Lawrence J. TIMMERMAN AIRPORT

PRELIMINARY ENVIRONMENTAL ASSESSMENT FOR RUNWAY EXTENSION

NOVEMBER 2011

PRELIMINARY ENVIRONMENTAL ASSESSMENT
FOR

PROPOSED AIRPORT DEVELOPMENT
AT

Lawrence J. Timmerman Airport

Milwaukee, Wisconsin

prepared by

Coffman Associates, Inc.

November 2011

under contract with

MILWAUKEE COUNTY

Milwaukee County, as airport sponsor, proposes a 300-foot extension to each end of Runway 15L-33R and associated parallel taxiways which will increase runway length from 4,106 feet to 4,706 feet. The proposed runway and taxiway extension projects will occur entirely on existing airport property and will provide safer operating conditions for existing airport users.

Evidence of compliance with the National Environmental Policy Act is indicated by the Wisconsin Department of Transportation signature below.

Rebecca Burkl — 11/10/2011

WisDOT, Director
Bureau of Technical Services — Date

11-21-2011

WisDOT, Director
Bureau of Aeronautics — Date

TABLE OF CONTENTS

CONTENTS

LAWRENCE J. TIMMERMAN AIRPORT
Milwaukee, Wisconsin

Preliminary
ENVIRONMENTAL ASSESSMENT
For Proposed Airport Development

Chapter One
PURPOSE AND NEED

Chapter Two
ALTERNATIVES

Chapter Two (Continued)

Chapter Three
AFFECTED ENVIRONMENT

Chapter Four
ENVIRONMENTAL CONSEQUENCES AND MITIGATION

EXHIBITS

EXHIBITS (Continued)

Appendix I
GOVERNOR'S AIR AND WATER QUALITY CERTIFICATION

Chapter One

PURPOSE AND NEED

Chapter One
PURPOSE AND NEED

Lawrence J. Timmerman Airport (Timmerman Airport) is a general aviation public-use airport located on the northwest side of Milwaukee County. The Airport is located within the corporate limits of the City of Milwaukee, with several land parcels located within the corporate limits of Wauwatosa. Access to the Airport is provided from Appleton Avenue via Hampton Avenue/91st Street (Swan Road) or Silver Spring Drive. Interchanges along U.S. Highway 45 (Zoo Freeway) provide access onto Hampton Avenue or Silver Springs Drive. **Exhibit 1A** depicts the location of the Airport in its regional setting. Refer to Chapter Three for more information regarding the Airport's existing facilities and general location.

Timmerman Airport is owned, operated, and maintained by Milwaukee County. The Airport was originally constructed on the site in the late 1920s and was purchased by Milwaukee County in 1947. The Milwaukee County Board of Supervisors accepted Timmerman Airport's *Strategic Development and Airport Master Plan Study (Master Plan)* in February 2008. The Master Plan assesses the Airport's current and future role in the regional aviation system and provides guidance and direction regarding future airport development needs. The Master Plan recommends a 300-foot extension to each end of Runway 15L-33R and associated parallel taxiways which will increase the runway length from 4,106 feet to 4,706 feet. The proposed runway and taxiway extension projects will occur entirely on existing airport property and will provide safer operating conditions for existing airport users.

This Environmental Assessment (EA) will evaluate the proposed runway extension by first outlining the need for the airport improvements (Chapter One), followed by an evaluation of runway extension alternatives (Chapter Two), a discussion of the existing environmental resources surrounding the proposed development (Chapter Three), and conclude with a discussion of the potential environmental impacts of runway development on identified environmental resources and means to mitigate any potential negative environmental consequences (Chapter Four).

1.1 PURPOSE AND NEED FOR PROPOSED ACTION

The purpose of the airfield improvements identified on **Exhibit 1B** is to provide a runway length that meets the needs of existing general aviation operators of Timmerman Airport, as the current runway length of 4,106 feet does not meet the length requirement for "75 percent of the fleet at 60 percent useful load" on the "mean daily maximum temperature of the hottest month." Business jet aircraft, including some Cessna Citations, Beech jets, and Falcon jets within FAA's 75 percent grouping are currently able to use the airport, but with payloads of less than 60 percent. Additionally, several turbine aircraft that were based at Timmerman Airport during preparation of the airport's Strategic Development and Master Plan Study, approved by the Milwaukee County Board of Supervisors in February 2008, have since relocated to General Mitchell International Airport. These aircraft include a Cessna Citation Excel and a Hawker Beechcraft King Air 200. Based on a review of FAA instrument flight rule operations conducted as part of the Strategic Development and Master Plan Study, aircraft in the "jet" classification accounted for more than 300 operations for a sixth month period. Following the relocation of the previously discussed aircraft, jet operations at Timmerman Airport have decreased.

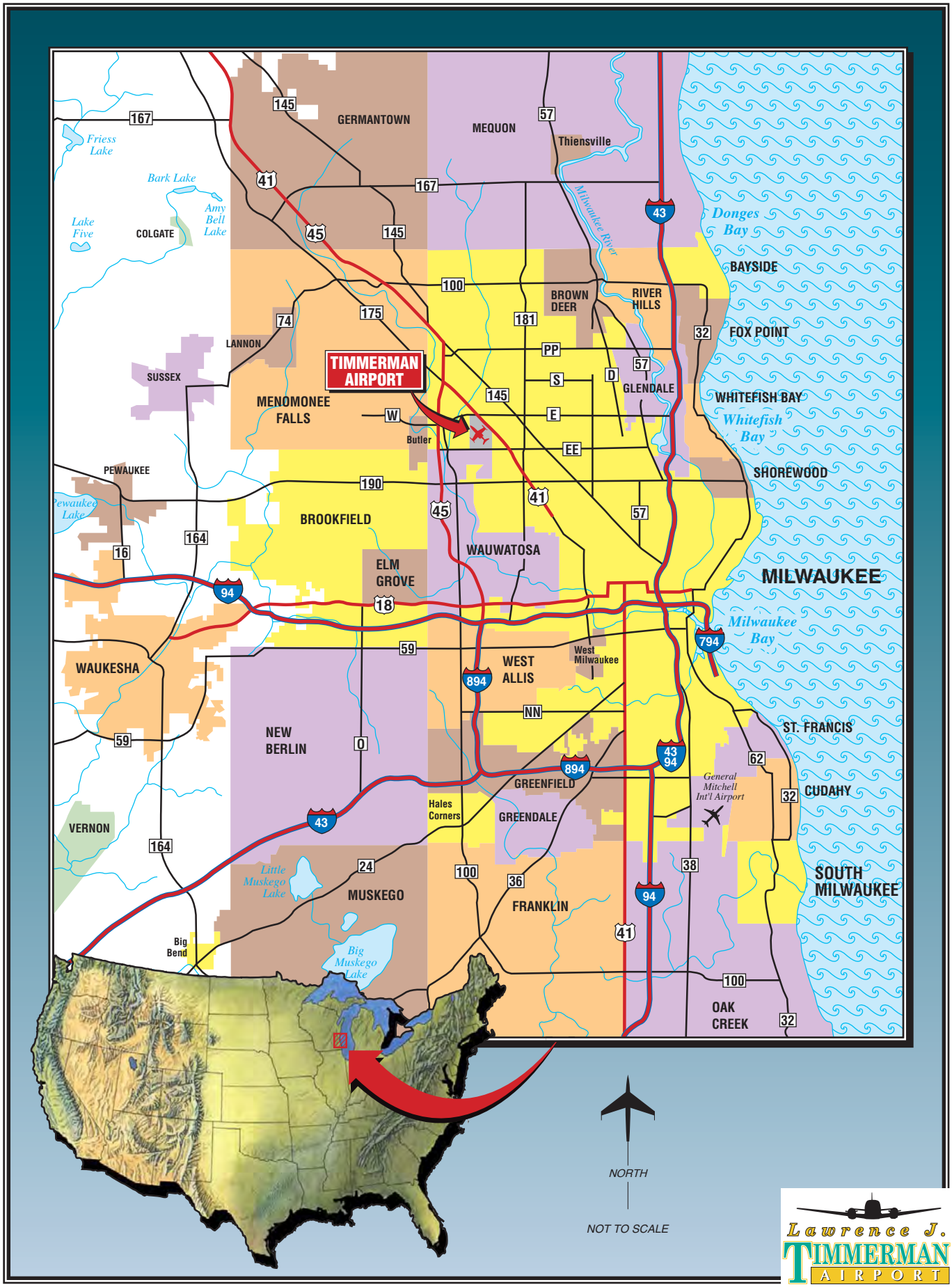
The need for the improvements is to accommodate general aviation activity at Timmerman Airport that would otherwise use General Mitchell International Airport. The need is further based on Timmerman Airport's role within the *National Plan of Integrated Airport Systems (NPIAS) 2011-2015* as a reliever service airport to General Mitchell International Airport. Reliever airports have been identified and improved in metropolitan areas to provide pilots with an attractive alternative to more congested airports and to provide general aviation access to the surrounding area.

The Federal Aviation Administration (FAA) Advisory Circular (AC) 5325-4B, *Runway Length Requirements for Airport Design* states that general aviation airports have witnessed an increase in the use of the primary runway by privately owned business jets. Over the years, business jets have proved themselves to be a tremendous asset to corporations by satisfying their executive needs for flexibility in scheduling, speed, and privacy. These aircraft have used Timmerman Airport on an on-going basis for many years. The recommended runway length of 4,700 feet is based on performance curves provided in AC 5325-4B, which are developed from FAA-approved airplane flight manuals in accordance with the provisions of 14 CFR Part 25, *Airworthiness Standards: Transport Category Airplanes*, and Part 91, *General Operating and Flight Rules*. More specifically, the performance curve (Figure 3-1 in AC 5325-4B) is based on 75 percent of the general aviation fleet at 60 percent useful load, operating on the mean daily maximum temperature of the hottest month.

The airport is only planned for operations that will include turbojet powered airplanes weighing up to 15,900 pounds, with wingspans less than 79 feet and approach speeds less than 121 knots, which FAA defines as a B-II airport. The recommended runway length requirement was obtained using the local design temperature of 85.1 degrees Fahrenheit and the local airfield elevation of 745 feet mean sea level, consistent with the methodology outlined in AC 5325-4B.[1] However, the length required for 100 percent of the general aviation fleet (non turbojet aircraft with 10+ seats) was calculated (consistent with the AC's recommended methodology) to verify that the percentage of general aviation fleet under consideration did not require more than 4,700 feet of runway length. This analysis confirmed that 4,700 feet is the proper runway length for planning purposes to serve B-II aircraft.

[1] Climatography of the United States No. 81, Monthly Normals of Temperature, Precipitation, and Heating and Cooling Days, 1971-2000, Wisconsin: Milwaukee, Mt. Mary College Station.
http://lwf.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html

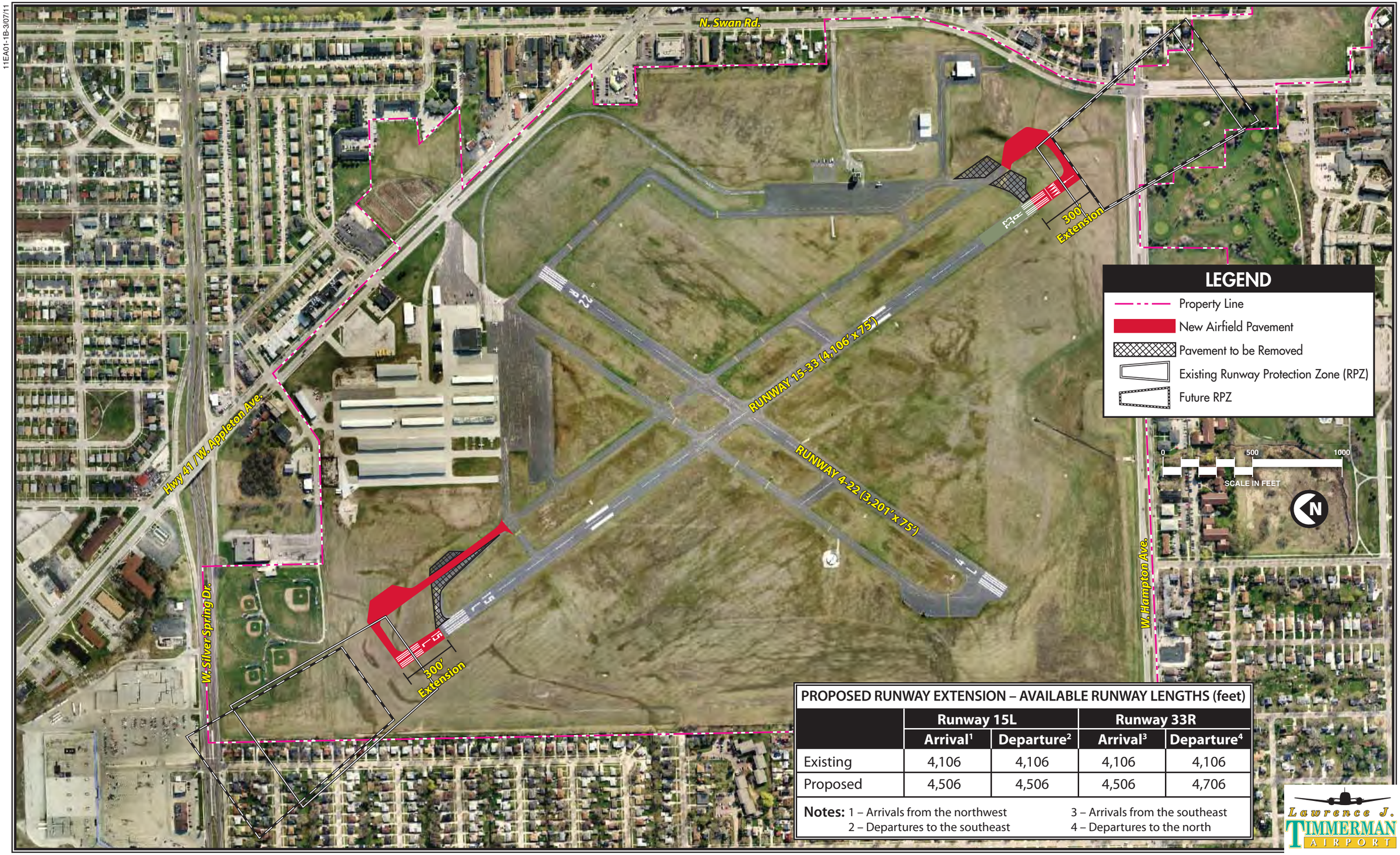
97MP07-A-2/27/11



Lawrence J. TIMMERMAN AIRPORT

Exhibit 1A
LOCATION MAP

11EA01-1B-3/07/11



PROPOSED RUNWAY EXTENSION – AVAILABLE RUNWAY LENGTHS (feet)

	Runway 15L		Runway 33R	
	Arrival[1]	Departure[2]	Arrival[3]	Departure[4]
Existing	4,106	4,106	4,106	4,106
Proposed	4,506	4,506	4,506	4,706

Notes: 1 – Arrivals from the northwest
2 – Departures to the southeast
3 – Arrivals from the southeast
4 – Departures to the north

Laurence J. TIMMERMAN AIRPORT

Exhibit 1B
PROPOSED ACTION

1.1.1 Aviation Forecast

In the most recent twelve (12) months of activity, the Airport recorded a total of 32,047 operations (an operation is defined as one take-off or one landing). The existing level of operations at Timmerman Airport has declined by 40 percent since the preparation of the *Master Plan* in 2006-2007. The level of business jet activity has declined by similar levels over the same time period. According to FAA's December 2010 *Terminal Area Forecast* (TAF), operations in the future are forecast to increase by 0.8 percent annually. This growth will largely occur within the turbine aircraft sector based on FAA's near term projections for aviation activity. Additionally, this is supported by new airplane shipment records maintained by the General Aviation Manufacturers Association, which indicate that in the second quarter of 2011, 50 percent of new aircraft delivered to customers were in the turbine category.

The TAF base year operations for the Timmerman Airport forecast, however, are set at 29,474. This is approximately 9 percent lower than 2010 airport traffic control tower (ATCT) operation counts. To correct for the low base year, actual 2010/2011 operation levels were used and the 0.8 percent growth rate was applied. This equates to a 2015 operation forecast of 33,432 and 34,858 by 2020 without the project. The level of business jet activity is projected to increase from a current level of 295 annual operations to 570 annual operations by 2020 (with the Proposed Action). **Table 1A** summarizes the operation forecast for Timmerman Airport.

As stated in FAA Order 5050.4B, forecasts used in airport environmental analyses should be consistent with the *Terminal Area Forecasts* (TAF). This is described as being within 10 percent of the TAF for the 5-year analytical period and within 15 percent for the 10-year analytical period. The Timmerman Airport operations forecast for both Proposed Action and No Action scenarios are within the 5050.4B tolerances.

TABLE 1A
Operations Forecast

	2011[1] Existing	2015[2] No Action	2015[2,3] Action	2020[2] No Action	2020[2,3] Action
Itinerant Operations					
General Aviation	15,355	16,043	16,148	16,707	17,412
Military	84	75	75	75	75
Total Itinerant	15,440	16,118	16,223	16,782	17,487
Local Operations					
General Aviation	16,476	17,205	17,205	17,965	17,965
Military	132	110	110	110	110
Total Local	16,608	17,315	17,315	18,075	18,075
Total	32,047	33,432	33,538	34,858	35,563

[1] Timmerman Airport Traffic Control Tower from April 2010 through March 2011 (3% Nighttime Adjustment to itinerant GA)
[2] FAA *Terminal Area Forecasts* December 2010
[3] Coffman Associates Analysis

Note: As stated in FAA Order 5050.4B, forecasts used in airport environmental analyses should be consistent with the *Terminal Area Forecasts* (TAF). This is described as being within 10 percent of the TAF for the 5-year analytical period and within 15 percent for the 10-year analytical period. The forecast operations are within the 5050.4B tolerances.
Source: Coffman Associates analysis.

1.2 PROPOSED ACTION

Milwaukee County is proposing improvements to Timmerman Airport to provide adequate length for existing general aviation operators. As previously discussed, the current length of 4,106 feet is less than the recommended length outlined in FAA AC 5325-4B, *Runway Length Requirements for Airport Design*, based on departure length requirements for 75 percent of the fleet at 60 percent useful load. The additional length will allow existing users to handle higher payloads (e.g., passengers and/or fuel) on warmer days and operate in conformance with FAA-approved flight manuals. The Proposed Action will not allow an expanded classification of aircraft to use the facility. The development concept as described in the following paragraphs is based upon "Alternative E" in the recently completed Master Plan. The various components of the proposed development concept (Proposed Action) are depicted on **Exhibit 1B**.

The Proposed Action takes into account the various development constraints located beyond the existing runway ends and provides additional runway length while maintaining, to the fullest feasible extent, additional runway takeoff and landing lengths. Development constraints beyond the runway ends include steep slopes on the northwest end and navigational aid equipment and perimeter fencing on the southeast end of the runway. The Proposed Action maximizes the runway length and safety area while minimizing impacts and not requiring acquisition of additional land.

To maintain as much of the available takeoff and landing lengths as possible, declared distances were employed. The FAA defines declared distances in FAA AC 5300-13, *Airport Design*, Chapter 1, as the distances the airport owner declares available for the airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements. Each of these calculations will vary depending upon the requirement to maintain runway safety areas on approach and departure ends of the runway and potential objects in the landing approach. The existing runway system does not employ the use of declared distances. **Exhibit 1B** depicts the resultant runway distances available for takeoff and landing operations. The Proposed Action alternative results in the airport obtaining adequate length on the primary runway to handle a higher percentage of general aviation aircraft.

1.3 REQUESTED REGULATORY ACTION

The requested approval action includes unconditional approval of the portions of the sponsor's airport layout plan (ALP) that include the proposed runway extension and airfield improvements, revision of approach and departure procedures based upon the extended runway ends, and approval of further processing of an application for state and federal assistance to implement those Airport Improvement Program (AIP) eligible projects.

1.4 DOCUMENTATION REQUIREMENTS AND STANDARDS

This EA has been prepared in accordance with the requirements of Section 102(2) (c) of the *National Environmental Policy Act (NEPA) of 1969* (PL 91-190, 42 USC 4321 et. seq.) and Title 49, Chapter 471, of the U.S. Code of Federal Regulations. Through NEPA, Congress requires federal agencies to consider the environmental effects of the "Proposed Action" and "reasonable alternatives", including the "No Action" alternatives per 40 CFR 1502.14.

This EA incorporates by reference all, or portions of, other technical documents that are a matter of public record specific to the proposed runway extension. These documents, including the 2008 *Strategic Development and Airport Master Plan*, either relate to the Proposed Action alternative or provide additional information concerning the environmental setting of the Proposed Action.

1.5 IMPLEMENTATION TIMEFRAME

All items discussed under the Proposed Action and illustrated on **Exhibit 1B** are expected to be developed within the next three years. The development schedule is outlined in **Table 1B**.

TABLE 1B
Schedule of Proposed Improvements
Lawrence J. Timmerman Airport

	Start Date	End Date
Environmental Assessment and 25% Design	February 2011	December 2011
Construction Runway 33R Approach End	May 2013	October 2013
Construction Runway 15L Approach End	May 2014	October 2014

Chapter Two

ALTERNATIVES

Chapter Two ALTERNATIVES

The objective of this alternatives analysis is to identify reasonable alternatives which accommodate the purpose and need identified in Chapter One. Once identified, each alternative is evaluated in terms of its ability to satisfy the objectives of the purpose and need for the project and its potential for an effect on the surrounding environment. The results of this evaluation determine which alternatives will be considered reasonable, thereby warranting further consideration. Reasonable alternatives for the *National Environmental Policy Act* (NEPA) purposes include ways to achieve the stated purpose and need that are within the sponsor's or FAA's purview and those alternatives outside FAA's jurisdiction.

Under the *National Environmental Policy Act (NEPA) of 1969*, as stated in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, the FAA allows alternatives to be eliminated from further consideration when they do not fulfill the purpose and need for the action or cannot be reasonably implemented. In general, if an alternative's cost would likely exceed the benefits or when the environmental consequences are excessive, particularly when compared to other alternatives which do meet the purpose and need, that alternative can be eliminated from further consideration. Alternatives that do not meet the purpose and need stated in Chapter One, or are deemed to be not reasonable, will be eliminated and will not be discussed further in this Environmental Assessment (EA), with the exception of the No Action alternative. The *Council on Environmental Quality (CEQ),* NEPA regulations at 40 CFR 1502.14(c) require the evaluation of the No Action alternative, regardless of whether it meets the stated purpose and need or is reasonable to implement.

2.1 ALTERNATIVES CONSIDERED BUT ELIMINATED

Milwaukee County undertook an evaluation of alternatives for achieving greater runway length at Lawrence J. Timmerman Airport during preparation of the *Strategic Development and Airport Master Plan Study*, a planning study which was accepted by Milwaukee County's Board of Supervisors on February 7,

2008. A number of alternatives were evaluated to determine if the added runway length could be achieved without relocating major roadways or residential properties which exist on all sides of the airport property.

Several alternatives were considered in the *Strategic Development and Airport Master Plan Study* for achieving additional runway length:

- Alternative A: Shifting the runway northeasterly to achieve greater length.
- Alternative B: Realigning the runway to achieve greater length.
- Alternative C: Adding pavement to each end of the existing runway to achieve greater length.
- Alternative D: Adding pavement to the southeast end of the runway to achieve greater length.

Preliminary development cost estimates were prepared for each of the alternatives and each of the alternatives were compared for benefits, constraints, and runway length provided in landing and takeoff modes. A summary of the alternatives is provided in **Exhibit 2A**.

The following alternatives were also considered, but were eliminated from further consideration:

Extension of Runway 4-22: Consideration was given to extending Runway 4-22 from 3,201 feet to 4,700 to provide additional length for existing airport users. Although this alternative would meet the purpose and need outlined in Chapter One, it was eliminated from further consideration as it would require property acquisition and relocation of portions of W. Hampton Road to the south of the airport and Appleton Avenue northeast of the airport to accommodate the pavement, runway safety areas, and object free areas. Based on these considerations and associated costs, this alternative will not receive additional consideration.

Extension of a runway at another airport within the region: Extending the runway at another airport within the southeast portion of the State of Wisconsin was initially considered as an alternative. This alternative was eliminated from further consideration as it does not meet the purpose and need identified in Chapter One which includes extending the runway at Lawrence J. Timmerman Airport to meet the needs of existing airport users.

Construction of another airport: Construction of another airport was initially considered as an alternative, but was eliminated from further analysis as it does not meet the purpose and need outlined in Chapter One. As previously discussed, the purpose of the project is to meet the needs of the existing users of Lawrence J. Timmerman Airport.

2.1.1 Alternative A– Shifting the Runway Northeasterly

Alternative A assumes that a new runway is shifted northeasterly and constructed over the alignment of Taxiway B, improving the approach to Runway 15L and pulling approach and departure surfaces away from residential areas on the west side of the airport. A new parallel taxiway is reflected at 240 feet from the runway centerline (per FAA design standards). The alternative reduces the itinerant ramp on the north and east sides of the airfield, but does not affect any existing hangars. The control tower becomes a penetration to the 14 CFR Part 77 transitional surface, but not the obstacle free zone. Runway safety and object free areas are maintained at each runway end. The localizer antenna will need to be relocated, or an offset approach established to Runway 15L. This alternative provides the opportunity

11EA01-2A-05/12/11

ALTERNATIVE A

Description: Shift runway to northeast

Approach: Shift Runway and parallel taxiway 240 ft. to northeast to provide added length and reduce impact to residential areas.

Benefits: Improves 15L approach and runway available; Moves RPZ off of homes - Northwest; Meets standard RSA and ROFA

Constraints: Costs, limits expansion of hangars - North; Impact to ball fields; Part 77 surfaces - Control Tower obstruction

Reason for Elimination: Cost and impact to other facilities

COST ESTIMATE:
$5.1 Million

RUNWAY AVAILABLE		
RUNWAY	TAKEOFF	LANDING
15L	4,400'	4,400'
33R	4,400'	4,400'

ALTERNATIVE B

Description: Realign Runway (16-34 orientation)

Approach: Reconstruct runway and parallel taxiway in new alignment to provide added length and reduce impact to adjacent residential areas.

Benefits: Improves 15L approach and runway available; Moves RPZ off of homes - Northwest; Meets standard RSA and ROFA

Constraints: Costs, limits expansion of hangars - North; Impact to ball fields

Reason for Elimination: Cost and impact to other facilities

COST ESTIMATE:
$4.6 Million

RUNWAY AVAILABLE		
RUNWAY	TAKEOFF	LANDING
15L	4,400'	4,400'
33R	4,400'	4,400'

ALTERNATIVE C

Description: Add pavement at each runway end (current alignment)

Approach: Extend pavement 300 ft. on northwest end of runway and 100 ft. on southeast end.

Benefits: Improves 15L Approach and Runway Available; Meets standard RSA and ROFA

Constraints: Places runway closer to residential - Northwest
Landing distance available limited by safety area

Reason for Elimination: Limited benefit provided

COST ESTIMATE:
$2.2 Million

RUNWAY AVAILABLE		
RUNWAY	TAKEOFF	LANDING
15L	4,500'	4,500'
33R	4,500'	4,500'

ALTERNATIVE D

Description: Add pavement only on southeast runway end

Approach: Add 300 ft. of pavement on southeast end of runway

Benefits: Improves 15L approach and runway available (limited)

Constraints: Takeoff distance only improves to the Northwest; Landing distance available limited by safety area; Requires use of declared distances

Reason for Elimination: Limited benefit provided

COST ESTIMATE:
$1.8 Million

RUNWAY AVAILABLE		
RUNWAY	TAKEOFF	LANDING
15L	4,200'	4,200'
33R	4,400'	4,200'

ALTERNATIVE E *(Proposed Action)*

Description: Add pavement at each runway end (hybrid of Alternatives C and D)

Approach: Add 300 ft. of pavement on each end of runway

Benefits: Improves 15L approach and runway available in both directions

Constraints: Places runway closer to residential - Northwest; Requires use of declared distances

Selected for Additional Evaluation

COST ESTIMATE:
$2.4 Million

RUNWAY AVAILABLE		
RUNWAY	TAKEOFF	LANDING
15L	4,500'	4,500'
33R	4,700'	4,500'

LEGEND

- Ultimate Pavement
- Object Free Area (OFA)
- Runway Protection Zone (RPZ)

RSA - Runway Safety Area
ROFA - Runway Object Free Area

Lawrence J. TIMMERMAN AIRPORT

Exhibit 2A
SUMMARY OF
ALTERNATIVES CONSIDERED

to add additional runway length on the northwest end, although any extension beyond 250 feet will require the relocation of two ball fields.

2.1.2 Alternative B – Realigning the Runway

Alternative B involves the construction of a new runway and parallel taxiway, but on a slightly different alignment (16-34). The southeast end of Runway 15L-33R remains at the same location, while the northwest end moves easterly to improve the approach to Runway 15L and pull approach and departure surfaces away from residential areas on the west side of the airport. The ball fields may need to be relocated, although the obstacle free area only extends over the southernmost field. While this alternative affects the itinerant ramp on the north side of the airfield, it will not affect the ramp on the east side and maintains greater separation with the control tower. The localizer will require realignment (but not relocation). By pivoting the runway into a new alignment, the existing turf runway in the northwest-southeast alignment (15R-33L) will also need to be realigned to remain parallel.

2.1.3 Alternative C – Pavement Extensions on Each End of the Runway

Alternative C involves the addition of pavement at each end of the existing runway to create greater takeoff and landing lengths. At each runway end, pavement has been extended, limited by the size of the object free area (OFA): 300 feet at the northwest end and 100 feet at the southeast end. The northwest end is limited by the perimeter fence and existing housing on the west side, while the southeast end is limited by the location of the localizer antenna and equipment building. Extension of a stop way offers no gain in useable pavement, since the OFA must be extended beyond the end of the stop way. A full-strength runway (with extended parallel taxiway) makes more economic sense than a stop way. However, extension of pavement to the northwest will be costly (because of dropping terrain) and places the runway closer to existing residential areas.

2.1.4 Alternative D – Pavement Extension on the Southeast End of the Runway

Alternative D extends pavement into the runway safety area (RSA) and OFA (of Runway 33R) on the southeast end of the runway to reduce the cost of an extension on the northwest end. However, the pavement will be limited in its use. A full 300 feet of runway and parallel taxiway extension has been shown on the southeast end of the runway, providing 4,400 feet for takeoff on Runway 33R. However, takeoff distance on Runway 15L will only increase to 4,200 feet since the RSA and OFA must be maintained at the runway end.

2.1.5 Alternatives Refinement

Following review of the preceding four alternatives with a Technical Advisory Committee during the preparation of the Master Plan, a hybrid Alternative (E) was added for comparative purposes. Alternative E combines elements of Alternatives C and D. The five alternatives were rated by the committee, with points assigned for first, second, and third choice. Alternative E was rated the highest and chosen by the committee as the preferred alternative. Alternative E consisted of 300-foot pavement extensions on each end of Runway 15L-33R, providing a total pavement length of 4,700 feet.

2.2 PROPOSED ACTION (ALTERNATIVE E)

The Proposed Action consists of 300-foot pavement extensions to each end of Runway 15L-33R and parallel taxiways, which will increase total pavement from 4,106 feet to 4,706 feet. The proposed runway and taxiway extension projects, shown on **Exhibit 2B**, will occur entirely on existing airport property and will provide safer operating conditions for existing airport users. Based on the preliminary engineering report included in **Appendix C**, the Proposed Action will require import of approximately 46,400 cubic yards of earthen material to support the runway extensions. Additionally, drainage improvements, including construction of two dry detention basins, will be required.

Anticipated environmental impacts resulting from implementation of this alternative include the following:

- Temporary noise, air quality, and water quality impacts during construction.
- Potential social impacts resulting from relocating the runway arrival and departure thresholds which results in the relocation of the runway protection zones (RPZs) over additional residences northwest and southeast of the airport.
- Potential social impacts resulting from relocation of existing airport lighting systems.

Statutory or regulatory requirements applicable to this alternative include the following:

- Modification of the airport's existing operation-related Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit to reflect the additional impervious surfaces at the airport and changes to the airport drainage.
- Compliance with WPDES construction activity permit.

2.3 NO ACTION ALTERNATIVE

The No Action alternative considers maintaining the airfield in its existing condition. The primary result of this alternative is the inability of the airfield to handle "75 percent of the fleet at 60 percent useful load" consistent with FAA-approved airplane flight manuals.

No statutory or regulatory requirements apply to this alternative.

The No Action alternative does not meet the identified purpose and need for the facility, as identified in Chapter One. While the No Action alternative does not meet the purpose and need, it is further analyzed with regard to its potential environmental impact in Chapter Four of this environmental document.

11EA01-2B-3/07/11

Laurence J. TIMMERMAN AIRPORT

Exhibit 2B
PROPOSED ACTION

Chapter Three

AFFECTED ENVIRONMENT

Chapter Three
AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the existing environment in the project area. This allows for an evaluation of environmental impacts resulting from implementation of the Proposed Action alternative in Chapter Four of this Environmental Assessment (EA).

3.1 AIRPORT BACKGROUND AND FACILITIES

Lawrence J. Timmerman Airport (MWC) is owned, operated, and maintained by Milwaukee County in the State of Wisconsin and provides aviation opportunities for business and recreational users. The airport was constructed in late 1920s by a private entity and was purchased by Milwaukee in 1947. The Airport Division of the Milwaukee County Department of Public Works is responsible for the planning, design, construction, operation, and maintenance of airport facilities. The following sections describe the airside and landside facilities at Lawrence J. Timmerman Airport.

Airside facilities. Airside facilities generally include, but are not limited to, runways, taxiways, connecting taxiways, airfield lighting, and navigational aids. As depicted on **Exhibit 3A**, the existing runway configuration at Lawrence J. Timmerman Airport includes two intersecting paved runways. Runway 15L-33R is oriented to the northwest-southeast and serves as the primary runway. It is 4,106 feet long and 75 feet wide. Runway 4L-22R serves as the crosswind runway and is 3,202 feet long and 75 feet wide. Lawrence J. Timmerman Airport also includes two turf runways, Runway 15R-33L and Runway 4R-22L, which provide additional options for airport users. These runways are designed and maintained in accordance with Federal Aviation Administration (FAA) standards. Each of the turf runways is parallel to the two existing paved runways. **Table 3A** summarizes characteristics for the runways at the airport.

TABLE 3A
Airside Facility Data
Lawrence J. Timmerman Airport

	Runway 15L-33R	Runway 4L-22R	Runway 15R-33L	Runway 4R-22L
Runway Length (feet) Runway Width (feet)	4,106 75	3,202 75	3,254 275	2,862 275
Runway Surface Material	Asphalt	Asphalt	Turf	Turf
Runway Lighting	Medium Intensity	Medium Intensity	-	-
Approach Lighting	VASI (15L, 33R) REIL (15L)	VASI (4L, 22R)		
Instrument Approach Procedures	LOC (15L) VOR/GPS (15L)	VOR/GPS (4L)		

Source: *Airport/Facility Directory, East Central U.S.* (through May 5, 2011); FAA Form 5010-1, Airport Master Record; Lawrence J. Timmerman Airport
Lawrence J. Timmerman Airport Layout Plan

VASI – Visual Approach Slope Indicator
REIL – Runway End Identification Lighting
GPS – Global Positioning System
VOR/DME - Very High Frequency Omnidirectional Range/Distance Measuring Equipment

Landside facilities. Landside facilities are essential to the daily operation of the airport and consist primarily of those facilities required to accommodate aircraft, pilots, and passengers while they are at the airport. Landside facilities at Lawrence J. Timmerman Airport are depicted on **Exhibit 3A**.

Landside facilities are primarily located on the north side of the airfield, with the exception of the airport traffic control tower and two hangars, which are located on the east side of the airfield. Gran-Aire Inc., the airport's only fixed base operator, provides fueling services, aircraft storage, tiedown services, aircraft maintenance, and flight instruction and is located on the north side of the airfield.

3.2 AREA LAND USE AND CONTROL

Existing Land Use. Land uses within the vicinity are primarily residential with commercial development concentrated along the primary thoroughfares to the north (Silver Spring Drive), east (Appleton Avenue and Swan Road), and south (Hampton Avenue). The area located west of the airport is primarily developed with single family residences and some multi-unit residential development. Existing land uses based on Southeastern Wisconsin Regional Planning Commission classifications are shown on **Exhibit 3B**.

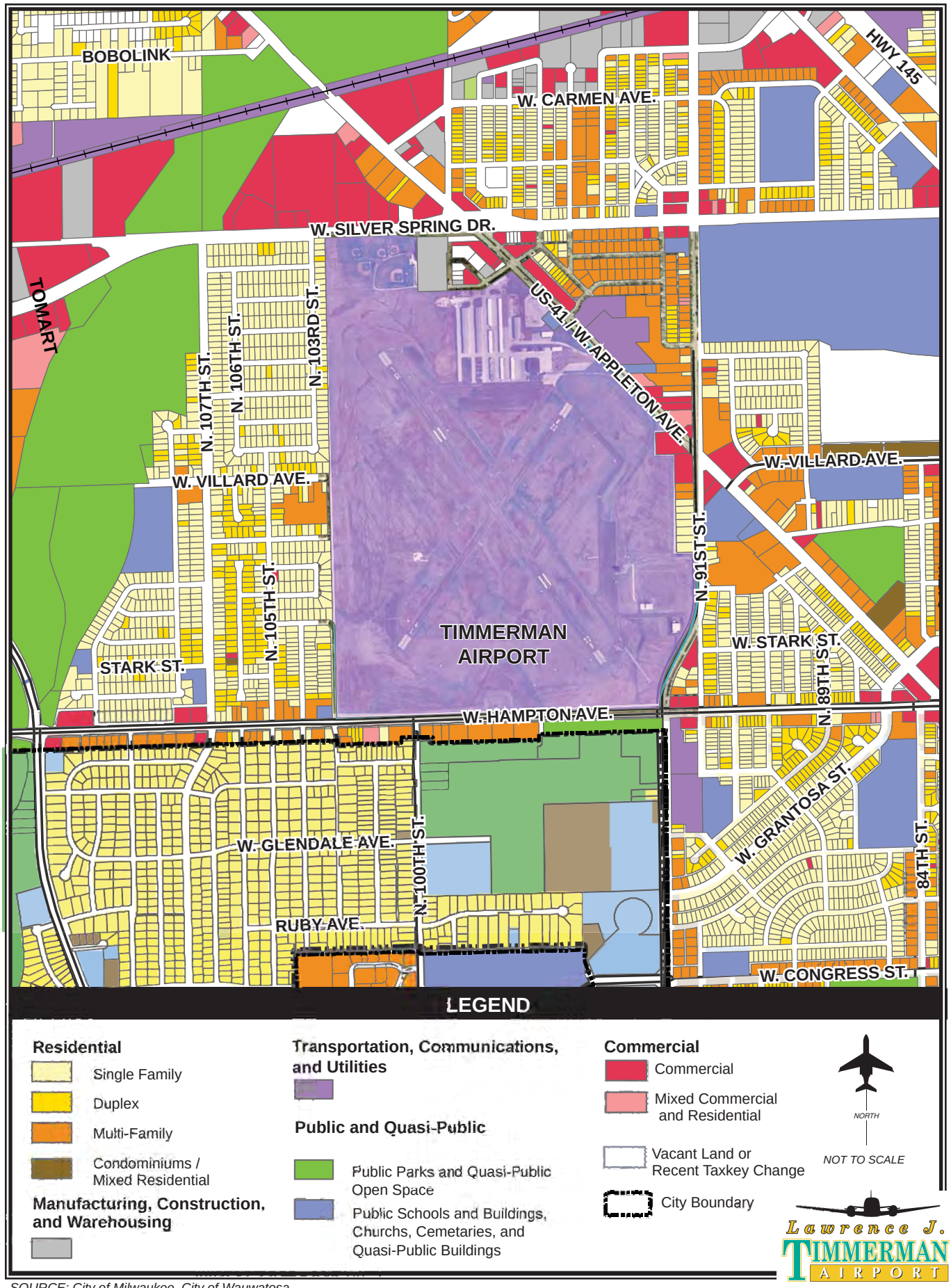
Zoning. Zoning information provided by the City of Milwaukee and City of Wauwatosa is depicted on **Exhibit 3C**. The areas surrounding the airport are zoned for land uses similar to the existing land uses discussed previously. The area west of the airport is zoned for single-family residential development, and the area north of the airport is zoned for planned development, which could include a commercial center similar to the existing development. The area east of the airport includes a mix of single and multi-family residential and commercial designations. The area south of the airport is zoned for residential development and park land, which is consistent with the existing land uses in that area.

11EA01-3A-5/13/11

Lawrence J. TIMMERMAN AIRPORT

Exhibit 3A
EXISTING FACILITIES

11EA01-3B-5/06/11

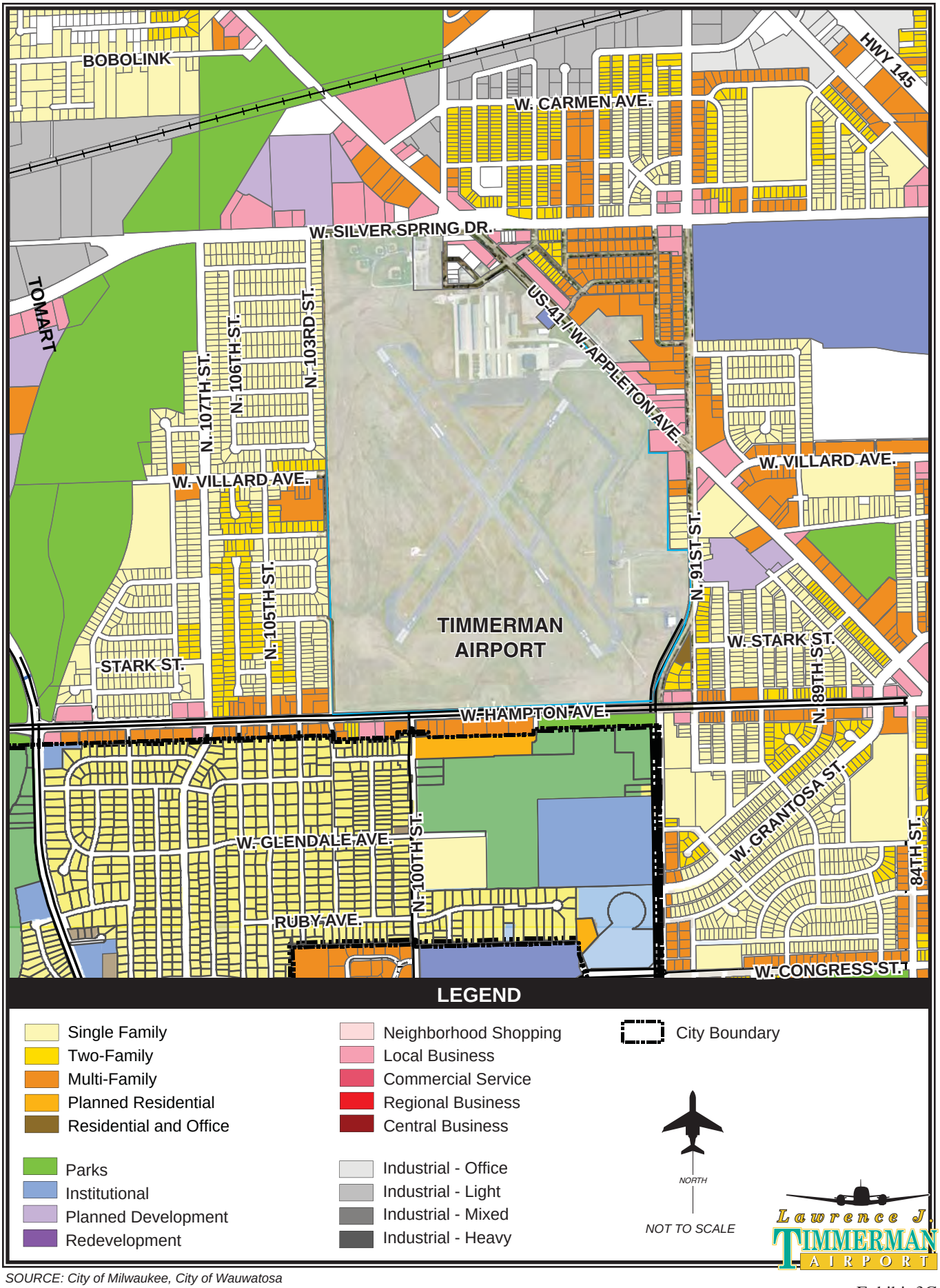


SOURCE: City of Milwaukee, City of Wauwatosa

Lawrence J. TIMMERMAN AIRPORT

Exhibit 3B
LAND USE MAP

11EA01-3C-5/06/11



SOURCE: City of Milwaukee, City of Wauwatosa

Exhibit 3C
ZONING MAP

Future Land Use: As part of the City's comprehensive planning process, the City of Milwaukee prepared the Northwest Side Plan and West Side Plan that include policies and strategies to guide future development in the respective neighborhoods. The airport is located at the boundary of area covered by each of these plans. For the residential areas near the airport, both plans recommended renovation and maintenance of existing housing and infill development of similar housing if land is available. The Northwest Side Plan identifies Timmerman Plaza, located north of Silver Spring Dive near 103rd Street as a "Catalytic Project" area with the potential for redevelopment to strengthen the neighborhood while improving the overall image of the parking lot and buildings.

3.3 EXISTING ENVIRONMENT

This section provides background information on the existing natural and cultural environment within and surrounding Lawrence J. Timmerman Airport. Sources of this include coordination received from various resource agencies (copies included within **Appendix B**) and field surveys. Further descriptions of the existing environment surrounding the airport are contained within Chapter Four of this EA. Environmental resources which are not located within the project area for the alternative under consideration include the following:

- **Coastal Resources** – Lawrence J. Timmerman is located within Milwaukee County, a portion of which is designated as a coastal zone for Lake Michigan. The airport and vicinity is not located within a designated coastal zone.
- **Farmland** – According to the Natural Resource Conservation Service's (NRCS) Web Soil Survey, prime, unique, state or locally important farmlands are not present within the project area. The project area is also committed to urban land uses and is therefore exempt from provisions of the Farmland Policy Protection Act (FPPA).[1]
- **Wild and Scenic Rivers–** Wolf River, located more than 125 miles northwest of the airport, is the closest designated wild and scenic river to the project site in the State of Wisconsin[2].

Environmental resources as described within Appendix A of FAA Order 1050.1E) which are located within the project area are discussed in the following sections.

3.3.1 Air Quality

As required by the Federal Clean Air Act (CAA), the Environmental Protection Agency (EPA) establishes National Ambient Air Quality Standards (NAAQS) for pollutants that, based on current and best available scientific evidence, cause or contribute to the degradation of human health (primary NAAQS) or environmental welfare (secondary NAAQS). To date, EPA has established NAAQS for six pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), respirable particulate matter with particle sizes measuring 10 micrometers or less (PM_{10}), fine particulate matter with particle sizes measuring 2.5 micrometers or less ($PM_{2.5}$), ground-level ozone (O_3), and sulfur dioxide (SO_2). **Table 3B** describes the characteristics of these pollutants.

In addition, the EPA has identified pollutants for which there are no NAAQS, and yet sufficient toxicity and other scientific data exist to potentially implicate them in the deterioration of human health. These

[1] http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed April, 2011
[2] http://www.rivers.gov/wildriverslist.html, accessed April, 2011

compounds are called Hazardous Air Pollutants (HAPs), or air toxics, and are regulated under separate mechanisms within the CAA.

TABLE 3B
Properties of Criteria Air Pollutants

Pollutant	Description
Carbon Monoxide (CO)	▪ Colorless and odorless fuel combustion bi-product
	▪ Mobile sources greatest contributors to ambient air concentrations
	▪ Health effects include reduced blood oxygen levels, asphyxiation and exacerbation of heart disease
Lead (Pb)	▪ Naturally occurring metal emitted predominantly from metals processing and combustion of leaded aviation gasoline
	▪ Reduces blood oxygen carrying capacity
	▪ Documented effects on immune, reproductive, renal, cardiovascular and neurologic systems
	▪ Significant developmental and behavioral effects on children
Nitrogen Dioxide (NO_2)	▪ One chemical compound in a larger group called nitrogen oxides (NO_x)
	▪ Fossil fuel exhaust bi-product emitted from vehicles, equipment and power plants
	▪ Precursor to O_3 and $PM_{2.5}$ formation
	▪ Short-term exposures can cause or exacerbate respiratory damage, particularly to sensitive members of the population such as asthmatics, children and the elderly
Ozone (O_3)	▪ Gaseous compound composed of three oxygen atoms
	▪ Formed at ground-level by reaction of NO_x and volatile organic compounds (VOC) in the presence of sunlight and during stable atmospheric conditions
	▪ Implicated in cardiovascular and pulmonary conditions including bronchitis, emphysema and asthma, especially to people with lung disease, children, the elderly and people who are active outdoors
	▪ Strong oxidant; damages plants, buildings and other structures
Particulate Matter ($PM_{10}/PM_{2.5}$)	▪ Mixture of very small particles and liquid droplets, comprised of acids, metals, soils, dust and exhaust bi-products
	▪ Dust generation, forest fires, fossil fuel combustion, electricity generation and other industrial processes are main sources
	▪ PM_{10} contains larger particles that can be trapped and filtered through respiratory passages; $PM_{2.5}$ contains much smaller particles that can infiltrate deep into the lungs
	▪ Causes cardiovascular and pulmonary damage, reduces visibility, and deteriorates water quality
Sulfur Dioxide (SO_2)	▪ One chemical compound in a larger group called sulfur oxides (SO_x)
	▪ Generated primarily by power plants and other industrial operations but can also occur in fossil fuel exhaust
	▪ Short-term exposures cause respiratory illness to at-risk members of the population
	▪ Main constituent of acid rain

Source: EPA, 2011.

The EPA requires that states adopt and enforce the NAAQS and, if necessary, allows states to create additional standards to strengthen existing NAAQS. To date, Wisconsin Department of Natural Resources (WDNR) has elected to retain the NAAQS and has not established state level ambient air quality standards (AAQS) for any pollutant.[3] **Table 3C** summarizes the NAAQS established by the EPA and adopted by WDNR.

[3] Wisconsin Administrative Code and Register. Chapter NR404.03. November, 2010 (No. 659).

TABLE 3C
National Ambient Air Quality Standards (NAAQS)

	Primary Standards		Secondary Standards		
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**	**Attainment Status**
Carbon Monoxide (CO)	9 ppm	8-hour[1]	None		Attainment
	35 ppm	1-hour[1]			Attainment
Lead (Pb)	0.15 µg/m^3	Rolling 3-month Average	Same as Primary		Attainment
Nitrogen Dioxide (NO_2)	53 ppb	Annual (arithmetic average)	Same as Primary		Attainment
	100 ppb	1-hour[2]	None		Attainment
Ozone (O_3)	0.075 ppm (2008)	8-hour [3,4]	Same as Primary		Pending designation
	0.08 ppm (1997)				Non-attainment (moderate)
Particulate Matter (PM_{10})	150 µg/m^3	24-hour[5]	Same as Primary		Attainment
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual (arithmetic average)[6]	Same as Primary		Attainment
	35 µg/m^3	24-hour[7]			Non-attainment
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (arithmetic average)	0.5 ppm	3-hour[1]	Maintenance (primary standard)
	0.14 ppm	24-hour[1]			
	75 ppb	1-hour	None		

Source: EPA, 2011.
ppm = parts per million, ppb = parts per billion, µg/m3 = micrograms per cubic meter of air
[1] Not to be exceeded more than once per year.
[2] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
[3] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.
[4] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm. The 1997 standard and its implementation rules with remain in effect until EPA transitions to the 2008 standard. EPA is in the process of re-considering the 2008 ozone standards.
[5] Not to be exceeded more than once per year on average over 3 years.
[6] To attain this standard, the 3-year average of weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
[7] To attain this standard, the 3-yaer average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3.

An area with ambient air concentrations exceeding the NAAQS for a given pollutant is considered "non-attainment" of that NAAQS, whereas an area with monitored concentrations below the NAAQS is considered "attainment." An area which has previously been designated "non-attainment" by EPA, but has recently remedied the NAAQS violations for a given pollutant is bestowed "maintenance" status until sufficient monitoring data has demonstrated no further NAAQS infractions have occurred. **Table 3C** also

details the attainment status for the area surrounding MWC. As shown, MWC is located within the Milwaukee-Racine, WI $PM_{2.5}$ non-attainment area for the 24-hour $PM_{2.5}$ standard, the Milwaukee-Racine, WI moderate non-attainment area for the 1997 O_3 standard, and the Milwaukee, WI maintenance area for the primary SO_2 standard.[4]

State agencies are required by the EPA to prepare and submit for approval air quality plans that seek to remedy air quality violations in NAAQS non-attainment areas within their jurisdiction. These plans, called State Implementation Plans (SIPs), contain detailed emissions inventory data, emissions modeling, emissions budgeting and control programs, and other elements that the state deems relevant in attaining the NAAQS by the EPA's prescribed deadlines.

Under the 1997 8-hour O_3 NAAQS, a SIP demonstrating attainment for the *Milwaukee-Racine, WI* non-attainment area was due to the EPA in 2009. WDNR submitted this plan to the EPA in September 2009, and the EPA has to date deemed portions of this SIP adequate.[5] However, in the interim, the area has been re-designated to non-attainment under the 2008 O_3 NAAQS.

In addition to NAAQS, the *National Environmental Policy Act* (NEPA) requires consideration of greenhouse gases (GHGs). GHGs trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made) GHGs include water vapor (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and ozone (O_3). Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) contain fluorine and/or chlorine and are also considered GHGs, but they are predominantly a product of industrial activities.

According to most international reviews, aviation emissions comprise a small but potentially important percentage of anthropogenic GHG and other emissions that contribute to global warming. The Intergovernmental Panel on Climate Change (IPCC) estimates that global aircraft emissions account for about 3.5 percent of the total quantity of GHG from human activities.[6] In terms of U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts for about 3 percent of total U.S. GHG emissions from human sources compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent).[7]

The scientific community is developing areas of further study to enable them to more precisely estimate aviation's effects on the global atmosphere. The Federal Aviation Administration (FAA) is currently leading or participating in several efforts intended to clarify the role that commercial aviation plays in GHG and climate change[8]. The most comprehensive and multi-year program geared towards quantifying climate change effects of aviation is the Aviation Climate Change Research Initiative (ACCRI) funded by the FAA and the National Aeronautics and Space Administration (NASA). The FAA also funds Project 12 of the Partnership for Air Transportation Noise & Emissions Reduction (PARTNER) research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Additional information regarding air quality regulations, standards, and HAPs can be found in **Appendix F**.

---

[4] Non-attainment designations with respect to the 2008 O_3 standard are pending. In addition, the EPA has proposed to again lower the O_3 standard to a level between 0.6 and0.7 ppm, for which the final ruling is due late 2011.

[5] *Attainment Demonstration of the Wisconsin Counties of Kenosha, Racine, Milwaukee, Waukesha, Ozaukee, Washington, Sheboygan, Manitowoc and Door from Nonattainment to Attainment Of the 1997 Eight-Hour Ozone NAAQS.* Wisconsin Department of Natural Resources Bureau of Air Management. Publication AM-395 2009, September 2009.

[6] IPCC Report as referenced in U.S. General Accounting Office (GAO) *Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow* ; GAO/RCED-00-57, February 2000, p. 4.

[7] Ibid, p. 14

[8] ACRP Report 11 "Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories" 2009.

3.3.2 Department of Transportation Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966, recodified as Title 49, USC § 303, prohibits use of a publicly owned park, recreation area, wildlife or waterfowl refuge, or public or privately owned historic site of national, state, or local significance for a transportation project unless the Secretary of Transportation has determined that there is no feasible and prudent alternative to such use and the project includes all possible planning to minimize harm to the property resulting from such use.

Three publically owned recreation areas are located within the vicinity of Lawrence J. Timmerman Airport. These include Madison Park, Vogel Park, and the Northwest Little League baseball fields. Madison Park, located south of Hampton Avenue, is owned by Milwaukee County and includes a golf course, baseball fields, and other recreational amenities. Vogel Park is located east of the airport southeast of the intersection of Appleton Avenue and Lancaster Avenue. Vogel Park is owned by Milwaukee County and includes play areas for children and sports practice fields. The Northwest Little League baseball fields are located north of the Runway 15L end and south of Silver Spring Drive. The baseball fields are located on Lawrence J. Timmerman Airport property and used under a permit issued by Milwaukee County Airport Department to the Northwest Little League. The fields were built in 1965 on designated airport property. The location of these facilities is identified on **Exhibit 3A**.

There are no locally managed wildlife or waterfowl refuges within the vicinity of the airport.

3.3.3 Fish, Wildlife, and Plants

The project area is located entirely within Milwaukee County. Based on site investigation, documented in **Appendix E,** vegetation within the area consists of mowed lawn dominated by turf grasses and other early successional species including Fescue species (*Festuca* spp.), Kentucky bluegrass (*Poa pratensis*, Canada thistle (*Cirsium arvense*), English plantain (*Plantago lanceolata*), common plantain (*Plantago major*), and clover species (*Trifolium* spp.). Based on coordination received from the U.S. Fish and Wildlife Service (USFWS), no federally listed, proposed, or candidate species are located within the project area. Additionally, coordination received from the Wisconsin Department of Natural Resources (DNR) states that no state threatened or endangered species are present in the project area. Copies of the coordination letters can be found in **Appendix B**.

3.3.4 Floodplains

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), panels 55133C0250F and 55079C0057E, which include Lawrence J. Timmerman Airport, there are no 100-year floodplains on airport property. The nearest 100-year floodplain is located approximately 0.25 miles northwest of the airport. The floodplain is associated with the Little Menomonee River.

3.3.5 Hazardous Materials, Pollution Prevention, and Solid Waste

According to the the EPA's EJView website, four hazardous waste generators regulated under the Resource Conservation and Recovery Act (RCRA) are located on airport property. The sites are listed as Timmerman Airport Maintenance, Gran Aire Inc, Timmerman Airport Air Traffic Control Tower, and North Star Aviation, Inc. The location of these facilities is noted on **Exhibit 3A**. The EJView website does not indicate the presence of any Superfund sites or sites on the National Priorities List within the vicinity of Lawrence J. Timmerman Airport.

As previously discussed, Milwaukee County, which operates Lawrence J. Timmerman Airport, holds a WPDES permit for storm water discharge in to local watersheds.

Coordination received from WDNR, included in **Appendix B**, states that asbestos containing materials may be present in the existing electrical utilities and expansion joints within the project site. Additionally, Wisconsin DNR notes that soil and groundwater contamination is present within Milwaukee County. Databases available through Wisconsin DNR's Contaminated Lands Environmental Action Network (CLEAN) indicate that there are no active contaminated sites within the vicinity of the project site.

3.3.6 Historical and Cultural Resources

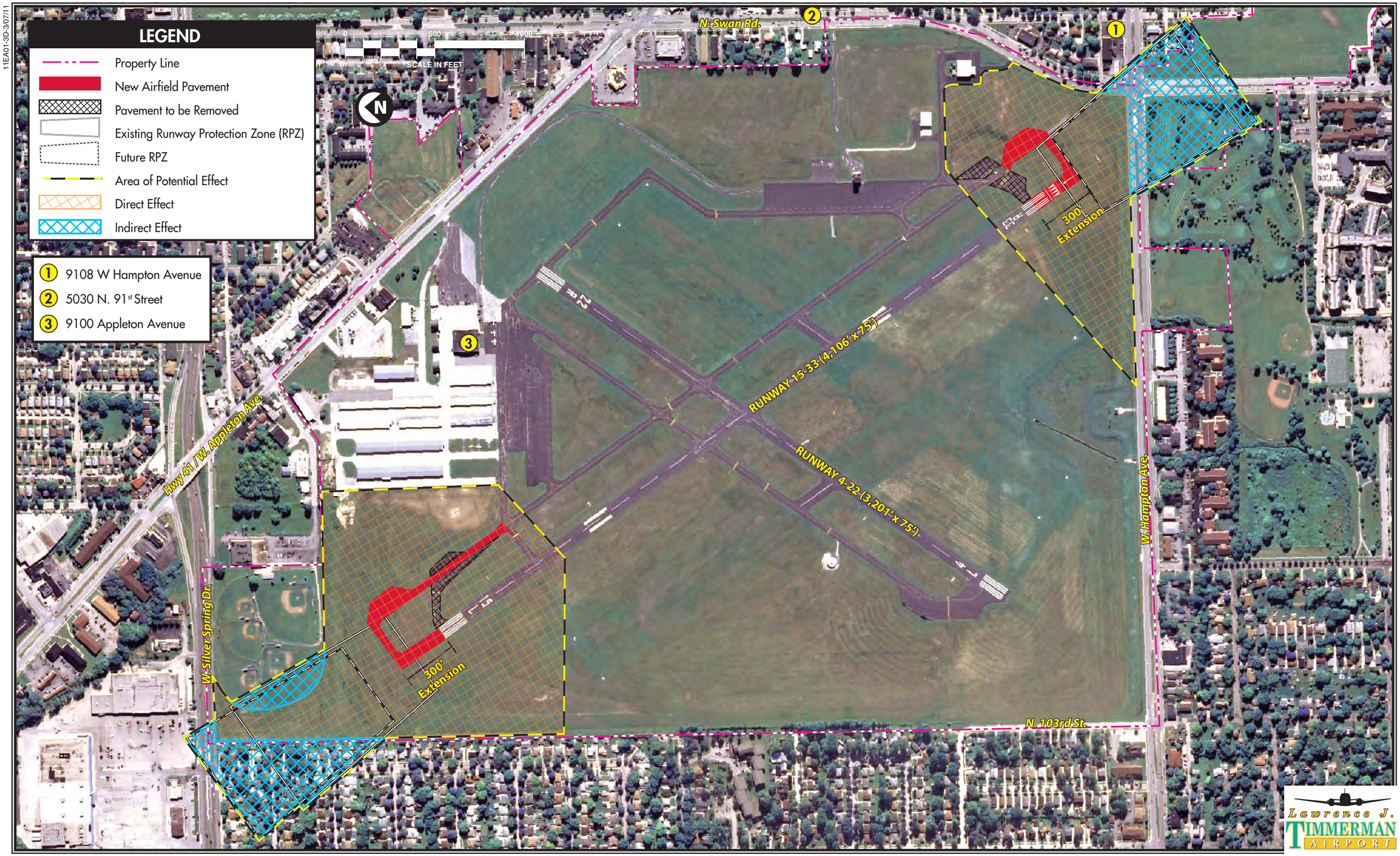
In May 2011, an archaeological site investigation was conducted for the project site in accordance with the *Guidelines for Public Archaeology in Wisconsin* published by the Wisconsin Archeological Survey. The investigation included a records search for previously identified archaeological resources and a site investigation of the project area. During the 70-acre site investigation, a visual inspection was conducted for 24.5 acres, soil core samples were taken at 15 meter intervals for 35.5 acres, and 9.7 acres of the site were shovel tested at 15 meter intervals. The limits of disturbance will serve as the area of potential effect (APE) for any coordination required under Section 106 of the *National Historic Preservation Act of 1966*. The APE is depicted on **Exhibit 3D** and includes all portions of the project area that may be physically disturbed during construction of the proposed project (area of direct impact) and those areas located within the existing and proposed Runway Protection Zones (RPZs) identified as the area of indirect impact. The area of direct effect includes portions of the existing runway and taxiway system and other associated aviation support infrastructure including lighting and navigation systems. Much of the project area was previously disturbed during soil stripping, grading, and other construction activities related to constructing and contouring at the ends of the runway. The area of indirect effect includes those properties adjacent to the airport which are located within the existing or future RPZs. These areas are developed with residential or commercial structures.

Based on the results of the survey, 11 previously recorded sites, including four prehistoric and seven historic sites, are located within one mile of the survey area, none of which are located on airport property. Additionally, the report states that no previously reported sites are located within the project area and that no historic sites were found during a review of the site.

3.3.7 Noise

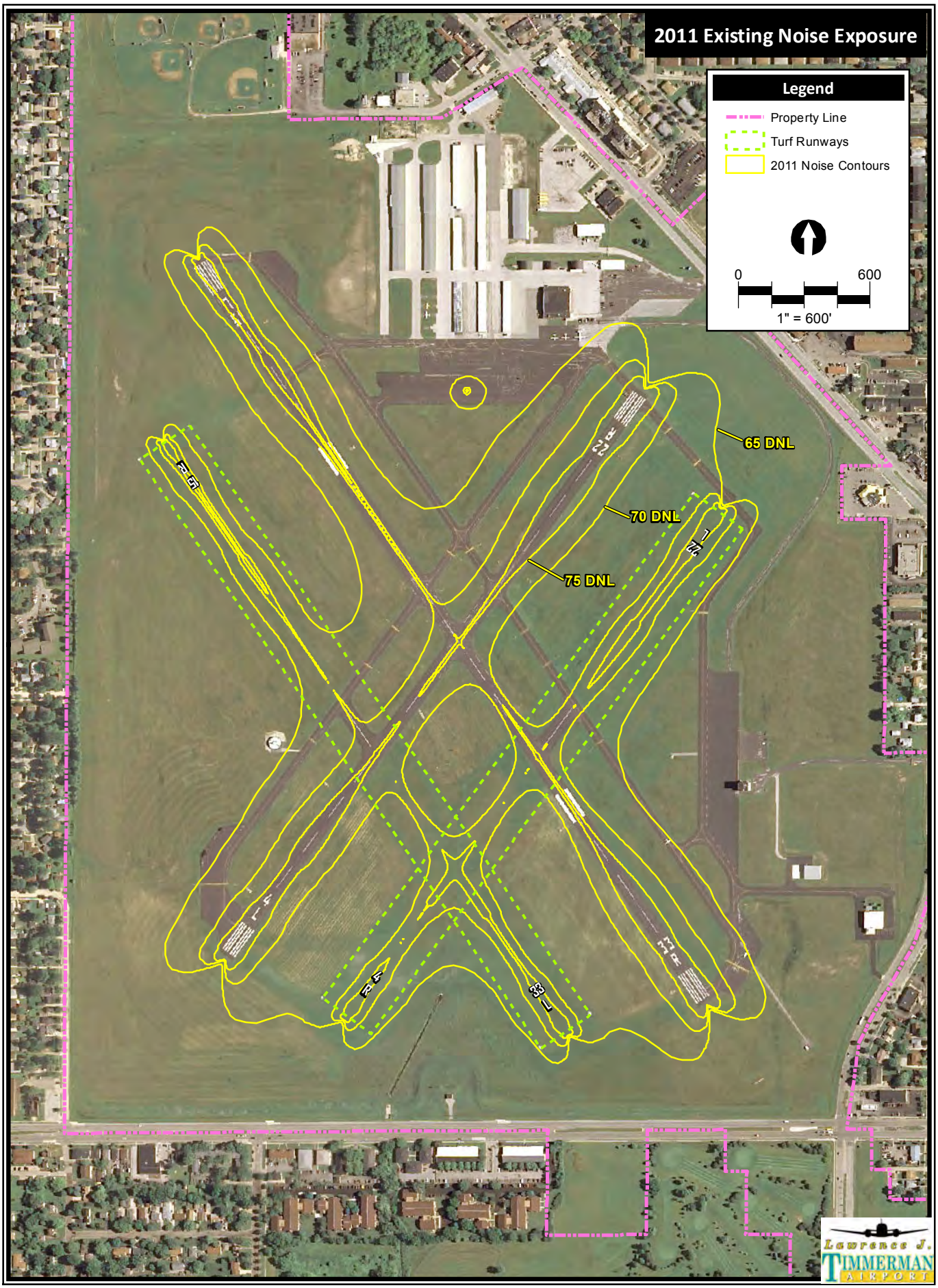
Exhibit 3E depicts the existing noise condition at the airport. As depicted on the exhibit, the 65 DNL remains entirely on airport property. There is no incompatible development within the existing 65 DNL or higher noise contours.

11EA01-3D-3/07/11



Lawrence J. TIMMERMAN AIRPORT

Exhibit 3D
AREA OF POTENTIAL EFFECT



Source: Coffman Associates Analysis
Aerial Photo: 2010 USDA Ortho Imagery

Exhibit 3E

3.3.8 Socioeconomic Characteristics

Coordination received from the EPA and included in **Appendix B** indicates the project site is within an Environmental Justice area of concern. Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,* and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require meaningful public involvement by minority and low-income populations as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

Exhibit 3F depicts the blockgroups in the area surrounding the airport by percent minority and percent below poverty based on U.S. Census block groups. The minority population information is derived from the U.S. Census Bureau and includes Black, Hispanic, Asian-American, or American Indian and Alaskan Native individuals as defined in Department of Transportation (DOT) Order 5610.2 Appendix 1.c. To determine the percentage minority population, the total minority population for each block group within the airport vicinity was divided by the total population of the blockgroup.

The percent of population below the poverty level is derived from U.S. Census bureau information based on annual P-60 reports. The total population below the poverty level was divided by the total population for each blockgroup to determine the percentage of population below the poverty level within each blockgroup within the vicinity of the airport. The percent of population below the poverty level for the blockgroups including the airport is 20.5 percent. Comparatively, the blockgroups located adjacent to the airport range between less than one percent and 32 percent. Additionally, the portion of the population classified as minority for the blockgroups including the airport is 48 percent. Comparatively, the blockgroups located adjacent to the airport range between five and 70 percent.

Historical population estimates for the City of Milwaukee, Milwaukee County, and the State of Wisconsin are presented in **Table 3D**.

TABLE 3D
Population Trends (1990, 2000-2009)

Year	City of Milwaukee	Milwaukee County	State of Wisconsin
1990	628,088	959,275	4,891,769
2000	597,090	940,165	5,363,708
2001	596,995	944,143	5,408,769
2002	598,414	948,363	5,446,766
2003	599,468	951,073	5,476,796
2004	601,081	952,274	5,511,385
2005	601,983	951,265	5,541,443
2006	602,782	952,374	5,571,680
2007	602,656	952,185	5,601,571
2008	604,179	953,973	5,627,610
2009	605,013	959,521	5,654,774

Source: U.S. Census Bureau, http://www.census.gov/popest/datasets.html, accessed March 2011
U.S. Census Bureau, http://factfinder.census.gov, accessed March 2011

Table 3E provides additional socioeconomic information for the area.

TABLE 3E
Demographic Information

	City of Milwaukee	Milwaukee County	State of Wisconsin
Median Family Income	$ 42,287	$68,734	$64,609
Per Capita Income	$ 19,153	$23,670	$26,447
Percent of Individuals below Poverty Level	24.3	18.0	11.1

Source: U.S. Census Bureau 2005-09 American Community Survey, http://factfinder.census.gov, accessed March 2011

3.3.9 Water Quality

Lawrence J. Timmerman Airport is located within the Milwaukee River Basin which includes several watersheds and subwatersheds. Two subwatersheds as delineated by the Southeastern Wisconsin Regional Planning Commission cover the airport area. The Little Menomonee River subwatershed drains the northwestern portion of the airport, and the Grantosa/Lower Menomonee subwatershed drains the southeastern portion of the airport, including the runway and taxiway system. Both of these subwatersheds are located within the Menomonee River watershed, which is located within the Milwaukee River Basin. The Menomonee River is located west of the airport. The airport operates in conformance with Section 402(p) of the *Clean Water Act* (CWA). Milwaukee County, as operator of Lawrence J. Timmerman Airport is authorized under Wisconsin Pollution Discharge Elimination System (WPDES) Permit number WI-S050113-1 to discharge storm water from the existing storm sewer system waters of the state within the Menomonee River watershed, which includes the area surrounding the airport. According to the EPA, the Little Menomonee River is classified as an impaired water under Section 303(d) of the CWA.[9]

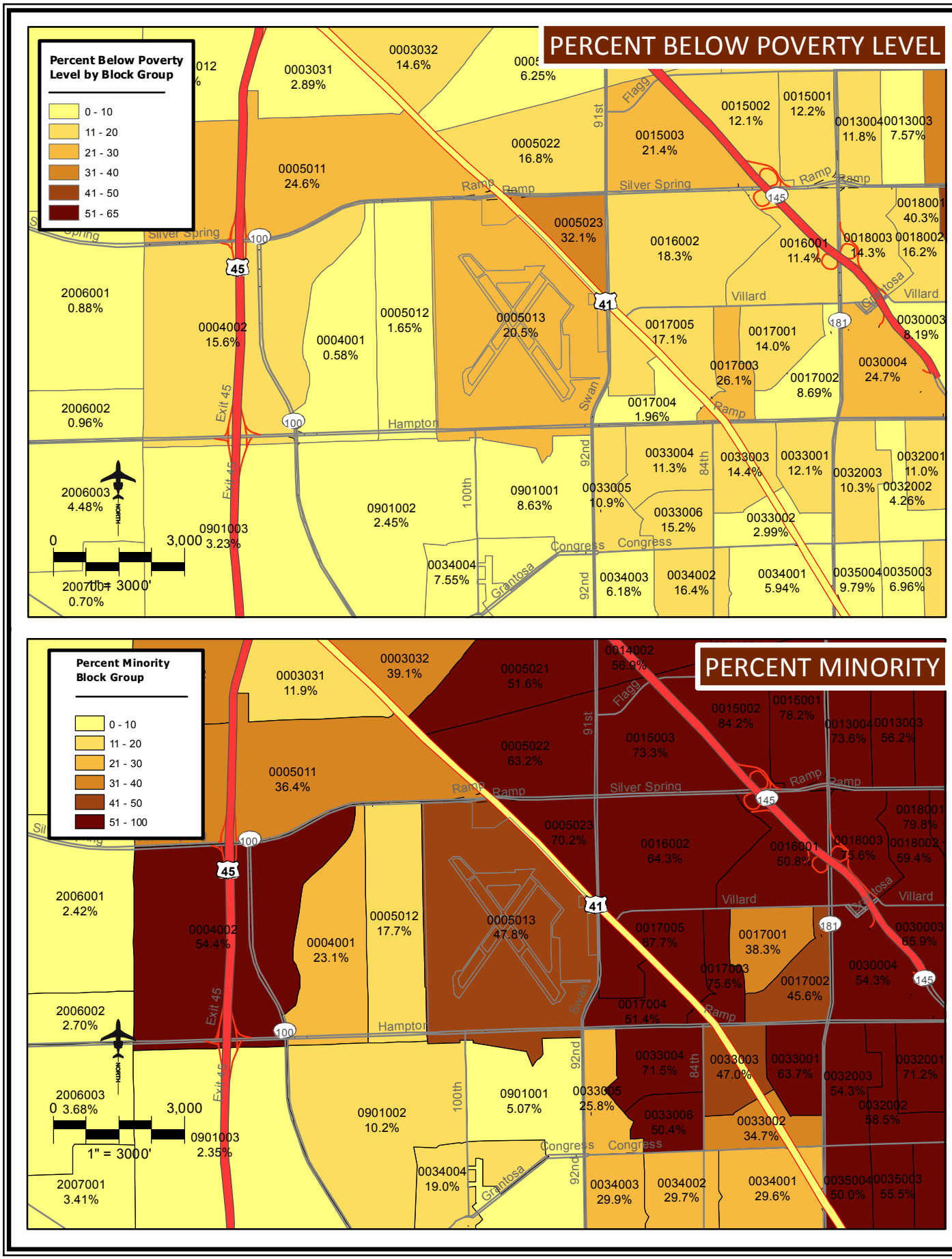
The 1999 storm water management plan for Grantosa Creek/Lower Menomonee subwatershed prepared for Milwaukee County includes a portion of the Lawrence J. Timmerman Airport property and provides recommendations for improvement projects to enhance storm water drainage within the airport area. In response to these recommendations, a storm water storage area was constructed at the airport between the Runway 4L and Runway 33R ends.

Coordination received from Wisconsin DNR, included in **Appendix B**, notes that stormwater discharge requirements adopted by the State of Wisconsin Administrative Code Trans 401, Milwaukee Metropolitan Sewerage District (MMSD), and Milwaukee County should be considered when planning development within the project area.

3.3.10 Wetlands and Waters of the U.S.

Coordination received from USFWS and Wisconsin DNR and included in **Appendix B** notes that wetland indicator soils and potential wetlands are present within the vicinity of the project site. In April 2011, a review of aerial photography and field investigation was conducted for the proposed project site to determine the presence of wetlands and potential Waters of the U.S. Field investigation included recon-

[9] Environmental Protection Agency, Watershed Assessment, Accessed March 2010, http://iaspub.epa.gov/waters10/attains_waterbody.control?p_list_id=WI17600174&p_cycle=2006&p_report_type=T



Source: Blockgroup data is from the year 2000, US Census Bureau, SF3 tables. Blockgroup shapefiles are from ESRI.

Block Group Number / Percentage

Exhibit 3F
MINORITY AND LOW INCOME POPULATIONS

naissance to determine the location of the ordinary high water mark (OHWM) limits of potential Waters of the U.S. Federal regulations define the OHWM limits and outline their use in identifying Waters of the U.S.

The field report, included in **Appendix E**, indicates drainage swales are present at both ends of the existing runway and that the site has been effectively graded to drain standing water off of the airport property within a short period of time. During the site visit, standing water was visible in several small (10 square feet to 200 square feet) depressional areas; however, there was no evidence of wetland vegetation and wetland hydrologic indicators were not observed in these areas. Furthermore, no damage to vegetation was apparent that would have been consistent with prolonged durations of standing water, indicating that the duration of standing water or soil saturation on the site is insufficient to allow for the formation of hydrologic conditions that would support wetland hydrology or wetland plant communities.

Additionally, the report notes approximately one dozen dormant cattails (*Typha* spp.) were observed in a constructed swale near a culvert crossing of the service road at the south end of Runway 33R. The cattails were growing out of soil built up on the metal culvert pipe and directly adjacent to the pipe in an area measuring approximately 3x3 feet. However, there is no historic evidence of hydric soils or wetlands at this location and the wetland vegetation in this very small area likely exists solely due to backwater conditions created by the culvert and service road.

The report concludes that no jurisdictional wetlands are present within the study area and conditions within the study area do not support either existing or developing wetland plant communities.

3.4 Past, Present, and Reasonably Foreseeable Future Actions

The purpose of this section is to outline those projects which will need to be considered during the cumulative impact analysis in Chapter Four of this EA. CEQ provisions under Title 40, CFR Part 1508.7, define cumulative impacts as those which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Past projects are defined as those which have been undertaken over the past few years. Foreseeable future actions are defined as those which are likely to become a reality and have begun the approval, design, or construction processes. Projects which are conceptual in nature are not considered as they may or may not be undertaken.

The following bullets list projects recently completed at Lawrence J. Timmerman Airport:

- Parking lot reconstruction – completed in 2010
- Pavement rehabilitation – completed in 2009
- Pavement rehabilitation – completed in 2008
- Gate replacement – completed in 2008
- Pavement rehabilitation, sealcoating runways and taxiways – completed in 2007
- Emergency generator installation – completed in 2007
- Pavement rehabilitation – completed in 2006
- Security improvements – completed in 2006
- Runway incursion signage – completed in 2005

The following bullets list projects planned for Lawrence J. Timmerman Airport:

- Pavement rehabilitation
- Taxiway light replacement
- Timmerman terminal construction
- Airport beacon replacement

Based on coordination with the City of Milwaukee and City of Wauwatosa, no major projects have been undertaken within the vicinity of the project site. Redevelopment of Timmerman Plaza, located north of the airport near 103rd Street, is currently under consideration by the City of Milwaukee. The most recent action for this site was the approval of a zoning re-designation for the property to General Planned Development.[10] A private developer proposes to demolish the existing structures on the site and construct new retail buildings on the site. The site plan includes an increase in the amount of landscaped areas and a potential reduction in parking spaces.

[10] http://city.milwaukee.gov/CityPlanCommissionCPC/SilverSpringZoning.htm

Chapter Four

ENVIRONMENTAL CONSEQUENCES AND MITIGATION

Chapter Four
ENVIRONMENTAL CONSEQUENCES AND MITIGATION

FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act* (NEPA) *Implementing Instructions for Airport Actions* define the form and content of EAs. An EA examines a number of specific categories to determine whether a potential for significant environmental impacts from the proposed improvements exists. Impacts are determined by comparing the anticipated local environmental condition after development (implementation of the Proposed Action alternative) to the conditions on and around the airport should no project be developed (implementation of the No Action alternative). Data regarding the existing condition of the project site is provided within Chapter Three of this EA.

For the purposes of this EA, environmental consequences were determined for the following:

- Proposed Action alternative – Includes a 300-foot extension to each end of Runway 15L-33R and associated parallel taxiways which will increase runway length from 4,106 feet to 4,706 feet. The Proposed Action also includes removal of existing taxiway pavement at each end of the runway and construction of aircraft pre-flight run-up areas. The proposed improvements are depicted on **Exhibit 4A.**

- The No Action alternative – This alternative provides a baseline of environmental conditions for comparison to the Proposed Action alternative. No airport development would occur.

In accordance with Council on Environmental Quality (CEQ) guidance, as contained within Title 40, CFR Part 1508.8, the environmental consequences of each impact category include consideration of the following:

- *Direct effects and their significance.* Direct effects are defined as those which are caused by the action and occur at the same time and place.

- *Indirect effects and their significance.* Indirect effects are defined as those which are caused by the action and are later in time or further removed in distance.

- *Cumulative effects and their significance.* Cumulative effects are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Past, present, and reasonably foreseeable future actions which will be evaluated were described within Chapter Three of this EA. Only those past, present, and reasonably foreseeable future actions that incrementally contribute to the cumulative effects on resources affected by the Proposed Action will be considered. Past projects are defined as those which have been undertaken over the past few years. Foreseeable future actions are defined as those which are likely to become a reality and have begun the approval design or construction processes. Projects which are conceptual in nature are not considered as they may or may not be undertaken. Resources which are not affected by the Proposed Action will not be evaluated for cumulative impacts, unless such an evaluation was requested by a resource agency. A discussion of the recent and reasonably foreseeable projects is included in Section 3.6.

Where necessary, mitigation measures are discussed which would reduce or eliminate anticipated environmental impacts for each of the alternatives. Special purpose laws which protect various environmental resources will also be discussed.

The following sections contain a detailed impact analysis for those categories as defined within Appendix A of FAA Order 1050.1E and Table 7-1 of FAA Order 5050.4B. Section 4.2 provides detailed descriptions of each of the resource categories and an analysis of the impacts to these resources.

4.1 RESOURCES THE PROPOSED ACTION WOULD NOT AFFECT

Based on input received from various resource agencies, available environmental documents, field surveys, and secondary sources related to the project area, it has been determined that the No Action and Proposed Action alternatives will not affect the following resources:

- **Coastal Resources** – The project is located in an inland area not subject to coastal laws or regulations.

- **Department of Transportation Section 4(f) Properties** – The Proposed Action will occur entirely on existing airport property and will not require the use of any land from a historic site, public park, recreation area, or waterfowl and wildlife refuge of national, state, regional, or local importance. Section 6.2c of FAA Order 1050.1E states that a Section 4(f) determination is not required if it is owned by and is currently designated for use by a transportation agency and is used as a park or recreational area on an interim basis. Although the ball field area located on the northern portion of the airport is a recreational use that is open to the public, it is on property owned by Milwaukee County obligated for airport uses and is used on an interim basis by virtue of the ex-

11EA01-4A-3/07/11

Laurence J. TIMMERMAN AIRPORT

Exhibit 4A
PROPOSED ACTION

isting permit. As such, the proposed improvement's potential use of the property is not subject to a determination under the Department of Transportation Act, Section 4(f).

- **Farmland** – According to the Natural Resource Conservation Service's (NRCS) Web Soil Survey[1], prime, unique, state or locally important farmlands are not present within the project area. The project area is also committed to urban land uses and is therefore exempt from provisions of the Farmland Policy Protection Act (FPPA).

- **Floodplains** – According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), panels 55133C0250F and 55079C0057E, which include Lawrence J. Timmerman Airport, there are no 100-year floodplains on airport property. The nearest 100-year floodplain is located approximately 0.25 miles northwest of the airport. The floodplain is associated with the Little Menomonee River. The proposed improvements will not occur within a 100-year floodplain.

- **Fish, Wildlife, and Plants** – As discussed in Chapter Three, no federally protected species are listed for Milwaukee County and no state threatened or endangered species are present in the project area. Additionally, the project area does not occur in or near any federally proposed or designated Critical Habitat. Additionally, the United States Fish and Wildlife Service (USFWS) stated in its response letter that no further action required under the 1973 Endangered Species Act is required.

  Wisconsin DNR indicated that Milwaukee County is located within an Emerald Ash Borer quarantine area which restricts the transport of ash products to limit the spread of the insect. No ash trees are located within the project area and no ash products will be used during implementation of the Proposed Action.

- **Historical, Architectural, Archaeological, and Cultural Resources** – As discussed in Chapter Three, an archaeological resources survey was conducted for the project site. The survey report states that no archeological or historical sites are located within the area of potential effect. In accordance with correspondence received from the Wisconsin State Historic Preservation Office (SHPO), included in **Appendix B**, these findings will be submitted to the Wisconsin Department of Transportation (DOT) Staff Historian for initial review. On October 7, 2011 Wisconsin DOT submitted the findings of the report to SHPO for concurrence. SHPO responded on October 24, 2011 to concur that no properties eligible for listing on the National Register of Historic Places are located within the area of potential effect. Documentation of this correspondence is included in **Appendix D**.

- **Noise** – The proposed project will result in changes to aircraft ground tracks and flight profiles at the airport; therefore, noise exposure contours were prepared to model the potential changes in aircraft noise resulting from the Proposed Action. As shown on Exhibit 3E, the existing noise contours remain entirely on airport property. FAA Orders 1050.1E and 5050.4B define a significant noise impact as one which would occur if the Proposed Action would cause noise-sensitive areas to experience an increase in noise of 1.5 DNL or more, at or above the 65 DNL noise exposure level when compared to the No Action alternative for the same timeframe. Based on the analysis outlined in **Appendix F**, the Proposed Action and No Action noise exposure contours remain entirely on airport property and do not increase noise in noise-sensitive areas by 1.5 DNL or more. Noise modeling assumptions, including exhibits depicting the noise contours, are included in **Appendix F**.

[1] http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx, accessed April, 2011

- **Secondary (Induced) Impacts** –The proposed alternative will not result in the displacement of residences, businesses, or agricultural operations, or result in the division or disruption of established communities. No disruption of orderly or planned development is anticipated as a result of the proposed alternative or other projects planned within the airport environs. Airport projects which have recently been completed, or are planned to be undertaken in the near future, are not anticipated to impact nearby land uses. The Proposed Action is consistent with the City of Milwaukee's planning and economic development objectives.

- **Wetlands** – The wetland evaluation, included in **Appendix E**, indicates no wetlands as defined by Executive Order 11990, *Protection of Wetlands*, are within the vicinity of the proposed project area. Therefore, no state or federal wetlands-related permits would be required to implement the Proposed Action.

- **Wild and Scenic Rivers** – As stated in Chapter Three, the Wolf River, located more than 125 miles northwest of the airport is the closest designated wild and scenic river to the project site in the State of Wisconsin. The proposed improvements will not occur in the Wolf River watershed and therefore will not impact this water body.

4.2 RESOURCES THE PROPOSED ACTION MAY POTENTIALLY AFFECT

After researching the affected environment and receiving information through the agency scoping process, it has been determined that the Proposed Action may impact the resources as described within the following sections.

4.2.1 Air Quality

Air quality in a given location is described by the concentrations of various pollutants in the atmosphere. The significance of a pollutant concentration is determined by comparing it to the state and federal ambient air quality standards. The Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six pollutants.

Threshold of Significance

Potentially significant air quality impacts associated with an FAA project or action would occur if the project or action exceeds one or more of the NAAQS for any of the time periods analyzed.

Proposed Action Alternative

The *Clean Air Act* (CAA) requires analysis of air quality emissions, and NEPA requires public disclosure of potential impacts to the human environment. The same analysis, described below, can fulfill the requirements of both Acts.

As previously mentioned in Chapter Three, Lawrence J. Timmerman Airport is located in a geographic area currently designated non-attainment or maintenance for EPA-designated criteria pollutants O_3, $PM_{2.5}$ and SO_2, and accordingly project-related air quality impacts must be evaluated as directed by both

the NEPA and the General Conformity Rule of the Federal Clean Air Act (CAA).[2] As such, this air quality assessment has been conducted in accordance with the following guidance:

- FAA Order 1050.1E Change 1 – Environmental Impacts: Policies and Procedures
- FAA Order 5050.4B – National Environmental Policy Act Implementing Instructions for Airport Actions
- FAA Environmental Desk Reference for Airport Actions
- FAA Air Quality Procedures for Civilian Airports and Air Force Bases (Air Quality Handbook)

Air pollutant and pollutant precursor emissions inventories were prepared to determine the applicability of the General Conformity regulations (Rule) of the CAA to the proposed improvements. The procedures used to evaluate CAA applicability are described in Title 40, Part 93 of the Code of Federal Regulations (40 CFR 93--*Determining Conformity of Federal Actions to State or Federal Implementation Plans*).

According to the FAA Air Quality Handbook, because the existing and/or forecasted activity at Lawrence J. Timmerman Airport is not expected to exceed 180,000 annual general aviation (GA) operations, no quantitative assessment of operational emissions, including atmospheric dispersion modeling, is required under NEPA. However, because there is a forecasted increase in aircraft operations due to the project, and because the extension of Runway 15L-33R will create a project-related increase in aircraft taxi times, an operational emissions inventory is required per the General Conformity Rule of the CAA.

NEPA also recommends disclosure of construction-related emissions resulting from airport improvements during air quality impact evaluation. Additionally, the General Conformity Rule requires that all reasonably foreseeable *direct* and *indirect* emissions occurring due to federally-supported actions be quantified and compared against de minimis thresholds in what is known as an applicability test. Direct emissions constitute those occurring due to the project's operation, whereas indirect emissions include those that would occur due to the project's construction. If annual direct and/or indirect emissions are within these de minimis thresholds for each year considered, the project is said to conform to the state's plan(s) to improve air quality in the non-attainment area. If these emissions exceed the de minimis thresholds, project sponsors are required to demonstrate that the project's impacts have been either fully offset or mitigated to zero.

Table 4A summarizes the applicable de minimis thresholds for the pollutants O_3, $PM_{2.5}$ and SO_2, as well as their related precursors.[3]

This section presents the results of the Lawrence J. Timmerman Airport operational and construction emissions inventories prepared to satisfy the air quality analysis requirements of the General Conformity Rule. Construction emissions were quantified for the two-year construction period encompassing 2013 and 2014. Operational emissions from aircraft and ground support equipment (GSE) at Lawrence J. Timmerman Airport are quantified for the project build-out year (2015) and for future year 2020 for both the "no-action" and "with-project" conditions. **Appendix F** includes detailed methodologies, data and assumptions utilized in the preparation of these inventories, and summary tables for emissions factors and hazardous air pollutants.

[2] 40 CFR 93

[3] NOx and VOC are considered precursors for O3. According to EPA, direct PM2.5 and SO2 must always be considered when evaluating PM2.5 conformity. VOC and ammonia NH3 are not required to be addressed as PM2.5 precursors unless states deem it necessary. NOx is to be evaluated as a PM2.5 precursor unless states and EPA agree is it is not significant to the area. Notably, the state of Wisconsin considers PM2.5, NOx, SO2 and VOC in PM2.5 conformity issues.

TABLE 4A
General Conformity De Minimis Thresholds

NAAQS Pollutant	Evaluated Pollutant/Precursor	De Minimis Threshold (Tons Per Year)
O_3[1]	NO_x	100
	VOC	100
$PM_{2.5}$ (all areas)	NO_x	100
	$PM_{2.5}$	**100**
	SO_2	100
	VOC	100
SO_2 (maintenance areas)	SO_2	100

[1] Reported thresholds correspond to moderate O_3 non-attainment areas located outside the Ozone Transport Region (OTR), as is the case with the *Milwaukee-Racine, WI* O_3 non-attainment area.
Source: General Conformity Rule (40 CFR Part 93, Subpart B), effective January 31, 1994.

Construction Emissions

As mentioned, the construction period for the Runway 15L-33R extension and related improvements spans calendar years 2013 and 2014. Activities that generate emissions during this period include operation of off-road construction equipment and vehicles, on-road haul trucks, employee trips to and from the project worksite, asphalt paving operations, and fugitive dust generation due to travel on unpaved roadways.

Construction equipment, fuel type, horsepower, and hours of operation were estimated for each construction subtask (such as storm sewer installation and paving). On-road motor vehicle emission factors were computed using data developed by EPA's MOBILE6.2 emissions model. Off-road equipment emission factors were calculated using EPA's NONROAD (version 2008a) emissions model. Additional data was developed and used to estimate fugitive dust and asphalt paving emissions.

Table 4B presents the construction period emissions inventories for the above-mentioned sources. As shown, total construction-related emissions in 2013 total 0.2 tons of VOC, 0.8 tons of CO, 0.9 tons of NO_x, less than 0.1 tons of SO_2, 22.7 tons of PM_{10} and 2.3 tons of $PM_{2.5}$. Year 2014 emissions total 0.3 tons of VOC, 1.3 tons of CO, 1.8 tons of NO_x, less than 0.1 tons of SO_2, 28.4 tons of PM_{10} and 3.0 tons of $PM_{2.5}$.

TABLE 4B
Construction Period Emissions Inventory (tons)

	2013						2014					
	VOC	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$	VOC	CO	NO_x	SO_2	PM_{10}	$PM_{2.5}$
	Runway 33R Project Area						Runway 15L Project Area					
Off-road Equipment	0.1	0.7	0.9	<0.1	0.1	0.1	0.2	1.0	1.7	<0.1	0.1	0.1
On-road Vehicles	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Asphalt Paving	0.1	--	--	--	--	--	0.1	--	--	--	--	--
Fugitive Dust	--	--	--	--	22.6	2.3	--	--	--	--	28.3	2.8
Grand Total	0.2	0.8	0.9	<0.1	22.7	2.3	0.3	1.3	1.8	<0.1	28.4	3.0

Source: KB Environmental Sciences, Inc., 2011

Operational Emissions

As with the baseline condition, the latest version of the EDMS v.5.1.3 was used for this assessment. **Tables 4C and 4D** summarize the results of the operational emissions inventories of criteria pollutants from aircraft and GSE emissions for both the Proposed Action and No Action alternatives, for the calendar years 2015 and 2020. The project is expected to result in a nominal increase in aircraft operations and a slight increase in taxi time. The resultant incremental increases of criteria pollutants and precursors subject to the General Conformity requirements that are expected to occur due to the project's implementation are also provided.

TABLE 4C
Year 2015 Operational Emissions Inventory (tons)

	CO		VOC		NO_X		SO_X		PM_{10}		$PM_{2.5}$	
	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action
Aircraft	**359**	**403**	**4.2**	**4.6**	**0.4**	**0.8**	**0.5**	**0.5**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Startup	--	--	<0.1	<0.1	--	--	--	--	--	--	--	--
Taxi Out	8.1	8.2	0.4	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Takeoff	46.4	45.0	0.4	0.3	0.1	0.2	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Climb Out	52.0	66.6	0.4	0.5	0.1	0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Approach	232	263	2.0	2.1	0.2	0.4	0.3	0.3	<0.1	<0.1	<0.1	<0.1
Taxi In	20.2	19.9	0.9	1.1	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GSE	**1.0**	**1.1**	**0.1**	**0.1**	**0.3**	**0.3**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Total	**360**	**404**	**4.3**	**4.7**	**0.7**	**1.1**	**0.5**	**0.6**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Project Increment[1]	**--**	**--**	**--**	**0.4**	**--**	**0.4**	**--**	**0.1**	**--**	**--**	**--**	**<0.1**

[1] Project increments represent emissions changes between the no-action and with-project alternatives, and are only reported for pollutants/precursors subject to the General Conformity applicability test.
Source: KB Environmental Sciences, Inc., 2011

TABLE 4D
Year 2020 Operational Emissions Inventory (tons)

	CO		VOC		NO_X		SO_X		PM_{10}		$PM_{2.5}$	
	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action	No Action	Proposed Action
Aircraft	**374**	**421**	**4.4**	**5.4**	**0.5**	**1.0**	**0.5**	**0.6**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Startup	--	--	<0.1	0.1	--	--	--	--	--	--	--	--
Taxi Out	8.4	8.7	0.4	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Takeoff	48.4	47.0	0.4	0.4	0.1	0.2	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Climb Out	54.3	69.5	0.5	0.5	0.1	0.2	0.1	0.1	<0.1	<0.1	<0.1	<0.1
Approach	242	275	2.1	2.3	0.2	0.4	0.3	0.4	<0.1	<0.1	<0.1	<0.1
Taxi In	21.1	21.2	1.0	1.4	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
GSE	**0.5**	**0.8**	**<0.1**	**0.1**	**0.1**	**0.2**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Total	**375**	**422**	**4.4**	**5.5**	**0.6**	**1.2**	**0.5**	**0.6**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Project Increment[1]	**--**	**--**	**--**	**1.1**	**--**	**0.6**	**--**	**0.1**	**--**	**--**	**--**	**<0.1**

[1] Project increments represent emissions changes between the no-action and with-project alternatives, and are only reported for pollutants/precursors subject to the General Conformity applicability test.
Source: KB Environmental Sciences, Inc., 2011

As with the baseline condition, the emissions are dominated by aircraft sources as general aviation aircraft does not typical involve the use of much GSE. Aircraft emissions are dominated by single-engine variable piston and single-engine fixed piston aircraft, which are the most frequently operated aircraft at MWC.

No Action Alternative

Under federal air quality modeling and analysis guidelines, the No Action alternative represents the baseline condition to which the Proposed Action alternative is compared. The No Action alternative will not have air quality impacts as no development at the airport will take place under this scenario, and the operational levels remain essentially the same as the Proposed Action alternative. Additionally, under the No Action alternative, no construction will occur.

Analysis and Mitigation

The total annual construction and operational emissions related to the proposed project at MWC are restated on **Table 4G** and compared to the applicable General Conformity de minimis thresholds. As shown, emissions during each year of the project's construction and operation are well within applicable de minimis thresholds for VOC, NO_x, SO_x, and $PM_{2.5}$, and accordingly the proposed project at MWC conforms to the State Improvement Plan (SIP) to improve air quality in the Milwaukee area.

TABLE 4G
General Conformity Applicability Test

Pollutant	De Minimis Threshold (Tons Per Year)	Project Emissions (tons)			
		2013	2014	2015	2020
Table NO_x	100	0.9	1.8	0.4	0.6
$PM_{2.5}$	100	2.3	3.0	<0.1	<0.1
SO_2	100	<0.1	<0.1	0.1	0.1
VOC	100	0.2	0.3	0.4	1.1
		Construction		Operations	

Source: KB Environmental Sciences, Inc., 2011

The CAA also establishes Transportation Conformity provisions for federal actions. Transportation Conformity is applicable to highway or transit projects that are not included in the region's Transportation Plan or Transportation Improvement Plan, such as the proposed improvement at Lawrence J. Timmerman Airport. However, the Proposed Action alternative does not meet CAA's definition of a transportation project[4] which includes highway and transit projects. The Proposed Action alternative does not affect any roadways; therefore, the transportation conformity provisions do not apply.

Although the improvements to MWC are considered de minimis actions with respect to the General Conformity Regulations and no mitigation is required to demonstrate conformity with area air quality plans, the following mitigation measures can be implemented to reduce the overall air quality construction impacts expected to occur:

- Reduce equipment idling times,
- Use cleaner burning or low emissions fuels in equipment,
- Encourage employee carpooling,
- Limit construction activities when atmospheric conditions are conducive to O_3 formation (i.e. "high ozone days"),
- Limit construction activities during high wind events to prevent dust generation,

[4] 40 CFR 93.101, see definition of "transportation project."

- Utilize warm-mix asphalt during paving operations,
- Water or apply dust suppressants to unpaved areas regularly,
- Cover materials stockpiles,
- Install pads to deter track-out as vehicles enter and leave the work site, and
- Reduce vehicle speeds on unpaved roads.

4.2.2 Compatible Land Use

An airport's compatibility with surrounding land uses is usually associated with the extent of the airport's noise impacts. Airport projects such as those needed to accommodate fleet mix changes, an increase in operations at the airport, or air traffic changes are examples of activities which can alter noise impacts and affect surrounding land uses. Typically, if the noise analysis concludes that there is no significant impact, a similar conclusion usually can be made with respect to compatible land use. However, if the Proposed Action would result in other impacts exceeding thresholds of significance which have land use ramifications, such as disruption of communities, relocation of businesses or residences, and induced socioeconomic impacts, the effects of the land use impacts shall also be discussed within this section.

Threshold of Significance

FAA Order 1050.1E, Appendix A, Paragraph 4.1a states that if the noise analysis concludes there is no significant impact, a similar conclusion usually may be drawn with respect to compatible land use. Compatible land use evaluations also consider the compatibility of land uses in the vicinity of the airport to ensure those uses do not adversely affect safe aircraft operations.

Proposed Action Alternative

As indicated on Exhibit 3E, the airport's noise exposure contours remain on airport property. Implementation of the Proposed Action will not result in a significant change in noise exposure for the airport and it will continue to be compatible with surrounding development.

As indicated on **Exhibit 4A**, the runway protection zones (RPZs) for Runway 15L/33R will be relocated in conjunction with the proposed runway extensions. As outlined in FAA Advisory Circular (AC) 150/5300-13, *Airport Design* (FAA AC 150/5300-13) RPZs are defined as areas immediately beyond the runway end to enhance the protection of people and property on the ground.

FAA AC 150/5300-13 states that airport control over land uses within the RPZ is needed to maintain land use compatibility and obstructions from being developed near the end of the runway that may affect the safe operation of aircraft.

As outlined in **Table 4H**, there are 25 parcels currently contained within the Runway 15L/33R RPZs (20 parcels are contained within the RPZ at the approach end of Runway 15L and five parcels are within the RPZ at the approach end of Runway 33R). Under the Proposed Action, the number of parcels within the RPZ would increase to 33 at the approach end of Runway 15L. The same five parcels would remain within the RPZ at the approach end of Runway 33R.

Table 4H
Parcels Within RPZ
Lawrence J. Timmerman Airport

	Runway 15L End	Runway 33R End
Existing/No Action	20	5
Proposed Action	33	5

Exhibit 4B depicts the location of the parcels within the RPZs under the Proposed Action alternative.

No Action Alternative

Under the No Action alternative, airport operations would continue to be compatible with surrounding land uses. A total of 25 parcels would be located within the existing RPZs.

Analysis and Mitigation

As previously discussed, operations at the airport are expected to increase following implementation of the Proposed Action; however, the change in noise exposure at the airport will not be significant based on established FAA thresholds.

Implementation of the Proposed Action will result in the relocation of the Runway 15L/33R RPZs over parcels adjacent to the airport. Although each extension is 300 feet, the RPZs do not shift in a similar manner at each end. This is due to the proposed use of declared distances to specify the amount of runway pavement available for an airplane's takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements. The declared distances help define the landing and takeoff thresholds which are used to establish the RPZ location. RPZs are positioned 200 feet beyond the end of these thresholds. At the Runway 15L end, a total of 33 parcels will be located within the relocated RPZ. At the Runway 33R end, a total of five parcels will be located within the relocated RPZ. In accordance with FAA land use regulations for RPZs, Milwaukee County will coordinate with property owners to secure an avigation easement for these properties. Per FAA guidance, the easements must convey the right of flight with inherent noise and vibration below the approach surface, the right to remove existing obstructions, and a restriction against the establishment of future obstructions. The purchase price of the avigation easement for each parcel would be determined via certified appraisal with and without the avigation easement. The difference between the two appraisals would represent the change in property value associated with the easement.

The Proposed Action alternative will not exceed the compatible land use significant impact thresholds outlined previously described in this section.

4.2.3 Construction Impacts

Airport construction-related environmental effects generally include dust and equipment emissions, noise, and storm water runoff. In most cases, these effects are subject to federal, state, and/or local ordinances or regulations which typically prescribe suitable mitigation measures.

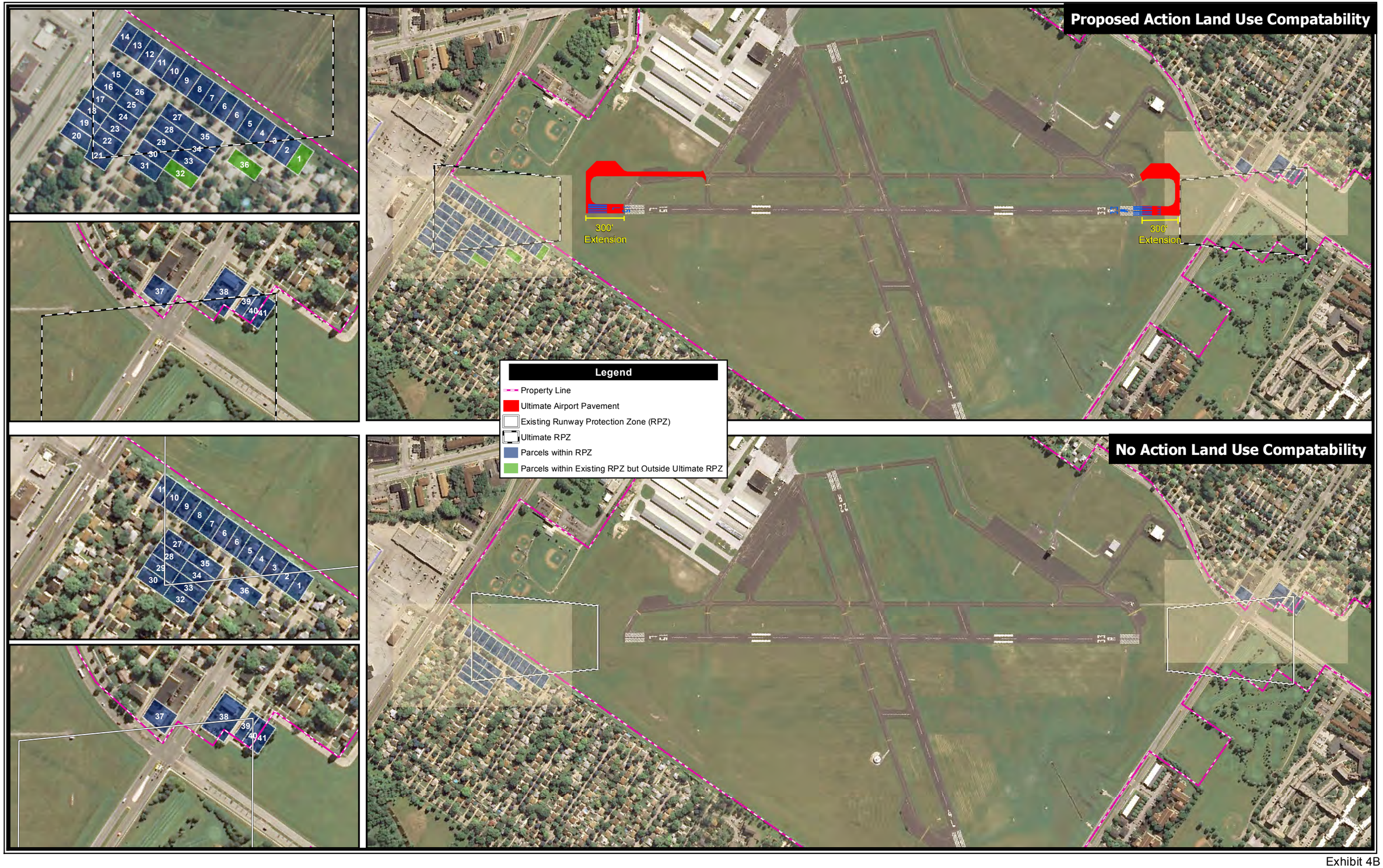


Exhibit 4B
Parcels within the Runway Protection Zone

Threshold of Significance

Significant impacts occur when the severity of construction impacts cannot be mitigated below the threshold for the affected resources (i.e., air quality, noise, water quality, etc.).

Proposed Action

Noise. Construction-related noise impacts at airports result from the use of construction equipment. Noise impacts from construction activities are closely related to the type of construction equipment being used during each phase of construction.

Construction noise related to the Proposed Action will be localized to the project site. Construction of the proposed improvements will occur during daytime hours.

Air Quality. The generation of exhaust emissions and fugitive dust as a result of construction activities is anticipated due to the movement of construction equipment and the exposure and disturbance of surface soils during the construction of the proposed improvements. These impacts are expected to be both temporary and localized. Mitigation measures, as outlined below, will reduce this impact to levels below significance.

Water Quality. Construction activities also have the potential to result in temporary water quality impacts, particularly suspended sediments, during and shortly after precipitation events in the construction phase. Recommendations established in FAA AC 150/5370-10, *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control,* will be incorporated to further mitigate potential impacts. These standards, commonly referred to as best management practices (BMPs), include temporary measures to control water pollution, soil erosion, and siltation through the use of berms, fiber mats, gravels, mulches, slope drains, and other erosion control methods. BMPs are described fully in the following Analysis and Mitigation discussion.

No Action

No development is proposed under the No Action alternative; therefore, no construction impacts will occur.

Analysis and Mitigation

Implementation of the Proposed Action alternative will result in short-term construction impacts during construction of the proposed improvements. The following preventative and mitigative measures will be implemented during construction. With implementation of the mitigation measures, it is not anticipated that implementation of the Proposed Action alternative will exceed the established threshold of significance.

Site Preparation

- Minimize land disturbance.
- Use watering trucks to minimize dust.
- Cover trucks when/if hauling dirt.

- Stabilize the surface of dirt piles if not removed immediately.
- Use windbreaks to prevent accidental dust pollution.
- Limit vehicular paths and stabilize these temporary roads.

Construction

- Cover trucks when transferring materials.
- Use dust suppressants on traveled paths which are not paved.
- Minimize unnecessary vehicular and machinery activities.
- Minimize dirt track-out by washing or cleaning trucks before leaving the construction site.

Post Construction

- Revegetate any disturbed land not used.
- Remove unused material.
- Remove dirt piles.
- Revegetate all vehicular paths created during construction to avoid future off-road vehicular activities.

Construction Scheduling

- Sequence construction activities so that areas void of vegetation are not exposed for long periods of time.
- Schedule landscaping and other work that permanently stabilizes the area to be done immediately after the land has been graded to its final contour.
- Alter the project schedule to minimize the amount of denuded areas during wet months.
- Construct permanent storm water control facilities early in the project schedule and then utilize these structures for controlling erosion and sedimentation.

Limiting Exposed Areas

- Divert or intercept storm water before it reaches long and/or steep slopes.
- Release captured storm water at a slow and controlled rate to prevent damage to downstream drainageways and structures.
- Increase the soil's ability to absorb moisture through vegetative means, surface roughening, and/or mulching.
- Stage grading so that the native vegetation provides a buffer to slow and disperse runoff.

Runoff Velocity Reduction

- Build check dams or other energy dissipation structures in unlined drainage channels to slow runoff velocity and encourage settlement of sediments.
- Limit slopes to 3:1 wherever practical.
- Intercept runoff before it reaches steep slopes using diversion dikes, swales, or other barriers.
- Protect slopes with mulches, matting, or other types of temporary or permanent soil stabilization.
- Provide velocity-reducing structures or rip rap linings at storm water outfalls.

Sediment Trapping

- Direct sediment-laden storm water to temporary sediment traps.
- Construct temporary sediment traps or basins at the drainage outlet for the site.

- Use temporary sediment barriers such as silt fences, straw bale barriers, sand bag barriers, and gravel filter barriers for construction sites with relatively flat slopes that produce sheet flow runoff.

Good Housekeeping

- Schedule regular inspections of storm water and sediment control devices.
- Repair and/or replace storm water and sediment control devices as often as necessary to maintain their effectiveness.

All BMPs will be implemented in compliance with the provisions of TRANS 401, Wisconsin Administrative Code.

4.2.4 Hazardous Materials, Pollution Prevention, and Solid Waste

Four primary laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances, and wastes. The two statutes of most importance to FAA actions related to construction and operation of airport facilities and navigational aids are RCRA (as amended by the *Federal Facilities Compliance Act of 1992*) and CERCLA, as amended. RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA, commonly referred to as Superfund, provides Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

Threshold of Significance

Thresholds of significance are typically only reached when the resource agency has indicated that it would be difficult to issue a permit for the proposed development. A significant impact may also be realized if the Proposed Action would affect a property listed on the National Priorities List (NPL) under the Superfund program.

Proposed Action Alternative

Hazardous Materials. Implementation of the Proposed Action alternative will result in earthwork disturbances during construction of the proposed runway extensions and demolition of portions of the existing taxiway system. Coordination received from Wisconsin DNR, included in **Appendix B**, states that asbestos containing materials may be present in the existing electrical utilities and expansion joints within the project site. Additionally, Wisconsin DNR notes that soil and groundwater contamination is present within Milwaukee County. Databases available through Wisconsin DNR's Contaminated Lands Environmental Action Network (CLEAN) indicate that there are no active contaminated sites within the vicinity of the project site.

Pollution Prevention. A construction-related WPDES permit will be required prior to construction of the proposed improvements. This permit requires a Notice of Intent for all construction activities disturbing one acre or more of land. Construction-related water quality impacts are discussed under Section 4.2.3, Construction Impacts, and will be minimized through the use of BMPs.

Solid Waste. Solid waste generated from the demolition of existing taxiway systems will be reused as base course material for the proposed pavement construction or transported to an offsite landfill permitted to accept construction waste. Solid waste associated with the operation of the airport is not expected to increase with implementation of the Proposed Action alternative.

No conditions covered under RCRA or CERCLA are present within the vicinity of the project site.

No Action Alternative

No construction would occur with implementation of the No Action alternative; therefore, no impacts to hazardous materials are anticipated to result from alternative implementation. Additionally, the airport will continue to operate in a manner similar to today; therefore, ongoing pollution prevention measures will be employed and solid waste will continue to be generated.

Analysis and Mitigation

Under both alternatives, the airport will continue to operate in a manner similar to today; therefore, ongoing pollution prevention measures will be employed and solid waste will continue to be generated. Milwaukee County and its contractor will comply with all federal, state, and local regulations regarding hazardous materials. If asbestos containing materials are identified within the project disturbance area, Milwaukee County or its contractor will secure a *Notification of Demolition and/or Renovation and Application for Permit Exemption* under NR 406, 410, and 447 of the Wisconsin Administrative Code.

During implementation of the Proposed Action, containers and drums will be stored in a secure location to prevent vandalism and unwanted dumping. Additionally, waste materials will be managed in conformance with state solid waste requirements. The Proposed Action alternative will not result in impacts that exceed the significant impact thresholds previously discussed in this section.

4.2.5 Light Emissions and Visual Impacts

Airport facilities and operations cause light emissions that can affect light-sensitive land uses in an airport area, such as residences, parks, or recreational areas. The characteristics of many runway lighting systems create potential sources of annoyance to nearby residents in the airport vicinity if light is directed towards light-sensitive land uses. Light emissions may emanate from the following sources associated with a proposed action: airfield lighting, visual navigational aids (NAVAIDS), and both airborne and ground-based aircraft operations.

Visual impacts relate to the extent that the proposed development contrasts with the existing environment and whether a jurisdictional agency considers this contrast objectionable. The visual sight of aircraft, aircraft contrails, or aircraft lights at night, particularly at a distance that is not normally intrusive, should not be assumed to constitute an adverse impact.

Thresholds of Significance

No specific impact thresholds have been established for this resource category.

Proposed Action

Light Emissions. The Proposed Action will extend each runway end by 300 feet. As part of the extensions, the runway lighting systems will also be shifted approximately 300 feet from the existing location. At the Runway 15L end, the lighting systems that will change include the runway end identification lights (REILs), runway threshold lights, runway edge lights, taxiway edge lights, and visual approach slope indicator lights (VASI). At the Runway 33R end, the runway threshold lights, runway edge lights, and taxiway edge lights will be shifted to the proposed runway end. **Exhibit 4C** illustrates the location of the lighted navigation aids in relation to the existing residences within the vicinity of the airport.

Runway threshold lights, runway edge lights, taxiway edge lights emit a constant light in all directions (red and green color for runway threshold lights and white for runway edge and blue for taxiway edge) when activated by airport traffic control tower staff or remotely by the pilot when the tower is closed.[5] REILs are also activated by airport traffic control tower staff or remotely by the pilot when the associated runway lights are turned on. Runway threshold lights, runway edge lights, taxiway edge lights, and REILs are turned off once the arriving aircraft has landed, the departing aircraft has left the traffic pattern area, or it has been determined the lights are no longer of use to the pilot.[6]

Per FAA standards, REILs have a horizontal beam angle of 30 degrees and a vertical beam angle of 10 degrees and are oriented 15 degrees outward from a line parallel to the runway and inclined 10 degrees above horizontal.[7] FAA standards allow for the use of baffles in situations where this type of lighting may be objectionable, such as the adjacent residential land uses. However, when baffles are used, the lights must be oriented 10 degrees outward from a lined parallel to the runway and inclined at an angle 3 degrees above a horizontal plane. Using the baffled REIL positioning parameters, the light beam would directly illuminate the residential land uses adjacent to the airport. **Exhibit 4C** depicts the location of the proposed lighting fixtures at the Runway 15L end and a profile of the light cone projected by the REIL fixtures.

While operating, REILS emit a white flashing light at a rate of 120 flashes per minute. The light system has three intensity settings, the use of which depends on the visibility conditions and time of day. Generally, the highest intensity setting is only used at nighttime or when visibility is poor (three miles or less).

The VASI is a series of lights that provide visual descent guidance information to pilots approaching an airport. The VASI projects red and white lights to indicate whether the aircraft is above, below, or in line with a slope extending from the runway landing threshold. The VASI approach slope for Runways 15R and 33L is set at 3 degrees. The location of the VASI is based on the runway landing threshold. The location of the Runway 15L landing threshold will be shifted 300 feet and the Runway 33R landing threshold will be shifted 100 feet in conjunction with the proposed extensions. As previously stated, the Runway 33R landing threshold will be displaced 200 feet, which accounts for the difference between the extension and proposed threshold location.

Visual Impacts. To support the runway extension to the north, additional earthen fill material will be imported to site in the area depicted on **Exhibit 4D**. As shown on the exhibit, the runway will be extended at a similar elevation to the existing runway end. The terrain beyond the runway end will slope downward in accordance with criteria outlined in FAA AC 150/5300-13.

[5] From 10:00 p.m. to 7:00 a.m. from May through September and from 9:00 p.m. to 7:00 a.m. from October through April
[6] FAA Order JO 7110.65T, Air Traffic Control
[7] FAA Advisory Circular 150/5340-30E, Design and Installation Details for Airport Visual Aids, Lighting Style L-849E

No Action

As no development will occur at the proposed airport site with implementation of the No Action alternative, no changes to lighting or appearance are anticipated. Lighting at the existing airport site will continue to illuminate the areas within the immediate vicinity.

Analysis and Mitigation

Light Emissions. Implementation of the Proposed Action will relocate existing airport lighting closer to residential land uses adjacent to the airport. As previously discussed, the runway threshold lights, runway edge lights, and taxiway edge lights emit light in all directions. At the Runway 15L end, direct sight of these lights from neighboring residences will likely be obscured due to the distance, increased elevation of the lights, and the presence of physical buffers such as the detached garages and mature trees located between the light fixtures and the residences, as depicted on **Exhibit 4C**. The additional lights will likely increase ambient light levels in the area during the nighttime hours. As previously discussed, the REILs, which are uni-directional, will also be relocated closer to the neighboring residences. REILs have a horizontal beam angle of 30 degrees and a vertical beam angle of 10 degrees. As previously stated, the REILs will be installed with the beam axis of the unit 15 degrees outward from a line parallel to the runway centerline and inclined at an angle of 10 degrees above a horizontal plane. **Exhibit 4C** depicts an example of a horizontal profile for the existing and proposed REILs based on the previously discussed beam angles. The exhibit shows the existing and proposed light locations, existing and proposed terrain, existing property line, and the approximate location of a single-story residence with a height of 20 feet. The profile shown simulates the existing and anticipated light exposure near the light beam centerline. As noted on **Exhibit 4C**, the lower edge of the Proposed Action and No Action light beams are 50 or more feet above the top of the residence. As previously discussed, the use of baffles was eliminated from consideration as FAA standard beam orientation required when using baffles would result in direct illumination of residences adjacent to the airport.

At the Runway 33R end, the runway threshold lights, runway edge lights and taxiway edge lights will likely be visible from the residential and commercial properties located across Swan Boulevard to the east. The closest lights to the property line will be the blue taxiway edge lights which will be relocated approximately 300 feet closer to the neighboring land uses. Relocation of these lights will likely increase ambient light levels during nighttime hours. Runway 33R does not have REILs, and no REILs are proposed as part of project under consideration.

VASI lighting systems are intended to be viewed only by aircraft approaching an airport. Therefore, the light fixtures project a uni-directional light beam above the horizon that will not likely be visible from surrounding land uses at either end of the runway. Additionally, VASI lighting systems are controlled remotely either by the airport traffic control tower or by the pilot. These systems are not operated continuously.

As previously stated, the REIL, runway end, runway edge, taxiway edge, and VASI lighting systems are activated when aircraft are arriving and departing the airport. The overall lighting changes will likely be evident during the nighttime hours. Based on the noise analysis, which includes time of day assumptions to account for increased disturbance from noise during the nighttime hours, it is estimated that three percent of the airport's operations occur between 10:00 p.m. and 7:00 a.m. **Table 4I** presents the existing and forecast nighttime operations for Lawrence J. Timmerman Airport. As shown in the table, the airport lighting systems would be activated on an average of less than three times per night for the

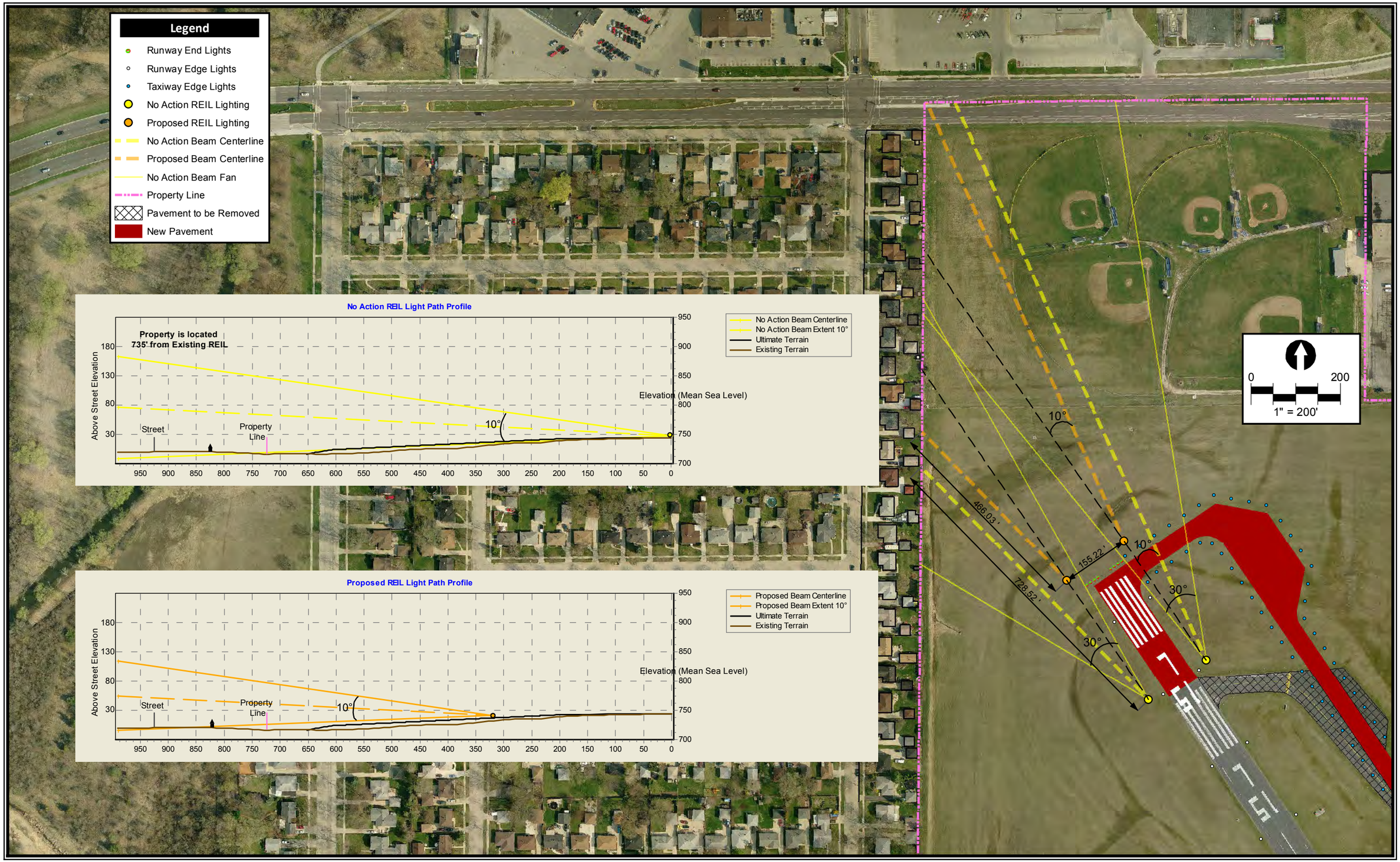


Exhibit 4C
Location of Airport Lighting

11EA01-4D-6/07/11

N. Swan Rd.

W. Silver Spring Dr.

Hwy 41 / W. Appleton Ave.

N. 103rd St.

RUNWAY 15-33 (4,106' x 75')

RUNWAY 4-22 (3,201' x 75')

15

33

4

22

300' Extension

720

745

735

715

Proposed Dry Detention Basin

Connection to existing storm sewer system

740

LEGEND

- Property Line
- New Airfield Pavement
- Pavement to be Removed
- Grading Contours

0 500 1000

SCALE IN FEET

N

Lawrence J. TIMMERMAN AIRPORT

Exhibit 4D
GRADING PLAN

Proposed Action and No Action alternatives. Additional information regarding nighttime operations can be found in **Appendix F**.

Table 4I
Lawrence J. Timmerman Airport
Nighttime Operations

	2011[1]	2015[2]	2015[2,3]	2020[2]	2020[2,3]
	Existing	No Action	Proposed Action	No Action	Proposed Action
Total Operations	32,047	33,432	33,538	34,858	35,563
Total Nighttime Operations (3% of total)	961	1,003	1,006	1,046	10,67
Average Nightly Operations	2.63	2.75	2.76	2.87	2.92

Source: [1] Timmerman Airport Traffic Control Tower from April 2010 through March 2011. Three percent added to the itinerant operations to account for when the ATCT is closed.
[2] FAA *Terminal Area Forecasts* (December 2010)
[3] Coffman Associates analysis

Visual Impacts. The grading changes necessary to support the runway extensions will result in changes to the appearance of the airport when viewed from properties adjacent to the airport. As previously stated, the appearance of the Runway 15L end will change associated with the change in ground elevation needed to support the runway extension. **Exhibit 4C** depicts the existing and proposed terrain for a profile along the extended runway centerline. As noted on **Exhibit 4D**, the terrain will slope away from the proposed improvements. The toe, or base, of the proposed slope will be at a minimum of 150 feet from the airport property line. The slopes will be constructed at a maximum ratio of 4:1, which is considered the threshold for the safe operation maintenance equipment such as lawnmowers. Similar to the lighting, the view of the terrain from adjacent residences will be obscured by existing detached garages and vegetation along the property line.

At the Runway 33R end, earthen fill material will be imported to the site to establish a level construction surface. This change in elevation is not anticipated to result in a substantial change in appearance at the runway end.

4.2.6 Natural Resources and Energy Supply

Energy requirements associated with airport development projects generally fall into two categories: (1) those that relate to changed demands for stationary facilities (i.e., airfield lighting and terminal building heating); and (2) those that involve the movement of air and ground vehicles (i.e., fuel consumption). In addition to fuel, the use of natural resources includes construction materials, water, and manpower.

Threshold of Significance

An impact arises where a project will have a measurable effect on local energy supplies or would require the use of an unusual material or one in short supply. Increased consumption of fuel by aircraft is examined where ground movement or run-up times are increased substantially without offsetting efficiencies in operational procedures, or if the faction includes a change in flight patterns. Ground vehicles'

fuel consumption is examined only if the action would add appreciably to access time, or if there would be a substantial change in movement patterns for on-airport service or other vehicles.

Proposed Action

The primary impact on natural resources resulting from alternative implementation is related to fuel usage during construction of the proposed improvements. Indirect impacts attributed to construction activities could temporarily increase the use of some or all of the following: electricity, fuel, oil, chemicals, water, and other forms of energy and resources needed to construct the proposed improvements.

No Action

No construction will occur with implementation of the No Action alternative; therefore, natural resources and energy supply would be utilized in a manner similar as to what is experienced today.

Analysis and Mitigation

Implementation of the Proposed Action alternative will result in a temporary increase in the use of energy and natural resources during construction. It is not anticipated that the demand for these resources will exceed supply.

Coordination received from the EPA, included in **Appendix B**, recommends use of energy-efficient lighting indicators as part of the project. The existing taxiway lighting at the airport is scheduled to be replaced with a light emitting diode (LED) system as part of a separate project following implementation of the Proposed Action. The existing lighting system will be extended with lighting identical to the current lights to ensure uniform appearance for pilots using the airport. The remaining light fixtures will be reused where possible, and consideration will be given to replacing the fixtures with high-efficiency models while meeting FAA lighting standards for safety.

No mitigation measures are required. Impacts resulting from implementation of the Proposed Action alternative do not exceed the levels of significance for this impact category.

4.2.7 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety

Socioeconomic impacts known to result from airport improvements are often associated with relocation activities or other community disruptions, including alterations to surface transportation patterns, division or disruption of existing communities, interferences with orderly planned development, or an appreciable change in employment related to the project. Social impacts are generally evaluated based on areas of acquisition and/or areas of significant project impact, such as areas encompassed by noise levels in excess of 65 DNL.

Executive Order 12898, *Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,* and the accompanying Presidential Memorandum, and Order DOT 5610.2, *Environmental Justice*, require FAA to provide for meaningful public involvement by minority and low-

income populations as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* federal agencies are directed to identify and assess environmental health and safety risks that may disproportionately affect children. These risks include those that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they may be exposed to.

The acquisition of the residences and farmland is required to conform to the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (URARPAPA). These regulations mandate that certain relocation assistance services be made available to homeowners/tenants of the properties. This assistance includes help finding comparable and decent substitute housing for the same cost, moving expenses, and in some cases, loss of income.

Per FAA Order 1050.1E, Appendix A, Paragraph 16.3, the thresholds of significance for this impact category are reached if the project negatively affects a disproportionately high number of minority or low-income populations or if children would be exposed to a disproportionate number of health and safety risks. Significant socioeconomic impacts would result if an extensive number of residents need to be relocated and sufficient replacement housing is unavailable, if extensive relocation of business is required and this relocation would create a severe economic hardship for the affected communities, if disruptions of local traffic patterns would substantially reduce the level of service of the roads serving the airport and the surrounding community, or if there would be a substantial loss in the community tax base.

Proposed Action Alternative

Socioeconomic Impacts. The proposed improvements will not result in the division or disruption of existing communities, nor will they interfere with orderly planned development. The project area is contained entirely on airport property.

Environmental Justice. As discussed in Chapter Three, coordination received from the EPA, included in **Appendix B**, indicates the project site is within an Environmental Justice area of concern and requests consideration of noise, air quality, and changes in flight profiles resulting from implementation of the Proposed Action.

Children's Environmental Health and Safety. The proposed improvements will be located entirely on airport property, which maintains a security fence at the perimeter that restricts access to the site. The airport will continue to be restricted to access by authorized persons, and there would be no increase in the possibility of contact with any substances that would cause harm or risk.

No Action Alternative

Socioeconomic impacts and impacts to children's environmental health and safety issues are not anticipated with implementation of the No Action alternative as the airport would continue to operate in a manner similar to its current condition. With continued operation of the airport in the current condition, no impacts to low-income or minority populations would occur.

Analysis and Mitigation

Socioeconomic Impacts. As previously discussed, Milwaukee County will pursue avigation easements for properties within the relocated RPZs. The purchase price of the avigation easement for each parcel would be determined via certified appraisal with and without the avigation easement. The difference between the two appraisals would represent the change in property value associated with the easement.

Environmental Justice. As previously discussed, the Proposed Action and No Action noise exposure contours remain entirely on airport property and do not increase noise in noise sensitive areas by 1.5 DNL or more. Additional information regarding the noise analysis is included in **Appendix F**.

Regarding air quality, as stated in Section 4.2.1, the proposed improvements are considered de minimis actions with respect to the General Conformity Regulations, and no mitigation is required to demonstrate conformity with area air quality plans. Temporary increases in air pollutant emissions associated with construction of the proposed project will be mitigated with implementation of the measures outlined in Section 4.2.1.

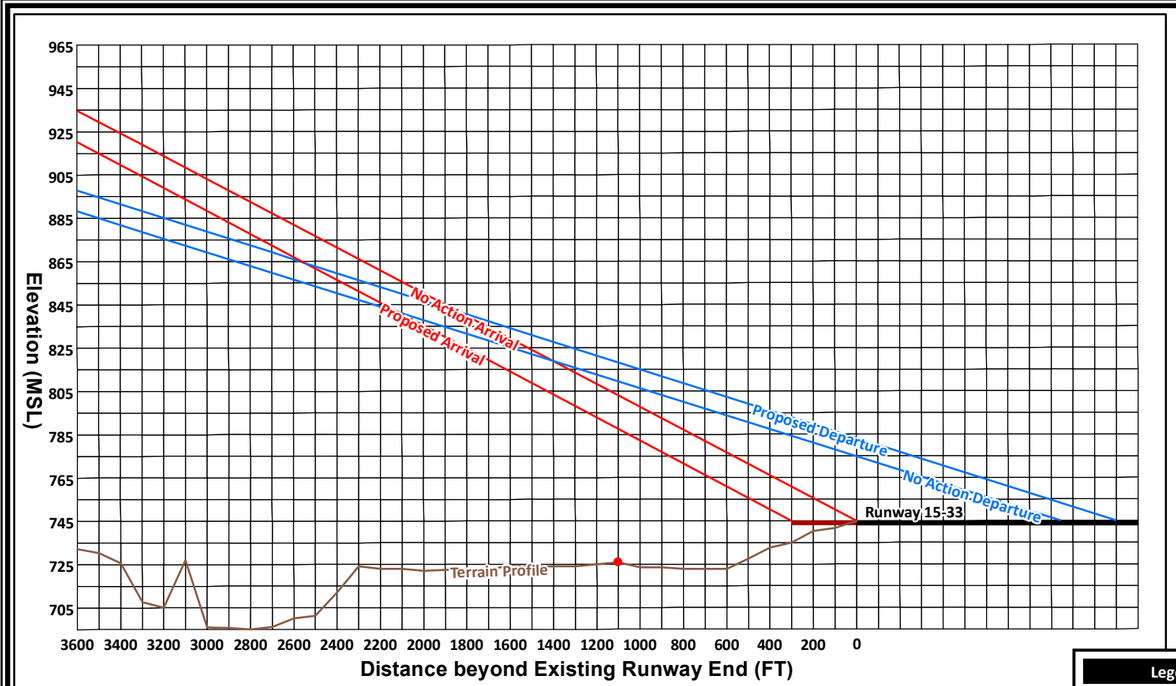
Arrival and departure profiles will change following implementation of the Proposed Action. As indicated on Exhibit 3F, U.S. Census blockgroups located southeast and east of the airport have minority populations over 50 percent. A flight profile analysis was conducted to evaluate the potential change in aircraft altitude over these areas associated with the Proposed Action. The analysis includes a comparison of the terrain and the existing and proposed arrival and departure profiles for an aircraft operating at Lawrence J. Timmerman Airport. The example profile data is based on the arrival and departure profiles for the Cessna 500 business jet as modeled in the Integrated Noise Model. The Cessna 500 was selected because the arrival and departure runway length requirements for this aircraft exceed that of the remaining aircraft that regularly operate at the airport.

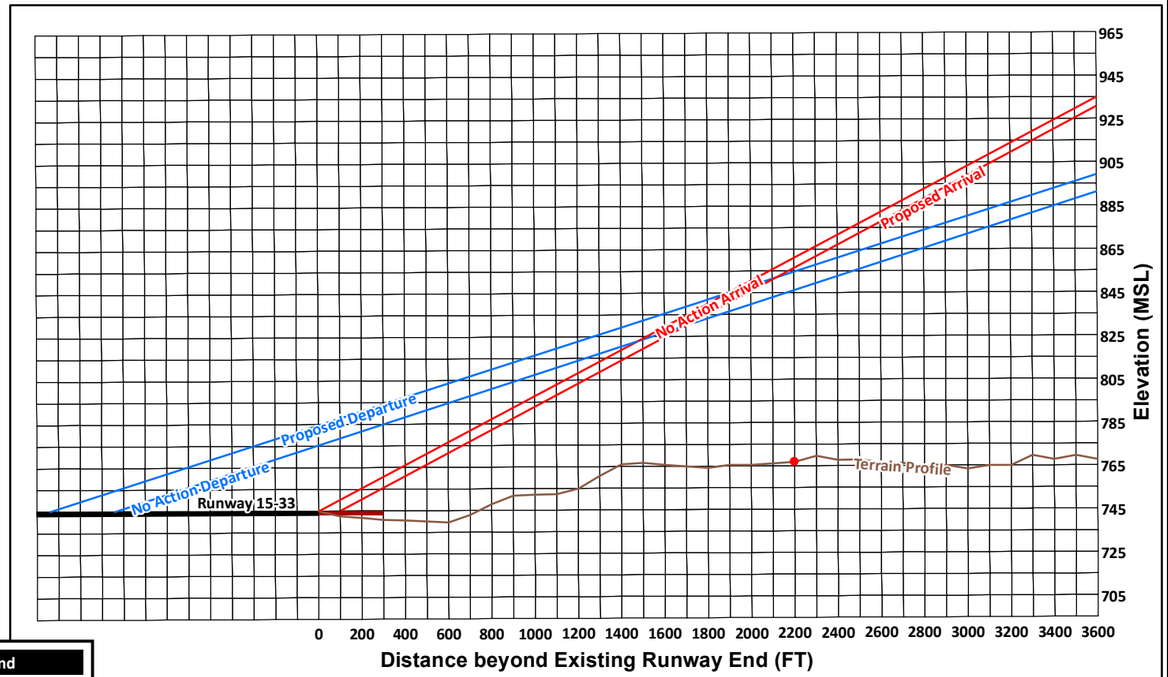
The arrival profiles, shown on **Exhibit 4E**, are based on a touchdown point on the Runway 15L threshold and the displaced threshold for Runway 33R. Due to potential aircraft obstructions, such as trees or other structures, the Runway 33R landing threshold is displaced. This allows aircraft safe clearance of these obstructions. On arrival, pilots generally prefer to land as close to the landing threshold as possible to maximize the amount of runway available for deceleration. The slope of the depicted arrival is consistent with the VASI system. The profiles are intended to illustrate the general path an aircraft would travel when approaching or departing the airport. The actual paths may vary depending on wind conditions and pilot technique.

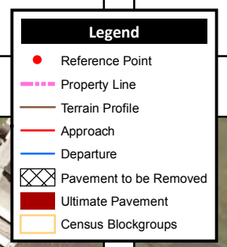
The departure profiles depicted on **Exhibit 4E** are based on information taken from the Integrated Noise Model used to calculate noise exposure contours for this project.[8] Based on the Cessna 500's operating characteristics and atmospheric conditions at the airport, this aircraft uses 3,162.6 feet of runway before leaving the ground. Departing aircraft generally leave the ground prior to reaching the end of the runway, which, under the Proposed Action alternative, shifts the departure profile back towards the airport and results in higher altitudes above surrounding land uses.

Exhibit 4E illustrates the arrival and departure profiles. As shown on the exhibit, the proposed extensions at each end of the runway will decrease the altitude of arriving aircraft in a worst case scenario. The airport property line was selected as a common reference point for aircraft altitude comparison for each of the profiles (No Action and Proposed Action). For the existing condition, aircraft approaching

[8] For more information regarding noise exposure modeling, reference Appendix F.







Note: Flight profile data based on an Integrated Noise Model arrival and departure profiles for Cessna 500 Business Jet

Exhibit 4E
Flight Profile Comparison

the Runway 15L end will typically be 79 feet above ground level at the airport property line and 88 feet above ground level at the property line when approaching Runway 33R. With the Proposed Action, the arrival profile decreases at the airport property line by 18 feet to 61 feet above ground level at the Runway 15L end and by 5 feet to 83 feet above ground level at the Runway 33R end. In both directions, a similar decrease in altitude is expected along the approach path, which maintains a constant slope beyond the airport property line; however, aircraft will be at a greater overall altitude.

Exhibit 4E indicates the altitude of departing aircraft will likely increase over the areas beyond airport property. As previously discussed, aircraft generally leave the ground before reaching the end of the runway. Extension of the runway at both ends will allow additional takeoff length and will likely result in increased aircraft altitudes over the areas surrounding the airport.

Based on the arrival and departure profile evaluation for the Cessna 500, when compared the the No Action the arrival profile for this aircraft is approximately 18 feet lower when using the Runway 15L end and five feet lower when using the Runway 33R end with implementation of the Proposed Action. The difference between the two ends is related to the 200-foot displaced threshold assumed for the Runway 33R end. When compared to the No Action, the Proposed Action departure profile is approximately 80 feet higher when using either runway. Based on this evaluation, it is assumed that arrival and departure profiles for other aircraft operating at the airport would change similarly. Considering the number of arrivals and departures is generally balanced, impacts related to the decreased altitudes of arriving aircraft will likely be offset by the increased altitudes of departing aircraft. Implementation of the Proposed Action will not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

Children's Environmental Health and Safety. As previously discussed, the proposed improvements will be located entirely on airport property, which maintains a security fence at the perimeter that restricts access to the site. The airport will continue to be restricted to access by authorized persons, and there would be no increase in the possibility of contact with any substances that would cause harm or risk. Implementation of the Proposed Action or No Action alternative will not exceed the thresholds of significance previously discussed in this section.

4.2.8 Water Quality

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into Waters of the U.S. under Section 404 of the *Clean Water Act*. The *Clean Water Act* provides the authority to establish water quality standards, control discharges, develop waste treatment management plans and practices, prevent or minimize the loss of wetlands, and regulate other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc.

Threshold of Significance

Water quality regulations and issuance of permits will normally identify any deficiencies in the proposed development with regard to water quality or any additional information necessary to make judgments on the significance of impacts. Difficulties in obtaining needed permits for the project, such as WPDES or Section 404 permits, typically indicate a potential for significant water quality impacts.

Proposed Action

Implementation of the Proposed Action will result in the removal of 7,744 square yards of existing impervious surfaces (taxiways) and construction of 16,940 square yards new impervious surfaces (taxiways and runways). The net increase in paved area at the airport will be approximately 9,196 square yards. Correspondence received from the EPA recommends using drainage swales and permeable pavement to improve drainage conditions at the airport. Additionally, the Milwaukee Metropolitan Sewerage District (MMSD) recommended that earthwork and grading at the Runway 33R end be designed to provide drainage that continues to flow west towards the existing stormwater storage facility and not increase unintentional ponding or other drainage consequences.

No Action Alternative

Under the No Action alternative, no construction will occur. The airport will continue to operate in conformance with Section 402(p) of the *Clean Water Act*.

Analysis and Mitigation

Implementation of the Proposed Action will result in on-airport land disturbances and may have limited short-term effects on surface water quality, particularly an increase in suspended sediments during and shortly after precipitation events in the construction phase. These impacts are also discussed within Section 4.2.3, Construction Impacts.

No long-term water quality impacts are expected with implementation of the Proposed Action alternative. Subsurface water will not be required for the project; therefore, no adverse impacts to groundwater resources are anticipated. The proposed improvements will not significantly alter rainfall drainage patterns or contaminate, or otherwise adversely affect, the public water supply, water treatment facilities, or water distribution centers.

As previously discussed, the net increase in pavement at the airport will be 9,196 square yards. Regarding constructing the pavement of permeable pavement, Milwaukee County seeks to provide a uniform landing surface for aircraft operating at the airport and therefore will construct the improvements using standard materials.

As discussed in the preliminary engineering report included in **Appendix C**, the drainage improvements will be designed in conformance with Milwaukee Metropolitan Sewerage District Chapter 13, Surface and Storm Waters Rules. The project design will include drainage swales and culverts to connect to the existing airport drainage system. Additionally, two dry detention basins are planned for the area northwest of the approach end of Runway 15L and west of the approach end of Runway 33R. These detention basins are designed to hold water during a rain event then discharge water to the existing drainage system at a prescribed rate. The proposed improvements will be designed to maintain compliance with MMSD Chapter 13 for the entire airport property and will follow the drainage patterns as suggested by MMSD. Additionally, the project will be constructed in conformance with TRANS 401, Wisconsin Administrative Code, and Milwaukee County stormwater management requirements.

According to the EPA, the Little Menomonee River is classified as an impaired water under Section 303(d) of the CWA.[9] The Proposed Action will not result in any direct impacts to the Little Menomonee River.

4.3 CUMULATIVE IMPACTS

Analysis of the cumulative overall impact of a Proposed Action Alternative and the consequences of subsequent related actions is required to determine the significance of the impact on the environment resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of the actions' originator.

Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. Cumulative impact analysis considers connected actions, projects related and dependent upon the completion of the proposed airport project, and similar actions or projects having a common geography or timing that provide a basis for considering their impact together with impacts related to the proposed airport project. Cumulative impacts are evaluated on three time horizons: past actions, present actions, and reasonably foreseeable actions. Due to limited availability of information regarding past actions, this portion of the analysis is limited to the past five years. Present actions are those projects which are ongoing and will continue during the implementation of the Proposed Action. Reasonably foreseeable actions, for the purposes of this project, are those that have received local approval for implementation, such as a building permit. Planned projects, such as those outlined within a community's General Plan or Specific Plan, are not considered reasonably foreseeable as part of this analysis.

Specific thresholds for cumulative impacts are not established in FAA Order 1050.1E as the significance threshold varies according to the affected resources. In evaluating cumulative impacts, the impact of the Proposed Action should be added to the impacts of other projects to determine if the significant impact threshold will be exceeded.

The following bullets list projects recently completed at Lawrence J. Timmerman Airport:

- Parking lot reconstruction – completed in 2010
- Pavement rehabilitation – completed in 2009
- Pavement rehabilitation – completed in 2008
- Gate replacement – completed in 2008
- Pavement rehabilitation, sealcoating runways and taxiways – completed in 2007
- Emergency generator installation – completed in 2007
- Pavement rehabilitation – completed in 2006
- Security improvements – completed in 2006
- Runway incursion signage – completed in 2005

The following bullets list projects planned for Lawrence J. Timmerman Airport:

- Pavement rehabilitation
- Taxiway light replacement

[9] Environmental Protection Agency, Watershed Assessment, Accessed March 2010, http://iaspub.epa.gov/waters10/attains_waterbody.control?p_list_id=WI17600174&p_cycle=2006&p_report_type=T

- Timmerman terminal construction
- Airport beacon replacement

Based on coordination with the City of Milwaukee and City of Wauwatosa, no major projects have been undertaken within the vicinity of the project site. Redevelopment of Timmerman Plaza, located north of the airport near 103rd Street is currently under consideration by the City of Milwaukee. The most recent action for this site was the approval of a zoning re-designation for the property to General Planned Development.[10] A private developer proposes to demolish the existing structures on the site and construct new retail buildings on the site. The site plan includes an increase in the amount of landscaped areas and a potential reduction in parking spaces.

Foreseeable Future Actions

No agencies indicated concerns regarding potential cumulative impacts during the agency scoping process undertaken at the onset of this EA. Resource issues that are appropriate for analysis under a cumulative impact assessment are addressed below. These categories were identified for cumulative impact analysis due to potential impacts caused by the Proposed Action. Much of the discussion contained within the following sections is also reflected within the various impact analyses in Section 4.2. The discussions have been consolidated within this section to summarize the qualitative cumulative impact analysis which was completed for the project.

Air Quality. The geographic scope of the air quality cumulative impact analysis is limited to the jurisdiction limits of the Southeastern Wisconsin Regional Planning Commission (SEWRPC) which is the Metropolitan Planning Organization (MPO) serving Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties.

Implementation of the runway extension project will result in de minimis air quality impacts. In addition, construction emissions will not exceed the identified significant thresholds.

The Proposed Action alternative may be undertaken simultaneously with other projects in the area. Construction impacts will be short-term and can be attributed to vehicular emissions related to construction as well as dust resulting from ground disturbance and building construction. It is not expected that these projects, cumulatively, will result in air quality impacts which exceed the stated threshold of significance.

Additionally, because aviation activity at Lawrence J. Timmerman Airport represents such as small amount of U.S. and global emissions and the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of this Proposed Action cannot be adequately assessed given the current state of the science and assessment methodology.

Noise. The geographic scope of the noise impact cumulative impact analysis is limited to those properties within one quarter of a mile of the Lawrence J. Timmerman Airport property boundary. As previously discussed, noise related to aircraft operations will not exceed the established thresholds. However, construction-related noise will occur during implementation of the Proposed Action. Construction-

[10] http://city.milwaukee.gov/CityPlanCommissionCPC/SilverSpringZoning.htm

related noise impacts will be short-term and can be attributed to the operation of construction equipment. It is not expected these projects, cumulatively, will result in noise impacts.

Light Emissions and Visual Impacts. The geographic scope of the light emissions and visual impact cumulative impact analysis is limited to those properties within one quarter of a mile of the Lawrence J. Timmerman Airport property boundary. The construction of the runway extensions will introduce additional lighting to the areas near the runway ends, however the lights will be installed in a manner consistent with FAA regulations and will not directly expose adjacent residences to airfield lighting. . Additionally, the appearance of the airport will change, particularly at the Runway 15L end. These changes will be visible to the south of Silver Spring Drive and from properties adjacent to the northwest airport boundary. No cumulative impacts due to light emissions or visual impacts are reasonably foreseeable.

Environmental Justice. The geographic scope of the environmental justice cumulative impact analysis is limited to those blockgroups within one mile of the Lawrence J. Timmerman Airport boundary. The primary change within these areas following implementation of the Proposed Action will be the altitude of aircraft arriving and departing the airport. As previously discussed, some aircraft may arrive at lower altitudes and some aircraft may depart at higher altitudes over the areas surrounding the airport. It is not anticipated that these changes in flight profiles, cumulatively, will result in significant impacts to the residents of the areas surrounding the airport.

Water Quality. The geographic scope of the water quality cumulative impact analysis is limited to the Grantosa/Lower Menomonee and Little Menomonee River subwatersheds, which includes the airport and surrounding areas. Short term water quality impacts may result from construction of the runway extension and associated improvements. These impacts will be mitigated using BMPs.

During the process of obtaining and modifying permits for other projects within the Grantosa/Lower Menomonee and Little Menomonee River subwatersheds, coordination with USACE and local agencies would be conducted to determine applicable permitting requirements. The permit programs implemented by these agencies take into account the cumulative impact of actions and projects on the regulated resources. Periodic program reviews are conducted to ensure that the loss of regulated resources authorized through the permit programs do not constitute an individual or cumulatively unacceptable impact. The Proposed Action alternative, as well as all reasonably foreseeable actions, will be subject to this regulatory review process, as applicable.