

Chapter Four

Environmental Consequences

4.0 INTRODUCTION

Pursuant to the Federal Aviation Administration's (FAA) environmental orders 5050.4B, *NEPA Implementing Instructions for Airport Actions*, and 1050.1E, *Environmental Impacts: Policies and Procedures*, the potential impacts of the projects associated with the No Action Alternative and Alternative 1/Sponsor's Proposed Action are described in this chapter. Potential impacts to the following environmental resource categories have been evaluated:

- ◆ 4.1 Noise
- ◆ 4.2 Compatible Land Use
- ◆ 4.3 Social Impacts
- ◆ 4.4 Environmental Justice
- ◆ 4.5 Induced Socioeconomic Impacts
- ◆ 4.6 Air Quality
- ◆ 4.7 Water Quality
- ◆ 4.8 Department of Transportation Section 4(f) Lands
- ◆ 4.9 Historical, Architectural, Archaeological, and Cultural Resources
- ◆ 4.10 Biotic Resources
- ◆ 4.11 Federally-Listed Endangered and Threatened Species
- ◆ 4.12 Wetlands and Waters of the United States
- ◆ 4.13 Floodplains
- ◆ 4.14 Farmland
- ◆ 4.15 Natural Resources and Energy Supply
- ◆ 4.16 Light Emissions and Visual Impacts
- ◆ 4.17 Hazardous Materials and Solid Waste
- ◆ 4.18 Construction Impacts
- ◆ 4.19 Cumulative Effects

There are no coastal resources or wild and scenic rivers in the project area and therefore these resources are not addressed in this EA.

4.1 NOISE

4.1.1 General

Noise generated by the operation of aircraft is but one of a number of factors included in airport planning. Specific types of human activity may be incompatible with certain levels of noise. For this reason, the influence of noise from aircraft operations on land surrounding airports requires careful study by the aviation community. A fundamental fact of noise that needs to be understood is sound. Sound is a physical phenomenon which affects people and things. The sound experienced in our everyday lives is a result of bodies or objects being vibrated.

This vibration causes a motion in the surrounding air resulting in a minute variation in atmospheric pressure called "sound pressure." This sound pressure forms the basis to measure sound and is usually expressed as a sound pressure level in decibels which are dimensionless units expressing logarithmically the ratio of two values (i.e. a measured quantity and a referenced value). A decibel (dB) is defined as ten times the logarithm (to the base 10) of a power or intensity ratio. Because of the logarithmic nature of the decibel scale, a sound pressure level of 60 dB corresponds to a pressure, not 60 times the reference pressure, but 1000 times the reference pressure.¹¹

Each aircraft noise "event" can be considered to begin when the noise level observed by the receiver increases above the background level and ends when the noise level returns to that of the background. Then for each aircraft operation, the maximum noise level occurring during the event may be measured and specified, using any of several noise rating scales. This maximum noise level is the first and simplest type of noise measure and is the "base" measure from which others may be determined.

When sound is measured in order to correlate to the reactions of people, it is necessary to use a measure which relates to the way human beings hear sound. This is accomplished electrically using a device called a "weighting network." One of these weighting networks was designated "A." A-weighted Sound Level has been found to correlate well with people's subjective judgment.¹²

Different uses of the land have different sensitivities to noise. Individuals may each have different perceptions of what is an acceptable level of noise. The background or residual noise against which a specific noise is perceived varies both by location and by time of day. The location of the receiver (i.e. outdoor, indoor with windows open or closed) as well as the receiver's level of activity at a particular moment affects the perception of a noise as either intruding or not intruding. An accepted variation of the A-weighted Sound Level measurement tool is the day-night average sound level (DNL) as described below:

¹¹ *Noise Control and Compatibility Planning for Airports*, FAA AC 150/5020-1, August 5, 1983, Page 11.

While people certainly respond to the noise of single events (particularly to the loudest single event in a series), the long-range effects of prolonged exposure to noise appear to best correlate with cumulative metrics. Such a unit provides a single number which is equivalent to the total noise exposure over a specified time period. Thus, cumulative noise units are based on both time and level. The day-night average sound level (DNL) specified as the noise metric for cumulative exposure under Part 150 is such a unit. Specifically, the DNL is the yearly average of the A-weighted sound level integrated over a 24-hour period. It also incorporates a 10 dB step function weighting to aircraft events between 10:00 p.m. and 7:00 a.m. to account for the increased annoyance of noise during the night hours.²

4.1.2 Methodology

One can easily describe and measure noise, which occurs at any given time (single-event) and may be read from a meter. However, the long-range effects of prolonged exposure to noise appear to best correlate with cumulative metrics. This type of measure provides a single number, which is equivalent to the total noise exposure over a specified time period. For aircraft noise, the FAA requires that the average annual DNL be found in order to determine noise compatibility planning.

A computer model was used to determine noise exposure related to aircraft operations (take-offs and landings) at the Airport. The basic analytical model used to determine noise exposure related to aircraft using the Airport is the FAA's Integrated Noise Model (INM) - Version 7.0. The INM is a computerized overflight noise prediction model which, during an annually averaged 24-hour period at an airport, accounts for separate aircraft flying along flight tracks defined as straight-line or curved segments. These flight tracks are coupled with separate data tables in the computer program's database relating to the noise, velocity, distance, and engine thrust for each distinct aircraft type selected.

To use the INM a variety of user-supplied input data is required. These include a mathematical definition of the airport runways relative to a base reference point, the mathematical description of ground tracks above which aircraft fly, and the assignment of specific aircraft to individual flight tracks. A discussion of the input data used to prepare the noise exposure contours for the Airport is provided in the following sections.

4.1.2.1 Aircraft Operations

For this analysis, aircraft operational data was derived from available records of current flight activity and from forecasts of future activity as drawn from the airport management and the Airport Master Plan completed in 2009. The airport forecasts were reviewed and concurred with by IDA and FAA. The necessary information includes total annual operations, fleet mix, time of day percentages, and runway usage information. To define the level of operations (takeoffs and landings) for the existing conditions analysis, all aircraft were assigned in

² *Noise Control and Compatibility Planning for Airports*, FAA AC 150/5020-1, August 5, 1983, Page 13.

accordance with the recorded operational levels provided by the FAA Airport Master Record and, GCR data, and airport manager and tenant interviews.

4.1.2.2 Fleet Mix

A second factor in the preparation of data for noise modeling by the computer is the determination of fleet mix. This percentage of total use by specific aircraft types allows a refinement of projected noise patterns in the airport vicinity. A forecast of airport activity was developed and provides not only the total number of operations during the current and projected five-year time frame, but also the number of operations by specific aircraft groups. These determinations were made based on GCR data, airport management and tenant interviews, current based aircraft lists, and the Master Plan completed in 2009. It was estimated that of all operations in the 12-month period analyzed, for the Existing Scenario, approximately 83.4 percent were made by general aviation aircraft (single and multi-engine piston, small corporate jets, and helicopters), and 16.6 percent were made by air taxi aircraft. The projected fleet mix at the Lansing Municipal Airport would be anticipated to change slightly over the next five years with the proposed runway extensions. A summary of the fleet mix and operations per year for each input scenario as used in the INM computer program is presented in **Table 4-1: Airport Traffic Operational Levels**. A summary of the day-night operational percentages for each input scenario as used in the INM computer program is presented in **Table 4-2: Day/Night Operational Levels (Percent)**.

**Table 4-1:
Airport Traffic Operational Levels**

INM Aircraft Model	Existing (2010)	Future	Future	Aircraft Types
		Without Development (2015)	With Development (2015)	
BEC100	2,690	3,103	3,288	Beech King Air 100
BEC200	1,011	1,167	1,236	Beech King Air 200
BEC90	526	607	643	Beech King Air C90
CNA441	283	327	346	Cessna 441
LEAR31	1,773	2,045	2,327	Learjet 31
CNA550	1,154	1,332	1,513	Cessna Citation 550 (II)
CNA650	536	618	700	Cessna Citation 650
LEAR55	536	618	700	Learjet 55
LEAR60	453	523	591	Learjet 60
GIV	0	0	29	Gulfstream IV
Total Air Taxi	8,962	10,339	11,372	
GASEPF	6,668	7,692	7,692	Single-Engine Prop
GASEPV	6,668	7,692	7,692	Single-Engine Prop
CNA310	1,846	2,129	2,129	Cessna 310
CNA340	918	1,059	1,059	Cessna 340
PA31	815	941	941	Piper Navajo Chieftan/Cheyenne
BEC58P	480	554	554	Beech Baron 58P
DC3	36	42	42	Douglas C-47
R22	304	350	350	Robinson R22B
B206L	200	231	231	Bell 206B Jet Ranger
S70	103	119	119	Sikorsky S-70 Blackhawk
Total General Aviation-Itinerant	18,038	20,810	20,810	
GASEPF	10,892	12,566	12,566	Single-Engine Prop
GASEPV	10,892	12,566	12,566	Single-Engine Prop
BEC58P	3,222	3,717	3,717	Beech Baron 58P
R22	1,655	1,909	1,910	Robinson R22B
S70	339	391	391	Sikorsky S-70 Blackhawk
Total General Aviation-Local	27,000	31,149	31,149	
Local Operations	27,000	31,149	31,149	
Itinerant Operations	27,000	31,149	32,182	
Total Operations	54,000	62,297	63,331	

Note: Totals may not add due to rounding of the decimal places.

Source: CMT, Inc. analysis of 2009 GCR data for Lansing Municipal Airport, FAA Airport Master Record, and airport manager and tenant interviews.

**Table 4-2:
Day/Night Operational Levels (Percent)**

INM Aircraft Model	Future						Aircraft Types
	Existing		Without		Future With		
	(2010)		Development		Development		
	Day	Night	Day	Night	Day	Night	
BEC100	95%	5%	95%	5%	95%	5%	Beech King Air 100
BEC200	95%	5%	95%	5%	95%	5%	Beech King Air 200
BEC90	95%	5%	95%	5%	95%	5%	Beech King Air C90
CNA441	95%	5%	95%	5%	95%	5%	Cessna 441
LEAR31	90%	10%	90%	10%	90%	10%	Learjet 31
CNA550	90%	10%	90%	10%	90%	10%	Cessna Citation 550 (II)
CNA650	90%	10%	90%	10%	90%	10%	Cessna Citation 650
LEAR55	90%	10%	90%	10%	90%	10%	Learjet 55
LEAR60	90%	10%	90%	10%	90%	10%	Learjet 60
GIV	0%	0%	0%	0%	90%	10%	Gulfstream IV
Air Taxi							
GASEPF	97%	3%	97%	3%	97%	3%	Single-Engine Prop
GASEPV	97%	3%	97%	3%	97%	3%	Single-Engine Prop
CNA310	95%	5%	95%	5%	95%	5%	Cessna 310
CNA340	95%	5%	95%	5%	95%	5%	Cessna 340
PA31	95%	5%	95%	5%	95%	5%	Piper Navajo Chieftan/Cheyenne
BEC58P	95%	5%	95%	5%	95%	5%	Beech Baron 58P
DC3	99%	1%	99%	1%	99%	1%	Douglas C-47
R22	100%	0%	100%	0%	100%	0%	Robinson R22B
B206L	100%	0%	100%	0%	100%	0%	Bell 206B Jet Ranger
S70	100%	0%	100%	0%	100%	0%	Sikorsky S-70 Blackhawk
General Aviation-Itinerant							
GASEPF	97%	3%	97%	3%	97%	3%	Single-Engine Prop
GASEPV	97%	3%	97%	3%	97%	3%	Single-Engine Prop
BEC58P	97%	3%	97%	3%	97%	3%	Beech Baron 58P
R22	100%	0%	100%	0%	100%	0%	Robinson R22B
S70	100%	0%	100%	0%	100%	0%	Sikorsky S-70 Blackhawk
General Aviation-Local							

Source: CMT, Inc. analysis of 2009 GCR data for Lansing Municipal Airport and airport and tenant interviews.

4.1.2.3 Runway Use

Runway usage is another essential input to the INM. Information provided by the airport management and historical information was used to distribute flights on each of the runways.

A breakdown of percent utilization by aircraft type on each runway is presented in **Table 4-3: Runway Utilization**.

**Table 4-3:
Runway Utilization**

Aircraft Types Runway Numerals	Existing (No Action) Noise Scenario 2010		Future Noise Scenario Without Development 2015		Future Noise Scenario With Development 2015	
	18-36	9-27	18-36	9-27	18-36	9-27
	Air Taxi					
Turboprop	80%	20%	80%	20%	80%	20%
Jet	100%	0%	100%	0%	100%	0%
General Aviation						
Local	50%	50%	50%	50%	50%	50%
Itinerant	50%	50%	50%	50%	50%	50%
Helicopter						
Local	1%	99%	1%	99%	1%	99%
Itinerant	1%	99%	1%	99%	1%	99%

Source: CMT, Inc. consultation with the Airport.

4.1.2.4 Flight Tracks

To determine projected noise levels on the ground, it is necessary to determine not only how many aircraft are present, but also where they fly. Conversations with airport management and a review of the previously approved environmental assessment (EA) indicated the flight tracks presently utilized at the Airport. **Exhibit 4-4: Generalized Flight Tracks Existing and Future without Development Scenarios** and **Exhibit 4-5: Generalized Flight Tracks Future with Development Scenario** illustrate the flight tracks modeled as representative of general arrival, departures, and flight training (touch and go) corridors. Flight tracks used in the modeling process were chosen by how well they portray normal operating procedures.

As such, they are meant to represent a number of similar flight paths or a “flight corridor”. All aircraft types use the approach and departure flight tracks, per applicable runway, as noted on the exhibits. The touch and go tracks were only used by the single-engine, small twin-engine, and helicopter aircraft. A total of 22 separate departure and 23 distinct arrival tracks were developed to the four runway ends. Also, 22 touch and go tracks were defined to model flight training activity. It is not intended that all tracks be used simultaneously.

4.1.2.5 Assignment of Aircraft to Tracks

After defining aircraft flight tracks and flight profiles, determining runway utilization and evaluating operational totals, the final step in developing input data for INM is the assignment of aircraft to flight tracks. The tracks indicated **Exhibit 4-4: Generalized Flight Tracks Existing and Future without Development Scenarios** and **Exhibit 4-5: Generalized Flight Tracks**

Future with Development Scenario were assigned average day traffic utilization percentages. To determine the specific number of aircraft assigned to any one-flight track, a long series of mathematical calculations were performed. In general, the number of specific aircraft of one type was factored by runway utilization, the directional assignment, and time of day of the aircraft operation. The process of track assignments continued until all operations, in all directions, by all types of aircraft using the Airport, had been accounted for.

4.1.3 Analysis

Integrated Noise Model (INM) evaluations resulted in two types of output data: contours of equal noise exposure, and evaluations of noise related conditions at selected sites. The model was requested to output both types of information. The three noise scenarios: **Existing Noise Contours (2010)** contained on **Exhibit 4-1**, **Future Noise Contours Without Development (2015)** contained on **Exhibit 4-2**, and the **Future Noise Contours With Development (2015)**, contained on **Exhibit 4-3** show 65, 70 and 75 DNL contours and are all depicted in **Appendix A**.

4.1.3.1 Existing Noise Scenario (2010)

The area where the existing level of aircraft-generated noise is above 65, 70, and 75 DNL is graphically shown in **Exhibit 4-1: Existing Noise Contours (2010)**. The total area affected by each noise level is tabulated in **Table 4-4: INM Contour Area Results**. The 70 and 75 DNL contours remain entirely on existing airport property while the 65 DNL contour extends a very small amount beyond the existing property. The 65 DNL contour extends beyond the existing airport property to the west over the Burnham Avenue right-of-way, by approximately 0.16 acres, and to the southwest over a farm field by approximately 2.96 acres. Presently there are no residences or businesses within the 65 DNL or greater contours.

4.1.3.2 Future Noise Scenario Without the Sponsor's Proposed Action (2015)

Exhibit 4-2: Future Noise Contours Without Development (2015) (No Action Alternative), shows the location of noise contours expected due only to the projected growth in aviation operations. This is an important case in that it provides a baseline with which to compare the proposed project. The difference between contours as shown on **Exhibit 4-3: Future Noise Contours With Development (2015)** as compared to contours shown on **Exhibit 4-2: Future Noise Contours Without Development (2015)** will be used to define the project's potential noise effects upon the environment. The total area affected by each noise level for the Future Without Development Scenario is tabulated in **Table 4-4: INM Contour Area Results**. The 70 and 75 DNL contours remain entirely on existing airport property while the 65 DNL contour extends a small amount beyond the existing property. The 65 DNL contour extends beyond the existing airport property to the west over the Burnham Avenue right-of-way, by approximately 0.81 acres, to the southwest over a farm field by approximately 5.18 acres and to the east across the state line, in two areas, by approximately 2.34 acres. While the 65 DNL contour lies in close proximity to some residences along the eastern airport property, none are encompassed within the contour. Additionally, there are no businesses within the 65 DNL or greater contours.

4.1.3.3 Future Noise Scenario With the Sponsor's Proposed Action (2015)

The noise contours associated with the proposed extensions of Runways 18 and 36 are shown on **Exhibit 4-3: Future Noise Contours With Development (2015)**. The total area affected by each noise level with the project is included in **Table 4-4: INM Contour Area Results**. As previously stated, a comparison of **Exhibit 4-3: Future Noise Contours With Development (2015)** and **Exhibit 4-2: Future Noise Contours Without Development (2015)** define the project's potential impact upon the environment. This comparison shows an overall increase of the noise levels generated by operations at the Airport due to the increased operational area. The 70 and 75 DNL contours remain entirely on existing airport property while the 65 DNL contour extends a small amount beyond the existing property. The 65 DNL contour extends beyond the existing airport property to the west over the Burnham Avenue right-of-way, by approximately 0.81 acres, to the southwest over a farm field by approximately 4.53 acres and to the east across the state line, in two areas, by approximately 0.86 acres. While the 65 DNL contour lies in close proximity to some residences along the eastern airport property, none are encompassed within the contour. Additionally, while one business, a car wash facility, lies partially within the 65 DNL contour to the northeast, no other businesses are within the 65 DNL or greater contours. According to 14 CFR Part 150 the one commercial use, car wash facility, would be compatible with the 65 DNL contour.

**Table 4-4:
INM Contour Area Results**

Day-Night Average Sound Level (DNL) (Square Miles)	Existing	Future	Future
	(No Action)	Noise Scenario	Noise Scenario
	Noise Scenario	Without	With
	2010	Development	Development
		2015	2015
65 DNL Area and greater	0.325	0.398	0.387
70 DNL Area and greater	0.149	0.181	0.195
75 DNL Area and greater	0.064	0.075	0.087

Source: CMT, Inc. analysis via INM Version 7.0b.

4.1.3.4 Location Point Analysis

FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, requires that as a part of an EA, an analysis should determine if the proposed development would increase aircraft noise exposure by 1.5 or more decibels of DNL. If the change over a noise-sensitive land use is greater than 1.5 decibels of DNL in areas exposed to noise exposure levels of 65 DNL or greater, measures to mitigate impacts shall be considered. An analysis of the change in noise levels with the extensions of Runways 18 and 36 and other ancillary development as compared to no extension or ancillary development was conducted for 10 location points.

The location point analysis is a feature of the INM that allows for the calculation of cumulative noise levels at specified geographical points. A location point analysis of 10 noise sensitive

areas in the vicinity of the Airport was conducted using Version 7.0 of the FAA's INM. This analysis was conducted to determine the DNL at each of the 10 locations for the three scenarios. The geographic location of the receptor points is shown on **Exhibit 4-4**. A review of the analysis indicates that none of the identified receptors were subjected to noise levels of 65 DNL or greater in any of the scenarios. **Table 4-5: DNL Noise At Location Points** depicts the DNL values at the location points. Comparison of the Future Scenario Without Development to the Future Scenario With Development shows that none of the points would experience a 1.5 increase in DNL noise levels and experience a noise level of 65 DNL or greater.

**Table 4-5:
DNL Noise At Location Points**

Receptor Identification	Receptor Type	Future Noise Scenario Without Development 2015	Future Noise Scenario With Development 2015	Amount of Change
1	School	52.2	52.3	0.1
2	House	63.1	63.6	0.5
3	Church	55.9	56.1	0.2
4	House	60.2	60.2	0.0
5	House	58.9	58.6	-0.3
6	Hospital	51.9	51.8	-0.1
7	School	43.3	43.3	0.0
8	House	55.3	54.7	-0.6
9	House	57.0	56.0	-1.0
10	School	44.7	44.4	-0.3

Source: CMT, Inc. analysis via INM Version 7.0b.

In summary, the runway extensions should not induce any significant noise impacts.

4.1.4 Mitigation

All significant noise contours remain on existing airport property, except for the 65 DNL contour. While the 65 DNL contour extends beyond the existing airport property, no incompatible land uses are within the contour. Additionally, no location points in either of the future scenarios, experience a noise level of 65 DNL or greater and an increase of 1.5 DNL or greater. As such, the extensions of Runway 18/36 are not anticipated to create any significant adverse noise impacts in the vicinity of the Lansing Municipal Airport and no mitigation would be required.

4.2 COMPATIBLE LAND USE

4.2.1 General

The objective of contemporary land use planning is the achievement and maintenance of compatibility between the Airport and its environment. Inherent in this objective is the assurance that the Airport can maintain or expand its size and level of operations to satisfy existing and future aviation demands, while persons who live, work, or own property near the Airport may enjoy a maximum amount of freedom from concerns which may originate as a result of having an airport nearby. The protection of the public investment in a facility for which there is no feasible or prudent replacement is also of great importance.

FAA Order 5050.4B, Table 7-1, Significance Thresholds, indicates that the compatibility of land uses for each alternative is largely determined by the impacts of aircraft noise. In addition to the consideration of aircraft noise impacts, compatible land use issues may arise from acquisition, business relocations, community disruption, induced socioeconomic impacts, wetland or floodplain impacts, or critical habitat alterations associated with the proposed projects.

Guidance from FAA Order 1050.1E (Appendix A, 4.1a) states:

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Airport development actions to accommodate fleet mix changes or the number of aircraft operations, air traffic changes, or new approaches made possible by new navigational aids are examples of activities that can alter aviation-related noise impacts and affect land uses subjected to those impacts. In this context, if the noise analysis described in the noise analysis section (section 14) concludes that there is no significant impact, a similar conclusion usually may be drawn with respect to compatible land use. However, if the proposal would result in other impacts exceeding thresholds of significance which have land use ramifications - for example, disruption of communities, relocation, and induced socioeconomic impacts - the effects on land use shall be analyzed in this context and described accordingly under the appropriate impact category with any necessary cross-references to the Compatible Land Use section to avoid duplication.

The inherent variability in the way individuals react to noise makes it impossible to accurately predict how any one individual will respond to a given noise. However, considering the community as a whole, trends emerge which relate noise to annoyance. In this way it is possible to correlate a noise index with community annoyance. This index will represent the average annoyance for the community. 14 CFR Part 150 contains a table, Land Use Compatibility with Yearly Day-Night Average Sound Levels that identifies land uses that are "normally compatible" or "non-compatible" with various levels of noise exposure. This table is included in this report as **Table 4-6: Land Uses Normally Compatible With Various Noise Levels**. In using the land use compatibility table, the following notes should be observed:

- ◇ DNL contours indicate the boundary lines between areas of acceptable or unacceptable noise exposures for the various land uses. The contours indicate the trend in relative noise levels. However, vegetation, land contours, and the position

of buildings or walls may often affect the impact of noise on the human users at specific sites.

- ◇ DNL levels may vary somewhat above or below the predicted levels for a particular location depending upon local topography and vegetation, and upon final aircraft loadings and operations.
- ◇ When appropriate, noise level reduction may be achieved through the incorporation of sound attenuation into the design and construction of a structure to achieve compatibility. However, more specific noise measurements and analysis is generally advisable prior to incurring the expense of such sound treatment.
- ◇ Other local noise sources may often contribute as much as or more than aircraft to the total noise exposure at a specific location.
- ◇ Compatibility designations in the table generally refer to the major use of the site. If other uses with greater sensitivity to noise are permitted at a site, the compatibility determination is based upon the use, which is most adversely affected by noise.

**Table 4-6:
Land Uses Normally Compatible With Various Noise Levels**

Land Use	Yearly day-night average sound level (Ldn) in decibels					
	Below					
	65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N (1)	N (1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N (1)	N (1)	N (1)	N	N
Public Use						
Schools	Y	N (1)	N (1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y (2)	Y (3)	Y (4)	Y (4)
Parking	Y	Y	Y (2)	Y (3)	Y (4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail - building materials, hardware and farm equipment	Y	Y	Y (2)	Y (3)	Y (4)	N
Retail trade - general	Y	Y	25	30	N	N
Utilities	Y	Y	Y (2)	Y (3)	Y (4)	N
Communication	Y	Y	25	30	N	N
Manufacturing & Production						
Manufacturing, general	Y	Y	Y (2)	Y (3)	Y (4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y (6)	Y (7)	Y (8)	Y (8)	Y (8)
Livestock farming and breeding	Y	Y (6)	Y (7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y (5)	Y (5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Note: Numbers in parenthesis refer to notes; see continuation of Table 4-5 on the next page for key and notes.

**Table 4-6 (Continued):
Land Uses Normally Compatible With Various Noise Levels**

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key to Table 4-5

SLUCM	Standard Land Use Coding Manual
Y (YES)	Land Use and related structures compatible without restrictions.
N (NO)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of

Notes for Table 4-5

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings are not permitted.

Source: 14 CFR Part 150, Airport Noise Compatibility Planning. December 18, 1984. Appendix A, Table 1.

The aircraft noise contours presented in **Section 4.1: Noise**, indicate that implementation of the runway extensions would not result in incompatible land uses being exposed to noise levels above 65 DNL. Since compatible land use impacts are directly related to the noise impacts described in **Section 4.1**, the thresholds of significant impact presented in **Section 4.1** also apply to this section.

4.2.2 No Action Alternative

The No Action Alternative is equivalent to the Existing Scenario. It was determined in the noise analysis that the 70 and 75 DNL contours remain entirely on existing airport property with no residences or businesses within the 65 DNL contours or greater. No significant impacts to land use would be anticipated under this alternative.

4.2.3 Alternative 1/Sponsor's Proposed Action

It was determined in the noise analysis that the 65 DNL contour does extend beyond the Airport's property line over compatible land uses. However, no significant noise impacts would be anticipated. Therefore, due to the current and planned use of the property, it is anticipated that no significant impacts to land uses would be experienced.

In an effort to protect airport environs and residences, any proposed development generally should conform favorably to current local zoning. A portion of the proposed project area is zoned single-family residential and therefore is not compatible and would likely require rezoning for airport use.

4.2.4 Mitigation

Neither the Alternative 1/Sponsor's Proposed Action nor the No Action Alternative would create any significant impacts to existing or future land uses around the Lansing Municipal Airport. Therefore, no mitigation would be required.

4.3 SOCIAL IMPACTS

4.3.1 General

The character of a community is largely determined by the people that live or work there. Associated factors that contribute to the characteristics of a community are business and labor markets, transportation systems, and utilities. The geography, geology, and climate of an area are also contributing factors. Any proposed action that significantly affects individuals within a community is defined herein as a social impact. FAA Order 5050.4B states:

The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment.¹³

This section evaluates potential social impacts, with a primary focus on impacts that would result from the acquisition of residential areas. Additionally, this section presents the analysis of potential impacts on children's health and safety risks.

4.3.1.1 Social Impacts

This section of the document evaluates the proposed project's effects on the social and economic characteristics of affected communities, specifically evaluating shifts in population, public

¹³ Environmental Impacts: Policies and Procedures, FAA Order 1050.1E, Change 1, March 20, 2006, page A-72.

service demands, roadway capacity, businesses, and economics. Factors to be considered in determining impact in this category include, but are not limited to, the following:

- ◆ Extensive relocation of residents is required, but sufficient replacement housing is unavailable.
- ◆ Extensive relocation of community businesses that would create severe economic hardship for the affected communities.
- ◆ Disruptions of local traffic patterns that substantially reduce the levels of service of the roads serving the airport and its surrounding communities.
- ◆ A substantial loss in community tax base.

As noted in FAA Order 1050.1E, if acquisition of property or displacement of persons is involved, then 49 CFR Part 24, the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*¹⁴ (Uniform Act), must be implemented. In addition, FAA provides guidance in FAA Advisory Circular 150/5100-17¹⁵ and FAA Order 5100.37A¹⁶ for projects that require or involve land acquisition and relocation. Due to the nature of this project, any impacted owner, tenant, or business in the potential acquisition area would be afforded all appropriate rights established in the Uniform Act and by FAA guidance. Alterations in surface transportation or other community development plans are also considered a social impact.

4.3.1.2 Children's Health and Safety Risk

Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, federal agencies are directed, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Environmental health and safety risks are defined as risks to health or safety that are attributable to products or substances that a child is likely to come in contact with or ingest. Disproportionate health and safety risks to children may represent a significant impact.

4.3.2 No Action Alternative

The No Action Alternative does not require any land acquisition; business or residential relocations; altering any surface transportation facility; dividing or disrupting any established community; disrupting orderly, planned development; or create an appreciable change in employment. Therefore, there are no anticipated social impacts by the No Action Alternative.

¹⁴ Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC 4601et seq.) (PL 91-528 amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, PL 100-117).

¹⁵ Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects, Advisory Circular 5100-17, September 7, 2001.

¹⁶ Land Acquisition and Relocation Assistance for Airport Projects, FAA Order 5100.37A, December 1, 2000.

4.3.3 Alternative 1/Sponsor's Proposed Action

Alternative 1/Sponsor's Proposed Action would be constructed entirely on existing airport property. The Alternative 1/Sponsor's Proposed Action does include acquisition of 75 acres of land including one (1) residence. Any impacted homeowners or tenants in the acquisition area would be afforded all appropriate rights established in the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*.

The Alternative 1/Sponsor's Proposed Action is consistent with orderly, planned development in the area. No established communities or planned development would be disrupted. The residence proposed to be acquired is an isolated rural property that is not part of an established community. Existing ground access to the Airport, area residences, and area businesses would remain the same. Access to the proposed midfield, landside development area would be via Burnham Avenue. No significant increase in roadway traffic would be realized as a direct result of this project. Although this development project would not permanently disrupt traffic patterns, a temporary disruption in traffic flows on Burnham Avenue and Glenwood Lansing Road, due to construction, is anticipated, but would cease upon completion. A temporary increase in employment in the construction sector proportionate to the manpower needs for the construction projects is anticipated.

As the Alternative 1/Sponsor's Proposed Action would not have a significant effect on the other resource categories presented in this document, there would not be a disproportionate affect on children's health and safety.

4.3.4 Mitigation

Neither the No Action Alternative nor the Alternative 1/Sponsor's Proposed Action requires any alteration of any surface transportation facility; division or disruption of any established community; disruption of orderly and/or planned development; the creation of an appreciable change in employment; or generation of a disproportionate affect on children's health and safety or on the other resource categories presented in this document.

The Alternative 1/Sponsor's Proposed Action includes land acquisition, which was determined to not have a significant social impact. Any impacted owners or tenants in the acquisition area would be afforded all the appropriated rights established in the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*. Therefore, there would be no social impacts anticipated by the No Action Alternative or the Alternative 1/Sponsor's Proposed Action and no mitigation would be required.

4.4 ENVIRONMENTAL JUSTICE

4.4.1 General

Executive Order (EO) 12898,¹⁷ issued in 1994, requires each federal agency to include environmental justice as part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse impacts of its programs, policies, and activities on minority and/or low-income populations. DOT Order 5610.2, *Environmental Justice in Minority Populations and Low-Income Populations*, establishes how DOT and its operating administrations will integrate EO 12898 with existing regulations and guidance. It states that it is the policy of DOT to promote the principles of environmental justice through the incorporation of those principles into existing agency programs, policies, and activities.¹⁸ The order goes on to state it is DOT's policy to promote the principles of environmental justice by considering them during or as a part of the planning and decision-making processes in the development of programs, policies, and activities, using the principles of NEPA, Title VI, the Uniform Act, and other applicable DOT statutes, regulations, and guidance. This Order provides guidance related to environmental justice impacts as follows:

A "disproportionately high and adverse effect on minority and low-income populations" is defined as an adverse effect that: "(1) is predominantly borne by a minority population and/or low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population."¹⁹ The DOT Order also states that "[i]n making determinations regarding disproportionately high and adverse effects . . . mitigation and enhancement measures. . . and all offsetting benefits to the affected minority and low-income population may be taken into account . . ."

Disproportionately high and adverse human health or environmental effects on minority and low-income populations may represent a significant impact. Additional guidance for implementing EO 12898 within the NEPA process is contained in CEQ's *Environmental Justice: Guidance Under the National Environmental Policy Act*.

4.4.2 No Action Alternative

The No Action Alternative does not require any land acquisition; business or residential relocations; significantly increase noise levels or significantly reduce air quality. Therefore, there are no anticipated disproportionate impacts to low-income or minority populations by the No Action Alternative.

¹⁷ Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations, February 11, 1994.

¹⁸ U.S. Department of Transportation Order 5610.2, Environmental Justice in Minority Populations and Low-Income Populations, December 10, 1997.

¹⁹ U.S. Department of Transportation Order 5610.2, Federal Register: (Volume 62, Number 72), Pages 18377-18381, April 15, 1997.

4.4.3 Alternative 1/Sponsor's Proposed Action

Alternative 1/Sponsor's Proposed Action would require the acquisition of approximately 75 acres of land in fee simple title, including one residence. A review of the 2000 U.S. Census data for the block group and block in the areas proposed for acquisition was conducted to determine if there exists a minority or low-income population in proximity of these areas. The results of this analysis indicated that there is a 2.7 percent minority (by race) population within the Census block proposed for acquisition and a 0.0 percent minority (by ethnicity) population within this same area. Further, an analysis of the Census block group (the smallest unit analyzed for poverty) in the area proposed for acquisition revealed that there is a 19.8 percent population that is defined as low-income.

Because the size and limits of the proposed acquisition area are somewhat smaller and uniquely shaped when compared against the smallest unit (census block and block group) analyzed by the U.S. Census Bureau for minority and low-income populations, it is difficult to predict the exact make-up of the population with the acquisition areas.

Further, as discussed in **Section 4-1 - Noise**, no significant noise impacts would occur as a result of the Alternative 1/Sponsor's Proposed Action. No other significant environmental impacts would occur as a result of the proposed project. Therefore, disproportionate impacts to minorities or low-income populations are not anticipated.

4.4.4 Mitigation

Neither the No Action Alternative nor the Alternative 1/Sponsor's Proposed Action is anticipated to have a disproportionate impact to minorities or low-income populations. Therefore, no mitigation is required. All acquisitions would be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (Uniform Act).

4.5 INDUCED SOCIOECONOMIC IMPACTS

4.5.1 General

In accordance with FAA Order 1050.1E, this section examines the potential for induced or secondary impacts directly attributable to the alternatives under consideration. FAA Order 1050.1E states:

Major development projects often involve the potential for induced or secondary impacts on surrounding communities. When such potential exists, the [environmental assessment] shall describe in general terms such factors. Examples include: shifts in patterns of population movement and growth; public service demands; and changes in business and economic activity to the extent influenced by the airport development.

Secondary impacts in terms of shifts in population movement and growth and changes in public service demands were evaluated through evaluation of impacts associated with other environmental resource categories such as land use and social impacts. Economic impacts that measure the effects of airport development on the local economy can be characterized as direct,

indirect, or induced impacts. Direct impacts are those realized on-site at the airport that directly relate to construction and operations. Indirect impacts are those created by the multiplier or “ripple” effect of spending and result from successive rounds of spending by employees at both on-airport and off-airport facilities. Induced impacts are the secondary changes in the economy that result from airport development.

FAA Order 1050.1E states “[i]nduced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts.”

4.5.2 No Action Alternative

The No Action Alternative does not propose the acquisition of property or the construction of any airport facilities. No significant induced socioeconomic impacts would be expected under the No Action Alternative.

4.5.3 Alternative 1/Sponsor’s Proposed Action

The Economic Impact of Illinois Airports, prepared for the Illinois Department of Transportation (IDOT)-Division of Aeronautics, estimated the total economic impact of aviation at the Lansing Municipal Airport in 2000 at approximately \$29 million.²⁰ The Airport generates an average of \$435 in economic impact per operation.

The Lansing Municipal Airport plays an important role in the regional economy. The availability of enhanced transportation facilities is important to retaining and encouraging industrial and commercial development in south Cook County. The proposed project is not expected to substantially accelerate changes in existing and future economic conditions. The proposed improvements would enable the Airport to better serve the air transportation needs of the region.

Immediate benefits of the proposed improvements include a temporary increase in employment in the construction sector proportionate to the manpower needs for the construction projects. This increased employment results in a temporary boost to local merchants/professionals from the sale of goods and services, and would result in a positive growth for a time period equivalent to the construction phase of development. As the primary proposed new development project is a runway extension, no significant induced physical development is anticipated. No significant induced socioeconomic impacts would be anticipated under the Alternative 1/Sponsor’s Proposed Action.

4.5.4 Mitigation

The No Action Alternative does not propose the acquisition of property or the construction of any airport facilities. No significant induced socioeconomic impacts would be expected under the No Action Alternative. The Sponsor’s Proposed Action would not be expected to

²⁰ The Economic Impact of Illinois Airports. March 2000. Illinois Department of Transportation – Division of Aeronautics. Page 16.

substantially accelerate change in existing or future economic conditions. Therefore, no mitigation actions would be required.

4.6 AIR QUALITY

4.6.1 General

The air quality provisions that are applicable to the proposed activities at IGQ include the *Clean Air Act* (CAA), the 1977 CAA Amendments, and the 1990 CAA Amendments. The air pollutants with National Ambient Air Quality Standards (NAAQS) are carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (measured as particulate matter less than 10 microns in size [PM10] and particulate matter less than 2.5 microns in size [PM2.5]), ozone, and lead.

Under the authority of the CAA, the USEPA designates all areas of the United States with respect to the NAAQS as attainment, non-attainment, maintenance, or unclassifiable areas.²¹ IGQ is located in Cook County, Illinois. USEPA publishes the Green Book Nonattainment Areas for Criteria Pollutants. This document identifies areas of non-attainment within the State of Illinois. From this report it was determined that Cook County was in nonattainment for PM2.5 and moderate for 8-Hr Ozone. The project area is designated as in attainment for all other pollutants.

The *Clean Air Act*, as amended, (CAA) requires each State to prepare and submit a State Implementation Plan (SIP) to EPA for approval. This is a state's detailed description of the regulations, programs, and measures to be used in that state to reduce air pollution and fulfill its responsibilities under the CAA. Federal agencies cannot fund or approve activities that do not conform to the State Implementation Plan (SIP) established for a nonattainment or maintenance area. Because measured levels of ambient air in the Greater Chicago Metropolitan Area have exceeded the NAAQS for ozone and particulate matter 2.5 microns or less in size (PM2.5), the State of Illinois is required to develop State Implementation Plans that outline actions that will be taken to achieve the standards.

While not specifically a threshold of significance under the NEPA, the General Conformity regulations provide de minimis thresholds to determine if a determination of conformity with a state's plans to bring an area into compliance with the NAAQS is required. A de minimis threshold is a level that provides an indication of the significance that a project may have on local and/or regional air pollutant concentrations. The General Conformity Rule only applies to areas that EPA has designated nonattainment or maintenance.²²

²¹ Attainment areas are areas in which the ambient (outdoor) concentrations of the NAAQS-regulated pollutants are below the NAAQS; non-attainment areas are areas where the NAAQS have been/are being exceeded; maintenance areas are former non-attainment areas; and areas designated as unclassifiable have insufficient monitoring data to make a determination.

²² Environmental Impacts: Policies and Procedures, FAA Order 1050.1E, Change 1, March 20, 2006, page A-4.

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, requires that an air quality assessment prepared for inclusion in a NEPA environmental document should include an analysis and conclusions of a proposed action's impacts on air quality. FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* states to see the handbook *Air Quality Procedures for Civilian Airports and Air Force Bases* for more detailed guidance on air quality procedures. Evaluation of these procedures in the handbook indicates that the State of Illinois does not have an indirect source review regulation. As a result, the Lansing Municipal Airport must examine annual enplanements and general aviation operations to determine if an air quality analysis is required. If the following activity levels are exceeded, then a detailed air quality assessment would be required:

- ◆ Annual enplanements exceeding 1,300,000
- ◆ Annual general aviation operations exceeding 180,000

4.6.2 No Action Alternative

The No Action Alternative does not propose the construction of any airport facilities. While operations at the airport are expected to increase over time, even under the No Action Alternative, no significant air quality impacts would be expected under this alternative.

4.6.3 Alternative 1/Sponsor's Proposed Action

There were no recorded passenger enplanements for 2010 at the Airport, nor are enplanements forecast to reach 1,300,000 by 2015. Total aircraft operations at IGQ were about 54,000 in 2010 and are expected to reach approximately 63,331 by 2015 with the proposed project. Thus, the existing and forecasted passenger enplanements and general aviation operations do not exceed the criteria requirements prescribed in *Air Quality Procedures for Civilian Airports and Air Force Bases*. Therefore, an air quality assessment is not required for the proposed development.

The U.S. Environmental Protection Agency (USEPA) recognizes that emissions associated with airport-related development programs are not typically specified and/or accounted for in SIPs. As such, guidance issued jointly by the USEPA and FAA²³ states that if airport source emissions are not readily identifiable in a SIP inventory, the airport operator should coordinate with the State to determine what, if any, portion of a category could or would be allocated to an airport. The determination of whether an action/project is specifically identified in a SIP is made on a case-by-case basis and done in consultation with the State/local air quality agency and the USEPA regional office. The USEPA/FAA guidance also states that if total emissions with the project/action are below the levels accounted for in the SIP, then it has been demonstrated that the project/action conforms to the applicable SIP.

In light of this guidance, a meeting was held in February 2008 with the Illinois Environmental Protection Agency (IEPA), the State agency responsible for developing Illinois' SIP. The

²³ Questions 17, 21, and 22 of the General Conformity Guidance for Airports – Questions and Answers, September 25, 2002; Federal Aviation Administration and United States Environmental Protection Agency.

purpose of this meeting was to discuss air quality related issues at Illinois airports, particularly the general aviation airports located within non-attainment areas, to determine whether projected activity (operations and construction) at these airports could assume to be accounted for in the SIP. IEPA indicated that construction projects at Illinois' general aviation airports, although not individually itemized, can assume to be accounted for in the Illinois SIP. Operational activity for the specific airports is also accounted for in the SIP. Therefore, a conformity determination would not be required for the proposed development at IGQ.

4.6.3.1 Construction Activities

It should be noted, that construction equipment and operations would result in temporary, local air quality impacts during construction of the proposed project. However, these impacts would be short-term and temporary in nature. Dust hazards are possible due to the presence of fine silts and sands, which are subject to wind erosion. Daily pollution loads produced by clearing and construction activities depend upon several factors. These include the type, number, and emission rates of various construction machines and trucks, and the daily private vehicle traffic of construction personnel. **Table 4-7** identifies the types of construction equipment anticipated to be used on this project, including equipment required for demolition activities, hauling waste offsite, and construction of the proposed improvements.

**Table 4-7:
Anticipated Construction Equipment**

Construction Activity	Type of Equipment	Pieces of Equipment
Demolition	Loader	1
	Haul Truck	1
Clearing/Grubbing	Loader	1
	Haul Truck	1
Backhoe Excavation	Backhoe/Loader	2
	Haul Truck	1
Excavation and Embankment	Scraper	1
	Bulldozer	1
	Motor Grader	1
	Haul Truck	1
	Water Truck	1
Trenching	Trencher	1
	Loader	1
Grading	Bulldozer	1
	Motor Grader	1
	Water Truck	1
Building Construction	Crane	1
	Concrete Truck	1
	Vibratory Screed	1
	Concrete Finishing Equipment	1
	Forklift	1
	Bobcat	1
	Hi-lift	1
	Air Compressor	1
Pavement Construction	Paver	1
	Compactor	2
	Haul Truck	1
	Bobcat	1

Note: This list is typical types of construction equipment anticipated to be used for the various projects in the Sponsor's Proposed Action. The duration of equipment use will depend on each individual project type.

Source: CMT, Inc Analysis

The use of dust palliative treatments (i.e., dampening and stabilization), as included in the IDOT construction requirements manual, *Supplemental Specifications and Recurring Special Provisions*²⁴ should minimize temporary air quality impacts if they occur. The Sponsor's Proposed Action construction is anticipated to occur over the next five years, as shown in **Table 4-8** below.

²⁴ Supplemental Specifications and Recurring Special Provisions, IDOT, July 1, 2004, page 30.

**Table 4-8:
Timeline of Sponsors Proposed Action Construction**

Project Description	Project Start Year(s)
Construct Airport Security/Perimeter Fencing	2012
Construct, Light, & Mark Runways 18 & 36 Extensions (including NAVAIDS)	2012
Relocate Runway 18 Localizer & DME; Install AWOS	2012
Rehabilitate North Quadrant T-Hangar Apron	2013
Construct, Light, & Mark North Quad Hangar Area Auto Parking and Access	2013-2015
Construct, Light, & Mark Southwest Quad Aprons and Buildings/Hangars	2013-2015
Strengthen Runway 18/36 and Taxiways to Terminal Ramp	2014-2015
Construct Fire Protection System to Southwest Quadrant	2014-2015
Construct, Light, & Mark North Partial Parallel/Connecting Taxiways to Runway 18/36, including Taxiway Echo Removal	2014-2015
Construct Compensatory Storm Water Improvements	2014-2015
Construct, Light, & Mark Taxiways Golf and Kilo Extensions	2014-2015
Construct Runway 18/36 Approach Light System	2014-2015

Note: The schedule may vary depending on market demands and availability of funding.

Source: Lansing Municipal Airport Transportation Improvement Program: Airports FY 2012-2016, 11/17/2010.

Construction is anticipated to occur during normal daytime hours during the typical construction seasons in 2012 through 2015. In general, while construction activity could affect local air quality, the effects would be minimal and would terminate upon completion of construction activities.

4.6.3.2 Climate Change/Greenhouse Gases

Based on FAA data, the 2015 forecasted operations at IGQ would represent less than 0.06 percent of total forecasted U.S. aviation operations. Therefore, assuming that greenhouse gases occur in proportion to the level of aviation activity, greenhouse gas emissions associated with future aviation activity at IGQ would be expected to represent less than 0.06 percent of U.S.-based greenhouse gases. Therefore, we would not expect the emissions of greenhouse gases from this project to be significant.

4.6.4 Mitigation

Since neither the No Action Alternative nor the Alternative 1/Sponsor's Proposed Action Alternative exceed the levels of significance of air quality criteria, as outlined above, no mitigation would be required. However, *IDOT Standard Specifications for Construction of Airports*, Section 156-3.6 and FAA AC 150/5370-10D, *Standards for Specifying Construction of Airports*, Item P-156-3.2 Schedule would be incorporated into the construction documents.

4.7 WATER QUALITY

4.7.1 General

Besides being a basis for life, water provides an essential ingredient for many ecosystems. The chemical, physical and biological characteristics of water determine its particular quality. The *Federal Water Pollution Control Act*, as amended by the *Clean Water Act (CWA)* of 1977, provides the authority to establish water quality standards, to control discharges into surface and subsurface waters, to develop waste treatment management plans and practices, and to issue permits for discharges and for dredged or fill material.

As contained in the *Guidance Manual for the Preparation of NPDES Permit Applications for Storm Water Discharges Associated with Industrial Activity* published by the USEPA, the *Federal Water Pollution Act* (also known as the CWA), as amended in 1977, requires National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges associated with industrial activity. Paragraph (viii) of 40 CFR Part 122.26 requires:

(viii) Transportation Facilities classified as Standard Industrial classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations or airport de-icing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations, airport de-icing operations or which are otherwise identified under paragraphs (I)-(vii) or (ix)-(xi) of this subsection are associated with industrial activity.

4.7.2 No Action Alternative

The No Action Alternative does not propose the acquisition of property or the construction of any airport facilities to address the “purpose and need”. No significant water quality impacts would be expected under the No Action Alternative.

4.7.3 Alternative 1/Sponsor’s Proposed Action

Water quality can be adversely impacted by several means including: construction activities, storm water discharges from impervious surfaces, accidental releases of hazardous substances, and maintenance activities. Potential construction impacts include disturbance from earth moving and grading and discharge of contaminants such as fuels and lubricating oils used for construction machinery.

The Airport is located within the Lansing Ditch watershed of the Great Lakes/Calumet River drainage basin in Cook County. The watershed encompasses a 22.3 square mile drainage area. Drainage flows from the south to the north and enters the Airport through the Lansing Drainage Ditch. A portion of the Lansing Drainage Ditch flows are diverted to the Lynwood Tributary via a diversion weir on the north side of 202nd Street. The remaining flows are carried through the airport property in a man-made ditch. On the south side of Glenwood-Lansing Road, the ditch makes a 90 degree turn and flows west before crossing Burnham Avenue and exiting the airport property, eventually discharging into the Calumet River located just north of the Airport.

Approximately 12.35 miles of the Calumet River in the vicinity of the Lansing Municipal Airport are considered water quality limited waters (i.e. waters where uses are impaired) under Section 303(d) of the CWA. However, over 8,400 miles of streams in Illinois are considered water quality limited waters. According to the IEPA, the North Creek waters, in the vicinity of the Airport, which eventually drain into the Calumet River, are impaired by Hexachlorobenzene, sedimentation/siltation, Aldrin, and low dissolved oxygen. Hexachlorobenzene is a fungicide formerly used as a seed treatment, especially on wheat to control the fungal disease bunt. This is not a type of impairment that is historically attributed to airports, including IGQ. Aldrin is an insecticide that was widely used until 1974, when it was banned in the United States. Aldrin was used as a pesticide to treat seed and soil. This is not a type of impairment that is historically attributed to airports, including IGQ. Review of the section of the Sauk Trail immediately upstream of the Airport indicated sedimentation/siltation and low dissolved oxygen; as such it appears that these impairments occur prior to the water entering the Airport. Therefore, it is expected that the current impairment of the North Creek north of IGQ is due to causes other than Airport activities.

The IEPA established a priority ranking of impaired waters for the development of Total Maximum Daily Load (TMDL) calculations. The TMDL calculations would be used to develop an implementation plan specifying limits for pollutant discharges and recommending best management practices (BMPs). The TMDL calculations for the Calumet River in the vicinity of the Lansing Municipal Airport will not likely be developed until after 2012 under the current IEPA prioritization.

The Lansing Municipal Airport currently controls stormwater pollution through BMPs specified in multiple environmental regulatory documents developed specifically for airport operations and its users. These documents include: the Spill Prevention Control and Countermeasure Plan (SPCCP) and a NPDES permit. The preparation and implementation of these documents are regulated by the USEPA and IEPA to ensure compliance with federal and state water quality regulations, and contain specific operational and facility management actions to prevent and control the potential for discharge of pollutants into surface and groundwater within existing operational areas of the Airport. Typical pollutants at the Airport are fuel and oil. Typical activities covered by the SPCCP include fuel transfers and aircraft/airport vehicle maintenance. These activities would increase in proportion to the projected increase in aviation activity.

The Alternative 1/Sponsor's Proposed Action could include construction of as much as 62 net acres of impervious pavements/buildings, which would equate to approximately 10% of the total airport. The existing NPDES General Permit would remain in effect at the Airport as it is not tied to construction of additional pavement. The existing operating conditions would not change due to proposed construction.

Prior to construction of the proposed airfield improvements, a NPDES permit for stormwater discharges associated with construction site activities would need to be secured from IEPA in

accordance with Paragraph (1.c) Construction Activity 40CFR 122.26(b) (14). An erosion control plan would be developed based on the FAA's *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control* section of *Standards for Specifying Construction of Airports* (change 10 to FAA Advisory Circular (AC) 150/5370-10). The erosion control plan would incorporate BMPs to minimize impacts to water quality during construction. Depending upon the evaluations and conclusions of the design process for the proposed project, these BMPs could include requirements for erosion control and temporary seeding of all exposed soils, segregation and protection of fuel supplies and hazardous materials, and other measures for the protection of surface and subsurface waters, including periodic meetings between the Airport, resident engineer/architect and contractor to ensure compliance with the BMPs. These BMPs would be incorporated into the project construction specifications. Erosion controls to protect adjacent water resources would be included as part of the proposed construction project. A Stormwater Pollution Prevention Plan (SWPPP) would be developed for each project. The SWPPP is based upon the requirements of the Illinois General NPDES Permit ILR10 and the Natural Resources Conservation Service's and Illinois Environmental Protection Agency's, *Illinois Urban Manual*, which is supplemented with IDOT Highways standards, Village of Lansing and Lynwood ordinance requirements, and other appropriate design guides. The SWPPP would be submitted for a technical review by Will-South Cook Soil and Water Conservation District, if required by a permitting agency such as the USACE for impacts to the waters of the U.S. (Lansing Drainage Ditch). In addition, the Will-South Cook County Soil and Water Conservation District would also be contacted to ensure that proposed construction techniques and mitigation measures comply with local guidelines.

No significant or adverse impacts on water quality would be anticipated with Alternative 1/Sponsor's Proposed Action.

4.7.4 Mitigation

The No Action Alternative does not propose the construction of any airport facilities. No significant water quality impacts would be expected under the No Action Alternative. The Alternative 1/Sponsor's Proposed Action would not cause significant water quality impacts. Therefore, no mitigation would be required.

4.8 DEPARTMENT OF TRANSPORTATION SECTION 4(F) LANDS

4.8.1 General

Section 4(f) of the *Department of Transportation Act of 1966* (DOT Act), currently codified as 49 USC Section 303(c), [hereinafter referred to as Section 4(f)], provides for the protection of certain publicly owned lands. These lands include public parks, recreation areas, or wildlife and waterfowl refuges of national, state, or local significance. In addition, Section 4(f) applies to all historic sites of national state, or local significance, regardless of whether these sites are publicly owned or open to the public. Typically, Section 4(f) protects only historic or archeological properties that are on, or eligible for inclusion on, the National Register of Historic Places (NRHP).

Programs or projects that are developed with federal funding or require a federal action, which adversely affect or use Section 4(f) lands, will not be approved unless there are no prudent and feasible alternatives to their use, and such programs include all planning to minimize harm. An airport development project can create adverse impacts on Section 4(f) lands through acquisition of all or a portion of Section 4(f) land, increased noise impacts, and increased surface traffic impacts.

If it is determined that an action would involve a Section 4(f) resource, then the lead federal agency, in this case the FAA, is required to prepare a Section 4(f) Evaluation. This evaluation can be included within the NEPA document for that project, as included here, or issued in a separate document, referred to as a Section 4(f) Statement.

In addition to lands identified under Section 4(f) of the DOT Act, other lands funded by the *Land and Water Conservation Fund Act of 1966* (LAWCON) (Section 6(f)), Pittman-Robertson and Dingell-Johnson moneys must be considered. When proposed improvements affect lands purchased or developed using LAWCON funds, as administered by the U.S. Department of the Interior (USDOI), changes in use to other than public outdoor recreation at assisted sites may only be made with the prior approval of the Secretary of the Interior. Also, converted properties must be replaced by substitute properties of at least equal fair market value and of reasonably equivalent location and usefulness.

4.8.2 No Action Alternative

The No Action Alternative does not propose the acquisition of property or the construction of any airport facilities. No impacts to 4(f) or 6(f) lands would be expected under the No Action Alternative.

4.8.3 Alternative 1/Sponsor's Proposed Action

There are several community parks in the vicinity of the Lansing Municipal Airport. The nearest park, Lakeview Community Park, is located in the Village of Lynwood approximately one-half mile west of the Airport. Additional community parks include, Lakewood Park in Munster, Indiana, about one mile east of the Airport, Erfert Park in Lansing, which is about one mile north of the Airport, and Northgate Community Park located in Dyer, Indiana about one mile southeast of the Airport. In addition to these community parks, the Lansing Woods Forest Preserve is located about one mile northwest of the Airport in the Village of Lansing.

No known grant funded parks or recreational areas, including those funded with LAWCON funds, or Pittman-Robertson and Dingell-Johnson moneys, would be affected by the proposed project as indicated in a letter from the Illinois Department of Natural Resources (IDNR). The IDNR letter is included in **Appendix B**.

Alternative 1/Sponsor's Proposed Action would not include the taking of any existing or future lands identified as park, recreational areas, wildlife and waterfowl refuges of national, state or

local significance and/or private properties designated eligible to be included on the National Register of Historic Sites. Further, the noise contours show that there would be no 65 DNL or greater contours located over any identified existing or future parks, recreational areas, wildlife and waterfowl refuges of national, state or local significance, and/or properties designated eligible to be included on the National Register of Historic Sites. Therefore, the Alternative 1/Sponsor's Proposed Action would not be anticipated to create any adverse, significant impacts to any known Section 4(f) lands, as only residential and vacant land, that has no historical significance, is being proposed for acquisition as part of the Alternative 1/Sponsor's Proposed Action, and no significant noise impacts would be anticipated.

4.8.4 Mitigation

Neither the Alternative 1/Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create any adverse, significant impacts to public lands identified under Section 4(f), including lands funded with LAWCON (Section 6(f)), Pittman-Robertson and Dingell-Johnson moneys. Therefore, no mitigation measures for Section 4(f) impacts would be required.

4.9 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

4.9.1 General

In accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, this EA includes an investigation of impacts due to federal undertakings upon areas of historic, architectural, archaeological, and cultural significance. The purpose of this section is to document compliance with the *National Historic Preservation Act of 1966* as amended (NHPA) by identifying historic properties within the area of potential effect (APE), including a description of the probable impact of the alternatives under consideration on these resources.

The NHPA requires that the lead agency, FAA, consult with the State Historic Preservation Officer (SHPO). In Illinois, the SHPO is part of the Illinois Historic Preservation Agency (IHPA). The NHPA also requires that the FAA gather information to determine which properties in a project's APE are listed in or eligible for, the National Register of Historic Places (NRHP). The NRHP is maintained by the Secretary of the Interior.

The NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources. Resources listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture and possess integrity of location, design, setting, materials, workmanship, feeling and association.

If the FAA determines the undertaking has the potential to affect an NRHP-listed or eligible property, the FAA must initiate consultation with the SHPO and other interested parties in accordance with Section 106 of the NHPA.

Additionally, in Illinois, all IDOT proposed projects, which are subject to archaeological evaluation, are entered into a web-based interactive Project Notification System (PNS). This system allows Tribal Historic Preservation Officers (THPOs) to view new transportation projects in their area of interest online. The PNS was developed by IDOT and the Illinois State Archaeological Survey at the University of Illinois, with review and input from agency and tribal representatives.

Historic properties are also covered under Section 4(f) of the *U.S. Department of Transportation Act of 1966*. **Section 4.8 - Department of Transportation Section 4(f) Lands**, describes the resources covered under Section 4(f) and documents the impact of the alternatives relative to the Section 4(f) requirements.

4.9.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to archaeological, architectural, historic, or cultural resources would be anticipated under this alternative.

4.9.3 Alternative 1/Sponsor's Proposed Action

The Alternative 1/Sponsor's Proposed Action includes the construction of aeronautical facilities that would include ground disturbance on existing airport property. No known Federal, state or local historical sites are located within the existing or proposed property area, except the Ford Airport Hangar. The hangar is located at the northwest corner of the Airport near the intersection of Glenwood-Lansing Road and Burnham Avenue. The next closest sites that are listed on the National Register of Historic Places are the Joseph Ernest Meyer House in Dyer, Indiana, which is approximately 2 miles southeast of the Airport. The Stallbohm Barn/Kaske House is approximately 3 miles northeast of the Airport in Munster, Indiana.

The Illinois Department of Transportation (IDOT), to ensure that all evidence or artifacts of past human life are recorded and preserved, completed a review of the Airport and proposed property. In accordance with established procedure for coordination of IDOT projects, IDOT requested the concurrence of the State Historic Preservation Officer (SHPO) in the determination that the proposed project would have no cultural resources, subject to protection under Section 106 of the NHPA, as amended, would be affected by the proposed construction activities. The IDOT memo containing the SHPO concurrence is included in **Appendix B**. Additionally, through early agency coordination the SHPO issued a letter stating that no historic properties would be affected by the proposed project and that it has no objection to the proposed project proceeding. The SHPO letter is included in **Appendix B**.

4.9.4 Mitigation

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to archaeological, architectural, historic, or cultural resources would be anticipated under this alternative. In addition, no impacts to archaeological,

architectural, historic, or cultural resources exist in the Alternative 1/Sponsor's Proposed Action area. Therefore, no mitigation would be required.

4.10 BIOTIC RESOURCES

4.10.1 General

For purposes of this EA, the term biotic resources refers to various types of flora and fauna, as well as habitat types that would support these species. This section also addresses state-listed threatened or endangered species and their habitats.

Paragraph 341 of the *Illinois Endangered Species Protection Act of 1972* requires all agencies of state and local governments to further the purposes of this Act by:

...evaluating whether actions authorized, funded or carried out by them are likely to jeopardize the continued existence of Illinois listed endangered and threatened species or are likely to result in the destruction or adverse modification of the designated essential habitat of such species, which policy shall be enforceable only by writ of mandamus.

4.10.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to fish, wildlife and plants would be expected under this alternative.

4.10.3 Alternative 1/Sponsor's Proposed Action

The construction of the Alternative 1/Sponsor's Proposed Action would be almost entirely on existing airport property. The majority of the surrounding area is urban with residential and commercial/industrial uses. The proposed development would not directly affect any publicly owned wildlife or waterfowl refuge of local, state or Federal significance. Existing habitat in the proposed project area is comprised of existing airport uses, open areas that are routinely mowed, agricultural land uses, and some residential properties. It is likely that the airfield development area supports only wildlife species (e.g. coyote, fox, rodents, skunk, opossum, raccoon, and various raptor and song birds) adapted to urban and farmed environments. The proposed construction projects could eliminate up to approximately 62 acres of ground cover once all of the projects are constructed, which is approximately 9.25% of the total proposed airport property.

Erosion controls to protect adjacent biotic areas would be included as part of the proposed construction project. A Stormwater Pollution Prevention Plan (SWPPP) would be developed for each project. The SWPPP is based upon the requirements of the Illinois General NPDES Permit ILR10 and the Natural Resources Conservation Service's and Illinois Environmental Protection Agency's, *Illinois Urban Manual*, which is supplemented with IDOT Highways standards, Village of Lansing and Lynwood ordinance requirements, and other appropriate design guides. The SWPPP would be submitted for a technical review by Will/South Cook Soil Water Conservation District if required by a permitting agency such as the USACE for impacts to the

waters of the U.S. (Lansing Drainage Ditch). It is anticipated that any existing wildlife in the project area would find more suitable habitat within areas adjacent to the project area. For these reasons, it is assumed that only a “minor alteration” would occur.

The IDNR Ecological Compliance Assessment Tool (EcoCAT) was completed and submitted to the IDNR, it can be found in **Appendix B**. The IDNR stated that the Illinois Natural Heritage Database contains no record of State-listed threatened or endangered species, Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered land and Water Reserves in the vicinity of the project location and therefore terminated consultation.

4.10.4 Mitigation

The No Action Alternative would not be anticipated to create any significant impacts to biotic resources. The Alternative 1/Sponsor’s Proposed Action would have no significant impacts to biotic resources. Therefore, no mitigation measures would be required.

4.11 FEDERALLY-LISTED ENDANGERED AND THREATENED SPECIES

4.11.1 General

The term “endangered species” means any member of the animal kingdom (mammal, fish or bird) or plant kingdom (seeds, roots, etc.) that is in danger of extinction throughout all or a significant portion of its range. “Threatened species” refers to those members of the animal kingdom or plant kingdom, which are likely to become endangered within the foreseeable future. Section 7 of the *Endangered Species Act* Amendments of 1978 requires each federal agency to insure that:

*... If an agency determines that an action “may affect” a threatened or endangered species, then Section 7(a)(2) requires each agency, generally the lead agency, to consult with the U.S. Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS), as appropriate, to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of any Federally listed endangered or threatened species or result in the destruction or adverse modification of critical habitat....*²⁵

4.11.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to fish, wildlife and plants would be expected under this alternative.

4.11.3 Alternative 1/Sponsor’s Proposed Action

The U.S. Fish and Wildlife Service (USFWS) Illinois County Distribution list²⁶ for Federally Endangered, Threatened, Proposed, and Candidate Species, last updated January 2011, was

²⁵ FAA Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, March 26, 2006, page A-26.

²⁶ USFWS, Illinois County Distribution - Federally Endangered, Threatened, Proposed, and Candidate Species Website <http://www.fws.gov/midwest/endangered/lists/illinois-cty.html>

reviewed. According to the website, seven species are listed and may be present in Cook County: the Piping Plover, Eastern Massasauga, Hine's Emerald Dragonfly, Eastern Prairie Fringed Orchid, Leafy-Prairie Clover, Mead's Milkweed, and the Prairie Bush Clover.

The major habitat types located on the project site consist of mowed field dominated by non-native plant species, agricultural land, and emergent wetland. The North Creek/Lansing Drainage Ditch appears to have perennial flow, a silty bottom, and scrub-shrub vegetation along a portion of the banks. The on-site wetlands do not contain sedge meadow or wet-mesic habitats. No areas on-site contain suitable habitats for these species. Through early project coordination, the United States Fish and Wildlife Service (USFWS) required project consultation process²⁷ documented a "No Effect" determination for the proposed project. The U.S. Fish and Wildlife Service (USFWS) stated that they do not believe that any threatened or endangered species occur on the project site. The USFWS letter and determination documentation is included in **Appendix B**. No significant impacts to federally-listed threatened or endangered species are anticipated due to the Alternative 1/Sponsor's Proposed Action.

4.11.4 Mitigation

The No Action Alternative would not create any impacts to federally-listed threatened and endangered species. The Alternative 1/Sponsor's Proposed Action is not anticipated to have any significant impacts to federally-listed threatened and endangered species. Therefore, no mitigation measures would be required.

4.12 WETLANDS AND WATERS OF THE UNITED STATES

4.12.1 General

Assessment of wetland impacts is required under Section 404 of the *Clean Water Act*; Executive Order 11990, *Protection of Wetlands*; FAA Order 5050.4B, and FAA Order 1050.1E. In addition, the U.S. Department of Transportation (DOT) developed and issued DOT Order 5660.1A, *Preservation of the Nation's Wetlands*, to provide more guidance to DOT agencies regarding their actions in wetlands. This DOT Order, which governs the FAA's actions, defines wetlands as:

Lowlands covered with shallow and sometimes temporary or intermittent waters. This includes, but is not limited to, swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, tidal overflows, estuarine areas, and shallow lakes and ponds with emergent vegetation. Areas covered with water for such a short time that there is no effect on moist-soil vegetation are not included in the definition, nor are the permanent waters of streams, reservoirs, and deep lakes. The wetlands ecosystem includes those areas which affect or are affected by the wetland area itself; e.g., adjacent uplands or regions up and down stream.

Three criteria are required for an area to be considered a wetland: hydrophytic vegetation, hydric soils, and wetland hydrology. The hydrophytic vegetation criterion is met when the

²⁷ USFWS, Illinois County Distribution - Section 7 Technical Assistance Step-by-Step Instructions Website.
<http://www.fws.gov/midwest/Endangered/section7/s7process/step1.html>

dominant vegetation in an area is composed of 50 percent or more species that are specifically adapted to living under waterlogged conditions. Hydric soils are soils that exhibit characteristics indicative of long-term saturated or inundated conditions. Wetland hydrology is present if an area sustains a level of soil saturation or inundation sufficient in duration to result in the dominance of hydrophytic vegetation.

The term “Waters of the United States”, as defined in the *Clean Water Act*, constitutes:

- ◆ All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- ◆ All interstate waters including interstate wetlands;
- ◆ All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadow, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- ◆ All impoundments of waters otherwise defined as waters of the United States under this definition;
- ◆ Tributaries of waters identified above;
- ◆ The territorial seas;
- ◆ Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

The *Clean Water Act*, 33 U.S.C. §§1251– 1387, establishes the basic structure for regulating discharges of pollutants into the Waters of the United States. It gives the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs, and contains requirements to set and enforce discharge limitations and to set water quality standards for all contaminants in surface waters. Section 404 of the *Clean Water Act* requires applicants to obtain a permit for placement of dredge or fill material into Waters of the United States, including jurisdictional wetlands. In Illinois, the U.S. Army Corps of Engineers (USACE) has the Section 404 permit issuance authority.

On April 1, 2007, the U.S. Army Corps of Engineers, Chicago District issued a Regional Permit Program (RPP), for Cook, DuPage, Kane, Lake, McHenry and Will Counties. The program established a set of Regional Permits for a category of projects that will cause minimal individual and/or cumulative impacts on the aquatic environment. Regional Permits are a type of general permit, as defined in 33 CFR 322.2(f), 33 CFR 323.2(h) and 325.2(e) (2), with the purpose of providing a simplified means to review activities that are substantially similar with minimal environmental impacts. Transportation Projects are covered under Regional Permit 3 (RP3), which authorizes the construction or replacement of public transportation projects, including roads, bridges, runways and taxiways.

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) began the process of developing a countywide stormwater ordinance, in 2007, to be known as the *Cook County Watershed Management Ordinance* (WMO). The WMO, when and if adopted, will regulate the protection of all wetlands in Cook County. Additionally, the Illinois Department of Natural Resources (IDNR) regulates any wetland impacts (including isolated wetlands) through the *Interagency Wetlands Policy Act of 1989* when state funds are involved with the project.

When a Section 404 permit is issued for wetland and/or Waters of the U.S. impacts, Section 401 of the *Clean Water Act* requires water quality certification from the applicable state water pollution control agency, which is the Illinois Environmental Protection Agency (IEPA). The specific requirements associated with the water quality standards by which the IEPA would provide a water quality certification can be found in 35 Illinois Administrative Code, Section 302, *Water Quality Standards*.

Executive Order 11990, which applies to both jurisdictional and non-jurisdictional (i.e., isolated) wetlands, requires Federal agencies to find: “(1) that there is no practicable alternative to such [new] construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.” In making this finding, FAA may take into account safety, economic, environmental, and other pertinent factors.

4.12.2 Existing Conditions

A complex of stormwater management facilities (e.g. man-made swales, culverts, concrete lined channels, storm sewers, detention basins, and compensatory storage areas) is located throughout the project area. Several of the vegetated stormwater management facilities have developed wetland characteristics. To identify the presence of wetlands and Waters of the U.S. at IGQ, a field delineation study was conducted by ECNAP, Inc. in late January 2010. The Wetland Delineation Report (Wetland Report) indicated the presence of five (5) wetlands totaling approximately 10.9 acres, including Waters of the U.S. associated with the Lansing Drainage Ditch in the project area as summarized in the following sections.

4.12.2.1 Wetland 1/Waters of the U.S.

Wetland 1 consists of a fringe of wetland vegetation along the banks of Lansing Drainage Ditch and its on-site tributaries. In addition to the wetland areas, the open water portions of the Ditch, while not considered wetland because they lack hydrophytic vegetation, are Waters of the U.S. Wetland 1, including the Waters of the U.S., (approximately 10 acres in on-site size) is located below the ordinary high water levels of Lansing Drainage Ditch and its tributaries.

Additionally, Wetland #1 is a drainage ditch with four tributaries on the Airport. The total length of the main ditch wetland (approximately 7,230 linear feet) and its four tributaries (approximately 3,410 linear feet), on the Airport, is approximately 10,640 linear feet.

The Lansing Drainage Ditch is part of the North Creek sub-watershed, which encompasses approximately 23 square miles within the Little Calumet River watershed. The Ditch originates from the south and extends northward through the project area. It then extends west along the south side of Glenwood-Lansing Road and enters a culvert before reaching Burnham Avenue. The creek daylight north of Glenwood-Lansing Road and west of Burnham Avenue and continues north until its junction with Thorn Creek, a tributary to the Little Calumet River.

Four tributaries to Lansing Drainage Ditch are located on-site. One of the tributaries originates from the west and three of the tributaries originate from the east. Two of the eastern tributaries are partially piped on-site. This wetland area and Waters of the U.S. is under the jurisdiction of the USACE due to its association with Lansing Drainage Ditch and its on-site tributaries. The IDNR would take co-jurisdiction of this wetland with the USACE.

4.12.2.2 Wetlands 2, 3, and 4

Wetlands 2 (0.780 acres), 3 (0.17 acres), and 4 (0.033 acres) are depressional wetlands located within the northeastern portion of the project. Each of these wetlands are isolated and therefore, not under the jurisdiction of the USACE. The IDNR did not take jurisdiction of these wetland areas in their letter found in **Appendix B**. The FAA would require mitigation for any impacts to these wetlands. Additionally, these areas could be regulated by MWRD's proposed Cook County WMO, if approved.

4.12.2.3 Wetland 5

Wetland 5 (approximately 0.072 acres) is located within the southern portion of the project area west of the Runway 36 end in the proposed taxiway extension area. Due to the uneven topography within the wetland, relative to the surrounding area, it appears that this wetland likely developed due to historic earth moving activities. Wetland 5 does not have a hydrologic connection with the Lansing Drainage Ditch. However, it is adjacent to the Lansing Drainage Ditch; therefore it is under the jurisdiction of the U.S. Army Corps of Engineers. The wetland would be under the co-jurisdiction with the IDNR.

Table 4-9 provides a summary of the wetlands and Waters of the U.S. that are present at the Airport. **Exhibit 4-6** depicts the locations of these resources at IGQ.

**Table 4-9:
Wetlands Present at Airport Site**

	Wetland 1	Wetland 2	Wetland 3	Wetland 4	Wetland 5
Wetland Type/Brief Description	Lansing Drainage Ditch and its connected wetland areas. Open water areas classified as Waters of the U.S.	Isolated (Non-Jurisdictional) Wetland	Isolated (Non-Jurisdictional) Wetland	Isolated (Non-Jurisdictional) Wetland	Wetland adjacent to, but not hydrologically connected to, Lansing Drainage Ditch
Location	Throughout Site	Northeast Corner	Northeast Corner	Northeast Corner	Southern Portion
Approximate On-Site Size	10.0 acres	0.780 acres	0.017 acres	0.033 acres	0.072 acres
Anticipated Impact Area	5.89 acres	0 acres	0 acres	0 acres	0.072 acres
Anticipated Regulatory Authority	USACE and IDNR	FAA & Possibly MWRD	FAA & Possibly MWRD	FAA & Possibly MWRD	USACE and IDNR
Functional Quality	Moderate	Low	Low	Low	Low

Source: ENCAP Inc., Wetland Delineation Report, January 28, 2010.

The Wetland Delineation Report was submitted to the USACE for a jurisdictional determination in March 2010. The USACE's final determination regarding the jurisdictional status of all identified wetlands through a jurisdictional wetland determination is included in **Appendix B**.

4.12.3 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established "purpose and need". No impacts to wetlands would be expected under this alternative.

4.12.4 Alternative 1/Sponsor's Proposed Action

Alternative 1/Sponsor's Proposed Action includes modifications to the Lansing Drainage Ditch and other associated drainage improvements as recommended in the 2009 Final Airport Drainage Study. **Section 4.13 - Floodplains**, provides detailed information regarding the background and need for the drainage improvements at the Airport. The proposed modifications to the Lansing Drainage Ditch would include widening to a 30' bottom and 3:1 side slopes along the west bank with an impact of approximately 5.53 acres to Wetland 1/Waters of the U.S and approximately 4,000 to 5,450 linear feet of Lansing Ditch. The east banks would not be modified. Modifications to the Lansing Drainage Ditch would require an USACE Section 404 Individual Permit. Since Wetland 1 would be impacted by the proposed ditch modifications and associated storm water sewer improvements, the Individual Permit should cover these wetland impacts as well as the ditch improvements.

The construction of proposed Taxiway K and Runway 18/36 extension would impact the northeast tributary of Wetland 1. The anticipated area of impact would be approximately 0.36 acres and would equate to approximately 600 linear feet.

Wetland 5 would be impacted to accommodate an extension to Taxiway B. Wetland 5 would need to be filled with an impact of 0.072 acres. Since the loss is less than 0.10 acres, it is not anticipated that compensatory mitigation would be required by the USACE. However, the final determination would be made by the USACE and IDNR prior to construction.

4.12.5 Mitigation

Mitigation within the context of both the requirements for FAA approval and the USACE Section 404 permit program consists of at least three sequential steps: (1) avoidance of wetlands impacts where feasible; (2) minimization of impacts to the extent feasible; and (3) compensation for those wetlands impacts which cannot be avoided or further minimized. The basis for a wetland finding is predicated on the fact that the Alternative 1/Sponsor's Proposed Action has been diligently reviewed and recommended, and that no other practical alternative exists (**Chapter 2 – Alternatives**). Sufficient evidence exists to support that there is no practical alternative to such construction. Although avoidance and minimization of project-related wetland impacts is a long-standing and well-understood requirement for all projects that require Federal approval, avoidance and/or minimization options at IGQ have been considered, but are not possible due to substantial flood storage requirements.

The Alternative 1/Sponsor's Proposed Action would disturb approximately 5.6 acres of jurisdictional wetlands/Waters of the U.S. The majority of the disturbance, approximately 5.55 acres, is associated with the Lansing Drainage Ditch modifications, which would require an USACE Section 404 Individual Permit.

FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, addresses mitigation of wetlands in the vicinity of airports. The FAA recommends that wildlife attractions associated with wetland mitigation should be at least 10,000 feet from Airport Operations Area (AOA). Therefore, in conformance with this policy to minimize the conflicts between airport operations and bird attractions, wetland compensation would be pursued off airport property.. Wetland ratios would be established during the permitting process and it is anticipated that wetland banking credits would be purchased at the Sauk Trail Wetland Mitigation Bank. Since the available wetland credits are certified it is anticipated that mitigation would be accomplished at a minimum of a 1:1 ratio. See Figure 4-1 below for the location of the Sauk Trail Wetland Mitigation Bank. A permit application, which would include a wetland compensation plan discussing the off-site mitigation project, would be forwarded to the USACE for approval prior to disturbance of the existing wetlands. The wetland compensation plan may require coordination with the IDNR, USFWS and IEPA.

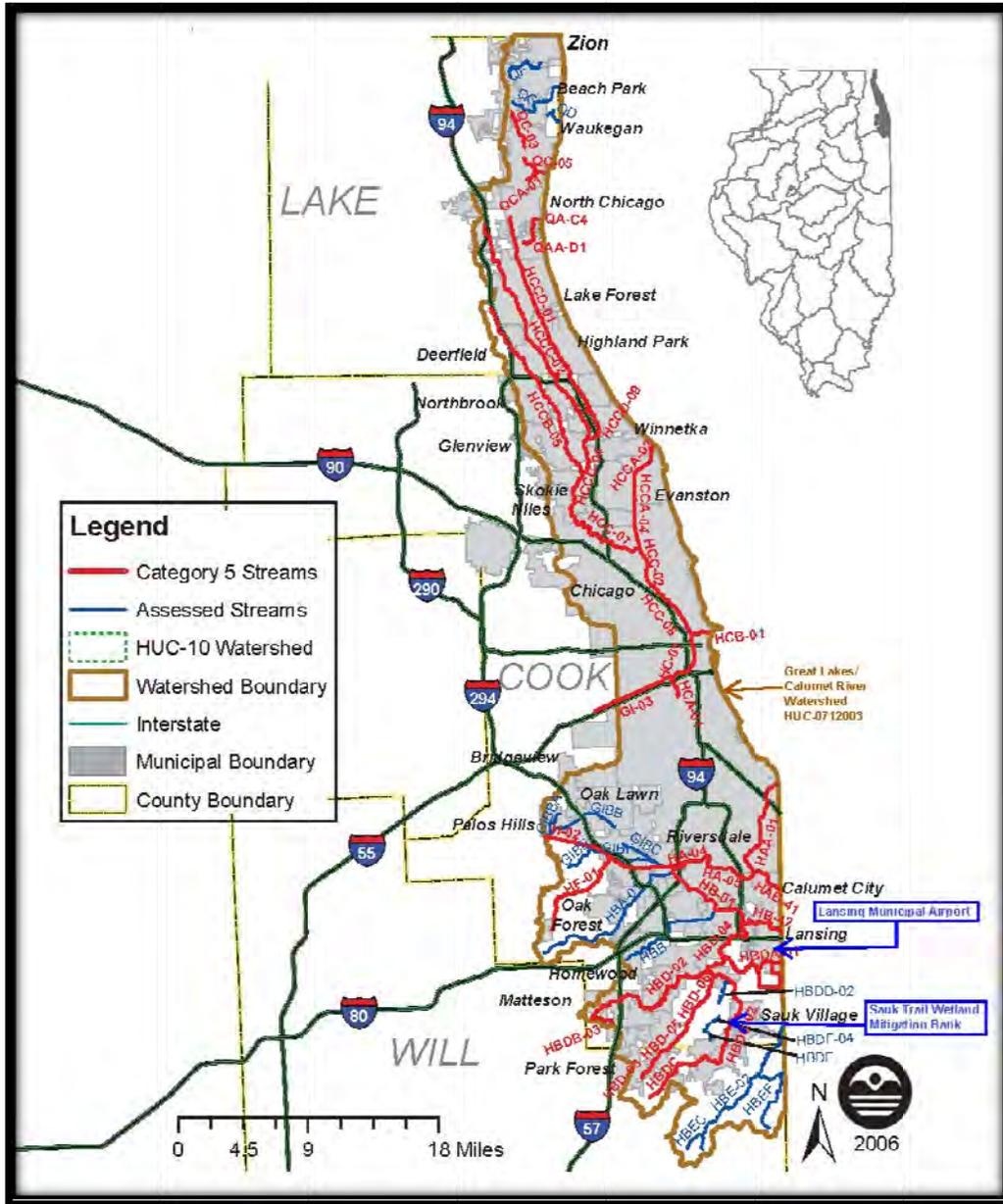


Figure 4-1: Mitigation Bank Location

4.13 FLOODPLAINS

4.13.1 General

Floodplains perform many important functions including wildlife habitat, food chain support, nutrient retention and removal, and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review under Executive Order 11988, *Floodplain Management*.

Executive Order 11988 directs federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains.” U.S. DOT Order 5650.2, *Floodplain Management and Protection*, contains procedures for implementing the Executive Order and establishing a policy of avoiding actions within the 100-year floodplain. Floodplains are defined in Executive Order 11988, *Floodplain Management*, as:

“ the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year;” i.e., the area that would be inundated by a 100 year flood.

The National Flood Insurance Program (NFIP) criteria include minimum standards for adoption of floodplain management regulations by local communities enrolled in the program. In support of the NFIP, the Federal Insurance Administration publishes Flood Insurance Rate Maps (FIRM) which delineate the limits of all floodplains and usually any floodways. In certain circumstances where no detailed flood studies were performed, the Flood Maps were created utilizing approximate methods. State and local governments may adopt floodplain management regulations that vary from those developed by NFIP, as long as they exceed the minimum standards developed by NFIP. The Illinois Department of Natural Resources (IDNR), Office of Water Resources (OWR) controls development within the floodway of a stream in a watershed with a tributary area of one square mile or greater, through their Part 3708, *Floodway Construction in Northeastern Illinois* regulations. OWR has developed standards that are more stringent than those required by NFIP.

4.13.1.1 Local Floodplain and Stormwater Programs, Plans, and Ordinances

In 2004, the Illinois State Legislature enacted Public Act 93-1049 (Act),²⁸ which places the responsibility for countywide stormwater management, in Cook County, under the supervision of the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The Act required MWRD to develop a Cook County Stormwater Management Plan (CCSMP).²⁹ The CCSMP is a high level organizational plan that was developed as the first step in establishing the District's countywide stormwater management program. The CCSMP is not a regulatory ordinance and does not set forth any rules, regulations, or standards; however, the plan outlines MWRD's six program elements: 1) administration and management, 2) regulation, 3) maintenance, 4) watershed planning, 5) project implementation, and 6) public information and education.

As a part of the watershed planning element of the CCSMP, and as required under the Act, MWRD also developed detailed watershed plans for the six major sub-watersheds in the county, which address regional stormwater problems in Cook County. IGQ is located within

²⁸ Illinois Public Act 93-1049, Illinois General Assembly, November 17, 2004.

²⁹ Cook County Stormwater Management Plan, Metropolitan Water Reclamation District of Greater Chicago, Adopted by the on February 15, 2007.

the Little Calumet River Sub-watershed (HUC 071200304) and falls within the Little Calumet River Detailed Watershed Plan (DWP).³⁰

To address the regulation element of the stormwater management program, MWRD is in the process of developing a Cook County Watershed Management Ordinance (WMO).³¹ The WMO's goal is to establish uniform, minimum, countywide stormwater management regulations for Cook County. Components which will be regulated under the WMO, once adopted, include drainage and detention, floodplain management, wetland protection, stream habitat and riparian environment protection, soil erosion and sediment control, and water quality.

The Village of Lansing has also adopted Floodplain and Stormwater Management ordinances that require compensation for any lost floodplain storage and detention storage for any increases in stormwater flow rates. Floodplain Management ordinances apply to any type of filling or construction within the 100-year floodplain. Filling within the floodplain must be compensated for at a ratio of 1.5 to 1.0. Additional floodplain ordinances apply to the construction of habitable structures. Stormwater management ordinances apply to any development that will increase the total impervious area. Higher peak flows created from increased impervious areas must be attenuated or reduced through the use of on-site detention basins for the 2-year and 100-year, 24-hour storm events. Both floodplain and stormwater management ordinances must be adhered to for any Airport improvements.

4.13.2 Existing Conditions

The 100-year floodplain and floodway limits of the Lansing Ditch and Lynwood Ditch Tributary are delineated on the effective FIRM Nos. 17031C0766J - 0769J, dated August 19, 2008. The floodplain of the Lansing Ditch encompasses the majority of the Lansing Municipal Airport (IGQ). This means during the 100-year flood event, the Lansing Municipal Airport would be inundated with flood waters. The airport was closed to operations in 1996 and 2008 due to flooding. The effective floodway limits, as shown on **Exhibit 4-7**, significantly limit the use of the westerly portion of the Airport. Due to the hazards associated with floodways, construction in the floodway is limited to the IDNR-OWR list of "appropriate uses."³² An appropriate use of the floodway includes new construction of airport runways and taxiways, but prohibits the construction of habitable structures.

³⁰ MWRD's Little Calumet River Detailed Watershed Plan (DWP) and Phase B Report, CDM, January 2010.

³¹ Draft Cook County Watershed Management Ordinance -, Metropolitan Water Reclamation District of Greater Chicago, released for public review on September 24, 2009.

³² Illinois Administrative Code: Title 17: Conservation, Chapter I: Department of Natural Resources, Subchapter h: Water Resources, Part 3708 Floodway Construction in Northeastern Illinois, Section 3708.70 Permitting Appropriate Uses of the Regulatory Floodway.

4.13.2.1 Airport Drainage Report

In August 2009, a Final Drainage Report³³ was completed for the Airport. The intent of the Drainage Report was to provide a comprehensive drainage plan that would reduce the flood impact on the Airport, while opening the area west of the Lansing Ditch to development in accordance with the approved Airport Layout Plan (ALP). The Little Calumet River DWP recognized regional problem areas and identified improvement projects. The Lansing Municipal Airport and vicinity was identified as one of the problem areas. Within this area, overbanking along both banks of the Lansing Ditch occurs. The 2009 IGQ Drainage Report is consistent with recommendations of the Little Calumet River DWP.

4.13.2.2 Summary of Alternatives Analysis

An extensive preliminary alternatives analysis was completed to determine options for reducing the floodway limits of the Lansing Ditch. Twelve alternatives and combinations thereof were considered to determine the effectiveness of reducing the floodway limits, determining how to compensate for the loss of floodway storage, and avoiding and minimizing environmental impacts. The alternatives analysis included channel modifications, enclosing the channel within box culverts, constructing parallel channels, flood control basins, enlarging the existing Mary Woodland Reservoir, and replacing downstream culvert constrictions. A summary table from the Drainage Report, which can be found in **Appendix E**, summarizes the twelve preliminary alternatives and discusses the advantages and disadvantages of each.

Preliminary analyses of each of these 12 alternatives were completed using the Hydrologic Engineering Centers (HEC-1), Hydrologic Engineering Centers River Analysis System (HEC-RAS), and Full Equations (FEQ) hydrologic and hydraulic computer models completed for the June, 1998 IDNR-Office of Water Resources (OWR) Study. The proposed changes were modeled and compared to the existing conditions to determine if the modifications had any effect on reducing the floodway and if there would be any resulting increase in flooding upstream or downstream of the project area. The results of the analyses found the following three alternatives to be the most advantageous for reducing the limits of the floodway while still meeting IDNR's rules for construction within the floodway:

- ◆ Alternative 1 Proposed Taxiway Encroachment
- ◆ Alternative 2 Proposed Stream Enclosure
- ◆ Alternative 3 Proposed Upstream Storage Facilities

The recommended alternative is Alternative 1 – Proposed Taxiway Encroachment. The proposed taxiway encroachment constrains the Lansing Ditch to the east side of the taxiway during high water events, removing the area to the west from the floodway. This is the most viable option as it incorporates future construction into the design and requires the least amount of additional facilities to construct. Widening of the Lansing Ditch and construction of

³³ Lansing Municipal Airport - Final Drainage Report, Crawford, Murphy & Tilly, Inc., August 2009.

an upstream flood storage reservoir, or dry basin, would offset the loss of floodway storage required to compensate for the fill associated with the proposed taxiway construction. As discussed above, the proposed taxiway meets IDNR – OWR’s definition of an appropriate use of the floodway and would meet the criteria for Construction in the Floodway in Northeastern Illinois.

The project purpose and need is to increase safety and efficiency for current and future airport operations. This is proposed to be accomplished by constructing extensions to Runway 18/36 and a parallel taxiway. Due to the layout and location of the existing airport facilities, off-site alternatives to extend the runway and taxiway are not a feasible option. Therefore avoidance and minimization measures to the maximum extent practicable were considered. Alternative 2 was found to have the greatest impact to the Lansing Drainage ditch by enclosing the stream in culverts and impacting the entire length of the Lansing Ditch through the airport property. Alternative 3 proposed to detain the Lansing Drainage Ditch in proposed upstream storage facilities with controlled flows through the airport property. Alternative 1 was found to have the least impact to the ditch by balancing upstream storage during high flow events and channel modifications through the project area. **Exhibit 4-8** illustrates a cross-section of the existing and proposed channel modifications.

Best Management Practices (BMP’s) would be incorporated into the final design of this alternative to minimize the impacts to receiving waters and improve water quality. BMP’s could include low flow channels, reduction of slope banks, open bottom culverts, temporary and permanent erosion and sedimentation control measures, use of native vegetation to provide deep root zones to stabilize soils and prevent erosion and a stormwater pollution prevention plan.

4.13.3 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established “purpose and need”. Therefore, no impacts to floodplains would be expected under this Alternative.

4.13.4 Alternative 1/Sponsor’s Proposed Action

The recommendations from the 2009 Final Drainage Report are included as a part of the Alternative 1/Sponsor’s Proposed Action. These recommendations include a proposed taxiway extension that would contain flood flows to the east side of that taxiway by creating a lateral boundary, parallel to the Lansing Ditch. **Exhibit 4-9** illustrates the outline of the proposed taxiway extension and the proposed change to the floodway limits once the recommendations from the Drainage Report are implemented. Constraining the Lansing Ditch flood flows to the east side of the taxiway would remove the westerly development area of the airport from the floodway. Channel widening modifications along Lansing Ditch between the Lansing Drainage Diversion and Runway 9/27, as depicted on **Exhibit 1-2**, are also proposed to constrain the flows.

Under the current conditions, water flow capacity cannot be increased downstream due to restrictions on the existing outfall of the Lansing Ditch. Existing stormwater facilities are overwhelmed during flood events and overbank flooding has been documented in Lansing Ditch sub-watershed. Local stormwater ordinances require proposed development to meet allowable release rates to assure downstream flows are not increased thereby adding to existing flood concerns. Therefore, while modifications to the bank would not have an increase in the drainage flow capacity, these modifications would increase the water storage area and would prevent the ditch from overbanking. Overbank flooding affects more than just the Airport; according to the DWP, it is considered a regional problem. In addition, the DWP suggests that 49 structures and 10 roadways would receive relief from flooding if improvements were made to the Lansing Ditch channel. As noted in their review letter (**Appendix B**), the MRWD has no objections to the proposed projects.

To utilize the proposed taxiway extension as a lateral encroachment, the proposed taxiway extension, in addition to the existing taxiway, must be elevated above the 100-year high water elevation (HWE). The area to the south would also need to be filled to tie into the taxiway above the 100-year HWE to assure flood flows would not inundate the area to the west. Filling of these areas in the floodway would increase flood levels due to the loss of floodway storage. To offset the loss of flood storage, an upstream storage basin is proposed. The basin would be used to create floodplain storage, collect storm water, protect water quality, and control runoff. However, because the storage basin slowly releases water after a storm event, the standing water can attract wildlife. Therefore, the basin would be designed to dewater within 39 hours, which would meet the FAA's 48-hour recommended maximum detention period and limit the potential of attracting wildlife. The storage basin areas can also serve as borrow areas for fill material needed to raise areas above the 100-year floodplain.

With the completion of the recommendations from the Drainage Report, the Alternative 1/Sponsor's Proposed Action would impact the designated floodplain in the areas east of the proposed taxiway extension. The construction of the extensions to Runway 18/36 and its associated navigational aids would impact an area labeled "Zone AE," "special flood hazard areas inundated by 100-year flood." These encroachments would total approximately 62 acres. The floodplain is divided into two parts: The floodway and the floodway fringe. Floodway mitigation requires 1:1 replacement. The floodway fringe is regulated by the local municipalities. The Village of Lansing requires floodway fringe impacts to be mitigated at a 1:5 to 1:0 ratio. Hydraulic modeling is required to assure that there would be no loss of floodway storage and no increase in flood stages upstream or downstream of the project and to determine the amount of mitigation necessary.

The proposed widening of the channel would be considered as part of these impacts. Approximately 4,000 to 5,450 linear feet of channel widening is proposed. The U.S. Army Corps of Engineers regulate the discharge of dredged or fill material into Waters of the US. Widening of the channel, in and of itself, does not fall under Corps jurisdiction, but the channel bottom

would be regraded, with low areas being filled. It is assumed that the Corps would take jurisdiction over some of the activities associated with the channel widening.

Additionally, the construction of proposed Taxiway K and Runway 18/36 extension would impact the northeast tributary of Lansing Ditch/Wetland 1. The anticipated area of impact would be approximately 600 linear feet.

In summary, Alternative 1/Sponsor's Proposed Action would have a net effect of no reduction in floodway conveyance or storage, and no increase in velocities and flood heights. The basis for a federal floodplain finding is predicated on the fact that the Alternative 1/Sponsor's Proposed Action has been diligently reviewed and recommended, and that no other practical alternative exists (**Chapter 2 – Alternatives**). Sufficient evidence exists to support: a) that there is no practical alternative to such construction and b) that the proposed action includes all practical measures to minimize harm to floodplains that may result from such use. Therefore, the Alternative 1/Sponsor's Proposed Action would not have any adverse impacts on floodplains.

4.13.5 Mitigation

Floodplain mitigation offsets the loss of flood storage when an area is filled and can no longer hold or convey water. The floodplain is divided into two parts: The floodway and the floodway fringe. The floodway portion of the floodplain is the central area used to convey fast moving flood waters and is regulated by IDNR-OWR. Floodway mitigation requires 1:1 replacement and is a measurable action. Hydraulic modeling is required to assure that there would be no loss of floodway storage and no increase in flood stages upstream or downstream of the project. The floodway fringe area is the portion of the floodplain outside the floodway and is used to store backwater during flood events. This area becomes inundated as floodwaters spread out from the floodway to low lying areas. The floodway fringe is regulated by the local municipalities and mitigation requires an area to be excavated or "bowled out" similar to the area that was filled in. The Village of Lansing requires floodway fringe impacts to be mitigated at a 1:5 to 1:0 ratio.

The No Action Alternative reflects existing conditions with no loss of floodplain storage and leaves the current floodplain limits unchanged. Floodplain compensatory mitigation would not be required. The Alternative 1/Sponsor's Proposed Action would encroach upon the floodplain impacting approximately 62 acres of floodway and floodway fringe. Approximately 160 ac-ft of lost floodway storage is proposed as part of the impacts. HEC-RAS hydraulic modeling of the proposed project was completed along Lansing Ditch and Lynwood Ditch Tributary to assure floodway impacts would be mitigated resulting in no loss of floodway storage and no increases in flood stages. Floodway mitigation is proposed to be achieved through a combination of channel modifications and upstream storage. Channel modifications include approximately 4,000 linear feet of channel widening with reduced channel side slopes. This provides a hydraulically larger cross-sectional area along the Lansing Ditch. The upstream storage consists

of the construction of a large basin to detain flows and reduce the peak along Lansing Ditch. Proposed impacts would be outside the floodway fringe and not require further mitigation.

Prior to construction, various local, state, and federal permits would need to be obtained. A permit from IDNR-OWR would be required for construction within the floodway, a Conditional Letter of Map Revision (CLOMR) would be required from FEMA to modify the floodway limits, and a stormwater permit would be required from MWRD for runway and facilities expansion. A Section 404 permit would be required for any modification to the Lansing Ditch where discharges of fill material are anticipated. Additional hydrologic and hydraulic analyses would also be required. Wetland and stream mitigation ratios would be established during the permitting process and it is anticipated that wetland banking credits would be purchased at the Sauk Trail Mitigation Bank. Stream mitigation could be achieved through credits or working in conjunction with MWRD to stabilize and enhance riparian areas identified as action items in the Little Calumet Watershed Plan. The following list summarizes the agencies, permits, and additional engineering required:

- ◆ IDNR-OWR
 - ◆ Floodway Permit
 - ◆ IDNR Interagency Wetland Policy Act
 - ◆ Additional Hydrologic and Hydraulic analyses for final design of chosen alternative
- ◆ FEMA
 - ◆ Completed MT-2 Forms
 - ◆ CLOMR
- ◆ Local Floodplain Management
 - ◆ 1.5:1 Compensatory Storage for Fill in the Floodplain
 - ◆ Structures raised 2-3 feet above the 100-year flood elevation
- ◆ Local Stormwater Management
 - ◆ Stormwater Detention for increase in impervious areas
- ◆ Army Corps of Engineers Section 404 Permitting
 - ◆ Wetland Delineations for modifications to Lansing Ditch
 - ◆ Stream Mitigation
 - ◆ Environmental Assessment
- ◆ Metropolitan Water Reclamation District
 - ◆ Stormwater Permit

No permit request has been submitted at this time, as it would be premature prior to an environmental finding. Subsequent to this Environmental Assessment finding, coordination with the necessary agencies to obtain permits would occur prior to individual construction projects. Any and all mitigation would be established during those permitting processes.

Impacts would be avoided to the extent feasible or otherwise minimized to the extent practicable.

4.14 FARMLAND

4.14.1 General

The *Farmland Protection Policy Act*, Public Law (P.L.) 97-98, directs federal agencies, such as the FAA, to identify and take into account the adverse effects of federal programs on the preservation of farmland. The federal agencies are also directed to consider alternative actions that could lessen such adverse effects and assure that federal programs, to the extent practicable, are compatible with state, unit of local government and private programs and policies to protect farmland. The purpose of the *Federal Farmland Protection Policy Act* (FPPA) as adopted by the United States Department of Agriculture is to:

Minimize the extent of the role of federal programs to the conversion of farmland to nonagricultural uses and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with State, unit of local government and private programs and policies to protect farmland.

The FPPA specifically directs federal agencies to: identify and take into account the adverse effects of federal programs on the preservation of farmland; consider alternative actions that could lessen such adverse effects; and assure that such federal programs be compatible to the extent practicable with state and local programs and policies to protect farmland. In addition, the IDOT has developed the following policy statement, which specifies the objectives and goals of the *Illinois Farmland Preservation Act*:

Recognizing that its transportation objectives must be in concert with the overall goals of the State, it is the policy of the Illinois Department of Transportation, in its programs, procedures, and operations, to preserve Illinois farmland to the extent practicable and feasible, giving appropriate consideration to the State's social, economic, and environmental goals.

Agricultural land in Illinois is categorized as either prime farmland or important farmland. Prime farmland has the best combination of physical and chemical characteristics for use as cropland, pastureland, and wooded land. It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed according to modern agricultural methods. Important farmland is agricultural land that is nearly prime farmland, which can economically produce high yields of crops when treated and managed according to acceptable farming methods. Prime and important farmland can be further categorized into eight (8) land classes based upon their physical land characteristics and risk of damage from erosion and other causes. The Land Capability Class System is a method developed by the USDA-Natural Resources Conservation Service (NRCS) to broadly categorize soil groupings. The classes are based on crop production restrictions, landscape and soil properties: Class I land has none too few limitations and Class VIII has the greatest limitations. Some factors considered are soil fertility, wetness, flooding, soil depth, and erosion. The eight (8) land capability classes are as follows:

- ◇ CLASS I - soils have few limitations that restrict their use
- ◇ CLASS II - soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices
- ◇ CLASS III - soils have severe limitations that reduce the choice of plants, require special conservation practice, or both
- ◇ CLASS IV - soils have very severe limitations that reduce the choice of plants, require very careful management, or both
- ◇ CLASS V - soils are subject to little or no erosion but have other limitations, impractical to reduce, that limit their use largely to pasture, woodland or wildlife habitat
- ◇ CLASS VI - soils have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture, woodland or wildlife habitat
- ◇ CLASS VII - soils have very severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture, woodland or wildlife habitat
- ◇ CLASS VIII - soils and land farms have limitations that preclude their use for commercial plants and restrict their use to recreation, wildlife habitat, or water supply or to aesthetic purposes

4.14.2 No Action Alternative

The No Action Alternative does not include any land acquisition in either fee simple title or in avigation easement. No significant impacts to farmlands would be anticipated under this alternative.

4.14.3 Alternative 1/Sponsor's Proposed Action

The Village of Lansing, the project sponsor, proposes to acquire approximately 75 acres of land in fee simple title; of which, approximately 72.5 acres are farmland. Additionally, the Sponsor's Proposed Action includes the acquisition of approximately 30 acres in avigation easements. The land acquisition is necessary for FAR Part 77 Imaginary Surface protection, runway protection zone clearance, airport design criteria, and required stormwater detention and floodplain compensation. All land proposed for acquisition, in fee simple title, is located within the corporate limits of the Villages of Lansing and Lynwood and is zoned Community Retail and Service, Single Family Attached Residential, or One Family Dwelling District. Acquisition of farmland has been minimized to the least extent required and alternative actions to the Sponsor's Proposed Action were evaluated.

One soil type was identified in the area proposed for acquisition that is currently used as farmland. See **Exhibit 4-10: Soils Map**. Soil type 69A is designated as prime if drained. The State of Illinois has adopted a system for evaluating the impacts of converting farmland to a non-agricultural use for projects that are federally and/or state funded. This system is allowed under the *Federal Farmland Protection Act* and operates on a point basis and, is called the Land Evaluation and Site Assessment System (LESA). The Illinois Department of Agriculture utilizes

the USDA Farmland Conversion Impact Rating, AD 1006 Form for computing the level of impacts on agricultural land uses as a result of a federally funded project. The higher the point value of a site, the more it is recommended that the site remain in agricultural use. A U.S. Department of Agriculture Form AD-1006, Farmland Conversion Impact Rating, was submitted to the U.S. Department of Agriculture - Natural Resources Conservation Service and the Illinois Department of Agriculture for the determination of the Farmland Conversion Impacts. At 173 total points, the acquisition areas fell below the maximum total points allowable of 300. A copy of the final AD-1006 is included in **Appendix B**.

The Illinois Department of Agriculture's website was searched to obtain a listing of all Centennial and Sesquicentennial Farms located in the project area. No Centennial or Sesquicentennial Farms were listed within the proposed acquisition area.

According to the Illinois Department of Agriculture, the Sponsor's Proposed Action is consistent with/exempt from the state's *Farmland Preservation Act* and with IDOT's Agriculture Land Preservation Policy. (See review letter in **Appendix B**.)

4.14.4 Mitigation

The No Action Alternative does not include any land acquisition in either fee simple title or in avigation easement. No significant impacts to farmlands are anticipated under this alternative. Regarding the Sponsor's Proposed Action, the Illinois Department of Agriculture stated that the Sponsor's Proposed Action is consistent with/exempt from the state's *Farmland Preservation Act* and with IDOT's Agriculture Land Preservation Policy. Therefore, no mitigation would be required.

4.15 NATURAL RESOURCES AND ENERGY SUPPLY

4.15.1 General

Sources of energy originate from fossil fuels (coal, oil, gas, etc.), nuclear power (uranium) and renewable elements (wood, sun, wind, water, etc.). Natural resources refer to the various forms of wealth supplied by nature including the sources of energy listed above.

4.15.2 No Action Alternative

The No Action Alternative assumes that there would be no demolition or construction of any facilities or any ground disturbance. No impacts to energy supply and natural resources would occur under the No Action Alternative.

4.15.3 Alternative 1/Sponsor's Proposed Action

The Alternative 1/Sponsor's Proposed Action includes installing lighting associated with overhead lighting at the proposed parking areas, aprons, and hangar areas; runway and taxiway lighting in the new airfield areas, and installation of a new approach light system to Runway 36. The impact of additional lighting is described in **Section 4.16 – Light Emissions**

and Visual Impacts of this report. While this lighting would slightly increase the Airport's energy demand, it would not result in a significant effect upon the local energy supplies.

A small increase in the number of aircraft operations is forecast with the proposed development. However, the consumption of aviation fuel by the additional flight activity associated with the proposed project is not anticipated to significantly affect local supplies.

During the construction of the Alternative 1/Sponsor's Proposed Action covered by this EA, items such as concrete, asphalt, crushed stone, fuel oil, gasoline, wire, glass, and paint would be used. All materials needed for construction may be purchased from area firms or manufacturers who specialize in airport equipment. The Alternative 1/Sponsor's Proposed Action would not involve the use of any unusual materials or of those in short supply. The Airport would not utilize any natural resources that are considered to be in short supply during either the construction or the operation of the facility. Providing power, light and other utilities to the Airport is conducted as a private, profit-centered activity. Based on the forecasted operations and the Alternative 1/Sponsor's Proposed Action, it is anticipated that energy would continue to be supplied by Commonwealth Edison, communications by Comcast Corporation or AT&T, Inc. and Nicor Gas Company would supply natural gas within their existing infrastructure capabilities. No significant impacts to energy generation or natural resources in short supply would be anticipated under the Alternative 1/Sponsor's Proposed Action.

4.15.4 Mitigation

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance. No impacts to energy supply and natural resources would occur under the No Action Alternative.

No significant impacts to energy generation or natural resources in short supply would be anticipated under the Alternative 1/Sponsor's Proposed Action. Therefore, no mitigation would be required.

4.16 LIGHT EMISSIONS AND VISUAL IMPACTS

4.16.1 General

Aviation lighting required for the purposes of security, obstruction clearance, and aeronautical navigation is the chief contributor to light emissions radiating from airports. These lights usually fall within the following categories: airfield lights (runways and taxiway), aircraft parking apron lights, building lights, auto parking lot lights, and navigational lights (rotating beacon, approach lighting). Airport light emissions are considered to have a noticeable impact if light is directed towards a nearby residential area. The following section summarizes the existing and future lighting conditions, and their potential impacts.

4.16.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established “purpose and need”. No new light emissions would take place under this alternative.

4.16.3 Alternative 1/Sponsor’s Proposed Action

The Sponsor's Proposed Action includes the following lighting improvements at the Lansing Municipal Airport:

- ◆ Install MIRL’s on Runway 18/36 extensions.
- ◆ Install MITL’s on connecting Taxiways Gulf and Kilo.
- ◆ Install approach light system to Runway 36.
- ◆ Install overhead lighting at the proposed parking areas, aprons, and hangar areas.

The proposed runway extensions and taxiways would be equipped with MIRLs and MITLs, respectively. The runway lighting is a straight line of lights on both sides of the runway and outlines the runway during darkness or low visibility weather conditions. The runway lights are omni-directional and emit white light. The runway and taxiway lights would be installed at a spacing of approximately 200 feet and approximately 10 feet from the pavement edge. Each light is mounted approximately one foot above the ground. The runway lights house a 115-watt lamp while the taxiway lights house a 30 to 45 watt lamp. The runway and taxiway lights would be similar to those already in use at the Airport and would not be expected to create any adverse impacts.

The extension of Runway 36 would be equipped with a Medium Intensity Approach Light System (MALS). The approach light system is a configuration of signal lights disposed symmetrically about the extended runway centerline starting at or near the landing threshold and extending outward into the approach zone of the runway. The system provides visual information on runway alignment, height perception, roll guidance, and horizontal references. The MALS consists of seven centerline bars of five white lights in each bar with 200 feet spacing between bars; two bars of five white lights each, on each side of the fifth centerline bar. The centerline light bars begin 200 feet from the threshold and extend outward to 1,400 feet from the runway threshold. The type of lights used is 1,500-watt steady burning white light in light bars.

The proposed overhead lighting at the parking, apron, and hangar areas would be similar to existing overhead lighting at the airport. It is not anticipated that any significant adverse effect on the surrounding area would be realized.

The proposed lighting facilities, for the Alternative 1/Sponsor’s Proposed Action would not be anticipated to have a significant adverse effect upon any surrounding residences or local roadway traffic. The nearest residential dwelling to the MALS would be approximately 700 feet laterally to the east. The nearest residential dwelling to the new MIRL's and MITL's would be

approximately 800 feet laterally to the east and 1,000 feet laterally to the east, respectively. The design of the lighting would be accomplished using selective pole heights, fixture aiming, and fixture designs to minimize the light levels visible from residential areas and roadways.

4.16.4 Mitigation

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established “purpose and need”. No light emission impacts would be expected under this alternative. Additionally, as stated above no significant adverse impacts would be anticipated for the Alternative 1/Sponsor’s Proposed Action, as such no mitigation would be required.

4.17 HAZARDOUS MATERIALS AND SOLID WASTE

4.17.1 General

Hazardous Waste is a general term relating to spills, dumping, and releases of substances that could threaten human and animal life. To identify these materials and protect the environment from harmful interaction with hazardous wastes, several federal laws and regulations have been enacted, including the following: the National Priorities List (Superfund Sites), the *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA), and the *Resource Conservation and Recovery Act* (RCRA). As a method of protection for the citizens of the State of Illinois, several state laws and reporting regulations have also been passed including the *Illinois Environmental Protection Act*, State Priority List, Leaking Underground Storage Tank (LUST) List, and the Underground Storage Tank (UST) Facilities List.

Hazardous waste impacts are typically associated with the current or future use, transfer, or generation of hazardous material within the limits of the proposed improvements or the acquisition of properties that contain hazardous materials.

Environmental concerns related to solid waste disposal range from adequate landfills for normal urban trash and garbage to the safe disposal of industrial waste. More recently, concerns over hazardous waste disposal have heightened the intensity of the issue. Waste disposal facilities have on occasion become the center of controversy since landfills and the truck traffic they generate are often perceived as not being compatible with residential areas. Traditionally, except for the open burning issue that reduced airport visibility, general aviation airports have not been heavily involved in solid waste conflicts since they generally do not contribute significantly to the problem. Unless an airport has related industry or a major paint and repair service facility, it does not generate appreciable amounts of solid waste.

Regarding the location of landfills and their proximity to airports, the FAA’s Order 5200.5A, *Waste Disposal Sites On or Near Airports* provides the following comments:

Landfills, garbage dumps, sewer or fish waste outfalls and other similarly licensed or titled facilities used for operations to process, bury, store or otherwise dispose of waste, trash and refuse will attract rodents and birds. Where the dump is ignited and produces smoke, an additional attractant is created. The FAA

neither approves nor disapproves locations of the facilities above. Such action is the responsibility of the Environmental Protection Agency and/or the appropriate state and local agencies. The role of the FAA is to ensure that airport owners and operators meet their contractual obligations to the United States government regarding compatible land uses in the vicinity of the airport. While the chance of an unforeseeable, random bird strike in flight will always exist, it is nevertheless possible to define conditions within fairly narrow limits where the risk is increased. Those high-risk conditions exist in the approach and departure patterns and landing areas on and in the vicinity of airports. The number of bird strikes reported on aircraft is a matter of continuing concern to the FAA and to airport management. Various observations support the conclusion that waste disposal sites are artificial attractants to birds. Accordingly, the disposal sites located in the vicinity of an airport are potentially incompatible with safe flight operations. Those sites that are not compatible need to be eliminated. Airport owners need guidance in making those decisions and the FAA must be in a position to assist. Some airports are not under the jurisdiction of the community or local governing body having control of land usage in the vicinity of the airport. In these cases the airport owner should use its resources and exert its best efforts to close or control waste disposal operations within the general vicinity of the airport.

Criteria for determining incompatibility are contained in FAA Order 5200.5A, *Waste Disposal Sites On or Near Airports* and P.L. 106-181, Wendell H. Ford Aviation Investment and Reformation for the 21st Century. Additionally, Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants On or Near Airports*, provides separation guidance for potential wildlife attractants. According to Advisory Circular 150/5200-33A, disposal sites will be considered as incompatible if located within areas established for the airports through the application of the following criteria:

- ◆ Waste disposal sites located within 10,000 ft of any (AOA) used or planned to be used by turbine-powered aircraft
- ◆ Waste disposal sites located within 5,000 ft of any (AOA) used only by piston-powered aircraft
- ◆ Any waste disposal site located within 5 miles of the farthest edge of the Airport's AOA that could cause hazardous wildlife movement into or across the approach or departure airspace

4.17.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities or any ground disturbance at the Airport to address the established "purpose and need". No hazardous waste or solid waste impacts are expected under this alternative.

4.17.3 Alternative 1/Sponsor's Proposed Action

The Alternative 1/Sponsor's Proposed Action includes acquisition of one residence. Hazardous waste impacts associated with this alternative should be minimal due to the land uses of the project area. Due diligence requirements would need to be met prior to property acquisition. The USEPA listing of sites being assessed under the Superfund program, hazardous waste sites and potential hazardous waste sites (aka NPL list) was reviewed to determine if any such sites are located in the vicinity of the Airport. No sites were list on the Airport or any proposed

acquisition properties. Development included in the proposed action would not directly involve handling or movement of hazardous materials. No impacts that would cause hazardous waste impacts would be expected under the Alternative 1/Sponsor's Proposed Action.

Construction associated with the Alternative 1/Sponsor's Proposed Action would include the generation of solid waste resulting from pavement and ground cover removal as well proposed development. General disposal of these wastes must be monitored and processed properly. While the Alternative 1/Sponsor's Proposed Action would most likely cause an increase in solid waste generation associated with construction, it is not likely to be a substantial amount. Other solid wastes from construction could include scrap building materials, debris, and similar wastes that can be accepted at existing landfills. Post-construction wastes are not anticipated to increase greatly above existing levels as a result of the proposed project. Solid wastes resulting from construction and expanded operations would be transported to an IEPA licensed landfill site (or transfer station), while those materials conducive to use in landscaping could be collected and reused.

The closest licensed site to the Airport that is able to accept large-volume construction wastes is Harvey Transfer Station, which is located approximately six (6) miles northwest of Lansing Municipal Airport. The Harvey Transfer Station accepts construction and debris and landscaping waste.

There are no municipal waste landfills located within the 5-mile FAA threshold for consideration of aircraft bird interaction. Therefore, the Alternative 1/Sponsor's Proposed Action should not have any significant adverse impacts on solid waste management.

4.17.4 Mitigation

Neither the Alternative 1/Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create any significant hazardous waste impacts. Therefore, no mitigation measures for hazardous waste impacts would be required.

4.18 CONSTRUCTION IMPACTS

4.18.1 General

Construction impacts normally involve the movement of equipment, building materials, laborers, and related personnel to and from the construction site. In addition, noise levels, smoke, dust, and possible disruption of public services and other temporary undesirable conditions often accompany the construction phase. The movement of equipment and materials may have short-term effects on normal traffic flows and cause temporary inconvenience to persons who normally reside or travel in the construction area. Many of the adverse temporary effects can be minimized through the careful scheduling of deliveries and the movement of equipment to avoid peak traffic conditions and other sensitive periods. Other

on-site precautions can be taken to reduce the adverse impacts caused by the construction activities.

4.18.2 No Action Alternative

The No Action Alternative assumes that there would be no construction of any facilities at the Airport to address the established “purpose and need”. No construction impacts would be expected under this alternative.

4.18.3 Alternative 1/Sponsor’s Proposed Action

4.18.3.1 Soil Erosion

The construction of the Proposed Action would require the excavation of soil. This type of construction presents a potential for soil erosion by water and wind and would necessitate the use of erosion controlling construction methods to minimize the impact to water and air quality. The contract documents, which would control the contractors operations when constructing the individual components, would incorporate provisions from the IEPA, Standards and Specifications for Soil Erosion and Sediment Control, 1987. In the contract documents an erosion control plan would be developed which would meet the IEPA guidelines and FAA AC 150/5370-10D, *Standards for Specifying Construction of Airports*, to ensure that there are no long-term impacts to the existing drainage system or water quality of the area. This plan would include details and schedules for erosion control measures to control erosion resulting from storm water, dust, and waste disposal.

The erosion control plan and its implementation by the contractor and the subcontractors would also meet the requirements of the NPDES permit that applies to erosion from construction sites. In Illinois, the requirements of this permit are enforced by IEPA on all construction projects that disturb one acre or more. Temporary and permanent erosion control measures include, but are not limited to, exposing the minimum area of earth, applying temporary mulch with or without seeding, applying temporary seed mixtures, using temporary crossing protection over water courses, using slope drains, incorporating benches into the construction of long slopes, using sediment basins, using dikes and using erosion control fence. These individual construction methods minimize the impact of erosion.

4.18.3.2 Water Quality

Water quality was discussed in detail in **Section 4.7 - Water Quality**. The discussion in this section is limited to the impacts which construction would have on the water quality in the area. Adverse impacts on water quality due to erosion and subsequent sedimentation are prime concerns during the airport construction process. Utilizing the measures previously outlined, erosion and sedimentation are not expected to notably affect water quality. Storm water runoff from the area would drain into the storm drainage system and would be subject to the NPDES permit requirements.

Because this Proposed Action would disturb more than one (1) acre of land, the FAA must ensure that the sponsor notify IEPA by issuing a Notice of Intent (NOI). The NOI indicates that the operator of the construction site would comply with the erosion, sediment, and storm water control measures presented in the permit for construction activities. Project specifications and standards would include applicable provisions of FAA AC 150/5370-10D, *Standards for Specifying Construction of Airports*, Item P-156 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control. It is anticipated that with the use of proper construction techniques the construction would present no significant impact to water quality.

4.18.3.3 Air Quality

Air quality was discussed in detail in **Section 4.6 – Air Quality**. The discussion in this section is limited to the impacts which construction would have on the air quality in the area. Construction activities would have a short-term impact on local air quality. Air pollution during the construction operations would be a consequence of wind erosion, material handling, and construction traffic on unpaved roadways. Air pollution impacts would be most pronounced at the individual construction sites. The Proposed Action would create fugitive dust generated by construction activities. The air pollution impact from fugitive dust would depend on the quantity and drift potential of the dust introduced into the atmosphere. To minimize fugitive dust generation, unpaved roads, material stockpiles, embankment operations, and inactive portions of the construction site would need to be watered, chemically stabilized, mulched, or turfed. The construction specifications would provide requirements for the contractor to minimize the amount of dust generated into the atmosphere by utilizing one or a combination of the above methods. Specifically the special provisions in Section P-156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control, of the FAA AC 150/5370-10D, which controls excavation, material storage, turfing, and erosion control, would incorporate requirements so as to minimize the potential for the generation of dust. Proper utilization of these methods would provide that the construction presents no significant impact to the air quality of the airport vicinity.

4.18.3.4 Noise

Noise generated by aircraft operating at the facility was discussed in detail in **Section 4.1 - Noise**. Noise impacts due to construction operations would be primarily limited to the noise generated by the equipment at the site and the noise associated with the traffic to and from the site. Noise from the equipment would vary from model to model and would change according to the operation involved. Noise levels generated by construction traffic are generally higher than that produced by normal traffic flows. The increase in the traffic due to the construction operations and the trucks that carry the materials to the site generally increase the noise levels adjacent to the road system. The primary access routes would be Burnham Avenue and Glenwood Lansing Road. Because construction would take place primarily during the daylight hours, the traffic to the site would be very similar to the traffic that now uses these primary access routes. Therefore, the additional construction traffic should not represent a significant impact.

Provisions of the IDOT-Division of Aeronautics Standard Specifications for the Construction of Airports would be incorporated into the construction contract documents, with specific reference to Temporary Air and Water Pollution, Soil Erosion and Siltation Control. With proper design and construction methods the construction activities would present no significant short-term or long-term impacts.

4.18.4 Mitigation

Neither the Alternative 1/Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create any significant construction impacts. As noted in FAA's AC 150/5370-10D, *Standards for Specifying Construction of Airports*, Item P-156-3.2 Schedule:

Prior to the start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work, as are applicable for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the Engineer.

The following list summarizes the known permits necessary for construction:

- ◇ IDNR-OWR
 - ◆ Floodway Permit
- ◇ Metropolitan Water Reclamation District
 - ◆ Stormwater Permit
- ◇ USACE
 - ◆ Section 404 permit
- ◇ Illinois Environmental Protection Agency
 - ◆ Section 401 permit
 - ◆ NPDES Construction permit

4.19 CUMULATIVE EFFECTS

4.19.1 General

The Council on Environmental Quality's (CEQ) regulations for implementing NEPA defines cumulative effects 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 such other actions (40 CFR §1508.7).

NEPA requires that cumulative effects be evaluated along with the direct and indirect effects of the actions. As with direct and indirect project-related effects discussed in the previous sections

of this chapter, the No Action Alternative serves as the reference point against which to evaluate cumulative effects. Where numerical thresholds are not available or cannot be determined, impacts are typically quantified in relative terms of magnitude.

As required by FAA guidance, a NEPA document must consider past, present and reasonably foreseeable actions at the airport and in the airport environs. The basis for that approach is the recognition that, while the impacts of many actions may be individually minor, the cumulative effects of past, present, and reasonably foreseeable actions on populations or resources can be considerable.

4.19.2 Projects

A list of the past, present, and reasonably foreseeable future actions is included in **Sections 4.19.2.1, 4.19.2.2, and 4.19.2.3** below.

4.19.2.1 Past Projects

The history of the Lansing Municipal Airport dates back to the 1920s. It was originally called the Chicago-Hammond Airport and was created to serve the needs of the Ford Motor Company. It was a turf runway facility, as was typical of airports of that era. In 1926, the Ford Motor Company built a hangar facility on the Airport which is still in use and now listed on The National Register of Historical Places.

Until the late 1950s, the airside facilities were all grass surfaces and the airport encompassed approximately 160 acres. By the early 1960s, the Airport had three defined sod runways; north/south, east/west and northeast/southwest. Each runway was approximately 2,600 feet long.

In 1969, Runway 09/27 was paved. The ramp area around the Ford Hangar and a connecting taxiway was also paved in conjunction with the runway paving project.

In 1976, the Village of Lansing acquired the Airport. This change to public ownership allowed the airport to become eligible to receive federal and state grant funding. The number of based aircraft increased and a large T-hangar building was constructed soon after. A second T-hangar unit was constructed in the early 1980s. Due to an increase in aviation demand, the Village acquired additional land. By 1989 they had extended Runway 09/27 to a length of 3,655 feet with a full parallel taxiway. At this same time, the number of based aircraft soared and the airport undertook a major expansion of the ramp area, in the northwest quadrant of the airport, as well as constructing a third row of T-hangars east of the previous two units.

The Airport's second Airport Layout Plan (ALP) was underway in 1990. It showed construction of a 4,000 foot x 75 foot Runway 18/36, near the Illinois/Indiana border. Land acquisition was a major part of the ALP, in order for the future 18/36 to be constructed. Future corporate hangars and T-hangars were shown on the south ramp near 09/27.

By 2003, the new primary Runway 18/36 was constructed to its current configuration at 4,002 feet x 75 feet and included a partial parallel taxiway. Shortly thereafter, Runway 09/27 was rehabilitated and reconfigured to a length of 3,395 feet to bring it into compliance with FAA's Runway Safety Area (RSA) standards.

More recently, development projects undertaken in the past three years (2008-2010) included:

- ◆ Rehabilitating the Airfield Lighting System for Runway 9/27 and Parallel Taxiway
- ◆ Rehabilitating the North Quadrant T-Hangar Apron - Phase 1
- ◆ Constructing, Lighting & Marking the Partial Parallel and Connecting Taxiways to Runway 36

4.19.2.2 Present/Current Projects

For purposes of this cumulative effects analysis, current refers to projects that would be under construction during years 2012 through 2016, which have already received environmental approval. These are projects that would occur independently of the proposed build alternatives. In the context of the cumulative effects analysis, current projects at the Airport are depicted in **Table 4-10**.

Table 4-10:
Current Projects at IGQ

Project Description	Project Start Year
Improve Runway 9 Extended Object Free Area Improvements	2013

Note: Only construction projects not listed in the Sponsor's Proposed Action are listed here.
Source: Lansing Municipal Airport Transportation Improvement Program: Airports FY 2011-2015, 11/11/2009.

Currently funded regional transportation projects anticipated for the years 2010-2014 are identified in the Department of Highways-County of Cook, *Highway Transportation Plan-2010 Through 2014*, October 2010 and are listed in **Table 4-11**.

**Table 4-11:
Regional Transportation Improvement Plan Construction Projects**

Project Description	Project Start Year
Joe Orr Road (Relocated) (East of Stony Island Ave. to Torrence Ave.)	2012
Wentworth Avenue (Glenwood Lansing Road to Ridge Road)	2012

Source: Department of Highways-County of Cook, Highway Transportation Plan-2010 Through 2014, October 2010 and The 2012 Cook County Highway Construction Schedule.

Other current projects would include ongoing residential, commercial, and industrial development in the project vicinity.

4.19.2.3 Reasonably Foreseeable Future Actions

The IGQ Airport Master Plan, which identifies the Airport's long-range development plan for the future, was completed in 2009. An analysis of concept development strategies for future airfield, landside, and support facility expansion is included as a part of the Master Plan. Most of the projects included in the Master Plan Report are included as a part of the Sponsor's Proposed Action. However, there are a few projects that are identified for future long-term development at IGQ, but which are beyond the scope of this current EA. These projects, which are listed below, would require separate environmental approval prior to implementation.

- ◆ Construct new parallel and connecting taxiways south of Runway 9/27
- ◆ Construct Connecting Taxiway 'N' south of the Terminal Area and near the T-Hangars
- ◆ Construct Airport Traffic Control Tower

In addition to future projects anticipated at the Airport, projects are expected to be undertaken by others in the area, such as the Cook County, Village of Lansing, Village of Lynwood, Towns of Dyer and Munster, and other local agencies, and private residential and commercial developments in the project vicinity.

4.19.3 No Action Alternative

The No Action Alternative assumes that there would be no demolition or construction of any facilities or any ground disturbance at the Airport to address the established "purpose and need". Under this alternative there would be no environmental impacts to cumulatively add or assess in comparison to the past, the present, or the reasonably foreseeable future. Therefore no cumulatively significant impacts would be realized.

4.19.4 Alternative 1/Sponsor's Proposed Action

Construction of the Alternative 1/Sponsor's Proposed Action is anticipated to be initiated in 2012. The projects that have taken place up to three years prior to the Alternative 1/Sponsor's Proposed Action construction (2008-2010) are listed in **Section 4.19.2.1, Past Projects**. These

projects were previously environmentally cleared and no significant impacts on any environmental resources were identified. The development projects have all taken place on airport property; therefore they did not cause a change in area land use.

Projects planned for construction beginning in 2011, through the next five years (2011-2015) were identified in **Table 4-10** and **Table 4-11**. These projects would occur independently of the Alternative 1/Sponsor's Proposed Action.

Under this alternative, there are certain environmental resources that would have no impacts to cumulatively add or assess in comparison to the past, the present, or the reasonably foreseeable future. Therefore, for some of the resources assessed in this EA, it can be assumed that there would be no cumulatively significant impacts. Environmental resources that could have potential cumulative impacts associated with past, present and foreseeable future projects at the Airport include socioeconomic impacts, air quality, water quality, wetlands, floodplains, solid waste and hazardous materials, energy and natural resources, and construction impacts. Following is an analysis of these potential cumulative impacts.

4.19.4.1 Socioeconomic Impacts

The Alternative 1/Sponsor's Proposed Action, coupled with past, present and reasonably foreseeable projects are expected to result in greater increases in jobs (short-term construction projects, as well as ongoing permanent jobs), as well as increased economic productivity. No significant adverse cumulative effects are anticipated.

4.19.4.2 Air Quality

Air quality has been adversely affected as a result of human activities and development. In the past several years, application of federal and state emissions regulation and significant technological improvements aimed at reducing effects on air quality have acted to counter emission increases caused by population and development growth.

Because aviation activity at IGQ represents such a 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.³⁴

In addition to the Alternative 1/Sponsor's Proposed Action, there would be other reasonably foreseeable developments at the Airport and in the airport environs that could affect air quality. These projects either have been considered in separate environmental documentation in recent years, or will be assessed in the near future. Until specific project plans are known, it is not possible to quantify the specific air quality effects from the proposed project and these other Airport and regional projects.

³⁴ NEPA Regulations, Council on Environmental Quality, 40 CFR 1502.22, *Incomplete or unavailable information*.

4.19.4.3 Water Quality

Potential impacts to water quality may be caused directly and indirectly. Construction activities may include such things as clearing of vegetation, regrading the existing ground surface, installing drainage, installing additional pavement and buildings, and handling construction materials. Such activities generally change pervious surfaces to impervious surfaces, and could change the rate of infiltration. Development of impervious areas would create additional stormwater runoff. Compensatory measures for stormwater runoff control would be provided through construction of detention/retention basins. Past, present, and/or reasonably foreseeable projects have or would increase impervious surfaces, including the Alternative 1/Sponsor's Proposed Action. Developments within the region would also likely result in additional impervious surfaces. In developed or developing urban areas, local regulations generally force any entity to comply with local and State Ordinances for building permits to be issued. Activities and events that could occur during operation of the airport facilities, such as stormwater runoff, accidental spills, sanding and de-icing, and vegetation control all have the potential to affect surface water quality. Contaminant concentrations in stormwater coming from such surfaces would most likely not exceed State Water Quality standards due to treatment by selected Best Management Practices (BMPs). Therefore, cumulative effects would be negligible.

4.19.4.4 Wetlands

The No Action Alternative would not affect any wetlands or Waters of the U.S., while the Alternative 1/Sponsor's Proposed Action would affect approximately 10 acres. No other reasonably foreseeable developments at the Airport would be anticipated to affect additional wetlands. However, continued pressures to fill area wetlands have occurred over the last few decades, and will likely continue as population and development increases throughout the region. Therefore, other regional projects, in combination with the Sponsor's Proposed Action, will likely impact wetland resources in the region. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects on wetlands from these other regional projects. Regulatory agencies that oversee wetland permitting help to ensure that impacts to wetlands are mitigated in accordance with applicable laws.

4.19.4.5 Floodplains

The Alternative 1/Sponsor's Proposed Action would increase the impervious surface at the Airport. However, drainage would be designed to accommodate the increased runoff. The Sponsor's Proposed Action would also encroach on floodplains and floodways. In addition to on-Airport projects, impacts on floodplains or flooding could result from development of other proposed regional projects in the vicinity, particularly if these encroach on existing floodplains or fail to meet regional detention requirements for stormwater runoff. Enforcement of local floodplain development standards and stormwater runoff detention requirements would be anticipated to mitigate potential flooding impacts from other proposed development. The Metropolitan Water Reclamation District of Greater Chicago (MWRD) is responsible for countywide stormwater management in Cook County. MWRD has recently developed detailed

watershed plans for the six major sub-watersheds in the county, which will address regional stormwater problems in Cook County.

The proposed modifications to the Lansing Drainage Ditch would increase the water storage area and would prevent the ditch from overbanking. Overbank flooding affects more than just the Airport; it is considered a regional problem. The MWRD watershed plans indicate that 49 structures and 10 roadways would also receive relief from flooding if improvements were made to the Lansing Drainage Ditch channel. Based on the efforts being undertaken in the region to improve stormwater management, there could be reductions in flood levels in the Airport environs and in the region. However, until specific project plans are known, it is not possible to quantify the specific cumulative effects on floodplains from the Sponsor's Proposed Action and these other regional projects.

4.19.4.6 Solid Waste and Hazardous Materials

Expected increases in airport use, development of Airport facilities, and urban development within the surrounding communities would result in the increased use of solid and hazardous materials and generation of greater amounts of wastes. Reasonably foreseeable future actions in the area would also contribute solid waste to the local landfills, primarily in the form of construction debris. Higher use would increase the likelihood of releases of these materials to the environment. Proper storage, use, and disposal procedures would reduce the probability of releases and thus minimize impacts on human health and the environment.

4.19.4.7 Energy Supply and Natural Resources

The Sponsor's Proposed Action would result in additional energy and natural resource consumption relative to the No Action. In addition, other regional development would similarly result in the consumption of energy and natural resources. However, none of these additional regional projects, in combination with the Sponsor's Proposed Action, is likely to exceed the capacity of the region to service the energy and natural resource needs.

4.19.4.8 Construction Impacts

In addition to Alternative 1/Sponsor's Proposed Action, other reasonably foreseeable developments at the Airport and in the airport environs would have construction effects on the adjacent areas. These projects either have been considered in separate environmental documentation in recent years, or would be assessed in the near future. Until specific project plans are known, it is not possible to quantify the specific cumulative effects from construction activities from the proposed project and these other Airport and regional projects. However, it is expected that construction of these other facilities and the Sponsor's Proposed Action would not cause significant adverse construction-related cumulative impacts as long as appropriate construction-related BMPs are used. Therefore, the Alternative 1/Sponsor's Proposed Action, in combination with other past, present, and foreseeable future projects, should not have a cumulatively significant impact on the environment from construction activities.

4.19.5 Mitigation

Neither the Alternative 1/Sponsor's Proposed Action nor the No Action Alternative would be anticipated to create a cumulatively significant impact on the environment. Therefore, no mitigation measures for cumulative impacts would be required.