



# WAYNE COUNTY AIRPORT AUTHORITY INTEGRATED AIRPORT LAND USE STRATEGIC PLAN

JUNE 2012



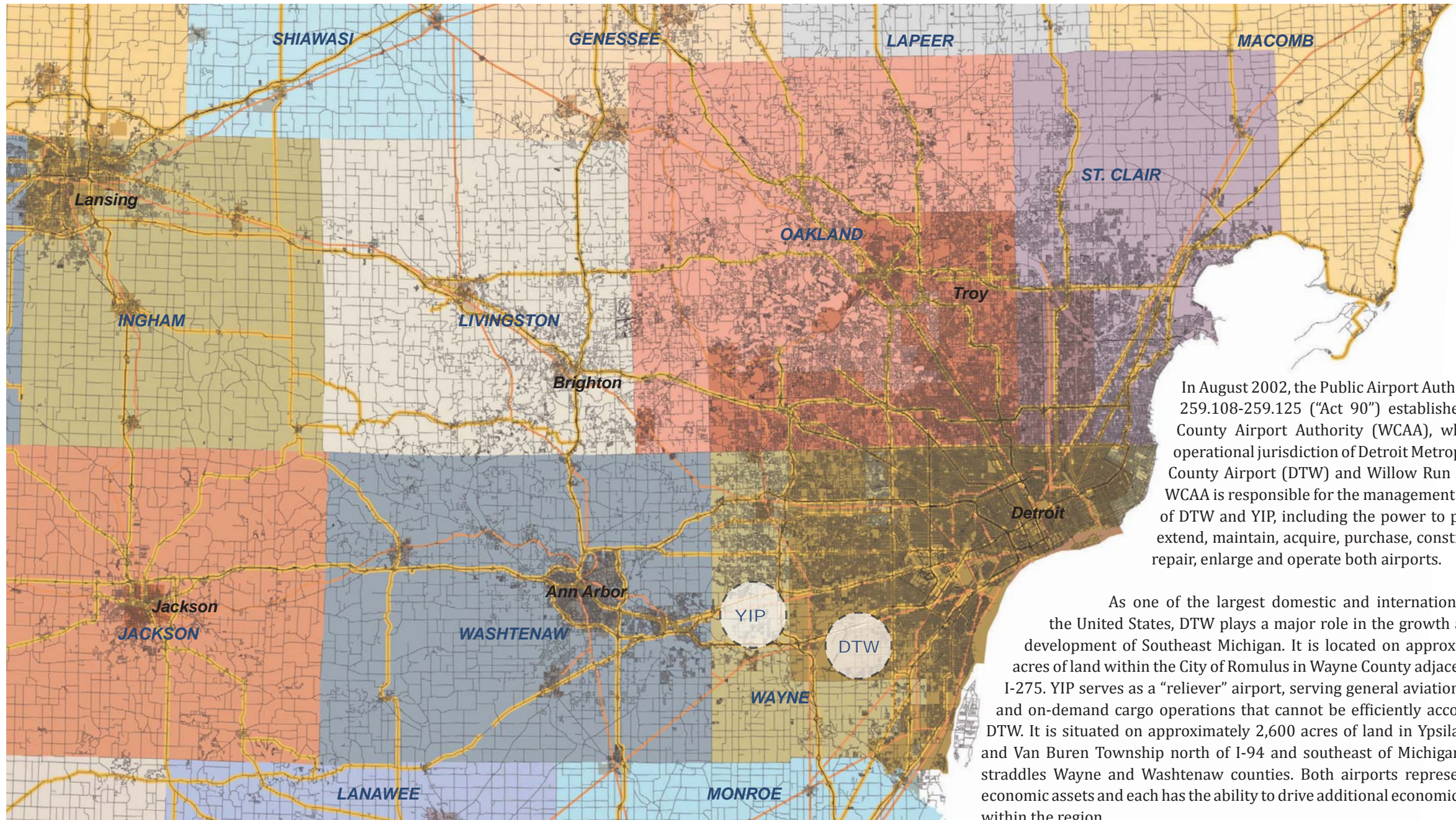
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## ***PREFACE***

*This report reflects a high-level assessment of certain development and redevelopment opportunities identified throughout the course of work. The planning process for this Integrated Airport Land Use Strategic Plan involved extensive on-going dialog and collaboration with a number of stakeholders, including the Wayne County Airport Authority (WCAA), Detroit Region Aerotropolis Development Corporation, Wayne County Economic Development Growth Engine (EDGE), and the surrounding communities. While a great deal of data and information is contained in this report and appendices, it is impossible to adequately capture all of the direction, strategies, views and opinions expressed during the collaborative process. In addition, implementation opportunities for certain development initiatives occurred during the study and necessitated varying levels of analysis and support. As such, different levels of information and detail are provided for each of the high priority initiatives. The specific information and opportunities provided in this document relies on additional or future efforts by WCAA to finalize or implement.*

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In August 2002, the Public Airport Authority Act, MCL 259.108-259.125 ("Act 90") established the Wayne County Airport Authority (WCAA), which assumed operational jurisdiction of Detroit Metropolitan Wayne County Airport (DTW) and Willow Run Airport (YIP). WCAA is responsible for the management and oversight of DTW and YIP, including the power to plan, promote, extend, maintain, acquire, purchase, construct, improve, repair, enlarge and operate both airports.

As one of the largest domestic and international airports in the United States, DTW plays a major role in the growth and economic development of Southeast Michigan. It is located on approximately 6,100 acres of land within the City of Romulus in Wayne County adjacent to I-94 and I-275. YIP serves as a "reliever" airport, serving general aviation (GA) activity and on-demand cargo operations that cannot be efficiently accommodated at DTW. It is situated on approximately 2,600 acres of land in Ypsilanti Township and Van Buren Township north of I-94 and southeast of Michigan Avenue. YIP straddles Wayne and Washtenaw counties. Both airports represent significant economic assets and each has the ability to drive additional economic development within the region.





## I. OVERVIEW

### REGIONAL DEVELOPMENT STRATEGY

Southeast Michigan is one of the largest metropolitan areas in the country. It is anchored by Metro Detroit which is the 11th largest metropolitan area in the United States. Historically, Detroit has been synonymous with the design and manufacturing of cars and the underlying supply chain that drives vehicle assembly. The car manufacturing process made Detroit an international destination attracting and nurturing a skilled industrial workforce while creating a region with a competitive transportation network. It is this network combined with the human capital that many believe can be leveraged to create a world-class logistics hub by utilizing the available land surrounding DTW and YIP. By leveraging the existing transportation resources at DTW and YIP with a coordinated economic strategy for developing the land directly surrounding each airport, Southeast Michigan has the opportunity to create the “Detroit Region Aerotropolis”.

The Detroit Region Aerotropolis holds the potential to draw billions of dollars in investment to the region and provide thousands of new jobs. The area around DTW and YIP has the potential to be transformed from an agricultural region into a mixed-use development including facilities to support expanded passenger and cargo/logistics activity, more aircraft maintenance, and new corporate GA operations. Likewise, the area could support new commercial and retail development, warehousing and industrial functions, and tourism, recreation and entertainment related facilities.

Acknowledging the enormous potential of the Detroit Region Aerotropolis, the WCAA, Wayne County, Washtenaw County and seven municipalities surrounding DTW and YIP have signed agreements to be part of the Detroit Region Aerotropolis Development Corporation (ADC). The role of the ADC is to promote economic development and job growth, to support legislation favorable to economic development, and to provide developers with a one-stop process for entitlements and development approvals.

In support of this regional development strategy, the State of Michigan adopted the Next Michigan legislation on December 15, 2010. This

legislation authorizes and enables the development of Renaissance Zones and provides a variety of tax and financing incentives for economic development by companies engaged in shipping, supply chain management, manufacturing or assembly via multimodal commerce. This enabling legislation allows the ADC to focus on maximizing the economic potential at or near DTW and YIP, thereby leveraging and maximizing the economic potential in and around these key logistics assets.

*With the new emphasis on the Detroit Region Aerotropolis and its potential to stimulate additional growth and economic development, it is appropriate for WCAA to develop an Integrated Airport Land Use Strategic Plan.*



### STUDY PURPOSE AND NEED

Between 2005 and 2010, WCAA completed separate master plans for DTW and YIP. These planning efforts identified the capital development needs of each airport based on the anticipated demand of passengers and aircraft operations. With the new emphasis on the Detroit Region Aerotropolis and its potential to stimulate additional growth and economic development, it is appropriate for WCAA to develop an Integrated Airport Land Use Strategic Plan that:

- Identifies and prioritizes opportunities to enhance economic development through the development/redevelopment of WCAA controlled property;
- Serves as an overlay to the DTW and YIP airport master plans, coordinating and prioritizing land use recommendations
- Ensures land use recommendations are consistent with, and complimentary to, the Detroit Region Aerotropolis strategy; and
- Provides WCAA with a planning tool to assist in identifying and evaluating opportunities to develop/redevelop WCAA controlled property.



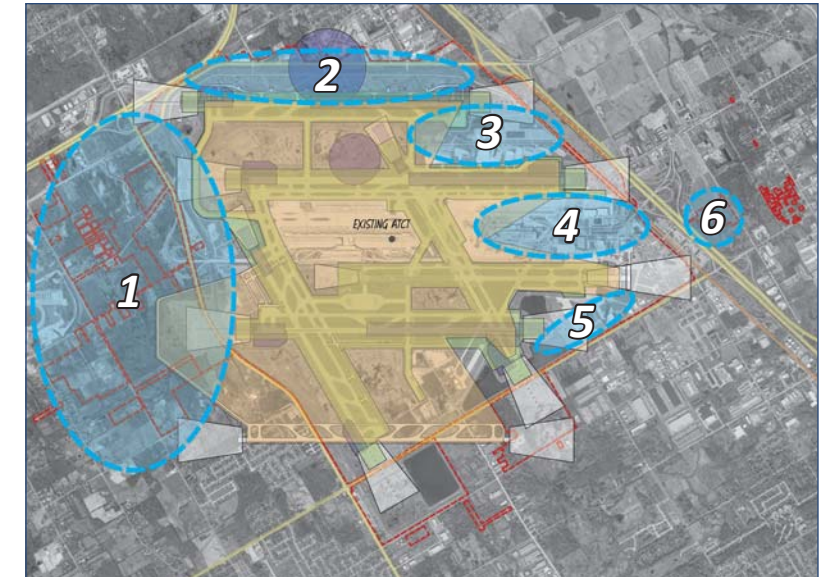
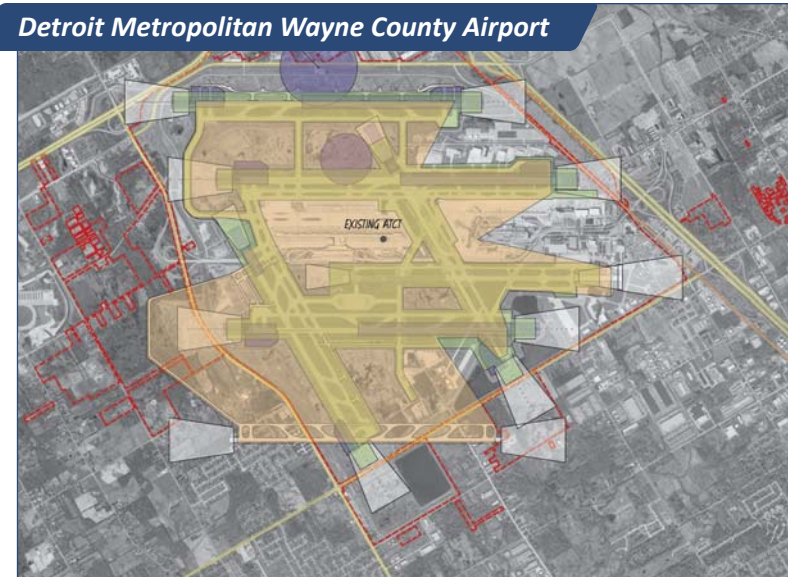
This plan achieves each of these objectives and provides WCAA with the information necessary to efficiently and effectively pursue the development or redevelopment of WCAA controlled land.

With the new emphasis on the Detroit Region Aerotropolis and its potential to stimulate additional growth and economic development, it is appropriate for WCAA to develop an Integrated Airport Land Use Strategic Plan.

## DEVELOPMENT FOCUS AREAS

While DTW and YIP have large areas of undeveloped land, much of that land is reserved for aeronautical purposes and unavailable for development. To identify which areas of land are available for development, a rigorous screening process was conducted that considered all of the relevant aeronautical criteria dictated by the FAA, including requirements for navigational aids (NAVAIDs) and their critical areas, runway protection zones and object free areas, and air traffic control tower (ATCT) sight lines. After applying these criteria at each airport, a total of 10 development focus areas (DFAs) were identified, including six DFAs at DTW and four DFAs at YIP.

**Detroit Metropolitan Wayne County Airport**



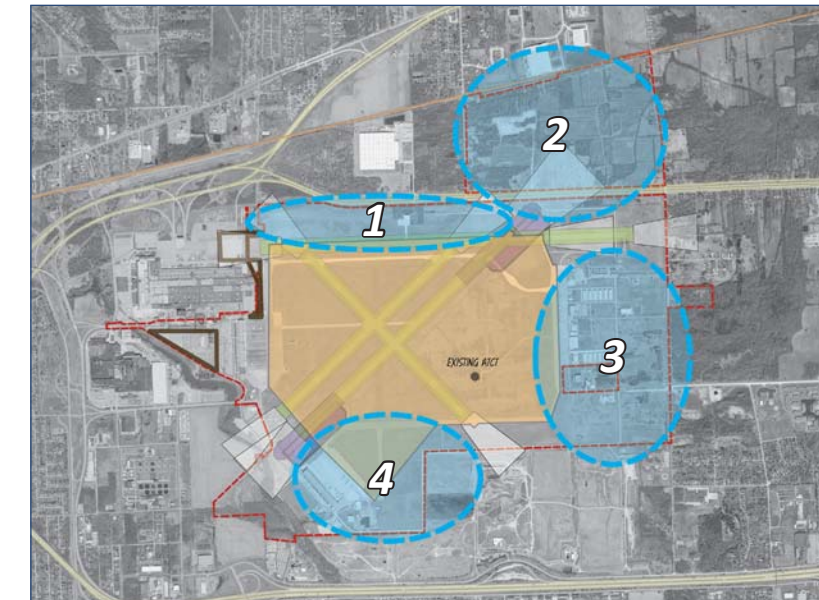
**Identification of DFAs at DTW**

LEGEND:

NAVAID CRITICAL AREA RUNWAY PROTECTION ZONE OBJECT FREE AREA ATCT VISIBILITY AREA POTENTIAL DEVELOPMENT AREAS WCAA CONTROLLED PROPERTY



**Willow Run Airport**



**Identification of DFAs at YIP**





## II. MARKET ASSESSMENT AND EXTERNAL FACTORS

### MARKET ASSESSMENT AND EXTERNAL FACTORS

A thorough assessment of regional market conditions, the general socioeconomic environment, and other external factors are used to inform the planning process. This information is organized into five subsections: Detroit Region Aerotropolis, Local Development Trends, Aviation Related Development, Stakeholder Coordination, and Key Findings and Themes. The Detroit Region Aerotropolis subsection provides an overview of the Aerotropolis urban planning concept and identifies the area defined as the Detroit Region Aerotropolis. Local Development Trends provides a review of the local market and broadly identifies development potential in Southeast Michigan. Aviation Related Development evaluates three specific on-airport opportunities: cargo activity; maintenance, repair and overhaul services (MRO); and GA functions. This subsection provides a national overview of each of these aviation related development opportunities as well as a synopsis of local market potential. The stakeholder outreach and coordination process of sharing information and gathering data is summarized in the Stakeholder Coordination subsection. The synthesis of all of this information and the emerging themes that are used to evaluate and prioritize development opportunities later in this report are presented in the Key Findings and Themes subsection.

### DETROIT REGION AEROTROPOLIS

The concept of the “Aerotropolis” has been popularized by Dr. John D. Kasarda, a professor of Urban Planning at the University of North Carolina at Chapel Hill. It is based on the assumption that as economies become increasingly globalized and dependent on the speed and agility that air commerce provides to the movement of people and goods, the airport will become a logistical platform for the surrounding urban form and regional economy.

The Detroit Region Aerotropolis is defined as the approximately 60,000 acres encompassing DTW and YIP, including nearly 25,000 acres available for new development. The area contains a transportation network that includes the infrastructure to facilitate passenger and freight traffic by air, rail, and highway. Recent initiatives by the ADC and the State of Michigan provide a highly favorable environment for economic development within this area. For example, state legislation

enables the ADC to award renaissance zones for eligible businesses and assist with expediting permits, pursue tax abatement and support tenant recruitment and training. As a result, it is envisioned that the Airport will become a logistical platform for the surrounding urban form and regional economy.

### LOCAL DEVELOPMENT TRENDS

This synopsis describes general market conditions in Southeast Michigan, and specifically the area near DTW and YIP, based on recent information from local developers, Wayne and Washtenaw counties, the ADC, and surrounding communities.

The Southeast Michigan region, as defined here, consists of nine counties – Wayne, Oakland, Macomb, Washtenaw, Monroe, Livingston, Lapeer, St. Clair and Genesee. The population of the region was approximately 5.2 million in 2011, which ranked as the 11th largest market in the United States. The region’s per capita income was approximately \$39,000, which was approximately 6% below the national average, but 8% above the average for Michigan. Total employment for 2011 was approximately 2.17 million workers. The unemployment rate for 2011 was approximately 11.0% which was an improvement from 14.5% unemployment as recently as 2009.

### INDUSTRY

The principal industry continues to be automotive manufacturing and the related supply chain activities. Virtually all of the major auto companies and many suppliers are located in the region, and the

region remains the leader in automotive research and development (R&D), with over \$11 billion in annual spending, over 250 automotive R&D facilities, over 8,000 automotive technology businesses, and one of the top five high tech workforces nationally. However, as automotive production dropped from approximately 16 million units in 2000 to approximately 9 million units in 2009, the market was dramatically impacted. Employment in the industry dropped from 320,000 jobs in 2000 to 120,000 jobs in 2010. Production has increased to 11 million units in 2010 and 12-13 million units in 2011, and is forecasted to stabilize at approximately 14 million units in future years, but well below peak production levels of 10-15 years ago. Many automotive suppliers failed to survive the recession, resulting in continued consolidation among the surviving suppliers. Production efficiencies at both the auto companies and suppliers make it unlikely that employment levels will grow significantly in the future.

*The Airport will become a logistical platform for the surrounding urban form and regional economy.*

The knowledge base developed primarily in the automotive industry has provided the basis for other high tech businesses. The region has drawn advanced automotive battery cell technologies, as at least five major companies have located or expanded battery technology and production operations in the region. Similarly, the region has become the home to clean technologies, including wind, solar and





water processing technologies. The region continues to be a leader in national defense, with the presence and growth of numerous companies within this market.

### HEALTH CARE

The healthcare industry is prominent in the region, led by Henry Ford Health System, St. John Health System, McLaren Health, Beaumont Hospitals, and University of Michigan Health System. While there was substantial growth in the industry until the mid 2000's, the 2008 recession has slowed that growth. Significant investment in the Detroit Medical Center and other health care facilities recently seems to signal a renewed growth in this sector.

### EDUCATION

The region is home to numerous universities, including University of Michigan, Michigan State University, Eastern Michigan University, Wayne State University, University of Detroit Mercy, Marygrove College, Oakland University, Lawrence Technological University, Northwood University and Walsh College. University Research Corridor, a research-based collaboration between Michigan, Michigan State University and Wayne State University, generates annual research & development spending of approximately \$1.4 billion, which is competitive with peer university alliances around the country and provides substantial support to the private sector in the region.

### COMMERCIAL REAL ESTATE

As with the broader Southeast Michigan market, the real estate market



in western Wayne County has experienced a modest recovery, with positive new absorption of 116,000 square feet in the second quarter of 2011 and 1.8 million square feet between 2010 and 2011. However this recovery includes lease rates well below those of a decade ago.

In 2007, Jones Lang LaSalle issued the Detroit Region Aerotropolis Market Analysis. This report provides a detailed assessment of the real estate market conditions for, among others, industrial, office, hotel, and retail uses, and benchmarked those areas against the real estate climate of the United States, the Midwestern United States, and the Detroit Metropolitan Region (Southeastern Michigan) for the period 2000-2006 (see Appendix information). Given that the Jones Lang LaSalle report was prepared prior to the most recent national economic recession, and was considerably out of date at the time the Integrated Airport Land Use Strategic Plan was prepared, it was not used in the development of this report, but is included in the appendix for general informational purposes.

### AVIATION RELATED DEVELOPMENT

Three specific types of aviation related activity were evaluated to understand the potential and likelihood of development on airport property. This included cargo activity, aircraft MRO services, and GA functions. Cargo activities consist of both passenger and freighter aircraft and can also involve warehousing and other logistics functions. Aircraft MRO services could include both "line" maintenance that typically occurs overnight and "heavy" maintenance that requires the aircraft to be out of service for up to several weeks. These services

could also include parts storage and other related operations. GA functions range from large corporate flight departments to private leisure pilots, and include Fixed Base Operators (FBOs). FBOs service and accommodate both commercial and GA operators through a range of services including fueling, aircraft sales and service, and apron and hangar space for aircraft storage.

### CARGO

An analysis of cargo activity was completed by Webber Air Cargo in 2011 and is included in the Appendix. DTW ranked as the 27th largest airport in North America for cargo in 2010. It handled 193,344 Metric Tons, an increase of 19.4% over the previous year. However, from 2000 through 2009, cargo activity declined 45.7% at DTW, likely the result of slow growth in domestic air cargo as well as the growth of primary and secondary cargo hubs around the country. Another likely factor leading to the decline in air cargo at DTW from 2000 through 2009 was the erosion of the local/regional economy with primary losses in automotive production and secondary losses driven by lack of consumption based on declining incomes. Furthermore, Delta Air Lines (Delta) has not prioritized air cargo as much as Northwest Airlines had in the past. Other assessments place DTW near the bottom of all the major markets in belly cargo assets with the most underdeveloped air cargo facilities.

In the past several years, Detroit area cargo operators seem to be focusing on growing the international air cargo segment. Asia has been the primary target and it is widely accepted as a key growth sector in the air cargo industry. This avenue could be effective, especially if Delta's Sky Team Partners like China Eastern were to engage and invest in DTW. Unfortunately, the lack of facilities may be a disadvantage for cultivating the air cargo industry at DTW or YIP going forward. In looking towards strategic developments, a plan that utilizes available land for warehouse space to support both passenger aircraft cargo and dedicated international freighter cargo may be prudent.

It should be noted that the Transportation Security Administration's (TSA) requirement mandating 100% screening of belly cargo seems





## II. MARKET ASSESSMENT AND EXTERNAL FACTORS

to have had a greater effect on DTW than many other belly cargo markets. Investment in equipment and training was perceived as too great by many operators in the DTW market who preferred to truck cargo to Chicago O'Hare International Airport for superior freighter capacity, lower shipping rates and more efficient security screening. One opportunity for cargo related development may be to contract with a 3rd party cargo screening company to operate at DTW.

Willow Run Airport may be attractive to operators who value low operating costs and minimal airfield congestion. However, YIP does not offer any special capabilities compared to those provided at DTW, and therefore may not add value to the region because DTW is not currently capacity constrained. Duplicating similar facilities is not viewed as beneficial and may be inefficient and/or ineffective at driving additional demand.

### MAINTENANCE, REPAIR AND OVERHAUL

An analysis of aircraft maintenance, repair and overhaul (MRO) services was completed by LPS Avia Consulting in 2011 and is included in the Appendix. A summary of the findings of that analysis are as follows. The demand for aircraft MRO is a function of aircraft fleets and demand for air travel in general. The more hours a fleet of aircraft fly, the greater the demand for MRO services. Therefore, as aviation activity rebounds and grows, demand for MRO services will increase. Additionally, certain MRO activities that have been performed abroad in the past may be shifting back inside the United States as a result of federal regulations and other pressures.

One significant advantage that DTW possesses within the MRO market is the presence of Delta Technical Operations, the group responsible for line maintenance of Delta aircraft. They are currently in the process of certifying both of their aircraft maintenance hangars to FAA Part 145 status. When complete, this will allow them to perform 3rd party maintenance activities for other carriers. Delta has stated publicly that they consider their two hangars and their MRO employees in Detroit to be an important component of their MRO strategy going forward. The presence of a large MRO anchor tenant in Delta, a growing traffic base, and room for expansion are all advantages for

DTW and position it well for both additional line maintenance and possibly heavy maintenance activity as well.

YIP is a candidate for heavy maintenance operations due to its low activity level and ample room for development. It benefits from the skilled labor market and MRO activities at DTW; however, it lacks facilities so any interest would require significant immediate investment. Critical factors in this pursuit of MRO activity include the cost and availability of skilled labor and the cost of developing and leasing facilities. In order to effectively compete for MRO activity, WCAA will need to leverage its skilled workforce and offer compelling cost strategies for additional MRO development at both DTW and YIP.

### GA

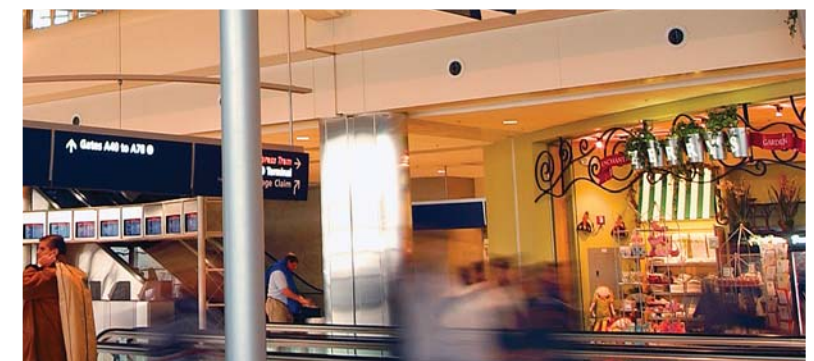
A global and regional analysis of GA functions was completed by Airport Business Solutions in 2011 and is included in the Appendix. A summary of the findings of that analysis are as follows. GA activity broadly falls into two categories: corporate or business activity and private activity. GA operations are down significantly in the past decade at DTW and YIP, consistent with a national decline in GA activity. This is due to a number of factors: fuel and other operating costs, FAA/EPA regulation, the economic recession, security constraints, and public perception. In addition, some GA operations, especially at Willow Run Airport, are related to air cargo and air cargo activity is down nationally as well. Recent projections suggest that GA activity will not return to pre-2008 levels until 2020 or beyond with annual growth limited to 1% or less for the foreseeable future.



Private flying and some corporate GA operations will continue to diminish due to local economic conditions, fewer private pilots entering the system, and high aircraft and insurance costs. Fuel costs, lease terms and cooperative marketing programs are the most obvious strategies for airport operators to pursue in order to limit these anticipated declines. Potential growth opportunities may exist in on-demand charter operations, fractional ownership of aircraft, and consolidation of based aircraft. Although total based aircraft are declining both regionally and nationally in pure numbers, opportunities to increase base aircraft at YIP may exist through consolidation or migration from other GA airports in the region. Specific types of cargo operations, such as on-demand services, may also present opportunities for additional GA activity, provided a compelling business deal can be made. GA marketing should be focused on the benefits and opportunities for local businesses and toward educating the community on the role GA activity and the airports that support it play in bringing new industry and jobs to the region.

### STAKEHOLDER COORDINATION

Extensive stakeholder coordination and outreach was conducted to fully identify and define important external factors. Meetings were held with officials from all of the communities surrounding DTW and YIP, as well as Wayne and Washtenaw counties, MDOT- Bureau of Aeronautics, Michigan Economic Development Corporation, the ADC, airport tenants, the FAA, and other interested stakeholders. These stakeholders were able to share information and provide







meaningful input and feedback. This included sharing information on development plans and strategies, zoning and other land use restrictions, planned infrastructure improvements, and local and regional development goals.

The outreach process framed a better understanding of the importance of DTW and YIP to the surrounding communities and the region and shaped a shared vision for how best to leverage these assets to promote additional economic development. For example, new development on the east side of YIP could not only provide economic stimulus through additional business activity, but would likely result in utility improvements that could be leveraged to facilitate additional investment in the surrounding communities. Similarly, locating certain passenger-related functions outside of the terminal core at DTW could help ease congestion within the Airport while serving as an incubator for collateral development opportunities in the surrounding communities. These and other ideas that were identified through the stakeholder coordination effort were incorporated into the land use alternatives discussed in Section V.

*The outreach process framed a better understanding of the importance of DTW and YIP to the surrounding communities and the region...*



### KEY FINDINGS AND THEMES

By evaluating the data gathered in this section and contrasting the data with development trends from airports around the country and abroad, a number of focus themes emerged for consideration. These six focus themes are Passenger, Logistics, Knowledge, Community, Urban Sustainability and Unique Tourism. The themes which gained support from our key stakeholders, represent specific focal points that provide the foundation for initiatives of this study. Prioritizing and implementing these initiatives under the guide of common themes may also serve to align on-going or proposed efforts by the surrounding communities or catalyze compatible development.

#### PASSENGER FOCUS

Commercial passenger activity is the anchor service in the area. This theme recognizes the need to focus on development initiatives that will support or enhance that activity. Future projects may center around services, attributes or functions that support the efficient movement of passengers in, around, and through DTW.

#### LOGISTICS FOCUSED

Logistics is the management process or system for moving items from one point to another. This theme recognizes that there are components to the system needed to make it flourish. It may require new facilities or infrastructure to effectively support the efficient movement of goods in, around, and through DTW or YIP.



#### KNOWLEDGE FOCUSED

The research, design and manufacturing of cars and underlying supply chain that drives vehicle assembly has cultivated a skilled and educated workforce in the region. This theme acknowledges the ways to leverage a diverse talent pool. This may include expanding upon or enhancing existing products and functions or developing new ones to retain and attract talent.

#### COMMUNITY FOCUS

This theme is concerned with development that can support or enhance the communities surrounding DTW and YIP. It may include components that directly benefit the surrounding communities or simply serve as an incubator for additional economic development.

#### URBAN SUSTAINABILITY FOCUSED

Sustainability refers to a strategic approach that has been described as meeting the needs of the present without undermining the environmental or social systems on which we depend. This theme supports development that helps promote sustainability. This may include functions or activities to make DTW and YIP sustainable or similarly support the surrounding communities or region.

#### UNIQUE TOURISM FOCUSED

This theme is concerned with the specialized services or functions that could be arranged around a transportation network that attracts visitors to the region. It may include services or functions new to the area or services or function within the area that possesses a unique reputation.





### III. AIRPORT ROLES & OPPORTUNITIES

#### AIRPORT ROLES

Planning for land use opportunities around DTW and YIP requires understanding of how the airports function together as a system. This section establishes the roles each airport is best suited to serve and evaluates their individual characteristics and relationship to each other. Profiles for each role are created to better understand the types of facilities needed for each airport to flourish in their respective roles. Potential development opportunities are identified for both DTW and YIP using their individual profiles and the emerging trend information from Section II. Market Assessment & External Factors.

#### DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

The role of DTW is firmly established as a commercial passenger service airport, in large part due to Delta operating a large domestic hub and international gateway at DTW.

##### PRIMARY ROLE:

Commercial passenger service; international gateway

##### ▼ DTW

##### PROFILE:

- Significant commercial passenger activity; domestic hub/international gateway (Delta)
- National and international belly freight; cargo integrator spoke; opportunity for freighter operations
- High profile corporate GA tenants (Guardian Industries, Olympia Entertainment, etc.)
- Commercial aircraft line maintenance base (Delta)
- Longer runways to support long-haul domestic and international flights
- Full navigational aids and instrumentation to allow all-weather access
- Higher activity level; higher lease rates and user fees

Given the investments made over the years by the FAA and airlines, DTW will remain the commercial passenger service airport for the region for the foreseeable future. The recent regional and national economic challenges have impacted the commercial airline industry and resulted in stagnant or declining passenger levels at

most hub airports including DTW. This may reduce or defer the need for expansion projects, but does not minimize the significant maintenance, repair and rehabilitation requirements of such a large, complex and aging asset. The airlines operating at DTW, through long-term agreements with WCAA, have agreed to fund the upkeep of the airport along with any expansion projects that are mutually agreed upon. These agreements between WCAA and the airlines ensure the financial viability of DTW by providing a guarantee that the cost of maintaining the infrastructure will be borne by the airlines if no other funding is made available.

#### WILLOW RUN AIRPORT

The situation at YIP is very different than DTW. Like many GA reliever airports, YIP generates limited funds with which to maintain and operate its facilities. Unlike DTW, there are no long-term agreements with any tenants that ensure the cost of operating and maintaining the infrastructure will be covered. Tenants typically sign land and/or facility leases at market rates. The role of YIP is primarily as a GA reliever airport and lower cost alternative to DTW for functions that need, or prefer, to be located at an airport but don't need the extensive facilities and capabilities that DTW offers.

The cost of maintaining the infrastructure or developing additional or enhanced facilities is often too high for WCAA to justify given the activity levels at the airport. Existing tenants do not want to pay the additional costs for these enhancements and typically choose to operate at YIP in part due to the lower cost structure. Interest in private investment at YIP has been minimal. Current projections indicate the maintenance needs of existing facilities far exceed available funding over the next ten years. Substantial portions of YIP's infrastructure (runways, taxiways, hangars, roads, utilities) are at the end of their useful life and need to be replaced over the next several years. Without long-term agreements with tenants to cover the cost, the financial burden of replacing these facilities may be unsustainable. This has lead WCAA, in consultation with the FAA, to consider options for how best to maintain or redevelop the infrastructure and critical facilities.

*The role of DTW is firmly established as a commercial passenger service airport. The role of YIP is primarily as a GA reliever airport and lower cost alternative to DTW.*

Various ideas for expanding or enhancing facilities at YIP have been considered in the past in order to generate additional revenue to cover operating costs. Many of these ideas have focused on cargo operations and the facilities to support the volume of activity needed to justify their development. While the attributes of airports that specialize in cargo can vary widely, there are typical facilities that most of them possess, including:

- Distribution system (rail and highway)
- Warehousing and distribution facilities
- Customs and Border Protection facilities (for international cargo)
- On-airport cargo facilities and equipment (main deck loaders, cargo make-up and storage space, aircraft apron, etc.)
- Runway length capable of accommodating long-haul domestic and international destinations
- Navigational aids to ensure consistent operations during all weather conditions

##### PRIMARY ROLE:

GA reliever for DTW; on-demand cargo

##### ▼ YIP

##### PROFILE:

- Corporate and private GA activity
- Short-haul, on-demand cargo operations
- No commercial passenger service
- Shorter runways to support demand/cost profile
- Some navigational aids and instrumentation to allow access 96% of time
- Lower activity level; lower lease rates and user fees

These facilities can be provided either by the airport, or by other interested parties (cargo operators, state or local government, 3rd party developers). The runway and navigational aids, however, are





the sole responsibility of the airport, in coordination with the FAA.

A sustainability assessment for YIP determined that providing the runway length necessary to accommodate long-haul domestic and international destinations and the navigational aids to ensure consistent access to the runway during all weather conditions would likely be prohibitively expensive. Specifically, this includes extending Runway 9-27 to the east by at least 2,500 feet, removing obstructions including significant portions of the former GM plant on the northwest corner of the airport, purchasing and installing new navigational equipment on both ends of Runway 9-27, and implementing changes to the airspace to avoid flight paths that would conflict with airplanes arriving and departing at DTW and other regional airports.

Even using aggressive assumptions for federal funding assistance, the cost of the necessary improvements would require a significant increase in activity to break-even on the investment. The analysis concluded that achieving this level of additional activity in the near-term is unlikely and, therefore, recommended that YIP continue to market itself to cargo and corporate GA operators that can utilize the existing runways until the opportunity for a significant increase in activity is realized.

#### LAND USE OPPORTUNITIES (DTW)

DTW will continue to market itself as an international gateway focusing on commercial passenger service and related amenities. The latest master plan for DTW included a recommendation for a runway extension to Runway 21R to balance departure capability and a future fifth parallel runway for additional airfield capacity when needed to support the airline hub operations of Delta as well as belly cargo and freighter activity. Based on this role, and considering the emerging trends identified in Section II. Market Assessment & External Factors, several new and expanded land use opportunities were identified for DTW.

#### PASSENGER AIRCRAFT CARGO

Industry data suggests that DTW could process significantly more cargo through passenger aircraft if additional facilities were available.

Delta has supported this assertion and has indicated an interest in new or expanded facilities, including automated cargo screening capability. Other airlines are operating facilities off airport and have indicated they would consider operating on-airport if suitable facilities were available. In 2011, the TSA finalized its implementation of the Certified Cargo Screening Facilities Program which mandates that all passenger aircraft cargo be screened using a multi-layered security program. This requirement has created a demand for more, better equipped screening facilities. This opportunity requires roadway access capable of accommodating semi-truck traffic, direct AOA service road access and proximity to the passenger aircraft.

#### CONSOLIDATED RENTAL CAR FACILITY (CRCF)

A CRCF is a single car rental facility that from which all of the rental car companies operate. Currently, all of the rental car agencies at DTW operate independently on surface lots and each has their own bus fleet that services both the McNamara Terminal and the North Terminal customers. A CRCF would have common bussing which would significantly reduce the number of buses operating on the roadways and ground transportation centers and thereby reduce emissions. A consolidated facility could improve operational efficiency, reduce operating costs, improve customer service, reduce roadway and curbfront congestion, and possibly provide other benefits. A CRCF would also allow the area currently used by the rental car companies to be redeveloped, when needed, for airfield and other uses. For the DTW market, a CRCF would likely require 60-70 acres for a surface facility or as little as 15-25 acres for an elevated, parking garage style facility. It is preferable to provide a location that allows a simple, direct, intuitive access route for passengers.

#### PASSENGER BUSINESS/COMMERCIAL CENTERS

A business/commercial center could benefit airport passengers, employees, meters and greeters and potentially the residents of the surrounding communities. With over 18,000 badged employees, commercial functions such as gas stations, fast food and sit-down restaurants, convenience stores, and passenger amenities such as dry cleaning and vehicle servicing could be useful. This function does not require airfield access and is preferably located along the major

entrance and exit roadways with high visibility, ample parking, and easy access.

#### FREIGHTER/INTEGRATOR OPERATIONS

Freight facilities must have direct airfield access for aircraft design group (ADG) V and VI aircraft. Operators have a strong preference for direct, convenient access to major expressways to facilitate truck distribution. Utilities, roads and apron infrastructure are beneficial and will help offset the development cost. Buildings can be useful, but they must be in good condition and configured to accommodate freight operations, including truck docks, level floor space, and enough depth to sort and package cargo for delivery to aircraft. If not, it is typically better to clear the site of non-useful buildings so that development can be expedited. Sites need to provide adequate depth to accommodate ADG-V and VI aircraft apron and access to adjacent taxiways.

#### FLIGHT KITCHEN/PROVISIONING

Northwest Airlines, prior to their merger with Delta, had considered developing a new flight kitchen closer to the McNamara Terminal to enhance the operational efficiency of the building and reduce delivery times. Flight kitchens are most efficient when located in close proximity to the aircraft apron to facilitate timely delivery of meals and supplies to the aircraft. They require both public and Airport Operational Area (AOA) access. The existing facility that serves this function at DTW is aging and located at the northern-most end of the airport. There are no flight kitchen facilities within close proximity of the McNamara Terminal.

#### AIRCRAFT MAINTENANCE, REPAIR AND OVERHAUL

This function employs highly skilled workers which in some cases can be cross-utilized so locating them together can be advantageous under certain conditions. Delta has two aircraft line maintenance facilities at DTW adjacent to the North Terminal. Aircraft MRO services require direct airfield access and large tracts of land. They also typically utilizes large hangars which require careful sighting as they can represent significant obstacles to air traffic control line-of-sight and hazards to air navigation.





### III. AIRPORT ROLES & OPPORTUNITIES

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#### **AIRPORT ADMINISTRATION**

The current airport administration facilities are in the L.C. Smith Terminal which is at the end of its useful life and scheduled for demolition. This function is best located where public access is available. Close proximity to AOA access can be beneficial, although not required, depending on the functions within the facility.

#### **PUBLIC SAFETY**

The current public safety building is beyond its useful life and in poor condition. This function is best located in close proximity to the terminal cores, and does not require AOA access, although proximity to AOA access would be beneficial. Additional functions within these facilities can include dispatch and emergency operations center.

#### **AIR TRAFFIC CONTROL TOWER**

The current air traffic control tower (ATCT) is scheduled to be replaced by 2016 according to the FAA. ATCT facilities require public access and proximity to vehicle parking. The FAA is responsible for sighting the replacement ATCT in order to ensure it does not represent a hazard to air navigation. Two possible sites have been identified. The first site is adjacent to the existing ATCT and the second site is near the L.C. Smith Terminal.

#### **FULFILLMENT/LOGISTICS/WAREHOUSE/STORAGE**

As internet businesses and logistics grow, demand for fulfillment services are expected to increase, with proximity to the airport being a valuable advantage. There are some limited facilities that serve this function in the area surrounding DTW, but no facilities exist on WCAA controlled land. These functions do not require airfield or AOA access, but may require a large initial development tract and/or area for expansion. It may depend on the airports through-the-fence-operations policy, but allowing these functions on-airport, at least in the near-term may provide revenue and serve as an incubator for other airport services such as freight and passenger aircraft cargo operations. To that end, they may be co-located or within close proximity to freighter, integrator, or passenger aircraft cargo facilities. The site layout requires ample space for truck docks and truck staging and maneuvering.

#### **OFFICE/BUSINESS PARK**

This landside opportunity promotes the cultivation and exchange of knowledge by accommodating businesses and professionals. It can be advantageous for businesses and individuals that require frequent travelling, or that host visiting travelers to be close to a large hub international airport. These developments also have a greater potential to incubate knowledge spillover and create knowledge clusters in related business areas. There is little to no Class A office space immediately adjacent to DTW. Although heavily dependent on the office space occupancy and availability in the surrounding area, this may present an opportunity for a business park development or an office building or small campus cluster. This function does not require airside or AOA access. It requires adequate space to provide for a building and vehicle parking and may include tall buildings that could require careful sighting as they can represent significant obstacles to air traffic control line-of-sight and hazards to air navigation.

#### **HOTEL/CASINO/CONVENTION CENTER**

The combination of hospitality, tourism, and a convention space is often symbiotic and can encourage collateral economic development. Locating this function close to the airport may encourage activities that support travel such as national conferences and large corporate training activities. This function does not exist anywhere in the region except downtown Detroit and Novi, and existing facilities are not ideally suited to handle small to medium sized events. This function does not require airside or AOA access. It requires adequate space to provide for vehicle parking and to accommodate large groups of people arriving by multiple forms of transportation. The development may include tall buildings that could require careful sighting as they can represent significant hazards to air navigation. This function requires robust utilities, and is ideally linked to the airport ground transportation system.

#### **REMOTE SURFACE PARKING**

DTW currently has surplus parking capacity most of the time in the Big Blue Deck located near the North Terminal but is often at capacity in the McNamara parking garage. Balancing the demand at these facilities, while providing a range of on-airport parking products

(short-term, daily, long-term/remote) for users may require new or additional surface parking facilities in the future. This landside development opportunity does not require airside or AOA access but will likely require significant area within the airport boundary. This function is preferably located along the main entrance and exit roadways or within close proximity with natural wayfinding and/or easy access. One of the benefits of this function is that it typically requires minimal utilities and development investment, and therefore can efficiently utilize on-airport property until a higher priority development is needed for the land.

#### **URBAN FARMING/ENERGY FARMS/BIO FUEL**

Many airports own large tracts of vacant land needed for safety, security and noise buffers. This land, while undesirable for commercial purposes due to its proximity to runways, is increasingly considered for sustainable purposes, including agriculture and energy generation. Wind turbines are not viable due to their height being a significant hazard to air navigation, however, solar energy farms may be a viable use of airport controlled land. Biomass farms, such as switch grass, are also viable uses of surplus land. This function does not require airfield or AOA access, or utilities, and can efficiently utilize airport property until a higher priority development is needed for the land.

#### **LAND USE OPPORTUNITIES (YIP)**

The latest master plan for YIP included a recommendation for an extension to Runway 9-27 to facilitate long haul cargo operations. While possible, is not financially feasible without a significant commitment for additional activity. As such, the role of YIP within the WCAA system, and the focus of the Integrated Airport Land Use Strategic Plan, is to promote land uses that are consistent with the current facilities and operational characteristics and do not depend on a runway extension. YIP will continue to market itself to cargo and corporate GA activity that can utilize the existing runways until the opportunity for a significant increase in activity is realized. Based on this role, and considering the local, regional and national development trends identified in Section II. Market Assessment & External Factors, several new and expanded land use opportunities were identified.

#### **AIRCRAFT MAINTENANCE/RECYCLING/RENEWAL**

Certain aircraft maintenance activities that have typically been performed abroad in the past may be shifting back inside the United States as a result of federal regulations and other pressures. Aircraft maintenance providers, especially heavy aircraft maintenance, prefer to be located at airports with less activity and congestion. This is also true of the more recent activity of aircraft recycling. Based on industry trends, there is reason to believe that these somewhat related services may be able to function together under the right circumstances. Aircraft recycling can result in partial aircraft and piles of scrap stored in the open and as such may be best located away from the airport entrance or exits or other highly visible locations. Heavy aircraft maintenance requires airfield access and large buildings that can accommodate several aircraft at one time. Because aircraft undergoing heavy maintenance are typically out of service for several weeks, these facilities may also need adjacent apron to store aircraft before and after the maintenance has occurred. Existing buildings can be useful, but they must be in good condition and configured to accommodate maintenance operations. If not, it is typically better to clear the site of non-useful buildings so that development can be expedited.

#### **PRIVATE GA**

This opportunity considers the potential for closure or downsizing of other airports around the region that cater to recreational aviation but are no longer sustainable given the economic climate and decline in demand over time. As smaller airports in the area are closed, based aircraft will be forced to relocate. Having the hangar and tie-down facilities to serve these dislocated aircraft, as well as flight training schools and other related services could create a critical mass of activity that is sustainable. This is especially viable if that private activity supplements other revenue generating services. Private GA must be part of a larger strategy for YIP and should consider the philosophies of the State of Michigan - Bureau of Aeronautics regarding these other airports and those municipalities that support these airports as well. Nonetheless, over time it may become an important consideration for maintaining an accessible option for private GA in the region.

#### **CORPORATE GA**

This land use includes corporate flight facilities, fractional jet ownership, fixed base operators (FBOs), flight training organizations, and other businesses that utilize jet aircraft. They typically require new or refurbished buildings, hangar space for aircraft, and aircraft apron.

#### **ON-DEMAND CARGO**

Several companies currently serve this function at YIP. Based on tenant input, it is reasonable to assume that as long as YIP offers a lower cost alternative to DTW with adequate facilities, there will be on-demand cargo services at the airport. On-demand cargo must have direct airfield access. Operators have a preference for direct, convenient access to major expressways to facilitate truck distribution. Operating and development costs are critically important to the feasibility of the business operation. Existing utilities, access roads and apron infrastructure will help offset the development cost and are highly beneficial. Existing buildings can often be made to serve the needed function with quick, inexpensive modifications provided truck staging can be made available. A range of aircraft sizes can be utilized for this function so varied site sizes and configurations may be viable.

#### **RESEARCH AND DEVELOPMENT FACILITIES, MANUFACTURING, WAREHOUSING AND DISTRIBUTION CENTERS**

This opportunity capitalizes on the new technologies being developed for the auto industry and others as well as the availability of large tracts of land adjacent to the airport. When coupled with the adjacent rail line and proximity to the highways and the airport, the ability exists to develop a large scale multimodal transportation center immediately adjacent to a campus with R&D, manufacturing, and warehousing and distribution facilities all focused around new and evolving technologies such as electric cell batteries or wind/solar power.

#### **UNIQUE TOURISM /PERSONAL SERVICE BUSINESSES**

The ability to develop a large tract of land and have direct airfield access could be desirable for certain service sectors. For example, medical tourism is a growing industry around the world and Metro

Detroit is home to several world class hospitals and medical schools. All of these are within 45 minutes of Willow Run Airport. Having a satellite facility at the airport would allow patients to fly into the airport and immediately receive world-class care. This opportunity also offers the ability to collaborate on services or projects such as a cancer center, neo-natal facility, cosmetic surgery, or other specialty services. Similar opportunities may exist around Eco-tourism with the Great Lakes or other natural resources in the region.

#### **URBAN FARMING/ENERGY FARMS/BIO FUEL**

Many airports own large tracts of vacant land needed for safety, security, and noise buffers. This land, while undesirable for commercial purposes due to its proximity to runways, is being increasingly considered for sustainable purposes, including agriculture (the #2 industry in Michigan) and energy generation. Wind turbines are not viable due to their height being a significant hazard to air navigation; however, solar energy farms may be a viable use of airport controlled land. Biomass farms, such as switch grass, are also viable uses of surplus land. The concept of urban farming has been gaining popularity in the region and could become an important component of the Detroit Region Aerotropolis concept. None of these functions require airfield or AOA access, or utilities, and can efficiently utilize airport property until a higher priority development is needed for the land.

#### **COMMERCIAL DEVELOPMENT**

Commercial-retail development is primarily intended for the use and benefit of airport users and employees as well as the surrounding community. This function does not require airfield access and is preferably located near major entrance and exit roadways or thoroughfares with high visibility, ample parking and easy access such as Beck and Ecorse Roads. Typical functions may include gas stations, fast food and sit-down restaurants, and convenience stores.





## IV. PHYSICAL CHARACTERISTICS

### PHYSICAL CHARACTERISTICS

While both DTW and YIP have large areas of undeveloped land, much of that land is reserved for aeronautical purposes and unavailable for development. To identify which areas of land are available for development, defined in this report as Development Focus Areas (DFA), a rigorous screening process was conducted that considered all of the relevant aeronautical requirements, including navigational aids (NAVAIDS) and their critical areas, runway protection zones and object free areas, and visibility from the air traffic control tower (ATCT). As described in Section I, this resulted in a total of 10 broad DFAs, including six DFAs at DTW and four DFAs at YIP.

An inventory of physical characteristics was completed at both DTW and YIP. This information focused on four general categories of airport physical characteristics that have significant influence on the viability and cost of development at airports and include:

- Airfield and Airspace
- Utilities
- Buildings/Aprons/Roads
- Environmental Issues

Existing conditions within the DFAs can represent opportunities or constraints and are important considerations for WCAA and others interested in developing new or expanded facilities. Opportunities can be leveraged to entice development, while constraints can be mitigated through the capital planning process and ongoing maintenance programs.

The information gathered during this effort is summarized within this section and additional detail is available in the Appendices.

### DETROIT METROPOLITAN WAYNE COUNTY AIRPORT

Initially called the Wayne County Airport, DTW opened to the public in September of 1929 with a single landing strip and was expanded throughout the next several decades. Four of the six runways that exist today, along with their utilities and associated infrastructure, were built between 1950 and 1976. Many of the roads, parking lots, hangars and apron around the Airport are also several decades

old. The L.C. Smith Terminal, which is currently used as WCAA administration offices, was constructed in 1956. More recently, however, some improvements were made to expand and update the airport. Between 1988 and 2008, over \$2 billion was invested in new terminals, runways and other airfield pavement, roads, new and expanded utilities, and additional hangars and support facilities.

The most recent master plan for DTW was completed in 2009 and offers guidance and technical justification for projects needed to support projected aviation demand. Planned future development at DTW includes several significant projects including:

- 5th Parallel Runway and Perimeter Taxiway
- Runway 21R Extension
- Phased Expansion of McNamara Terminal and North Terminal
- Consolidated Rental Car Facility
- Air Cargo Development and Airline Freight Expansion



In addition to these projects, the Southeast Michigan Council of Governments (SEMCOG) anticipates the development of an Ann Arbor-Detroit Regional Rail Project. The project implements one of the key recommendations from SEMCOG's 'Improving Transit in Southeast Michigan: A Framework for Action' plan that will provide regional rail service in the Ann Arbor-Detroit corridor using existing infrastructure whenever possible. According to the SEMCOG website, the current project contemplates providing commuter rail service in the Ann Arbor-Detroit corridor with stops in Ann Arbor, Ypsilanti, Dearborn, and Detroit. The project takes advantage of existing

infrastructure where possible and requires adding new station stops in Ypsilanti and at DTW. The DTW Master Plan contemplates a connection between the airport and the Ann Arbor-Detroit commuter rail line when implemented.

### AIRFIELD/APRON/AIRSPACE

The availability and characteristics of airfield pavement is an important consideration for airport development. Direct access to runways and taxiways is often a critical requirement for businesses located at airports and, as a result, often increases the value of the development. Pavement strength and condition that can support large jet aircraft provides more flexibility than pavement strength that is restricted to small aircraft only. At DTW, most of the airfield pavement can handle ADG-V aircraft, which are the largest jet aircraft operating at the airport today. One of the most familiar ADG-V aircraft is the Boeing 747. It should be noted that even larger ADG-VI aircraft



are starting to enter the national aviation market although not yet DTW specifically. These ADG-VI aircraft include the new Boeing 747-8 and the Airbus A-380. While neither of these aircraft operate at DTW today, WCAA has developed special operating procedures that will allow them to arrive, depart and maneuver on existing airfield pavement that is otherwise limited to ADG-V or smaller aircraft.

The condition of the airfield pavement is also an important consideration as it signals the anticipated life-cycle of the pavement and determines the future maintenance and rehabilitation schedules.

*Between 1988 and 2008, over \$2 billion was invested in new terminals, runways and other airfield pavement, roads, new and expanded utilities, and additional hangars and support facilities.*

The airport has a scientific process for evaluating pavement condition that culminates with a report that categorizes the pavement according to its current and anticipated future condition. The most recent WCAA Pavement Conditions Index report is included in the Appendix. While the airfield pavement is either generally in good condition or is scheduled to be rehabilitated within the next five years, the apron pavement within the DFAs is generally in fair to poor condition and in some cases was designed to support smaller ADG-II jet aircraft.

The airspace represents controlled area above the ground surrounding airport property. It limits the maximum height of buildings and structures within the vicinity of the airfield to ensure they do not obstruct the operation of aircraft. Identification of the DFAs in Section I reflect the various airspace restrictions, including pavement and NAVAID critical areas, RPZ at the ends of each runway and air traffic and pilot visibility requirements. In addition, federal requirements provide for imaginary 3-dimensional surfaces surrounding the runways, referred to as FAR Part 77, that must be protected. All of the DFAs at DTW are limited by airspace requirements, but they all can still support significant development including buildings and structures.

**BUILDINGS AND ROADS**

Existing major roads in and around DTW are illustrated on the DTW Exhibit on page V-14. The primary entrance and exit roadway is Rogell Drive/Dingell Drive. Dingell Drive, which stretches from Eureka Road to its connection to Rogell Drive just north of the Big Blue Deck, was completed in 2002 and is in excellent condition. It provides access to the McNamara Terminal. Rogell Drive, which connects to I-94 and Merriman Road, loops through the North Terminal core. Rogell Drive was originally built in the 1950’s and has been modified several

times in the past six decades. Rogell Drive, and the adjacent East and West Service Drives, are all in poor condition and are scheduled to be reconstructed in the next several years. In addition, the entrance and exit ramps from I-94 and I-275 are also in need of repair, but are controlled by the Michigan Department of Transportation (MDOT), not WCAA.

**TERMINAL BUILDINGS**

Both the McNamara and North Terminal buildings were constructed within the past 10 years and are in good condition. Some support buildings, including two large airline maintenance facilities, are also around 10 years old and in good condition. Other facilities, including the airport maintenance complex and several hangars are approaching the end of their useful life and require renovation or demolition. Finally, there are a number of buildings that are beyond their useful life. Many are vacant or have been modified to allow them to be used for a purpose other than their original function. Many of these buildings will require significant investment to bring them up to current building code and make them inhabitable.

**UTILITIES**

In general, utilities at DTW only exist in those locations that have development. As a result, there are limited or no airport utilities within the DFAs that are along the west and south borders of the airport. Additional utility information, including exhibits showing the size and location of major utility lines is provided in the Appendix.

Primary power is provided by DTE with main feeds to two substations, within the North Terminal core near the Big Blue Deck and adjacent to Dingell Drive near Eureka Road. Distribution lines run throughout the airport to all developed areas. It is the goal of DTE and WCAA that all power to DTW tenants be distributed from these substations and not provided directly by DTE.

Underground water lines exist throughout the airport. While these lines have adequate capacity there is concern about their condition in certain DFAs because of their age. For example, water lines in certain areas of the airport are estimated to be over 50 years old and many



have exceeded their useful life.

Airport generated stormwater is collected and stored in ponds on-airport property until it can be safely released into the surrounding off-airport stormwater system. Airport stormwater contaminated with deicing fluid is separated from uncontaminated stormwater and sent to the Detroit Water and Sewerage Department for treatment. Adequate capacity exists for handling both contaminated and uncontaminated stormwater at DTW.

There are six main sanitary sewer subsystems at DTW, each serving separate areas of the airport. There are no known capacity issues or concerns regarding the condition of the sanitary sewer system, but it is worth noting that, like the other utilities, there is no coverage along the west and south borders of the airport.

**ENVIRONMENTAL**

A number of known environmental issues were identified within the DFAs at DTW. These include the presence of current and former underground and above ground storage tanks, the presence of hazardous materials, and surface and subsurface environmental impediments. At least one of the DFAs on the south side of the airport contains documented wetlands. While none of these issues appear to be of the magnitude to prevent development, they may delay site development and increase project costs.

The Appendix includes the Environmental Conditions Summary for





## IV. PHYSICAL CHARACTERISTICS

Strategic Land Use Concept Plan which provides a detailed description of known environmental conditions within each of the DFAs, as well as an EDR DataMap®-Area Study. This includes information for buildings that are in the Emergency Response Notification System database.

### WILLOW RUN AIRPORT

Originally constructed in 1941, YIP was developed to support production of the B-24 Liberator bomber during World War II. The original airfield consisted of six runways, four of which remain today. The main hangar at the airport was used as a passenger terminal from 1946 to 1966, when YIP served as the primary commercial service airport for the region. For the next several decades following the development of DTW, YIP was used exclusively by corporate and private GA aircraft. More recently, on-demand air cargo operators specializing in transportation of automotive-related parts and supplies and other freight began to use the facility.

Much of the original infrastructure at YIP is still in place and is reaching the end of its useful life. The most recent master plan for YIP was completed in 2006 and offers guidance and technical justification for projects needed to support aviation demand. A robust plan to address deferred maintenance issues and a capital improvement program based on recent planning efforts has been developed by WCAA and several recommendations have already been implemented, including:

- Conversion of Runway 9R-27L to a taxiway
- Construction of New Taxiway G
- Runway Safety Area Improvements



Additional planned improvements include several significant projects:

- Rehabilitation of Runway 5R-23L
- Extension of Runway 27
- Modification of Runway 23R
- Elimination of Runway 14 -32
- Renovation of Hangar #1
- Demolition of Hangar #2
- Land swap with RACER (former GM Plant)
- New airport access road

Funding for these planned improvements has not been finalized, and will likely include contributions from the FAA, MDOT – Bureau of Aeronautics, airport generated revenue, and WCAA through their Airport Discretionary Fund.

### AIRFIELD/APRON/AIRSPACE

Direct access to runways and taxiways at YIP is a critical requirement for businesses locating on airport property. Pavement strength and condition that will support large jet aircraft provides flexibility and supports commercial activity. Pavement condition is an important consideration as it signals the end of the pavement life-cycle and influences future maintenance and rehabilitation schedules. As with DTW, WCAA uses a scientific process for evaluating pavement condition at YIP. Given the age of most of the pavement at YIP, the condition of the airfield is generally poor. In recognition of this, reconstruction of the primary arrival and departure runway, 60 year old Runway 5R-23L, is currently under design and scheduled for construction in 2013-2014.

The airspace represents the area above the ground surrounding the airfield. It limits the maximum height of buildings and structures within the vicinity of the airfield to ensure they do not obstruct the operation of aircraft. Identification of the specific YIP DFA sites in Section V reflect the various airspace restrictions, including pavement and NAVAID critical areas, RPZs at the ends of each runway and air traffic and pilot visibility requirements. In addition, federal requirements provide for imaginary 3-dimensional surfaces surrounding the runways that must be protected. All of the DFAs at YIP

are limited by airspace requirements, but can still support significant development including buildings and structures.

### BUILDINGS AND ROADS

There are two primary entrance and exit roadways; Beck Road on the east side of the airport and Tyler Road on the west side. There is a public service road that traverses the southern boundary of the airport. The northern boundary of the airport is served by Ecorse Road. Ecorse and Tyler Roads are generally in poor condition and are not maintained by WCAA.

Most of the buildings at YIP were constructed several decades ago. As a result, most of the hangars and several buildings are in poor condition. Five buildings including BLDG-2606 (Hangar #2) are being considered for demolition over the next several years. A notable exception is BLDG-2372, a corporate hangar along the northern edge of the airport that was constructed within the past 10 years and is in good condition.

*DFAs at YIP are limited by airspace requirements, but can still support significant development including buildings and structures.*

### UTILITIES

In general, utilities at YIP are approaching the end of their useful life and lack adequate capacity to effectively service the existing development. Specific utility information, including exhibits showing the size and location of major utility lines is provided in the Appendix.

Primary power is provided by DTE to each facility, with dedicated feeds for airfield facilities and equipment. It is the goal of DTE and WCAA that the majority of power to YIP tenants be distributed from new substations and not provided directly by DTE.

There are two underground municipal water line systems that exist around the airport property. These two systems serve YIP and as

redundant services are believed to have adequate capacity for all airport users. There are two main on-airport water line subsystems serving separate areas of the airport, and there have been reports of low water pressure serve at certain facilities. Water lines in certain DFAs are estimated to be 60 years old and are approaching the end of their useful life.

Airport generated stormwater directed to off-airport surface drainage in three general discharge locations. The majority of stormwater is collected on airport and directed southwest to outfall structures adjacent to Runway 5R which feed into Willow Creek. A small portion of the airfield drains northeast into the Horner drain ditch just northeast of Runway 23 and similar portion of YIP property drains southeast in the Begole Drain ditch. The rest of the eastern portion of airport property drains northwest in the Hanshaw Drain ditch. While there are certain drainage areas with oversized pipes, and a retention pond for the southwest hangar drainage area, the majority of the airport stormwater is not stored on airport property.

There are two main sanitary sewer subsystems at YIP, each serving separate areas of the airport. There are no known capacity issues or concerns regarding the condition of the sanitary sewer system, but it is worth noting that, like the other utilities, some lines need replacing and there is less/poor coverage along the east and south borders of the airport.

ENVIRONMENTAL

A number of known environmental issues were identified within the DFAs at YIP. These include the presence of current and former underground and above ground storage tanks, the presence of hazardous materials, and surface and subsurface environmental impediments. Some buildings are believed to contain asbestos, PCB light ballasts, and/or lead paint. At least one site is known to contain a capped and monitored PCB sediment and soil landfill. At least one of the DFAs on the north side of YIP, contains documented wetlands.

The Appendix includes the Environmental Conditions Summary for Strategic Land Use Concept Plan which provides a detailed description

of known environmental conditions within each of the DFAs, as well as an EDR DataMap®-Area Study. This includes information for buildings that are in the Emergency Response Notification System database.

DFA SITES

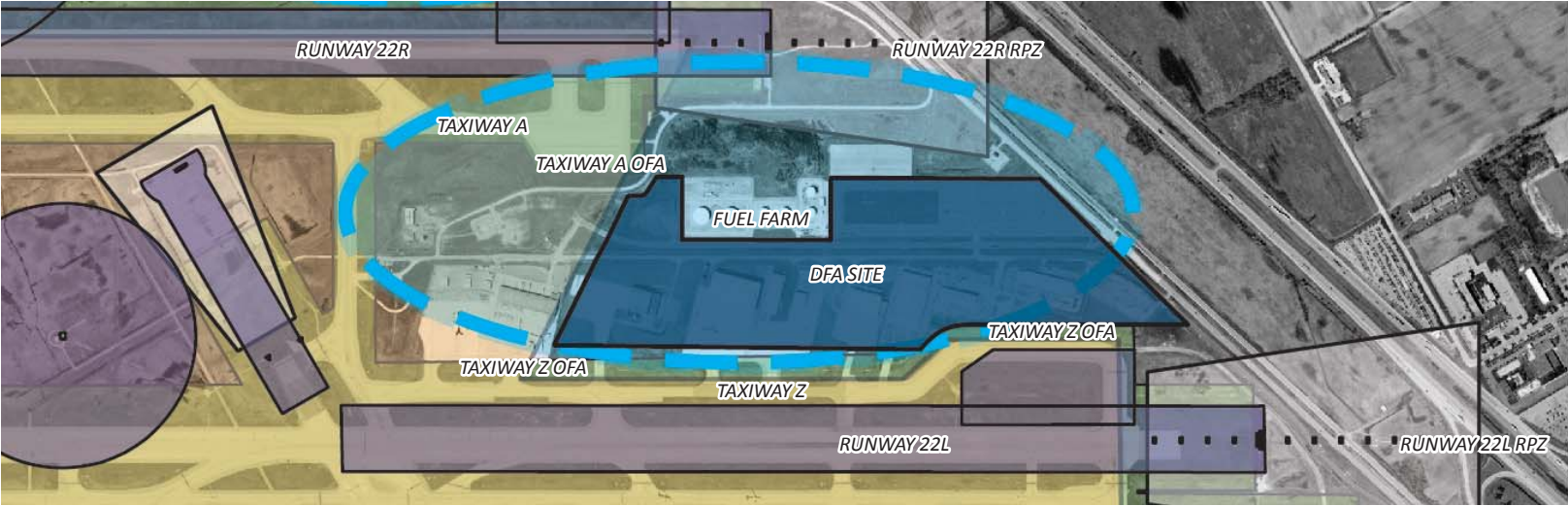
The physical characteristics of each DFA were collected through site investigation and records research. Each DFA contains unique physical structures, leasehold boundaries and aeronautical operating limits. In the exhibits presented below, the physical characteristics are overlaid on the DFAs to create opportunities and constraints diagrams that help determine which sites may be better suited for certain development.

The precise boundaries of each development site within a DFA can help establish the viability of certain land uses within the site, suggest certain land uses may be better suited or a higher priority than others based on the sites’ characteristics, and may give an indication of the

*DFA Sites were identified by considering the roads, airfield operations areas, NAVAID critical areas, and other physical limits.*

amount of infrastructure improvements that are needed to support various land uses. For example, airfield access is critical to certain potential land uses such as freighter/integrator operations. Similarly, direct access to and from the main airport entrance and exit roads is vital to passenger convenience centers and direct AOA access roads are essential for passenger aircraft cargo.

Specific DFA sites were identified by considering the roads, airfield operations areas, NAVAID critical areas, and other physical limits within the DFAs. For example, when considering the DFA near the fuel farm at DTW (DFA 1), there are several physical boundaries to consider. Taxiway Z and the taxiway Object Free Area (OFA) define the eastern boundary of the DFA site. Similarly, Goddard Road defines the northern boundary. The southern boundary is theoretically defined by the Taxiway A OFA, although the air traffic control line-







## IV. PHYSICAL CHARACTERISTICS

of-sight and newly constructed public safety training facilities serve as the practical boundary for development. The western boundary of the DFA site is based on several criteria including the AOA service road, fuel farm, and the RPZ for Runway 22R.

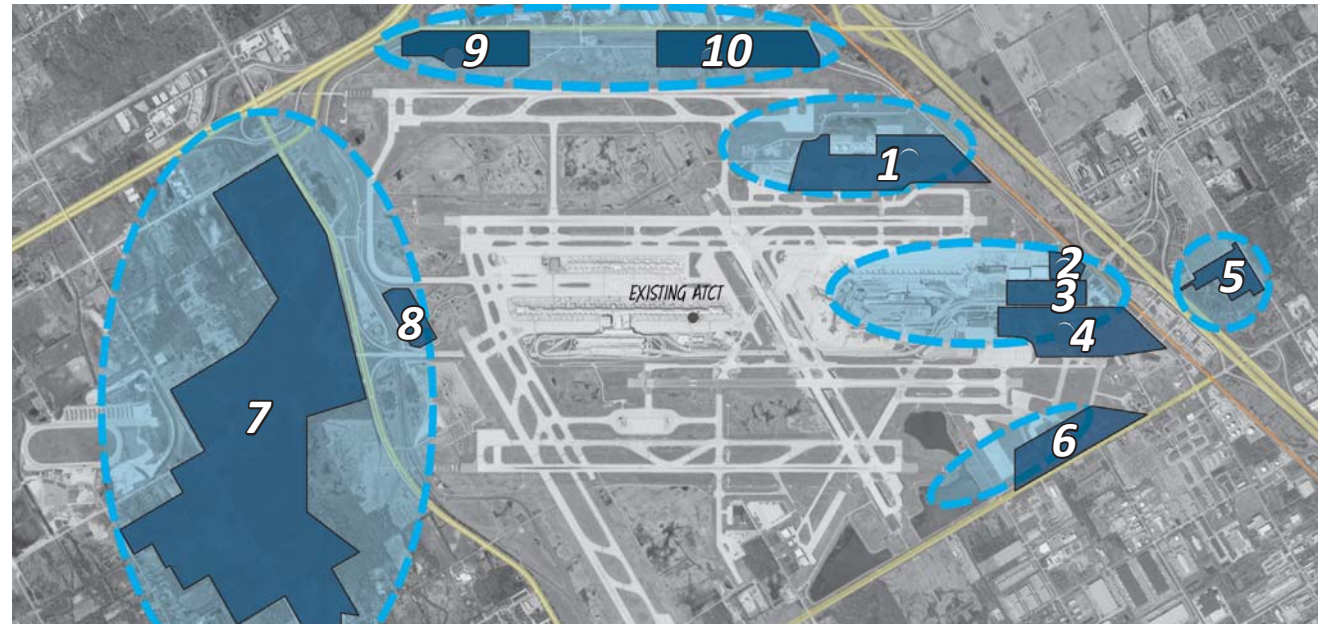
Similar analysis of each DFA results in 10 discrete DFA development sites at DTW and five discrete DFA development sites at YIP. These 15 DFA sites are diverse in size, location, attributes and airport function. Similar to the previous example, all of these sites were determined by such things as perimeter roads, airport property line boundaries, or other physical limits imposed by FAA regulations for those sites in close proximity to airfield operations. DTW DFA Site 7 for example was primarily shaped as a result of airport property boundaries and road grids south of Eureka Road. In Contrast, the previous example (DTW DFA Site 1) outlines a situation where the shape of this specific DFA Site is dictated by physical infrastructure.

It is important to note that during this initial step in identifying development focus areas, some sites transformed to accommodate and yield to operations areas and situations unique to the intended or recommended purpose for that site.

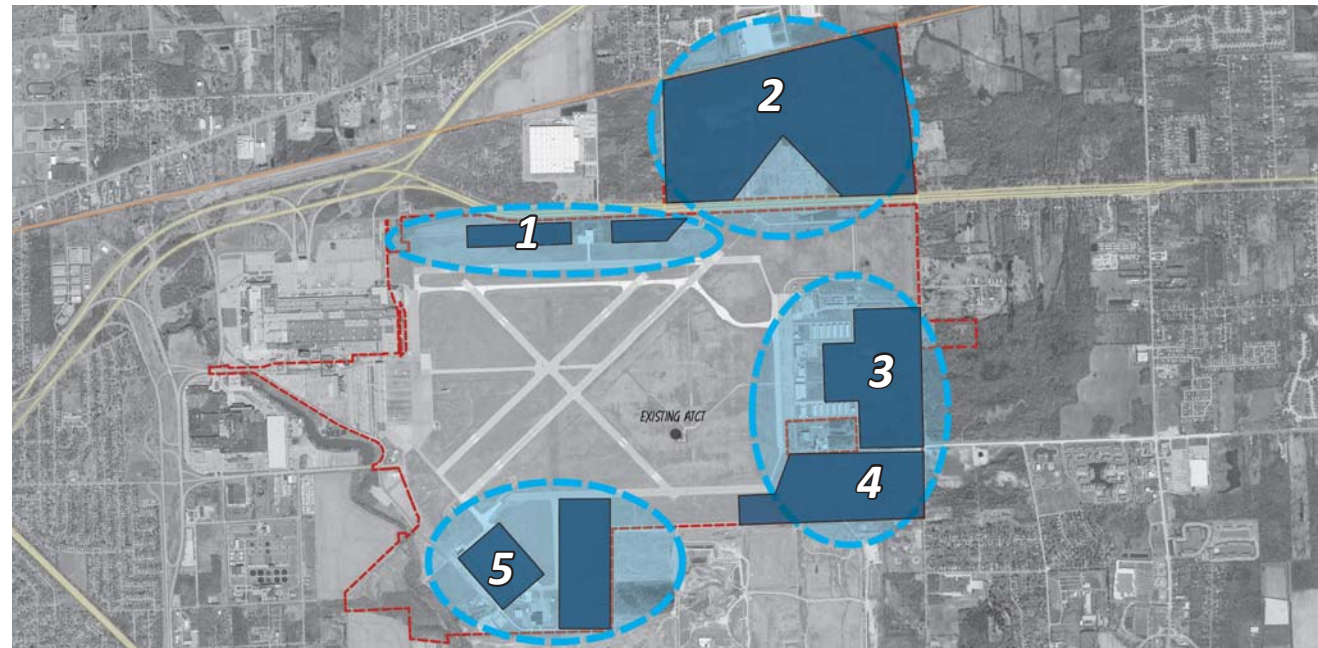
### OPPORTUNITIES AND CONSTRAINTS

The most significant physical characteristics identified through this process were compiled into an opportunities and constraints diagram for each airport. DFA site boundaries are depicted to highlight proximity and to help understand how the physical characteristics may impact the various DFA sites. This information is summarized for both DTW and YIP on the exhibits following this page. Each leader line represents a key piece of information that either supports, limits or impedes development in that area.

Indicators of potential opportunities for development include such things as proximity to major roads or highways as well as available airfield access. Constraints to potential development may include aging or inadequate utilities, environmental hazards, zoning restrictions and similar conditions.



DTW DFA Identification



YIP DFA Identification

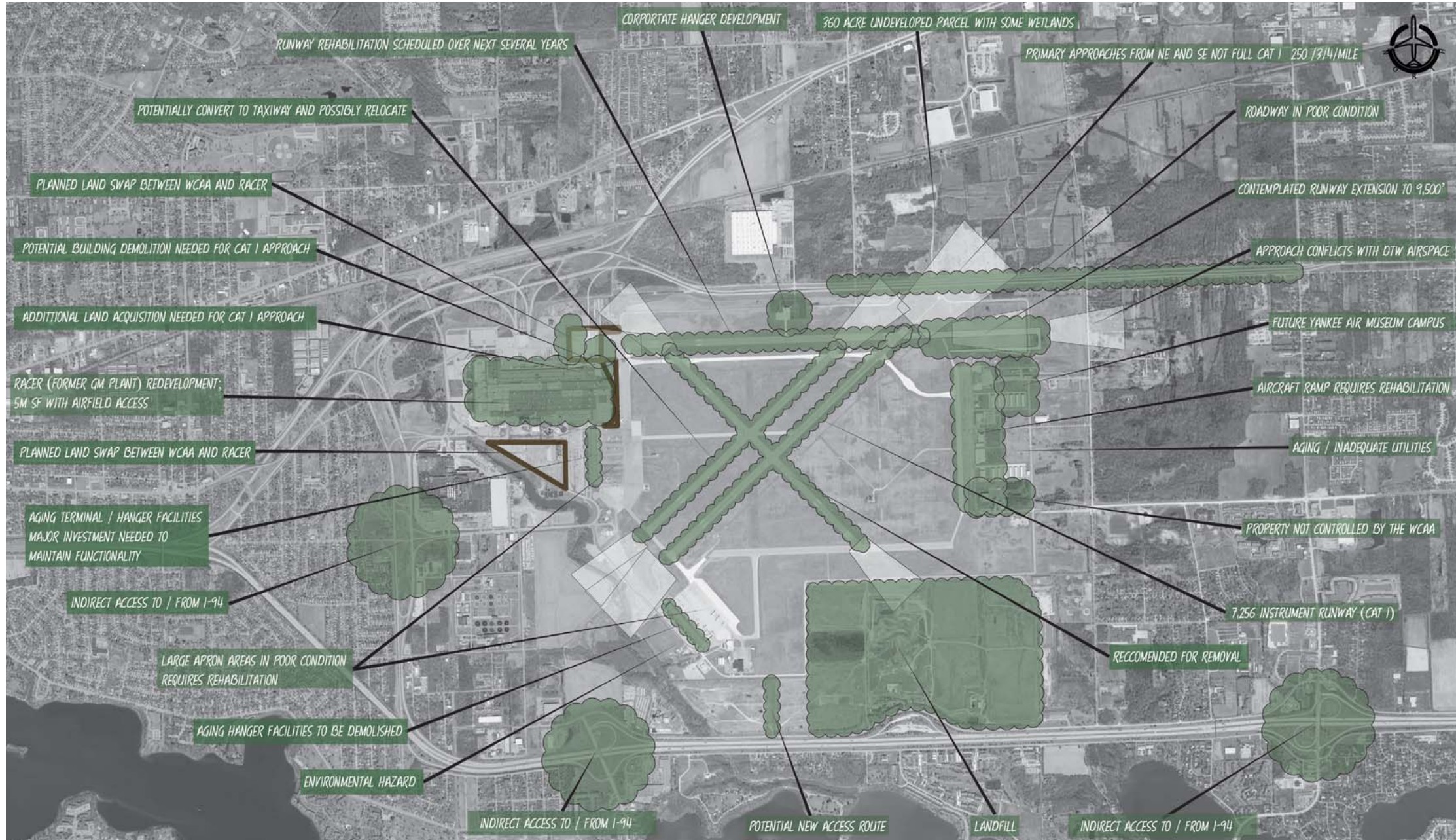








## IV. PHYSICAL CHARACTERISTICS





## LAND USE ANALYSIS

The previous sections of this report have gathered and analyzed information to systematically identify a number of potential land use opportunities for DTW as well as YIP. In a similar manner, the available development sites at each airport and their associated characteristics have been documented. This section identifies those potential land uses that are compatible with each DFA site, considering the requirements and preferences for the potential land uses as well as the location and physical characteristics of the DFA sites. The land use that is most compatible with each DFA site is selected as the recommended land use for that site.

When evaluating the various DFA sites, it is apparent that there is little developable property at DTW with airfield access, adequate utilities and other infrastructure needed to support aviation related development. Therefore, it is prudent planning to ensure that those DFA sites that possess these important attributes are reserved for aviation related development. Aviation related development helps to sustain and grow airport operations and ensures the long-term viability and economic success of the airport. Furthermore, as new investments in infrastructure occur, careful thought should be given to creating additional DFA sites with these attributes. The remaining DFA sites are adequately suited for collateral development that supplements the aviation roles of each airport and supports economic development in the surrounding communities.

The land use that is most compatible with each DFA Site was selected as the recommended land use for that site.

### DTW DFA SITE 1

This Site offers direct airfield access for all aircraft including ADG-VI via Taxiway Z and is adjacent to the longest runway at DTW (4R-22L) and between a primary arrival runway (4L-22R) and a primary departure runway (4R-22L). The site has existing utilities with available capacity although many are aging and scheduled for replacement in the next several years. The FedEx cargo facilities and the Airport Maintenance Complex are the only two active facilities within the site. Most of the existing vacant buildings within the site

**DTW DFA Site 1 - Freightor/Integrator Facilities**



are in poor condition and are scheduled for demolition. The aircraft aprons within the site are in fair to poor condition and may need to be rehabilitated in the future. There are existing paved public and AOA service roads connecting the site to the North Terminal aircraft parking area. The existing public service road within the site is in poor condition and is planned to be relocated to the west edge of the site in the near future. The site is located approximately one mile from the Vining Road interchange with Interstate 94 and is located adjacent to the airport fuel farm. There are current and former underground storage tanks and above ground storage tanks within the site and it may have surface and subsurface environmental impediments that could delay site development and increase development costs.

Potential land uses for this DFA include freight and/or cargo integrator operations, corporate GA, MRO facilities, and belly cargo operations (North Terminal only).

## RECOMMENDATION:

While any of the potential land uses could be developed within this site, the recommended land use is for freightor/integrator facilities. Key factors supporting this recommendation are the recent relocation of Taxiway Z to accommodate ADG-VI aircraft and the planned relocation of the public service road to enable more efficient facility development and aircraft parking (especially larger aircraft typically used for freighter operations) within the site. Given the proximity of this DFA to the longest runway at DTW, and the ability to accommodate ADG-VI aircraft on the adjacent taxiway and within the site make this DFA uniquely suited for freightor/integrator facilities. The recommended land use also takes full advantage of the DFA location between an arrival and departure runway, minimizing taxi distance for time critical operations. Another supporting factor is the proximity to the Vining Road/I-94 interchange less than one mile away. This facilitates the efficient movement of goods between planes and trucks. FedEx is already located within the DFA, likely due to many of these attributes, and has expressed interest in expanding and consolidating other FedEx functions into a new development within the site in the next several years. Existing utilities throughout the DFA will allow FedEx, and others, to initiate development immediately. Additional engineering studies will be required to determine the magnitude of impact on redevelopment resulting from the underground fuel pipelines within the site that run to/from the adjacent fuel farm.

Note: This site is the only viable site for MRO activity that is reasonably close to the newly constructed ground run-up enclosure that is used to test aircraft engines after maintenance. However, given the location of the Delta line maintenance facility, proximity to the GRE does not appear to be a determining factor for MRO operations. Further, heavy MRO activity is less dependent on the efficiency of ground run up activities due to the amount of time the aircraft are out of service.





### DTW DFA Site 2

This site offers direct airfield access via Taxiway Y and is adjacent to the longest runway at the Airport (4R-22L). It is in close proximity to the North Terminal and offers direct AOA access via an adjacent security checkpoint. The site has existing facilities that are being used but are in poor condition or not optimally located and may be demolished or relocated in the future. The site has utilities with available capacity although many are aging and scheduled for replacement in the next several years. A public airport service road bifurcates the site but there may be an opportunity to relocate it without impacting traffic patterns. A public roadway (Goddard Road) borders the site to the north. The site is adjacent to two Delta aircraft maintenance hangars and does not include any aircraft apron. The site also is partially within the RPZ for Runway 4R-22L which limits the height of buildings and facilities within the site. There are some known environmental issues within the site.

Potential land uses for this DFA include MRO facilities, belly cargo (North Terminal only), and corporate GA operations.

#### RECOMMENDATION:

Belly cargo operations is the most logical use for DFA Site 2, given that it is located immediately adjacent to an AOA service road and in close proximity to the North Terminal apron. The other possible uses are not ideally suited for this location because the site has significant restrictions on the maneuvering and staging of aircraft so as not to impact the adjacent tenants or operation of Runway 22L. Even smaller corporate GA aircraft could impact the adjacent functions. It is noted that the site contains existing facilities that are currently being used and would need to be relocated, along with the existing roads, prior to implementation of any new development. As such, this land use recommendation is probably not likely to be implemented in the near-term. Additional study is recommended on ARFF station modifications.

DTW DFA Site 2 - Belly Cargo



DTW DFA Site 3 - Passenger Commercial/Business Center



### DTW DFA Site 3

This site is uniquely located along the main entrance and exit roadway of DTW and offers distinctive opportunities for non-aviation development. With over 70% of all airport traffic entering/exiting through this site, it has the potential to serve a high volume of both passenger and community traffic. Currently, the airport Rescue and Fire Fighting station is the only active building within the site. The main entrance and exit roadway is in poor condition and scheduled for reconstruction, offering the potential to relocate the road and create a developable site between the entrance and exit roads of 15-20 acres. Major utility lines run through the site and there is available capacity. There are some known environmental issues within the site. The former post office building may contain potentially hazardous materials, including asbestos. New building development is prohibited within a small portion of the site and future use of this area is limited to open air exterior uses. The site may have surface and subsurface environmental impediments that could delay site development and increase development costs.

Potential land uses for this DFA include a passenger commercial/business center, hotel/convention center, and consolidated rental car facility.

#### RECOMMENDATION:

A passenger commercial/business center is the recommended land use for DFA Site 3 because it is uniquely located along the main entrance and exit roads for the airport. This will allow over 70% of the users of the airport to pass by it, offering enormous potential visibility and impact. The other possible land uses do not need to be along the airport entrance and exit roadway to be effective, whereas the passenger convenience center is much more dependent on visibility to be successful. It is noted that Rogell Drive will need to be relocated, either as an enabling project or as part of the site development, to facilitate this land use concept.



#### DTW DFA Site 4

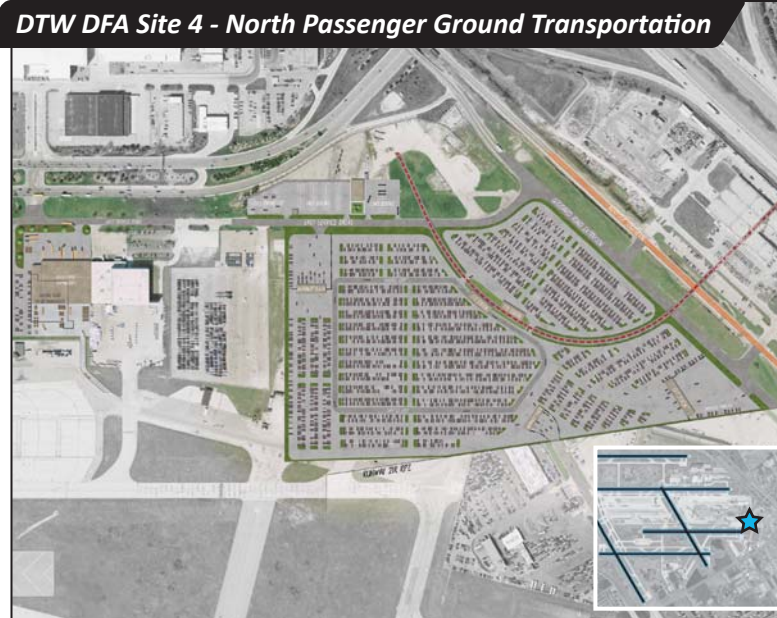
This site offers direct airfield access and is adjacent to a primary departure runway 3L-21R and the Runway 21R Deicing Pad. Future plans encourage the ability to extend Runway 3L-21R and associated taxiways to the north, occupying certain land within the northern end of this site, which currently includes several rental car facilities. These facilities may be relocated into a consolidated rental car facility in the future, offering the opportunity to redevelop/reuse this land for the runway extension as well as other facility development. The site has ample utilities throughout and is adjacent to a prime corporate GA facility (Building #530) on the south end of the site. It offers public access via the East Service Drive along the western border of the site and an AOA service road that connects to both the North Terminal and McNamara Terminal along the eastern edge of the site. It is located in close proximity to the main airport entrance and exit roads and I-94. The site includes two parcels that have existing aprons in place, although the pavement is aging and will likely need to be rehabilitated in the coming years. Several other parcels within the site are paved and suitable for vehicle circulation and parking. Delta operates a belly cargo facility in a converted aircraft maintenance hangar within the site. Delta has indicated they are contemplating expanding or relocating this belly cargo facility. Former or current USTs are located throughout this site. The site may have surface and subsurface environmental impediments that could delay site development and increase development costs.

Potential land uses for this DFA include freight and/or integrator operations, corporate GA, MRO, belly cargo, remote surface parking, and flight kitchen facilities.

#### RECOMMENDATION:

DFA Site 4 is well suited for corporate GA given the airfield access and proximity to a departure runway, Interstate 94 and the main airport entrance and exit. The site is close to existing corporate GA facilities. It has available aircraft apron and development sites with utilities that will facilitate efficient development. However, the demand for corporate and GA facilities may not require development of the entire site in the mid- or long-term.

**DTW DFA Site 4 - North Passenger Ground Transportation**



**DTW DFA Site 5 - Consolidated Rental Car Facility**



This site is also suited for belly cargo operations, especially common-use facilities that accommodate both North Terminal airlines and McNamara Terminal airlines. The entire site has direct access to an AOA service road that provides reasonably direct access to both terminal aprons.

#### DTW DFA Site 5

This Site is located north of Interstate 94 within a former residential subdivision that is adjacent to a privately owned off-airport parking lot and several hotels. WCAA has a three-party agreement with Wayne County and a private developer to swap parcels of land that will result in WCAA controlling an approximately 25 acre tract of land. The site has some utilities and is located near major utility trunk lines. There are large tracts of vacant, developable land immediately north and east of the site which is not connected to other airport property. Public roadway access to the site is available via Smith Road and Flynn Drive. The site may contain minor surface soil contamination associated with the previous residential use.

Potential land uses for this DFA include remote surface parking, consolidated rental car facilities, a hotel/convention center, urban farm/energy farm, office/business park, and administrative offices.

#### RECOMMENDATION:

A consolidated rental car facility is the recommended land use for DFA Site 5. It provides the Airport with the benefits of a consolidated facility and preserves the land needed for the extension of Runway 21R. This recommendation also disperses the rental car activity outside of the terminal core and into the surrounding community where it can serve as an incubator for other economic development if combined strategically with other functions. The site is adjacent to the primary airport entrance and exit and is consistent with the development plans for the surrounding community.

Note: The CRCF may also be located within the terminal core, provided there is adequate area available. If this occurs, the other potential land uses for this site remain viable and could serve as incubators for additional economic development for the surrounding communities.





### DTW DFA SITE 6

This site is located along Middlebelt Road on the eastern border of DTW. It is close to Interstate 94 and offers direct airfield access for corporate GA aircraft via Taxiway P. The developable area within the site is limited by the RPZs for Runways 21R and 21L and buildings within the site are height restricted. The site includes five vacant and underutilized buildings, including two that are at the end of their useful life and in poor condition. Several buildings have adjacent aircraft apron that is suitable for corporate GA aircraft. There are utilities within the site, but there is limited surplus capacity and many are aging and scheduled for replacement in the next several years. AOA access is limited to the airfield as no dedicated AOA service roads exists within or adjacent to the site. There are some known environmental issues within the site including the presence of underground storage tanks and some hazardous materials on the site.

Potential land uses for this DFA include freight and/or integrator operations, corporate GA, and MRO facilities.

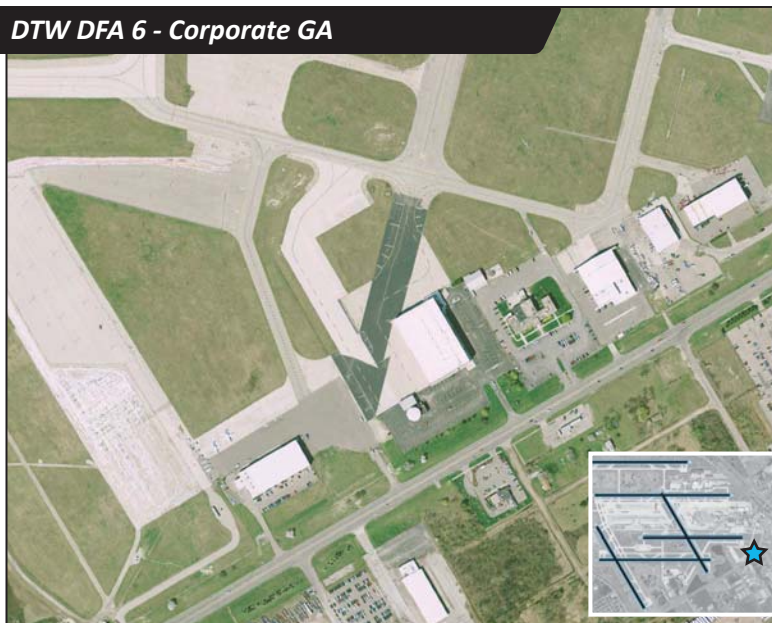
#### RECOMMENDATION:

Given the height restrictions within DFA Site 6, and the limitations of the surrounding airfield to accommodate only ADG-II or smaller aircraft, the recommended land use is corporate GA. This is consistent with the current uses within the site and may allow for efficient redevelopment of existing facilities. It also minimizes the investment needed for airfield improvements and aircraft apron, which would be significantly greater if the site needed to accommodate larger aircraft.

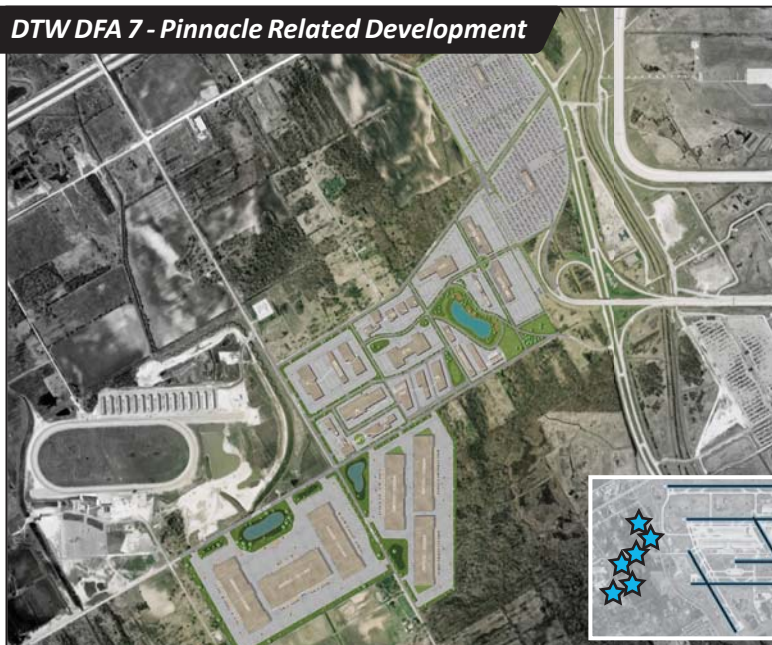
### DFA SITE 7

This site includes a large tract of land located south of Eureka Road immediately adjacent to the south airport entrance and exit. Approximately 26% of airport users use the south entrance and exit. This site does not provide AOA or airfield access today, although it will be immediately adjacent to a planned taxiway associated with a future fifth parallel runway. It is adjacent to the planned Wayne County Pinnacle Development. There are no known utilities although a DTE power feed into DTW is located within the site. The site contains significant amounts of documented wetlands and there are suspected

DTW DFA 6 - Corporate GA



DTW DFA 7 - Pinnacle Related Development



environmental issues within the site as well. Environmental contamination was discovered on an adjacent parcel of land during a recent development.

Potential land uses for this DFA include fulfillment/warehousing/logistics, urban farm/energy farm, office/business park, remote surface parking, hotel/convention center, consolidated rental car facility, passenger convenience center, and airport administration.

#### RECOMMENDATION:

DFA Site 7 has multiple land use recommendations, primarily because of its size. Remote surface parking and/or a passenger convenience center is recommended in the long-term near the west edge of the site along Eureka Road or adjacent to the airport entrance/exit roads. (This presumes that the near-term sites for these functions on the north side of the airport prove to be successful). The site is also well suited for a fulfillment center/warehousing/logistics/storage land use in the long-term given its large land mass and proximity to the airport. However, initial demand for such use is likely to be limited to a small scale development. The consolidated rental car facility is viable, but is better suited for development to the north because it aligns with the travel patterns of the majority of airport users who access the airport from the north and west via I-94. A northern location for the CRCF also aligns with the land use goals of the surrounding communities, which calls for a commercial nexus north of the airport and industrial land use to the south of the airport. The office/business park land use is viable within this site, but would likely compete with the adjacent Pinnacle development. Airport administration offices/campus would be appropriate if it were a part of a larger office/business park development, hotel/convention center, or a CRCF. All of these uses are better suited for the commercial oriented development planned by the surrounding community for the north side of the airport.

An urban farm/energy farm or related land use may be appropriate as a temporary measure in the near-term. There is an abundance of land available and these uses do not typically require significant investment.



### DTW DFA Site 8

This site is located north of Eureka Road immediately adjacent to Taxiway Q, but it does not allow for aircraft use given its size. The developable area within the site is limited by the RPZ for Runway 9R and buildings within the site are height restricted. Access to the site is available via a public airport service road that is in poor condition and will need to be upgraded as part of any site development. The site is in close proximity to the McNamara Terminal and offers direct access to an AOA airport service road that passes under Runway 9R-27L and leads to the McNamara Terminal aircraft apron. There are no known utilities within the site. There are suspected environmental issues within some areas of the site.

Potential land uses for this site include belly cargo, fulfillment center/logistics/warehousing/storage, corporate GA, freighter/integrator operations, flight kitchen/provisioning, and MRO facilities.

#### RECOMMENDATION:

Close proximity to the McNamara Terminal and direct AOA access make DFA Site 8 uniquely suited for belly cargo development exclusively for McNamara Terminal airlines. No other location can offer the proximity to the McNamara Terminal apron. It will require roadway improvements and some utilities, but the ideal location makes the investment worthwhile. This land use can easily avoid encroaching on the Runway 9R RPZ. It should be noted that this site is not well suited to operate a common-use or joint-use belly cargo facility that includes North Terminal airlines due to the long distance to the North Terminal from this site.

### DTW DFA Site 9

This Site is located along Vining Road on the western boundary of the Airport. It offers the potential for direct airfield and AOA access, although no taxiway infrastructure exists today. The developable area within the site is limited due to the proximity of the runway and any buildings would be height restricted to avoid impacting the operation of the runway. Furthermore, future construction of a western parallel

**DTW DFA Site 8 - Certified Cargo Screening Facility**



**DTW DFA Site 9 - Corporate/General Aviation**



taxiway will further reduce area available for development. The site offers direct access to an AOA airport service road that passes under Runway 9R-27L and leads to the McNamara Terminal aircraft apron, but is located over two miles (via roadways) from the terminal apron. There are no known utilities within the site. The site contains suspected environmental issues including contaminated soil.

Potential land uses for this site include fulfillment/warehousing/logistics/storage, corporate GA, freighter/integrator operations, and MRO activities.

#### RECOMMENDATION:

The lack of aircraft apron or taxiway infrastructure, along with the limited site depth, significantly diminishes the viability of aircraft related land uses on DFA Site 9. A notable exception may be corporate GA, although there are better corporate GA opportunities on the north and east sides of the airport. As such, fulfillment center/warehousing/logistics/storage is the recommended land use for this site. The proximity to both I-94 and I-275 support this type of development by facilitating efficient truck distribution; however, a lack of utilities and presence of large earth berms will serve as barriers to development of the site in the near-term.





### DTW DFA Site 10

This Site is also located along Vining Road on the western boundary of DTW. It is nearly identical to DFA 9 and similarly offers the potential for direct airfield and AOA access, although no taxiway infrastructure exists. The developable area within the site is limited due to the proximity of the runway and any buildings would be height restricted to avoid impacting the operation of the runway. The site offers direct access to an AOA airport service road that passes under Runway 9R-27L and leads to the McNamara Terminal aircraft apron, but is located over two miles from the terminal apron. There are no known utilities within the site. The site contains no known environmental issues.

Potential land uses for this site include fulfillment/warehousing/logistics/storage, corporate GA, freighter/integrator operations, and MRO activities.

#### RECOMMENDATION:

Similar to DFA 9, the lack of aircraft apron or taxiway infrastructure, along with the limited site depth, significantly diminish the viability of aircraft related land uses on DFA Site 10. A notable exception may be corporate GA, although there are better and more efficient corporate GA opportunities on the north and east sides of DTW. Furthermore, future construction of a western parallel taxiway will further reduce area available for development. As such, fulfillment center/warehousing/logistics/storage is the recommended land use for this site. The proximity to both I-94 and I-275 support this type of development by facilitating efficient truck distribution; however, a lack of utilities and presence of large earth berms will serve as barriers to development of the site in the near-term. Proximity of this site to DFA 1 and the potential for freighter/integrator facilities development would suggest that this site may be developed sooner than DFA 9.

DTW DFA Site 10 - Corporate/General Aviation



### DTW RECOMMENDED LAND USE PLAN

The recommended land use plan for each DFA site is presented in a composite exhibit for DTW on the following page V-14. It illustrates how the recommended land use plans at DTW relate to existing airport infrastructure and depicts an overall vision for growth and expansion through the development and redevelopment of WCAA controlled property. The recommended land use plan is consistent with the regional development strategy and provides a planning tool to assist in marketing, evaluating and implementing development opportunities.









### YIP DFA SITE 1

This site is located along Ecorse Road on the northern boundary of YIP. It offers direct AOA access and the potential for direct airfield access, although no taxiway infrastructure exists today. In fact, a corporate GA tenant recently developed a new facility in the middle of the site. The developable area within the site is limited due to the proximity of the runway and any buildings would be height restricted to avoid impacting the operation of the runway. The site offers direct access to an AOA airport service road that traverses the perimeter of the airport. There are utilities in the area. The site has no known environmental issues.

Potential land uses for this DFA include: heavy MRO, GA, on demand cargo, and a R&D/manufacturing/distribution campus.

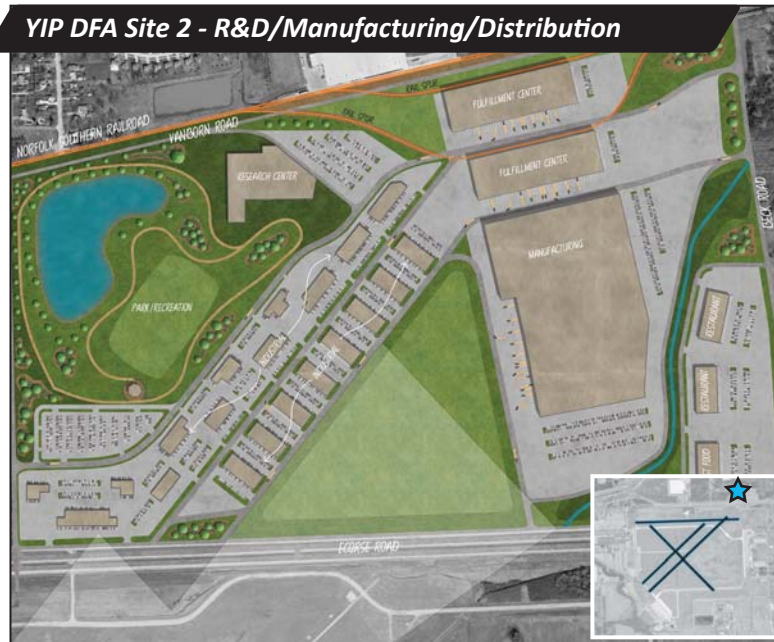
#### RECOMMENDATION:

DFA Site 1 area/lot depth constraints and height limitations will likely impact the viability and effectiveness of heavy MRO facilities, especially for large aircraft, and there are better locations for this land use at YIP. GA is possible, but may not generate sufficient activity to justify the infrastructure needed to access the airfield. An R&D/manufacturing/distribution campus is a viable land use for this area, although the site does not provide airfield access. Since there is surplus land with airfield access available at YIP, if an interest in this site for an R&D campus were identified, it should be considered. On-demand cargo could also be a viable use, but would likely require significant investment that could be offset at other locations. Therefore, the recommended use for this site is corporate GA because of the general site parameters, the likely investment needed to improve the site, and the potential synergies with the existing corporate GA development.

YIP DFA Site 1 - Corporate/General Aviation



YIP DFA Site 2 - R&D/Manufacturing/Distribution



### YIP DFA SITE 2

Measuring 360 acres, this site is located in the northeast corner of YIP, north of Ecorse Road. The Norfolk Southern Railroad traverses the northern boundary of the site. The site does not provide direct airfield or AOA access. A portion of the developable area within the site is limited by the RPZ for Runway 23L and any nearby buildings will be height restricted. There are no utilities within the site. The site contains about eight acres of documented wetlands, but there are no other known environmental issues.

Because the site does not provide airfield access, the only viable land uses are R&D/manufacturing/distribution, urban farm/energy farm, and commercial development.

#### RECOMMENDATION:

DFA Site 2 offers the unique potential to efficiently distribute goods by rail, road, and air which drives the long-term recommended land use to R&D/manufacturing/distribution use with some small associated collateral commercial development. However, given its large land mass and the infrastructure investment needed, initial demand for such use is likely to be limited to a small scale development. Therefore, an urban farm/energy farm or related land use may make sense as a temporary measure in the near-term. There is an abundance of land available and these uses do not typically require significant investment and do not result in significant development structures or facilities that are difficult or costly to convert when demand for other land uses arise in the future.

### YIP DFA SITE 3

Measuring 60 acres, this site is located along the eastern boundary of YIP along Beck Road at the east entrance to the airport. It offers limited airfield access for small aircraft only. The site is largely vacant although considerable GA and other aviation related facilities are immediately adjacent. The Yankee Air Museum has announced a planned development that would occupy a small portion of the site. There are utilities in the area, but, they are aging and may not have adequate capacity to accommodate additional development without improvement. The site has potential, yet unknown, subsurface environmental issues.

Viable land uses include GA, R&D/manufacturing/ distribution, urban farm/energy farm, and commercial development.

#### RECOMMENDATION:

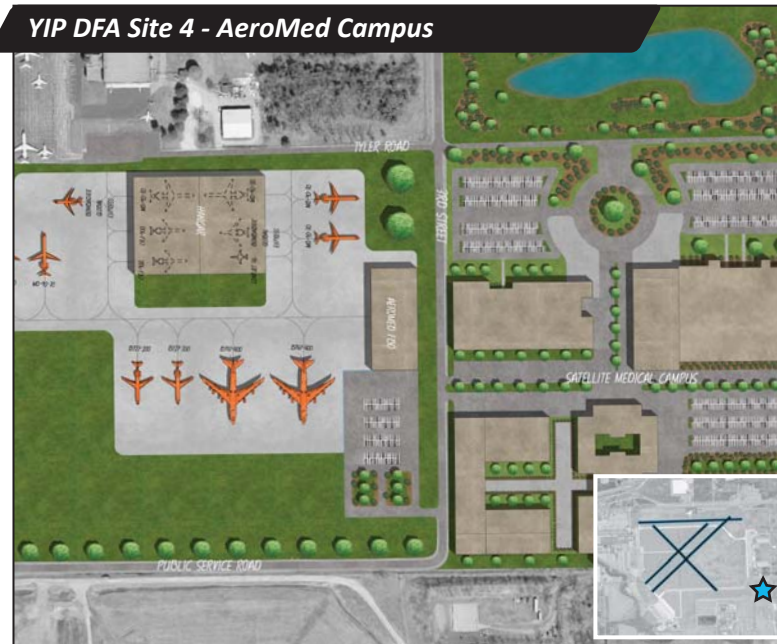
Because DFA Site 3 is so large, a mix of land uses including GA and commercial development is recommended. Private GA makes sense for this site because of the airfield access for small GA aircraft and there are existing private GA facilities adjacent to the site. Corporate GA is also recommended for a portion of the site in order to take advantage of proximity to adjacent corporate GA facilities and also to possibly leverage the existing and future private GA operations. Finally, a commercial development is recommended to supplement the full development scenario with products and services aligned with airport users and employees as well as the surrounding community.

Given the large land mass available within this site and the fact that initial demand for such use is likely to be limited, an urban farm/energy farm or related land use may make sense as a temporary measure in the near-term. There is an abundance of land available and these uses do not typically require significant investment and do not result in significant development structures or facilities that are difficult or costly to convert when demand for other land uses arise in the future. On-demand cargo could also be a viable use, but would likely require significant investment that could be much less at other sites. Similarly, there are better sites for R&D/manufacturing/ distribution land use although it too could be viable within the site.

#### YIP DFA Site 3 - Recreational/General Aviation



#### YIP DFA Site 4 - AeroMed Campus



### YIP DFA SITE 4

At 100 acres, DFA Site 4 is located along the southeast corner of YIP, abutting the south edge of DFA 3. The site is bounded on the north by Tyler Road and on the east by Beck Road and has a public service road traversing through it. It has direct airfield access via Taxiway E2. The site is entirely undeveloped and there are no utilities in the area. The site has no known environmental issues.

Viable land uses include heavy MRO, on-demand cargo, GA, R&D/manufacturing/distribution, urban farm/energy farm, and commercial development and personal service/tourism.

#### RECOMMENDATION:

DFA Site 4 will support any land use, however, it is best suited for personal service/tourism, such as an AeroMed Campus, because it has airfield access and is entirely undeveloped and large enough to accommodate a major phased development with both airfield and public components. Again, given the large land mass available within this site and the fact that recommended land use may be developed in phases over time, an urban farm/energy farm or related land use may make sense as a temporary measure in the near-term.





### DFA SITE 5

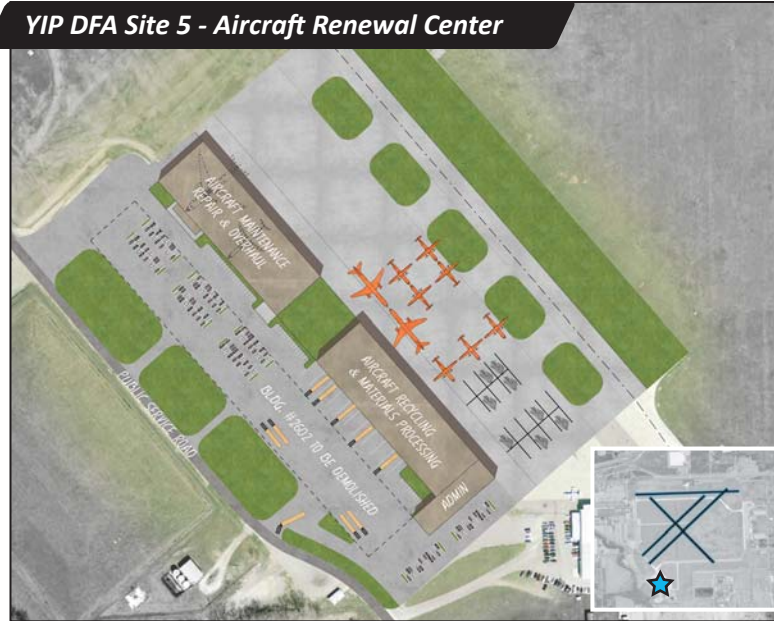
Measuring 40 acres, DFA Site 5 is located in the southwest corner of YIP. It has a 19 acre apron area, provides direct airfield access for ADG-V aircraft via Taxiway D and is adjacent to Runway 5R-23L, the primary runway at YIP. Located near an active landfill, this site has known environmental contamination issues immediately adjacent. Wayne County has designed a new access road into the airport just south of the site that will provide direct access between the site and Interstate 94. The site includes a large hangar that is in poor condition and is scheduled to be demolished. On-demand cargo and corporate GA facilities exist immediately east of the site.

Viable land uses for this site include aircraft maintenance/recycling/aircraft renewal, on-demand cargo, corporate GA, and private GA.

#### RECOMMENDATION:

DFA Site 5 will support any aviation related land use, however, it is best suited for maintenance/recycling/aircraft renewal because of the airfield access and large existing apron.

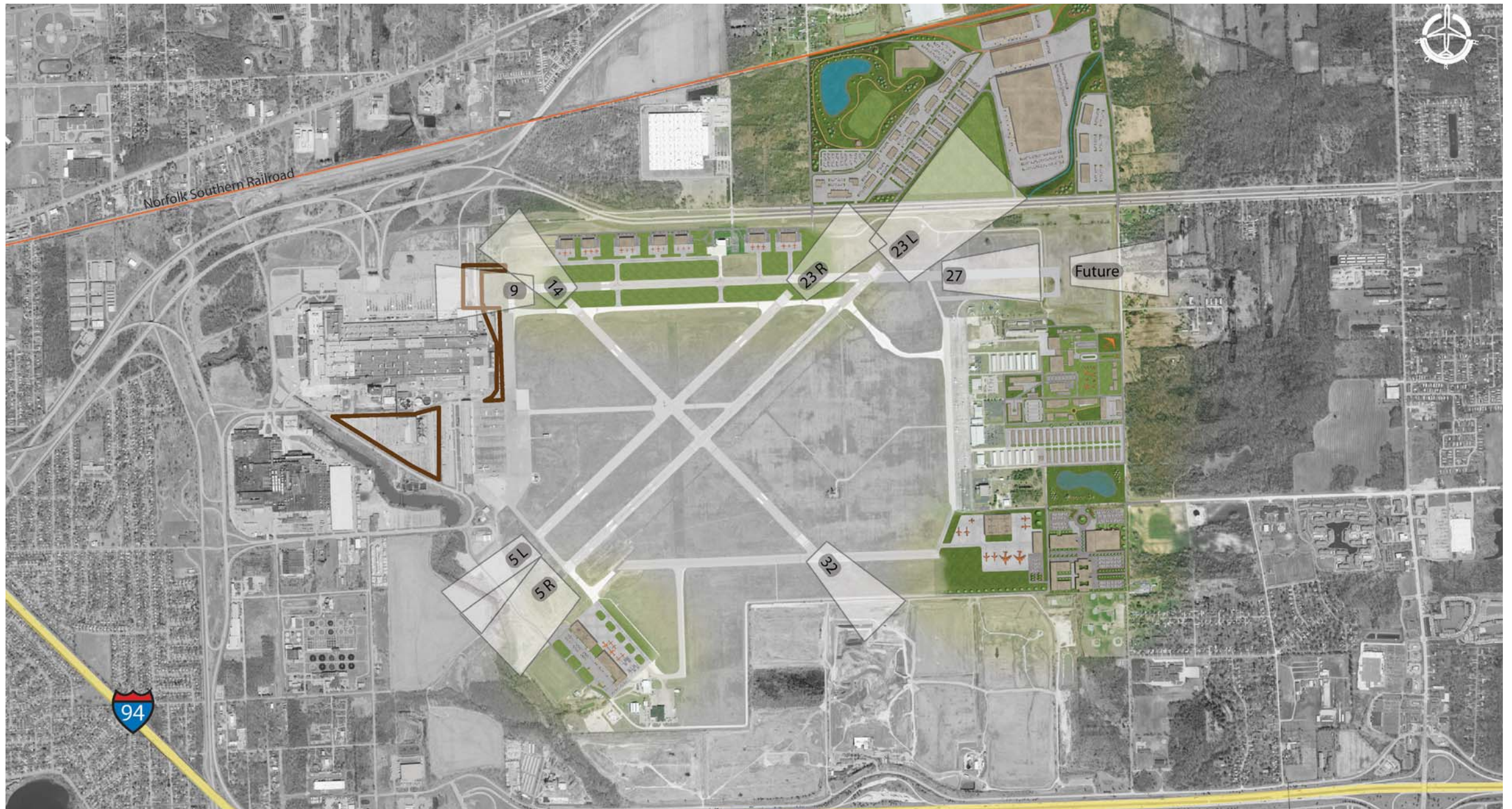
YIP DFA Site 5 - Aircraft Renewal Center



### YIP RECOMMENDED LAND USE PLAN

The recommended land use plan for YIP (see page V-10) depicts an overall vision for economic development, growth and expansion through the development and redevelopment of WCAA controlled property and illustrates how potential future development at YIP could relate to existing airport infrastructure. The recommended land use plan is consistent with the regional development strategy and provides the WCAA with a planning tool to assist in marketing, evaluating and implementing development opportunities going forward.









## VI. HIGH PRIORITY INITIATIVES

### HIGH PRIORITY INITIATIVES

The previous sections of this report have gathered and analyzed information to systematically identify a number of potential development and redevelopment opportunities at DTW as well as YIP. In a similar manner, the available development sites at each airport and their associated characteristics have been documented. This section identifies those potential land uses that are compatible with each DFA Site, considering the requirements and preferences for the potential land uses as well as the location and physical characteristics of the DFA Sites. The land use that is most compatible with each DFA Site is selected as the recommended land use for each site.

The recommended land use plans presented in the previous sections identifies opportunities to enhance economic development and revenue through the development of WCAA controlled property. An important aspect of the recommended land use plans is the coordination and prioritization of various development opportunities within the plan. To this end, several of the recommended land uses were identified as immediate development opportunities. These “High Priority Initiatives” are important elements of the WCAA’s economic development strategy and are defined further below.

### PASSENGER AIRCRAFT CARGO FACILITIES (DTW)

A common-use belly freight facility is an immediate opportunity because of the interest of Delta in expanding and improving their belly cargo operation and the lack of available on-airport facilities for other carriers such as Air France and Lufthansa. Two possible sites have been identified in the land use plan; adjacent to the current Delta

cargo facility along the east service drive and a vacant site south of the McNamara Terminal.

Given the potential development location of the site south of the McNamara Terminal, it is likely that this site would be limited to only belly cargo being handled by carriers at the McNamara Terminal. The current Delta cargo location could potentially be used by carriers at the North Terminal or non-carrier MRO service providers or FBOs. Additionally, WCAA may consider expanding the airport-owned common-use freight facility to accommodate other users. This expansion is identified in the Airport Master Plan.

*An important aspect of the recommended land use plan is the coordination and prioritization of various development opportunities within the plan.*

There are several options for funding (airport revenue bonds, special facility bonds or 3rd party financing), developing (WCAA, Delta or a 3rd party developer overseeing the design and construction) and operating (tenant or 3rd party operators) these types of facilities. Each has benefits and drawbacks and will need to be carefully assessed in consultation with the potential users and other project stakeholders.

### IMPLEMENTATION EFFORTS

Several important steps in the implementation process must be

completed for passenger aircraft cargo facilities before development can be initiated. This should include coordination with the potential users as well as a study of capital cost estimates and distance/travel time analyses. A financial assessment and business plan may also be required to understand financing and life cycle costs for the various developer and delivery methods. A survey and engineering study of two portions of the AOA service road from the potential site south of the McNamara Terminal is needed to verify cargo tugs can navigate between the potential site and the aircraft at the McNamara Terminal. This involves analyzing existing pavement slopes and tug cart operational requirements to determine the scope and estimated cost of necessary improvements to the AOA service road. Construction sequencing for the phased expansion/redevelopment of existing facilities, including temporary facilities and access road demolition, construction, replacement of demolished facilities, expansion, and utility replacement and upgrades may also be needed.

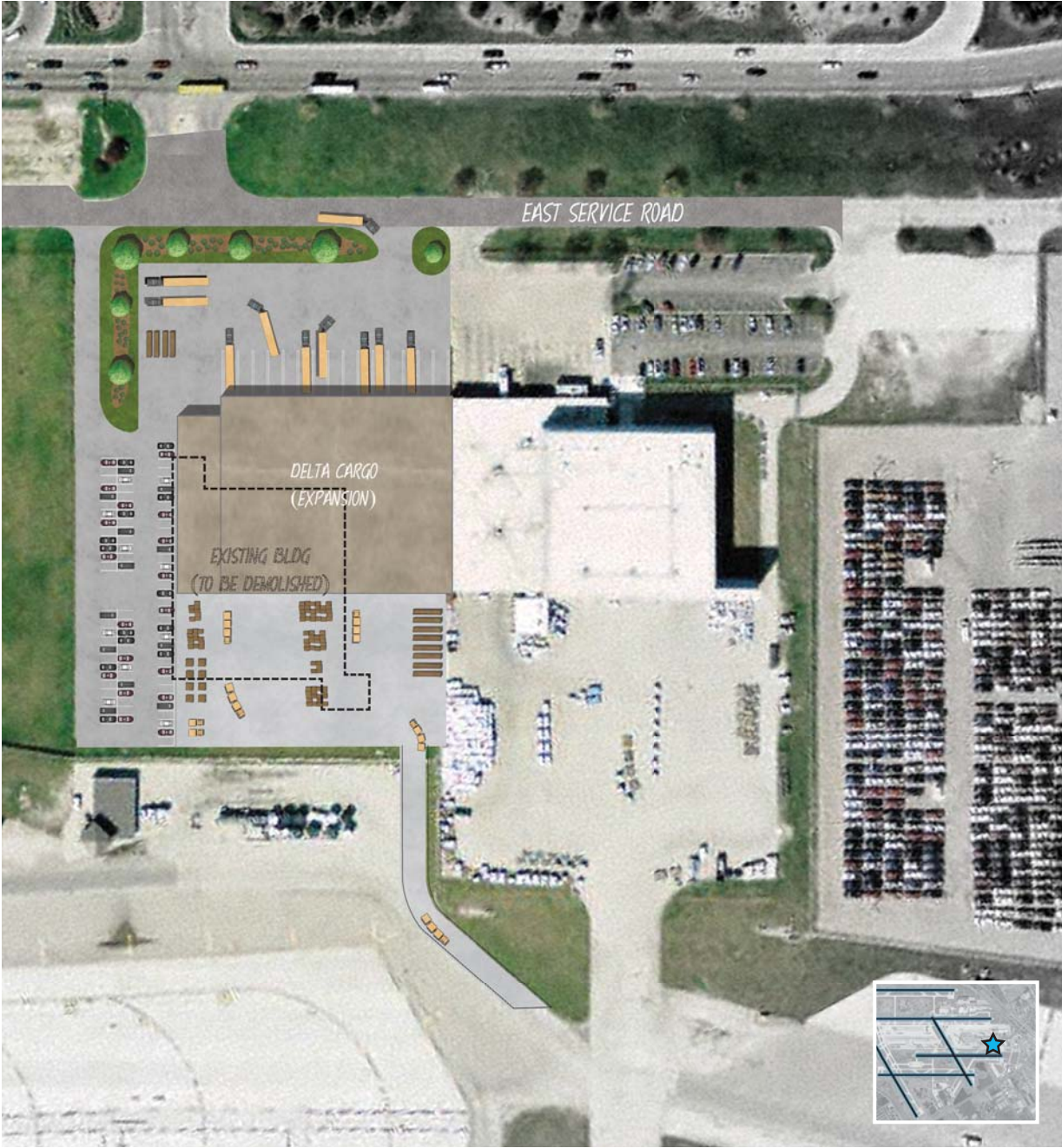
The National Environmental Policy Act (NEPA) process must be completed in order to obtain FAA approval for the development. The preferred site and any environmental mitigation identified through the NEPA process will need to be addressed. Assistance may be needed to identify and coordinate with potential developers and operators, best practices for framing the business terms and development specifications, and facility requirements/criteria. A site boundary survey will also be needed for the new parcel lease. Phased development/reconstruction will be required if the existing site is selected as the long-term site.

### ESTIMATED COST

Anticipated belly cargo facilities include development or redevelopment of approximately 4.6 acres and 61,000 square feet of cargo building. In addition to the cargo building, the project is expected to include new truck docks, new or expanded auto parking, expansion and improvement of the adjacent access road and construction of new roads and bridges. Depending on the location, extensive site preparation including utilities may also be necessary. The development cost range for this project is estimated to be \$28 million to \$42 million.







DTW DFA Site 4 - Passenger Aircraft Cargo Screening Facility - North



DTW DFA Site 8 - Passenger Aircraft Cargo Screening Facility - South





## VI. HIGH PRIORITY INITIATIVES

### FREIGHTER/INTEGRATOR FACILITIES (DTW)

Expanding freighter and/or integrator facilities may be a near-term opportunity given recent information. FedEx has indicated to WCAA that they would consider consolidating two off-airport facilities with their on-airport facility when their off-airport leases expire in 2016. This would involve renovating and expanding their current on-airport facility or abandoning their current on-airport facility and developing a new facility for all three operations. FedEx has suggested that they would need an approximately 150,000 square foot facility and aircraft apron to accommodate at least the same number of aircraft parking positions.

The service road that bisects the site today has deteriorated and must be replaced. This offers the opportunity to relocate it to benefit the future development of the site. For example, shifting the public service road to the west provides deeper sites that could more efficiently accommodate ADG-VI aircraft in the future. It would also provide perimeter access around the entire fuel farm, something that the Fire Marshal has requested in the past to aid potential response to this area.

Several possible locations for an expanded FedEx facility have been identified within the proposed development site. The most popular location initially is north of the fuel farm and would require the relocation of the Airport Maintenance Complex (AMC). However, this location offers additional depth to accommodate more aircraft, if needed, and would allow FedEx to develop the facility without infringing on their ongoing operation. The schedule for FedEx to consolidate their operations on-airport in 2016 provides adequate time for WCAA to relocate the AMC, if necessary, and still enable development of a new FedEx facility.

The AMC houses the snow removal equipment, runway sweepers, grass cutting equipment and other maintenance supplies and equipment. The exiting complex can no longer efficiently accommodate the type, size, and number of needed equipment, and a new complex could be beneficial to the airport. Their operation is spread out among four buildings and is inefficient. Support facilities, such as the fueling

station are equipped with obsolete technology that needs to be replaced. They recently began using a vacant hangar adjacent to the existing complex for additional storage. In addition, the current buildings are approximately 20 years old and a plan to replace/improve facilities is needed.

Taxiway Z borders the development site to the east. A portion of Taxiway Z has already been relocated in order to meet current design standards and WCAA has committed to the FAA that they will relocate the remaining portion (in front of the FedEx facility) within the next several years. However, relocating the remainder of Taxiway Z will eliminate one critical existing FedEx aircraft parking position and therefore impact their ongoing operation.

In addition to the relocation/expansion of FedEx, there is sufficient area within the development site to accommodate additional freight facilities. Lufthansa recently announced new freighter service at DTW to go along with their existing belly cargo operation. This could generate sufficient demand for a new freighter facility to more efficiently handle this demand. Additional freight facilities could be either dedicated or common-use facilities and would include adjacent aircraft apron and public access. These sites would be determined based on the resolution of the FedEx relocation/expansion site. The existing facilities in the area are in poor condition and beyond their useful life so it is likely that new development would be required to meet this need.

### IMPLEMENTATION EFFORTS

Several steps toward the implementation of this project have already been completed such as the Relocation of Taxiway Z. Nonetheless, a number of additional implementation tasks are needed to ensure the successful completion of the project. For example, an analysis is needed to determine the remaining pavement operational life based on projected use for several aircraft apron areas within the project limits. Once the remaining life of the pavement is determined, conceptual alternatives must be developed for improvement and/or rehabilitation of these aprons to support planned uses. These conceptual alternatives should include a phased implementation plan

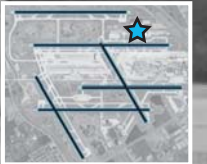
for the redevelopment of buildings #719, #715, #714, #711, #705 and #704 with optional redevelopment of the existing FedEx site (and building #723) into new freighter/integrator cargo facilities in the future, presuming FedEx decides to relocate into expanded facilities as currently contemplated. To accomplish this successfully, a facility scope and operational criteria for consolidation of functions currently housed in Building #704, #705, #711 into a new DTW Maintenance Equipment Storage and Repair Facility must be developed.

Advanced planning will include extensive coordination between FedEx and WCAA regarding timelines, plan reviews and permitting. The planned FedEx development, and any other near-term developments, such as the redevelopment of the airport maintenance facilities, will require environmental review and approval. The Airport Layout Drawing will need to be updated in order to obtain FAA approval for the development. Finally, a site boundary survey will be needed for the new FedEx parcel lease.

Another important element of the planned development is the construction of an AOA service road adjacent to Taxiway Z. The current Taxiway Z reconstruction does not include relocation of the AOA service road but it is required for development of freighter/integrator cargo facilities. A phased implementation plan for the construction of an AOA service road, including relocation of the salt storage facility and deicing fluid storage tanks, also needs to be created.

### ESTIMATED COST

The freighter/integrator facilities concept reflects development or redevelopment of approximately 113.2 acres and 450,000 square feet of building area. The project envisions relocating the public service road to the west, relocating and consolidating the airport maintenance complex buildings into a single facility, demolishing several vacant hangars along Taxiway Z, and developing new freighter/integrator facilities. The project includes a new or relocated AOA service road, new or expanded aircraft apron, vehicle circulation and parking, and perimeter security fencing and gates. The entire development cost for this project is estimated to be \$150-\$170 million.







## VI. HIGH PRIORITY INITIATIVES

### CONSOLIDATED RENTAL CAR FACILITY (DTW)

A Consolidated Rental Car Facility (CRCF) is an opportunity in large part because a portion of the current rental car sites prevent the planned extension of Runway 21R to the north. The extension of Runway 21R has been identified as a potential future need and is not required today. However, when needed, it will take several years to extend and it is in the best interest of WCAA to be able to move as quickly as possible when the runway extension is required. For this reason, it would be prudent planning to relocate the rental cars before the need for the runway extension is realized. There are also other operational, financial, and environmental benefits to developing a CRCF, including common bussing, better customer service, and redevelopment of the current rental car sites.

The recommended site for the CRCF provides an opportunity to stimulate other economic development in the area. However, given the lack of development in the area north of the airport, future economic development will likely require leveraging WCAA involvement and investment. For example, the CRCF development could include a high-end hotel, convention center and retail space. Class A office space, or some similar function that would serve as an incubator for other development.

It is prudent to prepare to relocate the current rental car sites. Given the potential benefits of leveraging the ultimate CRCF development with other collateral development, an interim location must be identified. The current Big Blue Deck is a logical choice for an interim CRCF for a number of reasons, including:

- Ability to expand the Big Blue Deck to the southeast
- Close-in, convenient service for the North Terminal customers
- Co-located with the existing ground transportation center allowing easy connection for McNamara Terminal customers

Long-term, it is likely that the rental car function will be better served outside of the terminal core. Today, however, there is adequate roadway capacity within the terminal core. Additional analysis needs to be done to determine if the Big Blue Deck can accommodate the

current rental car demand. The remaining life of the Big Blue Deck is estimated by WCAA to be 10-15 more years, which corresponds to the timeframe for an interim CRCF.

#### IMPLEMENTATION EFFORTS

There are several tasks that need to be completed as part of the implementation process for the CRCF. The first step is to complete a feasibility study that compares the total cost of development and operation for various sites at DTW. This will require creation of a facilities program and conceptual development plans along with a CRCF operations plan for each site. This information will be used to determine the overall feasibility of the project and to inform the site selection process. A business plan is also needed to support the feasibility analysis and tenant outreach efforts. An environmental review of the preferred development site will be needed prior to development.

Concurrent with these efforts, the existing environmental documentation for the demolition of building #278 within the Hertz leasehold should be reviewed and revised as necessary to ensure FAA approval. This may require updating the Environmental Assessment or other analysis needed as part of the NEPA process. It will also require coordination with the State Historic Preservation Office (SHPO) regarding potential relocation of the Executive Terminal as required by the demolition of building #278 or the extension of Runway 21R. This will include reviewing the current Memorandum

of Understanding between the WCAA and the SHPO and revising as necessary to obtain SHPO approval for the project. A related implementation effort includes the planning and development of a taxilane north of Runway 21R adjacent to the existing rental car site as well and the Executive Terminal. This effort includes testing and analyzing the existing pavement to determine the condition and expected pavement life as well as conducting topographic survey, analyzing pavement geometry and characteristics (width, radii, shoulders, marking, signs, etc.).

#### ESTIMATED COST

The CRCF project anticipates development or redevelopment of approximately 20 acres and approximately 1.3 million square feet of building area. The CRCF will include a customer service building, an attached structure for rental car storage, vehicle ready/return area, and circulation, and an adjacent structured Quick Turn Area (QTA) with fueling, car wash equipment, vehicle service areas, and administrative office space. Separate service sites for vehicle maintenance and additional car storage for each company may be necessary. For purposes of this effort, these service sites are assumed to be the responsibility of the rental car companies to secure, if needed, and are not included in this project. The project includes internal site circulation roads and fuel storage and distribution facilities. Depending on the preferred location of the CRCF, additional utilities and access roads may also be included. The entire development cost for this project is estimated to be \$270 million.











## VI. HIGH PRIORITY INITIATIVES

### PASSENGER COMMERCIAL/BUSINESS CENTER (DTW)

Development of a small passenger commercial/business center was explored in the past by WCAA in an effort to provide basic retail conveniences to the people coming into the airport. The goal of the development was to increase non-airline revenue and improve customer service by providing additional amenities to the airport users and, to some extent, the community. However, the land available to develop was limited by a narrow site with several airport utility impacts. As a result, it was not practical to proceed with the original development concept.

The new opportunity is a larger potential development site that includes a number of infrastructure enhancements and excellent visibility and utilities access. The airport entrance and exit roads are at the end of their useful life and are scheduled to be reconstructed. The planned reconstruction of these roads allows them to be relocated for a small additional cost, significantly expanding the area available for development and enhancing access and circulation at the site. The site already includes all major utilities which should help expedite development.

In order to enable a larger development site, other roads would also need to be modified as part of the entrance and exit roadway relocation project. Burton Drive would likely be decommissioned, eliminating the connection between the west service drive and the east service drive. The west service drive may need to be modified as a result of the elimination of Burton Drive and a new bridge connecting Lucas Drive to the west service drive and/or the airport entrance road may also be needed.

Given the location at the main entrance and exit to the airport, it is likely that this site could support a number of different commercial uses, including restaurants, specialty coffee, pharmacy, service station, car wash, dry cleaners, FedEx/Kinkos, and other related functions that airport passengers, meters and greeters, and airport employees would find useful. Each year over 16 million passengers begin or end their trip from DTW. Of those, over 70% pass by the proposed location for the passenger commercial/business center while entering and

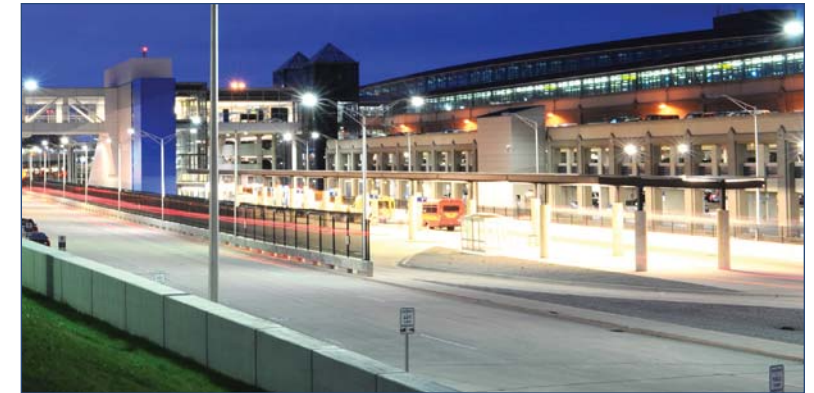


exiting the airport.

There are a number of facilities within the site that would need to be demolished and/or relocated to facilitate the proposed development. This includes the former U.S. Post Office (Building #515) and the adjacent concessions storage facility. There is also a landside ARFF Station within the site that serves the public areas of the North Terminal and McNamara Terminal envelopes. This ARFF facility could be relocated as part of the development or could remain in its current location, if modifications to the building are made, provided it retained direct access to the entrance roadway. A portion of the Yellow Parking Lot would also be eliminated in order to support the entrance road relocation. Additionally, modifications to the North Terminal loading dock access road and GSE fueling facility may also be required.

#### IMPLEMENTATION EFFORTS

Implementation of this project involves a number of tasks including initial traffic counts and studies. This information will enable the creation of a conceptual geometric roadway design which is needed to understand the land area available, the ingress/egress locations, and modifications to the other roads. Once the site is better defined, detailed phasing and sequencing plans for the proposed development will need to be established, including how best to address the ARFF station and emergency response requirements. These plans can be used to complete the environmental review process in accordance with NEPA requirements.



Another important implementation task is the solicitation process for a developer. Given the nature of this development, it is likely that a private developer will be used to finance, develop and manage the facilities. The solicitation for interested developers will include outreach, coordination, creation of technical specifications and restrictions, investment thresholds and business terms. Once an agreement is reached, a site boundary survey will be needed for the new parcel lease.

#### ESTIMATED COST

The passenger commercial/business center project contemplates development or redevelopment of approximately 16 acres and approximately 75,000 square feet of building area. Conceptually, it consists of relocating portions of the airport entrance road and west service drive, demolishing Burton Drive and a portion of the Yellow Parking Lot, and phased construction of several buildings, circulation roads, and vehicle parking. Extensive site work will be required including some utility connections. Development cost for this project is estimated to be \$22 million.

*The new opportunity for a Passenger Commercial/Business Center includes a larger potential development site with excellent visibility.*









VI. HIGH PRIORITY INITIATIVES

AIRCRAFT RENEWAL COMPLEX (YIP)

An aircraft renewal complex is a potential opportunity at YIP because of the increasing need in the industry and the lack of facilities in the region. This development could include heavy aircraft maintenance, aircraft recycling, and aircraft parts storage and distribution.

The best site identified in the land use plan is on the site of the former Hangar #2, which was destroyed when it flooded in February of 2011. While the hangar is well beyond its useful life, the adjacent aircraft apron makes the site highly desirable. Although the apron needs to be rehabilitated, it offers the potential to accommodate several large aircraft. The cost of rehabilitation is a fraction of the cost of new pavement and could be accomplished in sections in order to minimize the cost while maximizing operational benefit.

The public service road that provides access to the site cannot be moved easily due to adjacent environmental contamination. But once Hangar #2 is demolished, the depth of the existing apron will allow the new facility to be built far enough away from the road to accommodate auto parking, truck docks, and significant circulation space. This will also allow the developer to optimize the building location and minimize the amount of apron to be rehabilitated.

IMPLEMENTATION EFFORTS

One of the first steps toward implementing this project is the completion of the NEPA processing for the demolition of Hangar #2 and any roadway improvements between Hangar #2 and Tyler Road. An analysis to determine remaining pavement operational life based on projected future use is also needed for the aircraft apron. This should include additional planning and conceptual alternatives for the aircraft apron and building development, including a multi-phased development sequence to understand the potential project phasing and development options.

ESTIMATED COST

The aircraft renewal complex concept contemplates development or redevelopment of approximately 32 acres and 220,000 square feet

of building area. The project envisions demolishing Hangar #2 and constructing a new building in the same area to take advantage of the adjacent aircraft apron. This development also includes new or expanded vehicle circulation and parking, including expansion of the adjacent service road from Hangar #2 to Tyler Road and/or a new access road from the north I-94 service road to the public service road adjacent to the site. Much of the existing aircraft apron will need to be rehabilitated as well. The entire development cost for this project is estimated to be \$63 million.

DEVELOPMENT ESTIMATE SUMMARY

HIGH PRIORITY INITIATIVE	DEVELOPMENT (ACRES)	BUILDING (SQ. FT.)	ESTIMATED DEVELOPMENT COST (\$ ) MILLIONS)
PASSENGER AIRCRAFT CARGO FACILITIES (DTW)	4.6 - 12.7	60,000- 170,000	28-42
FREIGHTER/INTEGRATOR FACILITIES (DTW)	113	450,000	170
CONSOLIDATED RENTAL CAR FACILITY (DTW)	20	1,300,000	270
PASSENGER COMMERCIAL/BUSINESS CENTER (DTW)	16	75,000	22
AIRCRAFT RENEWAL COMPLEX (YIP)	32	220,000	63
TOTALS:	185.6-193.7	2,105,000-2,215,000	553-567







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