has nonprecision markings on both ends. Nonprecision markings were maintained for both ends of the runway as part of the Runway 15L/33R rehabilitation project. Thus, the necessary marking for an instrument approach to Runway 33R will be in place.

2.4 Staff MWC with a Manager to Promote and Champion the Facility

Two full time maintenance staff are based at MWC to care for the airfield and facilities. To establish a liaison and advocate for MWC, an airport staff member that functions as the airport manager for MWC is needed. This person is anticipated to have the following responsibilities, including but not limited to:

1. Advocate for MWC to other county staff, the business community and the local community
2. Coordinate and/or manage projects for MWC, such as the pursuit of an instrument approach to Runway 33R, the pursuit of additional runway length and programming improvements for MWC in the capital and/or operating budget
3. Serve as a representative of MWC by speaking to the community about the benefits of MWC and hosting community educational opportunities, such as tours for school or Scouts groups

4. Coordinate closely with and maintain open communication with the FBO and other tenants at MWC about planned maintenance activities and improvement programs to minimize the impact on their operations
5. Coordinate marketing efforts between the county and FBO to increase the utilization of MWC.
6. Market to potential business users of MWC to attract more aviation activity
7. Support customer service efforts to attract and retain return users
8. Manage the county maintenance functions at MWC to ensure the facility looks top-notch and to be a point of contact with tenants during snow events or other irregular operations to better meet the needs of the users
9. Function as the first point of contact for businesses interested in developing facilities at MWC

2.5 Develop a New, Modern Terminal Facilities

The terminal facilities at a general aviation airport serve as a gateway to the community and are the first impression of the community for pilots, passengers and corporate staff. Located at the shores of Lake Michigan with an active downtown and notable architecture, Milwaukee has much to offer its businesses, residents and visitors. However, the first impression of Milwaukee County to an arriving business decision-maker at MWC does not reflect all the community has to offer.

The terminal facilities at MWC are housed in the original hangar built in 1928. The portion of this building serving as the terminal is limited in space and does not provide Americans with Disabilities Act (ADA)-compliant accessibility. To meet its role as the premier general aviation facility for southeast Wisconsin, MWC needs a modern, fully accessible terminal facility that is a representative gateway to Milwaukee County. The new and modern facility should, at a minimum, be developed with larger restrooms; a bright, open waiting space; ADA-compliant accessibility; and better connectivity between the aircraft apron and auto parking. A new facility can also offer enhanced space for conference rooms, restaurant operations and classrooms.

Spring City Aviation – East LLC (SCA) acquired the FBO operations and took over operations at MWC in December 2016. In 2017, as a requirement of its new lease, SCA refreshed terminal facilities, with improvements to interior finishes. This refresh will be adequate while a new terminal is planned and constructed.

Alternatives have been evaluated to provide a modern terminal facility, as described in [Sections 6.9 to 6.12](#). Because of the constrained site in the north terminal area that is close to the runways, the preferred alternative is to move the terminal facilities to the east side of MWC, where sufficient space is available for a new terminal with close aircraft and auto parking. Moving the terminal to the east side can also serve as a catalyst for new development of the east side to increase activity at MWC.

2.6 Improve Financial Self-Sufficiency

While it will take an investment by Milwaukee County to position MWC to be the premier general aviation facility for southeast Wisconsin, increasing the activity at MWC will lead to increased revenues at MWC, moving it toward self-sufficiency. The operations and improvements at MWC are funded through airport revenues from the Milwaukee County airport system and FAA grants for eligible capital

improvements. These same revenue sources will continue to be used, with the goal of growing the revenue produced at MWC to increase its financial contribution to the airport system.

2.7 Strategically Manage Existing Building Assets

The county-owned building assets at MWC vary in age from 20 to 90 years. While many of these assets have had maintenance deferred, they still provide a revenue stream to the FBO, and in return, Milwaukee County. They are also important to supporting the activity at MWC. The airport leadership has been making investments to improve them. The new FBO also made cosmetic updates to the terminal as part of its lease agreement. Longer-term, it is important to weigh the utilization, maintenance costs and revenue generation potential of the existing assets to develop an asset management strategy to align with the business plan's goal. The facility condition assessments (FCA) conducted by Milwaukee County serve as the basis for the asset management plan and make recommendations on investments in maintenance and on the timing of the potential redevelopment of some of the assets.

3.0 Existing Conditions

MWC is located on the northwest side of Milwaukee County, primarily within the corporate limits of Milwaukee, with several land parcels within the corporate limits of Wauwatosa. MWC is a towered, general aviation airport supporting the movement of aircraft, business travel, flight training, recreational aviation and other activities for Milwaukee County, northeastern Waukesha County, southern Ozaukee County and southeastern Washington County. The air traffic control tower operates daily from 7 a.m. until 9 p.m.

MWC is included in the National Plan of Integrated Airport Systems (NPIAS), which identifies existing and proposed airports that are significant to the national air transportation system and, thus, are eligible to receive federal grants under the Airport Improvement Program (AIP). MWC is designated a regional reliever in the NPIAS. MWC is also included in the Wisconsin State Airport System Plan 2030 as a large reliever airport.

Spring City Aviation – East LLC (SCA) is the fixed-base operator (FBO) at MWC. It acquired the FBO operation at MWC in December 2016 and executed a lease with Milwaukee County. SCA provides fuel and maintenance services, flight instruction, aircraft rental, charter services and hangar rental. They also operate a Cessna service center. 100LL and Jet A full-service fuel are available for purchase.

MWC comprises three distinct areas: the airfield, the north-side terminal area and the east-side terminal area.

3.1 Airfield

As shown on **Figure 3.1**, the airside facilities at MWC include four runways — two paved with a turf runway paralleling each paved runway — and a taxiway system.

- Paved Runway 15L/33R is 4,103 feet long and 75 feet wide
- Paved Runway 4L/22R is 3,201 feet long and 75 feet wide
- Turf Runway 15R/33L is 3,231 feet long and 270 feet wide
- Turf Runway 4R/22L is 2,839 feet long and 270 feet wide

The turf runways along with the turf taxiways are closed from approximately November 1 through May 1 each year.

Runway 15L/33R, at 4,103 feet by 75 feet, is the primary runway. Runway 4R/22L is the crosswind runway and is 3,201 feet by 75 feet. Each of the two turf runways parallel one of the paved runways. Having two turf runways is a unique asset to MWC and something that can be promoted to pilots.

Each paved runway is served by a full-length parallel taxiway. In 2016 and 2017, the main apron in the north terminal area was resurfaced. In 2017, the primary runway, Runway 15L/33R, was resurfaced with a mill and overlay of the pavement.

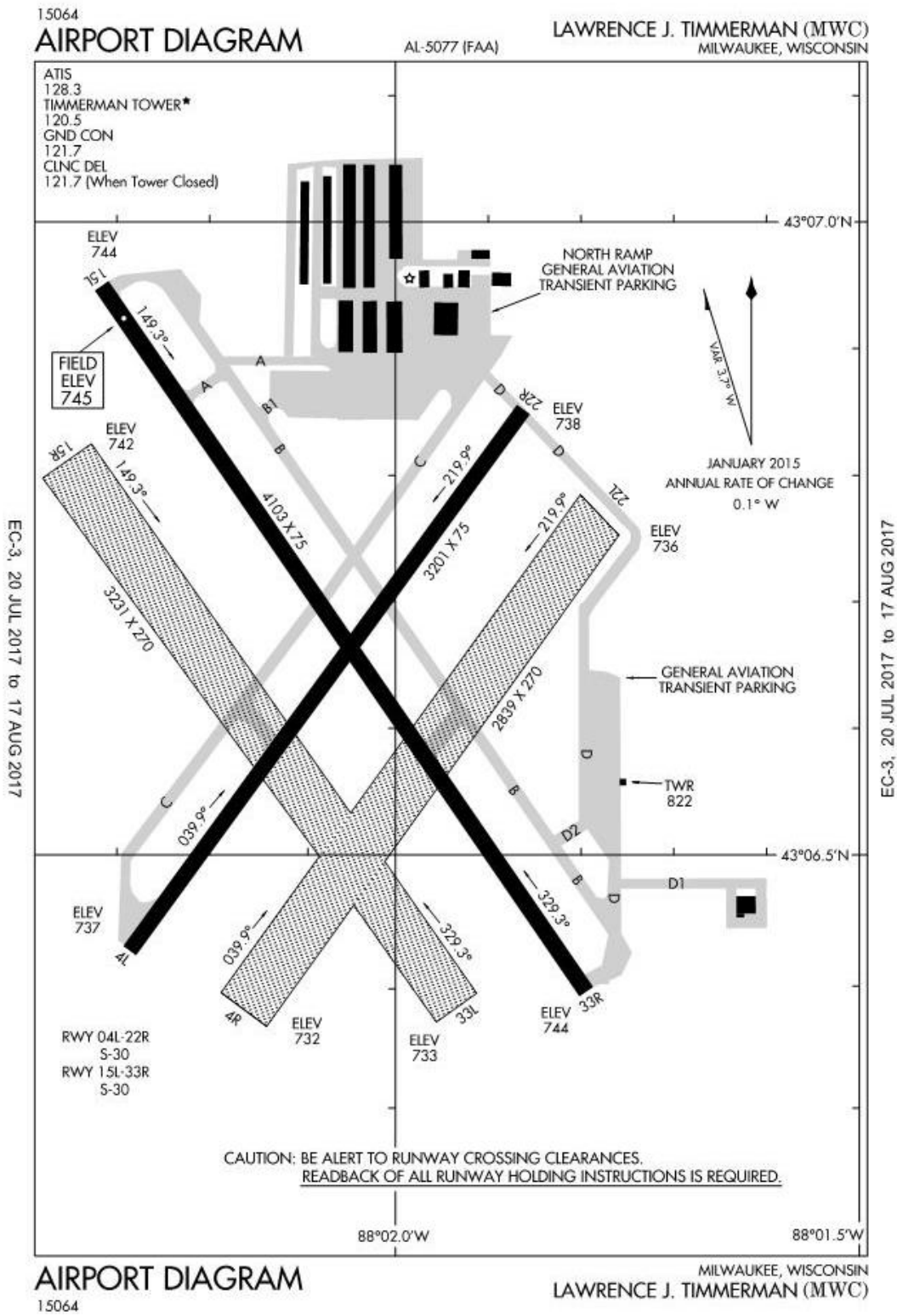


Figure 3.1. MWC Airport Diagram
Source: FAA Digital Terminal Procedures, July 2017.

3.2 North Terminal Area

The north terminal area is located north of the runway intersection and has road access from Appleton Avenue (State Route 175). The north terminal area contains the terminal building, facility for the Wisconsin Wing of the Civil Air Patrol, 10 T-hangar buildings, three Quonset hut hangars, one metal hangar, the county maintenance facility and the fuel farm. Also in the north terminal area, located on airport property but outside the airport fence, is a Milwaukee Fire Department station and a park-and-ride lot. **Figure 3.2** shows the north terminal area.

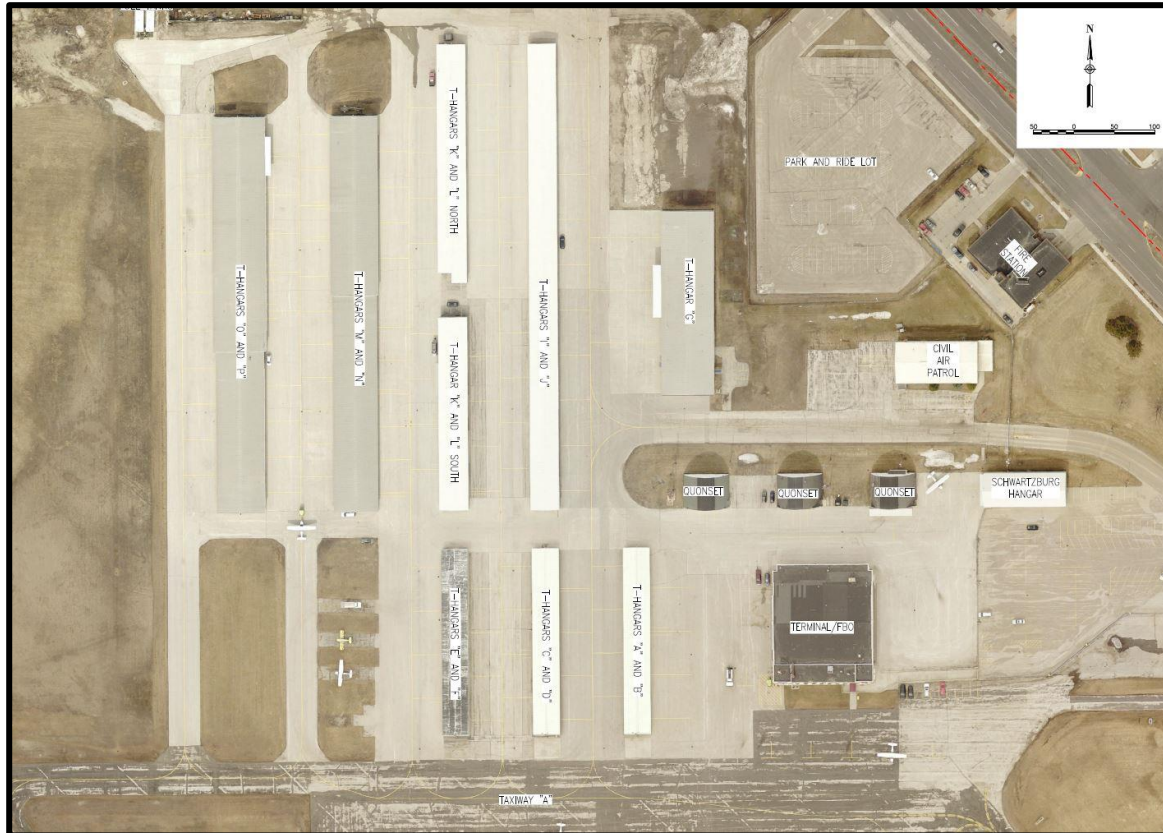


Figure 3.2. North Terminal Area

Source: Hanson Professional Services Inc., 2017.

Terminal Building

The terminal building is approximately 24,400 square feet, including the two hangars. The hangar doors are on the east and west sides of the building, and office, classroom and storage space are on the north and south sides. With the hangars between the north and south ends, they are not connected. The north and south ends are two stories with stair access. The first floor on the south side houses the FBO offices, public restrooms and waiting area and flight-training classroom. In the past, the second floor on the south side housed a restaurant. Currently, it is a meeting space. The first floor on the north side is used in support of the aircraft maintenance operations. The second floor on the north side contains a stock room, office space and a helicopter pilot lounge for the pilots of the helicopters stored in the west-side hangar. The terminal building is leased by the FBO from the county. **Figure 3.3** shows

the south side of the terminal building with the public entrance. [Appendix F](#) includes a summary from the existing-condition evaluation of the terminal.



Figure 3.3. Terminal Building

Source: Hanson Professional Services Inc., May 2017

The facility condition assessment (FCA) prepared by Milwaukee County indicates the terminal is in fair condition and there is a projected need to invest more than \$2 million in the terminal over the next 20 years. Major projected expenditures include façade and other exterior maintenance, heating and exhaust improvements, exterior doors and utility upgrades. These costs include some minor restroom upgrades and accessibility improvements that may be able to be deferred if a new terminal is constructed. As previously referenced, this is an older building for which maintenance has been deferred, which is a driving factor in the projected facility maintenance costs. A new roof is being installed on the terminal in 2017.

Adjacent to the terminal is the aircraft apron. The apron to the south of the terminal is used for transient aircraft parking. The apron on the east and west sides of the terminal is used for access to the hangars.

Civil Air Patrol Facility

MWC is home to the Timmerman Composite Squadron and Milwaukee 10th Senior Support Squadron of the Wisconsin Wing of the Civil Air Patrol (CAP). The CAP is an auxiliary of the U.S. Air Force. CAP has three main functions: aerospace education, cadet programs and emergency services. The CAP facility includes a hangar for its aircraft, classroom office and storage space. The EAA chapter at MWC also meets in the CAP building, shown in **Figure 3.4**.

The FAC indicated the CAP facility is in good condition, with less than \$200,000 of facility maintenance costs projected over the next 20 years. The largest projected expenditure is for heater, door and window renewal.



Figure 3.4. Civil Air Patrol Facility
Source: Hanson Professional Services Inc., May 2017.

T-hangars

There are 10 T-hangar buildings in the north-side terminal area. These buildings are of varying age, size and amenities. All of the T-hangars, except T-hangar K/L North, are leased by the FBO from the county. The FBO pays a monthly rate to the county for the T-hangars and assumes responsibility to lease the hangars. The county maintains the buildings.

As described below, MWC has 72 T-hangar units that accommodate primarily single-engine aircraft (39- to 40-foot doors), 17 T-hangar units that can accommodate larger single-engine or smaller multi-engine aircraft (44-foot doors), eight T-hangar units that can accommodate multi-engine aircraft (48-foot doors), three Quonset huts (46- to 48-foot doors) and three large, connected hangars (64-foot doors) that accommodate large, multi-engine to small, corporate jet aircraft. In addition, aircraft are stored in one of the terminal building hangars, the CAP building, the Schwartzburg hangar and the corporate hangar on the east side of the field.

T-hangars A/B, C/D and E/F

T-hangars A/B, C/D and E/F are located just north of the apron. They are metal buildings, and each building contains eight units with bi-floor doors (the door folds up and is less susceptible to freezing closed in the winter). They are classified as straight T-hangars, with the tail section extending the width of the hangar, as compared to a nested T-hangar, where the tail is against the wing section for the opposite site. Straight T-hangar buildings are longer and narrower. Nested T-hangar buildings are wider but shorter, which have the advantage of reducing the pavement required for the hangar. **Figures 3.5, 3.6 and 3.7** show T-hangars A/B, C/D and E/F.



Figure 3.5. T-hangar A/B
Source: Hanson Professional Services Inc., May 2017



Figure 3.6. T-hangar C/D
Source: Hanson Professional Services Inc., May 2017.



Figure 3.7. T-hangar E/F
Source: Hanson Professional Services Inc., May 2017.

T-hangar A/B has a concrete floor, and the other two have asphalt floors. Concrete is the preferable floor material for hangars, because there is less condensation generated in the hangar, and the surface is more resistant to any petroleum products that may drip onto the floor. All three of these T-hangars were built in 1945 and are identified as being in fair condition. T-hangars A/B and C/D have had their roofs replaced. T-hangar E/F is in need of a roof replacement. T-hangars A/B, C/D and E/F have a 40-foot-wide door and are a total of 31 feet deep. However, the tail section in these T-hangars, at 13.5 feet, is narrower than today's standards of about 21 feet. The door height is also lower at less than 10 feet compared to the current standard of about 12 feet. Thus, the size of aircraft that can fit in these buildings is limited. They can accommodate up to a Cessna 172 or a V-tail Bonanza. As of July 2017, T-hangars A/B, C/D and E/F are completely leased.

The FCA for T-hangars A/B, C/D and E/F indicated they are in fair condition, and T-hangar E/F needs a new roof immediately. T-hangars A/B and C/D need some repairs to the exterior walls, doors and lighting over the next two years. Major replacement of the roof and doors is projected in approximately 10 years. T-hangar E/F is also projected to need replacement of walls and doors in approximately 10 years. It is recommended that the near-term repairs be included in the budget to be accomplished. Approximately \$200,000 of investment is projected over the next 20 years for each hangar. The overall condition and usage of the hangars should be re-evaluated before making the major investment in ten years.

T-hangar G

Built in 1993, T-hangar G is the newest hangar at MWC. It is also referred to as a clear-span hangar, because it is essentially three box hangars (square hangars) that are connected, as shown in **Figure 3.8**. The unit on the south end is slightly larger. T-hangar G is designed to accommodate up to small turbojet aircraft. It contains three units with 64-foot, 8-inch-wide by 18-foot-high doors. It has concrete floors and heating in each unit. This hangar is in good condition.



Figure 3.8. T-hangar G
Source: Hanson Professional Services Inc., May 2017.

The FCA identified major upgrades — new doors — to the hangar in approximately 15 years. Some repairs and equipment upgrades will be needed over the next 15 years. As the largest and newest hangar at MWC, it should be maintained with the proposed level of investment as planned. When comparing the revenue generated to the projected facility maintenance cost, T-hangar G’s revenue greatly outpaced the repair costs over the next 25 years. T-hangar G is currently leased, although the southern unit is generally empty. The company previously occupying this unit has upgraded to an aircraft that no longer fits.

T-hangar I/J

T-hangar I/J is a concrete block building with sliding metal doors, as shown in **Figure 3.9**. Sliding doors are typically more difficult to operate in the winter than bi-fold doors, because they are susceptible to frost heave. T-hangar I/J contains 20 units. The floors are concrete and asphalt. It was built in 1959 and is in fair condition. Similar to T-hangars A/B, C/D and E/F, its tail section is narrower than today’s standards at 14.5 feet. However, its doors are similar to today’s standards at 40 feet wide and 11.5 feet tall. It can accommodate up to a Cherokee 6, but it is very tight for the Cherokee 6 tail section.



Figure 3.9. T-hangar I/J

Source: Hanson Professional Services Inc., May 2017

The FCA identified T-hangar I/J as being in fair condition and in need of repairs over the next five years, with a major investment in new hangar doors, roof and wall repairs in approximately ten years., Approximately \$500,000 of facility maintenance is projected over the next twenty years for T-hangar I/J. It is recommended that the near-term repairs be included in the budget to be accomplished. The overall condition and usage of the hangars should be re-evaluated before making the major investment in ten years. As of July 2017, there are only two vacancies in T-hangar I/J, so it is 90 percent leased.

T-hangar K/L North

T-hangar K/L North is a concrete block straight T-hangar building with metal sliding hangar doors on the west side and vertical lift doors on the east side. **Figure 3.10** shows the east side of T-hangar K/L North. The floors are asphalt and dirt. It was built in 1945 and contains eight units. It is in poor condition and is not part of the FBO lease, although as of July 2017 several of the units are occupied. The FCA indicated the need for an immediate investment in new doors and exterior wall



Figure 3.10. T-hangar K/L North

Source: Hanson Professional Services Inc., May 2017.

and electrical repairs. A sizable investment in door replacement is also projected in five years, with additional wall repairs in approximately fifteen years. Approximately \$300,000 is projected for T-hangar K/L North over the next twenty years. Given the overall condition of this hangar, it should be determined whether any investment is appropriate or whether the hangar should be removed. If this hangar is removed, the site could be used to develop a new hangar, although it will need to be a straight T-hangar to fit within the existing site.

T-hangar K/L South

T-hangar K/L south is a metal straight T-hangar building built in 1987 with bi-fold doors, as shown in **Figure 3.11**. It contains eight units. The floors are concrete and asphalt. T-hangar K/L South has 39.5-foot-wide doors, and the units are 31 feet deep. However, it also has a narrower tail section at 15.1 feet and limited door height at 9.5 feet. The FCA identified T-hangar K/L South as being in poor condition. However, the first major investment identified in the FCA is new hangar doors and exterior walls in



Figure 3.11. T-hangar K/L South

Source: Hanson Professional Services Inc., May 2017.

approximately ten years. There are some near-term minor repairs identified for electrical renewal and repairs. It is recommended that the near-term repairs be included in the budget to be accomplished. Over the next 20 years, approximately \$250,000 of facility maintenance expenses are projected. The overall condition and usage of the hangars should be re-evaluated before making the major investment in ten years. As of July 2017, T-hangar K/L north is completely leased.

T-hangar M/N

T-hangar M/N is a metal nested T-hangar building built in 1987 with bi-fold doors, as shown in **Figure 3.12**. It contains 21 units for aircraft and two storage units at the end corners. The south section contains 12 units with 41-foot doors, and the north section contains nine units with 44-foot doors. The floors are asphalt. T-hangar M/N has units that align with today's standards, with wider tail sections of 20 feet or more and taller doors. T-Hangar M/N can accommodate single-engine piston aircraft and some twin-engine piston aircraft in the larger units.



Figure 3.12. T-hangar M/N

Source: Hanson Professional Services Inc., May 2017.

T-hangar M/N is identified as being in good condition in the FCA. The FCA identified improvements to the electrical service in the near term. The first major reinvestment is projected in approximately 15 years for door replacement. As a newer, more modern T-hangar, it is recommended to be maintained.

The FCA projects almost \$1 million of facility maintenance over the next 20 years. However, almost half that cost is in proposed door and roof replacement. Therefore, the overall condition and usage of the hangars should be re-evaluated before making the major investment in fifteen years. In July 2017, there was only one vacancy in T-hangar M/N in a 41-foot door unit.

T-hangar O/P

T-hangar O/P is a metal nested T-hangar building built in 1987 with bi-fold doors, as shown in **Figure 3.13**. It contains 19 units for aircraft and one storage unit. The south section contains eight units with 44-foot doors, and the north section contains 11 units with 48-foot doors. The floors are asphalt. T-hangar M/N has units that align with today's standards, with wider tail sections or 20 feet or more and taller doors. The renter of the 48-foot door units can add heat to the hangar. T-hangar O/P accommodates single- and twin-engine piston aircraft.



Figure 3.13. T-hangar O/P

Source: Hanson Professional Services Inc., May 2017.

T-hangar O/P is identified as being in good condition in the FCA. The FCA identified improvements to the electrical service in the near-term. The first major reinvestment is projected in approximately 15 years for door replacement. As a newer, more modern T-hangar, it is recommended to be maintained. The FCA projects almost \$1 million of facility maintenance over the next 20 years. However, almost half that cost is in a proposed door and roof replacement. Therefore, the overall condition and usage of the hangars should be re-evaluated before making the major investment in fifteen years. In July 2017, there were no vacancies in T-hangar O/P.

Other Hangars

Quonset Huts (East, Middle, West)

The Quonset hut hangars are north of the terminal building. The three Quonset hut hangars were built in 1945 and have bi-fold doors, as shown in **Figures 3.14** and **3.15**. They have asphalt shingle roofs and siding. The east Quonset hut is slightly larger. These hangars can accommodate a piston twin, up to a King Air 100. They have concrete floors and heating systems. They are generally used to store the charter operator's twin-engine aircraft. The FCA identified repairs over the next five years. In approximately five years, a more substantial investment in roofing and lighting is projected. Additional investment in doors is projected in approximately ten years. The FCA projects facility maintenance costs of approximately \$150,000 per Quonset hut over the next 20 years. Therefore, the overall condition and usage of the hangars should be re-evaluated before making the major investment in five and ten years. Also, the west Quonset hut was identified for removal, along with the relocation of the airport beacon, to provide a taxilane meeting clearance standards to T-hangar G.



Figure 3.14. Middle and East Quonset Hut
Source: Hanson Professional Services Inc., May 2017.



Figure 3.15. West Quonset Hut
Source: Hanson Professional Services Inc., May 2017.

Schwartzburg Hangar, also known as Hangar 152

The Schwartzburg Hangar was built in 1947. It is located immediately north of the parking lot. This hangar is a 4,000-square-foot metal hangar with a bi-fold door, as shown in **Figure 3.16**. Its door is narrow and is only able to accommodate smaller, single-engine aircraft. It is generally used by the FBO to store its training aircraft. The FCA identified the hangar as being in fair condition and identified repairs to this hangar over the next ten years. The FCA projects an investment in a new door and approximately \$100,000 in maintenance in approximately ten years for the Schwartzburg Hangar. Therefore, before investing in a new door, the overall condition and usage of this hangar should be evaluated.



Figure 3.16. Schwartzburg Hangar
Source: Hanson Professional Services Inc., 2017.

County Maintenance Garage

The county maintenance garage is located on the north edge of the north terminal area. It was built in 1973 and is 6,730 square feet. It is a single story with a partial mezzanine, as shown in **Figure 3.17**. The building contains seven large-vehicle storage bays, an interior sand storage bin, a paint storage room, a tool room, an office, a lunch room, one toilet/locker/shower room, a utility room and an exercise room on the mezzanine. There is a fueling station for the equipment located to the west of the maintenance garage. The FCA identified this building to be in good condition. This building is used by the maintenance staff based at MWC. The FCA identified the need to invest in renewal of the garage make-up air and HVAC controls in the next five years. A renewal project for several other systems in approximately 10 years was identified. The FCA projects approximately \$800,000 in maintenance renewal projects over the next 20 years. As the primary maintenance facility for the county staff at MWC, it is recommended that these renewals be included in the budget and accomplished.



Figure 3.17. County Maintenance Garage
Source: Hanson Professional Services Inc., May 2017

Fuel Farm

The fuel farm is located in the northwest corner of the north-side terminal area. It is shown in **Figure 3.18**. The fuel farm is owned by the FBO and located on ground leased from the county. The fuel farm contains two above-ground, 15,000-gallon tanks, one for Avgas and one for Jet A. The fuel is delivered to aircraft via truck. Because it is not a county-owned facility, the county is not responsible for the maintenance costs.



Figure 3.18. Fuel Farm
Source: Hanson Professional Services Inc., May 2017.

Non-Aeronautical Development

A Milwaukee Fire Department station and a park-and-ride lot are also located in the north terminal area. The ground for the fire station was leased for construction in 1975, and the 50-year lease terminates in 2025. The location of the fire station provides quick response to any incidents at MWC.

The lease for the park-and-ride lot is with the Milwaukee County Department of Public Works Professional Services Division. The lease does not have a termination date, but “in the event the land is determined by the County and concurred by the Wisconsin Department of Transportation to not be needed for use as a transit parking facility, its jurisdiction shall revert back to the Airports (Division).” The fire station and park-and-ride lot are outside the airport fence on land leased from the airport.

Beyond the end of Runway 15L are a series of baseball fields on airport-leased ground. This ground is leased to the Milwaukee Northwest League. The lease includes the following termination clause: “The County reserves the right to terminate the authorization grant at any time, upon written notice. League agrees that upon such terminal it will forthwith remove all of its facilities from said land and clear the

land of all debris.” The Madison Park Golf Course, south of MWC, is partially on land leased from the airport and county property.

3.3 East Terminal Area

The east terminal area is located to the east of the runway intersection. Its access is from North 91st Street. Access to the east terminal area is controlled by a gate. The air traffic control tower personnel have remote control for this gate. There are three buildings located in the east terminal area, an aircraft apron and an auto parking area.

Air Traffic Control Tower

The five-story, 7,170-square-foot air traffic control tower (ATCT) is located on the east side of the airport, as shown in **Figure 3.19**. The ATCT was built in 1959 and has office space, conference rooms, equipment rooms, lobby space, an emergency generator and an air traffic control room on the top level. The ATCT is leased by the FAA from the county to provide contract tower services. The county is responsible for maintaining the building, and the FAA maintains the air traffic control equipment. The FCA identifies approximately \$250,000 of repairs and renewals in the next five years for this facility. Substantial investment is also identified in approximately ten years and in twenty years to maintain this facility. The FCA projects an overall maintenance investment of approximately \$1.4 million over the next 20 years. Because ATCT services is an attractive feature for general aviation business, it is recommended that the investment be made in the facility.



Figure 3.19. Airport Traffic Control Tower

Source: Airport staff, August 2017.

The FAA also leases several other areas at the airport for navigation equipment, including but not limited to the localizer south of Runway 33R, the visual approach slope indicators (VASIs) on all paved runway ends, the remote transmitter site and the very-high-frequency omnidirectional range (VOR) site.

Sheriff's Hangar

The Milwaukee County sheriff has a 42,000-square-foot hangar on the east side of MWC that was built in 2000, as shown in **Figure 3.20**. The building contains hangar, office, conference room and restroom space. It is not being used for aviation purposes. The lease on this hangar expires in 2020, which may provide MWC an opportunity to put this hangar into reuse for aviation purposes. An FCA was not provided on this hangar because it is not the responsibility of County.



Figure 3.20. Sheriff's Hangar

Source: Airport staff, August 2017.

Corporate Hangar

The corporate hangar on the east side, shown in **Figure 3.21**, on a ground lease with MWC. The present lease, including options, terminates April 30, 2018. At the termination of the lease, the improvements shall either be removed or the ownership transferred to the county. It would be desirable for this facility to remain, with a new lease negotiated that reflects the improvements becoming the property of the county through a new market-based rental rate. An FCA was not provided on this hangar because it is not the responsibility of County.



Figure 3.21. Corporate Hangar
Source: Airport staff, 2017

3.4 Pavement Condition Index

The most recent pavement condition index (PCI) study for MWC was conducted in 2016 and is shown in **Figure 3.22**, which includes updates for more recent improvements. The PCI evaluation process assigns a numerical value to the pavements, based on the quantity of distress visible at the surface as an indication of the pavement deterioration. New pavement starts at 100 and decreases as the pavement ages and incurs distress. The PCI evaluation is a tool for planning any needed maintenance. When a pavement falls below an established minimum service level, more extensive rehabilitation is needed. At a general aviation airport, when pavement falls below a PCI of approximately 55 (yellow, orange or red on the exhibit), rehabilitation of the pavement is required. On runways, it can be desirable to maintain a PCI in the 60 to 70 range. Rehabilitation of the north apron was completed in 2017. Rehabilitation of the primary runway, Runway 15/33R (RW15L33RLT) also occurred in 2017. Rehabilitation of the crosswind Runway 4L/22R occurred in 2015. However, as shown in Figure 3.22, there are additional areas at MWC, including the portions of the taxiway system that will require rehabilitation. Rehabilitation of these pavements, in addition to preserving the assets, improves the customer experience by providing a smoother pavement for the aircraft operator to use.

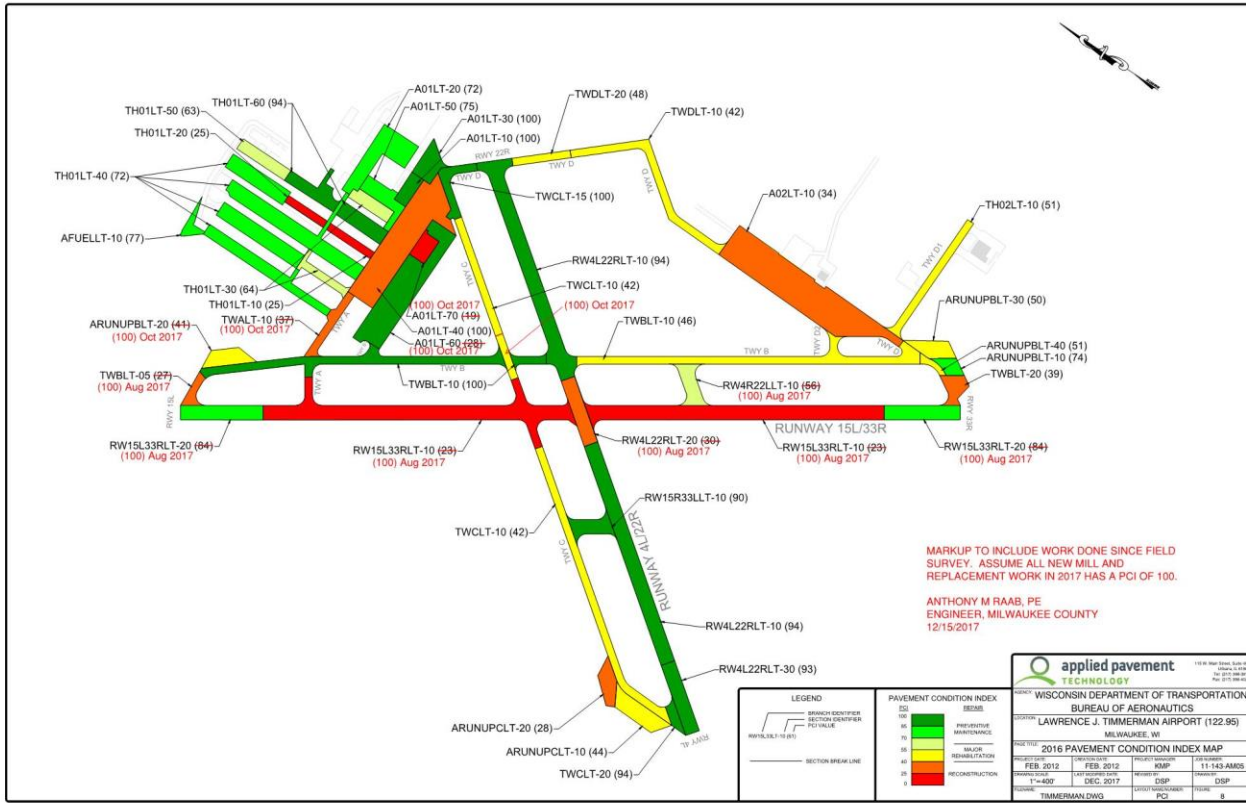


Figure 3.22. MWC PCI Ratings

Source: Lawrence J. Timmerman Airport Pavement Condition Index Study, 2016, with 2017 updates.

4.0 Aviation Activity Analysis

The aviation activity analysis for the MWC business plan was scoped to provide a forecast, using existing data and forecasts for based aircraft and operations and growth rates derived directly from FAA national forecasts. This strategy provides a conservative baseline while recognizing that the growth rates could exceed the forecasts with the successful implementation of the business plan's initiatives. It also recognizes that past trends, especially of declining activity in more recent years, would not be reflective of the future due to a focus on improvements at MWC. With the implementation of the business plan, it is recognized that increases in activity at MWC could outpace the more conservative forecasts; thus, in planning future facilities, some additional space will be reserved in order to accommodate growth beyond this baseline forecast.

The projected based aircraft and operations levels at MWC are used to assist in identifying future facility needs. In addition to the level of activity, the critical aircraft — the largest aircraft using or forecast to use MWC — is identified. The critical aircraft is used to identify the FAA design standards for the facilities at MWC and to assist in identifying runway length requirements.

4.1 Existing Forecasts

The first step in projecting aviation activity at MWC was to examine existing forecasting resources. Forecasts were prepared for MWC as part of the Lawrence J. Timmerman Strategic Development and Airport Master Plan Study accepted by the Milwaukee County Board of Supervisors in February 2008. The FAA also prepares forecasts for all the airports that are part of the NPIAS in their terminal area forecasts (TAF). The FAA uses the TAF for workload projections; therefore, more focus is on the larger commercial service airport, with general aviation airports generally having a more conservative or flat TAF forecast.

2008 Strategic Development and Airport Master Plan

As part of the 2008 master plan, existing and forecast aviation activity for the next 20 years was prepared. Based aircraft totals represent the aircraft stored at MWC when not in use. Operations totals are the total takeoffs and landings at MWC on an annual, monthly or peak-period basis. Touch-and-go operations — when an aircraft does not come to a full stop after landing before taking off again — are counted as two operations (one landing and one takeoff). Operations at an airport are further classified as local or itinerant. A local operation is a takeoff, or a landing performed by an aircraft that will operate within the local traffic pattern, within sight of the airfield or no further than approximately 20 nautical miles from the airfield, or an operation that simulates a takeoff/landing cycle. Itinerant operations are all other arrivals and departures and include transient operations.

As shown in **Table 4.1**, the long-term (20-plus years) forecast data in the 2008 master plan shows an increase in total operations, based aircraft and instrument approaches. Total local and itinerant operations were projected to increase from 53,010 operations in 2006 to 62,000 operations in 2028, for an average annual growth rate of 0.7 percent. For the same time frame, based aircraft were projected to increase from 128 to 150 aircraft. Annual instrument approaches were projected to increase from 334 operations in 2006 to 385 operations in 2028.

Table 4.1. Data from the 2008 Strategic Development and Airport Master Plan Study					
	Itinerant Operations	Local Operations	Total Operations	Based Aircraft	Instrument Approaches
2006	28,065	24,945	53,010	128	334
2013	31,000	25,000	56,000	134	322
2018	32,000	26,000	58,000	140	343
2023	33,000	27,000	60,000	145	364
2028	34,000	28,000	62,000	150	385

Source: Lawrence J. Timmerman Strategic Development and Airport Master Plan Study, February 2008.

FAA Data Sources for Aviation Activity Forecasting

The FAA publishes forecasts of based aircraft and aviation activity for all active airports within the NPIAS. The TAF is the official forecast of aviation activity for FAA facilities and includes historical information and activity projections for the four airport user groups: air carriers, commuters/air taxi, general aviation and military. The TAF is prepared to meet the budget and planning needs of the FAA and provide information for use by state and local authorities, the aviation industry and the public. This summary of TAF data for MWC will be limited to the air taxi/commuter, general aviation and military activity projections, because these are the categories that operate at MWC; see **Table 4.2**. Aircraft operations in these groups are influenced by national and regional trends as well as by the local conditions specific to MWC.

Another source of FAA data that was utilized is the Air Traffic Activity Data System (ATADS), to which the MWC air traffic control tower reports its activity. Although the ATCT at MWC is not in operation full time, the majority of air traffic occurs during the tower’s operating hours. Reviewing the data from Milwaukee County’s noise monitoring system, approximately 0.3 percent of flights recorded by this system for MWC are before or after tower operating hours. Therefore, for simplicity, the ATADS data are considered representative of the level of activity at MWC. In Table 4.2, the ATADS was the source used for 2016 operations in place of the TAF forecast, because it is an actual level of operations rather than a projection.

The TAF for MWC, as shown in Table 4.2, reflects the decline in activity since the 2008 master plan, then a projected increase from 2018 through 2045. At a towered airport where better operational data is available, the FAA generally prepares a more detailed forecast than at nontowered airports, which are generally a flat-line forecast. However, for MWC, the FAA still flat-lined the itinerant operations forecast. The local operations are forecast to grow slowly, likely a reflection of the forecasted slow growth of based aircraft. This projected increase in activity also aligns with the FAA Aerospace Forecasts covering the years 2017–37.

Table 4.2. MWC Terminal Area Forecast							
Fiscal Year	Itinerant Operations				Local Operations	Total Operations	Based Aircraft
	Air Taxi Commuter	GA	Military	Total			
2006	908	29,402	145	30,455	25,364	55,819	128
2007	1,396	23,434	86	24,917	20,377	45,294	104
2008	1,311	20,275	86	21,672	25,570	47,242	108
2009	794	16,947	99	17,840	19,091	36,931	108
2010	318	15,030	75	15,423	17,218	32,641	108
2011	250	13,194	77	13,521	13,543	27,064	80
2012	344	14,413	35	14,792	15,454	30,246	80
2013	316	13,917	45	14,293	17,583	31,876	80
2014	544	13,571	41	14,167	17,605	31,772	70
2015	475	12,469	23	12,977	14,516	27,493	69
2016*	463	11,990	29	12,502	12,373	24,875	70
2017	429	11,089	50	11,578	11,856	23,434	72
2018	429	11,089	50	11,578	11,915	23,493	72
2019	429	11,089	50	11,578	11,975	23,553	73
2020	429	11,089	50	11,578	12,035	23,613	74
2021	429	11,089	50	11,578	12,095	23,675	74
2022	429	11,089	50	11,578	12,155	23,733	76
2023	429	11,089	50	11,578	12,215	23,793	77
2024	429	11,089	50	11,578	12,275	23,853	77
2025	429	11,089	50	11,578	12,336	23,914	78
2030	429	11,089	50	11,578	12,646	24,224	83
2035	429	11,089	50	11,578	13,030	24,608	89
2040	429	11,089	50	11,578	13,293	24,871	93
2045	429	11,089	50	11,578	13,626	25,204	98

Sources: APO Terminal Area Forecast, January 2017.

*ATADS, Airport Operations Standard Report for 2016, gathered February 28, 2017.

FAA General Aviation Forecast

According to the FAA Aerospace Forecasts 2017–37, the long-term outlook for general aviation is favorable. Through 2037, the active general aviation fleet is forecast to increase an average annual rate 0.1 percent, because increases in the turbine, experimental and light sport fleets offset declines in the fixed-wing piston fleet. The turbine-powered fleet is projected to grow at an average rate of 1.9 percent a year, with the turbojet fleet increasing 2.3 percent a year. However, the fixed-wing piston aircraft fleet is predicted to shrink at an average annual rate of -0.8 percent due to nationwide unfavorable pilot demographics and the overall increasing cost of aircraft ownership, along with new aircraft deliveries lagging behind the retirements of the aging fleet. It is important for MWC to be able to accommodate

Business Plan

the growing segment of the general aviation fleet (turbine-powered and turbojet aircraft) and be well positioned to capture the interest of the fixed-wing piston aircraft owners, which make up the largest portion of the activity at MWC. Light sport aircraft and most experimental aircraft are within the single-engine aircraft category and are able to be accommodated at MWC.

The number of general aviation hours flown is forecast to increase an average of 0.9 percent per year, because the newer aircraft fly farther and more often. Fixed-wing piston hours are forecast to decrease 0.8 percent, while turbine-powered aircraft are forecast to increase 2.4 percent, with jet aircraft accounting for most of the increase.

Wisconsin State Airport System Plan

The Wisconsin State Airport System Plan 2030 projects a forecast of 79 to 80 based aircraft for MWC through 2030 and 32,640 annual operations. This is a lower based-aircraft forecast and a higher annual-operations forecast than the FAA's TAF.

Based Aircraft

A validation of based aircraft was conducted in August 2017. The previous count in the National Based Aircraft Inventory Program was from 2014 and included 68 based aircraft at MWC. The August 2017 validated count identified 101 based aircraft at MWC: 87 single-engine, five piston multi-engine, three turboprop multi-engine, two jets and two helicopters, as shown on **Table 4.3**.

Table 4.3. Current Based Aircraft at MWC						
	Single-Engine	Multi-Engine	Turboprop	Jet	Helicopter	Total
# of Aircraft	87	5	3	2	2	101

Source: August 2017 validated aircraft in FAA National Based Aircraft Inventory Program.

The two jets at MWC include a Cessna Citation 525 and an Aero Vodochody, a Czech military jet. The multi-engine aircraft at MWC include five piston-powered aircraft: a Piper Seneca, Beechcraft Baron, a Cessna 421 and two Cessna 414s; and three turbine-powered aircraft: King Air 90, 200 and 300. Reviewing the addresses of the based-aircraft owners, the majority are from Milwaukee or from the northern and western Milwaukee suburbs. The based aircraft at MWC are anticipated to remain primarily single-engine aircraft, although the percent of larger aircraft could increase, because the turbine aircraft are forecast to experience the greatest growth rates in the general aviation fleet.

4.2 Aviation Activity Forecast

Analysis of the aircraft fleet based at a general aviation airport is important in determining future activity levels and the planning for expanded or improved aviation support facilities. Since 2014, there has been a significant increase in based aircraft. While not to the level of the 2008 master plan, they are well in excess of the FAA TAF. Also, the FBO is conducting marketing outreach to fill the hangar space.

Based-aircraft forecasts are used to estimate the need for the airport's support facilities, such as hangars, fuel facilities and some of the aircraft parking areas. Recognizing that the activity levels at MWC have the potential to significantly increase with the implementation of the business plan, the

forecast being prepared will provide a baseline. Because the trend in activity is increasing at MWC and implementing the business plan could expand that growth, a regression analysis of historical data is not appropriate, because it will not adequately reflect expected future trends through a straight-line progression.

With the recent growth of based aircraft at MWC, the TAF is below actual levels. If the TAF based-aircraft average annual growth rate of 1.1 percent is applied to the existing based-aircraft levels, it results in a projected 113 based aircraft in 10 years and 126 based aircraft in 20 years. While single-engine aircraft will continue to dominate the fleet at MWC, it is anticipated that the turbine-powered fleet will grow at a faster rate, using the national average annual growth rate for turbine-powered aircraft (1.9 percent) and jets (2.3 percent).

While the based aircraft has increased at MWC, the operation levels have remained flat. The TAF holds the itinerant activity levels flat, with slow growth in local activity, which is likely a reflection of the growth in based aircraft. One of the goals of the business plan is to increase the business itinerant activity at MWC. Therefore, to project future operations, the FAA growth rate for hourly utilization of aircraft, the closest measure to operations, will be used to project future operations. Starting from an operations level of 24,875 in 2016 and using the hourly utilization average annual growth rate of 0.9 percent, 27,200 annual operations are projected in 10 years, and 29,800 annual operations are projected in 20 years. It is anticipated that the 50-50 split between local and itinerant operations will continue, with growth in both categories of operations. **Table 4.4** summarizes projected activity levels of MWC.

It is anticipated that implementing the business plan will be necessary to realize further growth in based aircraft and operations, particularly that of larger aircraft that will benefit from a longer runway. The business plan's implementation provides the opportunity for growth at MWC to exceed the national averages and outpace the TAF forecasts. The instrument activity forecast of the 2008 master plan, which was based on higher activity levels, is anticipated to reflect future instrument approaches, and the business plan's goals are to improve the instrument approaches and make the airport more attractive to corporate operators.

The based-aircraft level already exceeds the TAF projection. The TAF should be updated to reflect the existing conditions. The operations forecast, using a higher growth rate to reflect anticipated increases in activity with the implementation of the business plan, exceeds the TAF forecast by 10 percent in ten years and 21 percent in 20 years.

Table 4.4. Forecast Activity Levels at MWC								
	2017		2022		2027		2037	
	Current*	TAF	Forecast	TAF	Forecast	TAF	Forecast	TAF
Based aircraft	101	72	107	76	113	80	126	90
<i>Single-engine</i>	87		95		99		109	
<i>Multi-engine</i>	5		5		5		5	
<i>Turboprop</i>	3		4		4		4	
<i>Jet</i>	2		3		3		6	
<i>Helicopter</i>	2		2		2		2	
Annual operations	24,875*	23,434	26,000	23,733	27,200	24,037	29,800	24,673
<i>Local</i>	12,737	11,856	13,000	12,155	13,600	12,459	14,900	13,095
<i>Itinerant</i>	12,502	11,578	13,000	11,578	13,600	11,578	14,900	11,578

*August 2017 validated based aircraft and 2016 calendar year annual operations from FAA ATADS
 Source: Hanson Professional Services Inc., July 2017.

Peak Month and Day

To assist in identifying facility requirements, peak operational data was identified from the MWC activity records. Operations in the peak month and on the peak day constitute additional measures of airport activity. In reviewing airport operations by month, the peak month over the last five years has occurred in June, July or August. The peak month of itinerant activity occurred in July or August. The Experimental Aircraft Association (EAA) holds its annual AirVenture event in late July or early August, which attracts thousands of general aviation aircraft to Oshkosh, Wisconsin. Aircraft flying to or from AirVenture also use other airports in Wisconsin, which likely generate the increase in itinerant activity during this timeframe.

Also, the summer months are generally more favorable for flying weather, and there is often an increase in recreational and training activity during these months. Over the last five years, the peak month ranged from 10.4 percent to 13.4 percent of the annual operations, averaging 11.5 percent.

Table 4.5 lists the top five peak days by operations in 2016 from ATADS. These days are all Saturdays or Sundays, generally with a higher level of local than itinerant activity. The higher level of local activity reflects locally based pilots flying and training. Also from ATADS, there was an average of 78 operations on weekdays and 89 operations on weekends in 2016. ATADS does not provide an hourly breakout of traffic, but that data could be obtained from the ATCT as needed to appropriately plan the size of future facilities.

Typically, the design day for a general aviation airport is defined as the average day within the peak month. This represents an average in the busy month. However, with daily traffic counts available for MWC, peak levels of activity were further examined for facility sizing.

Table 4.5. Peak Operations by Date in 2016				
Airport Operations				
Date	Itinerant General Aviation	Local General Aviation	Total Operations	Day of Week
4/16/2016	82	120	202	Saturday
4/17/2016	55	136	191	Sunday
3/20/2016	86	104	190	Sunday
10/8/2016	117	72	189	Saturday
9/24/2016	63	112	175	Saturday

Source: ATADS, February 28, 2017.

After examining the peak days within the peak months of July and August for 2016, the highest level of itinerant operations in a day was 80 operations on August 10, 2016. This represents 2.9 percent of peak month operations. During the months of July and August 2016, the average level of itinerant operations was 45. To estimate the number of itinerant aircraft that may concurrently be at MWC, the 2008 master plan used 20 percent of itinerant busy day operations. Applying 20 percent to the peak itinerant daily operations level would result in as many as 16 transient aircraft at once, currently and increasing in future years. The level and size of transient aircraft should be monitored through coordination with the FBO, because it is important in determining aircraft parking apron size. **Table 4.6** summarizes project peak levels of operations at MWC.

Table 4.6. Forecast Peak Activity Levels at MWC					
	2017	2022	2027	2032	2037
Annual operations	24,875	26,200	27,200	28,500	29,800
Peak month	2,752	3,013	3,128	3,278	3,427
Design day	92	100	104	109	114
Peak itinerant	80	87	91	95	99

Source: Hanson Professional Services Inc., 2017.

4.3 Critical Aircraft

In addition to identifying overall activity levels, the size of the aircraft using or desiring to use MWC is important. The type and size of the aircraft is defined by identifying the critical aircraft or group of aircraft.

The FAA defines critical aircraft as the most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport, which is defined as 500 annual operations (an operation being either a takeoff or a landing), excluding touch-and-go operations. **Table 4.7** illustrates the category and design group classifications, which when combined create the airport reference code (ARC).

Table 4.7. Airport Reference Code		
Aircraft Approach Category (AAC)		
Category	Approach Speed (knots)	
A	< 91	
B	91 – 121	
C	121 – 141	
D	141 – 166	
E	> 166	
Airplane Design Group (ADG)		
Design Group	Wingspan (feet)	Tail Height (feet)
I	< 49	< 20
II	49 – 78	20 – < 30
III	79 – 117	30 – < 45
IV	118 – 170	45 – < 60
V	171 – 213	60 – < 66
VI	214 – 262	66 – < 80

Source: FAA AC 150-5300-13A, Change 1.

Using data from the FAA’s Traffic Flow Management System Counts (TFMSC), which is based on instrument flight plans, the larger aircraft using an airport can be measured, because most of these aircraft operate on instrument flight plans. The forecast data resources are included in [Appendix G](#). The annual operations for 2016 from TFMSC, which are the most recent calendar year of operations, were reviewed to identify the larger aircraft using MWC, as shown on **Table 4.8**. Even with the existing runway length, MWC regularly accommodates operations by piston- and turbine-powered propeller aircraft, as well as small corporate jets. The high level of activity by the Cessna 414/421/425 is reflective of the based aircraft and their use in charter operations. Most of these aircraft fall within ARC B-I, but some of the larger King Airs and the Cessna 425 are ARC B-II aircraft. Despite the limited runway length, MWC also accommodates operations by small corporate jet aircraft, primarily various models of Cessna Citations and smaller Embraer and Raytheon corporate jets.

Table 4.8. Large Aircraft Operations at MWC January 2016 to December 2016					
Aircraft Model	Annual Operations Aircraft Approach Category		Annual Operations Aircraft Design Group		Max. Takeoff Weight Lbs.
	B	C	I	II	
Beech King Air 90/100	53		53		11,800
Beech Super King Air 200	155			155	12,500
Beech Super King Air 300/350	82			82	15,000
Beech Baron	94		94		5,500
Cessna Citation Mustang	12		12		8,645
Cessna Excel/XLS	26			26	20,200
Cessna Citation V/ Ultra/Encore	15			15	16,300
Cessna Citation Jet/CJ1/CJ2	48		48		12,500
Cessna Citation II/CJ3/ Bravo	25			25	15,100
Cessna Citation CJ4	34			34	17,100
Cessna Citation Sovereign	4			4	30,300
Cessna 401/402/414/421/425	400		400		8,600
Cessna Conquest	22			22	9,00
Dassault Falcon 10	2		2		18,700
Dassault Falcon 50	2			2	30,700
Eclipse 500	4		4		6,000
Embraer Phenom 100	15		15		10,500
Embraer Phenom 300	10			10	18,000
Learjet 45		2	2		21,500
Mitsubishi MU2	2		2		10,800
Piper PA31/34	173		173		6,200
Raytheon Premier/Beech Jet	27		27		12,500
Total	1,205	2	832	375	

Source: FAA TFMSC, January 2016 to December 2016.

With renewed support for MWC from airport leadership and the level of activity by ARC B-II aircraft, it is recommended that the primary runway at MWC meet FAA ARC B-II design standards. The FAA defines aircraft weighing 12,500 pounds or less as small aircraft. Because several models of the smaller corporate jets have a maximum takeoff weight greater than 12,500 pounds, the primary runway should be designed to ARC B-II design standards for all aircraft.

The crosswind runway is only 3,200 feet long and is generally used by smaller aircraft more sensitive to crosswinds. Because larger aircraft in a strong crosswind may use Runway 4L/22R, and the runway's pavement strength is the same as the primary runway, the existing airport layout plan also identified ARC B-II standards for this runway. The turf runways also accommodate smaller aircraft only, so they should be planned to meet ARC B-I small aircraft only (utility aircraft) standards.

4.4 Forecast Summary

The aviation activity at MWC has declined since the 2008 master plan was prepared, but the based aircraft have more recently rebounded. The baseline forecast is slow growth. The development and implementation of recommendations from this business plan at MWC has the potential to spur new growth that will cause MWC to outpace the baseline forecast.

The strategic goal of the business plan is to make MWC the premier general aviation airport for southeast Wisconsin. Some steps toward that goal can be immediately taken, and some will take more time to implement. MWC has hangar facilities available to immediately attract aircraft. The air traffic control services are desirable to corporate operators. However, the level of future corporate jet activity at MWC will be greatly driven by when additional runway length can be developed. Because turbine powered aircraft, including corporate jets, are forecasted to be the fastest growing segment of general aviation fleet, the ability to regularly accommodate corporate jet aircraft would provide a significant growth opportunity at MWC.

Continuing to properly serve the single-engine piston market will continue to make MWC attractive to owners of these aircraft. In addition, with two paved runways, turf runways and air traffic control service, MWC provides a unique and well-rounded flight training and full-service environment for the general aviation community.

5.0 Facility Requirements and Aviation Services

Two strategic facility goals were identified for MWC:

- Increase runway length and improve instrument approaches to meet market role
- Develop updated a new, modern terminal facility

The longer runway length and updated terminal facilities are viewed as being complementary requirements. The longer runway will enable more corporate aircraft to operate at MWC, and an updated terminal will better meet the expectations of arriving corporate passengers and provide a better gateway for Milwaukee County. Along with the updated terminal facilities, identifying locations to lease ground for the development of additional hangar facilities that would accommodate aircraft attracted to MWC is an important element to increasing activity at MWC.

5.1 Primary Runway

Additional runway length is the No. 1 facility need identified for MWC. Without additional runway length to enable more types of business aircraft to use MWC, the updated terminal facilities will be less effective. During stakeholder interviews, the fixed-base operator indicated it receives continued interest from the operators of smaller corporate jets to use MWC. However, the runway length becomes an issue for these aircraft in wet runway conditions. In wet runway conditions, the FAA requires jet aircraft to add a 15 percent margin of safety factor to the aircraft's required landing length. Many of these small jets can operate on the 4,100-foot runway, but when required to add the 15 percent margin of safety factor, the runway is too short in wet conditions. Additionally, many corporate aircraft insurance providers require up to 5,000 feet of runway in order to insure their clients.

When an aircraft is not able to use an airport in all weather conditions, they must use an alternate airport. This results in a loss of activity at MWC. If this frequently occurs, often the alternate airport becomes their new airport of choice due to its more reliable access. Thus, while there are operations by small corporate jets at MWC, these operations are likely primarily occurring in dry weather conditions. Based on the inquiries received by the FBO, the desired usage of MWC by small corporate jets is higher than the actual activity.

In addition, charter operations under Part 135 and fractional ownership operations under Part 135 or Part 91 (Subpart K) require an aircraft to be fully stopped within 60 percent of the available runway length, or 80 percent of the available runway length if the airport is an approved destination airport in that operator's manual. Additional runway length at MWC would open the opportunity to attract more charter and fractional ownership operations to MWC.

While no specific users were identified through the stakeholder outreach, communications with potential users identified that to provide small corporate jets more reliable access at MWC, a runway of at least 4,500 feet long is needed. In most cases, a length at or close to 5,000 feet was viewed as being more desirable. While the exact runway length requirement varies with field elevation and temperature, **Table 5.1** summarizes operating data from similar airports for the types of aircraft anticipated to use MWC, if additional runway length was available. **Table 5.2** provides data for MWC with specific operating conditions for a Cessna Citation 560, one of the types of critical aircraft using or desiring to use MWC.

Because the primary runway is intended to serve corporate jet aircraft, a grooved surface is recommended to further increase the operating margin of safety.

Table 5.1. Sample Business Jet Aircraft Operating Requirements					
	ARC	Takeoff (in feet) – Part 91		Landing (in feet)	
		Dry	Wet	Dry	Wet
CE-525	B-I	4,000	4,261	3,156	4,476
CE-560XL	B-II	4,231	4,385	3,363	5,335
CE-560XLS	B-II	4,131	4,254	3,362	5,126
CE-680	B-II	3,915	4,592	2,785	3,478
EMB-505	B-II	4,461	4,602	2,677	5,131

Source: C525 operator’s manual for airport at 685’ MSL and 86 °F, max. takeoff and landing weight; NetJets October 12, 2016, for airport at 585’ MSL, 30°C, standard flaps

Table 5.2. Cessna Citation 560 MWC Operating Requirements					
	ARC	Accelerate/Stop Distance (in feet)		Landing (in feet)	
		Dry	Wet	Dry	Wet
CE-560	B-II	4,115	4,980	2,960	4,500

Operating conditions: Timmerman Airport at 745’ MSL, 81 °F, calm winds

Source: Spring City Aviation, May 2017.

Comparison to Area General Aviation Airports

In considering potential improvements at MWC, the airport’s existing and potential role in the market should also be considered. **Table 5.3** below shows a comparison of MWC to other general aviation airports serving Milwaukee and its northern and western suburbs. MKE also serves general aviation aircraft, so it has been included for comparison. These airports were selected primarily because they are all within a 30–45 minute drive of MWC. The Wisconsin State Airport System Plan used 45 minutes’ drive time from a large general aviation airport like MWC as a measure of acceptable aviation access.

In looking at the facilities at MWC in comparison to surrounding airports, it has one about the average level of based aircraft with the exception of Waukesha County and has the fourth longest runway length. MWC also offers air traffic control tower service, which can be desirable for corporate operators but may be a disincentive for some small-aircraft operators that prefer an uncontrolled field. The fuel prices for 100 LL are competitive when compared with other full-service fuel offered in the market. Of these airports, West Bend Municipal is the most similar in runway length. Using data from the FAA’s TFMSC, at MWC, there were 226 operations in 2016 by corporate jets. At West Bend Municipal Airport, there were 176 corporate jet operations in 2016, per TFMSC. West Bend Municipal Airport is about a one-hour drive to Milwaukee and does not have an air traffic control tower. Thus, while MWC’s runway length is shorter, it still accommodated more business jet operations than West Bend Municipal Airport and has the added benefit of a control tower for these operators.

Table 5.3. MWC and Surrounding Airports Serving General Aviation Aircraft								
Airport	Longest Runway (feet)	Based Aircraft	No. of Runways	FBO	Control Tower	100 LL/ MoGas	Jet A	NPIAS Role
Timmerman	4,103 x 75	101	4 (2 paved)	Spring City Aviation	Yes	\$4.28	\$4.33	Regional reliever
Mitchell International	9,900 x 200	97	5	Signature	Yes	\$8.77	\$7.33	Medium hub
Waukesha County	5,849 x 100	173	2	SAS, Atlantic, Spring City	Yes	\$4.29 to \$4.49	\$4.34 to \$4.54	National reliever
West Bend Municipal	4,494 x 75	94	2	West Bend Air	No	\$4.39	\$3.99	Regional reliever
Hartford Municipal	3,000 x 75	107	1	City of Hartford	No	\$3.90 SS \$2.90 SS MoGas	NA	Local GA
Capitol (privately owned)	3,400 x 44	119	1	Brookfield Aero	No	\$3.83 SS \$2.85 SS MoGas	NA	Regional reliever

Source: AirNav, fuel prices as of 3/10/2017, MWC based aircraft as of July 2017.

Waukesha County Airport is the busiest general aviation airport in Wisconsin. It accommodated more than 4,000 corporate jet operations in 2016, per TFMSC. It is recognized that with the development surrounding MWC, the airport will not serve the same market as Waukesha County Airport. However, MWC could be a viable alternative for smaller corporate aircraft, especially if some additional runway length can be developed.

The other airports on **Table 5.3**, with runways less than 4,000 feet in length, primarily serve piston aircraft similar to the small aircraft at MWC. With only self-service fuel, these airports are catering more to cost-conscious pilots than those desiring services. The combination of full-serve fuel and a variety of hangars at various price points places MWC in a competitive position.

The Wisconsin State Airport System Plan identified MWC as large general aviation (GA) airport. The desired airside facilities for a large GA airport include a runway that is up to 5,500 feet long and 100 feet wide, with the actual runway dimension to be determined based on critical aircraft, with a full parallel taxiway and an approach with ½-mile visibility.

Based upon the critical aircraft, and MWC's role in the Milwaukee metropolitan area and Wisconsin airport system, the primary runway at MWC should be up to 5,000 feet long. For an ARC B-II aircraft, a 75-foot wide runway is sufficient. A full-length parallel taxiway should also be maintained. Instrument approaches should be available to both ends of the runway (currently only available to Runway 15L). With the existing development on and around MWC, the approach minimums should be limited to greater than $\frac{3}{4}$ mile.

The critical aircraft at MWC are up to 30,000 pounds maximum takeoff weight. The runway strength on Runway 15L/33R is 30,000 pounds single wheel. Therefore, this pavement strength should be an adopted standard for the primary runway.

5.2 Crosswind Runway

The FAA recommends 95-percent wind coverage at an airport. Meaning, aircraft can land with a crosswind component at or below the demonstrated capability of the aircraft 95 percent of the time throughout the year. In all weather conditions at MWC, for aircraft with a crosswind component of 10.5 and 13 knots, the primary and crosswind runways are needed to meet the recommended crosswind coverage.

The crosswind runway at MWC, Runway 4L/22R, is 3,202 feet long and 75 feet wide. It has a full-length parallel taxiway. This runway is used by smaller aircraft most sensitive to crosswinds. With existing development around MWC, the crosswind runway should be maintained at its existing length. Runway 4L/22 R is also identified as having a pavement strength of 30,000 pounds single wheel. Unless the pavement is reconstructed in the future, maintaining the existing pavement strength would be most cost-effective.

5.3 Turf Runways

At MWC, there is a turf runway that parallels each of the paved runways. The turf runway is shorter than the associated paved runway. Each of the turf runways has a 600-foot separation between turf runway centerline and paved runway centerline. Per FAA Advisory Circular 150/5300-13A, Airport Design, for ARC B-II not lower than $\frac{3}{4}$ mile visibility design standards, the minimum separation between runway centerline and runway centerline is 200 feet and for simultaneous operations by all aircraft types in visual flight rule (VFR) conditions it is 700 feet. However, air traffic control procedures in FAA Order JO 7110.65W, Air Traffic Control, allow for simultaneous operations in the same direction on closer space runways with all smaller aircraft. For Category I and II aircraft, which are single- or twin-engine aircraft weighing 12,500 pounds or less and helicopters, the minimum distance between runway centerlines is 300 feet with 200 feet between edges of adjacent runways. This is the majority of the aircraft that operate at MWC. For other aircraft that would operate at MWC at least 500 feet is required between runway centerlines with 400 feet between adjacent runway edges. With 600 feet of separation between runway centerlines, even with the wide turf runways, the edges are more than 400 feet apart allowing for simultaneous operations in the same direction on the parallel runways.

Having a turf runway and, more so, two turf runways provides a unique environment for pilots. An aircraft behaves differently when operating on a turf runway, because the turf has more friction, slowing a landing aircraft more quickly and reducing the acceleration on takeoff. The opportunity to train on a turf runway better prepares a pilot for operations on a turf runway or for emergency operations in an off-airport forced landing situation. In addition, the turf runways at MWC are wider than the paved runways. The increased runway width also provides a greater margin of safety when operating in higher crosswind or variable gusting wind conditions. For tail-wheel aircraft, a turf runway is generally a preferred landing environment. Therefore, it is recommended that the two turf runways be maintained at MWC.

5.4 Instrument Approach

All paved runway ends at MWC, except Runway 33R, have instrument approaches. The lowest existing minimums are the localizer performance with vertical guidance (LPV) GPS-based approach to Runway 15L, with 1-mile visibility and 300-foot ceiling. Primarily in the winter, there are times when the winds favor Runway 33R. Therefore, development of an instrument approach to Runway 33R is recommended. MWC is about 11 miles from MKE. This will require the instrument approaches to Runway 33R to be coordinated with departures at MKE on Runway 1L. In discussions with the air traffic controllers at MKE, they are supportive of the development of an approach to Runway 33R at MWC. The MKE controllers are willing to coordinate the MWC 33R approaches, because they occur with MKE traffic when both of these runways are active. The instrument approach to Runway 33R can be pursued for the existing runway end and modified in the future to serve a realigned primary runway.

5.5 Apron

There are two aprons at MWC, in the north and east terminal areas. The FBO and terminal building are in the north terminal area, so the north apron is used by transient aircraft. The east apron has very limited use. The review of the existing and projected aviation activity indicated that up to 16 spaces are needed for peak transient activity. In addition to the forecasted need for parking space, the FBO generally stages its training and charter aircraft on this apron. Therefore, in addition to transient aircraft, at least five spaces should be available for local aircraft, bringing the total spaces needed to 21.

The existing north apron has 44 marked spaces. These spaces are sized for small, single-engine aircraft, so larger aircraft may occupy more than one space. There are also a couple of long-term, tie-down spaces to the west of the T-hangars. Because of its limited use, the east apron does not have marked tie-down spaces. It is smaller than the north apron, with Taxiway D running along its western edge.

5.6 Terminal Building

The terminal building provides a small waiting area, restroom and a training area on the first floor for pilots. There is a meeting space on the second floor, accessible via stairs. As an older building that has not been renovated, it is not completely ADA-compliant. To meet the strategic goal of being the

premier general aviation airport for southeast Wisconsin that is fully accessible, an updated terminal facility is needed, either through the renovation or reuse of the existing building or development of a new terminal building.

Reviewing existing terminals at general aviation airports serving corporate aviation, an estimated size of 6,500 square feet was identified for planning purposes. An additional 1,500 square feet should be included if a café will be part of the terminal building. It is also desirable for the terminal to have a shorter walk from the parking lot to the building than the existing layout.

5.7 Airfield Lighting

MWC has medium-intensity lighting systems. Medium-intensity lighting systems are the FAA standard for the existing and proposed instrument approaches to MWC. All airfield lights at MWC have been converted to LED lights that reduce energy consumption and improve maintenance costs. The existing paved runways also have runway end identifier lights (REIL) and visual slope approach indicator (VASI) lights, which are visual navigation aids. REIL and the new VASI system called precision approach slope indicators (PAPI) should be installed on any replacement runway.

5.8 Facility Improvements Needed to Meet Strategic Goals

A primary runway of 5,000 feet, or as close to that length as can be accommodated at MWC, is recommended to meet the strategic goals of providing sufficient runway length and instrument approaches. Also, the development of an instrument approach to Runway 33R should be pursued.

A renovated or new terminal building providing at least 6,500 feet is recommended to complement the airfield improvement and meet the goal of providing updated terminal facilities. The initial terminal building alternatives are focused on the north side, where the majority of the existing hangars are located. After it was identified that all these alternatives still resulted in a constrained terminal building site, the east side near the airport traffic control tower was considered. **Table 5.4** summarizes the facilities needed to meet the MWC strategic goals. [Section 6.0](#) discusses the alternatives evaluated to identify the preferred method to meet these strategic goals.

Table 5.4. Facility Requirements		
MWC Facility Needs	Existing	Future
Critical aircraft	ARC B-II – primary ARC B-II – crosswind ARC B-I small aircraft – turf	ARC B-II – primary ARC B-II crosswind ARC B-I small aircraft - turf
Runway	Primary: 4,103 x 75' Crosswind: 3,200' x 75' 2 Turf Runways	5,000' x 75' 3,200 x 75' 2 Turf Runways
Runway strength	15L/33R 30,000 S 4L/22R 30,000 S	15L/33R 30,000 S 4L/22R 30,000 S
Taxiway	2 full-length parallels	2 full-length parallels
Nav aids	VOR, localizer GPS	GPS
Apron	20,800 square feet 51 positions	At least 16 transient plus 5 local
Terminal building	Not ADA-compliant Limited space for lounge and training room, long walk to entrance from parking	6,500 square feet or more based upon operations in the building, ADA-compliant, short walk

Source: Hanson Professional Services Inc., 2017.

5.9 Fixed-Base Operator Services

The physical facilities and services offered at MWC need to be complementary to achieve the vision of being the premier general aviation airport for southeast Wisconsin. Thus, in addition to examining facility requirements, the business plan has also considered the provision of the fixed-base operator services.

Spring City Aviation – East

Milwaukee County entered into agreement with Spring City Aviation – East, LLC (SCA) in December 2016 to provide FBO services for a term of 20 years at MWC. This agreement is consistent with a full-service FBO concept, where the FBO is responsible for most all aviation services at the site. As specified in the agreement with SCA, they are obligated to perform the following aeronautical services and make them available twenty-four hours per day, seven days per week:

- Sale and into-plane delivery of aviation fuels and oils
- Parking, storage and tie-down of transient and based aircraft within and to the reasonable capacity of the leased premises
- Ramp assistance
- Light maintenance
- Minor repair and cabin services as may be performed efficiently on their ramp

Additionally, SCA is granted the nonobligatory and nonexclusive right to perform the following commercial aeronautical services at MWC:

- Major airframe and engine maintenance
- Operation of an FAA-approved flight school
- Aircraft rental and/or lease
- Aircraft charter and air taxi
- Aircraft sales
- Propeller, instrument and avionics sales and service
- Specialized commercial flying services to potentially include sightseeing, aerial photography, firefighting, pipeline patrol, traffic reporting, aerial ambulance, air freight
- Aircraft deicing
- Ground handling for passenger and cargo aircraft
- Into-plane fueling for commercial and air cargo aircraft

This 20 year agreement with SCA represents a comprehensive arrangement for the delivery of certain mandatory services and performance of nonmandatory services. From the perspective of the comprehensive nature of the services to be provided and elected, and performing as the leasing agent for virtually all leasable facilities, SCA will be the “services provided” key to the future of MWC. As such, it will be very important and beneficial for the county to begin the new FBO relationship, with a solid understanding of service levels required, investment required by both parties and joint activities that would benefit all stakeholders.

In recent history, the FBO services at MWC have been hampered by a declining market that has moved to other area airports, aging and inadequate facilities, declining service levels and significant pricing competition. The new partnership between the Milwaukee County Aviation Division and SCA is already delivering benefits and new service options to MWC users. Fully developing this partnership is a key component of moving MWC toward the shared vision.

5.10 Range of Potential FBO Service Provision Options

FBO service provisions can be viewed as largely a function of the financial viability of each market. FBOs typically offer numerous services to the flying public, with fuel sales considered the primary revenue production source. The profit margin derived from fuel sales is a significant indicator of financial viability for most FBOs. As with any business, as market demand erodes and competition increases, profit margins suffer. With declining profit margins, the business owner is forced to cut back on service levels and other aspects of the business that have a defined cost and do not generate compensating revenues. In this scenario, the business owner is forced to cut back on special and expected service-level options their customers expect. For an FBO, this situation becomes an ever-decreasing spiral of lower service levels and declining market demand, equating to an eroding bottom line.

In many ways, the above scenario has occurred at MWC over the last 20 or more years. In order to reverse this trend, it is incumbent on the public sector to partner with the private sector to shore up service levels, improve facility conditions and options, stabilize price points for service and offer joint resources that will begin to reverse the market migration to competing area airports.

The number of financially viable FBOs an airport can financially accommodate is closely correlated to annual fuel flow. In general, each financially viable FBO requires an estimated 1 million gallons of annual fuel flow. Typically, increased fuel flow can result in a higher level of service and better facilities, with lower annual fuel flow possibly resulting in the opposite. The fuel flow from the previous four years at MWC was extracted from the reported fuel flow fees and are (numbers are rounded and include Jet A and Avgas):

- 2013: 165,000 gallons
- 2014: 171,000 gallons
- 2015: 149,000 gallons
- 2016: 142,000 gallons

The provision of FBO services at airports in the United States can be viewed on a continuum, with the public sector providing all FBO services under exclusive aeronautical rights at one end of the spectrum, and the private sector providing all traditional FBO services at the other end of the spectrum. Most airports in the United States operate under the model of the traditional private-sector provision of FBO services. However, there are numerous airports in the United States where the public sector has taken over as the FBO service provider. The typical reasons for the airport to take over as FBO service provider are:

- The market is not large enough or financially viable, so all previous private-sector FBOs had difficulty providing an acceptable level of service and, therefore, demand has declined.
- The airport is interested in taking on the FBO function as a potential new revenue source that would improve the airport's bottom line and perhaps make the airport self-sufficient, or at a minimum, less in need of operating or capital subsidies from the airport owner.
- The airport was in the process of procuring a private sector FBO, but bids were unresponsive or unacceptable.

There are airports in the United States that offer hybrid services, with some airports having full-service, private-sector FBOs while offering airport-managed fueling or other facilities. From this perspective, each airport can fall anywhere in the FBO ownership services continuum, and each airport should periodically go through the process of determining what level of public, private or hybrid FBO offerings will work best in each market.

5.11 Exclusive Rights

Exclusive rights at airports are sometimes a difficult concept for tenants and users to understand. In general, exclusive rights regulations, as defined primarily in FAA grant assurances, have been put in place for two primary reasons: 1) to protect the airport from private monopolies that might develop as a result of long-term tenant and FBO agreement interpretations, and 2) to allow the airport the opportunity to perform certain aeronautical services to improve service levels and potentially become more financially self-sufficient. The exclusive rights clauses materialized over time as a means of protecting the commercial rights of airports and defining the rights of the airport (lessor) and tenant (lessee). There are numerous airports across the United States that have taken on the delivery of full aeronautical services at their facilities. This can be done under the exclusive rights clause, but usually, the FAA would be interested in understanding the public need for doing so, which usually falls into one or more of the following categories:

1. The FBO has had considerable service level issues in the past
2. The commercial value of fuel sales and other aeronautical services is not adequate to support an FBO operation with the desired service levels
3. It is too expensive for a new FBO to start and deliver adequate services at the airport

The agreement with SCA is specific regarding which aeronautical rights are delegated to them mandatorily and nonexclusively. This will help to ensure that the rights of the county and SCA are well protected over the next 20 years.

5.12 Shared Responsibilities and Best Practices

In the traditional full-service FBO arrangement, there are certain aspects that an airport should develop with its FBO tenants to ensure that the airport is taking advantage of this traditional public-private partnership. Those are:

- Ensuring adequate return on investment for airport-developed facilities
- Shared marketing support
- Subsidies for any services that the market may require and FBO is not able to invest in
- Improving flight school/mechanic school offerings through rent abatement, public-sector education/training grants and other public sector subsidies; in certain cases, waiving return on investment requirements for five years on airport-financed facilities
- Conducting local market analysis for the FBO
- Conducting customer service surveys on behalf of the FBO

Recommendations

In reviewing the options for FBO services, it is with the understanding that SCA will likely be the private FBO provider for the next 20 years at MWC. The fuel sales at MWC are approximately 150,000 gallons per year. Using 1 million annual gallons of fuel throughout as an estimated benchmark of FBO financial viability, SCA may not have the financial resources in the short-term to develop and grow the business on its own. With this in mind, the recommendations as part of this business plan support the concept of developing a true public-private partnership between the county and SCA. The measure of any worthwhile public-private partnership is usually when each group contributes from its relative strengths to improve the whole offering.

The timing for such a partnership is optimum, in that SCA was recently awarded a 20-year lease and has shown itself to be focused on rebuilding MWC activity. Additionally, the county recently adopted a more focused interest in improving the service levels and the long-term financial viability of MWC.

The following are the recommendations for FBO options:

Managerial Partnership

A full-time airport manager for MWC is an immediate need and a best practice. The county should strive to identify an individual with an operations and maintenance background, with a good understanding of capital development and marketing or business principles. The MWC airport manager should view his or her primary role as a business development manager and partner with the FBO.

The MWC airport manager should develop a weekly or bi-weekly joint management meeting with the SCA management staff. The primary goal of the meeting would be to track progress on capital developments, planning, maintenance and aesthetics, financial key performance indicators (KPIs), joint marketing and branding activities. The MWC manager should also bring to the attention of the division director any financial needs or joint investment opportunities that would benefit the market and help SCA fully develop its business.

Capital Development Partnership

SCA is required to renovate and update the FBO facility as part of its new lease agreement. The county has begun and continues to invest in MWC, with projects such as pavement rehabilitation, roof replacement and building painting.

The county anticipates implementing a development program aimed at adding useful runway length. This partnership opportunity will support SCA in the long-term. The more critical facility investments pertaining to the FBO building should be implemented in a very short-term time frame as a means of improving the FBO service level and the MWC brand.

Joint capital development goals and schedules should be a standing agenda item for the joint MWC management committee meetings.

Financial Partnership

The county should work directly with the FBO to develop a set of appropriate KPIs for their operational and financial management needs. KPIs are discussed further in [Section 9.6](#).

SCA should be required to develop a management dashboard of KPIs that each group can use regarding making timely management decisions pertaining to any marketing, business development and joint investment needs.

The FBO manager should meet with the division director, at a minimum, on an annual basis to discuss progress to goals and any joint needs for the upcoming year.

Business Development Partnership

The county and SCA should view their business development roles jointly for MWC. The county should bring to the partnership all the standard public sector resources as a means of helping the FBO generate new business and land leases. At a minimum, these resources could include state and local economic development programs and resources, the local chamber of commerce or economic development council, business incubator resources, technical education programs, local re-development zones or initiatives (if applicable), etc.

The county should use its long-standing connections to continually engage with the local business community to help SCA attract and base corporate flight departments.

The county should consider a lease amendment that would include provisions for SCA to become more focused on property development, with the requisite incentives and responsibilities.

Business Plan

The county should consider initiating a detailed property development plan that would focus on the areas of intended development, reuse of areas scheduled for demolition, intended uses for these parcels and infrastructure development requirements for the property to be successfully marketed. Aviation-related parcels identified in this study could then be included in the SCA lease for marketing and development.

Marketing and Branding Partnership

Branding decisions and brand development as a component of this study need significant input from the county and SCA. The framework for a marketing and branding plan for MWC is discussed in [Section 8.0](#).

The county and SCA should consider a joint marketing effort as a way of using their funds to improve the brand, message and public outreach for MWC. Some suggestions include a joint exhibit booth at a National Business Aircraft Association event, advertising in general aviation magazines and any other conference outreach that might benefit both parties. The MWC airport manager should include joint marketing opportunities on the agenda of the periodic airport management coordination meetings.

The county and SCA should consider joint messaging on their respective websites. This would include any title, moniker, mission statement or other brand-related outcomes that will affect the business-development potential of the airport. The joint messaging will ensure that the county and SCA are aligned on the branding and messaging within the chosen brand.

The county should consider paying for an annual customer service survey that would include outreach to competing airports. This survey should gather information regarding the improving level of service at MWC and any additional service needs. The survey would attempt to gather information from competing airport tenants regarding their willingness to potentially relocate and what services would entice them to relocate to MWC.

MWC's website is www.timmermanairport.com. This website includes links to SCA to provide facility information. There is no readily identifiable connection between the MKE website, www.mitchellairport.com, and MWC to identify the link between the two Milwaukee County airports. Also, the Milwaukee County website, under "Departments," only provides a link to the MKE website.

As a county facility, the county and MKE websites should include a link to the MWC website for general aviation interests. Any joint branding or messaging regarding the Milwaukee County airports and SCA should be coordinated and included with these links.

FBO Services Summary

Milwaukee County has a long-term agreement for the provision of FBO services at MWC, following the more traditional concept for FBO services. SCA, which started its operation as the MWC FBO in December 2016, is already taking measures to provide a high level of customer service while performing its mandatory and optional services. The support of MWC through a public-private partnership, through which there are opportunities to work together to increase public awareness and improve facilities, will strengthen MWC as a community asset.

6.0 Alternatives Analysis

To serve as the premier general aviation airport for southeast Wisconsin, two facility strategic goals were identified: develop a 5,000-foot runway and update terminal facilities. Also, the establishment of an instrument approach to Runway 33R was identified as an immediate need.

MWC has two paved runways and two turf runways. The turf runways parallel each of the paved runways. Reviewing the runways, the greatest opportunity for additional runway length is on the primary (paved) runway, which is already the longest runway at MWC at 4,103 feet by 75 feet. The crosswind runway is anticipated to be unchanged with improvements to the primary runway. If the recommended primary runway alternative is on a different alignment than the existing runway, the goal would be for its parallel turf runway to also be realigned.

In general, the north end of the primary runway is approximately 20 feet higher than the surrounding development. This is an advantage to provide a clear approach and departure surface, although it will require fill material, and its associated expense, for any extension. On the south end, the runway end is approximately the same elevation as the adjacent roadways.

Since its development in the 1920s and ownership by Milwaukee County that began in 1947, the majority of the land around MWC has been developed. MWC is surrounded by four major four-lane arterial roadways:

- West Silver Spring Drive (County Highway E)
- West Appleton Avenue (State Route 175)
- North 91st Street
- West Hampton Avenue (County Highway EE)

Because of the size of the roadways and the development along the roads, for this runway alternatives analysis, it was assumed that the roads would remain in place without any modifications.

6.1 Declared Distances

Ideally, runway pavement is fully usable for landing and takeoff operations in either direction. However, the FAA recognizes that there are some fixed constraints around some airports that are physically or financially infeasible to remove. Thus, it has alternative design standards known as “declared distances” that allow the takeoffs and landings in each direction to be separately considered. In many cases, this allows for additional runway length for at least some operations.

Recognizing the developed, constrained environment around MWC, regular FAA design standards and declared distances standards will be considered in evaluating the development of additional runway length.

When using declared distances, the following four operations are separately considered in each direction on a runway:

- *Landing Distance Available (LDA)*: the runway length declared available and suitable for landing an aircraft
- *Accelerate Stop Distance Available (ASDA)*: the runway length declared available and suitable for the acceleration and deceleration of an aircraft aborting a takeoff
- *Takeoff Run Available (TORA)*: the runway length declared available and suitable for the ground run of an aircraft taking off
- *Takeoff Distance Available (TODA)*: the TORA, plus the length of any remaining runway beyond the far end of the TORA

When evaluating the distance that can be usable for declared distances, the following must be provided for some of or all of the operations:

- *Runway protection zone (RPZ)*: an area at ground level prior to the landing threshold or beyond the takeoff runway end to enhance the safety and protection of people and property on the ground
- *Runway safety area (RSA)*: a defined area surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot or excursion from the runway
- *Runway object free area (ROFA)*: an area centered on a runway provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes
- *Runway approach surface*: a surface centered on the extended runway centerline extending outward and upward at an established slope to protect landing aircraft
- *Runway departure surface*: a surface centered on the extended runway centerline extending outward and upward at an established slope to protect departing aircraft

When using declared distances, the FAA considers the direction the aircraft is moving and whether or not it is arriving or departing from the runway to determine which of the above surfaces are applicable to that operation. **Table 6.1** summarizes when each of the surfaces is required before or beyond the runway end, based on the aircraft’s direction of travel.

Table 6.1. Surfaces Associated with Each Declared Distances Operation				
	LDA	ASDA	TORA	TODA
RSA before	✓			
RSA beyond	✓	✓	✓	✓
ROFA before	✓			
ROFA beyond	✓	✓	✓	✓
RPZ before	✓			
RPZ beyond			✓	
Clear approach surface	✓			
Clear departure surface			✓	✓

Source: Hanson, 2017 based on FAA AC 150/5300-13A, Paragraph 322.

2008 Master Plan

Multiple runway extension alternatives were considered as part of the 2008 master plan, and a 600-foot (total) extension to Runway 15L/33R using declared distances was recommended. An environmental assessment of the preferred runway extension alternative was initiated, but stopped in 2012 when the FAA released the “Interim Guidance on Land Uses Within a Runway Protection Zone.” This revised FAA guidance focuses on reducing the developed land uses in an RPZ, especially where people would or might gather. With FAA guidance in an interim state, Milwaukee County decided to halt the environmental assessment and runway extension process until more firm guidance became available. The runway extension project has not been implemented, and the primary runway remains 4,103 feet long.

6.2 RPZ Land Use Compatibility

The FAA’s “Interim Guidance on Land Uses within a Runway Protection Zone,” which is still the current guidance, identifies the types of land uses requiring coordination with the FAA National Airport Planning and Environmental Division and the actions that trigger this coordination. The following land uses require coordination:

- Buildings and structures including, but not limited to, residences, schools, churches, hospitals or other medical care facilities, commercial/industrial buildings, etc.
- Recreational land use including, but not limited to, golf courses, sports fields, amusement parks, other places of public assembly, etc.
- Transportation facilities including, but not limited to, rail facilities light or heavy, passenger or freight; public roads/highways; vehicular parking facilities
- Fuel storage facilities (above and below ground)
- Hazardous material storage (above and below ground)
- Above-ground utility infrastructure (e.g., electrical substations) including any type of solar panel installation

It should be noted that there are other land uses that may create a safety hazard to air transportation resulting from wildlife hazard attractants, such as retention ponds or municipal landfills that are not subject to RPZ standards, because these types of uses do not create a hazard to people and property on the ground. Rather, these land uses are controlled by other FAA policies and standards.

While MWC has many of the land uses listed above within the existing RPZs, under the FAA’s 2012 guidance, they only need to be coordinated with the FAA when they would enter the limits of the RPZ as the result of:

- An airfield project (runway extension, runway shift)
- A change in the critical design aircraft that increases the RPZ dimensions
- A new or revised instrument approach procedures that increase the RPZ dimensions
- A local development proposal in the RPZ

With an extended runway or realigned runway, the FAA review of land uses in the RPZ will be required. Therefore, as part of preparing the runway alternatives, a coordination call was conducted with the FAA, Chicago Airports District Office (FAA Chicago ADO) and WisDOT Bureau of Aeronautics. Through this call, it was identified that reducing the developed land use within the RPZ

from existing conditions is desirable, and the clearer the central portion of the RPZ, the better. The central portion of the RPZ, or controlled land-use area, is the same width as the ROFA, extending the length of the RPZ. At MWC, the central portion of the RPZ on the primary runway is 500 feet wide.

In 2017, the Airport Cooperative Research Program (ACRP) issued Report 168: *Runway Protection Zones (RPZs) Risk Assessment Tool Users' Guide*. While this guide focuses on assessing risks in the RPZ, its analysis reaffirms the priority to provide as clear a central portion of the RPZ as possible.

6.3 Runway Alternatives

Starting from the existing airfield configuration at MWC, three key planning goals were used to identify feasible runway alternatives:

- Provide up to a 5,000-foot-by-75-foot ARC B-II runway
- Reduce the developed land uses within the RPZ
- Minimize proposed acquisition of off-airport property

In addition, the following criteria were used in identifying the alternatives based on FAA design standards:

Required

- Provide clear threshold siting surfaces (TSS) per FAA Advisory Circular 150/5300-13A, Table 3-2 at a 20:1 slope (1 foot higher for every 20 feet from the runway end), even though Federal Aviation Regulations (FAR) Part 77 is a 34:1 slope for other than utility airports. The TSS more closely aligns with the required U.S. Standard for Terminal Instrument Procedures (TERPS) than the FAR Part 77 surface and can be used to resolved penetrations to the FAR Part 77 surface.
- Provide 15-foot clearance above road elevation for all surrounding roads
- Provide clear RSA and ROFA within the airport property

Recommended

- Plan for more than $\frac{3}{4}$ -mile visibility instrument approaches to minimize impacts on existing development by keeping the FAR Part 77 primary surface the same as existing conditions at 500 feet wide
- Consider using declared distances to maximize length
- Control the portions of the RPZs not owned by MWC through easement or fee-simple acquisition. For example, with MWC being a Milwaukee County-owned asset, it is anticipated an agreement could be reached for an aviation easement with the Milwaukee County for any area of the RPZ extending over other county property, such as additional small portions of Madison Park to provide the airport with control of the RPZ. An easement would also be anticipated over commercial land uses, while the FAA is more likely to require fee simple acquisition of residential property.
- Focus on providing a clear approach surface, and departure surface to the extent feasible because departure procedures can be provided if greater-than-standard climb rates are required to clear obstacles in the departure surface

- TODA may be able to be longer than TORA, because no RPZ is associated with TODA, just the departure surface

Seven runway extension alternatives have been identified on two different alignments. The existing primary runway is also included in the runway alternatives evaluation for comparison purposes. The sections below describe the advantages and disadvantages of each alternative. There is no alternative within the existing roadways that provides a fully usable 5,000-foot-by-75-foot runway. Therefore, the alternatives use a combination of space available and declared distances to provide up to a 5,000-foot primary runway. The initial seven runway alternatives were narrowed to three shortlist alternatives that were further coordinated with the FAA, as described in [Section 6.5](#).

The preferred runway alternative is to develop a realigned Runway 16L/34R (a refined Option 3).

Option 1: Existing Conditions

As shown on **Figure 6.1** of Option 1, the primary runway is 4,103 feet long and 75 feet wide. On the Runway 33R end, Hampton Avenue, Madison Park Golf Course, one home and the parking area for one business (B&G Auto Service) are within the RPZ. On the 15L end, 103rd Street and 17 residential properties are within the RPZ. Of these 17 residential properties, 14 have a home within the RPZ. There is a localizer (navigational aid) located off the end of Runway 33R supporting an instrument approach to Runway 15L. However, the newer RNAV approach to Runway 15L provides lower minimums to instrument flight rule (IFR) GPS-equipped aircraft. The localizer is FAA-owned equipment. If it is disturbed for runway improvements, the FAA may elect to remove the localizer rather than replace it. Any change to the localizer due to an airport sponsor improvement program would need to be paid for by the sponsor as part of the improvement project through what is known as a “reimbursable agreement.”

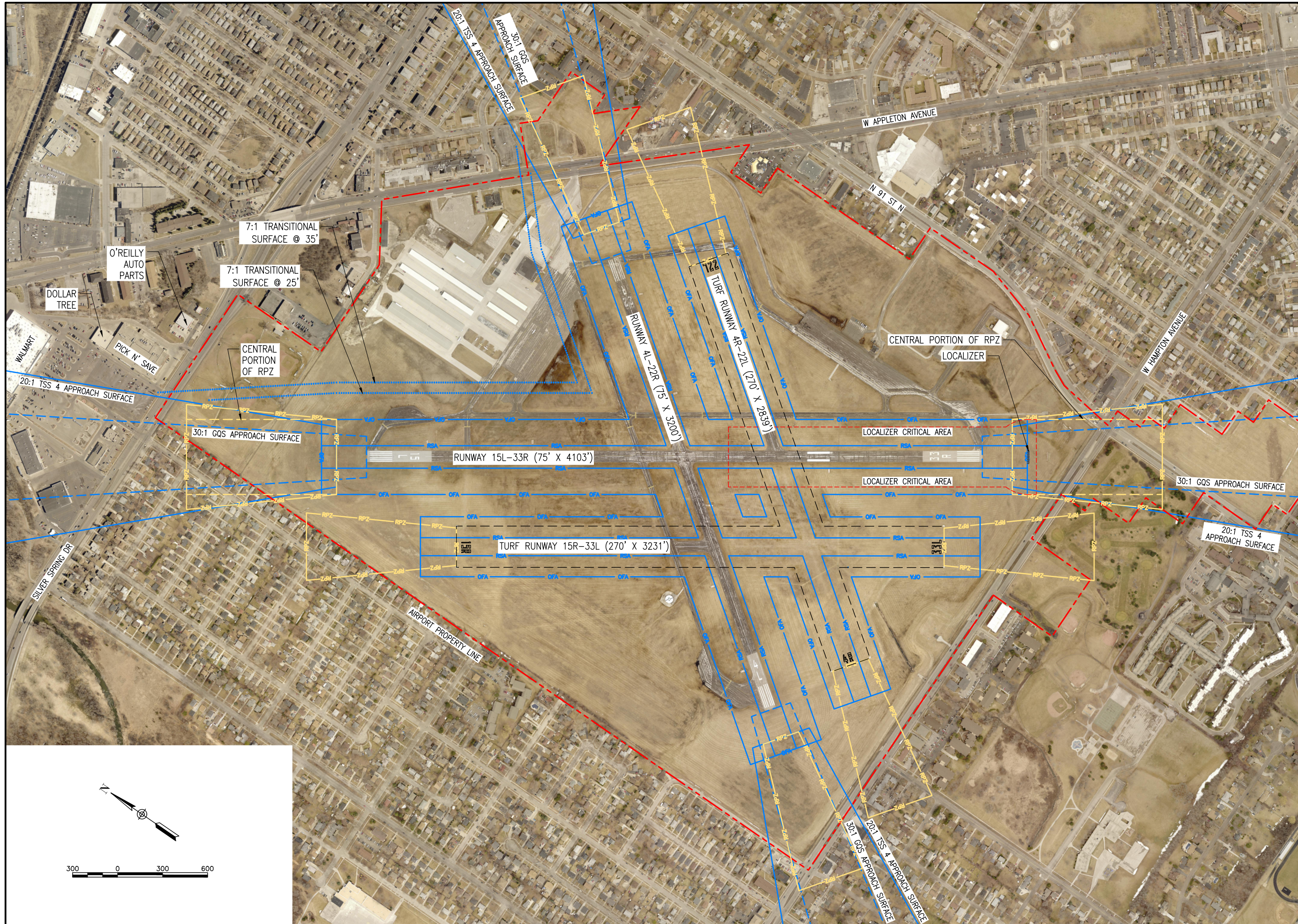
In 1965, the FAA approved the development of Madison Park Golf Course on airport and county land. As part of the approval, the golf starter building was required to be located outside the RPZ. Therefore, the only portion of the golf course within the RPZ are three holes, identified as “not intensively used recreational areas” in the initial request for approval.

Option 1B: Existing Runway with Declared Distances

As shown on **Figure 6.1B** of Option 1B, additional full-strength runway pavement is provided on both ends of the runway. In Option 1B, declared distances were used to avoid changing the RPZs that already contain developed land uses. To avoid changing the RPZs, this option provides limited additional runway length, ranging from up to 4,609 feet for accelerate stop distance in both directions, 4,467 feet for takeoffs on Runway 15L and landings on 33R and 4,247 feet for landings on 15L and takeoffs on Runway 33R. To add the additional pavement on the south end, the localizer must be removed.

The advantages of this alternative are:

- Additional declared distances for runway length, ranging from 4,247 feet to 4,609 feet



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PROJECT NO: 16A0099

CAD FILE: MWC-OPT1.DWG

DESIGN BY: SZ

DRAWN BY: RAD

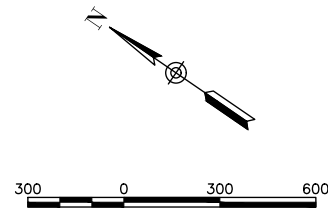
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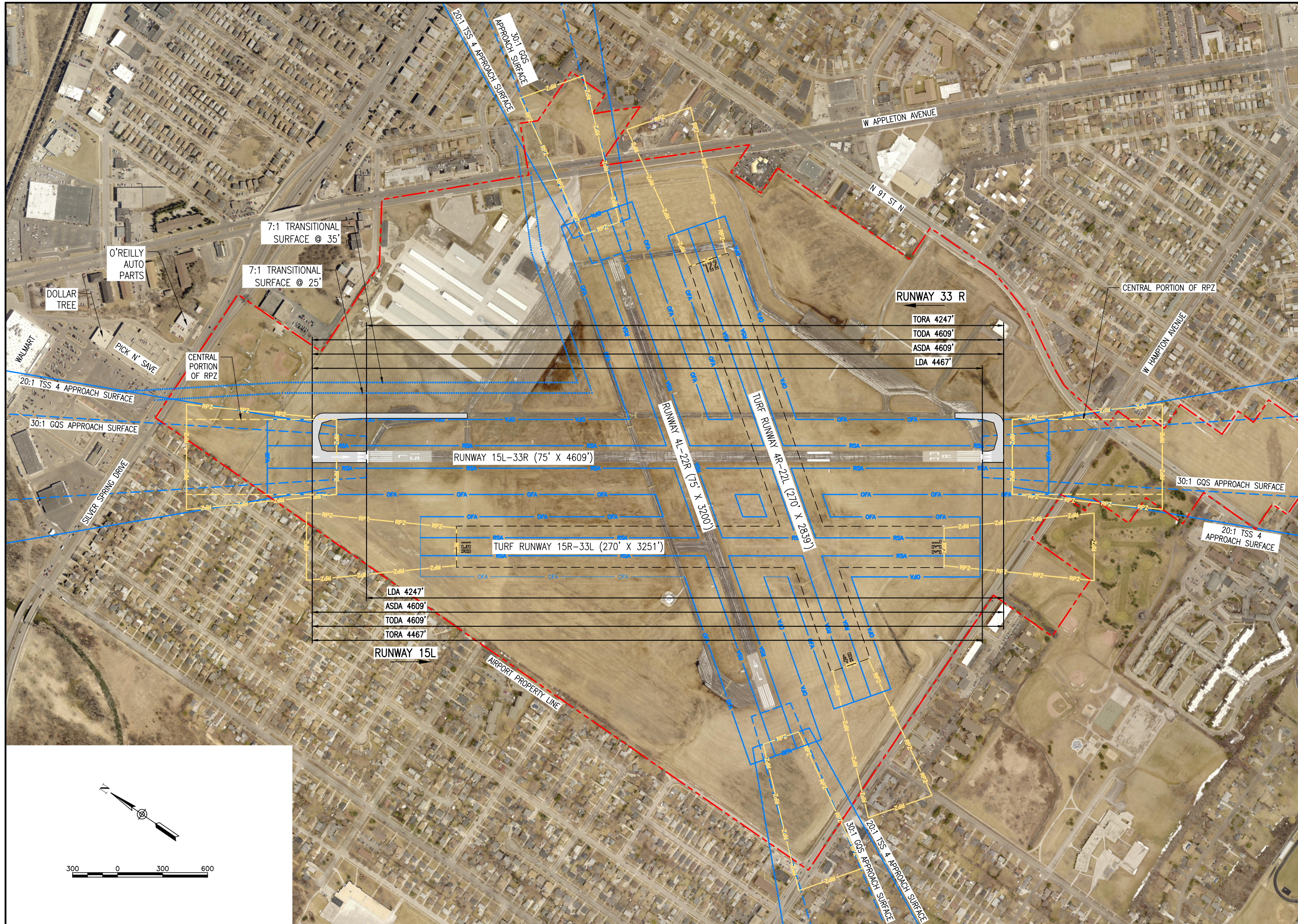
SHEET TITLE

EXISTING CONDITIONS

Figure 6.1

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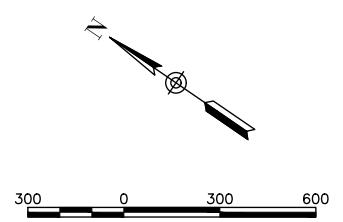
ISSUE: APRIL 25, 2017
PROJECT NO: 16A0099
CAD FILE: MWC-OPT1B.DWG
DESIGN BY: SZ
DRAWN BY: RAD
REVIEWED BY: SZ

SHEET TITLE

OPTION 1B - EXISTING RWY 15L-33R WITH DISPLACED DISTANCES

Figure 6.1B

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The disadvantages of this alternative are:

- No improvement in the land uses within the RPZ. This alternative is similar to that depicted on the current airport layout plan that was put on hold during the environmental review process
- Localizer would need to be removed to provide space for the extended runway pavement, with associated project cost borne by the project

Option 2: Realigned Runway 16L/34R (Fully Usable Pavement)

To eliminate the residential land uses within the RPZ, the primary runway was rotated clockwise, which allows the pavement to be extended, as shown **Figure 6.2** of Option 2. The length of the realigned 16L/34R was established by providing a clear TSS approach slope over Hampton Avenue and Silver Spring Drive while keeping the RSA and ROFA within the fence line. The resulting runway length is 4,760 feet by 75 feet. With this rotation, only Hampton Avenue, with a 15-foot clearance, and Madison Park Golf Course, which is on county and airport land, remain in the south RPZ. In the north RPZ, all residential land use was eliminated; however, the Pick 'n Save grocery store and parking lot move into the RPZ, including the more critical central portion of the RPZ. Silver Spring Drive also remains within the RPZ but is well clear of the TSS approach slope, because it is approximately 20 feet below the proposed runway end elevation. Because the south end of the runway was established to provide a clear TSS approach slope over Hampton Avenue, there is space to relocate the localizer to the new runway end.

Option 2 moves the new runway and associated parallel taxiway that are closest to the existing terminal area. Although the runway and parallel taxiway rotate toward the terminal area, there is anticipated to be sufficient clearance to the FAR Part 77 7:1 transitional surface off the sides of the runway for the existing buildings and taxiways. However, a portion of the apron would become unusable for parking to accommodate the parallel taxiway and its object-free area. The separation of the runway centerline to the parallel taxiway centerline on the primary runway is 270 feet. The FAA standard separation is a minimum of 240 feet. Therefore, to maximize the space for the terminal area, it is recommended the new parallel taxiway for the realigned runway be constructed with 240 feet of separation.

The advantages of this alternative are:

- Additional fully usable runway length up to 4,760 feet
- The removal of residential land uses from the RPZs
- Space available to relocate the localizer

The disadvantages of this alternatives are:

- Silver Spring Drive within the north RPZ
- Commercial development within the north RPZ (Pick 'n Save)
- Vehicle parking within the north RPZ for the shopping center north of Silver Spring Drive
- Reduces space available for north-side terminal area development
- A portion of north apron will become unusable

Option 3: Realigned Runway 16L/34R with Declared Distances

As shown in **Figure 6.3** of Option 3, in this alternative, 200 feet of pavement usable with declared distances only is added to the south end of the realigned Runway 16L/34R in Option 2. There is space

to add this pavement while keeping the RSA and ROFA on airport property, but there would not be enough space to accommodate the localizer. However, this pavement is not fully usable, because it does not have the necessary TSS approach slope clearance over Hampton Avenue. The total runway length in this option is 4,960 feet, which is available for takeoffs on Runway 34R and landing and accelerate stop distance on Runway 16L. Because a portion of the new runway pavement would be unusable, the FAA may require additional justification of the total runway length needed support construction of the declared distances pavement.

The advantages of this alternative are:

- Up to a 4,960-foot runway, with 4,760 feet fully usable
- The removal of residential land uses from the RPZs

The disadvantages of this alternatives are:

- Silver Spring Drive within the north RPZ
- Commercial development within the north RPZ (Pick 'n Save)
- Vehicle parking within the north RPZ for the shopping center north of Silver Spring Drive and small portion of the parking lot for the auto parts store
- 200 feet of pavement only usable for some operations
- No space for relocation of localizer
- Reduces space available for north-side terminal area development
- Portion of existing north apron will become unusable
- For full length parallel taxiway, approximately 0.1 acres of property should be acquired for taxiway and object free area

Option 3B: Realigned Runway 16L/34R with RPZ Displaced to the South

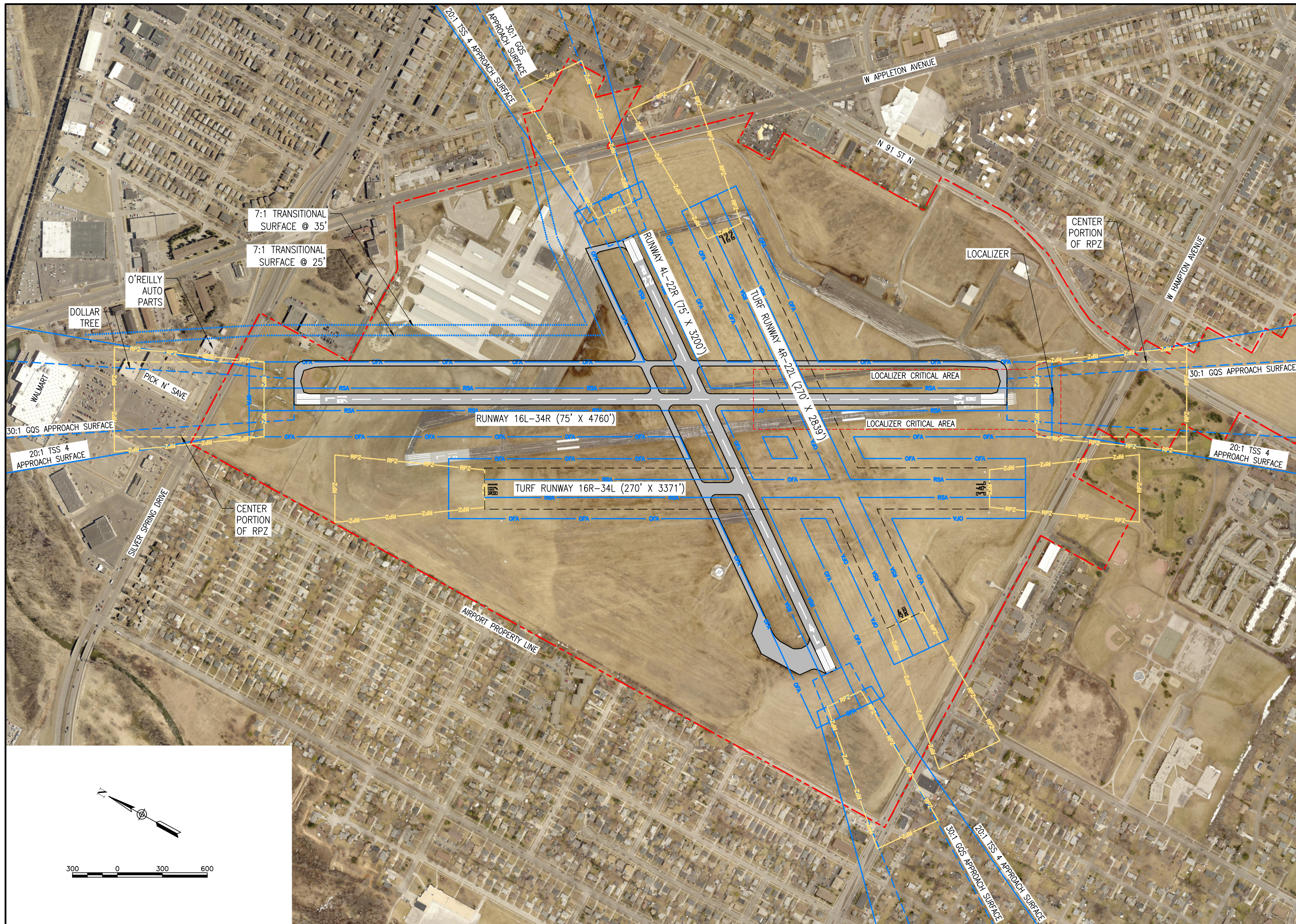
Option 3B is the same as Option 3, except it shifts the north RPZ south, using declared distances to remove the Pick 'n Save, as shown in **Figure 6.3B**. This may be desirable if the FAA requires the removal of Pick 'n Save from the RPZ and the airport is unable to acquire the property.

The advantages of this alternative are:

- Up to a 4,966-foot runway, with 4,404 feet fully usable
- The removal of residential land uses from the RPZs

The disadvantages of this alternatives are:

- 356 feet less of fully usable runway length than Option 3
- Silver Spring Drive within the north RPZ
- Vehicle parking within the north RPZ for the shopping center north of Silver Spring Drive and small portion of the parking lot for the auto parts store
- 200 feet of pavement only usable for some operations
- No space for relocation of localizer
- Reduces space available for terminal area development
- Portion of existing apron will become unusable
- For full length parallel taxiway, approximately 0.1 acres of property should be acquired for taxiway and object free area



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SHEET TITLE

OPTION 2
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RUNWAY 16L-34R

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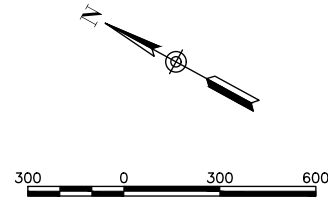


Figure 6.2



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CAD FILE: MWC-OPT3.DWG

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SHEET TITLE

OPTION 3
RWY 16L-34R WITH
DECLARED DISTANCES

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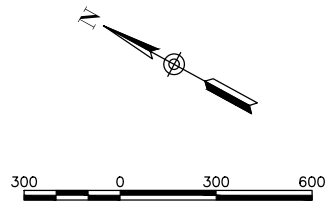


Figure 6.3

Option 4 - Realigned Runway 15L/33R (Fully Usable Pavement)

As shown in **Figure 6.4** of Option 4, in this alternative, the runway is rotated clockwise to eliminate the residential development in the south RPZ and reduce the residential development in the north RPZ, while keeping the Pick 'n Save out of the RPZ. With a lesser rotation, this realigned runway is anticipated to have the same runway identifier of Runway 15L/33R as the existing runway, because runway identifiers cover a 10-degree range of alignments. This alternative allows for the longest fully usable runway length at 4,944 feet. On this alignment, only Hampton Avenue, with a 15-foot clearance, and Madison Park Golf Course, which is on airport and county land, remain in the south RPZ. To provide the clearance over Hampton Avenue, there is also space to relocate the localizer.

The north RPZ and ROFA contains 12 residential properties including the homes; two out-parcel commercial buildings containing a bank, an employment agency, a Pizza Hut and a cellphone store; a parking lot for the shopping center north of Silver Spring Drive; and Silver Spring Drive. Compared to the Runway 16L/34R alternatives, this alternative significantly reduces the commercial development in the critical central portion of the RPZ, because it contains primarily auto parking that is farthest from the stores, so they are most often empty.

However, to keep the Pick 'n Save out of the RPZ, the ROFA extends onto two residential properties. Any property within the ROFA will require acquisition. The RPZ also contains 10 residential properties, two of which are outside the central portion of the RPZ. Due to the grade difference, the residential properties are below the approach slope. Based upon the FAA guidance on land use within the RPZ, it should be anticipated that at least the residential properties within the central portion of the RPZ, and potentially all residential properties, would need to be acquired as part of a new runway development program.

This alternative provides sufficient FAR Part 77 clearance for all existing buildings in the terminal area and the taxiways. However, a portion of the apron would become unusable for parking to accommodate the parallel taxiway and its object-free area. While this alternative encroaches less on the terminal area than Option 2 or 3, because the parallel taxiway will need to be reconstructed to serve the new runway alignment, it should be built with the FAA standard of 240 feet of separation, instead of the existing 270 feet, to maximize the space available for terminal area.

The advantages of this alternative are:

- Additional fully usable runway length up to 4,944 feet
- The removal of residential land uses from the south RPZ
- Space available to relocate the localizer

The disadvantages of this alternatives are:

- 12 residential properties within the north RPZ and ROFA
- Silver Spring Drive in north RPZ
- Two out-parcel commercial buildings within the RPZ
- Vehicle parking within the RPZ for the shopping center north of Silver Spring Drive
- Reduces space for north-side terminal area development
- A portion of north apron will be unusable to accommodate a parallel taxiway

Option 5: Realigned Runway 15L/33R with Declared Distances

As shown on the **Figure 6.5** of Option 5, to achieve a 5,000-foot runway, 56 feet of pavement usable with declared distances only can be added to the south end of realigned Runway 15L/33R in Option 4. Because this pavement would not have a clear TSS approach surface to 33R, it would not be fully usable for all operations. However, with the limited additional runway pavement needed, there would still be room to relocate the localizer. Because a portion of the new runway pavement would not be usable for all operations, the FAA may require additional justification of the total runway length needed to support construction of the declared distances pavement.

The advantages of this alternative are:

- Up to a 5,000-foot runway, with 4,944 feet fully usable
- The removal of residential land uses from the south RPZ
- Space available to relocate the localizer

The disadvantages of this alternatives are:

- 12 residential properties within the north RPZ and ROFA
- Two out-parcel commercial buildings within the RPZ
- Vehicle parking within the RPZ for the shopping center north of Silver Spring Drive
- 56 feet of runway pavement only usable for some operations

Option 6: Realigned Runway 15L/33R with RSA and ROFA on Airport Property

Option 6 is similar to Option 4, except that the runway is shortened to keep the RSA and ROFA within airport property, as shown on **Figure 6.6**. Also, the Pick 'n Save store was allowed to enter the outer portion of the RPZ to reduce the residential property within the RPZ. This alternative provides a usable runway length of 4,742 feet. On this alignment, only Hampton Avenue, with a 15-foot clearance, and Madison Park Golf Course, which is on airport and county land, remain in the south RPZ. To provide the clearance over Hampton Avenue, there is also space to relocate the localizer.

The north RPZ contains 10 residential properties, with eight of the homes within the RPZ; two out-parcel commercial buildings containing a bank, an employment agency, a Pizza Hut and a cellphone store; a vehicle parking lot for the shopping center north of Silver Spring Drive; and Silver Spring Drive. Compared to the Runway 16L/34R alternatives, this alternative significantly reduces the commercial development in the critical central portion of the RPZ, because it contains primarily auto parking that is farthest from the stores, so they are most often empty.

Due to the grade difference, the residential properties are below the approach slope. However, based upon the FAA guidance on land use within the RPZ, it should be anticipated that at least the residential properties within the central portion of the RPZ, and potentially all residential properties, would need to be acquired as part of a new runway development program.

This alternative provides sufficient FAR Part 77 clearance for all existing buildings in the terminal area and the taxiways. However, a portion of the apron would become unusable for parking to accommodate the parallel taxiway and its object-free area. While this alternative encroaches less on the terminal area than Option 2 or 3, because the parallel taxiway will need to be reconstructed to

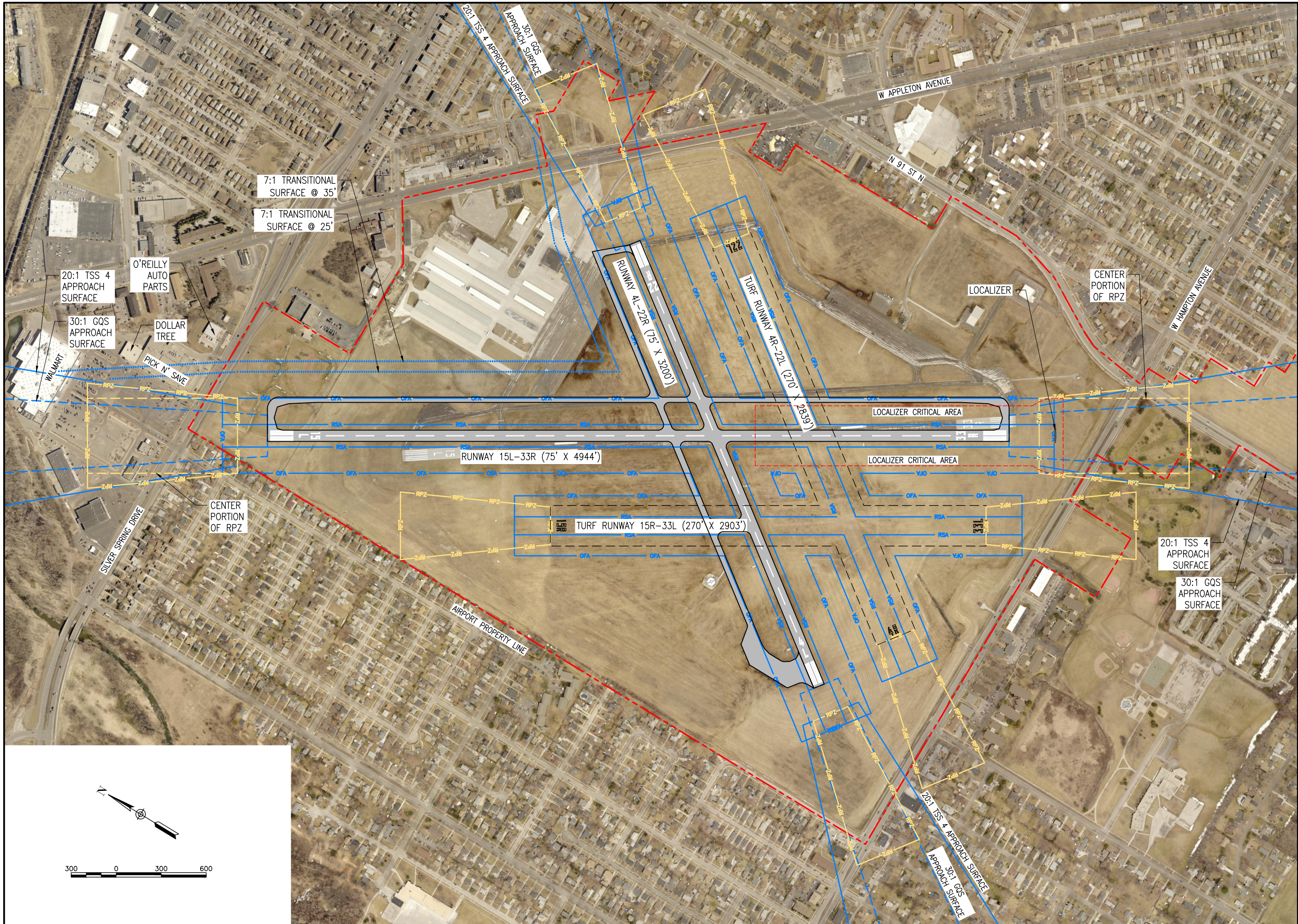
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PLAN UPDATE**

NO.	DATE	DESCRIPTION		
		DES	DWN	REV
ISSUE: APRIL 25, 2017				
PROJECT NO: 16A0099				
CAD FILE: MWC-OPT4.DWG				
DESIGN BY: MAV				
DRAWN BY: RAD				
REVIEWED BY: MAV				

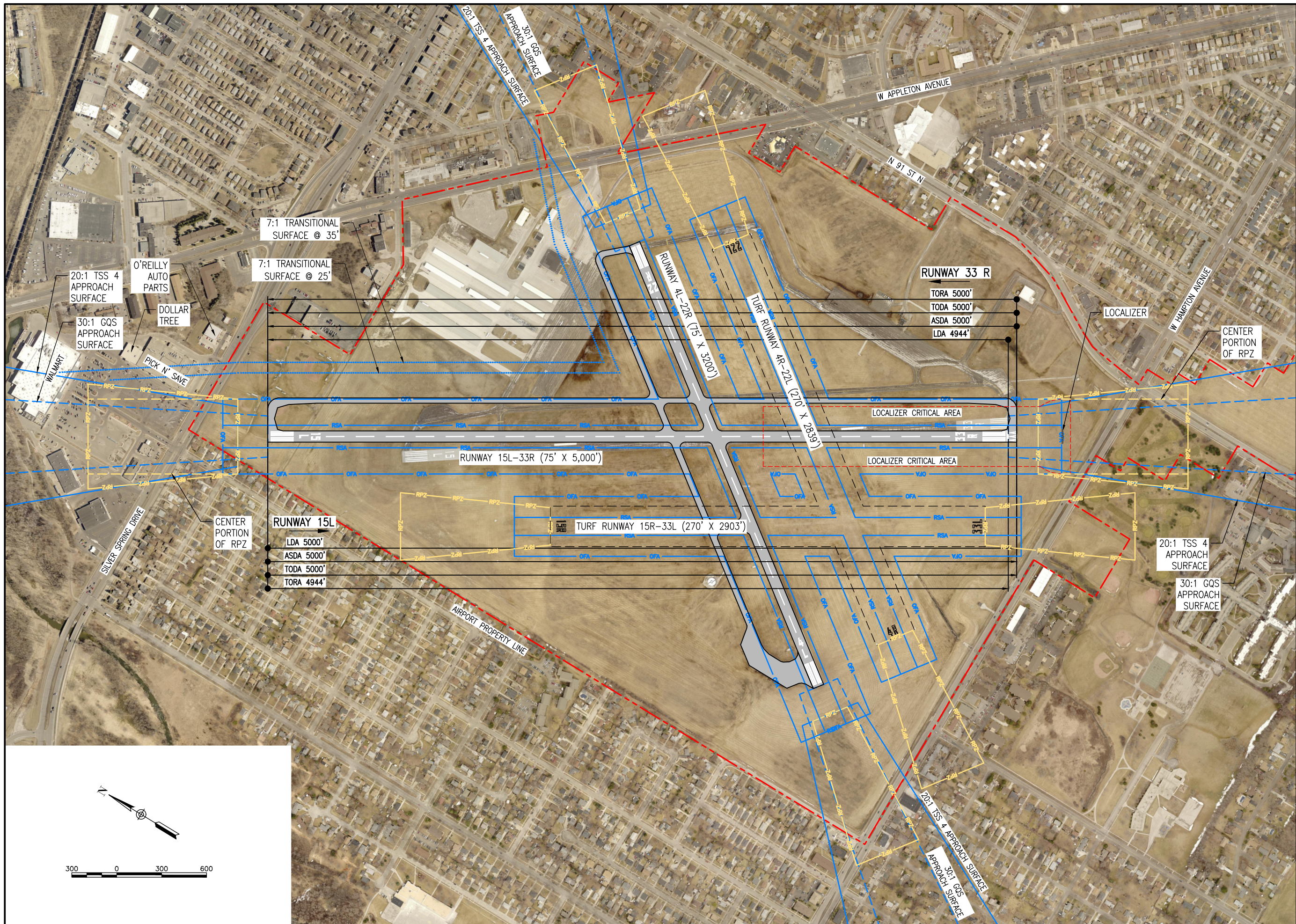
SHEET TITLE

**OPTION 4
REALIGNED
RUNWAY 15L-33R**

Figure 6.4



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AIRPORT BUSINESS PLAN AND MASTER PLAN UPDATE

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: APRIL 25, 2017

PROJECT NO: 16A0099

CAD FILE: MWC-OPTS.DWG

DESIGN BY: SZ

DRAWN BY: RAD

REVIEWED BY: SZ

SHEET TITLE

OPTION 5 - REALIGNED RWY 15L-33R WITH DECLARED DISTANCES

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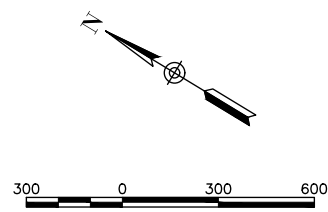


Figure 6.5

AIRPORT BUSINESS PLAN AND MASTER PLAN UPDATE

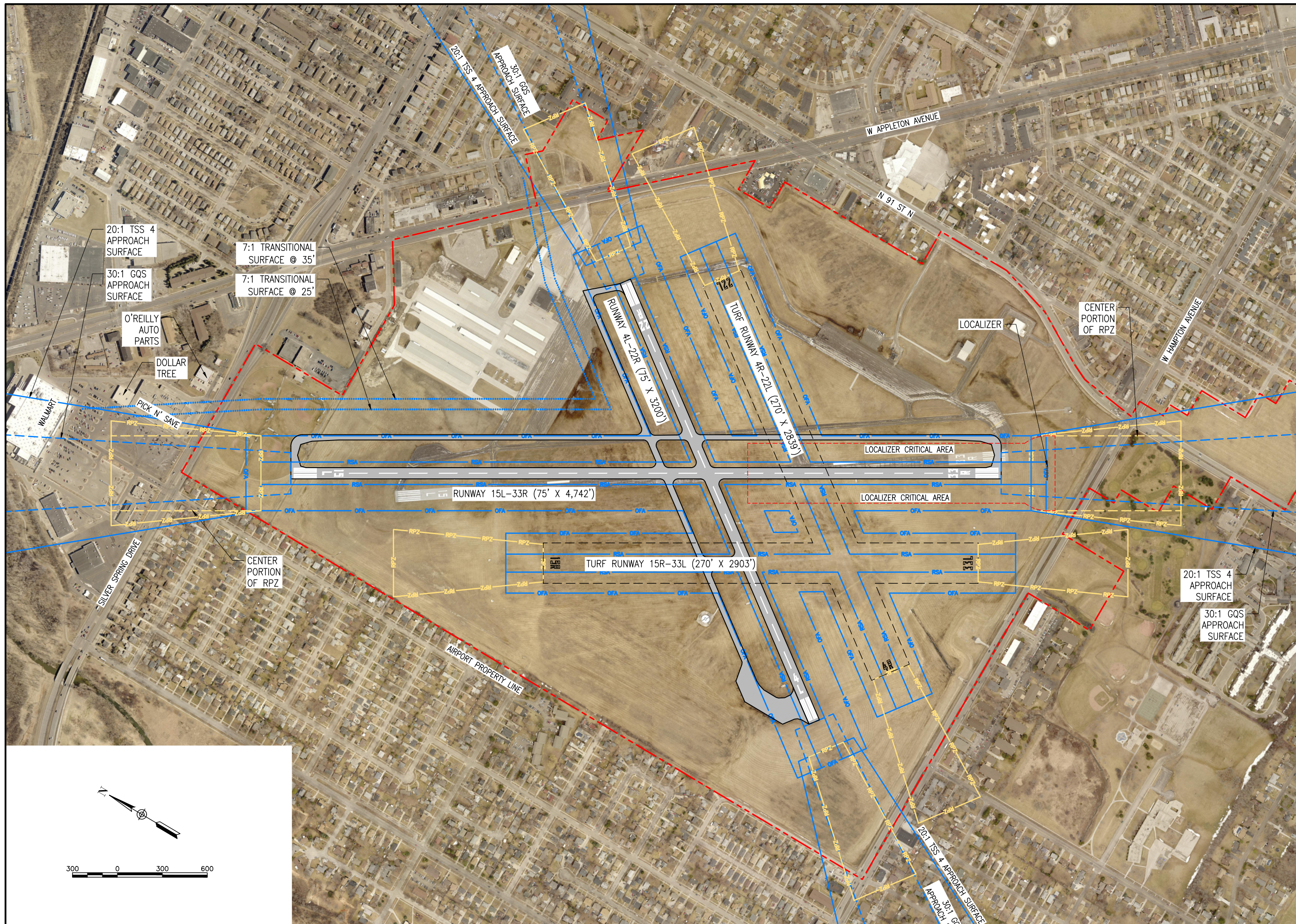
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ISSUE: APRIL 25, 2017
PROJECT NO: 16A0099
CAD FILE: MWC-OPT6.DWG
DESIGN BY: SZ
DRAWN BY: RAD
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SHEET TITLE

OPTION 6
REALIGNED
RUNWAY 15L-33R

Figure 6.6



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serve the new runway alignment, it should be built with the FAA standard 240 feet of separation, instead of the existing 270 feet, to maximize the space available for terminal area.

The advantages of this alternative are:

- Fully usable runway length up to 4,742 feet
- The removal of residential land uses from the south RPZ
- Space available to relocate the localizer

The disadvantages of this alternatives are:

- 10 residential properties within the north RPZ
- Silver Spring Drive in north RPZ
- Two out-parcel commercial buildings within the RPZ
- Vehicle parking within the RPZ for the shopping center north of Silver Spring Drive
- Reduces space for terminal area development
- A portion of existing apron will be unusable to accommodate a parallel taxiway

Option 7: Realigned Runway 15L/33R with Declared Distances and RSA and ROFA on Airport Property

This alternative is similar to Option 5, except the RSA and ROFA are kept within airport property; therefore, the declared distance pavement on the south end is extended while providing a full RSA and ROFA off the end of the runway, as shown on **Figure 6.7**. The declared distance pavement would not have a clear TSS approach surface to 33R, so it would not be fully usable for all operations. Because a portion of the new runway pavement would not be usable for all operations, the FAA may require additional justification of the total runway length needed to support construction of the declared distance pavement.

The advantages of this alternative are:

- 4,742 feet of runway length fully usable, 4,866 feet with declared distance
- The removal of residential land uses from the south RPZ

The disadvantages of this alternatives are:

- 10 residential properties, including eight homes within the north RPZ
- Silver Spring Drive within north RPZ
- Two out-parcel commercial buildings within the RPZ
- Vehicle parking within the RPZ for the shopping center north of Silver Spring Drive
- 124 feet of runway pavement only usable for some operations

6.4 Environmental Overview

An environmental overview was conducted of both realignment alternatives to consider potential environmental impacts in the analysis. [Appendix H](#) contains tables summarizing the potential environmental considerations using the FAA's environmental categories. It also contains **Figure H1** that shows the environmental areas on and around MWC.

No significant difference in environmental conditions were identified between the two alternatives on airport property. The primary difference was any off-airport acquisition, which was reduced in the selection of short-list alternatives.

The environmental overview identified that an environmental assessment is the anticipated level of environmental documentation that would be required for a realigned runway. Using existing resources, the following environmental categories were anticipated to need further study to determine if there would be potential impacts:

- Biological and ecological resources (including fish, wildlife and plants)
- Hazardous material, solid waste and pollution prevention
- Department of Transportation 4(f) and 6(f) resources (baseball fields)
- National Historic Preservation Act (coordination required)
- Noise and compatible land use (potential noise modeling)
- Visual effects
- Water resources (coordination required)
- Wetlands (coordination required)
- Surface and groundwater (coordination required)

6.5 Short-List Runway Alternatives

The seven runway alternatives described above were narrowed to three short-list alternatives on two alignments: a realigned Runway 16L/34 R and a realigned Runway 15L/33R. The short-list alternatives, along with the existing conditions, are summarized on **Table 6.2**.

The FAA Chicago ADO, in coordination with the FAA Great Lakes Region, conducted a preliminary review — particularly of the land uses with the RPZ — of the three short-list alternatives and offered the following observations:

- Providing justification of the need and runway length is important. Identify current and prospective use of turbine aircraft MWC to support the proposed runway length.
- Describe how the traffic flows on Silver Spring Drive through the proposed RPZ. Is it moving, or does it stop?
- Plan to avoid or mitigate residential use within a new RPZ
- If feasible, it would be desirable for the county to acquire the Pick 'n Save that has closed to control that land use
- It is desirable to keep the 92nd Street and Hampton Avenue intersection out of the central portion of the south RPZ

Table 6.2. Comparison of Short-List Runway Alternatives at MWC				
	Existing Conditions	Option 3 RW 16L/34R with Declared Distances	Option 3B Runway 16L/34R with Declared Distance and No Store in RPZ	Option 7 Realigned RW 15L/33R with Declared Distances (no land acq., store in outer RPZ)
Total runway	4,103' x 75'	4,960' x 75'	4,966' x 75'	4,866' x 75'
15/16L LDA	4,103'	4,960'	4,404'	4,866'
15/16L ASDA	4,103'	4,960'	4,966'	4,866'
15/16L TORA	4,103'	4,760'	4,760'	4,742'
15/16L TODA*	4,103'	4,960'	4,966'	4,866'
33/34R LDA	4,103'	4,760'	4,760'	4,742'
33/34R ASDA	4,103'	4,960'	4,966'	4,866'
33/34R TORA	4,103'	4,960'	4,966'	4,866'
33/34R TODA*	4,103'	4,960'	4,966'	4,866'
South RPZ central area	W. Swan Blvd/92nd St., Hampton Ave. (County Hwy EE), Madison Park Golf Course	92nd St., Hampton Ave. (County Hwy EE), Madison Park Golf Course	92nd St., Hampton Ave. (County Hwy EE), Madison Park Golf Course	92nd St., Hampton Ave. (County Hwy EE), Madison Park Golf Course
South RPZ controlled use area (not in central)	1 home, 1 business parking lot	same as central	same as central	same as central
North RPZ central area	103rd St., 8 homes	Silver Spring Dr. (County Hwy E), Pick 'n Save store, Dollar Tree store, Pick 'n Save parking lot	Silver Spring Dr. (County Hwy E), Pick 'n Save delivery drive	Silver Spring Dr., (County Hwy E), two out-parcel commercial buildings, 6 homes, Pick 'n Save parking lot

	Existing Conditions	Option 3 R/W16/34 with Declared Distances	Option 3 R/W16/34 with Declared Distances and No Store in RPZ	Option 7 Realigned RW 15L/33R with Declared Distances (no land acq., store in outer RPZ)
North RPZ controlled use (not in central)	6 homes, plus 3 residential properties with home outside RPZ	O'Reilly Auto Parts parking lot	O'Reilly Auto Parts corner of store and parking lot, 1 corner of residential property with home outside RPZ	Pick 'n Save store, 2 homes and 2 residential properties with home outside RPZ
Terminal area impacts	No change	Greatest reduction of developable and apron area	Greatest reduction of developable and apron area	Minimal reduction of developable and apron area
Space to relocate localizer	No relocation	No	No	No

Notes:

Realigned turf RW 15/16R/33/34L to be located to eliminate existing residential use from RPZ
 Runway 15/16 end about 20 feet higher than surrounding land use, see photo of view from T-hangar area
 Baseball fields off end of Runway 15/16 on leased airport property are anticipated to be removed or relocated to be identified through environmental review
 Madison Park Golf Course starter building is outside the RPZ

Source: Hanson Professional Services Inc., June 2017.

In evaluating the runway alternatives to maximize runway length while minimizing acquisition of off-airport property, especially residential property, Option 3 was identified as the preferred alternative to pursue. With the spring 2017 closure of the Pick 'n Save store, it was identified that it may be feasible to acquire the store property to remove the structure. For this acquisition to be eligible for FAA grants, the property must be shown on the revised airport layout plan as a project requirement. In balancing all the requirements of this analysis, the need to provide the longest usable runway was the key criterion. Thus, Option 3 was preferred over Option 3B, because it can provide a longer fully usable runway length.

Because a realigned primary runway is not included as part of the current ALP, a revision to the appropriate sheets of the ALP will be needed to depict the preferred realigned runway. As part of the business plan, this update will be accomplished as a "pen and ink" update, meaning the ALP sheets will be revised, with changes noted in the revision block. The submission of the revised ALP should initiate the FAA airspace review of the new runway alignment. The FAA airspace review will consider the realigned runway within the aviation system, including surrounding airports. With a new runway alignment, the FAA may request some additional survey data for the new runway alignment, especially because it has been more than 10 years since the previous ALP was finalized.

While the realigned runways improve the land use within the RPZs, there are still land uses in the RPZ that will require FAA review and approval. As part of the submission of the ALP, the request for the RPZ land-use review can be submitted as a supporting document to the ALP. The FAA recommends the airport have a property interest within all RPZs, either through fee simple ownership or an easement. Unless the property must be acquired to remove the land use, it is anticipated that an easement would be acquired, especially over the commercial areas, and an agreement developed with the county to control land use within the newly recommended RPZs over county property.

Final Preferred Runway Realignment

After selection of Option 3 as the preferred realignment, it was reviewed for any further improvements and to allow the RPZ to be located over the Pick 'n Save store, or shifted south to clear the store. By shifting the south end of Runway 16L/34R slightly to the west, a fully usable 4,934-foot realigned runway was identified. The shift of the south end also moved the RPZ farther from the Hampton Avenue and North 92nd Street intersection, as recommended in the FAA review. In addition, there are no traffic signals on W. Silver Spring Drive within the north RPZ, so traffic flows through the north RPZ. Further, space is available on the south end to use declared distances to provide a 5,000-foot runway for takeoffs on Runway 34R. **Figure 6.8** shows the final preferred realigned Runway 16L/34R.

6.6 Turf Runways

At MWC, there is a parallel turf runway for each of the paved runways. The turf runway is shorter than the associated paved runway. The turf runway associated with the crosswind runway can remain in place. The only change required would be to modify grades where it would cross the new, realigned runway.

Currently, where the turf runways cross the paved runway and parallel taxiway, there is a paved taxiway connector on the turf runway centerline. This reduces the surface changes by providing just one grade change, from turf to paved and back again. This is anticipated to be provided for any realigned runways.

To maintain the utility provided by the airfield with turf runways aligned with both paved runways, the alternatives include a new turf runway to parallel the realigned primary runway. As a new runway, it is desirable to reduce the development within the RPZ. The existing turf Runway 15R/33L is 3,231 feet long and 270 feet wide. Therefore, when identifying the future turf parallel runway length, it was set to eliminate the residential development in the north RPZ. The south RPZ contains Hampton Avenue and Madison Park, and the uses would be unchanged. With a realigned Runway 16L/34R, the associated turf Runway 16R/34L is planned to be 3,400 feet long. This is slightly longer than the existing Runway 15R/33L turf runway. The south RPZ would still extend across Hampton Avenue and over the Madison Park Golf Course, as it does in existing conditions. The north RPZ would be within existing airport property.

To avoid the detention basin on airport property along Hampton Avenue, the replacement turf Runway 16R/34L is planned with 500-foot paved runway centerline to turf runway centerline separation. The existing turf runway is 270 feet wide. While it is not uncommon for turf runways to be wider than a paved runway, it is recommended that the realigned turf runway be narrowed to 120 feet wide. By

narrowing the turf runway to 120 feet wide or less, at least 400 feet of separation would be present between the edges of the paved and turf realigned runways allowing all aircraft that operate at MWC to operate simultaneously on the realigned parallel runways at MWC. This would provide the same operating conditions as the current airfield layout.

6.7 Taxiways

Both paved runways at MWC are served by a full-length parallel taxiway. The provision of a parallel taxiway increases the margin of safety at an airport by allowing aircraft to exit the runway more quickly and eliminating back-taxiing on the runway. As mentioned in the runway alternatives, with the development of a realigned primary runway, a replacement full-length parallel taxiway, Taxiway B, is planned.

The replacement parallel Taxiway B is planned, with the FAA standard runway centerline to parallel taxiway centerline separation of 240 feet for ARC B-II design standards. Following FAA design standards, connecting taxiways should be located in the last third of the runway, nearest the end. There will be connecting taxiways at each end of the realigned runway. Taxiway C, the parallel taxiway for the crosswind runway, intersects Taxiway B, also serving as a connecting taxiway for the primary runway. While Taxiway C is near the midpoint of the realigned runway, its purpose as a parallel taxiway for Runway 4L/22R results in its location being fixed. Being located at the midpoint, most single-engine aircraft will be able to use Taxiway C to exit the primary runway.

There is a connector taxiway where Taxiway A, which serves the terminal area, intersects the primary runway. FAA standards recommend avoiding a direct taxiway connection to a runway from an apron to increase pilots' situational awareness. Therefore, Taxiway A should not serve as a connector between the realigned runway and parallel taxiway. If needed, an additional connector taxiway could be constructed between Taxiway B and the north end of the aligned runway. However, if needed, its location needs to be offset from Taxiway A. **Figure 6.9** shows the proposed realigned terminal area taxiways.

There is a small area of land acquisition required from an adjacent business parking lot to construct a full length parallel taxiway for the realigned runway with standard separation from the runway. The parallel taxiway has been planned with a connector taxiway before the area of land acquisition in case the initial taxiway needs to be constructed less than full length. This is shown on **Figure 6.8** and **6.9**.

6.8 Instrument Approach

Development of a longer runway will be a multi-year development in order to complete the necessary environmental analysis and obtain grants. However, there are short-term improvements that can be made to benefit the users of MWC. One of the most important of these is improving the access to MWC in IFR conditions.

All the paved runway ends, except Runway 33R, have instrument approaches. Therefore, development of an instrument approach to Runway 33R is recommended. The instrument approach

to Runway 33R can be pursued for the runway and modified in the future to serve a realigned primary runway.

To obtain an instrument approach, an instrument flight procedure (IFP) request form is submitted online to the FAA. The FAA will require general planning information to support the request. For MWC, this is anticipated to be provided via an update to the airport layout plan (ALP). In addition, if recent survey information is not available, an airport airspace analysis survey following the requirements in FAA Advisory Circulars 150/5300-16A, 17C and 18B will be needed. This survey will provide data on the runway environment, including runway end location and elevation, touchdown zone elevation (highest point in first 3,000 feet of the runway) as well as data on objects around the airport. The FAA uses this data in the development of the instrument procedure. This survey, unless part of a planning project, may be a local cost. The development of an instrument approach procedure is considered a federal action. Thus, an environmental review will be required. While the FAA initiates the environmental review, it typically relies on the airport sponsor to assist with the analysis. When the instrument procedure is developed, the FAA will also flight-test the procedure. Depending on whether this flight test occurs on a regular schedule or as part of separately scheduled flight test, the cost of the flight test may be passed onto the airport sponsor by the FAA.

6.9 Terminal and Landside Area Planning Goals

2008 Master Plan Terminal Area Development

The 2008 master plan reviewed landside development options and identified the removal of multiple hangars in the north-side terminal area to develop a new, more central terminal building, as shown in **Figure 6.10**. While this layout could be an option, it is not anticipated to be financially feasible in the near-term. The east-side terminal area was primarily reserved for additional large or corporate hangar development, as also shown on **Figure 6.10**.

Although the activity analysis for MWC indicated slow growth in based aircraft and operations, with the implementation of the business plan, activity beyond what is forecasted could be attracted to MWC. Therefore, the development potential of the north- and east-side terminal areas have been identified.

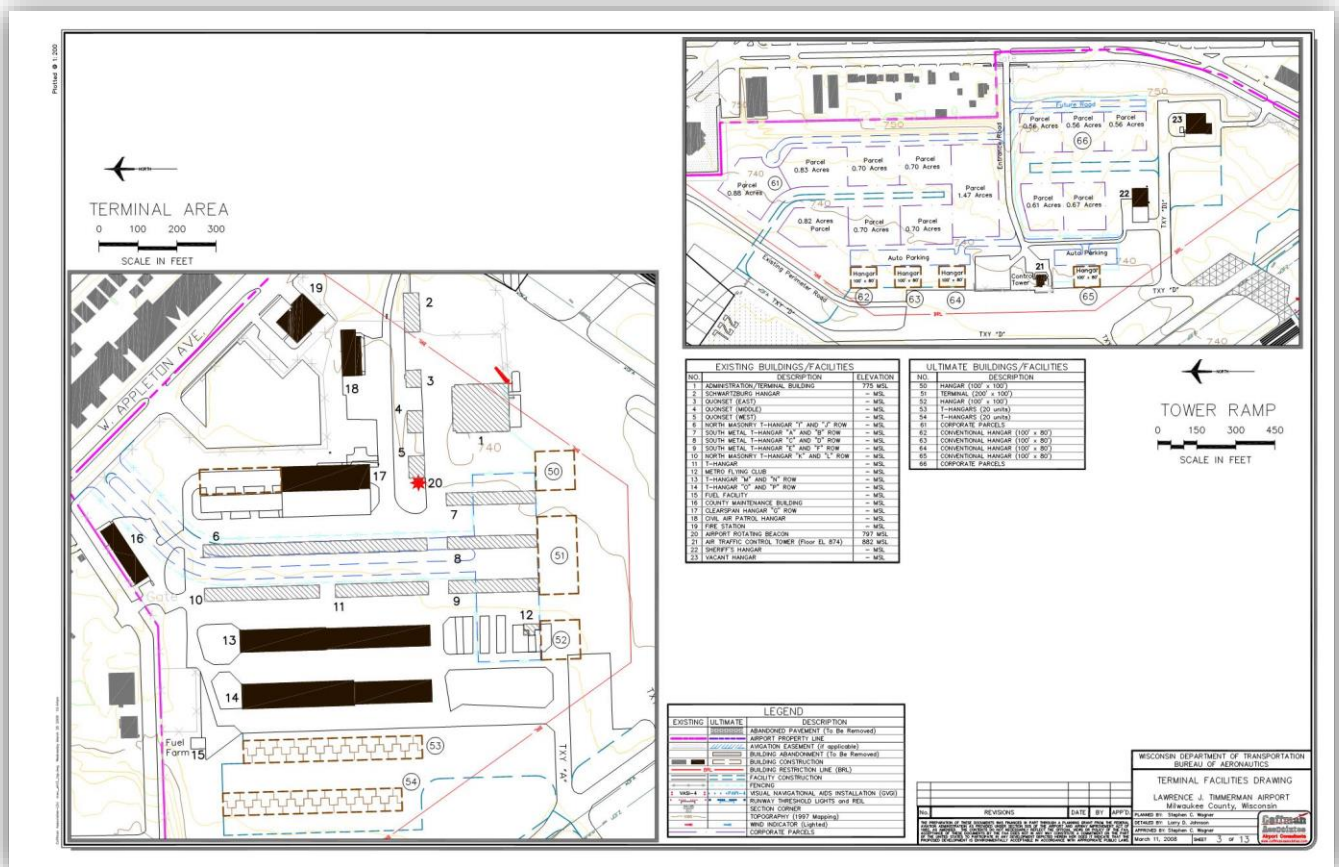


Figure 6.10. 2008 Master Plan Terminal Area Facilities
 Source: 2008 master plan, Coffman & Associates.

6.10 North-Side Terminal Area Alternatives

Preferred realigned Runway 16L/34R limits the development on the west side of the north terminal area and reduces the usable existing apron area. However, it does not impact the east side of the north terminal area, where the terminal building is located.

There is a park-and-ride lot (transit parking facility) along Appleton Avenue, adjacent to the north-side terminal area. The use of the park-and-ride lot has been observed to be low, and a survey has been conducted to quantify the amount of use. The park-and-ride lot was developed under an agreement with the professional services division of the Milwaukee County Department of Public Works. While the county will have exclusive use of this land in perpetuity for the operation of the transit parking facility, it is subject to the following: “in the event the land is determined by “County” and concurred by the Wisconsin Department of Transportation, to be not needed for use as a Transit Parking Facility, its jurisdiction shall revert back to Airports (division).” Given the lot’s low level of use, in the landside

alternatives analysis, the potential reversion of this lot to airport use will be considered as part of the north-side terminal area alternatives.

The hangar development on the north side has been combined with each of the three potential terminal building modernization alternatives. The following is incorporated into each of the terminal area alternatives:

- Provide a Group II taxiway to T-hangar G. The doors on T-hangar G are 64 feet wide. Therefore, it can accommodate Group II aircraft. All other T-hangars are sized for Group I aircraft, so the taxiways between these hangars are only 79 feet wide. The aircraft based in T-hangar G taxi between the terminal building and T-hangar A/B and then carefully taxi between the west Quonset hut hangar/airport beacon and the corner of T-hangar A/B. To provide a Group II taxiway to T-hangar G, the layouts include the removal of the west Quonset hut. Either the west Quonset hut or T-hangar A/B could be removed. Because T-hangar A/B generates more revenue than the west Quonset hut for the county, the west Quonset hut is proposed to be removed.
- Removed direct connection across Runway 22R. To align with the FAA's design standards, the terminal area alternatives have been prepared with the elimination of a direct connection, no turns, between the apron and the Runway 22R end.
- Provide adequate allowable height. For planning purposes, corporate aircraft parking has been provided where there is at least 25 feet of allowable height. Other types of aircraft have at least 15 feet of allowable height. Auto parking provides at least 10 feet of allowable height.
- Remove Schwartzburg Hangar. The Schwartzburg Hangar is in fair condition and has a small door, so it is only usable to store small single-engine aircraft. This hangar could be removed to open up space for a new, large hangar that could support the operations in the terminal building or serve as a site for a standalone public terminal building.
- Expand T-Hangar G. T-hangar G is three connected box hangars with 64-foot wide doors. This hangar can accommodate the type of corporate aircraft desired to be attracted to MWC. This building could be replicated to its north, and an additional row of similar hangars could be constructed on the park-and-ride lot.
- Develop Additional T-hangars. In recognition that some of the T-hangars are older and smaller and do not accommodate some makes and models of aircraft in the current fleet, and to accommodate additional demand at MWC, space should be reserved to develop additional T-hangars over time. With a realigned Runway 16L/34R, no T-hangar expansion areas would be available on the north side, but current T-hangar buildings could be replaced to provide newer facilities.

6.11 Terminal Building Options

One of the strategic goals identified for MWC is to update the terminal building amenities to meet the expectations of corporate operators. A more modern terminal building would provide a gateway for Milwaukee County that represents the community and meets the needs of the traveling public. Keeping the terminal building on the north side would keep all fixed-base operator functions together. So, north-side terminal area options have been evaluated first. Three concepts were assessed for the north-side terminal area:

- Reuse of existing terminal building

- Addition to existing terminal building
- Separate public terminal building, with maintenance and training functions anticipated to remain in existing terminal building

Reuse of Terminal Building

In the alternative for reusing the terminal building, the east-side hangar is converted to public space, and the current public space is remodeled. By changing this hangar to public space, the apron and taxilane in front of the hangar door can be eliminated, allowing for ground vehicle drop-off adjacent to the building. An elevator is added to provide accessible access to the second floor. New restrooms would be constructed in the hangar shell. Above the restrooms, a walkway would be constructed to connect the north end to the south end, where the elevator would be installed. It is anticipated that the aircraft maintenance functions in the east hangar would move to the west hangar, and the storage in the west hangar would be placed elsewhere on the airport. If new hangar space needs to be constructed, it increases the cost of this alternative. The west hangar would not be remodeled as part of this alternative. Consideration could be given to removing the classroom space in the west hangar to return it to hangar usage. Because the entire hangar would be transitioned to the new terminal space, this alternative includes the largest square footage being constructed or remodeled. **Figure 6.11** and **6.12** show potential reuse of the terminal building. **Figure 6.13** shows the terminal reuse within the north-side terminal area. **Figure 6.14** includes a layout of landside access for reuse of the terminal building.

Advantages

- Unique, notable reuse of historic building
- Good connection to airside and landside
- Aircraft parking in close proximity
- Good visibility of airfield

Disadvantages

- Need to replace hangar function elsewhere

Budgetary opinion of project costs:

Building renovation (12,250 square feet)	\$3,080,000
Replacement hangar	<u>\$ 720,000</u>
Total	\$3,800,000

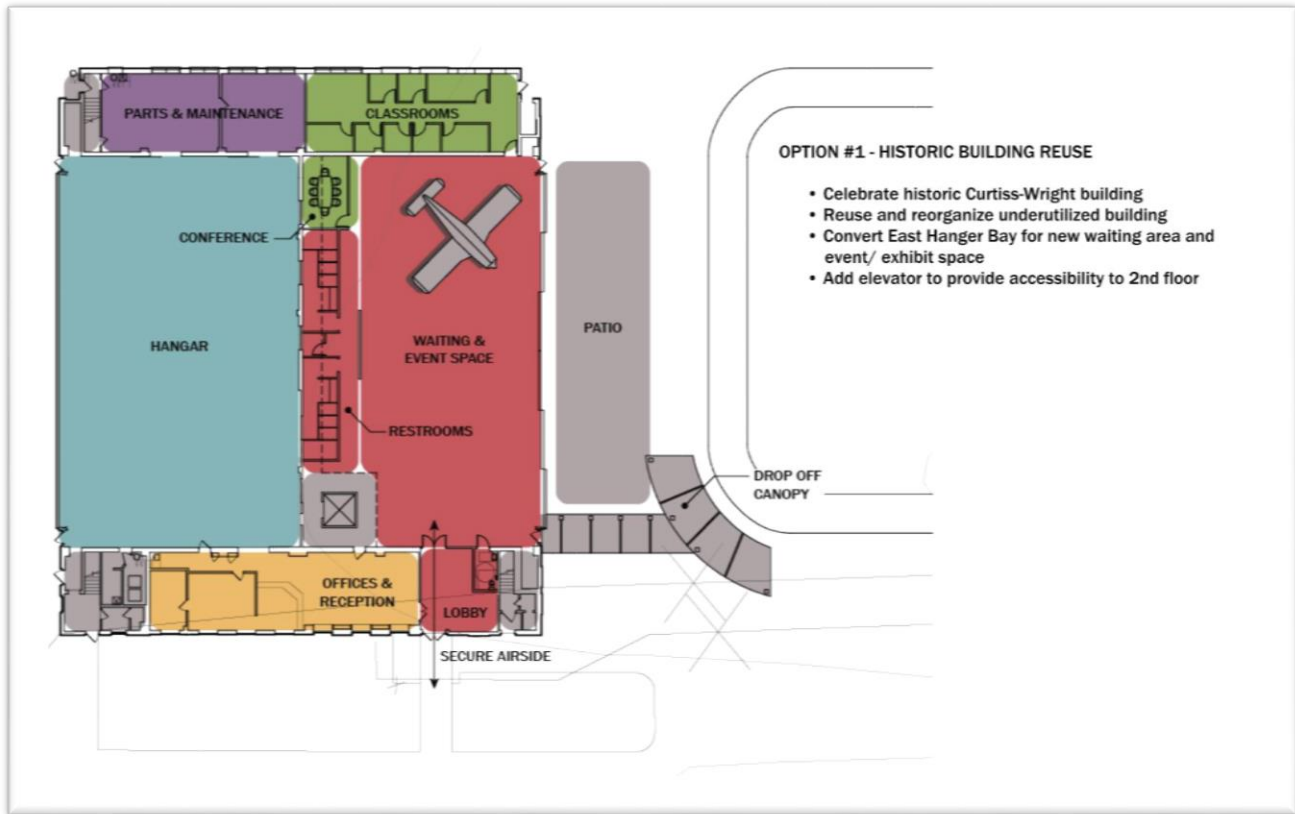


Figure 6.11. Reuse of Terminal – 1st Floor

Source: Quorum Architects, April 2017.

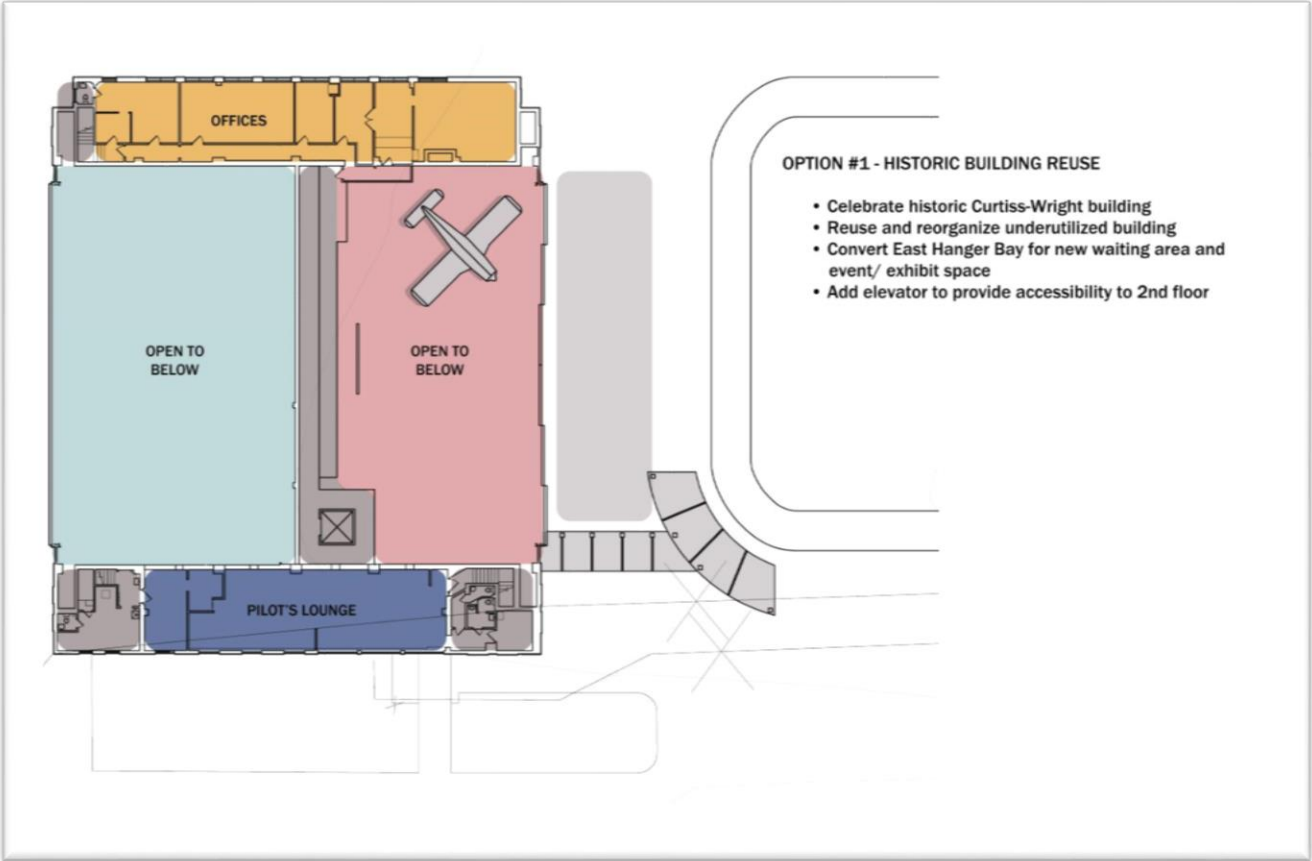


Figure 6.12. Reuse of Terminal – 2nd Floor
Source: Quorum Architects, April 2017.

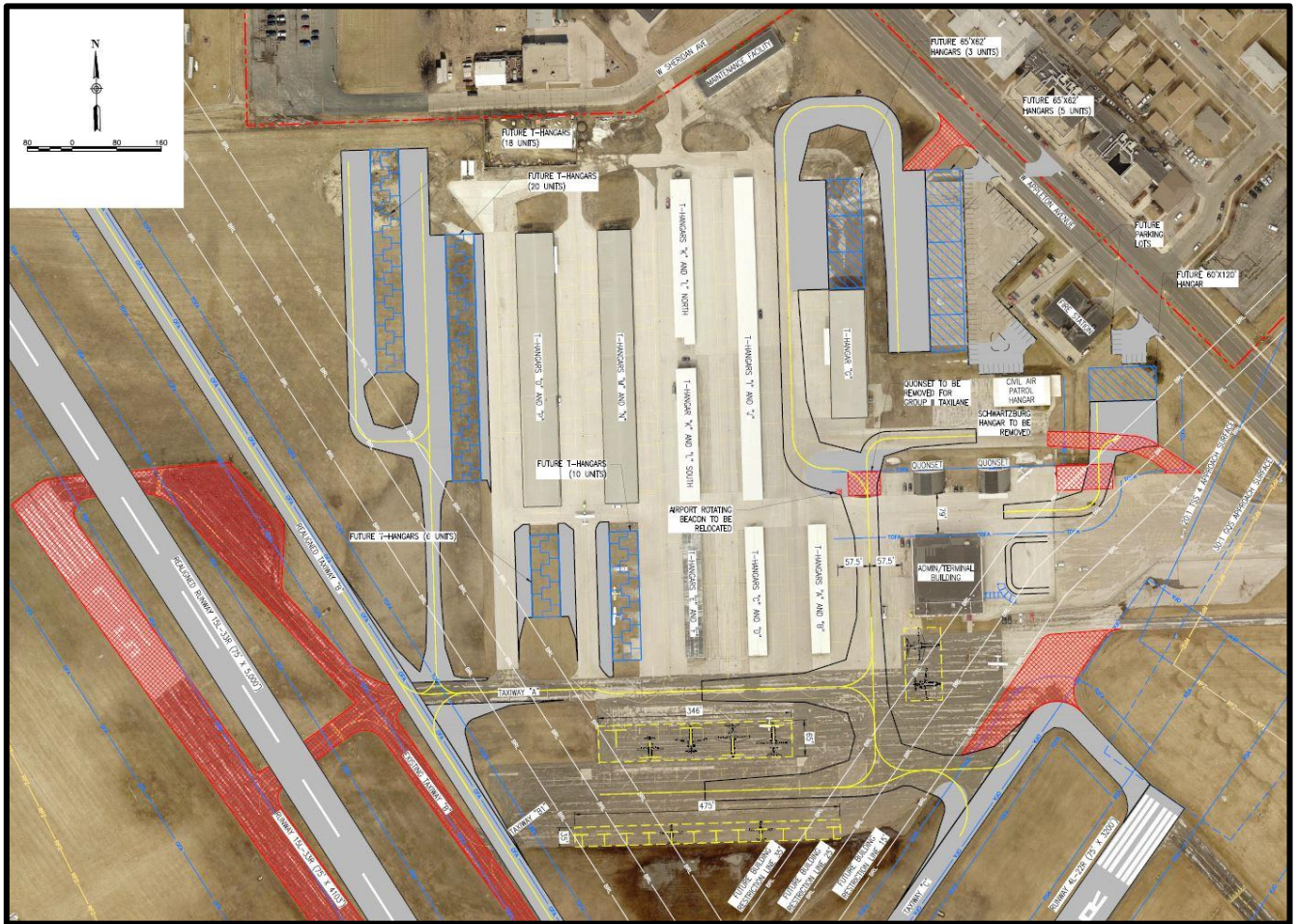


Figure 6.13. Reuse of Terminal in North-Side Terminal Area
Source: Hanson Professional Services Inc., June 2017.

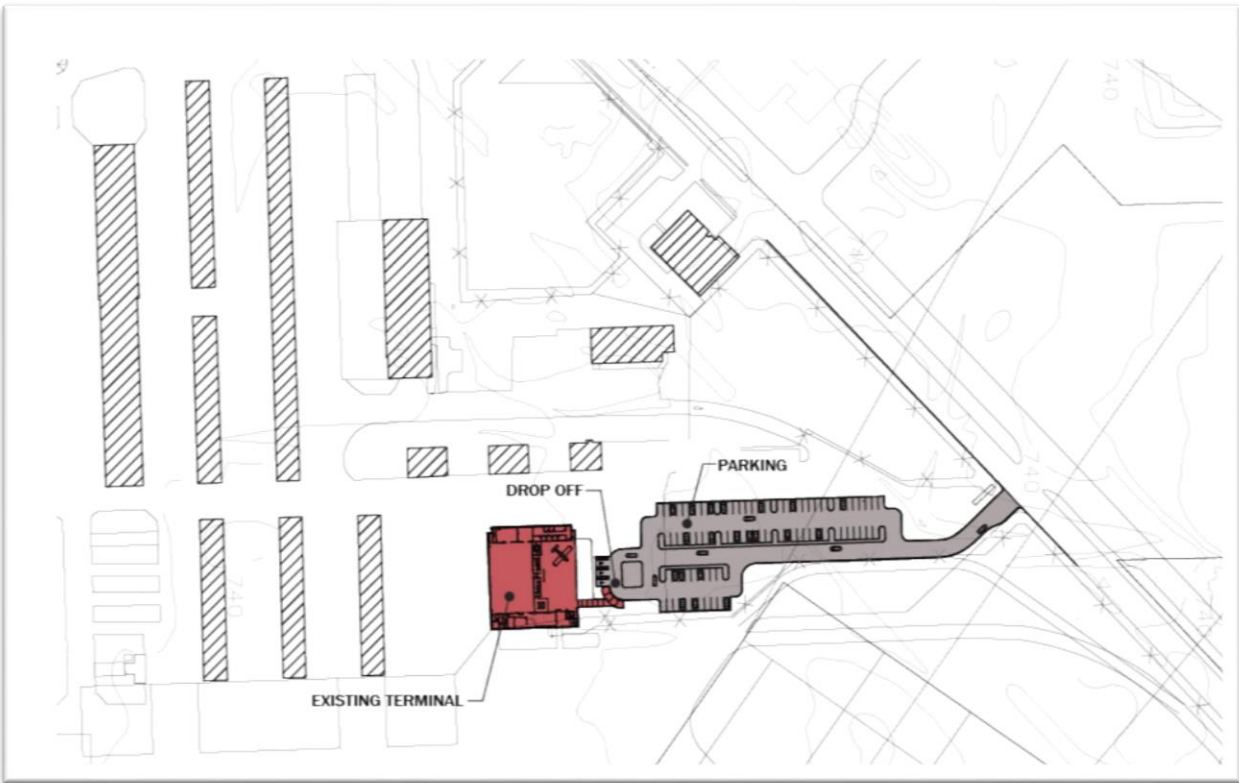


Figure 6.14. Landside Access for Reused Terminal Building

Source: Quorum Architects, June 2017.

Terminal Building Addition

In this alternative, an addition would be added to the south side of the terminal building, as shown in **Figure 6.15**. It would include access to the pilots lounge on the second floor via an elevator. The addition must be carefully designed to fit with the existing building while providing a more modern, open feel to the space. The addition is anticipated to house new restrooms, a waiting area and an elevator. A new area is needed for restrooms, because there is not enough space to expand the existing restrooms within the building footprint. The existing public space and office space would be remodeled to serve as office and classroom space. Because the existing hangar space within the building is still maintained, this alternative continues the separation between the auto parking and terminal building. However, a covered walkway is proposed to improve the perception of the connection. This alternative includes an elevator to make the second floor accessible. However, only the south side of the second floor would be accessible and available for public use, where there is presently no connection between the north- and south-side second floors.

Figure 6.16 shows the terminal building addition in the overall north-side terminal area, and **Figure 6.17** shows the landside access for the terminal building addition alternative.

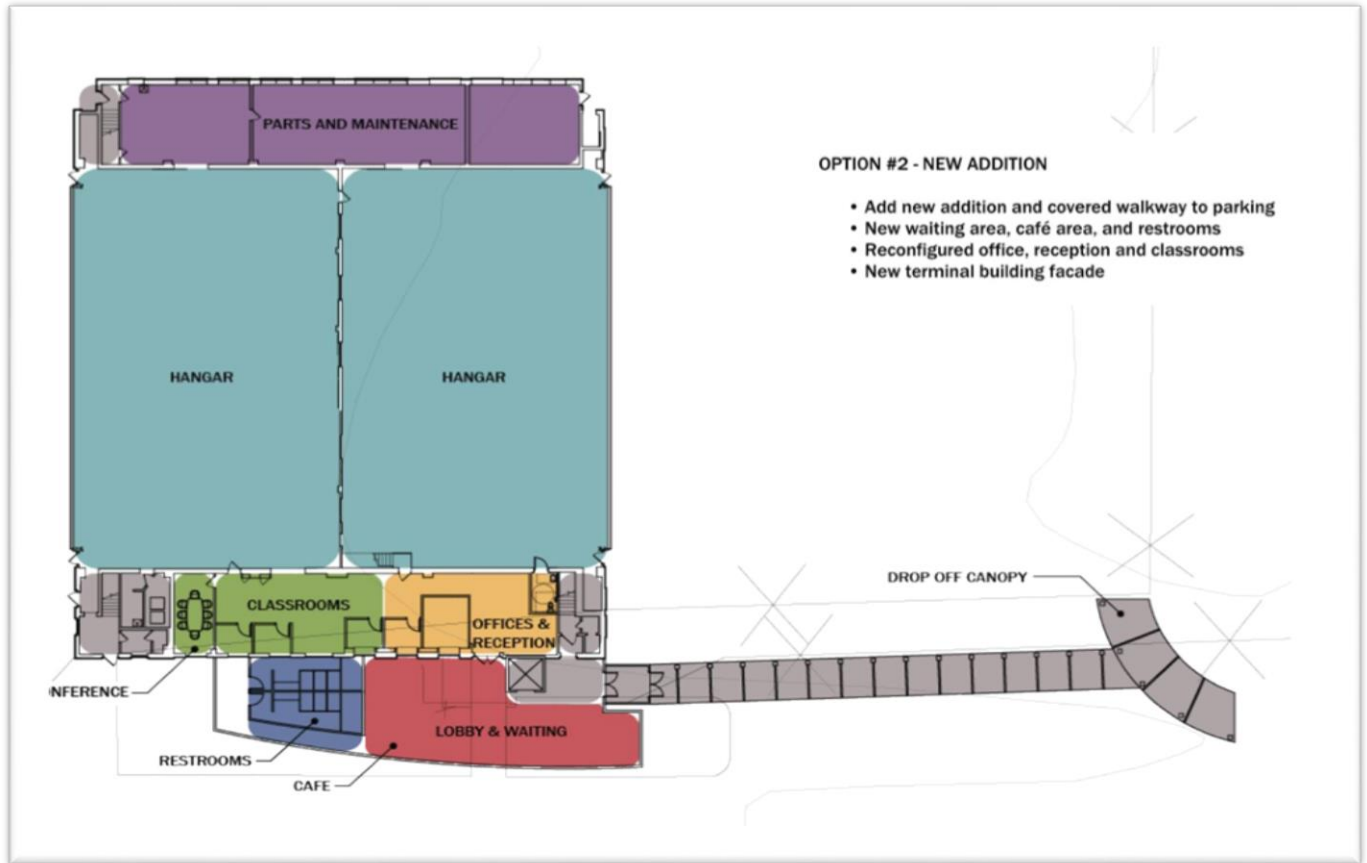


Figure 6.15. Addition to Terminal Building
Source: Quorum Architects, April 2017.

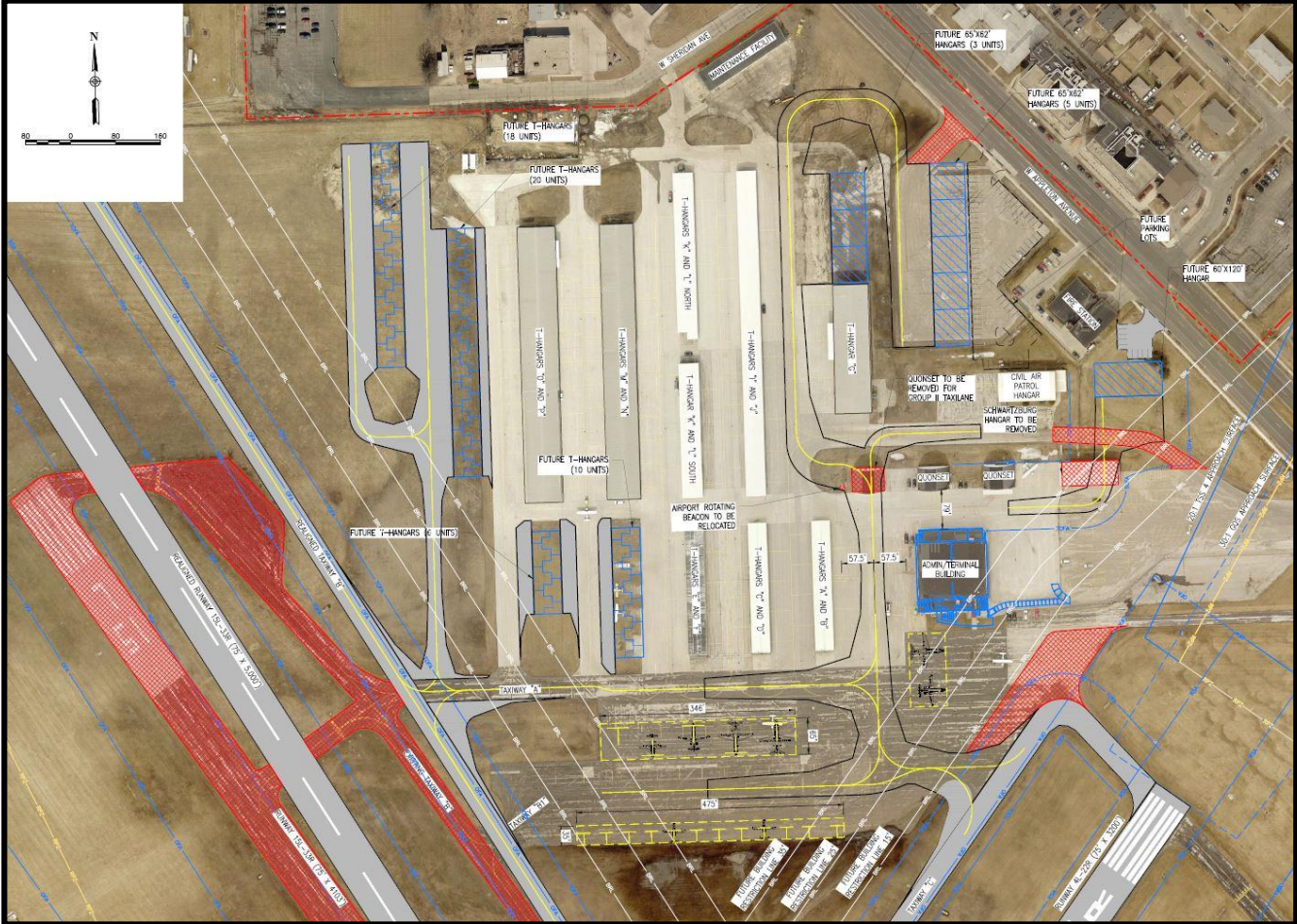


Figure 6.16. Terminal Building Addition in North-Side Terminal Area
Source: Hanson Professional Services Inc., June 2017.

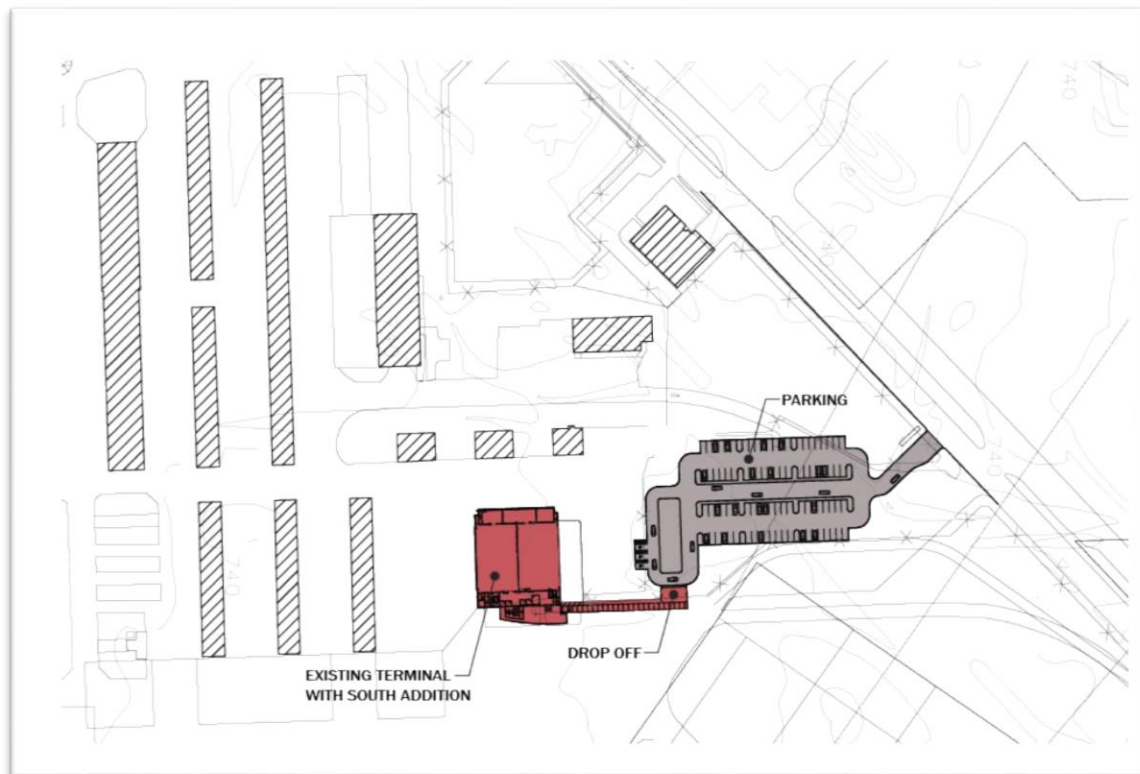


Figure 6.17. Landside Access for Terminal Building Addition

Source: Quorum Architects, June 2017.

As an addition and remodel of limited portions of the terminal building, it contains the least square feet of new or remodeled space. It also uses the apron and auto parking, so no additional support facility development is needed. That makes this the least costly alternative.

Advantages:

- Aircraft parking in close proximity
- Good visibility of airfield
- While addition needs to coordinate with terminal, addition portion is new construction

Disadvantages:

- Long walk from auto parking to terminal

Budgetary option of project costs:

- Building addition and renovation
- (2,500 square feet new, 5,400 square feet renovation): \$2,520,000

New Terminal Building

This alternative develops a new standalone building to accommodate the public terminal building functions. Based on other general aviation terminal buildings, it is approximately 6,500 square feet in size and anticipated to accommodate limited office space, waiting areas, restrooms, a pilot lounge/briefing area and, potentially, classrooms for flight training. While the new terminal would be along Appleton Avenue, as shown in **Figure 6.18**, it is anticipated the maintenance operations would remain in the existing terminal building. Some of the flight training facilities may also remain in the existing terminal building. To accommodate this option, the Schwartzburg Hangar and east Quonset hut hangar must be removed, as shown in **Figure 6.19**. Even with the removal of these two hangars, there will be limited aircraft parking immediately in front of the new terminal due to the proximity to the end of Runway 22R. The existing apron must be used for the majority of aircraft parking. Thus, the FBO will likely need to move aircraft between the terminal and apron, if front-door deplaning and enplaning is desired.

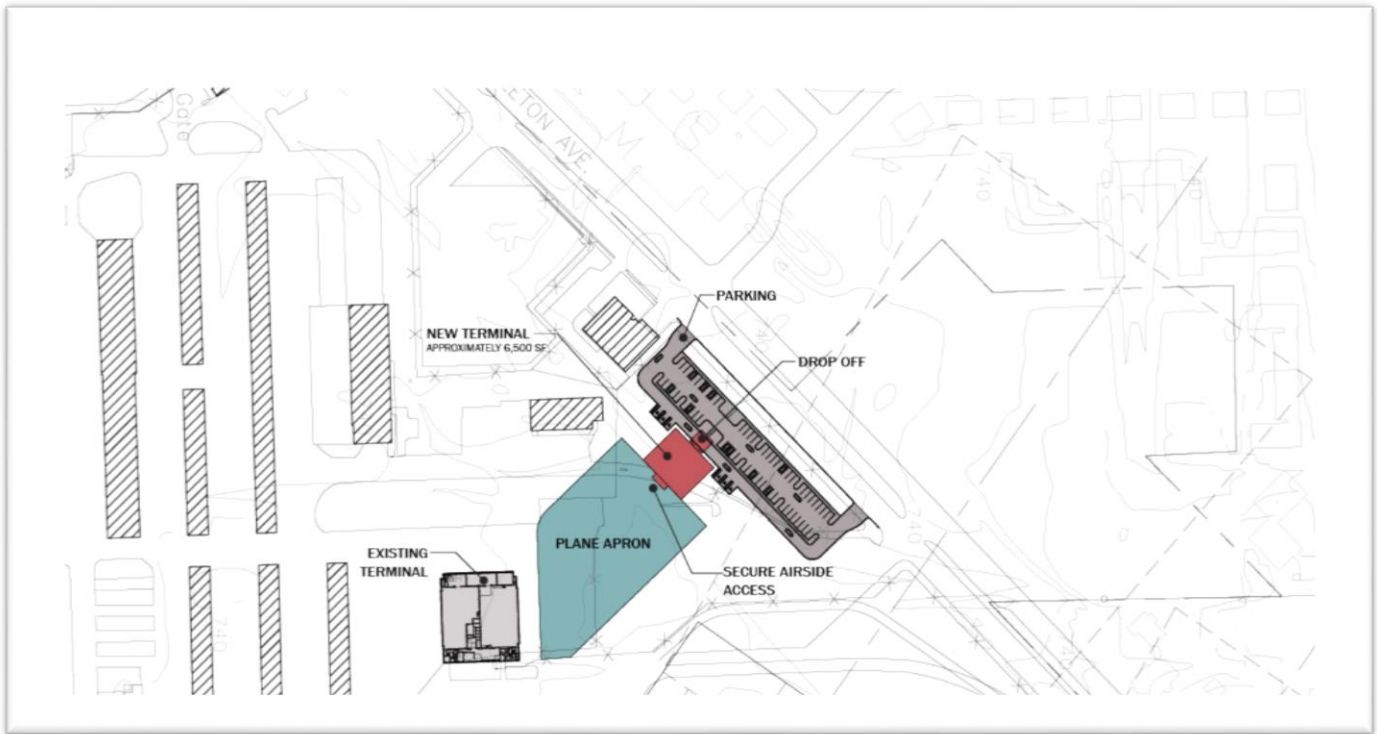


Figure 6.18. New North-Side Terminal Building

Source: Quorum Architects, April 2017.

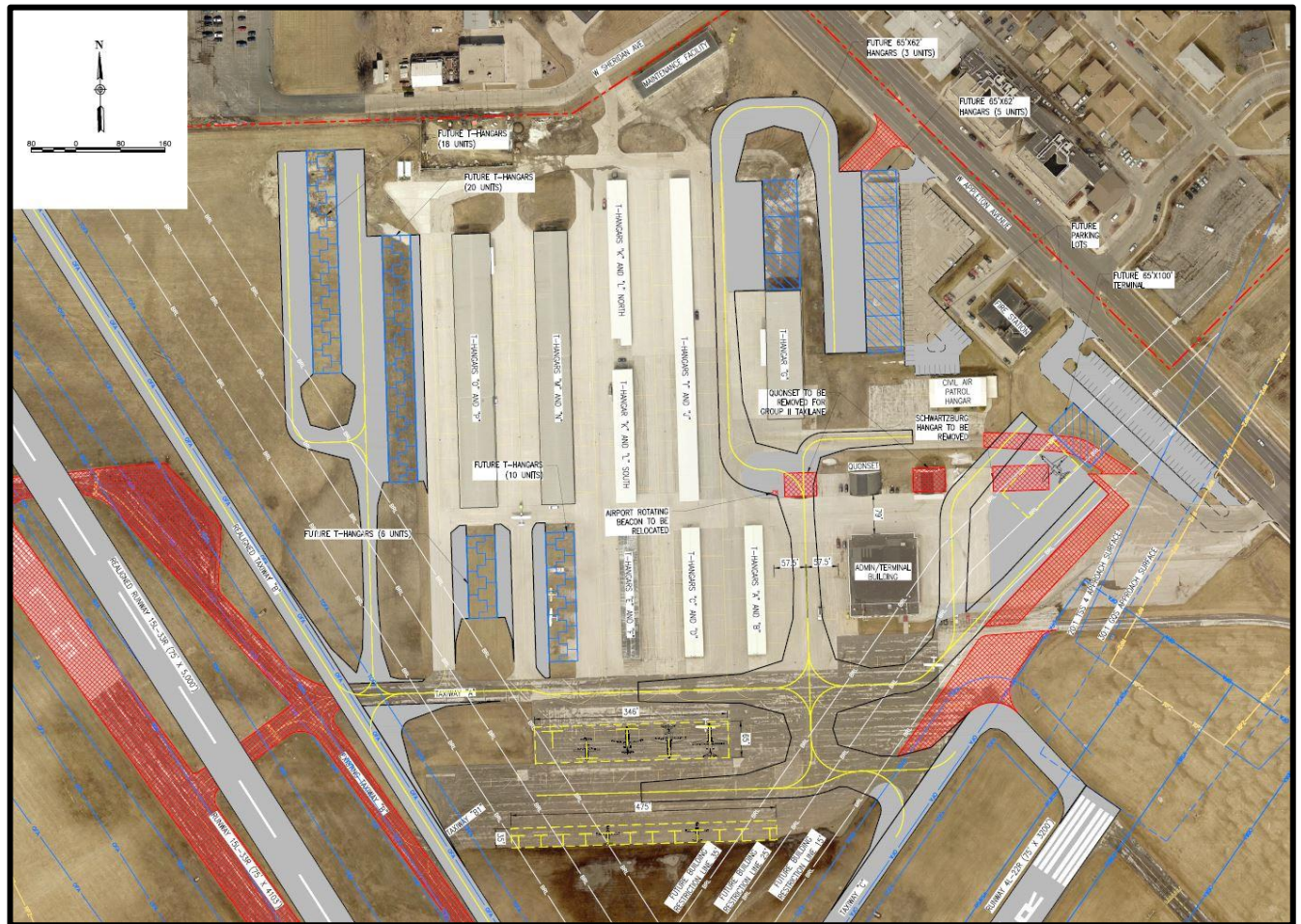


Figure 6.19. New North-Side Terminal Area
 Source: Hanson Professional Services Inc., June 2017.

Advantages:

- Good connection to airside and landside
- Limited visibility of airfield
- New building

Disadvantages:

- Very limited aircraft parking in close proximity
- Need to remove east Quonset hut hangar for Group II apron access

Budgetary option of project costs:

New building (6,500 square feet)	\$2,200,000
Apron and parking	<u>\$ 950,000</u>
Total	\$3,150,000

6.12 East-Side Terminal Area

After evaluating north-side terminal building options and their development constraints, it was identified that it would be preferable to consider development of an east-side terminal building where there is more space available. There is an apron on the east side of the airport near the air traffic control tower (ATCT) and an entrance road off North 91st Street. There are also utilities serving the air traffic control tower. Other development on the east side includes one hangar previously used for a Milwaukee County Sheriff's department helicopter and a privately owned hangar. Planning for the east-side took into consideration the existing buildings.

It is anticipated that the apron and entrance road would require rehabilitation to accommodate increased activity and two way traffic on the road. The auto parking that is located adjacent to the apron, north of the ATCT, would be relocated, so that the area can be used for aviation purposes. **Figure 6.20** shows an overall build-out of the east-side terminal area, while **Figure 6.21** shows potential access improvements that could be implemented over time.

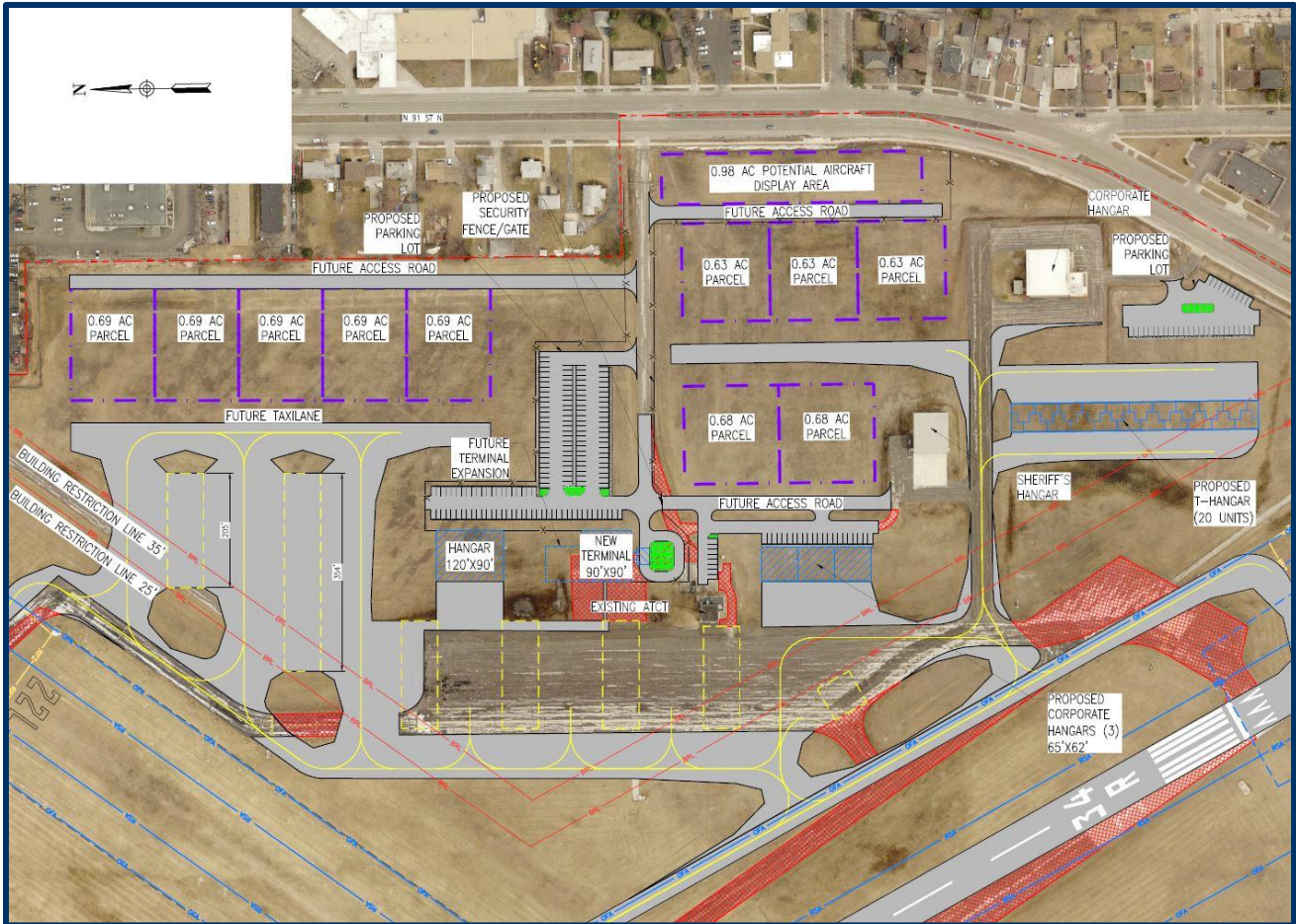


Figure 6.20. East-Side Terminal Area Build-Out
Source: Hanson Professional Services Inc., July 2017

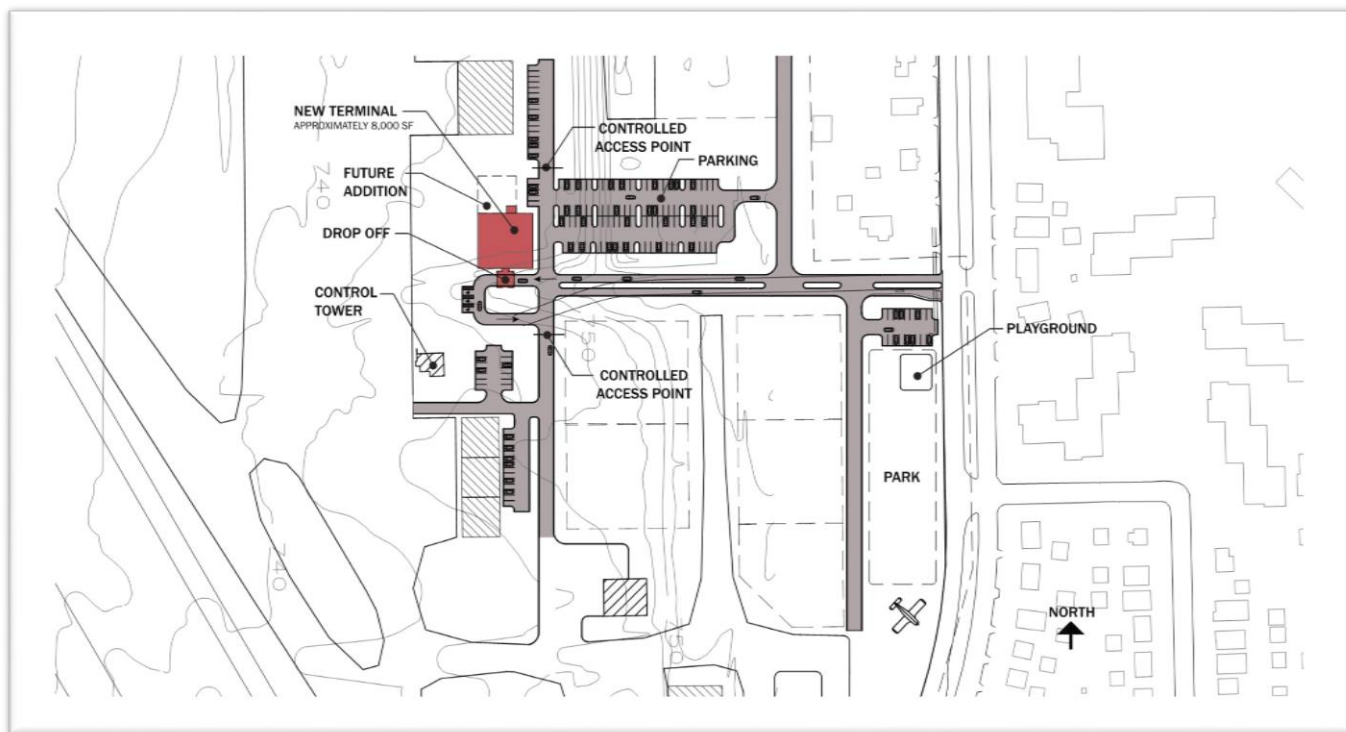


Figure 6.21. East-Side Terminal Area Landside Access Improvements

Source: Quorum Architects, July 2017.

Apron

The proposed east terminal building was located central to the apron to keep the available aircraft parking near the proposed terminal. The apron is only approximately 180 feet wide at its narrowest point. Within this apron area there is an apron edge taxiway (Taxiway D) serving up to Airport Design Group II airplanes (up to 79-foot wing spans). Therefore, within the apron there is only about 105 feet in each of the three rows available for aircraft parking. Thus, each row could accommodate one to two corporate-class aircraft, depending on their wingspans.

As part of planning the east-side terminal area, the potential to widen the existing apron in the future was considered. All the additional apron width would be added on the edge toward the runway (west edge) due to the location of the ATCT that is along the east edge of the apron. Approximately 75 feet of pavement can be added to the west edge of the apron, effectively moving the apron edge taxiway to the west and providing one additional corporate-class aircraft parking space per row.

Even with an apron expansion, the apron area space is limited. Therefore, an additional area of apron expansion is planned to the north of the existing apron to accommodate longer-term aircraft parking. The apron expansion is planned to the north due to the existing hangars to the south.

Entrance Road

The entrance road would be realigned and straightened to provide a better overall two-way traffic flow as this area develops. This entrance road could also be improved over the longer term to provide a generous landscaped boulevard. The access road to the former sheriff's hangar could also be straightened to increase the developable area along the apron. With reconfiguration of ATCT auto parking, space can be provided for a passenger drop-off drive at the terminal.

Terminal and Hangars

When siting the terminal building or other hangars along the apron, they have been set back from the edge of the apron to allow the full apron to be useable. The hangars should be kept at least 70 feet from the apron edge to allow an aircraft to be in front of the hangar while staying clear of the main apron. The terminal building is shown with a similar setback, but could be moved closer to the apron, keeping at least an 18-foot Group II taxilane wingtip clearance, with more distance recommended to minimize prop wash or jet blast as aircraft taxi from parking positions on the apron.

The centrally located terminal building is shown as approximately 8,000 square feet in size and would incorporate a small café. When the last restaurant operated on the second floor of the terminal building, it occupied approximately 1,500 square feet. A small restaurant would need more space than a café. The terminal site is large enough to allow the terminal building design to be expanded or reduced as needed to meet function and budget. The new terminal would be supported with a parking lot and a drop-off entrance.

While the initial east-side development is anticipated to be only the terminal building, the site is planned to accommodate a large hangar that could be developed by a fixed-base operator or corporate user just north of the terminal. This hangar would have airfield access via one of the taxilanes on the apron. The hangar could be connected to the terminal via sidewalks, if the operations are interrelated.

Additional corporate hangar sites have been located east of the terminal, to the north of the entrance road. These hangars would have airfield access via a taxilane that would also serve the apron expansion area. Automobile access would be provided by an access road that parallels the east boundary of the airport. Because there are residential properties adjacent to this boundary, this access road is planned to have a 15- to 20-foot buffer from the property line to allow a landscape screening feature to be installed on the airport.

South of Taxiway D1, 20 T-hangars could be developed. With the proposed realignment of the primary runway to its new 16L/34R configuration, there is no space to expand the T-hangars in the north terminal area. Thus, if additional T-hangars are desired, space should be reserved in the east-side terminal area. South of the ATCT along the apron, a site for connected box hangars is shown, similar to T-hangar G on the north side. This configuration would provide economical space for corporate-class aircraft or it could also be used for standard corporate hangars.

Open space has been reserved along North 91st Street to allow for future development of community recreational space. This area could accommodate at least a playground and small parking lot. A

Business Plan

picnic shelter may be another desired amenity. This recreational space could be aviation-themed and connect the community to the airport's history.

Advantages:

- Flexibility and space available for new terminal and other hangar facilities
- New terminal could be a focus to generate interest in hangar development
- Interior access road available to connect north- and east-side operations
- Apron expansion area available

Disadvantages:

- Split FBO operation

Budgetary option of project costs:

New building, including cafe (8,000 square feet)	\$ 2,693,000
Entrance road and parking	\$ 876,000
Apron rehabilitation	\$ 835,000
Security fence	<u>\$ 183,000</u>
Total	\$ 4,587,000

After comparing the north- and east-side options to provide updated terminal facilities, the east side was identified as the preferred location. Initially, the terminal building and parking lot, entrance road realignment and rehabilitation and apron rehabilitation would be accomplished. In addition, the security fence would be modified.

Figure 6.22 shows the initial east-side terminal area development. This development is anticipated to be implemented before the environmental review and funding for the realigned runway. Therefore, this layout includes Runway 15L/33R in its current configuration.

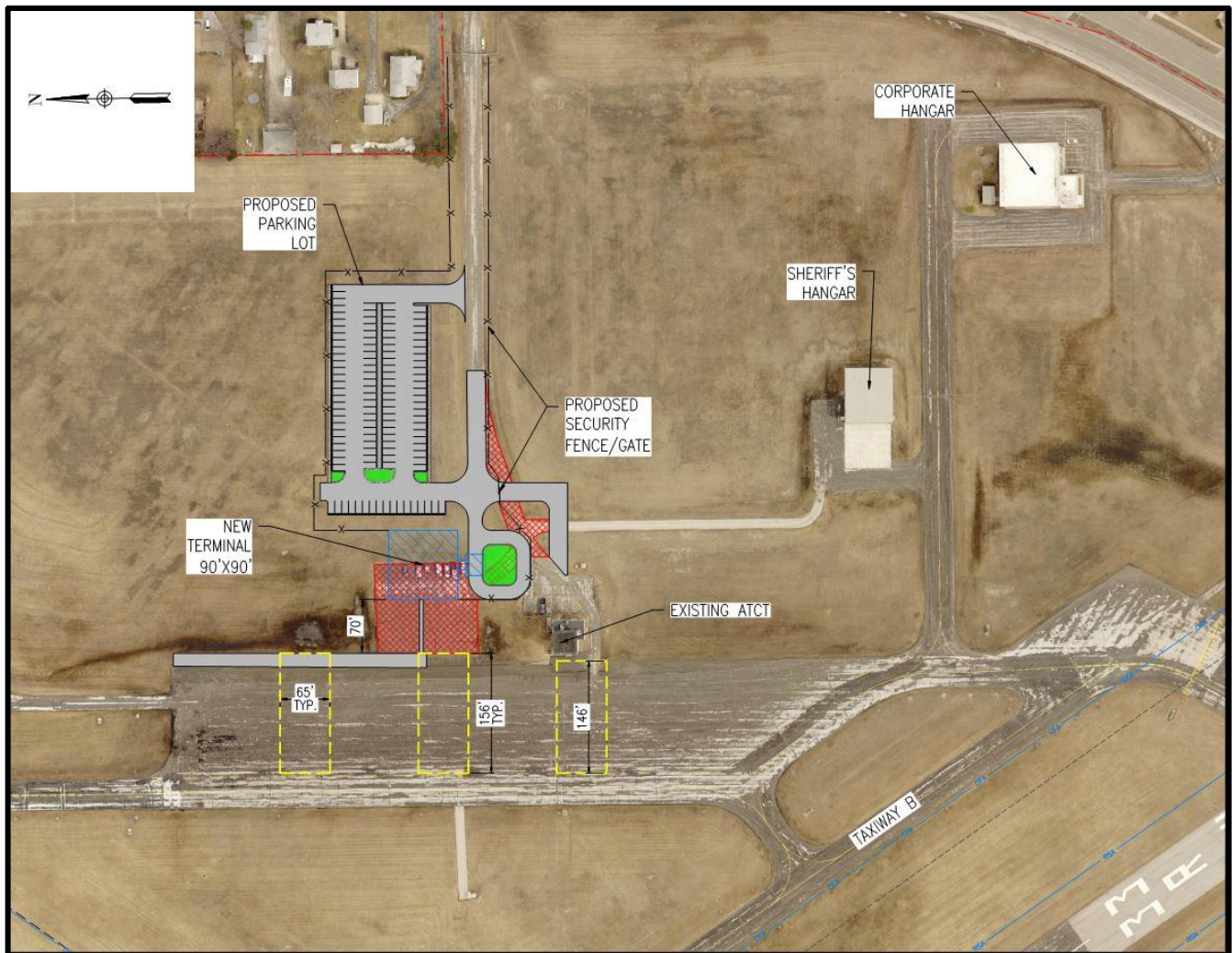


Figure 6.22. East-Side Terminal — Initial Development

Source: Hanson Professional Services Inc., 2017.

After the realigned Runway 16L/34R is constructed, it is anticipated that aviation demand will increase. It is recommended the next phases of development on the east side build upon existing facilities, as shown in **Figure 6.23**. This second phase is anticipated to include some large hangar development to accommodate corporate aircraft, an apron expansion to maximize space on the existing apron and T-hangar development. The T-hangar development is located on the east side, because no space is available with realigned Runway 16L/34R on the north side. The T-hangars on the east side will add capacity. This additional capacity could allow the flexibility to provide hangar accommodations for aircraft while older hangars on the north side are removed and replaced.

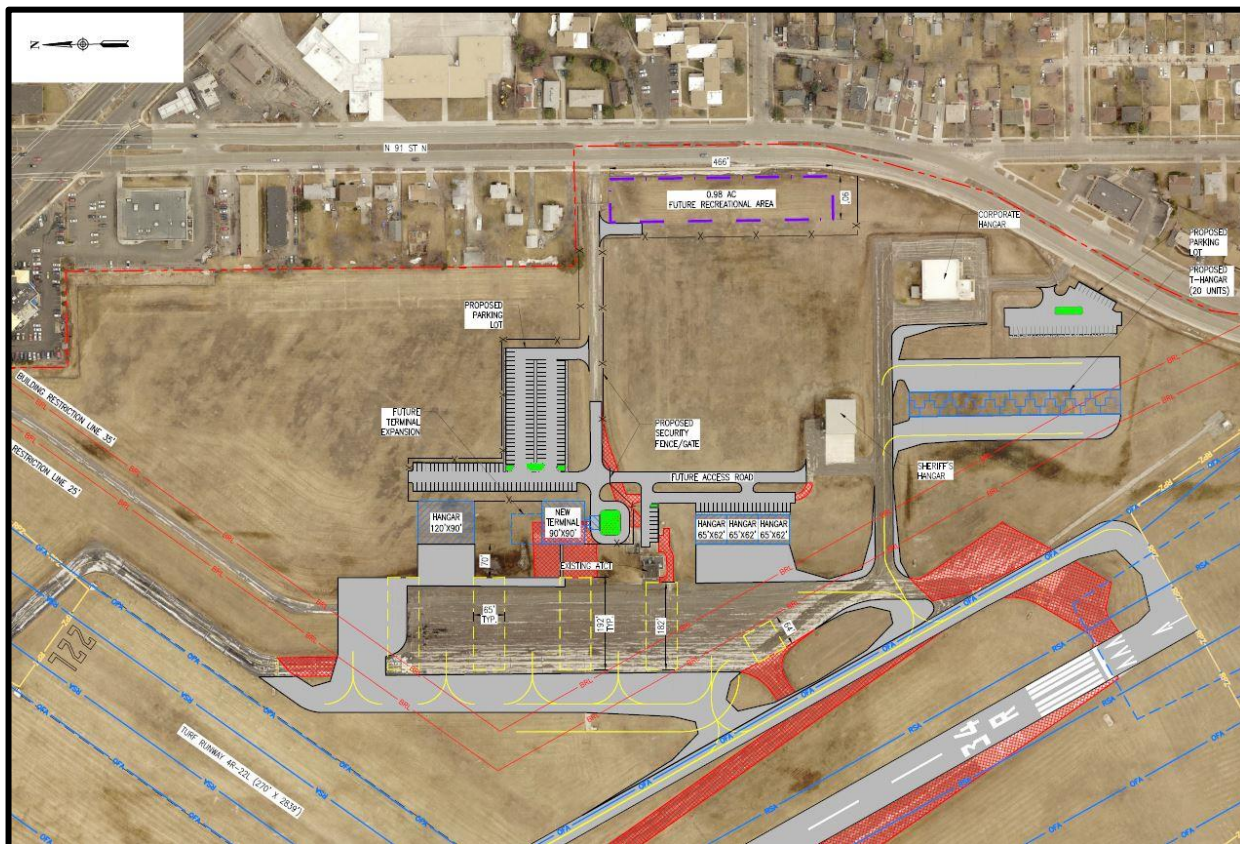


Figure 6.23. East-Side Terminal Area — Intermediate Development

Source: Hanson Professional Services Inc., 2017.

To complement an increased runway length, additional area for hangar development is anticipated. While there is some vacant hangar space, the conditions and sizes vary. With the exception of three larger hangar units in T-hangar G, the hangars are designed primarily for single- and twin-engine piston aircraft.

MWC has two areas used and available for further landside development. The north-side area is north of the runway intersection and contains the terminal building, civil air patrol building, county maintenance building and 11 hangars ranging from standalone buildings to T-hangars. Appleton Avenue provides roadway access to the north landside area.

The east-side terminal area is to the east of the runway intersection. It contains the air traffic control tower (ATCT) and two standalone hangars. One of the hangars is a corporate hangar; the other is the sheriff's hangar used for nonaviation purposes. North 91st Street provides roadway access to the east-side terminal area.

To assist in the business plan implementation, it will be important to maximize the revenue at MWC to financially support the improvements. Therefore, when considering landside alternatives, three factors were taken into account:

- Maximize utility of existing infrastructure, with necessary rehabilitation/maintenance
- Consider redevelopment of the park-and-ride lot
- Pursue reuse of sheriff's hangar for aviation use
- Identify areas for new hangar development
- Identify areas for potential non-aeronautical revenue development to support improvements at MWC

Maximize Utility of Existing Infrastructure

Revenue at MWC must be increased to support needed capital improvements. The hangars on the north side, with the exception of the civil air patrol hangar and T-hangar K/L North, are leased by the county to the FBO to lease and manage. The FBO leases the hangar buildings from the county on a per-square-foot basis, regardless of occupancy. The FBO then manages and leases the hangars to aircraft owners, establishing the rental rates and receiving the rental income. While the FBO manages the hangars, the county is responsible for the maintenance of the buildings.

As described in more detail in [Section 3.2](#), the hangars vary in age and size. The front row of T-hangar A/B, C/D and E/F was constructed in 1945. T-hangar A/B and C/D have been reroofed, but E/F has not. By today's standards, the door height and tail section of these T-hangars are small, limiting the type of aircraft they can accommodate. The masonry T-hangar I/J, K/L North and K/L South were constructed in 1953 and 1961. These hangars are also small by today's standards.

T-hangars M/N and O/P were constructed in 1986 and are sized to current standards. There are three sizes of units within these sets of T-hangars: 42-foot, 44-foot and 48-foot doors. Heat can be added to the 48-foot-door units. The only drawback to these hangars is that, to reduce costs, they were constructed with asphalt rather than concrete floors.

T-hangar G, which is actually three connected box hangars, was constructed in 1995 and has concrete floors and a door opening of up to 64 feet. These hangars are able to accommodate the type of corporate aircraft desired to be attracted to MWC.

Investments will be needed to maintain the hangars in leasable condition; in the short-term, it is desirable to maintain as many hangars as possible, because leasing the vacant hangars is important for attracting additional tenants to MWC.

Milwaukee County conducted a facility condition assessment of all the buildings at MWC. With the exception of T-hangar G, the projected repair and replacement costs of the other hangars is projected exceed the revenue being produced for the county over the next 20 years. Some of the projected replacement costs, such as new roof or doors on the hangars, are significant and may not be warranted based on the age and marketability of the hangar. Also, consideration should be given to hangar removal, if it is necessary to open an area for development that will generate increased revenue. [Section 7.2](#) provides an asset management strategy for the short term.

Identify Areas for New Hangar Development

With all the hangar lease revenue going to the FBO, except for the corporate hangar on the east side, one way to generate additional revenue at MWC would be attracting new hangar development. To minimize the investment by the county, it is anticipated that new hangars would be constructed with private funding on ground leased from the county. Therefore, areas for new hangar development have been identified as part of the east-side terminal area layout, as shown on **Figure 6.20**, the build-out of the east-side terminal area.

There is limited area for new hangar development on the north side with realigned Runway 16L/34R. With space available for corporate hangars on the east side, the north side is anticipated to accommodate the majority of the T-hangars. Because many of the T-hangars are older, as discussed in the asset management strategy in [Section 7.2](#), redevelopment of the older, smaller T-hangars is recommended and could be accomplished via private investment. There is space available next to T-hangar G that has been reserved to accommodate an expansion of this hangar.

6.13 Nonaeronautical Development

Another way to generate additional revenue is to identify areas that will not be needed for aeronautical use and could attract nonaeronautical development. An FAA land release would be required to use land within MWC's property line for nonaeronautical development. To obtain a land release, the county will be required to demonstrate that the land is not needed for aeronautical use and that it is being leased or sold at fair market value. Any land released from an airport will be required to include an aviation easement, protecting aviation use over the parcel. Also, because a land release is a federal action, an environmental review is required.

Because MWC is an airport, the first focus of the alternatives analysis has been on aviation-related development. Once the aviation needs are fulfilled, nonaeronautical development can be considered to provide additional revenue for aviation operations. To support nonaeronautical uses, the areas must have road frontage; be located outside the required airfield safety, clear areas and runway protection zones; and have sufficient allowable height to accommodate building construction.

After identifying the preferred new terminal building site on the east side, the majority of the land on the east side is anticipated to be used for aviation facilities. After laying out the aviation facilities, an area along North 91st Street could be available for nonaeronautical uses. Recognizing that the realigned runway will require the discontinued use of the baseball fields on airport property along Silver Spring Drive, this area has been identified for community use, such as a park or event space. Using this space for that purpose will provide a connection between the community and MWC. While not directly revenue-producing, community use of this space could enhance interest in and support for MWC.

With an anticipated demand for new aviation development on the east side of MWC, the north side was examined for potential nonaeronautical use. With the extensive taxiway structure on the north side to support the existing T-hangars, it is recommended that sites with taxiway access continue to be used for aviation purposes. This would include the maintenance and longer-term redevelopment of the T-hangars as well as a future expansion of T-hangar G.

The park-and-ride lot, and some airport property to its north, is the one area on the north side that does not have taxilane access but does have good roadway access. Therefore, this site is recommended for potential nonaeronautical use and is shown on **Figure 6.24**.



Figure 6.24. Area Available for Nonaeronautical Development

Source: Hanson Professional Services Inc., July 2017.

Before marketing this area for nonaeronautical use, it must be included on the revised ALP for such a use. A land release will need to be obtained for nonaeronautical use, in favor of airport-revenue supporting use. For this nonaeronautical site as well as for aviation-use parcels, a land use plan should be developed, as will be described in [Section 9.0](#), as part of operational and administrative best practices.

7.0 Capital Development and Asset Management Plans

Two types of programs for the physical assets at MWC were identified in the business plan. A capital development program for the new, modern terminal and realigned runway and an asset management program for facilities that will remain, at least in the short-term.

7.1 Capital Development Plan

To make the facilities at MWC more attractive, particularly to corporate users, a number of development projects are proposed. The two primary development programs are the new east-side terminal and realigned Runway 16L/34R. These represent a significant capital investment at MWC.

Several grant sources are available to help Milwaukee County make these improvements.

Airport Improvement Program

FAA Airport Improvement Program (AIP) grants are the typical source of funding for airport development. The AIP provides 90 percent AIP funding. Typically, the remaining 10 percent is split between state and local funding. Wisconsin is part of the FAA's State Block Grant Program, meaning that the state of Wisconsin administers the AIP funding for nonprimary airports, such as MWC. AIP-funded projects are prioritized for funding through the FAA's priority rating system, as defined in FAA Order 5100.39A, Airports Capital Improvement Plan.

Under the current legislation authorizing the AIP funding, MWC receives \$150,000-per-year, nonprimary entitlement funds. An airport can roll over funds to accumulate up to four years — or \$600,000 in nonprimary entitlement — funds toward a project. The state of Wisconsin also receives AIP state apportionment funds that can be used at nonprimary airports in the state. In addition, MWC is eligible to compete for AIP discretionary funds.

As a nonrevenue-producing airfield project, the realigned Runway 16L/34 R is eligible for AIP funding. Due to the potential program costs, it is anticipated that AIP discretionary funding will be needed. The airport staff have updated their capital improvement program (CIP) to include the runway extension program at MWC. This is the first step toward pursuing grants for the project. The next step is to continue working with Wisconsin Bureau of Aeronautics staff to have the realigned Runway 16L/34R project programmed for funding. FAA AIP funding is generally programmed about three years in advance of the project. It will also be essential for MWC to receive airspace approval of the revised ALP. The environmental document process should be completed so that environmental approval of Runway 16L/34R is completed at least a year in advance of the project.

While revenue producing projects at nonprimary airports can be eligible for an AIP nonprimary entitlement grant, they are only eligible if there are no airfield needs. With a realigned runway and pavement rehabilitation needs on the airfield, an AIP grant is not anticipated to be available for the terminal.

State Grants

In addition to providing matching grants for a state share of an AIP-funded project, Wisconsin also has grants available of up to 80 percent of eligible project costs. The state grant program can fund terminal buildings. However, per Wisconsin statute 114.34, the state funding for terminal buildings is limited to \$1.25 million. Generally, the grant is used toward the terminal's public areas. The airport sponsor must submit a funding request, with appropriate documentation, to start the process. If pursuing state grants, MWC's terminal must be programmed into the state's overall airport grant program.

Local Funding

Even with grants, all projects must include a local share, and some of the improvements or future development — such as hangars — will need to be totally funded with local airport funds or with private funds on leased ground. The airport funds are from the county's airport system and generated by user fees.

Table 7.1 provides the short-term capital development program. The program addresses new construction and rehabilitation of runways, taxiways, aprons and roadways. Maintenance of building assets will be addressed separately in the following section. The majority of the projects included in the program should be eligible for federal and state grants. These projects are not guaranteed grants, but they should be pursued. As discussed above, it is easier to obtain funding for a project that has a higher priority. Thus, some lower-priority projects may need to be funded with local resources in order to obtain grants for larger, higher-priority projects in a timely manner. Depending on the completion of the required environmental studies and the availability of grants, if aggressively pursued, the short-term development program is anticipated to take five to seven years to accomplish. The estimated project initiation year in **Table 7.1** is used to show a logical project progression. Exact timing will depend on funding availability.

In addition to the new development, there are also some pavements that should be rehabilitated based on their pavement condition indexes (PCI), as discussed in [Section 3.4](#). These rehabilitation projects have been included as part of an intermediate capital development program and are anticipated to be pursued after the new facilities are in place.

Table 7.1. Short-Term Capital Development Program					
Est. Year	Project	Total	Federal	State	Local
1	Establish RW 33R instrument approach (survey) ¹	\$45,000	\$0	\$0	\$45,000
1	CatEx for east-side terminal ²	50,000	45,000	2,500	2,500
1	Phase II Master Plan using new GIS mapping	100,000	90,000	5,000	5,000
1	Design east-side terminal	172,000	0	0	172,000
1	Environmental assessment RW 16L/34R program ³	250,000	225,000	12,500	12,500
2	Realign, rehabilitate and widen east-side entrance road	433,000	389,700	21,650	21,650
2	Rehabilitate east-side apron	835,000	751,500	41,750	41,750
2	Install security fencing	203,000	182,700	10,150	10,150
3	Construct terminal building ⁴	2,521,000	0	1,250,000	1,271,000
3	Construct auto parking for terminal building	483,000	0	0	483,000
3	Land acquisition for parallel taxiway	143,200	128,880	7,160	7,160
3	Design realigned Runway 16L/34R program	450,000	405,000	22,500	22,500
4	Construct realigned Runway 16L/34R	12,085,000	10,876,000	604,250	604,250
4	Regrade Turf Runway 16R/34L ^{5,6}	195,000	0	0	195,000
4	Land acquisition of old Pick 'n Save store, taxiway and other easements under RPZ	5,178,000	4,660,200	258,900	258,900
5	Construct realigned Taxiway B and connectors	8,150,000	7,335,000	407,500	407,500

1. Eligible for AIP reimbursement. Mapping to also be used for Phase II master plan.
 2. Need FAA preapproval of CatEx approach; includes only limited field studies.
 3. Section 106 formal consultation not anticipated or included in cost.
 4. Maximum state grant for terminal building is \$1,250,000.
 5. FAA will only fund two runways.
 6. Onsite cut for regrade turf Runway 16R/34L included as onsite fill for realigned Runway 16L/34R.
 All projects in 2017 dollars.
 Source: Hanson Professional Services Inc., September 2017

After the short-term program to construct facilities that will transform MWC into the premier general aviation airport for southeast Wisconsin is complete, the intermediate capital development program rehabilitates some airfield pavement and anticipates the need to start the expansion of the east-side terminal area, as shown in **Table 7.2**. The development of T-hangars in the east-side terminal area will add capacity. This capacity should also enable some of the older T-hangars to be removed and still have the aircraft housed at MWC while the replacement hangar is reconstructed.

Table 7.2. Intermediate Capital Development Program					
Est. Year	Project	Total	Federal	State	Local
6	Relocate airport beacon	152,000	136,800	7,600	7,600
6	Remove west Quonset hut to increase taxilane OFA ¹	82,000	73,800	4,100	4,100
7	Rehabilitate Taxiway D ²	872,000	784,800	43,600	43,600
8	Rehabilitate Taxiway C ²	1,276,000	1,148,400	63,800	63,800
9	Construct east-side T-hangar taxilanes ³	1,197,000	1,077,300	59,850	59,850
10	Construct 20 unit east-side T-hangar	1,300,000	0	0	1,300,000
11	Construct east-side T-hangar parking lot	295,000	0	0	295,000
12	Expand east-side apron	1,825,000	1,642,500	91,250	91,250
13	Expand terminal parking lot	212,000	0	0	212,000
14	Replace access road to sheriff's hangar ³	201,000	180,900	10,050	10,050
15	Construct access taxiway off D1	\$545,000	\$490,500	\$27,250	\$27,250

1. Potentially eligible as taxilane obstruction removal.
 2. The rehabilitation of taxiways is an AIP higher-priority rating project than the construction of taxilanes, thus they are programmed in advance of new taxilanes.
 3. Eligible AIP projects, but with low priority rating.
 All projects in 2017 dollars.
 Source: Hanson Professional Services Inc., September 2017.

Table 7.3 identifies the long-term capital development plan. This plan focuses on replacing the oldest hangars, as well as continued expansion of the east-side terminal area. These long-term projects will be demand-driven and have not been assigned an estimated year.

Table 7.3. Long-Term Capital Development Plan				
Project	Total	Federal	State	Local/Private
Construct access road for corporate hangars ¹	281,000	252,900	14,050	14,050
Replace T-hangar K/L North	809,000	0	0	809,000
Replace T-hangar I/J	1,722,000	0	0	1,722,000
Replace T-hangar A/B	809,000	0	0	809,000
Replace T-hangar C/D	809,000	0	0	809,000
Replace T-hangar E/F	809,000	0	0	809,000
Expand east-side apron to north	3,070,000	2,763,000	153,000	153,000
Construct hangar access taxiway north of apron	880,000	792,000	44,000	44,000
Construct access road near residential lots ¹	400,000	360,000	20,000	20,000

1. Eligible AIP projects, but with low priority rating.
 All projects in 2017 dollars.
 Source: Hanson Professional Services Inc., September 2017.

7.2 Asset Management Plan

As discussed in **Section 3.0**, the building assets at MWC vary in age, and maintenance has been deferred for many. It is recommended that the existing facilities be maintained to maximize the utility of the building assets while the capital investment at MWC is focused on the new terminal building and realigned runway program. Using the facility condition assessments (FCA) conducted by the

county, **Table 7.4** contains the recommended asset management plan for the short-term while the new terminal and runway are anticipated to be constructed. Table 7.4 also indicates the long-term recommended disposition of the asset.

In the short-term, all facilities should be maintained to maximize the hangar space available for based aircraft at MWC and to keep the support facilities in safe operating condition. For facilities recommended or potentially recommended for removal in the long-term, this table indicates the year in which a major investment is projected in the FCA. At that time, the condition and utilization of the respective facility should be assessed to determine if the major investment can be deferred, or if the facility should be removed to provide space for redevelopment.

Facilities to Keep Long-Term

The main terminal with its two hangars is anticipated to be maintained, even after the new east-side terminal is developed. It is anticipated this facility will be primarily a maintenance shop, and the FBO may conduct some of the flight training from this facility.

The county maintenance garage, airport traffic control tower and civil air patrol facility are structures that are recommended to be maintained, so the continued investment in these buildings is recommended. Most of the proposed investment is in the renewal of systems.

T-hangars M/N, O/P and G are recommended to be maintained over the long-term. All of these T-hangars meet the standards for unit sizes and can accommodate a variety of modern aircraft. T-hangars M/N and O/P were constructed in 1987. As 30-year-old buildings, the maintenance and renewal of systems would be anticipated. T-hangar G was constructed in 1993, so it will also need some maintenance and renewal of systems.

Table 7.4. Building Asset Management Plan										
Asset	2018	2019	2020	2021	2022	2023	2024	Short-Term (7-year) total	Year to Reevaluate	Long-Term Recommended Disposition
Terminal	\$110,000	\$300,000	\$80,000	\$210,000	\$80,000	\$20,000	\$100,000	\$900,000	N/A	Maintain
Maintenance Garage	170,000	0	25,000	0	280,000	15,000	0	490,000	N/A	Maintain
Airport traffic control tower	75,000	2,000	80,000	110,000	0	0	0	267,000	N/A	Maintain
Civil air patrol	10,000	20,000	0	10,000	6,000	0	40,000	86,000	N/A	Maintain
Schwartzburg Hangar	0	3,000	4,000	10,000	15,000	0	5,000	37,000	2030	Potentially replace
T-hangar A/B	15,000	10,000	0	0	0	0	0	25,000	2026	Replace
T-hangar C/D	20,000	12,000	0	0	0	0	0	32,000	2026	Replace
T-hangar E/F	90,000	10,000	0	2,000	0	0	0	102,000	2026	Replace
T-hangar G	1,000	0	0	55,000	55,000	1,000	0	112,000	N/A	Maintain
T-hangar I/J	5,000	15,000	10,000	0	35,000	0	0	65,000	2026	Replace
T-hangar K/L North	150,000	15,000	15,000	50,000	0	4,000	0	234,000	2021	Replace
T-hangar K/L South	10,000	10,000	0	10,000	0	0	0	30,000	2026	Replace
T-hangar M/N	60,000	0	0	20,000	0	0	0	80,000	N/A	Maintain
T-hangar O/P	70,000	0	0	20,000	0	0	5,000	95,000	N/A	Maintain
Quonset Hut east	15,000	1,000	10,000	60,000	0	0	0	86,000	2021	TBD
Quonset Hut middle	5,000	0	1,000	50,000	0	0	0	56,000	2021	TBD
Quonset Hut west	10,000	2,000	0	50,000	0	0	0	62,000	2012	Remove for Taxilane OFA
Annual total	\$816,000	\$400,000	\$225,000	\$657,000	\$471,000	\$40,000	\$150,000			

Source: Facility Condition Assessment for Lawrence J. Timmerman Airport buildings, Milwaukee County Dept. of Administrative Services, 2016-2017.

Facilities to Replace

All the older, smaller T-hangars in fair or poor condition are recommended to be replaced. These are T-hangars A/B, C/D, E/F, I/J, K/L North and K/L South. However, for the short-term, they should be maintained and kept operational.

With the exception of T-hangars K/L North and E/F, the maintenance requirements in the next ten years for T-hangars recommended to be removed are low. In approximately ten years, the FCA identifies the need for a new roof and other more substantial repairs on these hangars. Before making these investments, it is recommended the actual condition be reassessed, and the significant investment be deferred to the extent feasible, while a systematic process to replace the hangars occurs. These hangars are 90 percent, or more, occupied. Thus, to replace the hangars, it is recommended that new T-hangar capacity be developed first, which would allow the T-hangars to be vacated one at a time, with the tenants relocated as they are removed and replaced.

The replacement could be done by a third-party, with the county leasing the ground. The third party could be the FBO or another private investor. When the hangars are redeveloped, it is recommended that maintenance for the new hangar stays with the developer. If however, the county invests in the new hangars, the rental rate should be set to provide a standard return on investment for the county. If feasible, the maintenance costs should be pushed to the lessee, otherwise the county should account for the operational and maintenance costs when setting the rental rates, such as for T-hangars. If existing T-hangars are removed before the end of the FBO lease, the FBO lease must be amended.

The T-hangars at MWC are a mix of straight and nested. In straight T-hangars, the tail section on the unit extends to the opposite side of the building, so there are tail sections between doors. This results in a narrower, but longer, building. T-hangars A/B, C/D, E/F, I/J and K/L at MWC are straight.

In nested T-hangars, the tail section of the hangar unit does not extend to the other side of the hangar but is nested against the wing section from the opposite side. This results in the hangar doors being adjacent to each other. Nested T-hangars are a wider, but shorter, buildings. At MWC, T-hangars M/N and O/P are nested.

In order to provide adequate taxilanes between the hangars and maximize T-hangar redevelopment, the straight T-hangars should be replaced by straight T-hangars. The nested T-hangars at MWC are the newest T-hangars and are not anticipated to need replacing.

T-hangar K/L North was not included in the FBO lease due to its poor condition and anticipation of its removal. The removal of T-hangar K/L North would open a location to construct a replacement T-hangar. If T-hangar K/L North is not be removed in the short-term, it must have the cantilever doors repaired or replaced for it to stay operational. There are tenants in this hangar, and there is limited space to relocate them at MWC. Thus, if repairs are made to T-hangar K/L North, it should be amended into the FBO lease.

T-hangar E/F needs a new roof in the short-term. This T-hangar is fully leased. Because T-hangar space is not available to relocate these tenants, it is recommended the investment in the new roof be made to keep the T-hangar functional until the new runway and terminal are completed.

The west Quonset hut hangar is recommended to be removed in conjunction with the relocation of the airport beacon. T-hangar G has door openings up to 64 feet. Thus, it can accommodate aircraft design Group II aircraft (wing span 49 feet up to 79 feet). There is not a Group II taxilane serving T-hangar G. Aircraft in T-hangar G taxi between T-hangar A/B and the terminal building and carefully maneuver between the corner of T-hangar A/B and the airport beacon/ Quonset hut. A Group II taxilane should be provided to T-hangar G. There is space adjacent to T-hangar G such that it could be expanded. A Group II taxilane to this area would make that development more desirable for aircraft operators.

Facilities to Potentially Replace

While the Schwartzburg Hangar is utilized, ultimately, it may be desirable to replace it. The Schwartzburg Hangar has a limited door size, but the FCA project maintenance costs are low, so it may be desirable to maintain this hangar, unless an opportunity for a higher and better use of the site arrives or until the maintenance costs outweigh the utility of this hangar. If the Schwartzburg Hangar is removed, the site may be able to be reconfigured to accommodate a larger hangar. However, with the new terminal on the east, it is anticipated this site will be less desirable until the east side is built out, or unless it is needed to support an operation on the north side.

The east and middle Quonset huts have higher maintenance costs than the Schwartzburg Hangar; however, they are able to accommodate somewhat larger aircraft. Thus, prior to making significant investment in each of these hangars, their value versus maintenance costs should be re-evaluated. If the Quonset huts are removed, there is more limited redevelopment potential in this area due to the taxilanes and associated clear areas on both sides of the Quonset huts.

8.0 Marketing and Branding Plan Development

The branding and marketing plan development section of the business plan should not be taken for granted. It is the most crucial portion of the plan. Without a solid and well-thought-out marketing and branding plan, it is possible that all or most of the positive expectations included in this business plan will not be realized. A fully funded and properly staffed marketing, branding and public relations program is central to MWC achieving its intended goals.

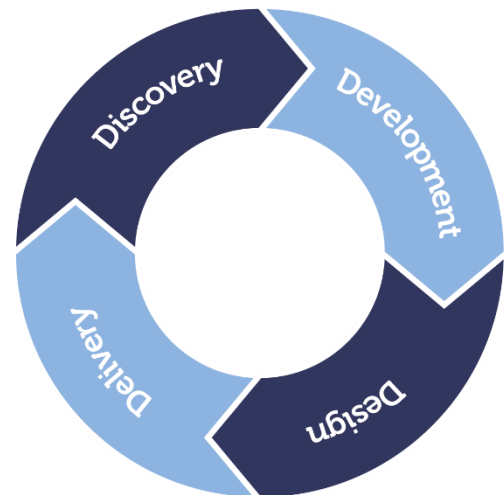


The success of what will be the improved MWC rests solely on the development and execution of a comprehensive, integrated communications plan that encompasses branding, marketing, public relations, event management, government relations, community relations and media relations.

The pertinent questions that must be addressed are: What are you communicating? Are your communications effective? Does the industry know who you are, and if they do, are you respected? Do you have the right people at the table during this historic transformation period?

The following pages are designed to guide MWC toward becoming a household name in the industry and throughout the Milwaukee region. Based on a series of meetings, individual conversations and research of the general aviation airport industry, a framework has been developed that can be implemented as airport staff take on the tasks of rebranding and reintroducing the airport to key audiences. The achievements of this working communications strategy will result in the following benefits for MWC:

- Identification of growth
- Increased visibility
- Name recognition
- Development of organization image
- Message exposure, comprehension and retention by target audiences
- Attitudinal creation, reinforcement and change by target audiences
- Creation of new opportunities
- Smooth organization transition
- Establishment of common culture



A four-part process of discovery, development, design and delivery is used as the basis for the marketing and branding communications framework. It is a continuous process that allows for the plan's establishment, implementation and then re-evaluation and refinement.

8.1 Discovery — Communications Audit

A comprehensive evaluation of marketing and communications materials was conducted of the MWC website and other relevant information provided by airport staff to assess how the organization sees itself, the language it uses and to uncover its strengths, challenges and opportunities.

A meeting was held to determine the depth of marketing efforts underway at MWC. The discussion was focused in the following areas (based solely on branding and marketing):

- The importance of the assessment. Why is it important?
- What outcomes are they hoping for from the renovation plans?
- Who is the current audience vs. whom would you like it to be?
- Overall methodology to approaching current branding and marketing efforts.

Our discussion provided, in brief, the following feedback:

- Serious identity crisis (who we are, what we stand for, etc.)
- Loss of identity of MWC in the Milwaukee County airport system
- Not represented or respected as an airport system
- No dedicated staff to support MWC's growth; shared with MKE
- Limited community involvement in planned activities or airport benefits
- Limited feedback from outside audiences

Based on the information provided, it was concluded that MWC requires:

- Refreshed visual and verbal brand
- Creation and improvement of communications materials
- Improved systems that will reach and resonate with target audiences
- Language development for key messaging and positioning of the organization
- Clearly written work plan that strategically times the unveiling of new airport

An interactive branding and marketing workshop was conducted that guided attendees to identify the parameters in which the new MWC would be built upon. During this session, participants provided a combination of historical and forward-thinking observations about the history and ideal future of MWC.

8.2 Development — A New Brand is More Than an Image

The new MWC brand should reflect the sum of the thoughts, images and feelings of the target audience and all ideas that differentiate MWC from other airports. The refreshed MWC brand **MUST** engage constituents emotionally, identify products and services and position the airport as the solution for the target customer's needs or desires.

The following are key considerations that are recommended to reach this point:

- Construct a clear **vision statement** based on the needs and objectives of airport
- Develop a **mission statement** that's straightforward and concise

Attendees of the workshop identified the following keywords or concepts to be part of a **vision statement**:

- Friendly
- First choice
- Premier
- Easy access/convenient
- Customer-focused
- Efficient
- Good value (inexpensive)
- Historic
- Quality-branded service provided

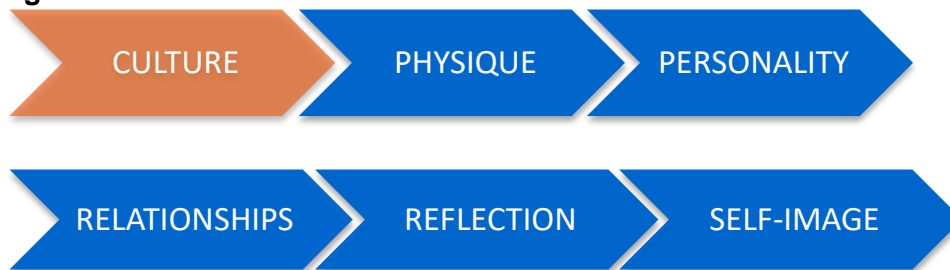
- **Reliable**
- **Versatile (training opportunities)**
- **Reliever airport**
- **Explorer**
- **Forward-thinking**
- **Connector or hub**

Attendees of the workshop identified the following keywords or concepts to be part of a **mission statement**:

- Efficient
- Convenient
- Versatile
- Quality
- Reliever
- Reliable

The second phase of the workshop was to develop the brand’s identity through the consideration of culture, physique, personality, relationships, reflection and self-image. This is a critical stage in the development of MWC’s brand. A company may try to skip this stage, but over time it will have to return to the drawing board, because its brand has run its course. MWC should seek to develop a brand that withstands time — a minimum of 10 years. It is a tedious process, but it is worth it in the end, creatively and financially. Six factors should be considered in identifying the MWC brand.

Figure 8.1. Six Factors of Brand Identification



Source: Compass Solutions Inc., May 2017

Culture

Culture refers to value systems and basic principles. The participants identified the following words to represent the existing and/or desired culture at MWC:

- Friendly
 - Inclusive
 - Easy
- Efficient
 - Opportunity
 - Intimate (approachable)

Physique

Physique asks: What does it look like? Is it recognizable? The following suggestions were offered relative to physique:

- A brand to move forward, something to hold onto the past, such as in the font selection
- Milwaukee-related, differ from UES and MKE
- Modern, as a goal
- Incorporate MWC, airport identifier
- Connect to MKE but stand alone

Personality

Personality refers to your brand's character. Desirable personality traits that were identified for MWC include:

- Friendly
- Professional
- Focused
- Versatile
- Business casual
- Executive

Relationship

The term "relationship" seeks to identify the relationship between people and the brand. Attendees identified "community pride" as the strongest relationship descriptor for MWC.

Reflection

Reflection identifies the brand's most stereotypical buyer. When considering the reflection of MWC in its customers, the following terms were identified:

- Passionate
- Enthusiast
- Serious
- Learner
- Focused
- Value

Self-image

Self-image looks at the consumers' ideal self, which the team can draw on when building a brand. In other words, how do consumers see themselves? The following descriptors were identified by meeting attendees:

- Explorers
- Midwestern (quality and value without show)
- Conservative
- Humble

The use of an outside integrated marketing and communications firm is recommended to help support the staff's efforts. This team should be able use this and other input to manage the branding process as laid out in this report and provide a fresh set of creative thoughts that can push through internal creative burnout.

8.3 Naming Process

The renaming process of MWC must balance the creative act of generating thoughtful names with the strategic role of assessing the name's efficacy to meet its goals. When beginning this portion of the development stage, it is imperative to have a clear understanding of the service area, target audience and all services and products of the airport.

In recent years, there have been several airports that have undergone similar identity changes aimed at helping them generate greater recognition and improved financial growth.

It is strongly recommended to do a full name change that connects the airport to Milwaukee County and speaks to the quality of service users desire. One of the items identified during the strategic planning workshop was to rename Lawrence J. Timmerman Airport, nicknamed "Timmy," to provide a better sense of place and identity. It was identified that increasing the use by aviators is the purpose for renaming. There was some discussion that aviators look more at the facilities available than the name when selecting an airport to use, but a readily identifiable name can also help market the airport, such as to corporate passengers or schedulers. The following were identified as potential considerations:

- Identify connection to owner, Milwaukee County
- Consider keeping some tie to Timmerman, such as at Timmerman Field or Timmerman Terminal
- Identify how air traffic control would identify the airport to keep it separate from MKE
- Correlate with, but not duplicate, efforts around the rebranding of MKE's identity
- Avoid confusion with MKE
- Use "executive" in the name, though, while common for many corporate airports, may create confusion with the Milwaukee county executive

Potential names identified include: Milwaukee County Executive Airport at Timmerman, Milwaukee County Timmerman Airport, Milwaukee County Regional Airport, Milwaukee County Corporate Airport and Milwaukee Metro Airport.

8.4 Tagline

After the name has been chosen, developing a tagline to further promote the airport's value, enhance its image and reinforce the best of its brand in a succinct and powerful way is recommended. The tagline is intimately connected to the brand name and requires some of the same competencies as the naming process. The workshop examples were "Convenience You Can Count On" or "Quality Service. Destination and Convenience." Another example would be "Historic Roots — Modern Convenience."

8.5 Logo

The new airport logo will be the foundation of MWC's new, great brand. Once the name is determined, the creation of a new look and feel is recommended. MWC's new logo should ensure the following key principles during the development stage:

- **Simplicity:** Is the design simple and clean? Is it flexible, not too busy, distracting or confusing?
- **Memorability:** Is it quickly recognizable? Will people get it at first glance?
- **Timelessness:** Will it be a great logo in 10 years?
- **Versatility:** Does it scale to different sizes without losing quality? Does it work across various media and within different contexts?
- **Appropriateness:** Does it resonate with the desired audience?

It is suggested to keep the blues of the current brand, but add a vibrant color, such as a yellow or green, to show a rebirth of the airport as well as use a more distinct, bold font system. Meeting attendees discussed the combination of the following colors:

Incorporate blue skies with the dark blue of the state seal and vibrant colors such as greens and yellows. This color combination implies "inviting," "spunky," "personality" and "fresh start and forward-thinking" (several variations of this).

Incorporate purple and dark blues, which speaks to the executive experience customers will expect and refers to MWC's value.

MWC's new logo must be protected at all times. After all, this is the visual identity of the airport. It is recommended to have a comprehensive logo file library and brand guide for effective and appropriate use of the new logo. Once the new brand identity is complete, airport staff are on their way to creating a variety of pieces that help them and MWC's target audiences better appreciate the airport's new direction, such as new stationery (envelopes, paper, etc.), business cards and visual elements for the airport's website and its social media pages.

8.6 Key Messaging and Content Development

While brand identity largely relies on the logo design, it is also recommended to incorporate key messages that create a verbal brand. This will allow MWC's target audience to clearly understand the airport's value and quickly answer "What's in it for me?" It will allow the airport to further clarify who and what MWC is and help staff stay on track with what MWC is trying to accomplish. Remember: Everything must tie back to the brand.

When developing key messages and content, it is recommended to highlight the airport's position, history, work, value and services; clearly state the call to action; and emphasize benefits and what matters to the target audience, using words that resonate with that audience.

The key messages will be framed within a message architecture so they can be adjusted and revised for different target audiences and guide internal and external communications.

8.7 Delivery — Brand Launch

To be successful, the new brand must strategically be rolled out internally and externally. The internal team and outside consultant must work together on both to ensure a smooth transition. This may include developing an internal email or printed announcement for staff to ensure that everyone is aware of the new name and know its implications and proper usage. Together, the internal and external team should determine the appropriate method and sequence to inform constituents and the public of the new name. This may include the development of an announcement to key members of the target audience, a message on the website and a news release. This phase is not to be confused with the strategies and tactics of the marketing and outreach plan.

Brand Standards and Editorial Style Guides

With a new brand in place, it will be important for MWC to express a single, compelling voice in everything it does. The totality of the logo, visuals and words used to describe MWC will enable the airport to establish and maintain a clear, unified brand identity with its pilots, the media and public. A brand standards guide is the thread that holds together what the public sees from MWC. An editorial style guide can help direct what the public hears and reads about the airport. It is recommended to create a set of standards and guidelines to be applied when writing and designing print and electronic materials to ensure consistency in logo use, voice and style. We recommend that you refer to these guides whenever you develop marketing communications.

Media Training

Even in this era of the internet, blogs and new media, the ultimate driver of public perception remains mass media, such as television, newspapers and magazines. Whether preparing for a media interview, addressing difficult public questions, establishing relationships with reporters and editors, or crafting and pitching an opinion piece, MWC's key staff (those identified to help carry the brand to the public) must be trained. The goal is to help them most effectively communicate MWC's values, activities and other key messages in ways understood by the target audience.

Create a Work Plan

Creating a work plan will help keep track of the plan's implementation. A work plan outlines what is to be done, when it is going to be done, and who will be responsible for the planned activities. The work plan may resemble the following:

Table 8.1 Example Work Plan — Branding				
Step-by-step	Activities	Timing	Phase Lead	Outcome
Communications audit	Meeting with consultant and airport communications team	April 2017	Business plan consultant	Research information
Brand development	Interactive workshop	May 2017	Business plan consultant team & airport and key stakeholders	Clear vision of who we are
Naming process	Brainstorming session	ASAP	Team	Official name
Logo design	Design lab	TBD	Consultant	Official logo
Key messaging and content development	Brainstorming session	TBD	Team & communications consultant	Key talking points
Brand launch	Develop emails and news release/ planned activity	TBD	Team & communications consultant	Introduction to your audience
Brand standards	Design lab	TBD	Consultant	Permanent style guide
Media training	Workshop test run	TBD	Consultant	Key communicators are prepared

Source: *Compass Solutions, 2017.*

8.8 Discovery — Do Not Wait to Start Marketing

A brand's identity is the foundation for all marketing efforts. It is the verbal trigger that conjures up a brand in customers' minds. The research determined that there is minimal knowledge of MWC's existence and its services, particularly among aircraft owners. There also have not been efforts to engage with the key audiences that would generally help improve and sustain operations and economic growth.

At the workshop, it was agreed that the marketing should not wait for the new and improved MWC facilities and terminal. Promotion of the present MWC can occur while developing the future. Look for upcoming marketing opportunities, such as having a booth at an aviation event. A video on MWC could be created for the event, with the goal of reacquainting pilots with MWC, potentially focusing on

MWC's history and future and possibly including success stories from people who have trained at MWC.

However, given the limited focus in this area to date, it is recommended that the team implements the ROPE process (Research, objectives, programming and evaluation), a multi-level approach often used in the marketing communications industry. By doing so, it will allow the county to establish, execute and evaluate a compelling set of messages, activities and evaluation benchmarks that will help build and grow a distinct demand for MWC.

The following approach is recommended when developing a plan:

Research: Identify and implement various methods of gathering information and data ranging from a variety of stakeholders. *(This has been presented in the full plan)* It must state, as concise as possible, the "situation."

"The Timmerman Airport has had limited investment in recent years, with a focus on MKE. Today, under new airport leadership and with a new FBO, the airport seeks to undergo renovation of the property and expansion of services in hopes of regaining lost market share and increasing community interests in its growth, activities and educational opportunities."

Objectives: Develop specific and quantitative objectives to specific target audiences, including internal and external stakeholders and public and policy-desired outcomes. Some objectives may include:

- To strengthen brand awareness among aircraft owners and the surrounding community
- To expand the use of the airport by aircraft owners by ___ percent within the first eighteen months of the unveiling of the new Timmerman airport
- To increase interest in aviation among young people

8.9 Development — What's in the Plan

A comprehensive marketing and outreach plan outlines the target audiences, marketing and outreach goals and objectives, messages and strategies to deliver the right information to key audiences. As a marketing and outreach plan is developed, coordinate among all program staff to ensure that the activities in other program areas are featured in or aligned with MWC's marketing and outreach strategies.

Establish a Marketing Budget

Developing a marketing and outreach budget is an important step in a marketing and outreach plan. The marketing budget will be a fraction of the overall program budget. Some operations base their budgets on a percentage of how much they would like to spend their overall budgets on marketing. Others develop their outreach strategies first, then add the costs associated with them, which makes up their budgets.

Define Marketing and Outreach Staff Needs, Roles and Responsibilities

As part of the planning process, staffing needs need determined, roles need to be defined and responsibilities for all staff, partners, volunteers, consultants and even contractors responsible for marketing program offerings need to be identified. To decide what roles need to be filled, assign staff with specific skill sets to handle marketing efforts that fall within those skill sets (e.g., graphics, media outreach, special events or social media). During this process, some gaps may be identified (e.g., number of staff, skill sets) in the marketing and outreach staff. That is the time to determine whether or not those gaps can be filled with volunteers or staff from partner organizations, or if marketing experts or consultants should be hired.

MWC'S DIRECT TARGET AUDIENCE

- Active pilots
- Aircraft owners
- Airlines
- Children 5–12
- High school students
- Local community
- Elected officials
- Local media

to be

Develop Marketing and Outreach Strategies and Tactics

A good rule of thumb is that a customer must be reached with a message at least three times before it sinks in. To touch a potential customer, one might decide to use three different tactics, or the same tactic at least three different times. Layering traditional (e.g., advertising) and nontraditional (e.g., social media) strategies to deliver multiple customer “touches” in a complementary way can be effective in building awareness and moving MWC’s target audience.

8.10 Design — Putting a Brand to Use With the Message

Designing the following items is recommended to be used along the way to support the new brand and marketing/outreach campaign. Some items can and should be used together, while others work fine on their own.

- *Print*: brochures, fact sheets, news releases, featured articles, inserts, flyers, newsletters, educational curricula, letters to the editor, direct mailing, etc.
- *Electronics*: PSAs, videos, emails, documentaries, radio interviews, television, community access TV, internet, website, blogs, etc.
- *Visuals*: slides, photos, displays, exhibits, posters/billboards, signs, stickers, magnets, pens, etc.
- *Personal contact*: workshops, presentations, lectures, demonstrations, meetings, interviews, surveys, etc.

For each target audience, the team will need to determine which outreach tools can best carry the message to that audience. **Table 8.2** contains example audiences and appropriate tools.

Table 8.2. Example Audience and Tool Pairing		
Audience	Best Communication Tools	Theory for Use
For active pilots	Direct mail, posters/signs, newsletter	Constantly on the move
For aircraft owners	Direct mail, newsletter, featured articles, inserts of newspapers, etc.	Not in area as much or use another airport
Airlines	Presentations, brochures, fact sheets	Gain their buy-in
Children 5-12	Videos, photos, stickers	Moved by visuals
High schoolers	Information brochure, emails, educational curricula, videos	Making career decisions
Local community	Signs/billboards, direct mail, flyers, blogs	Moved by what they see around them
Elected officials	Newsletters, news releases, presentations, meetings, brochures, photos, etc.	Must remain in the loop, even when you don't need them
Local media	Brochures, fact sheets, news releases, photos, flyers, etc.	Must remain in the loop, even when you don't need them.

Source: *Compass Solutions, 2017.*

8.11 Delivery — Create a Marketing and Outreach Work Plan

As mentioned in the previous section, it is important to create a work plan to keep the outreach plan intact and on schedule. Make certain it outlines what is going to be done, when it is going to be done and who will be responsible for the planned activities. Also

PROGRAMMING

Determine what actions and/or activities will be used to best communicate the message and position of Timmerman with its target audiences, internally and externally.

include the timeline and estimates for staffing needs and resources. Consider including information about the target audience, program objectives and program goals to make sure that each strategy and tactic connects to this information.

Below is an example of the new MWC outreach plan that would be developed. (Remember, this is an internal document and should be as honest as possible.)

OUTREACH PLAN FOR THE NEW TIMMERMAN AIRPORT (EXAMPLE)

ISSUE: The new Timmerman Airport seeks to build a new brand that allows them to regain lost market share and attract new customers and increase community interest in its growth, activities and educational opportunities.

Target audience:

- Active pilots
- Aircraft owners
- Children 5-12
- High school students
- Local community
- Elected officials
- Local media

MESSAGE: We are new and improved!

Desired outcomes:

- Brand awareness is strong and fluent throughout the aviation industry and community
- ___ percent increase in airport use by private jet owners
- Increased enrollment in flight school

Implementation: The communications director, working with the consulting team, will coordinate and support the implementation of each outreach activity.

Table 8.3. Implementation Examples	
Examples of specific actions:	<p>Develop a fact sheet about the new airport to separate facts from fictions.</p> <p>Develop a colorful brochure with details about what's new about the airport and its benefits for pilots and the community. (think about two separate versions)</p> <p>Request time on the agenda for the next meeting of the local neighborhood association.</p> <p>Post the flyer on a community bulletin board — this may be located on a neighborhood kiosk, at the local library or in local grocery stores.</p>
To reach a broader audience, beyond what you can physically touch ...	<p>Generate one feature article in local media (communications director should work with reporters they know or develop relationships)</p> <p>Do a radio interview with the local radio station to talk about the new and improved Timmerman Airport.</p> <p>Establish an internet presence and use search engine optimization to drive traffic to its website.</p> <p>Host a table at a community fair or have a fair on the grounds of the airport.</p> <p>Do a direct-mail campaign, sending a postcard with vibrant photos of the new airport.</p>
Since politics is at play given the Timmerman name change, you MUST ...	<p>Request time on the local governing body's agenda for presentations every step of the way — you can NEVER communicate too much when it comes to the politics of this project. (<i>FYI, commission meetings and county council meetings are routinely taped and broadcast on community access television.</i>) Provide any visual presentation (slides or PowerPoint) regarding the benefits of the name change for the county and residents.</p>

Resources:

- Personnel needed: Five volunteers to post flyers; ten volunteers to staff information table at the neighborhood fair; two volunteers to label postcards
- Funds: \$1,500 (design and printing for brochure); \$25 (five reams of paper), \$10 (one ream of cardstock for postcards), \$80 bulk mailer permit number at post office, \$50 (printer labels)

Supplies:

- Copies of brochure (2,000)
- Fact sheets (2,000: 300 for neighborhood meeting, 100 for county commission public meeting, 1,600 for community fair)
- PowerPoint presentation — fifteen minutes

- Postcard mailer to communities in targeted zip code (2,500)
- Bulk mailer permit number (print on postcard)
- Printer labels (seven boxes at 300 labels per box)

Deadlines:

- Fact sheet: this week
- Flyer: next week
- Brochure: finalize design; to printer with design in two weeks
- Postcard mailer: design in-house with desktop publishing program next week; “label party” at the office in two weeks
- Neighborhood association meeting: next month
- Radio interview: next month
- Community fair: in six weeks

Evaluation — set clear benchmarks aimed at achieving stated goals and objectives:

Evaluating the efforts should be fairly easy if the steps outlined here are followed in the beginning of the process (e.g., clear objectives and goals.) There are many different approaches that may be used, which vary based on the outreach activities, metrics and reporting requirements. Experience has shown that this process is easiest when tracking progress using key metrics; collecting audience feedback during all activities; evaluating the efforts mid-stream, in case strategies need to shift; documenting successes and lessons learned during the process; and share the impacts with MWC’s team. Key measurable indicators must be included, such as: who, when and how. Who will collect the data? When will the data be collected —immediately, or over a period of time? How will the data be assessed and measured against the stated objectives?

Here is an example of how to track efforts based on data, rather than opinions:

Table 8.4 Example of Tracking Efforts			
Objective	Metric	How Measured	When
<i>Goal #1: Strengthen brand awareness among aircraft owners and the surrounding community</i>			
Reach 10,000 pilots and 40,000 local residents about the new Timmerman Airport and its benefits to them.	Number of pilots and residents reached through outreach. Increase in calls or website hits as a result of the outreach.	Track calls to the airport via operator. Ask website visitors how they heard about the airport through a drop-down survey on the site.	Start tracking immediately following the outreach effort. Tally ongoing results quarterly.
<i>Goal #2: Expand the use of the airport by aircraft owners by 30 percent within the first eighteen months of the unveiling of the new Timmerman Airport</i>			
Reach 5,000 active pilots who fly into Milwaukee, and provide them with brochure of new services.	Number of pilots during outreach. Increase in scheduling and reservations at the airport. Increase in profits.	Track calls to the airport via operator. Review scheduling book/calendar.	Start tracking immediately following the outreach effort. Tally ongoing results quarterly.
<i>Goal #3: Increase interest in aviation among young people</i>			
Reach 500 11 th -grade students	Number of students reached. Number of enrollment following the outreach activity.	Track calls and actual enrollments. Monitor website visits to the educational section.	Start tracking immediately following the outreach effort. Tally at the end of every class offered.

Source: *Compass Solutions, 2017.*

9.0 Operations and Financial Business Plan

As part of the business plan, an analysis of MWC's administration, organization staffing and financial systems, processes and procedures with respect to industry best practices has been conducted. Based on this analysis, specific improvement recommendations regarding optimal staffing levels and organizational structure have been developed.

In analyzing operational needs going forward for MWC, the plan focused on the primary operational issues of delivering safety, security and operational continuity.

9.1 Approach/Methodology

To gain a thorough knowledge of MWC's organizational structure, its organizational chart, number of assigned staff, job descriptions and budget were reviewed. Interviews were also conducted with county staff as well as MWC's key stakeholders to better understand what the airport needs to promote its long-term success.

The interviews assisted efforts to establish a solid understanding of the organization, including associated strengths and weaknesses. In addition, this effort provided valuable insight that proved useful and resulted in:

- Improved understanding of how the organization is structured and managed
- Enhanced knowledge of the airport's operational history and future expectations
- Identified the reporting relationships and developed an understanding of how the interviewees viewed the relative importance of various positions within the organization
- Created the foundation for the proposed new organizational structure, including the requirements of a new airport manager

An important part of the analysis involved the comparison of the airport's organization relative to organizational structures found at comparable airports, with a special emphasis on type of structure, key positions staffed and minimum position requirements. Staffing and airport characteristics of comparable airports are shown in **Table 9.1**.

Table 9.1. Comparable Airport Staffing Survey								
Description	Timmerman	West Bend Municipal	Sheboygan County	Kenosha Regional	John H. Batten (Racine)	Fond du Lac County	Hartford Municipal	Waukesha County
Airport manager	-	1	1	1	-	1	1	1
Administrative assistant	-	-	-	1	-	-	-	1
Maintenance	2.5	2	4	3	-	2	-	-
Operations	-	2	-	2	-	-	-	1
Total staff	2.5	5	5	7	-	3	1	3
Annual operations	24,875	46,000	65,000	53,139	47,000	63,200	15,500	41,711
Land area covered (acres)	420	430	737	974	467	586	195	543
Based aircraft	68	101	73	269	88	62	123	170
Longest runway (feet)	4,103 X 75	4,494 X 75	6,800 X 100	5,499 X 100	6,574 X 100	5,941 X 100	3,000 X 75	5,849 X 100
Governance structure (ownership)	County	City	County	City	Private	County	City	County
Notes					<i>FBO runs airport</i>			

Source: Compass Solutions, June 2017.

9.2 MWC Organization

MWC is a general-aviation reliever airport that provides the following key services:

- FBO services (Spring City Aviation)
- Hangar and ancillary services
- Serves transient aircraft as needed

MWC is staffed with two full-time employees and one part-time employee who serve as maintenance workers. All other support services are provided by the staff of MKE as part of the county's airport system.

Reviewing comparable airports and the strategic goals for MWC, the following organizational structure is recommended for MWC.

Airport Manager

The airport manager will carry out all strategic initiatives set by the airport director and the county, including:

- Examine and develop strategies to increase the MWC's revenues and achieve economic sustainability
- Maximize the economic development opportunities around the MWC footprint
- Create new strategies to expand market segments with FBO and corporate clients
- Assist in developing effective marketing initiatives to promote the improved airfield operations
- Develop business development and marketing initiatives to expand other nonaviation land-use leases
- Review and track progress of all business development and marketing initiatives and report findings to airport director and county
- Ensure that MWC is successful in meeting the business development and marketing objectives outlined in the business plan

Administrative Assistant

The administrative assistant will receive direction from the airport manager and be expected to perform various administrative duties, including:

- Prepare and edit correspondence, communications, presentations and other documents
- Manage and maintain airport manager's schedule, appointments and travel arrangements
- Full administrative coordination for all service and marketing initiatives
- Provide customer service and staff support for the airport manager, as needed
- Coordinate and facilitate all public relations events and external communications

Maintenance Workers (two full time and one part time)

Responsibilities of the maintenance workers include:

- Timely removal of all snow from the airfield and landside
- Oversight of the maintenance requirements throughout MWC
- Coordination of all maintenance-related activities at MWC
- Perform airfield inspections and document all discrepancies and prepare appropriate follow-up

Business Plan

- Perform hangar inspections as appropriate
- Perform upkeep and replacement of all landside signage

Staff at MKE will provide support for the remaining key functional areas of MKE: finance, information technology and special projects, planning and development, operations and security, all reporting to their respective deputy director at MKE.

The implementation of the proposed organization should be phased in accordance with the strategic objectives outlined in the business plan. Therefore, it is recommended that the new organization be implemented as follows:

- Airport manager: by first quarter 2018
- Administrative assistant: by first quarter 2018

The maintenance staff position would remain the same, but with the airport manager position having a role in prioritizing work for the staff. The airport manager position for MWC is anticipated to be initiated as a general aviation manager position, with this position being responsible for general aviation at MWC and MKE. As operations and activity at MWC grow, the position will evolve to focus more on MWC.

For the airport manager to be most efficient, administrative support to carry out tasks is recommended via the administrative assistance. If current administrative staff have the capacity, this capacity could initially be supported from MKE, but ideally would move to MWC, especially once the new terminal that would contain administrative office space is developed.

9.3 Other Best Practices

In addition to the MWC organization structure, the following best practice recommendations have been identified.

Operational

- Implement operational and environmental sustainability practices to help reduce capital asset life-cycle costs and operating costs
- Utilize “green” technology (where available) to reduce energy costs. These would include projects such as energy renewal to take advantage of newer, more efficient systems.
- Review and update rental rates, fees and charges schedules controlled by the airport to ensure that the airport has not priced itself above or below the market. This would include the fuel flowage fee as well as rates for future leases and ground rental.
- Implement a stakeholder committee structure on a scheduled basis that will affect continual improvement in safety, security and operational continuity
- Update airport rules and regulations and minimum standards so that as activity increases, these guidance documents are in place
- Develop building standards to provide a quality and uniform look for new hangar development

Business Practices

One of the challenges identified during the business planning process was a general lack of awareness of the facilities and services offered at MWC. The airport staff should pursue all opportunities to “get the word out” about MWC.

- Partner with private enterprises to attract new businesses to the airport
- Partner with other public agencies and institutions to attract new activity to the airport
- Maintain a good relationship with existing and transient clients through regular communications, transparency regarding rates and charges and understanding the client’s concept of value and service

Marketing

Using the rebranding and marketing framework identified in **Section 8.0**, it will be important for the county, through the new general aviation manager, to partner with the FBO to promote MWC. While the county should have the lead in developing the MWC brand and establishing brand standards, there is an opportunity to work cooperatively with the FBO to market MWC with the following types of strategies. This partnership will be particularly important until the FBO generates revenue sufficient to fund its own programs.

- Offer incentives for corporate-aviation activity, such as discounted fuel and hangar rates through FBO
- Market the airport to specific clientele
- Brand the airport to identify and market unique qualities to aircraft owners, businesses and the public (county and FBO)
- Promote the airport by advertising at national, regional and local conferences (county)
- Conduct an economic impact study of MWC to help quantify value to community (county)

The airport staff have already started the marketing process. With the roots of the Experimental Aircraft Association (EAA) at MWC, MWC was promoted at the EAA AirVenture, a weeklong fly-in convention at Oshkosh, Wisconsin, attended by all facets of general aviation, from experimental aircraft to business jets.

9.4 20-Year Profit/Loss Pro Forma

To identify how the administrative and operations best practices could impact the bottom line, an operational 20-year profit/loss pro forma has been prepared. Because the Milwaukee County’s airport system is part of county governance, coordination with other county departments occurred to establish a set of assumptions upon which the pro forma is built.

Table 9.2 Pro Forma Expense Assumptions

EXPENSES

Personal Services:

<u>Account #</u>	<u>Note</u>
5199:	(a) FY 2019 includes \$30,000 increase to cover salaries for part-time airport manager and part-time administrative assistant (b) FY 2020–21 include annual 2% increase FY 2022 includes \$25,000 increase to cover salaries for full-time airport manager and full-time administrative assistant FY 2023–37 include annual 2% increase in salaries/wages
5201:	(a) FY 2018–22: overtime remains at \$25,008 annually (b) FY 2023–37: overtime increases by 5% every five years
5312:	FY 2019–37: Social Security taxes calculated at 10% of salaries/wages <i>(based on FY 2018 requested budget)</i>
5407:	FY 2018–37: OPEB liability remains at \$19,062.96
5420:	FY 2019–37: employee health care is calculated at 32% of salaries/wages <i>(based on FY 2018 requested budget)</i>
5421:	FY 2019–37: employee pension is calculated at 18.5% of salaries/wages <i>(based on FY 2018 requested budget)</i>
5422:	(a) FY 2018–22: legacy health care remains at \$17,002 annually (b) FY 2023–37: legacy health care increases by 5% every five years
5423:	(a) FY 2018–22: legacy pension remains at \$21,345 annually (b) FY 2023–37: legacy pension increases by 5% every five years

Services:

<u>Account #</u>	<u>Note</u>
6326:	FY 2019–37: electricity cost increases 5% annually
6327:	FY 2019–37: natural gas cost increases 5% annually
6329:	FY 2019–37: telephone and telephone outside vendor cost increases 5% annually
6331:	FY 2019–37: water cost increases 5% annually

Debt and Depreciation:

<u>Account #</u>	<u>Note</u>
8010:	FY 2018–35: depreciation – system remains at \$102,638 annually
8011:	FY 2018–35: depreciation – land improvements based on 20 years depreciation
8012:	FY 2018–35: Depreciation – building and structure based on 10 years for pavement rehabilitation, 20 years for new pavements and 40 years for buildings

Source: Compass Solutions, December 2017.

Table 9.3. Pro Forma Revenue Assumptions

<u>Account #</u>	<u>Note</u>
3503:	FY 2019–37: fuel and oil revenues increase 10% annually (<i>with a combination of increasing fuel and oil volumes sold and increased flowage fees</i>)
3560:	FY 2019–37: utility resale and reimbursements revenue increases 5% annually
3603:	(a) FY 2020: Addition of new 8,000 sq. ft. terminal building with restaurant (b) The rental rate for the terminal building averages \$2/sq. ft./month (c) FY 2021–37: revenues increase 2% annually
3606:	FY 2019–37: hangar land rental revenues increase 2% annually
3608:	a) FY 2019: lease park-and-ride lot (2.3 acres, or 100,188 sq. ft.) for commercial use at a rate of \$.025/sq. ft./year (b) FY 2019 revenue equals \$25,047 (c) Rent increases by 2% annually thereafter
3649:	FY 2019–37: other rental income increases 2% annually
4074:	FY 2018–37: FBO rent is increased by 2% annual CPI escalation

Source: Compass Solutions, July 2017.

Table 9.4 is the 20-year profit/loss pro forma for MWC. This pro forma indicates that while improvements can be made in the revenue generated at MWC, as part of the county airport system, to fulfill its reliever role, MWC will continue to need financial support from the airport system that is generated by aviation and aviation-related user fees.

9.5 Development Plan

To maximize the value of MWC for the community, it is important to establish a comprehensive development plan for aviation and nonaeronautical property. The development plan includes best practices for property development process, procedures, internal staffing requirements and professional skills necessary to be successful. The plan should also identify Milwaukee County’s policy consideration regarding implementation of a property development plan.

The plan will assist the airport staff in identifying additional revenue-generating opportunities using available and surplus land while maintaining land for expansion of MWC. The plan should be consistent with the county’s objectives to:

- Inventory MWC facilities and conditions
- Support the development of compatible land uses at MWC
- Identify aviation and nonaeronautical revenue-generation opportunities

Additionally, the plan needs to be consistent with the broad master planning goals set forth by the FAA in Advisory Circular (AC) 150/5070-6B, Airport Master Plans, specifically to provide an effective graphic representation of the development of MWC and anticipated land uses in the vicinity.

Airport Development Guidance Criteria

The United States government and the FAA have established various guidance criteria and regulatory frameworks related to airport property and development. Reference documents for the plan to ensure cohesiveness with federal criteria include:

FAA Development Regulations

The FAA provides information to advise airports on key issues that impact operations and functions, including:

- Noise: FAA AC 150/5020-1, Noise Control and Compatibility Planning for Airports, provides guidance for the preparation of noise exposure maps and airport noise compatibility programs
- Height: Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, regulates the height restrictions surrounding airports. These restrictions are in place to ensure the safety of pilots, passengers, cargo and crew during the takeoff, landing and enroute phases of flight. It is imperative that these surfaces be maintained to promote safety at and around the airport. These restrictions should be incorporated into local zoning ordinances to protect the airport's airspace.
- Land uses: FAA AC 150/5100-17, Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, provides guidance for airports developed under the AIP to meet the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the regulations of the Office of the Secretary of Transportation.

Development Options

The plan provides specific options for the development of MWC land. It also identifies opportunities and constraints associated with the development. Using clearly defined objectives established by the county, recommendations were generated to allow the airport staff and county to make informed decisions on developing the land.

As described in previous sections of this report, the evaluation process was undertaken in three phases:

- Data collection and assessment (see [Section 3.0](#))
- Preparation of alternative land development options and selection of a preferred development approach (see [Section 6.0](#))
- Generation of a recommended plan of development (see [Section 10.0](#))

With the east-side terminal area identified as the preferred new terminal building location, the land on the east side of MWC should be dedicated to aviation use. Thus, other areas of the airport were reviewed for nonaeronautical development.

The park-and-ride lot adjacent to the north-side terminal area was identified as the most appropriate location to consider nonaeronautical development, as shown in **Figure 6.24**. In order to use this area

for aviation use, a taxiway extension would be required. Investment in taxiways on the east side are expected to yield more development potential. Thus, the park-and-ride lot would not have airfield access. This park-and-ride lot and adjacent roadway frontage north of the lot on airport property is approximately 2.3 acres in size. With frontage along Appleton Avenue, this would be an attractive parcel for development.

It is anticipated this area may be considered for a mixed-use offering of office/business/commercial development.

Development Best Practices

In order to properly market and develop nonaeronautical property, the county and the airport division must make some fundamental policy decisions that will dictate the direction to be followed. These policy decisions should be in alignment with standing county policy regarding the development of county-owned property. These decisions should include, at a minimum:

- A broker/master developer/agent policy
- Leasing vs. fee simple ownership policy
- Leasing constraints as they pertain to FAA property encumbrances
- Public-private partnership direction to include caps on county investment and return-on-investment goals
- Direction on internal, (county) program management vs. external (private) program management

While the development of MWC property will enhance its revenues, it may also represent a major expense and, if not managed properly, a source of significant problems. If the county chooses to manage the property development program internally with its own resources, the following program manager attributes would be required:

- Exceptional communication and organizational skills
- Detail-oriented and accurate, especially with numbers
- Ability to work under pressure
- Self-motivated and self-directed
- Exemplary time-management skills

The program manager should also be able to work with staff in solving problems and take direction and function as part of a team.

At the outset, the program manager should work closely with county counsel to structure leases that minimize the common risks, liabilities, ambiguities and pitfalls common on development projects. Next, prepare and issue a clear and detailed request for proposal (RFP) for selection of a developer or lessee. The RFP should specify the available property as well as the terms and conditions of the lease to which the developer or lessee must adhere. Misunderstandings can be avoided concerning development rights, development options and restrictions.

Leases should specify all federal regulations related to the development of airport properties. Insurance provisions must be clear, and the lessee's insurance certificate should ensure that full coverage is in place for general and employer liability, professional liability, property losses and

workers' compensation. The program manager should anticipate problems to prevent unnecessary problems, delays, disputes and costs and maximize MWC's property development goals.

A successful aviation and nonaeronautical development program will enhance MWC's revenue generation and help make MWC more self-sufficient.

9.6 Key Performance Indicators

Based on the theory, "if you can measure it, you can manage it," the establishment of five to ten key performance indicators (KPIs) is recommended. The following KPIs are recommended as a starting point. When the airport manager position is filled, the list of potential KPIs included in [Appendix I](#) should be reviewed to determine what additional indicators should be used.

- Monthly fuel flow
- Average monthly fuel charge per ticket (Indicates number of aircraft and size of purchase. The goal is to attract more and larger aircraft so the number of tickets and average quantity of fuel per ticket increases.)
- Annual operations by type
- Website and social media inquiries/followers
- Annual operating expense by type, e.g., grass cutting, snow removal
- Annual building maintenance expense tracked by building number
- Number of emergency repairs
- Grants received per year (grant dollars impact local dollar investment)

10.0 Recommendations and Short-Term Implementation Plan

Through this business planning process, the strategic initiatives as described in Section 2.0 have been identified to transform MWC into the premier general aviation airport for southeast Wisconsin. The capital development plan to develop the new physical assets, with an asset management plan, is addressed in [Section 7.0](#). This section takes facility improvement recommendations and merges them with the major administrative and operational strategic recommendations of staffing MWC with a manager to champion and promote the airport ([Section 9.2](#)), rebranding/renaming MWC and establishing a marketing plan ([Section 8.0](#)), partnering with the FBO ([Section 5.12](#)), preparing a development plan ([Section 9.5](#)) and using key performance indicators ([Section 9.6](#)) to provide an implementation plan.

This implementation plan takes into consideration lead time and the interrelationship between projects. **Table 10.1** identified the tasks over the next five to seven years to implement the strategic initiatives identified in [Section 2.0](#). Implementation of this plan must stay flexible to take advantage of grant opportunities or delays in agency reviews. Therefore, the tasks and any associated enabling action are identified.

Table 10.1. Short-Term Implementation Plan		
Immediately		
Task	Enabling Action	Associated Strategic Initiative
Rename airport	Local approval, submit 7480 form to FAA	Rebrand/rename MWC
Request instrument approach to Runway 33R	Online application, approach survey, MKE tower letter of support	Improve instrument approaches
Categorical exclusion for Runway 33R approach	Application for approach	Improve instrument approaches
Submit revised ALP for FAA airspace approval of proposed development	Selection of preferred development	Develop modern terminal, increase runway length, improve instrument approaches
Pursue grants for terminal and runway	Revised capital improvement plan/funding request	Develop modern terminal, increase runway length
Link MKE and MWC websites	None	Promote MWC as corporate facility

Business Plan

Year 1 (2018)		
Task	Enabling Action	Associated Strategic Initiative
Hire general aviation manager, provide administrative support	Funding of position	Staff MWC with a manager to promote and champion MWC
Create branding work plan	Selection of name, staffing/consultant	Rebrand/rename MWC
Create marketing and outreach plan	Staffing/consultant	Promote MWC
Terminal area environmental documentation	Funding of study	Develop modern terminal
Initiate new terminal design	Funding of study	Develop modern terminal
Environmental assessment for realigned runway program	FAA airspace approval of ALP	Increase runway length
Establish working partnership with FBO, with standing meetings	Hire general aviation manager	Staff MWC with a manager
Establish stakeholder committee, with standing meetings	Hire general aviation manager	Staff MWC with a manager
Update minimum standards and rules and regulations	Hire general aviation manager	Staff MWC with a manager
Facility maintenance including T-hangar E/F roof and K/L north repairs	Per FAC recommendations	Strategically manage existing assets
Start tracking KPIs	Establish desired KPIs	Improve financial self-sufficiency
Negotiate new corporate hangar lease (Ron Whitt hangar)	Lease expiration, asset transfer to airport	Improve financial self-sufficiency

Year 2 (2019)		
Task	Enabling Action	Associated Strategic Initiative
Initiate yearly customer service survey	Hire general aviation manager	Promote MWC (in partnership with FBO)
Unveil new MWC name	FAA publication date	Rename/rebrand MWC
Marketing campaign to launch new name	New brand and brand standards, marketing plan	Promote MWC
Install new signage	Unveiling of new name	Rename/rebrand
Rehabilitate/expand east-side apron	Environmental approval and funding	Develop modern terminal
Install security fencing on east side	Environmental approval and funding	Develop modern terminal
Realign/rehabilitate east-side entrance road	Environmental approval and funding	Develop modern terminal
Establish land use/development plan	Select development manager	Improve financial self-sufficiency
Land release for nonaeronautical land use	ALP approval, development plan	Improvement financial self-sufficiency
Measure marketing plan objectives	Initiation of marketing plan	Promote MWC
Facility maintenance	Per FAC recommendations	Strategically manage existing assets
Continue standing meetings with FBO and stakeholders	Working relationship with FBO, establishment of stakeholder committee	Promote MWC
Review KPIs and refine objectives	Institution of KPIs	Improve financial self-sufficiency, promote MWC

Business Plan

Year 3 (2020)		
Task	Enabling Action	Associated Strategic Initiative
Yearly customer service survey	Annual survey	Promote MWC (in partnership with FBO)
Construct east-side terminal building and auto parking	Environmental approval and funding	Develop modern terminal
Market east-side hangar sites and nonaeronautical use	Development plan, marketing plan, hiring of general aviation manager	Improve financial self-sufficiency
Design realigned Runway 16L/34R	Environmental approval and funding	Increase runway length
Pursue corporate support for community space	East-side terminal area develop, hiring of general aviation manager	Promote MWC
Release sheriff's hangar for aviation use	Expiration of lease	Improve financial self-sufficiency
Facility maintenance	Per FAC recommendations	Strategically manage existing assets
Continue marketing/outreach and measure objectives	Measurement of previous objectives with refinements as needed	Promote MWC
Continue standing meetings with FBO and stakeholders	Working relationship with FBO, establishment of stakeholder committee	Promote MWC
Review KPIs and refine objectives	Institution of KPIs	Improve financial self-sufficiency, promote MWC
Year 4 (2021)		
Construct realigned Runway 16L/34R, replace turf runway	Funding	Increase runway length
RPZ protection over old Pick 'n Save, if store available for purchase or at least an aviation easement	Store vacant and available funding	Increase runway length
Market improved MWC facilities to attract development	New terminal and new runway construction	Improvement financial self-sufficiency
Facility maintenance	Per FAC recommendations	Strategically manage existing assets
Continue marketing/outreach and measure objectives	Measurement of previous objectives with refinements as needed	Promote MWC
Continue standing meetings with FBO and stakeholders	Working relationship with FBO, establishment of stakeholder committee	Promote MWC
Review KPIs and refine objectives	Institution of KPIs	Improve financial self-sufficiency, promote MWC

Year 5		
Task	Enabling Action	Associated Strategic Initiative
Yearly customer service survey	Annual survey	Promote MWC (in partnership with FBO)
Construct realigned parallel Taxiway B and connectors	Funding	Increase runway length
Facility maintenance	Per FCA recommendations	Strategically manage existing assets
Continue marketing/outreach and measure objectives	Measurement of previous objectives with refinements as needed	Promote MWC
Continue standing meetings with FBO and stakeholders	Working relationship with FBO, establishment of stakeholder committee	Promote MWC
Evaluate airport rates and charges upon completion of runway	Completion of new runway program	Improve financial self-sufficiency
Review KPIs and refine objectives	Institution of KPIs	Improve financial self-sufficiency, promote MWC
Review asset management plan and make longer-term investment decisions	Based on new demand forecast with completed runway date	Improve financial self-sufficiency

Source: Hanson Professional Services Inc., 2017.

11.0 Updated Airport Layout Plan Drawings

An airport layout plan (ALP) drawing set was prepared as part of the 2008 master plan. The realigned runway and east-side terminal area are changes to the existing ALP. The instrument approach to Runway 33R is also a change. When an ALP is prepared, each sheet includes a revision box. To appropriately reflect the proposed development at MWC, the existing ALP is being revised based on the preferred development identified in this business plan.

Existing facilities on the ALP that are not proposed to be modified will remain unchanged. Because Runway 16L/34R and its associated turf parallel runway are a new runway alignment, some new sheets are being added to the ALP set for clarity. The existing ALP includes only one sheet that shows the existing and future layout. With a proposed significant change between existing and future runway configuration, the airport layout drawing (ALD) is being modified to show only existing conditions, and a new future ALD is being added. Also, for the drawings that show runway plan and profile (approach) information and the runway profile, because Runway 16L/34R is a new alignment, a new sheet is being added for the new alignment for the paved and turf runway. Any sheet that was only ultimate conditions on Runway 15L/33R, the runway that is being replaced, will be dropped from the ALP drawing set.

The revised ALP set is included in [Appendix J](#).

The revised ALP will be submitted to the FAA for airspace review. The airspace review process will examine the proposed development in the context of the aviation system to provide airspace approval for the proposed development. Airspace approval and environmental approval of the proposed development are key steps toward eligibility for grants to implement the proposed development.