SECTION 8 – ENVIRONMENTAL OVERVIEW

The purpose of this environmental overview is to characterize the potential environmental impacts associated with the Preferred Development Plan. This overview is based on current master planning level information and is not an environmental review prepared in accordance with the National Environmental Policy Act (NEPA) and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*. NEPA approval will be required prior to the implementation of the projects described below. This overview is organized in three sections as follows:

- **Background** – reviews the projects included in the Airport's current Capital Improvement Plan (CIP) and each of the two Master Plan development phases in the context of their potential effects on the environment. This section also describes the consideration of environmental factors included in the evaluation of alternatives and the selection of these projects.

- **Potential Environmental Effects** – provides a qualitative assessment of the environmental effects likely to result from each of the two Master Plan development phases.

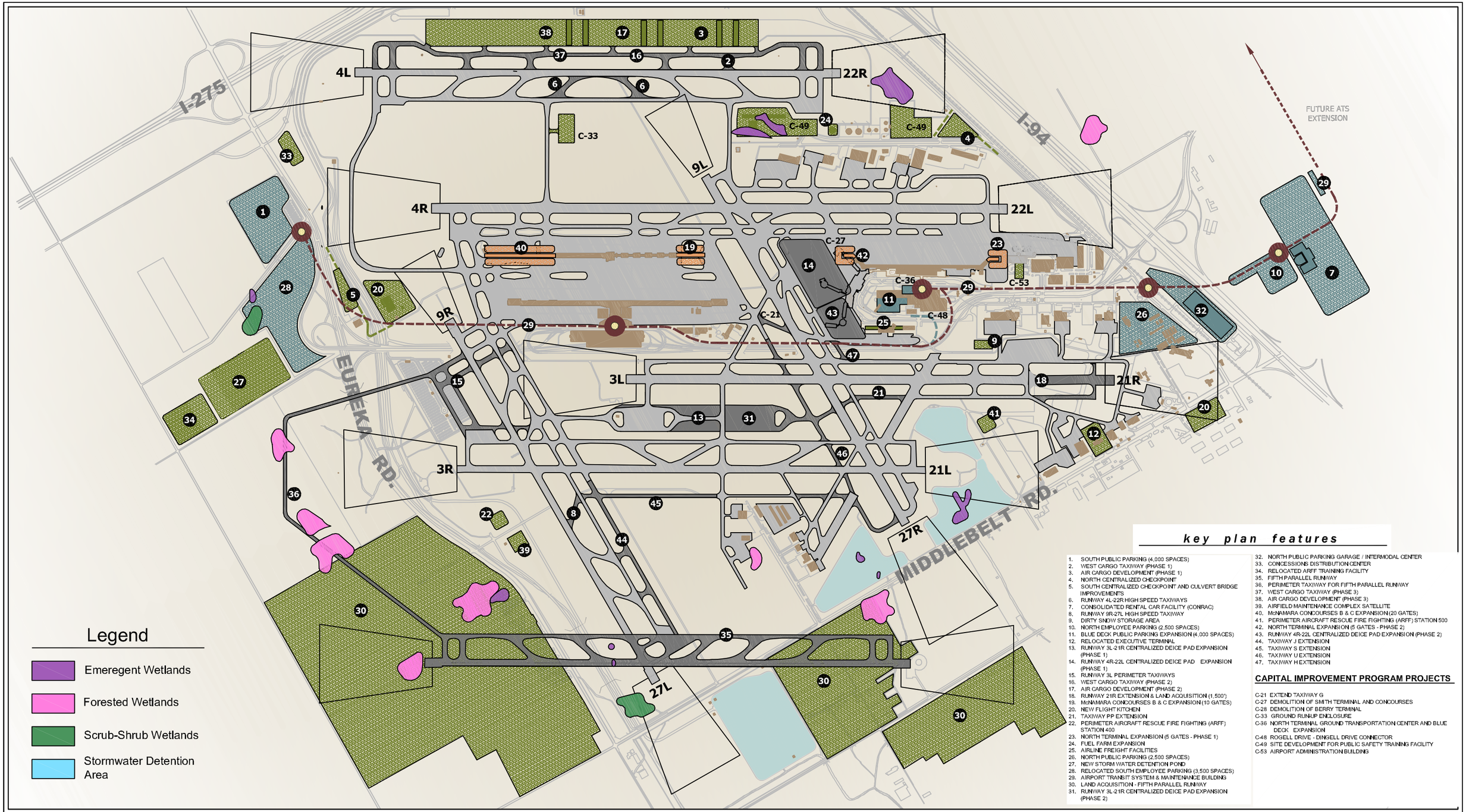
- **Summary and Anticipated Requirements** – summarizes the likely environmental effects of the individual projects recommended in the Master Plan and identifies the NEPA process and environmental permits typically required for project implementation.

8.1 Background

This section provides an overview of the potential environmental effects of the projects recommended in the Master Plan. Although this analysis does not examine alternatives to the projects that might avoid or minimize environmental consequences, it is important to note that the Master Plan alternatives selection process did consider environmental factors in considering alternatives and recommending the proposed development program. This section also reviews the factors considered in the alternatives evaluation process.

8.1.1 Project Description

Exhibit 8.1-1 shows the locations of 76 projects recommended over the course of the 20-year planning horizon covered by the Master Plan. Section 7 of the DTW Master Plan identified three groups of airport development projects as follows: 27 projects in the Airport's CIP, 27 Future Airport Layout Plan (ALP) Projects (2008 to 2015) and 20 Ultimate ALP Projects (2016 to 2027). The following descriptions summarize each group or phase of the recommended Master Plan development program starting with those projects reflected in the Airport's CIP.



key plan features

1. SOUTH PUBLIC PARKING (4,000 SPACES)
2. WEST CARGO TAXIWAY (PHASE 1)
3. AIR CARGO DEVELOPMENT (PHASE 1)
4. NORTH CENTRALIZED CHECKPOINT
5. SOUTH CENTRALIZED CHECKPOINT AND CULVERT BRIDGE IMPROVEMENTS
6. RUNWAY 4L-22R HIGH SPEED TAXIWAYS
7. CONSOLIDATED RENTAL CAR FACILITY (CONRAC)
8. RUNWAY 9R-27L HIGH SPEED TAXIWAY
9. DIRTY SNOW STORAGE AREA
10. NORTH EMPLOYEE PARKING (2,500 SPACES)
11. BLUE DECK PUBLIC PARKING EXPANSION (4,000 SPACES)
12. RELOCATED EXECUTIVE TERMINAL
13. RUNWAY 3L-21R CENTRALIZED DEICE PAD EXPANSION (PHASE 1)
14. RUNWAY 4R-22L CENTRALIZED DEICE PAD EXPANSION (PHASE 1)
15. RUNWAY 3L PERIMETER TAXIWAYS
16. WEST CARGO TAXIWAY (PHASE 2)
17. AIR CARGO DEVELOPMENT (PHASE 2)
18. RUNWAY 21R EXTENSION & LAND ACQUISITION (1,500')
19. McNAMARA CONCOURSES B & C EXPANSION (10 GATES)
20. NEW FLIGHT KITCHEN
21. TAXIWAY PP EXTENSION
22. PERIMETER AIRCRAFT RESCUE FIRE FIGHTING (ARFF) STATION 400
23. NORTH TERMINAL EXPANSION (5 GATES - PHASE 1)
24. FUEL FARM EXPANSION
25. AIRLINE FREIGHT FACILITIES
26. NORTH PUBLIC PARKING (2,500 SPACES)
27. NEW STORM WATER DETENTION POND
28. RELOCATED SOUTH EMPLOYEE PARKING (3,500 SPACES)
29. AIRPORT TRANSIT SYSTEM & MAINTENANCE BUILDING
30. LAND ACQUISITION - FIFTH PARALLEL RUNWAY
31. RUNWAY 3L-21R CENTRALIZED DEICE PAD EXPANSION (PHASE 2)
32. NORTH PUBLIC PARKING GARAGE / INTERMODAL CENTER
33. CONCESSIONS DISTRIBUTION CENTER
34. RELOCATED ARFF TRAINING FACILITY
35. FIFTH PARALLEL RUNWAY
36. PERIMETER TAXIWAY FOR FIFTH PARALLEL RUNWAY
37. WEST CARGO TAXIWAY (PHASE 3)
38. AIR CARGO DEVELOPMENT (PHASE 3)
39. AIRFIELD MAINTENANCE COMPLEX SATELLITE
40. McNAMARA CONCOURSES B & C EXPANSION (20 GATES)
41. PERIMETER AIRCRAFT RESCUE FIRE FIGHTING (ARFF) STATION 500
42. NORTH TERMINAL EXPANSION (5 GATES - PHASE 2)
43. RUNWAY 4R-22L CENTRALIZED DEICE PAD EXPANSION (PHASE 2)
44. TAXIWAY J EXTENSION
45. TAXIWAY S EXTENSION
46. TAXIWAY U EXTENSION
47. TAXIWAY H EXTENSION

CAPITAL IMPROVEMENT PROGRAM PROJECTS

C-21 EXTEND TAXIWAY G
C-27 DEMOLITION OF SMITH TERMINAL AND CONCOURSES
C-28 DEMOLITION OF BERRY TERMINAL
C-33 GROUND RUN-UP ENCLOSURE
C-36 NORTH TERMINAL GROUND TRANSPORTATION CENTER AND BLUE DECK EXPANSION
C-48 ROGELL DRIVE - DINGELL DRIVE CONNECTOR
C-49 SITE DEVELOPMENT FOR PUBLIC SAFETY TRAINING FACILITY
C-53 AIRPORT ADMINISTRATION BUILDING

*** For Diagrammatic and Illustrative Purposes Only**

Plan depicts projects anticipated to be implemented by year 2027

Detroit Metropolitan Wayne County Airport

DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

MASTER PLAN STUDY

PREFERRED DEVELOPMENT PLAN

TRUE NORTH
VARIATION 3-4° W. (1986)

0 2000' 4000'
GRAPHIC SCALE IN FEET

Detroit Metro Master Plan DTW

EXHIBIT 8.1-1

8.1.1.1 CIP Projects

The CIP projects are listed in **Table 7.1-1** in Section 7. These projects consist of taxiway and runway reconstruction and rehabilitation, runway safety area improvements, and general airfield pavement rehabilitation. Additional CIP projects include terminal demolition, land acquisition for noise, construction of a ground run-up enclosure, parking structure rehabilitation, roadway improvements, and utility improvements.

In general, these projects would not involve development of previously undeveloped areas and would not substantially increase capacity. The environmental consequences of the CIP projects would be associated with temporary construction activity and temporary changes in airfield operations (runway use changes).

8.1.1.2 Future ALP Projects (2008 to 2015)

The 29 Future ALP Projects, described in Section 7.2.1, include the expansion of public and employee parking, expanded passenger handling facilities, and relocation of the executive terminal. Airfield improvements include the extension of Runway 21R and land acquisition for a fifth parallel runway, new runway exit taxiways, construction of perimeter taxiways and other taxiway improvements, and construction of centralized deicing pads. Additional support facilities include a stormwater detention pond, a new Rescue Fire Fighting (ARFF) station, additional security checkpoints, air cargo facilities, a consolidated rental car facility, additional snow storage facilities, fuel farm expansion, and a new flight kitchen. This phase also includes further planning, programming and environmental documentation as necessary to implement these projects. A synopsis of the potential environmental effects of these projects includes:

- **Airfield** – The effect of these projects would be to enhance the efficiency of the airfield and accommodate aircraft flying longer distances (e.g., international flights). The proposed extension to the north of Runway 21R would reduce the number of people exposed to significant noise levels compared to the base case or no action scenario.[1] The airfield improvements would increase airfield efficiency, thus reducing congestion and delay. In the absence of these improvements, airfield congestion would increase but is not expected to constrain growth during this period. The proposed improvements would therefore decrease air emissions and energy use without increasing noise.

- **Terminal** – The proposed terminal improvements would increase the terminal area to enhance passenger flows and would also add a total of 45 gates. In the absence of these additional gates, the airlines and the Airport might accommodate growth through scheduling changes, increasing gate utilization, or by providing remote "hard stand" loading positions. If such measures were not possible, the lack of additional gates could constrain growth in passenger aircraft activity.

- **Air Cargo** – The additional cargo facilities would be developed to meet growing demand. To some degree, growth in air cargo demand would likely be met by increased use of off-airport

[1] Memorandum from Ryk Dunkelberg, Barnard Dunkelberg & Company to Michele Plawecki, WCAA; Alternative Runway Extension Noise Analysis; August 10, 2007.

staging and warehousing facilities in the absence of these additional facilities. Under these circumstances, air cargo-related surface and aircraft traffic levels associated with the proposed improvements would be similar to those expected without the additional on-airport facilities. It is also possible that new air cargo facilities would be developed to accommodate a new carrier providing services that would not otherwise be available at the Airport. Under these conditions, the potential impacts of new air cargo development would include the noise and air quality effects of increased air and surface traffic. Differences in localized impacts between the proposed projects and of off-airport facilities would depend upon the locations of the existing off-airport facilities.

- **Parking and Rental Car** – Additional parking would be developed to meet growth in demand. New rental car facilities would be developed to improve operational efficiency, reduce roadway congestion and meet growth in demand. In the absence of additional parking and rental car capacity, demand would be met by increasing use of off-airport facilities and/or increasing drop-off and pick-up vehicle trips for both private vehicles and rental car busses. The proposed projects would therefore reduce the number of vehicles using the terminal curbside and, thus, reduce air emissions. New public parking facilities will be located on existing airport entrance routes and would therefore have minimal effect on the distribution of passenger related traffic in the airport environs. Differences in localized impacts (e.g. surface traffic) between the proposed projects and of off-airport facilities would depend upon the locations, size and demand of the off-airport facilities.

- **Support Facilities** – The planned ARFF, flight kitchen, security, fuel farm and snow storage facilities would generally increase the efficiency of ongoing activities.

- **Conclusions** – The Future ALP Projects would have beneficial environmental effects in that the airfield and parking improvements would reduce air emissions. It is also possible that the proposed deicing facilities would enhance water quality. In general, the adverse environmental consequences of the Future ALP Projects would consist of localized soil disturbance and water resources issues, as well as the temporary noise, air quality, and water quality effects of construction activity. The absence of additional gate capacity could constrain growth, depending upon decisions that would be made by airport management and the airlines in response to the lack of additional gates.

8.1.1.3 Ultimate ALP Projects (2016 to 2027)

The 20 Ultimate ALP Projects, described in Section 7.2.2, include the further expansion of public and employee parking facilities, passenger handling facilities, and continued air cargo development. Airfield improvements include land acquisition for the construction of a fifth parallel runway and associated taxiways, other taxiway extensions, and construction of additional centralized deicing pads. New support facilities include an additional ARFF station and training facility. This phase also includes further planning, programming, and environmental documentation as needed to implement these projects. A synopsis of the potential environmental effects of these projects includes:

- **Airfield** – These projects would enhance the efficiency of the airfield and passenger handling facilities. Although land acquisition for the fifth parallel runway would not immediately increase airfield capacity, the ultimate development of the new runway would do so. The

potential effects of that capacity enhancement are described in the next section. The immediate social effects of acquisition include the relocation of residences and businesses including a residential development off of Eureka Road. Development of the new runway is not anticipated to require the closure of Middlebelt or Eureka Roads as tunnels are planned in order to allow continued, unabated traffic flow along these major thoroughfares. In the absence of these improvements, airfield congestion would increase sufficiently to constrain growth during this period. It is likely that the proposed fifth parallel runway would accommodate increased aircraft activity levels and would also alter the pattern of flight activity over the surrounding community to some degree. While the proposed improvements would likely decrease air emissions and energy use, the fifth parallel runway could lead to localized increases in noise exposure. As shown in **Exhibit 8-1**, the new runway and associated development would require wetlands fill. The impacts associated with the acquisition of land for the proposed fifth runway are discussed with the Intermediate Term projects in the previous section.

- **Terminal** – The proposed terminal improvements would increase the terminal area to enhance passenger flows and would also add a total of 25 gates. As noted in the previous section, the airlines and Airport might accommodate growth through scheduling changes, increasing gate utilization, or by providing remote "hard stand" loading positions. If such measures were not possible, the lack of additional gates could constrain growth in passenger aircraft activity.

- **Air Cargo** – As noted in the previous sections, some regional growth in air cargo demand could be met by increased use of off-airport staging and warehousing facilities. The potential impacts of new air cargo development with respect to increased noise and air emissions would depend upon whether the facilities would accommodate incremental growth of regional demand, or if they would permit the establishment of new services that would not otherwise have occurred at the Airport. Differences in localized impacts between the proposed projects and of off-airport facilities would depend upon the locations of the off-airport facilities.

- **Parking and Airport Transit System** – As noted in the previous sections, without the additional parking capacity, demand would be met by increasing use of off-airport facilities and/or increasing drop-off and pick-up vehicle trips. As noted above, the proposed projects would therefore reduce the number of vehicles using the terminal curbside, thus reducing air emissions. Differences in localized impacts between the proposed projects and of off-airport facilities would depend upon the locations of the off-airport facilities. These landside facilities are clustered at the entrances to the Airport (north and south) in order to make decision-making and wayfinding more intuitive for users, to reduce demand in the terminal cores where congestion is the most problematic, and to help facilitate the eventual implementation and utilization of an Airport Transit System to transfer users between nodes. An Airport Transit System represents the most operationally efficient, reliable, environmentally conscious, and customer friendly ways to transfer passengers.

- **Support Facilities** – The planned airfield maintenance, ARFF, and deicing facilities would generally increase the efficiency of ongoing activities.

- **Conclusions** – The Ultimate ALP Projects would have beneficial environmental effects in that the airfield and parking improvements would reduce air emissions. The potential adverse environmental consequences of the Ultimate ALP Projects would include localized soil disturbance, wetlands fill and water resources issues. In addition, construction activity would generate temporary noise, air quality, and water quality impacts. As noted above, the absence of additional gate capacity could constrain growth, depending upon decisions that would be made by WCAA and the airlines in response to the lack of additional gates. The effects of eliminating that constraint, and the social impacts associated with acquisition of business and residences as well as changes to surface transportation patterns for the proposed fifth parallel will be assessed in the NEPA process required for project implementation. The construction of the fifth parallel runway could increase noise levels by accommodating additional aircraft and/or changing flight patterns in the Airport environs. The impacts associated with the acquisition of land for the proposed fifth runway are discussed with the Future ALP projects in the previous section. The effects of runway construction and operation, as well as those of the other projects in this phase will be assessed in the NEPA process required for project implementation.

8.1.2 Environmental Factors Considered in Alternatives Evaluation

The Master Plan took a phased approach in developing the Preferred Development Plan. Because the airfield is the key component of any airport, requires the most space, and is subject to the most stringent design and operations criteria, the first step in developing a comprehensive airport development program was to select the preferred airfield alternative. After the airfield alternative was selected, the second step in planning was the development of terminal concepts consistent with the recommended airfield. Following selection of the preferred terminal concept, landside and access plans were developed to support the selected terminal concept. Finally, support facilities were considered and placed in the most logical and operationally efficient locations that remained.

Of these airport components, airfield development typically has the greatest potential to affect the environment. Major airfield development projects cover a wide area, often increase stormwater runoff, involve changes to drainage patterns, and involve intensive construction activity, including acquisition of land and relocation of businesses and residences. Importantly, such projects may eliminate airfield constraints, potentially increasing aircraft activity levels, and may change aircraft flight patterns, leading to potential off-airport noise and air quality concerns. Environmental factors were therefore included in the evaluation of airfield alternatives that, in turn, set the pattern for other recommended Airport development.

Of the 27 airfield alternatives identified in Section 5 of the DTW Master Plan (see Section 5.1.1), only three met all of the preliminary screening criteria and were carried forward for detailed consideration. The three airfield alternatives considered in detail were:

- Parallel Runway 3-21, sited 3,000 to 4,300 feet outboard of Runway 3R-21L (Alternatives A7/21).

- Parallel Runway 4-22, sited 2,500 feet (modified to 4,300 feet) outboard of Runway 4L-22R (Alternative A11).

- Parallel Runway 3-21, sited 3,000 to 4,300 feet outboard of Runway 3R-21L, and parallel Runway 9-27, sited 3,400 feet outboard of Runway 9R-27L (Alternative A23A).

As the need for airfield expansion was anticipated later in the planning period and environmental processing would not be anticipated in the near–term, detailed environmental analyses under NEPA were not initiated. The environmental evaluation of these alternatives was consequently not as extensive or comprehensive as would be required in the NEPA process. Rather, key environmental factors were included in the selection of the recommended development program to inform decision-makers about the environmental requirements to be met for implementation and to identify environmental effects that could affect the feasibility of the proposed development program. The environmental factors used in the evaluation of airfield alternatives include:

- **Social/Socioeconomic Impacts** – Alternative's impact in terms of relocation of residences or businesses, altering surface transportation patterns on local roadways, disruption to established communities, or impact on regional growth and development patterns.

- **Noise** – Alternative's likely noise impact on the surrounding communities.

- **Compatible Land Use** – Alternative's impact to the surrounding land uses and consistency with federal, state, and local planning efforts.

- **Historic Properties** – Alternative's impact on historic, architectural, archaeological, and cultural resources.

Table 8.1-1 shows that, although all of the airfield alternatives being considered would have some adverse environment consequences, Alternative A7/21 would cause the least adverse effect with respect to the evaluation criteria. Compared to Alternative A7/21, Alternative A11 would entail: (1) more land acquisition and business relocations, including the Romulus City Hall and over 40 major commercial properties; (2) disruption to a main rail line, one or more interstate highways, and potentially a freeway entrance/exit ramp providing access to the City; and (3) acquisition of a neighborhood of about 400 homes for noise compatibility. Alternative A23A also has more environmental impacts than A7/21, including more land acquisition, significantly more new noise impacts, and additional residential and business relocation.

Table 8.1-1 Environmental Considerations of Airfield Alternatives

Environmental Consideration	Alternative A7/21	Alternative A11	Alternative A23a
Dwelling units added to DNL 60 contour	<100	<100	>600
Compatible Land Use Impacts	Significant	Most Significant	Significant
Additional Acreage Required	Over 700	Over 1,500	Over 850
Residences Relocated	575-600	400-500	650-750
Schools Relocated	1	0	2
Businesses Relocated	18-30	50-100	20-35
Impact to Transportation Patterns	Minor w/tunnels	Major	Minor w/tunnels
City Services Relocated	None	Romulus City Hall, Fire Dept., Library and 34th District Court	None
Consistent with Regional Comprehensive Plans	No	No	No
Historic Properties[/a]	1 known[/b]	4 known[/c]	1 known[/b]

a/ Historic properties considered in this evaluation included properties listed by the State of Michigan SHPO, as well as those considered historic by the communities.
b/ Includes Executive Terminal, which is considered historic by the SHPO, although not listed on the registry.
c/ Includes the Executive Terminal as well as Byrd House and Kingsley House - both identified by the City of Romulus as historic – and the Romulus Historical Park and Historical Museum.

Prepared by CH2M Hill

8.2 Potential Effects of Proposed Development

This section describes the potential effects of the proposed DTW Master Plan development program with respect to relevant environmental resource categories. These categories generally conform to those listed in the FAA publication: *Environmental Desk Reference for Airport Actions*[2] (the Desk Reference). In some cases, such as water resources, categories have been combined. In addition to these resource categories, the Desk Reference lists several resource categories that do not apply to DTW and/or the proposed development program. These resources are: coastal barriers, coastal zone management, and wild and scenic rivers.

The following discussions summarize the effects of Future ALP (2008 to 2015) and Ultimate ALP (2016 to 2027) Projects. This analysis does not address the potential cumulative effects of these projects combined with other Airport development projects or projects in the DTW environs.

8.2.1 Noise and Compatible Land Use

Aircraft noise is often the most controversial environmental impact associated with airport development. Projects that change airport runway configurations, aircraft operations and/or movements, aircraft types using the airport, or aircraft flight characteristics may affect existing and future noise levels. FAA's noise analysis primarily focuses on how proposed airport actions would change the cumulative noise exposure measured using the Day-Night Noise Level (DNL).

The FAA Environmental Desk Reference for Airport Actions defines the threshold of significance for noise as follows:

> *"When an action, compared to the no action alternative for the same timeframe, would cause noise sensitive areas located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB. An increase from DNL 63.5 dB to DNL 65 dB over a noise sensitive area is a significant impact.*[3]*"*

8.2.1.1 CIP Project Effects

The CIP projects do not include new or extended runways, which would increase airfield capacity or alter the pattern of runway use. Similarly, the CIP program does not include projects that would increase the capacity of passenger handling facilities. For these reasons, the CIP projects would not generate noise or compatible land use impacts.

[2] *Environmental Desk Reference for Airport Actions*, FAA Office of Airports, Airport Planning and Programming, Airports Planning and Environmental Division, APP-400 (FAA, October 2007).
[3] Due to the logarithmic nature of decibel (dB) addition, doubling the number of noise events does not double cumulative noise levels, but increases cumulative noise levels by 3 dB; for example, adding two 80 dB sources results in a cumulative noise level of 83 dB. To increase noise levels by the threshold of significance (1.5 dB) requires a 40% increase in the number of noise events.

8.2.1.2 Future ALP Project Effects

The Future ALP Projects include the extension of Runway 21R as well as the construction of 15 additional gates. A preliminary noise analyses described earlier indicated that the proposed runway extension would reduce the population exposed to significant levels of aircraft noise and would also decrease noise exposure in the airport environs. The additional aircraft gates might accommodate more growth in aircraft operations than could be accommodated by the existing terminal facilities, but the additional gates would represent a 12 percent increase in gate capacity. Assuming that the additional gates permitted a proportional increase in aircraft activity and no change in the mix of aircraft operating at the Airport, the resulting growth in aviation noise levels would not significantly increase noise levels as noted above in the introduction to this topic.

8.2.1.3 Ultimate ALP Project Effects

The Ultimate ALP Projects include the land acquisition and construction of a new fifth parallel runway as well as the construction of 25 additional gates. The new runway would increase airfield capacity and would likely alter runway use patterns. At this time, significant noise impacts can not be precluded. The additional aircraft gates might accommodate more growth in aircraft operations than could be accommodated by the existing terminal facilities. The new gates would represent an 18 percent increase in gate capacity. Assuming that the additional gates permitted a proportional increase in aircraft activity, the resulting growth in aviation noise levels would not significantly increase noise levels. On a cumulative basis, the addition of gates over the planning horizon represent a 30 percent increase in gate capacity. Again assuming that an increase in gate capacity results in a proportional increase in aircraft activity and that there is no change in the mix of aircraft operating at the Airport, the resulting growth in aircraft operations would not significantly increase noise levels[4].

8.2.2 Air Quality

National Ambient Air Quality Standards (NAAQS) have been established for six "criteria" air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) for both PM_{10} and $PM_{2.5}$, and sulfur dioxide (SO_2). DTW is located in Wayne County, Michigan, which currently meets the NAAQS for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. The area was designated marginal non-attainment for the 8-hour ozone standard in both 2004 and 2005. Measurements are made for two size classes of particulate matter: 10 microns (PM_{10}) and 2.5 microns ($PM_{2.5}$). Wayne County was previously classified as a moderate non-attainment area for PM_{10} but has since come into attainment for this pollutant. The County is still non-attainment for $PM_{2.5}$.

States must develop a State Implementation Plan (SIP) to bring areas into attainment with the NAAQS. Federally-approved projects must, in turn, be consistent with the applicable SIP. Significant air quality impacts could result from project emissions that exceed the NAAQS at a sensitive receptor or by exceeding the SIP emissions budget. The General Conformity Rule establishes *de minimis* emissions levels below which projects are presumed to conform to the SIP. Projects that would increase emissions by less than the *de minimis* level are not likely to cause significant air quality impacts.

[4] See discussion of decibel addition in the introduction to Section 8.2.1.

In concept, airport projects could exceed SIP emissions budgets by permitting more aircraft operations than would otherwise occur. In practice, airport capacity enhancements typically reduce congestion and delay, and the increase in emissions associated with additional aircraft operations is more than offset by reductions in emissions associated with congestion and delay. Historically, the emissions associated with the construction of airport facilities have been more likely to exceed SIP budgets than the emissions associated with aircraft and other activity.

8.2.2.1 CIP Project Effects

For the most part, CIP projects consist of renovation and rehabilitation of airfield and terminal facilities. These improvements would not represent an increase in growth potential. While it is possible that the construction of these projects would generate emissions exceeding the *de minimis* levels established under the provisions of General Conformity, there are factors that reduce this likelihood. The CIP projects do not entail large volumes of earth moving, which typically accounts for a large share of construction emissions. In addition, use of new technology diesel equipment would reduce nitrogen oxide (NO_x) emissions compared to construction efforts in previous years.

8.2.2.2 Future ALP Project Effects

As noted earlier, the Future ALP Projects would increase the number of gates by approximately 12 percent. The proposed airfield development projects would not substantially increase airfield capacity; these projects would entail more construction activity than would be required for either the CIP or near-term phases. Because these projects would not require extensive earth moving, the construction emissions of the individual projects may still fall below *de minimis* levels. Collectively, these projects could exceed *de minimis* levels, but more detailed analysis would be required to make a realistic estimate of construction emissions.

8.2.2.3 Ultimate ALP Project Effects

As noted above, the Ultimate ALP Projects include the land acquisition and construction of a new fifth parallel runway as well as the construction of 25 additional gates. Because these projects could accommodate more air traffic than could be accommodated by the existing facilities, potentially significant air quality impacts due to aircraft and vehicular activity can not be precluded. As noted above, the proposed fifth parallel runway would reduce congestion and might offset any growth in emissions. Although construction emissions would likely be greater than those associated with the Future ALP Projects, more detailed analysis will be required to determine if such impacts would be significant.

8.2.3 Water Resources

Exhibit 8.1-1 shows the location of known wetlands and other water resources as they relate to existing and proposed development at DTW. *The Federal Water Pollution Control Act* (the Clean Water Act) requires airport operators to establish water quality standards and control discharges into surface and subsurface waters. Particular concerns include the preservation of existing drainage, the protection of aquifers from fuel spills and aircraft washing and deicing runoff, and control of sedimentation and erosion during construction.

Potential impacts to water quality and water supply that could result from the proposed development relate to runoff from paved surfaces, such as new taxiway or aircraft parking apron surfaces, vehicle parking areas, and structures. Pollutants that could possibly affect surface waters as a result of the development plan include oils and greases that build up on the Airport roadways, parking surfaces, aircraft parking aprons, taxiways, and runways. The impact of the development plan on groundwater may include potential sedimentation and erosion during construction, as well as leakage or seepage of fuels and lubricants during airfield operations. The development plan might also require amendment of the National Pollutant Discharge Elimination System (NPDES) permit. Finally, the presence of any hazardous materials would likely require the development of remediation plans to prevent contamination of water resources.

Projects that require filling of wetlands are subject to additional requirements to demonstrate that there are no practicable alternatives that would have avoided or minimized the loss of wetlands. In addition, wetlands often represent valuable habitat for fish, wildlife, and plants. The Michigan Natural Features Inventory (MNFI) reported no unique habitats at or adjacent to DTW; consequently, impacts to wetlands are not likely to represent a significant impact to biological resources.

8.2.3.1 CIP Project Effects

In general, CIP projects would reconstruct, renovate, and/or rehabilitate existing facilities. Potential water resource impacts would generally be limited to the effects of construction activity. Such impacts can be mitigated successfully using established construction management practices.

8.2.3.2 Future ALP Project Effects

The Future ALP Projects include the construction of more new, rather than rehabilitated or reconstructed, airfield pavement, surface parking, and air cargo facilities. These projects are not located on known wetlands or other water features. Appropriate design and construction practices should avoid significant impact to water resources.

8.2.3.3 Ultimate ALP Project Effects

The Ultimate ALP Projects include the construction additional airfield pavement, surface parking, and air cargo facilities. One project, the construction of a new fifth parallel runway and associated taxiways would be constructed on and adjacent to mapped wetlands and other water features. The environmental documentation required for implementation of these projects would need to demonstrate the consideration of wetland impact avoidance and minimization. Another project, the relocated south employee parking lot, would be developed in or adjacent to known wetlands. The environmental documentation required for implementation of this project would need to demonstrate the consideration of wetland impact avoidance and minimization. Finally, the land acquisition for the proposed fifth parallel runway would encompass several mapped wetlands, but physical development in and around those wetlands would occur with implementation of the Projects. Appropriate design and construction practices for other Intermediate-Term Projects should avoid significant impact to water resources.

8.2.4 Biological Resources

According to the MNFI, the Airport and nearby areas support two state-threatened plant species: three-awned grass (*Aristida longespica*) and short-fruited rush (*Juncus brachycarpus*).[5] A Protected Species Area is managed on-site for these plants. On-Airport areas are mowed annually and are burned on a 2-year cycle to inhibit successional changes and to encourage the growth of the threatened grasses.[6] In addition, three species of special concern—seedbox (*Ludwigia alterniflora*), conobea (*Leucospora multifida*), and the grasshopper sparrow (*Ammodramus savannatum*)—occur either at DTW or in the vicinity. MNFI reports no federally-listed species in the area. An Environmental Impact Statement (EIS) completed in September 1992 reported sightings of the federally-endangered peregrine falcon and upland sandpiper during migration seasons. The report indicated that the birds' migratory patterns did not appear to be disrupted by the level of activity present at the time of the study.[7]

Potential impacts to biological resources could result from the elimination of habitat, adverse effects on habitat areas due to the water quality and/or quantity affects of new pavement, and changes in operational patterns that could disrupt wildlife. As noted in the previous section, the MNFI reported no unique habitats at or adjacent to DTW; consequently, impacts to habitat are not likely to represent a significant impact to biological resources. Potential wildlife impacts associated with changes in operational patterns are reduced by the ongoing wildlife management program at DTW. To minimize waterfowl use of the stormwater detention ponds, these ponds are covered with a grid made of plastic thread. The grid can be seen by the birds and apparently minimizes how often the birds land in the ponds. The squares of the grid are large enough to allow any birds that do land on the ponds to take off again. This deterrent method minimizes bird use of the Airport area, thereby reducing bird-aircraft strikes.

8.2.4.1 CIP Project Effects

In general, CIP projects would reconstruct, renovate, and/or rehabilitate existing facilities. Potential impacts to biological resources would be very limited and typically would be mitigated successfully using established construction management practices.

8.2.4.2 Future ALP Project Effects

The Future ALP Projects include the construction of new airfield pavement, surface parking, and air cargo facilities. Additional air cargo development is also planned in a previously undeveloped portion of the airport perimeter along Runway 4L/22R adjacent to commercial development and vacant land. Most of these projects would occur in areas that are mowed annually and burned on a 2-year cycle. In the absence of unique habitats at or adjacent to DTW, impacts to habitat are not likely to represent a significant impact to biological resources.

[5] Michigan Natural Features Inventory, 2006, data request query, August 4, 2006.
[6] Bryan Wagoner, WCAA Environmental Administrator, Personal Conversation, August 8, 2006.
[7] *Final Environmental Impact Statement, Air Traffic Control Noise Abatement Procedures, Detroit Metropolitan Wayne County Airport, Romulus, Michigan* (September 1992).

8.2.4.3 Ultimate ALP Project Effects

The Ultimate ALP Projects include the land acquisition and construction of a new fifth parallel runway and associated taxiways. These projects would be constructed on and adjacent to mapped wetlands and other water features. One project, the relocated south employee parking lot, would be developed in or adjacent to known wetlands and would therefore have some potential to affect biological resources. In the absence of unique habitats at or adjacent to DTW, impacts to habitat are not likely to represent a significant impact to biological resources.

8.2.5 Historic, Archaeological, Architectural, and Cultural Resources

The *National Historic Preservation Act of 1966*, as amended, establishes the National Historic Preservation Program, which includes directives for the identification, assistance, and protection of historic properties. This act also establishes the Advisory Council on Historic Preservation to advise the President and Congress on historic preservation matters, to recommend measures to coordinate federal historic preservation activities, and to comment on federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places (NRHP).

The *Archaeological and Historic Preservation Act of 1974* requires the survey, recovery, and preservation of significant and prehistoric data that may be destroyed or irreparably lost as a result of federal, federally-funded, or federally-licensed projects.

Section 4(f) of the *Department of Transportation Act* provides that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly-owned park or other protected resource unless there is no feasible and prudent alternative to the use of such land and that such a program or project includes all possible planning to minimize any adverse effects resulting from the use of the land. Section 4(f) lands include public parks; recreation areas; wildlife and waterfowl refuges; lands of national, state, or local significance; or land that is a historic site of national, state, or local significance as determined by the officials having jurisdiction. If there is no physical taking of such public land, but there is a possibility of adverse impacts such as increased noise or air pollution, the FAA will determine whether any increase in activity associated with the project is compatible with the normal activity associated with the land.

Preliminary investigations indicate that the Merrill-Morris House, located near the intersection of Eureka Road and Huron River drive, approximately 2 miles from the Airport, is the only historic site in the vicinity of the Airport listed by the State Historic Preservation Office.[8] WCAA has conducted a study of historic resources at DTW. The resulting Cultural Resources Management Plan (CRMP)[9] determined that three buildings at DTW were considered eligible for listing in the National Register. All three buildings are located at the Airport's area of origin in the northeast quadrant of the Airport.

- Building 278, which is the Hertz Storage facility, built in 1929. This building is to be demolished in accordance with a Memorandum of Agreement (MOA) between the FAA and SHPO executed April 11, 2007 (see the Master Plan Supporting Information).

[8] http://www.mcgi.state.mi.us/hso/ (SHPO, August 18, 2006).
[9] *Cultural Resources Management Plan, May 2008*

- Building 348, the current Executive Terminal Building, built in 1939.
- Building 206, which was demolished around 1990 and was the old Primary House, built in the 1930s.

8.2.5.1 CIP Project Effects

The proposed CIP projects would not directly affect known historic or cultural resources. Also, all development associated with these projects would not alter the context of the setting for known historic resources.

8.2.5.2 Future ALP Project Effects

The extension of Runway 21R is expected to impact Building 348, the Executive Terminal Building, which was built in 1939. This structure is the Airport's only remaining historic resource. The CRMP identifies mitigating procedures for Building 348 if it becomes adversely impacted during the course of airport development. NRHP eligible resources are subject to DOT Section 4(f) regulations. The environmental documentation required for the Executive Terminal will therefore need to demonstrate mitigating measure if the facility is adversely impacted.

8.2.5.3 Ultimate ALP Project Effects

The proposed Ultimate ALP Projects would not affect known historic or cultural resources. Also, all development associated with these projects would not alter the context of the setting for known historic resources.

8.2.6 Social and Socioeconomic

The evaluation of social and socioeconomic impacts encompasses the consideration of environmental justice, health and safety risks to children, and socioeconomic impacts. Those impacts include moving homes or businesses; dividing or disrupting established communities; changing surface transportation patterns; disrupting orderly, planned development; or creating a notable change in employment. The FAA *Environmental Desk Reference for Airport Actions* states:

> *"The environmental analysis of a proposed airport project must include discussions of potential social impacts. Typical airport actions that could cause social impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities and rental car lots; a significant increase or change in aircraft operations; and significant amounts of construction/demolition activity."*

Many of the proposed DTW Master Plan projects would therefore have some potential to generate social and socioeconomic impacts. In some cases, projects might support increased economic activity and have a beneficial effect on the community. Adverse effects might result from property acquisition and associated relocation, changes in surface traffic patterns or decreased roadway levels

of service, or the disruption of neighborhoods. The FAA *Environmental Desk Reference for Airport Actions* states that in assessing the significance of impacts, the FAA will consider the following factors:

- Extensive relocation, but sufficient replacement housing is unavailable.
- Extensive relocation of community businesses that would cause severe economic hardship for affected communities.

8.2.6.1 CIP Project Effects

Because most of the projects in the CIP involve reconstruction, rehabilitation, or renovation of existing facilities, there is little potential for social and/or socioeconomic impacts.

8.2.6.2 Future ALP Project Effects

The Future ALP Projects include construction of rental car and employee parking across I-94 from the Airport and therefore have the potential to alter surface traffic in the area. The new south public parking lot on the south of Eureka Road is also planned. In both cases, the proximity of an interchange may reduce the potential for traffic using these facilities to use surface streets in lieu of the major transportation corridors. Both areas are currently sparsely developed, and the proposed facilities would not disrupt established development patterns.

8.2.6.3 Ultimate ALP Project Effects

The Ultimate ALP Projects include property acquisition and construction of the new fifth parallel runway and construction of employee parking on the south of Eureka Road. The property land acquisition runway construction would alter surface traffic patterns in the area, although it is possible that such changes would occur after acquisition and prior to actual runway construction. The property to be acquired for the proposed fifth parallel runway includes an existing residential subdivision as well as a substantial area of vacant land.

The new parking facility could alter surface traffic in the area but the proximity of an interchange may reduce the potential for traffic using this facility to use surface streets in lieu of the major transportation corridor. This area is currently sparsely developed, and the proposed employee parking facility would not disrupt established development patterns. The potential significance of these impacts can not be determined at this time, but will be fully assessed through the NEPA process required for implementation.

8.2.7 Hazardous Materials and Solid Waste

The acquisition of property for airport development may include previously contaminated land. Construction in previously contaminated areas, whether newly acquired or not, poses the risk that disrupting sites containing hazardous materials or contaminates may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources.

Construction, renovation, or demolition associated with airport development produces debris that requires proper disposal. In some cases, airport capacity enhancement projects might accommodate higher passenger volumes than would otherwise use the facility. In that case, the project could lead to increased waste generation. Solid waste impacts are typically not significant unless project-generated solid waste would exceed available landfill or incineration capacities or would require extraordinary effort to meet applicable solid waste permit conditions or regulations. Local, state, or federal agencies determined that substantial unresolved waste disposal issues exist and may require more analyses. The FAA *Environmental Desk Reference for Airport Actions* provides the following guidance on the threshold of significance for hazardous materials:

- The action involves a property on or eligible for the National Priority List (NPL). Note that not all property within an NPL site is contaminated. Therefore, there may be areas within the NPL's boundaries that are "clean."

- The sponsor would have difficulty meeting applicable local, state, or federal laws and regulations on hazardous materials. For example, the project requires extraordinary measures (i.e., connection to new water supplies, relocation of residents, etc.) to mitigate project-related disturbances of contaminates that would endanger the health and/or safety of citizens or their air and/or water supply(ies).

- There is an unresolved issue regarding hazardous materials. The action would affect a site known or suspected to be contaminated. Consequently, the impacts of that contamination may not be fully revealed and necessary corrective actions may be needed.

8.2.7.1 CIP Project Effects

The reconstruction, rehabilitation, or renovation of existing facilities may disturb existing contamination. Adherence to appropriate construction practices would greatly reduce the potential significance of such impacts. The construction of CIP projects would generate construction and demolition debris, which will require proper disposal. Construction practices such as recycling demolition materials and on-site storage of earth from construction will reduce the demand of the project on landfills.

8.2.7.2 Future ALP Project Effects

The Future ALP Projects include the construction of new airfield pavement, surface parking, and air cargo facilities. In some cases, such as the new south pubic parking lot, consolidated rental car (CONRAC) facility, and north employee parking lot, this development would occur on sparsely developed, off-airport property. In other cases, such as the construction of high-speed exit taxiways, new development would occur in areas that have been part of the airfield for a lengthy period. Still other projects would involve expansion of existing facilities. In any of these cases, the potential to encounter hazardous materials during construction could be minimized through due diligence audits, and appropriate mitigation measures can be implemented as necessary to reduce the potential impact. As noted above, the construction of these projects would generate construction and demolition debris, which will require proper disposal and/or construction practices to reduce the need for landfill.

8.2.7.3 Ultimate ALP Project Effects

The potential risks and risk reduction measures described above apply to the Ultimate ALP Projects as well. Because this phase would include the acquisition of land for the proposed fifth parallel runway, it will be important to conduct audits and investigations as part of the acquisition process to minimize potential impacts. The construction of the fifth parallel runway and its associated taxiways would represent the largest single project in the entire DTW Master Plan and will therefore involve larger volumes of construction debris. As noted above, construction practices can reduce the demand of the project on landfills.

8.2.8 Light Emissions and Visual Effects

Although Airport facilities and operations cause light emissions, most on-Airport lighting is directed upward not outward. In addition, the intensity of airfield lighting is generally low so as not to degrade pilot and air traffic controller night vision. The lighting systems with the most potential to affect people outside of the Airport are the approach lighting systems and ramp lighting. Approach lighting systems extend outward from the Airport at the runway ends and can be directed towards light-sensitive land uses. In addition, ramp lighting may be mounted on relatively tall towers to cover a wide area. Lights on such towers can be visible from a considerable distance. Finally aircraft on approach will use landing lights that will be visible to those in the approach corridor.

Other visual qualities of airport development projects are largely related to the size, location, and character of the facilities. Consistency with FAA and other relevant design standards and compatibility with existing structures are also important factors.
The FAA *Environmental Desk Reference for Airport Actions* defines the threshold of significance for lighting and visual effects as follows:

- **Light Emissions** – When an action's light emissions create annoyance to or interfere with normal activities.

- **Visual Effects** – When consultation with federal, state, or local agencies, tribes, or the public shows these effects contrast with existing environments and the agencies state the effect is objectionable.

8.2.8.1 CIP Project Effects

Most of the projects in the CIP involve reconstruction, rehabilitation or renovation of existing on-Airport facilities; there is little potential for lighting or visual impacts.

8.2.8.2 Future ALP Project Effects

The Future ALP Projects include the construction of new airfield pavement, surface parking, and air cargo facilities. In some cases, such as the new south pubic parking lot, CONRAC facility, and north employee parking lot, facilities would be constructed on sparsely developed, off-airport property. The ramp lighting associated with the new air cargo facilities would be adjacent to existing commercial development. Adherence to FAA and other relevant design standards would likely avoid significant impact.

8.2.8.3 Ultimate ALP Project Effects

The property to be acquired for the proposed fifth parallel runway includes an existing residential subdivision as well as a substantial area of vacant land. The construction of the fifth parallel runway would entail the installation of runway lighting systems that would extend toward mixed commercial and industrial development on the northeast and toward largely undeveloped land to the southwest. It is unlikely that light emissions would create annoyance to or interfere with normal activities in these areas. The appearance of the proposed new runway would be similar to that of adjacent DTW facilities and would not be likely to represent a significant visual impact. The acquisition and eventual clearing of an existing residential area would change the visual image of the area, but would not necessarily involve a significant impact due to the sparsely developed nature of the area surrounding the acquisition area.

Construction of employee parking on the south of Eureka Road, a sparsely developed area adjacent to the Airport and the I-275 interchange. Adherence to FAA and other relevant design standards would likely avoid significant impact.

8.2.9 Prime and Unique Farmland

Airport development that would permanently convert an existing designated important farmland to a non-agricultural use is subject to coordination under the Farmland Protection Policy Act of 1984 (FPPA). The FAA *Environmental Desk Reference for Airport Actions* describes potential impacts to farmland as follows.

> *"Typical actions, which could involve such coordination include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, airfield lighting, navigational aids, NAVAIDS, etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots, and any other actions that would result in important farmland conversion. FPPA does not apply to land already committed to "urban development or water storage" (i.e., airport developed areas), regardless of its importance as defined by NRCS. Therefore, when evaluating potential impacts on farmlands, evaluate only those areas designated as important and that are in active agricultural use or not yet developed."*

With the exception of certain fill areas, all of the soils at the Airport are listed in the Wayne County Soil survey as Prime and Unique Farmland. The Tedrow soil type is considered of local importance. The Blount, Corunna, and Pewamo series are prime farmland if drained, while the Metea and Selfridge soil types are all prime farmland.

As noted above, development of existing Airport property would not be considered to be a conversion of farmland. Potentially significant impact would be restricted to the expansion of Airport development into areas that are not on the Airport or otherwise committed to urban development.

8.2.9.1 CIP Project Effects

In general, CIP projects would reconstruct, renovate, and/or rehabilitate existing facilities and would therefore have very little effect on undeveloped land.

8.2.9.2 Future ALP Project Effects

In addition to proposed CIP Projects, the Future ALP Projects include construction of rental car and employee parking across I-94 from the Airport. The area is sparsely developed but has been subdivided and shows some non-agricultural development. The planned south public parking lot on the south of Eureka Road is also in a sparsely-developed area that may be in agricultural use. The environmental documentation required to approve these projects will address coordination under the FPPA.

8.2.9.3 Ultimate ALP Project Effects

The Ultimate ALP Projects include the construction of employee parking on the south of Eureka Road and property acquisition and construction for the proposed fifth parallel runway and its associated taxiways. With the exception of an existing residential subdivision, this broad area is sparsely developed, and portions of it may be in agricultural use. Two other projects, the relocated ARFF Training Facility and a new stormwater detention pond, would also be constructed in this area. The environmental documentation required to approve these projects will address coordination under the FPPA.

8.3 Summary of Effects and Anticipated Requirements

The previous section summarized the potential environmental effects of the two phases of the Master Plan development program. This section assesses the potential environmental effects of the individual projects that comprise these two phases. **Table 8.3-1** qualitatively assesses the environmental characteristics of the individual projects for each of environmental resource categories examined in the previous section based on a master plan level of analysis.

The comments section of the matrix describes the factors influencing the qualitative assessment of environmental effects, especially when potentially significant impacts can not be precluded based on the available information. This assessment highlights potential impacts to resources protected by "special purpose laws" as described in FAA Order 5050.5B, paragraph 9.t. The comments section also includes notes regarding the FAA NEPA documentation and permits typically required for project approval.

Additionally, **Table 8.3-1** shows that most of the projects included in the CIP are not likely to cause significant environmental impact. In the absence of extraordinary circumstances, all of the projects in the CIP might be categorically excluded from the requirement for an EA or EIS. The potential less-than-significant impacts indicated for projects in this group relate to the potential for construction activities to generate air emissions and disturb contaminated materials.

It is a common practice to address all projects proposed for implementation at a given time in a single NEPA document. For example, all Future ALP Projects are expected to be performed in a 8-year period between 2008 and 2015, which would be a reasonable timeframe to address as a single Airport development action. Although **Table 8.3-1** shows that nearly half of the 29 Future ALP Projects might be considered as categorical exclusion, it is likely that such projects would be incorporated in the proposed action for a broader NEPA document. Alternatively, such projects might be addressed in terms of their potential to contribute to cumulative impacts when combined with the effects of the projects that would typically require an EA. As noted above for the CIP projects, the potential less-than-significant impacts indicated for projects in this group generally relate to the potential for construction activities to generate air emissions and disturb contaminated materials. A few projects might also involve the conversion of farmland to non-agricultural use.

NEPA documents are assumed to be valid for 3 years after publication of the FAA decision, such as a Finding of No Significant Impact (FONSI) or Record of Decision (ROD). It would therefore be premature to initiate the NEPA process for the Ultimate ALP (2016 to 2027) Projects. A substantial amount of planning refinement will likely occur before these projects are ready for NEPA documentation. **Table 8.3-1** shows that, at this time, most of the Ultimate ALP Projects are not expected to cause significant adverse impacts. As noted above, the potential less-than-significant impacts indicated for projects in this group generally relate to the potential for construction activities to generate air emissions and disturb contaminated materials. A few projects might also involve the conversion of farmland to non-agricultural use. Although it is premature to conclude that any Ultimate ALP Project would involve significant impact, the preliminary information available indicates that significant impact cannot be ruled out in a few cases such as the 5th parallel runway.

Three Ultimate ALP Projects might involve significant impacts as described below:

- Number 13, Relocated South Employee Parking (3,500 Spaces). This project would be developed in a previously undeveloped area with known wetlands. The NEPA document required to approve this action would need to demonstrate the lack of a practicable alternative.

- Number 14, Relocated Executive Terminal. The extension of Runway 21R is expected to impact Building 348, the Executive Terminal Building, which was built in 1939. This structure is the Airport's only remaining historic resource. The CRMP identifies mitigating procedures for Building 348 if it becomes adversely impacted during the course of airport development. NRHP eligible resources are subject to DOT Section 4(f) regulations. The environmental documentation required for the Executive Terminal will therefore need to demonstrate mitigating measure if the facility is adversely impacted.

- Number 30, Land Acquisition - Fifth Parallel Runway. This project would require the relocation of an existing residential subdivision and several other residential and commercial properties.

- Number 37, Fifth Parallel Runway. This project could involve significant impacts related to: (1) changes in noise exposure and associated social impacts, (2) air quality impacts associated with construction activity, and (3) social impacts associated with acquisition and changes in surface transportation patterns.

TABLE 8.3-1
Potential Environmental Effects of Master Plan Projects
DTW Environmental Overview

Phasing and Projects		Potential Adverse Effects									
No.	Projects	Noise & Compatible Land use	Air Quality	Water Resources	Biological Resources	Historic, Archaeological, and Cultural Resources	Social and Socioeconomic	Hazardous Materials and Solid Waste	Light Emissions and Visual Effects	Prime and Unique Farmland	Comments and Anticipated Environmental Requirements
CIP Projects											
C-3	Reconstruct Taxiway "K" - South Portion										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e).**
C-6	Reconstruct Taxiway "V"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e).**
C-7	Reconstruct Taxiway "H"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e).**
C-8	Reconstruct Taxiway "F"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e).**
C-11	Reconstruct RW 9L/27R (Design only)										See Project C-15
C-12	Rehabilitate RW 4R/22L (Design only)										See Project C-16
C-13	Reconstruct Taxiway "Y-11"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-14	RW 3R/21L Runway Safety Area Improvements										Grading in existing RSA. **Typically CatEx (310l. and 310z)**
C-15	Reconstruct RW 9L/27R (Non-Design)										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-16	Rehabilitate RW 4R/22L (Non-Design)										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-17	Reconstruct Balance of Taxiway "W"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-18	Reconstruct Taxiway "M"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-19	Reconstruct Taxiway "Z"										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-20	Reconstruct Taxiway "K" - North Portion										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-21	Extend Taxiway "G"										Sited in area previously developed as airfield infield area. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e)**
C-21A	Other Pavement Rehabilitation										Sited in area previously developed as airfield pavement. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e)**
C-27	Demolition of Smith Terminal and Concourses										Sited in area previously developed as terminal and airfield pavement. Potential to disturb HAZMAT unlikely to be significant. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310v and 310w)**
C-28	Demolition of Berry Terminal										Sited in area previously developed as terminal and airfield pavement. Potential to disturb HAZMAT unlikely to be significant. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310v and 310w)**
C-32	Noise Land Acquisition - Part 2										Reimbursement for previously completed project.
C-33	Ground Run-up Enclosure										Sited in previously undeveloped area that may be classified as prime farmland. Potential to disturb HAZMAT unlikely to be significant. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310q)**
C-40	Blue Deck - Elevators and Walkways										Modficiation of existing 13-year old structure. **No Federal Action**
C-41	McNamara Deck Rehabilitation										Modficiation of existing 7-year old structure. **No Federal Action**
C-47	Intelligent Transportation System - Phase 2										Installation of programmable signage and related improvements. **No Federal Action**
C-48	Rogell Drive-Dingell Drive Connector										Sited in area previously developed as terminal roadway area. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310a)**
C-49	Site Development for Public Safety Training Facility										Sited in area previously developed as an employee parking lot. **No Federal Action**
C-56	Deicing Fluid Force Main to DWSD										Pipeline to run through areas developed as airfield, parking and commercial uses, as well as undeveloped land. Will tie into an existing pipeline that leads to the Detroit waste water treatment facility. **Typically EA. Need for WQC To be determined.**
C-58	Connect Powerhouse to Midfield Energy Center										Pipelines to conncet existing Mid-Field plant to be connected to existing plant in the terminal complex. **No Federal Action**
Future ALP Projects (2008-2015)											
1	South Public Parking (4,000 Spaces)										Sited in previously undeveloped area that may be classified as prime farmland. Possible changes in surface transportation and potential to disturb HAZMAT unlikely to be significant. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA. WQC/NPDES Permit.**
2	West Cargo Taxiway (Phase 1)										Potential to disturb HAZMAT unlikely to be significant. Construction emissions not likely to exceed*de minimis* levels. **Typically CatEX (310e). WQC/NPDES Permit.**
3	Air Cargo Development (Phase 1)										Possible changes in surface transportation and potential to disturb HAZMAT unlikely to be significant. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA. WQC/NPDES Permit.**
4	North Centralized Checkpoint										Sited in area previously developed as a surface parking lot. Construction emissions not likely to exceed *de minimis* levels. Potential to disturb HAZMAT unlikely to be significant. **Typically CatEX (310f and 310h).**
5	South Centralized Checkpoint and Culvert Bridge Improvements										Sited in area previously developed as a surface parking lot. Construction emissions not likely to exceed *de minimis* levels. Potential to disturb HAZMAT unlikely to be significant. **Typically CatEX (310f and 310h)**
6	Runway 4L-22R High Speed Taxiways										Sited in area previously developed as airfield infield area. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). NPDES Permit.**
7	Consolidated Rental Car Facility (CONRAC)										Sited in previously undeveloped area that may be classified as prime farmland. Potential change in surface traffic patterns unlikely to be significant. Construction emissions unlikely to exceed*de minimis* levels. **Typically EA. WQC/NPDES Permit.**
8	Runway 9R-27L High Speed Taxiway										Sited in area previously developed as airfield infield area. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e)**
9	Dirty Snow Storage Area										Sited in area previously developed as airfield infield and vehicular parking area. Construction emissions not likely to exceed *de minimis* levels. Design would avoid significant impacts to water resources. **Possibly CatEX (310d) otherwise EA. WQC/NPDES Permit.**
10	North Employee Parking (2,500 Spaces)										Construction emissions not likely to exceed *de minimis* levels. **Typically EA. WQC/NPDES Permit.**
11	Blue Deck Parking Expansion (4,000 Spaces)										Sited in area previously developed as terminal parking. Construction emissions not likely to exceed*de minimis* levels. **Typically EA**

Key:

- Not applicable or unknown
- No adverse effect anticipated
- No significant adverse impact anticipated
- Potential for significant adverse effect can not be precluded at this time

Note: References in parenthesis above indicate reference to Categorical Exclusion (CatEX) list in FAA order 1050.1E.

TABLE 8.3-1
Potential Environmental Effects of Master Plan Projects
DTW Environmental Overview

Phasing and Projects		Potential Adverse Effects									
No.	**Projects**	**Noise & Compatible Land use**	**Air Quality**	**Water Resources**	**Biological Resources**	**Historic, Archaeological, and Cultural Resources**	**Social and Socioeconomic**	**Hazardous Materials and Solid Waste**	**Light Emissions and Visual Effects**	**Prime and Unique Farmland**	**Comments and Anticipated Environmental Requirements**
12	Relocated Executive Terminal										Potentially significant impact to historical resources can not be precluded at this time pending agreement among the FAA, SHPO and WCAA on the management of historical resources on the Airport. **Possible EA or EIS. MOA with SHPO.**
13	Runway 3L-21R Centralized Deice Pad Expansion (Phase 1)										Sited in area previously developed as airfield infield area. Construction emissions not likely to exceed *de minimis* levels. Design would avoid significant impacts to water resources. **Typically CatEX (310d). WQC/NEPDES Permit.**
14	Runway 4R-22L Centralized Deice Pad Expansion (Phase 1)										Sited in area previously developed as terminal paving. Construction emissions not likely to exceed *de minimis* levels. Design would avoid significant impacts to water resources. **Typically CatEX (310d). WQC/NEPDES Permit.**
15	Runway 3L Perimeter Taxiways										Sited in area previously developed as airfield infield area and surface parking. Potential to disturb HAZMAT. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
16	West Cargo Taxiway (Phase 2)										Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
17	Air Cargo Development (Phase 2)										Possible changes in surface transportation unlikely to be significant. Construction emissions not likely to exceed *de minimis* levels. **Typically EA. WQC/NEPDES Permit.**
18	Runway 21R Extension & Land Acquisition (1,500')										Preliminary noise analysis indicates that project would reduce exposure. Sited in area developed as airfield infield. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA or EIS. WQC/NEPDES Permit.**
19	McNamara Concourses B&C Expansion (10 Gates)										Potential to accommodate increased traffic unlikely to generate significant noise impact. Sited in area previously developed as terminal paving. Construction emissions not likely to exceed *de minimis* levels. **Typically EA**
20	New Flight Kitchen										Construction emissions unlikely to exceed *de minimis* levels. **Typically EA. WQC/NEPDES Permit.**
21	Taxiway PP Extension										Sited in area previously developed as airfield infield. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
22	Perimeter Aircraft Rescue Fire Fighting (ARFF) Station 400										Potential to disturb HAZMAT. Construction emissions not likely to exceed de minimis levels. **Typically EA. WQC/NEPDES Permit.**
23	North Terminal Expansion (5 gates)										Potential to accommodate increased traffic unlikely to generate significant noise impact. Sited in area previously developed as terminal paving. Construction emissions not likely to exceed *de minimis* levels. **Typically EA**
24	Fuel Farm Expansion										Sited in previously disturbed area. Potential to disturb HAZMAT. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA. WQC/NEPDES Permit - including Oil Response Plan.**
25	Airline Freight Facilities										Sited in area developed as aircraft ramp and cargo facilities. Potential to disturb HAZMAT. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA**
26	North Public Parking (2,500 Spaces)										Sited in area previously developed as surface parking. Potential to disturb HAZMAT. Possible changes in surface transportation unlikely to be significant. Construction emissions not likely to exceed *de minimis* levels. **Typically EA**
27	New Storm Water Detention Pond										Sited in undeveloped area that may be classified as prime farmland. Construction emissions not likely to exceed de minimis levels. Design would avoid significant impacts to water resources. **Typically EA. WQC/NEPDES Permit.**
Ultimate ALP Projects (2016-2027)											
28	Relocated South Employee Parking (3,500 Spaces)										Sited in previously undeveloped area containing wetlands and may be classified as prime farmland. Potential changes to surface traffic unlikely to be significant. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA. WQC/NPDES Permit. Section 404 Permit.**
29	Airport Transit System & Maintenance Building										Sited in area previously developed as airport access and circulation. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310d)**
30	Land Acquisition - Fifth Parallel Runway										No physical development, but acquisition would entail residential and business acquisition and resultant changes in community development patterns. **Possible EA or EIS**
31	Runway 3L-21R Centralized Deice Pad Expansion (Phase 2)										Sited in area previously developed as airfield infield area. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310d). WQC/NEPDES Permit.**
32	North Public Parking Garage/Intermodal Center										Sited in an area of commercial development and surface parking. Potential to disturb HAZMAT. Possible changes in surface transportation unlikely to be significant. Construction emissions unlikely to exceed *de minimis* levels. **Typically EA**
33	Concession Distribution Center										Construction emissions not likely to exceed de minimis levels. **Typically EA**
34	Relocated ARFF Training Facility										Sited in undeveloped area that may be classified as prime farmland. Construction emissions not likely to exceed de minimis levels. **Typically EA. WQC/NEPDES Permit.**
35	Fifth Parallel Runway										Possibility of noise and associated environmental justice impacts. Potential wetlands, HAZMAT and farmland impacts. Previous acquisition and relocation. Construction emissions might exceed *de minimis* levels. **Typically EIS. Section 404, WQC/NEPDES Permits.**
36	Perimeter Taxiway for Fifth Parallel Runway										Sited in previously undeveloped area containing wetlands that may be classified as prime farmland. Potential to disturb HAZMAT unlikely to be significant. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). Section 404, WQC/NEPDES Permits.**
37	West Cargo Taxiway (Phase 3)										Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
38	Air Cargo Development (Phase 3)										Possible changes in surface transportation unlikely to be significant. Construction emissions not likely to exceed *de minimis* levels. **Typically EA. WQC/NEPDES Permit.**
39	Airfield Maintenance Complex Satellite										Construction emissions not likely to exceed *de minimis* levels. **Typically EA. WQC/NEPDES Permit.**
40	McNamara Concourses B&C Expansion (20 Gates)										Potential to accommodate increased traffic unlikely to generate significant noise impact. Sited in area previously developed as terminal paving. Construction emissions not likely to exceed *de minimis* levels. **Typically EA**
41	Perimeter Aircraft Rescue Fire Fighting (ARFF) Station 500										Sited in area developed as infield and surface parking. Potential to disturb HAZMAT. Construction emissions not likely to exceed de minimis levels. **Typically EA**
42	North Terminal Expansion (5 Gates-Phase 2)										Potential to accommodate increased traffic unlikely to generate significant noise impact. Sited in area previously developed as terminal paving. Construction emissions not likely to exceed *de minimis* levels. **Typically EA**
43	Runway 4R-22L Centralized Deice Pad Expansion (Phase 2)										Sited in area previously developed as terminal ramp area. Potential to disturb HAZMAT. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310d)**
44	Taxiway J Extension										Sited in area previously developed as airfield infield. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
45	Taxiway S Extension										Sited in area previously developed as airfield infield. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
46	Taxiway U Extension										Sited in area previously developed as airfield infield. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**
47	Taxiway H Extension										Sited in area previously developed as airfield infield. Construction emissions not likely to exceed *de minimis* levels. **Typically CatEX (310e). WQC/NEPDES Permit.**

Key:

- Not applicable or unknown
- No adverse effect anticipated
- No significant adverse impact anticipated
- Potential for significant adverse effect can not be precluded at this time

Note: References in parenthesis above indicate reference to Categorical Exclusion (CatEX) list in FAA order 1050.1E.