General Mitchell International Airport

International Concourse Redevelopment

Feasibility Study Report

Project No. WA221

16 June 2017 – Revision 02 (8/3/2017)

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CONTENTS

End of Section

1. EXECUTIVE SUMMARY

Milwaukee County and General Mitchell International Airport's (GMIA) is in the planning phase of a potential redevelopment of their International Arrivals Facilities (IAF), to improve capacity and customer level of service. GMIA has conducted precursor studies regarding the Concourse E International Terminal in March 2015 and June 2016. GMIA selected the Miller Dunwiddie Architecture team in December 2016 to conduct a feasibility study for an International Concourse Redevelopment. This report will build a business case that supports current international arrivals operations, identifies opportunities to redevelop international arrival facilities to address existing deficiencies and prepare for future international arrivals growth.

1.1. Feasibility Study Goals

The goals of this project are to provide an evaluation and a feasibility study of the international concourse facility; to make a recommendation for redevelopment of an international concourse facility; and to provide a financial analysis of alternatives to achieve the stated objective.

Key objectives to meet the Feasibility Study goals include addressing capacity, developing a facility program, analyzing financing / capital costs, develop design options, and building a business case that supports international air service requirements of GMIA's IAF. Additionally, a key component of the study is a thorough assessment of the deficiencies in the existing IAB as they represent a significant obstacle to GMIA's ability to attract and retain expanded international passenger service.

1.2. Feasibility Study Process

The feasibility study process was structured to address GMIA's three key tasks:

- Task #1 - Stakeholder Engagement and Data Gathering
- Task #2 – Alternatives and Financial Feasibility Analysis
- Task #3 - Final Report

The process included a series of collaborative workshops with the project stakeholders in order to reach a consensus on the preferred option. Task 2 built on the data collection and study analysis of Task 1 and the recommendations are then summarized in the final report developed in Task 3.

Feasibility Study is introduced with its goals and process further described in Section 2.

1.3. International Concourse Design Criteria

This feasibility study defined a limited range of design criteria that were to be used to evaluate the International Concourse's ability to meet GMIA's goals for this project. The following summarizes these criteria:

- Stakeholder Engagement
- International Capacity Requirements
- Space Program Requirements
- Site Requirements

These criteria were used to evaluate the design options continuously throughout the feasibility study. The following sections describes the importance and relevancy of each design criteria in more detail.

1.3.1. Stakeholder Engagement

Staff at General Mitchell International Airport felt it was important that stakeholders, as well as staff, engage in the study. To accomplish this, a series of workshops were held throughout the process to engage the relevant stakeholders with the Airport's staff and the consulting team.

The first of these workshops was held on January 19, 2017. This workshop included various operational and administrative staff from the Airport along with representatives of US Customs and Border Protection (CBP), the Transportation Security Administration (TSA), and the Federal Aviation Administration (FAA). This day-long planning session covered topics including a review of the current international traffic at GMIA and discussions of the critical limiting factor of the existing facility that limit the Airport from attracting more international traffic, including potential scheduled service to Europe.

The consulting team returned to GMIA on February 16, 2017 for a second workshop with this group. This workshop presented programming and planning alternatives based on the data collected and the stakeholder input. The results of this meeting were further refined into two alternative IAF options that were reviewed in a third workshop with Airline Corporate Real Estate representatives on May 5, 2017. Final alternatives were then refined and are fully presented in this report.

1.3.2. International Capacity Requirements

The current peak hour for international arrivals at GMIA is approximately 150 passengers per hour (PAX/HR), however, the actual demand may be higher as international flight activity may be constrained by the existing IAB processing capacity. Based on projected future international arrival flight activity, it is anticipated that the near team peak hour arriving international passenger volume is reasonably 300-400 PAX/HR, with a potential ultimate projection of up to 600 PAX/HR.

To provide flexibility for the implementation based on the actual demand, a scaled approach for developing the International Concourse was recommended. The initial Phase 1 project should create baseline international arrivals concourse with gates that function for both domestic operations and international arrivals with a Federal Inspection Services (FIS) processing capacity 300-400 PAX/HR. It should then have the flexibility to further be expanded to accommodate up to +600 PAX/HR in the future.

1.3.3. Space Program Requirements

The program for the International Arrivals Facility for GMIA followed the guidelines prepared by the CBP in their Airport Technical Design Standards (ATDS) 2016 – 90% Draft. The CBP program requirements are presented rolled-up into summary categories based on the overall purpose of the space. These categories include:

- Primary Processing
- Secondary Processing
- FIS Support Areas
- Baggage Claim
- Circulation and Building Systems

Detailed design and implementation will need to further develop the space by space program. The capacity requirements identified in Section 3, International Concourse Design Criteria, were used for the anticipated peak hour arriving passenger volume. The peak hour was estimated to be up to 400 PAX/HR for current and near future requirements.

Based on criteria developed, the estimated CBP program requirements of the International Concourse is estimated to require between 12,699 gross square feet (GSF) and 19,935 GSF. Other non-CBP functions including concourse level and baggage claim requirements are estimated to require between 32,880 GSF and 44,810 GSF. The total program requirement for the International Concourse is estimated to require between 49,167 GSF (400 PAX/HR capacity) and 64,745 GSF (600 PAX/HR capacity).

The detailed International Arrivals Facility Program is included in Appendix C of this report.

1.3.4. Site Requirements

The selected development option of the international arrivals facility must account for its surrounding site and impacts to ongoing airport operations. Site constraints include maintaining access to Concourse D gates for Group III aircraft; clearance of the Taxiway B object free area (OFA) including a ground service equipment (GSE) drive lane, and allowing for wide body parking positions, general aviation, and military aircraft access to CBP inspection and clearance on the ramp.

Each option was evaluated against these criteria, and adjustments were made to the layouts so that the site requirements were met. Additional criteria include providing parking for 20 CBP vehicles, minimizing impacts to the hydrant fueling system and other utilities, site drainage, and curbside access to the international arrivals facility.

International Concourse design criteria is further described in Section 3.

1.4. International Concourse Design Options

Developing options for an International Concourse at GMIA including the review of existing facilities, developing a wide-range of preliminary concept design options (including reuse of existing facilities), and selecting one or more of the options to be refined into a preferred concept design option.

1.4.1. Existing Facilities

The study assessed the feasibility of modernizing the existing IAB. This option (Option 1) demonstrated the challenges of redeveloping the existing facility, while serving as a baseline comparison for the remaining options which redeveloped a new IAF in the terminal area at or near Concourse E (Options 2-6).

Existing facilities are further described in Section 4.1.

1.4.2. Concept Design Options

Concept Design Options were developed for the International Concourse based on capacity, programming, and existing terminal conditions. The six Concept Design Options (Options 1 to 6) were each reviewed for their overall functionality and the degree to which they met the International Concourse's program objectives. A variation of Concept Design Option 6 was also developed to address airport stakeholder comments during review and development, this option was labeled Option 6A. Option 4 was also further developed as a part of the preferred concept review and comment process.

Concept Design Options are further described in Section 4.2.

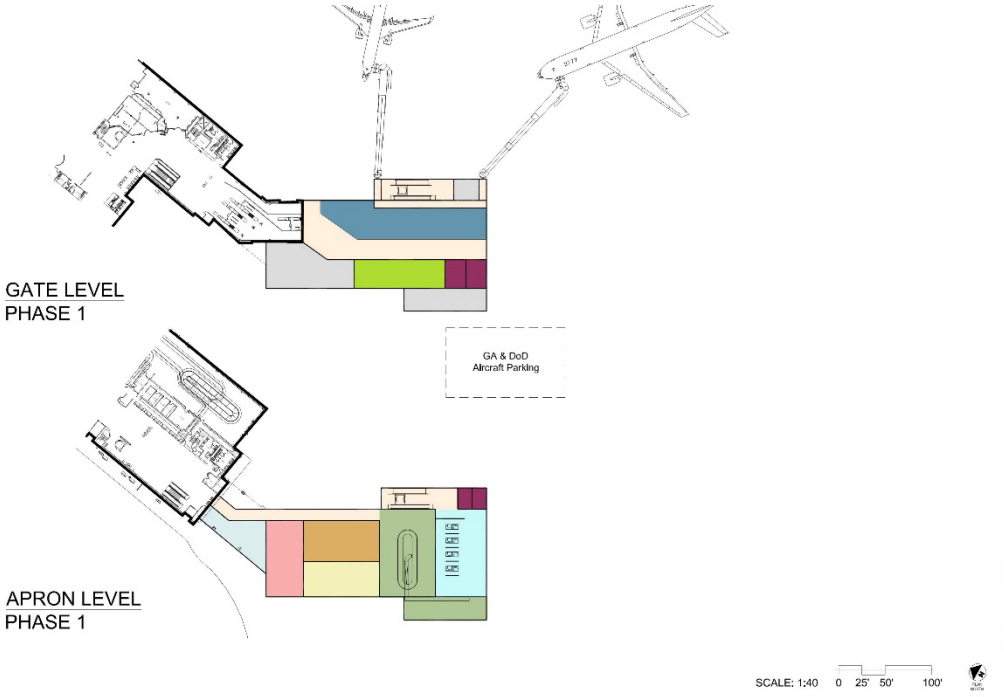
1.4.3. Preferred Concept Design Options

Option 5 was selected the Preferred Concept Design Options by consensus of GMIA department staff due to its ability to meet the goals of the project, its lower Phase 1 cost, its expandability, and its limited impact on ramp modifications. Option 5 was then further reviewed and evaluated based on input from GMIA staff, with the preferred option being updated from concept design option to address key issues.

The following describes the Preferred Concept Design Option:

- Option 5, Phase 1 – Construct New IAF, Replace Concourse E
    - COSTS: $53.545 Million (Phase 1 Budget)
    - CAPACITY: 300-400 INTL PAX/HR, +175,000 INTL PAX/YR
    - SCOPE: ~53,000 GSF addition, ~0 GSF renovated, ~66,000 GSF demolished

FIGURE 1 – Preferred Concept Design, Option 5, Phase 1 (Phases 1, 2 & 3 are shown in Section 4.3)



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The Concept Design and Preferred Conception Design Option drawings are included in Appendix D of this report.

1.5. Finance Evaluation

To assess the overall financial feasibility and affordability of the proposed International Concourse options, a financial analysis was conducted as part of the feasibility study. The International Concourse financial plan identified potential funding sources for each option and estimated the Airport's incremental airline cost per enplanement (CPE) were prepared based on the incremental general airport revenue bonds (GARBs) debt service and terminal Operations and Maintenance (O&M) Expenses associated with each International Concourse option.

As part of the Airports Amended Airport Use and Lease Agreement (AULA), total International Concourse costs were initially estimated to be approximately $42 million. This figure was subsequently updated by GMIA to $49.9 million. Total estimated costs for the various International Concourse options from this study are estimated range from approximately $42 million for the AULA Pre-Approved FIS up to $53.454 million for Preferred Concept Design Option 5 (Phase 1).

The proposed International Concourse facility is anticipated to be funded through a combination of Passenger Facility Charges (PFCs), reserve funds from the Airport's Airport Development Fund Account (ADFA), and through the issuance of PFC-Backed Airport Revenue Bonds. Approximately $15.9 million is anticipated to be funded using the Airport's ADFA reserve; another $4.0 million is anticipated to be funded with pay-as-you-go PFCs. For Preferred Concept Design Option 5 an additional $33.6 Million in PFC-Backed Airport Revenue Bonds will need to be issued to finance the remaining portion of the International Concourse facility.

Based on the estimated FIS annual capital and operating costs of each International Concourse option, Trillion Aviation prepared a financial analysis that examined the incremental airline cost per enplanement necessary to fund the capital costs and incremental O&M Expenses associated with each International Concourse option. **Table 1** presents the estimated incremental increase to the Airport's airline CPE, including both annual debt service and incremental O&M Expenses for each International Concourse option in FY 2020.

TABLE 1 - Incremental Airline Cost Per Enplaned Passenger by International Concourse Option (FY 2020)

	AULA Pre-Approved FIS	MKE Revised FIS	PDC Option 5 (Phase 1)
Annual FIS Debt Service	$844,000	$2,378,100	$2,662,300
LESS: Debt Service Paid for with PFCs	0	($2,378,100)	($2,662,300)
Annual Incremental O&M Expenses	125,000	125,000	(326,325)
Net Annual FIS Costs	**$969,000**	**$125,000**	**($326,325)**
2020 Enplaned Passengers (est.)	3,696,000	3,696,000	3,696,000
ESTIMATED 2020 INCREMENTAL AIRLINE CPE	**$0.26**	**$0.03**	**($0.09)**

Note: The AULA Pre-Approved FIS was assumed to be funded with General Airport Revenue Bonds (GARBs). The Revised FIS and all other International Concourse Options are assumed to be funded with PFC-backed bonds.
Prepared by Trillion Aviation

As shown, the AULA Pre-Approved FIS cost results in an incremental increase to the Airport's airline CPE of $0.26. This increase in airline costs is primarily a function of the fact that the associated debt service for the AULA Pre-Approved FIS was assumed to be backed by general airport revenues (i.e., airline revenues) rather than PFC revenues as is the case with the Revised FIS and each of the corresponding International Concourse options identified as part of this study.

Due to the use of PFC-backed bonds and little to no estimated O&M Expense increases, the Revised FIS would result in little to no increase to the Airport's future airline CPE. As a result of a decrease in overall terminal space, Preferred Concept Design Option 5 is projected to actually reduce the Airport's airline CPE by approximately $0.09.

In assessing the overall financial feasibility of the various International Concourse options, several opportunities may exist to enhance the feasibility and/or further lower the incremental CPE impact from the International Concourse facility, including:

- Implementing a partial Increase to the Airport's existing FIS fee
- Using additional PFC funds and/or Airport Development Fund Account (ADFA) Funds to lower necessary GARB financing costs
- Using short-term financing to finance FIS costs until it can be paid off with PFCs and/or ADFA funds

- Offsetting new FIS debt and operating cost with potential savings from closure or reuse of MKE's existing IAB facility
- Generating additional concession, parking, and rental car revenues from future international passengers at MKE

As presented, Preferred Concept Design Option 5 would result in decrease to the Airport's overall airline CPE by roughly $0.09 in 2020. As a result, from a financial standpoint, Preferred Concept Design Option 5 is considered more affordable to the Airport and the Airlines.

1.6. Budget Estimate

General Mitchell International Airport has pre-positioned financial and funding support for this project with Milwaukee County and key airport stakeholders. The budget goal stated by GMIA for this project is $50.0 Million. Our team has worked to balance current/projected passenger loads, CBP, and concourse programming requirements with budget estimates.

A robust budget estimating process that accounts for geographic location, cost per square foot base on intended use, and cost standards based on 1st Quarter 2017 pricing was used. Concept Design Options used a broad comparative pricing while the Preferred Concept Design Option used a detailed budget development based on individual program requirements depicted in the concept plans.

Our team developed a three-phase construction approach for the Preferred Concept Design Option that lowered the initial budget estimates based on a smaller building size which resulted from utilizing a reduced peak passenger capacity. Subsequent phases can be initiated by GMIA as peak passenger capacity trigger points are achieved in the future.

Budget estimate for the Preferred Concept Design Option 5, Phase 1 Total Construction Budget are estimated to be $53.545 Million including contingencies, escalation and GMIA soft costs.

The detailed Budget Estimates for Preferred Concept Design Options are included in Appendix E of this report.

1.7. Schedule

General Mitchell International Airport has pre-positioned financial and funding support for this project with Milwaukee County and key airport stakeholders. These efforts should allow GMIA to proceed quickly upon completion of the Feasibility Study.

GMIA plans to procure design services for the International Concourse in 2017, followed by procurement of construction services in 2018 and completion of construction in 2020. The project schedule is based on design-bid-build project delivery, however, GMIA is considering alternative project delivery methods for construction that may have impacts to the project schedule.

A detailed Milestone Schedule is included in Section 6 of this report.

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2. INTRODUCTION

Milwaukee County and GMIA retained the Miller Dunwiddie' team to provide professional airport planning services for a feasibility study of the redevelopment of the FIS and international concourse facility at GMIA. The study made recommendation for the size, location, and capacity of new, or remodeled international concourse facility provided financial analysis of alternatives to achieve the stated objective. The results of this study are expected to be used by Milwaukee County and GMIA to validate the purpose and need for the proposed international concourse redevelopment project.

2.1. Feasibility Study Goals

The goals for GMIA's International Concourse Feasibility Study were stated in the request for proposal for the Feasibility Study:

"With changes occurring in the global market for international air service, Milwaukee County and GMIA's vision for the future is to grow the level of international service. To maximize the growth potential, GMIA desires a functional, efficient, and attractive international concourse facility that has capability for future expansion. To maximize facility utilization, an international concourse with the flexibility to serve both arrivals and departures of either domestic or international air service is preferred."

Key objectives to meet the Feasibility Study goals include:

- Make the international capacity case for an international arrivals facility to meet current demands and anticipate future capacity demands.
- Make the programmatic case for an improved international arrivals facility that meets CBP requirements and concourse facility needs.
- Make the financial case from existing GMIA financial information and IAF capital costs based on options for improved international arrivals facilities.
- Develop IAF options and select a preferred option.
- Build a business case that supports current international arrivals and is adaptable for future expansion.

A critical component of the project is the assessment of the condition and capacity of the existing International Arrivals Building (IAB). The deficiencies in the existing IAB represent a significant obstacle to GMIA to attract and retain international passenger service. Key IAB deficiencies include:

- The IAB is not connected to the rest of the terminal complex which creates logistical issues for passengers connecting to other flights as wells as those accessing ground transportation options, parking, and pick-up.
- The IAB does not have adequate capacity to process current passenger volumes and level of service will continue to decline with any potential increases.
- The existing IAB does not CPB facility program requirements.
- The IAB facility assemblies and systems are at or past their expected useful life and would need significant modernization or replacement if the facility remains in use.
- The IAB's current use requires ramp-up/ramp-down of facility operations and staffing that create inefficiencies for Airline, CBP, and Airport staff.

2.2. Feasibility Study Process

The feasibility study process was structured in three primary tasks: Stakeholder Engagement/Data Gathering; Alternatives/Financial Feasibility Analysis; and a Final Report.

Our team initiated the project with a kick-off meeting where project goals were reviewed with GMIA staff. The meeting also initiated the data collection effort where information needed to support the study was requested and collected. The team then prepared analyses regarding: capacity, program, existing facility and site conditions. A series of stakeholder, capacity, programming, financial, and design meetings followed that presented a range of data and options. GMIA provided input and the draft and final reports were prepared for review and comment.

The following is a summary of the three key GMIA tasks for the GMIA International Concourse Feasibility Study.

- Task #1 - Stakeholder Engagement & Data Gathering
    - Conduct a kick-off meeting to establish project participants, communications, sharing of information, key priorities, and schedule. This meeting was in December 2016.
    - Conduct stakeholder meetings, identify IAF project requirements and priorities. These meetings were conducted in January 2017.
    - Information Gathering – to collect and review background information, conduct high site review for existing facilities and ramp areas.
    - GMIA conducted a stakeholder meeting with its airline partners during its AAAC meeting in May 2017.
- Task #2 – Alternatives and Financial Feasibility Analysis
    - International Arrivals Capacity
        - Identify current international arrivals capacity and establish preliminary projection for future capacity.
    - International Concourse Program Requirements
        - Conduct program review meetings to define programming criteria. These meetings were conducted in February 2017.
    - Develop Design Options
        - Conduct design workshops to identify potential solutions for an improved IAF. These meetings were conducted in February 2017.
        - Identify preferred option.
        - Develop a construction budget estimate.
        - Develop a preliminary design and construction schedule.
        - Make recommendations for IAF preferred option.
    - Evaluate and define financial feasibility. Conference calls and meetings were conducted with GMIA Financial Department staff in January to March 2017.
- Task #3 - Final Report
    - Prepare a draft and final Feasibility Study Report

This study was not tasked with validating the existing conditions, standards, and GMIA processes previously covered in the 2015 and 2016 Reports. The information regarding existing conditions and airport standards provided in the March 17, 2015 and June 10, 2016 reports remains valid.

FIGURE 2 – Preferred Concept Design Options Program Matrix

DESIGN CONCEPT OPTION	CBP PAX 200-400	Planes & PBBs	DoD & GA Parking	Switch Gates Dom-Intl	Baggage Recheck	Transit & Parking Access	Expand.	Const. Cost	NOTES
Existing International Arrivals Building	🔴	🔴	🟡	🔴	🔴	🔴	🟡	NA	
OPTION 1: Renovation/Additions to Existing IAB	🟡	🟡	🟡	🔴	🔴	🔴	🔴	$15 - $20M	
OPTION 2: Renovation to Existing Concourse E to Int'l Arrivals Facility	🔴	🟢	🟢	🟡	🟡	🟡	🔴	$25 - $30M	
OPTION 3: Renovation/Addition (Minor) to Concourse E IAF	🟢	🟢	🟢	🟢	🟡	🟡	🔴	$45 - $50M	Additional Dom/Intl Gate Potential
OPTION 4: Renovation/Addition (Major) to Concourse E IAF	🟢	🟢	🟢	🟢	🟢	🟢	🔴	$50 - $55M	Additional Dom/Intl Gate & CBP Potential
OPTION 5: Construct a New Int'l Arrivals Facility (replace Concourse E)	🟢	🟢	🟢	🟢	🟢	🟢	🟢	$60-$65M	Phased Gate/CBP Development Potential
OPTION 6: Construct a New Int'l Arrivals Facility (East of Concourse E)	🟡	🟡	🔴	🔴	🟡	🟡	🟡	$35 – $40M	
OPTION 6A: Construct a New Int'l Arrivals Facility (West of Concourse E)	🟢	🟢	🟢	🟢	🟢	🟢	🟡	$30 – $35M	

Prepared by Miller Dunwiddie Architecture

2.3. Project Team & Stakeholders

This feasibility study and report was prepared for General Mitchell International Airport by Miller Dunwiddie Architecture, Inc., and our key sub-consultants.

Key design team stakeholders include:

- Miller Dunwiddie Architecture, Inc. - Project Management & Architecture
- Trillion Aviation - Stakeholder Engagement & Financial Evaluation
- Jacobsen|Daniels - Airport Planning
- Foth Infrastructure & Environment, LLC - Civil Engineering

Key Airport stakeholders include:

- General Mitchell International Airport (GMIA)
  - Administration
  - Engineering
  - Facilities
  - Finance
  - Marketing
  - Operations
- US Customs & Border Protection (CBP)
- Federal Aviation Administration (FAA)
- Transportation Security Administration (TSA)
- Airport Airline Affairs Committee (AAAC)

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3. INTERNATIONAL CONCOURSE DESIGN CRITERIA

The feasibility study defined a limited range of design criteria to be used in evaluating the International Concourse's ability to meet GMIA's goals. Stakeholder Engagement was used to provide input in the process and to achieve buy-in to the recommended solution. The following stakeholders were included in the process: Milwaukee County, GMIA staff, airlines, and county and federal agencies. Capacity requirements were used to identify the current and future international passenger arrivals activity. Program requirements were used to identify the CPB defined requirements of the International Concourse facility needs. Finally, site Requirements were used to define aircraft movement and parking areas, existing ramp pavement, fueling systems, and utility needs. These criteria were compared against design outcomes continuously throughout the feasibility study.

3.1. Stakeholder Engagement & Current Conditions

As a part of this study the consulting team performed a high-level evaluation of current and potential international air service at GMIA. This work compliments staff's previous internal air service studies. This information was shared and discussed with stakeholders. It was noted that Milwaukee is the 34th largest core based statistical area (CSA) in the United States with a CSA population of 2,046, 882. This number is comparable with San Antonio, Las Vegas, Cincinnati, Raleigh, and Austin however GMIA is well behind these markets when nonstop international service is considered. While part of this issue can be partially explained by the proximity of Chicago area airports, GMIA has an enviable "catchment area" well beyond this CSA when greater Wisconsin and north-eastern Illinois are fully factored in.

FIGURE 3 – Metropolitan CSA Population Ranking (2012)

Milwaukee is the 34th largest Core Based Statistical Area in the U.S. (2012); behind most of markets with nonstop international service

Rank	Metropolitan or micropolitan area	CSA 2012 Population	Rank	Metropolitan or micropolitan area	CSA 2012 Population
1	New York metropolitan area	23,723,696	26	Salt Lake City metropolitan area	2,467,709
2	Greater Los Angeles Area	18,679,763	27	Kansas City metropolitan area	2,428,362
3	Chicago metropolitan area	9,923,358	28	Columbus metropolitan area, Ohio	2,424,831
4	Baltimore metropolitan area	9,625,360	29	Indianapolis metropolitan area	2,372,530
5	Greater San Francisco Bay Area	8,713,914	30	San Antonio metropolitan area	2,384,075
6	Boston metropolitan area	8,152,573	31	Las Vegas metropolitan area	2,362,015
7	Dallas–Fort Worth metroplex	7,504,362	32	Cincinnati metropolitan area	2,216,735
8	Philadelphia metropolitan area	7,183,479	33	Raleigh metropolitan area	2,117,103
9	Houston metropolitan area	6,855,069	**34**	**Milwaukee metropolitan area**	**2,046,692**
10	Miami metropolitan area	6,654,565	35	Austin metropolitan area	2,000,860
11	Atlanta metropolitan area	6,365,108	36	Nashville metropolitan area	1,951,644
12	Detroit metropolitan area	5,319,913	37	Virginia Beach metropolitan area	1,828,187
13	Seattle metropolitan area	4,602,591	38	Greensboro metropolitan area	1,642,506
14	Phoenix metropolitan area	4,574,531	39	Providence metropolitan area	1,613,070
15	Minneapolis-St. Paul metropolitan area	3,866,768	40	Jacksonville metropolitan area	1,573,606
16	Cleveland metropolitan area	3,493,596	41	Hartford metropolitan area	1,488,570
17	Denver metropolitan area	3,418,876	42	Louisville metropolitan area	1,478,637
18	San Diego metropolitan area	3,299,521	43	New Orleans metropolitan area	1,452,502
19	Orlando metropolitan area	3,110,906	44	Grand Rapids metropolitan area	1,395,128
20	Portland metropolitan area	3,110,906	45	Greenville metropolitan area, South Carolina	1,384,996
21	Tampa metropolitan area	2,975,225	46	Memphis metropolitan area	1,369,548
22	St. Louis metropolitan area	2,916,447	47	Oklahoma City metropolitan area	1,367,325
23	Pittsburgh metropolitan area	2,648,605	48	Birmingham metropolitan area, Alabama	1,309,818
24	Charlotte metropolitan area	2,583,956	49	Richmond metropolitan area	1,231,980
25	Sacramento metropolitan area	2,544,026	50	Harrisburg metropolitan area	1,228,559

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GMIA currently has a strong charter market to the Caribbean and Mexico. Apple Vacations and Funjet offer seasonal warm weather locations that are popular with GMIA travelers. In fact, while GMIA may come 34th in CSA measures amongst US airports, it ranks as 8th in terms of comparison with other US charter market airports. Of additional interest, Norwegian Airlines provides many of these charter flights. This airline is an international low-cost carrier (LCC) that provides service between US locations and Europe which could potentially offer GMIA an attractive option for non-stop service to Europe. Other target airlines could include Condor and Icelandair.

FIGURE 4 – Top US Origin Charter Markets to Caribbean/Mexico: YE March 2016

Top U.S. Origin Charter Markets: Dominated by markets in the north – most with historical charter presence: MSP used to top this list!

Top U.S. Origin Charter Markets to Caribbean/Mexico*: YE March 2016

Rank	Market	Departs Annual	Departs Daily	Onboards	Seats	Load Factor
1	ORD	481	1.3	74,030	85,906	86
2	STL	361	1.0	51,732	61,594	83
3	CLE	214	0.6	29,424	37,461	78
4	PIT	227	0.6	28,429	34,565	83
5	PHL	177	0.5	27,333	31,409	87
6	SJU	221	0.6	26,884	34,937	78
7	BWI	142	0.4	16,292	21,706	75
8	MKE	119	0.3	14,433	19,081	75
9	MIA	112	0.3	11,994	17,363	70
10	CVG	81	0.2	9,418	12,141	78
11	DFW	54	0.1	7,442	8,640	86
12	IAH	72	0.2	7,263	8,928	81
13	DEN	45	0.1	6,438	7,932	82
14	ATL	43	0.1	5,285	6,450	83
15	MCI	38	0.1	4,877	6,080	80
16	MSY	81.5	0.2	4,760	13,768	35
17	MDW	41	0.1	4,166	5,214	80
18	CMH	23.5	0.1	2,868	3,641	79
19	IND	16.5	0.0	2,215	2,694	83
20	CLT	12.5	0.0	1,281	1,875	68

*Caribbean+Mexico: CUN, ACA, SJD, PUJ, and MBJ

Most of markets have had charter service for many years

Markets like Chicago O'Hare, St. Louis and Cleveland

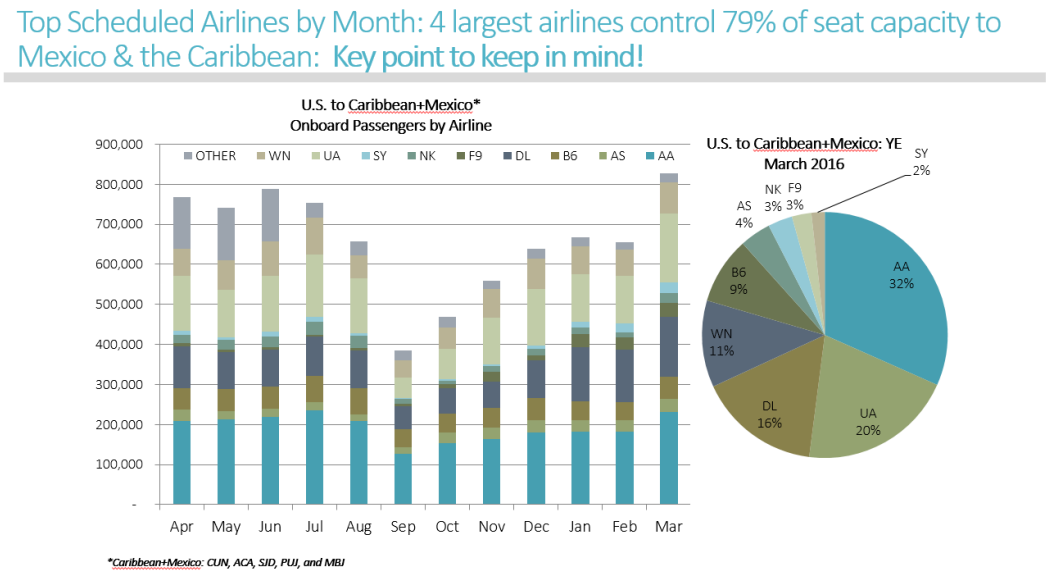
Markets like Pittsburgh have seen growth subsequent to hub being eliminated

Many of these are Apple Vacations or Funjet Vacations, with aircraft operator being split among many different carriers

Prepared by Trillion Aviation

The four largest airlines in the US control 79% of seat capacity to Mexico and Caribbean. The study examined the Minneapolis St.-Paul International Airport (MSP) as a benchmark comparison due to its previous similar role. Several years ago, MSP had facilities that were undersized and offered poor customer service for those seeking intentional travel options. At that time, MSP was the top US airport offering charter service to warm weather locations. The capacity and customer service issues existing at that time were addressed by building of a new Terminal 2 (Humphrey Terminal) which included an IAF, as well as the renovation of the existing facility at Terminal 1 (Lindbergh Terminal). Today MSP has almost no charter service as the scheduled airlines picked up all the service to warm weather locations when the facilities were rightsized. MSP also offers daily nonstop service to several European locations as well as Tokyo, Japan. While many of these non-stops are attributed to Delta Air Lines' hub operations, Icelandair and Condor also provide international service as LCC operators. When facilities ceased to be a limiting factor, MSP was able to grow its international service in an impressive manner.

FIGURE 5 – US to Caribbean + Mexico Onboard Passengers by Airline



Prepared by Trillion Aviation.

The stakeholders were engaged in these discussions and offered input and support on these issues. It was agreed that today's facilities were a critical limiting factor in attracting additional international air service and several means to addressing these concerns were discussed.

First, the existing operations were reviewed. The current facility has six primary booths, two Global Entry kiosks, and one gate with two aircraft parking positions which can result in passengers waiting on board and aircraft before deplaning. An enforced one-hour separation between scheduled flights is mandated by the CBP due to these capacity constraints. In addition, one of the difficult limitations in the existing facility has to do with the lobby post CBP clearance. There is not enough lobby space to hold all the passengers inside when an entire plane clears the FIS. As a result, arriving passengers are forced outside while they await their meeters and greeters and pickup rides. This can result in passengers walking through inclement weather (often underdressed as they return from warm weather locations) and even walking across active roadways without safe crosswalks to access parking ramps. These facility constraints limit the ability of GMIA staff to successfully market their airport for more charter traffic or scheduled service. In addition, they create situations that negatively impact the customer experience.

The study reviewed new innovations in the processing of intentional passengers including "Bags First", automated primary and new facility standards that could support additional traffic at GMIA. Based on the CBP standards, the required throughput determines various facility needs i.e. the processing of an estimated number of passengers per hour.

Many potential locations for a new IAF were studied including the renovation of the existing location as well as demolition and new construction on the existing Concourse E site. Concourse E was constructed between the 1950s to 1970s, with renovations since that time. In recent years there have been only three gates in operation on Concourse E and in June 2017 the last airline relocated to Concourse C and there are no actively used gates.

GMIA is a joint use facility and thereby military flights must also have convenient access for CBP inspection and clearance on the ramp. GMIA is also an important diversion airport for Chicago O'Hare (ORD) international traffic and on occasion these "stop, fuel and go" operations can become final destinations as crews reach their time in service limits. Facilities today are greatly stressed when these situations occur.

3.2. International Arrivals Capacity

The International Arrivals Facility processing capacities referenced in this report have been developed based on the 2012 Version of the CBP ATDS and have also been reviewed against the 90% Draft Version of the 2016 ATDS. The capacity analysis was also reviewed with CBP staff with regards to the CBP operating environment at GMIA and site-specific procedures based on the types of international flight activity at the airport. These standards provide specific programmatic requirements that are required to support each processing rate.

The current peak hour for international arrivals at GMIA is approximately 150 PAX/HR. This level is considered the baseline and is expected to grow. The actual international demand may be constrained by the existing processing capacity. Typically, only one Group III aircraft can be processed at one time. Based on the current throughput of the facility, it is classified as a "small airport"; if it reached the 800 PAX/HR threshold it would be classified as a "low-volume mid-size airport."

The processing capacity of the existing International Arrivals Building was estimated by comparing the existing areas and processing functions with the program data from the ATDS (see **Table 2**). These rates were also confirmed during reviews with CBP staff and their "real world" experience in the existing facility.

TABLE 2 – MKE Existing International Arrivals Building Capacity

INTERNATIONAL ARRIVALS BUILDING – PROGRAM AREA	AREA	PAX/HR
PLANE PARKING POSITIONS	= 2 Planes (Group III)/ 1 PBB	
2 PLANES X 160 PAX = 320 X 50%		= 160
PRIMARY PROCESSING	= 2,658 SF	
200 PAX/HR = 3,300 SF X 80%		= 160
BAGGAGE CLAIM	= 2,468 SF	
200 PAX/HR = 6,000 SF X 41%		= 82
CLAIM PRESENTATION	= 100 LF	
200 PAX/HR = 150 LF X 67%		= 133
SECONDARY PROCESSING	= 2,723 SF	
200 PAX/HR = 3,400 SF X 80%		= 160
AVERAGE PAX/HR:		= 140

Prepared by Miller Dunwiddie Architecture

The proposed processing capacity was developed from the ATDS guidelines with assistance from CBP staff. The capacity defined the sizing for the concourse concepts to create a scaled approach for developing the International Concourse (see **Table 3** for a demand summary). The initial Phase 1 project should provide a base concourse with an IAF processing capacity of 300-400 PAX/HR along with gates that function for both domestic operations and international arrivals. This will allow the airport to provide a new and more efficient facility for a minimal first cost while solving the issues associated with the existing International Arrivals Building. Concepts should then provide the ability to be expanded to accommodate up to +600 PAX/HR when required by international flight demand. They should also allow for the expansion domestic flights based on dual purpose gates and the ramp and gate level can expand independently, providing long term flexibility for the airport.

TABLE 3 – MKE International Enplanement Demand

PASSENGER (PAX) CATEGORY		2014 PAX	2015 PAX	FUTURE (+15%)
Annual PAX		111,258	112,901	~130,000
PEAK SEASON (JAN to APR) AVERAGE		19,910	19,891	~23,000
PEAK MONTH (MAR)		27,558	25,276	~32,000
OFF-PEAK SEASON (MAY to DEC)		3,828	4,167	~4,800
PEAK MONTH (DEC)		4,528	4,929	~5,800
WEEKDAYS/SUNDAY (PEAK SEASON)		~280	~300	~345
1-2 FLIGHTS/DAY				
SATURDAYS (PEAK SEASON)		~1,000	~1,050	~1,210
6-7 FLIGHTS/DAY				
PEAK HOUR (PEAK/SAT, 14:00 to 19:00)		~350	~350	~400
2x 737 single aisle configuration, 175 MAX PAX				
DIVERTS (~200/YR, 10% INTL)		~600	~600	~700
2-3 Diverts Deplane/YR				
GENERAL AVIAITON/DoD (per CBP)		tbd	tbd	tbd

Prepared by Miller Dunwiddie Architecture

3.3. International Arrivals Facility Program

The space program for the international arriving passenger processing component of the proposed International Concourse followed the guidelines prepared by the CBP in their ATDS 2016 – 90% Draft. The ATDS is a Sensitive Security Information Document (SSID), thereby for the purposes of this summary document the requirements of the CBP are presented rolled-up into summary categories based on the overall purpose of the space. These categories include:

- Primary Processing (includes passenger processing at primary inspection and CBP required support space)

- Secondary Processing (includes passenger processing at secondary inspection and CBP required support space)
- FIS Support Areas (includes CBP required offices and support processing functions)
- Baggage Claim (includes baggage claim carousel and passenger queuing)
- Circulation and Building Systems (includes grossing factors to account for circulation and building systems – mechanical, electrical, plumbing)

For the purposes of this conceptual, high-level study, these summary categories of space were determined to be adequate for the overall sizing and organization of the facility. The categories assumed that all spaces identified in the CBP program document were required and no detailed discussions were held with CBP to evaluate the specific needs of each individual space or whether any additional spaces were required for the local operation. Detailed design and implementation will need to further develop the space by space program – with input and guidance from the CBP – to define the needs of the future International Concourse facility more specifically.

The CBP ATDS outlines space requirements based on the anticipated peak hour passenger throughput of the facility. Given this, the requirements identified in Section 2 above were used for the anticipated peak hour arriving passenger volume. While the peak hour was estimated to be 400 PAX/HR, a program was developed for 200, 400 and 600 PAX/HR in order to evaluate the variability of the needs based on the throughput in order to better evaluate the potential for a phased implementation and/or incremental growth of the facility based on the actual passenger needs.

Table 4 (see below) outlines the estimated CBP program requirements for each of these three scenarios. In total, the international arriving component of the International Concourse is estimated to require between 12,699 GSF and 19,935 GSF of space depending on the required throughput of the facility. Primary processing, secondary processing and FIS support areas are a direct roll-up of the CBP requirements. Baggage claim requirements provide both the estimated overall space required to accommodate the passenger waiting areas and the recommended presentation length of the baggage carousel. The Circulation and Building Systems is a factor that increases the overall estimated program space to allow for proper circulation between functional areas of the facility as well as the required building systems such as mechanical, electrical, and plumbing serving the building. Other non-CBP functions including concourse level and baggage claim requirements is estimated to require between 32,880 and 44,810 GSF. The total program requirement for the International Concourse is estimated to require between 49,167 GSF (400 PAX/HR capacity) and 64,745 GSF (600 PAX/HR capacity).

See Appendix C for full International Arrivals Facility Program.

TABLE 4 – CBP Programming Requirements

	EXISTING IAB AREA (GSF)	200 PAX/HR AREA (GSF)	400 PAX/HR AREA (GSF)	600 PAX/HR AREA (GSF)
CPB Requirements				
Primary Processing	2,658	3,294	5,934	8,674
Secondary Processing	2,723	3,531	3,531	3,531
FIS Support Areas	2,700	3,334	3,562	3,840
Circulation & Bldg Systems (25%)	2,020	2,540	3,260	3,990
Bag Claim Frontage	100 LF	150 LF	300 LF	450 LF
Sub-Total CBP Requirements	10,101	12,699	16,287	19,935
Other Required Functions				
Int'l Baggage Claim Area (Apron Level)	2,468	6,000	12,000	18,000
Gate Hold Area	NA	5,200	7,800	10,400
Concessions	NA	3,000	3,200	3,400
Restrooms	974	2,400	3,000	3,600
Int'l Meeter/Greeter Lobby	tbd	tbd	tbd	tbd
Sub-Total Other Req'd Functions	3,542	16,750	26,300	35,850
Circulation & Bldg Systems (25%)	890	4,190	6,580	8,960
Sub-Total Other Req'd Functions	4,432	20,940	32,880	44,810
GRAND TOTAL	**14,533**	**33,639**	**49,167**	**64,745**

Prepared by Jacobsen|Daniels

3.4. International Arrivals Facilities Site Requirements

Civil site analysis focused on feasibility of the various International Concourse options under consideration and the impacts to the terminal apron and Taxiway B operations while the redevelopment of Concourse E occurs, and at the end of each phase of the development.

As identified from stakeholder and program input meetings, the following design criteria governed the site civil feasibility review.

- Taxiway B object free area must remain clear of parked aircraft and GSE.
- Maintain a clear taxilane OFA to the interior parking positions of the redeveloped E concourse and the existing D concourse.
- Provide a gate for wide body aircraft, such as the Norwegian Air 787-9 and Boeing 777, which can accommodate scheduled international arrivals as well as diverts.
- Non-wide-body gates must be designed accommodate ADG-III access with power in and tug push out movements.
- Need to account for hydrant fueling system, with goal of minimizing changes to hydrant locations if possible.
- Facility must accommodate general aviation and military aviation international arrivals. These aircraft do not require boarding bridge access, but do require a designated space on the apron adjacent the IAF for ground inspection of aircraft. Military aircraft basis of design is the KC-135 based at the 128th Air Refueling Wing of the Wisconsin Air National Guard. General aviation

fleet include a variety aircraft, with the largest being Gulfstream G-VI and the Boeing Business Jet.

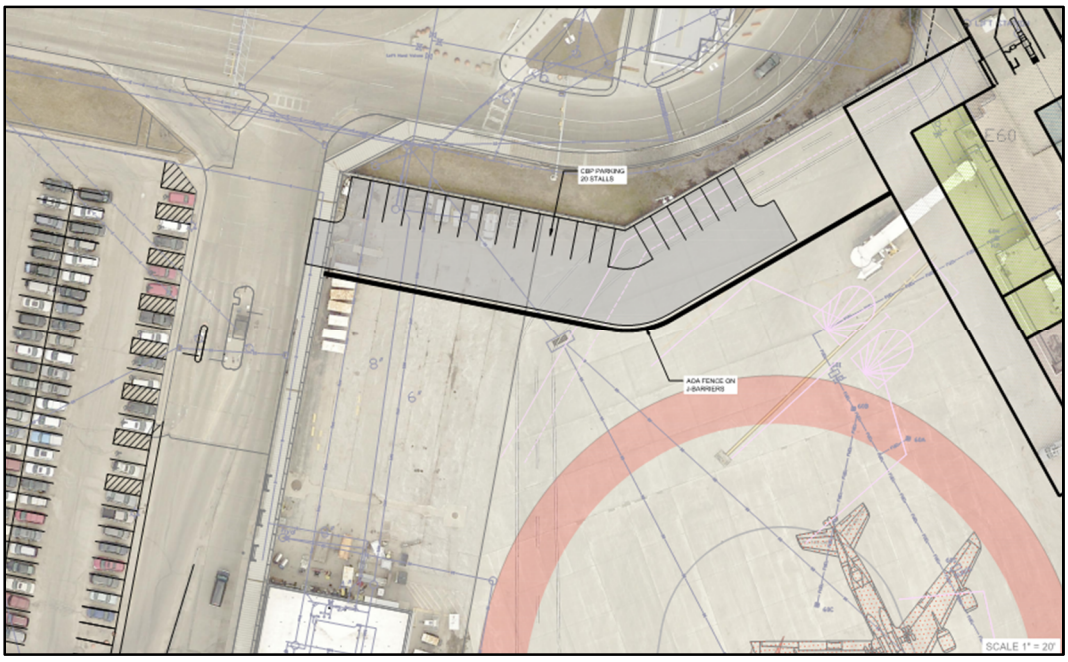
- There is a need to provide personal vehicle parking for 20 vehicles for the Customs and Border Patrol agents. Parking should be adjacent or near to the International Concourse.
- Curbside access to the redeveloped E concourse is required.

3.4.1. Customs and Border Patrol Parking Options

CPB parking capacity for the new International Concourse is based on current parking capacity at the existing IAB, 20 vehicle parking spaces with direct access to the FIS are the basis for programming. For the CPB personal vehicle parking spaces there are two primary options available. The first is to utilize existing surface or structured parking on the airport property, and provide the CBP staff with parking passes and access to reserved parking spots. This option is the lowest cost, and makes use of existing infrastructure, but does not provide a separate parking lot or direct connection to the redeveloped Concourse E FIS.

In order to provide direct connection to the Concourse E FIS, a new parking lot can be created by repurposing the northwest corner of the terminal apron. A portion of the perimeter blast wall would need to be removed and an access control gate would be installed. The airport operations area (AOA) boundary would need to be reestablished around the perimeter of the lot via fencing (blast wall or other approved fencing). See **Figure 6** below:

FIGURE 6 – CPB Parking Concept



Prepared by Foth Infrastructure & Engineering

End of Section

4. INTERNATIONAL CONCOURSE OPTIONS

Developing options for an International Concourse at GMIA including the review of existing facilities, developing a wide-range of preliminary concept design options (including reuse of existing facilities), and selecting one or more of the options to be refined into a preferred concept design option. Existing facilities were evaluated via on-site and documents review at a high-level to familiarize our team with the existing building systems and assemblies as related to potential redevelopment options. Concept Design Options were prepared to meet design criteria of: international passenger capacity, CBP and other factor program requirements, and other criteria developed during this study. Each option was reviewed for its overall functionality based on the degree to which they met the International Arrivals Concourse objectives, its adaptability to the site, and its ability to meet GMIA funding goals. A Preferred Concept Design Option was chosen by GMIA staff and further evaluated and developed based on GMIA staff input and design criteria of the project.

4.1. Existing Facilities

This Feasibility Study was tasked to build on information developed during previous studies that reviewed a broader range of potential solutions for redevelopment of an International Concourse in a different location in the terminal area plan. Our team's scope of work assessed the feasibility of modernizing the existing IAB, largely to provide a baseline comparison, and redeveloping a new International Concourse in the terminal area at or near Concourse E.

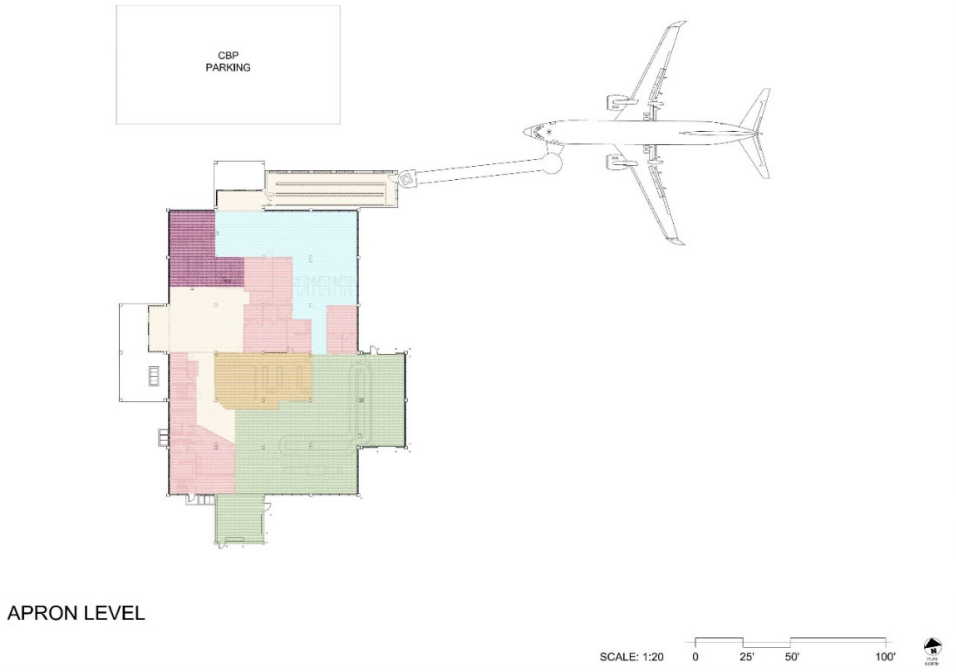
See Appendix D for Existing Facility Drawings.

4.1.1. International Arrivals Building

The existing IAB is located remotely from the main terminal adjacent to the outbound roadway and across the airfield apron from Concourse C. The IAB was constructed in the 1970s, is a slab on grade, single story building, and is approximately 23,000 GSF. The IAB has two primary aircraft ramp positions but only one jet bridge. The IAB is used for international arrivals only and has intermittent daily/weekly use for the majority of the year with the exception of weekends during peak charter season (January to March).

The existing IAB is not connected the main terminal complex, is isolated from the terminal services for connecting flights, parking, ground transportation, and other airport amenities. The IAB is undersized, does not meet current CPB 2012 ATDS, and is unlikely to meet the new draft 2016 ATDS requirements that are in review and comment at this time. The IAB's facility systems and assemblies are approaching (or past) end of useful life-cycle and require significant modernization or replacement.

FIGURE 7 – Existing International Arrivals Building



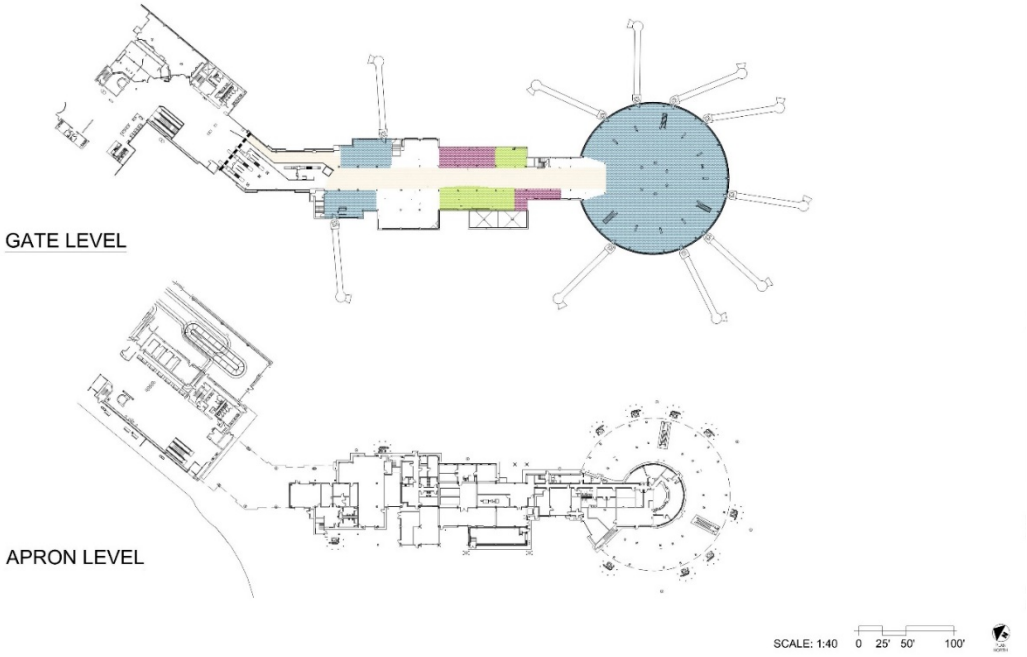
Prepared by Miller Dunwiddie Architecture

4.1.2. Concourse E

The existing Concourse E is connected to and located at the south end of GMIA's terminal mall. Concourse E was constructed over several phases between the 1950s to the 1970s, is a slab on grade, two-story building, and is approximately 70,000 GSF. Concourse E has ten aircraft ramp positions and jet bridges, however, only three gates are in use in January 2017. Concourse E is used for domestic arrivals and departures and has intermittent daily/weekly use for the majority of the year. GMIA has noted that it is in the process of moving the remaining schedule air service in Concourse E to Concourses C or D.

Concourse E is connected the main terminal complex, it has a TSA security checkpoint, is connected to other terminal services for connecting flights, parking, ground transportation, and other airport amenities. Concourse E has significant existing square footage; however, it has structural and layout limitations. Concourse E does not conduct international arrivals and thus does not meet current CPB 2012 ATDS nor the new draft 2016 ATDS requirements that are in review and comment at this time. While Concourse E has been renovated in the past 10 years, many of the facility systems and assemblies are approaching (or past) end of useful life-cycle and require significant modernization or replacement.

FIGURE 8 – Existing Concourse E



Prepared by Miller Dunwiddie Architecture

4.2. Concept Design Options

Concept Design Options were developed for the International Concourse based on capacity, programming, and existing terminal conditions. Each option was explored, and evaluated during the Feasibility Study by the design team and stakeholders. The Concept Design Options all share common characteristics of organizing the International Concourse into two key levels: Gate Level and Apron Level; and the following key program elements: gate hold, concessions, rest rooms, baggage claim/handling, primary processing, secondary processing, and FIS support. These program elements allowed exploration of overall functional adjacencies while addressing key issues including: security checkpoint, domestic/international passenger circulation, CBP support spaces, and expandability. The site designated by GMIA for this study is the concourse and ramp area around Concourse E from the AOA fence to the east and to the west ramp area that does not impact existing taxilanes or aircraft movement for Concourse C. A strong site consideration for each concept design option is the retention of existing ramp pavement, fueling infrastructure, and utilities. These existing items are considered in good condition and an asset to the project.

Six Concept Design Options were each reviewed for their overall functionality and based on the degree to which they met the International Concourse's program objectives and their compatibility to the site. The Concept Design options are described as Concept Design Options 1 to 6. All six concepts were considered viable for current capacity and program needs, but several did not broader terminal area operational concerns and future capacity and program requirements. A variation of Concept Design Option 6 was developed to address airport stakeholder comments during review and development, this option was labeled 6A. Option 4 was also further developed as a part of the preferred concept review and comment process.

See Appendix D for full Concept Design Drawings.

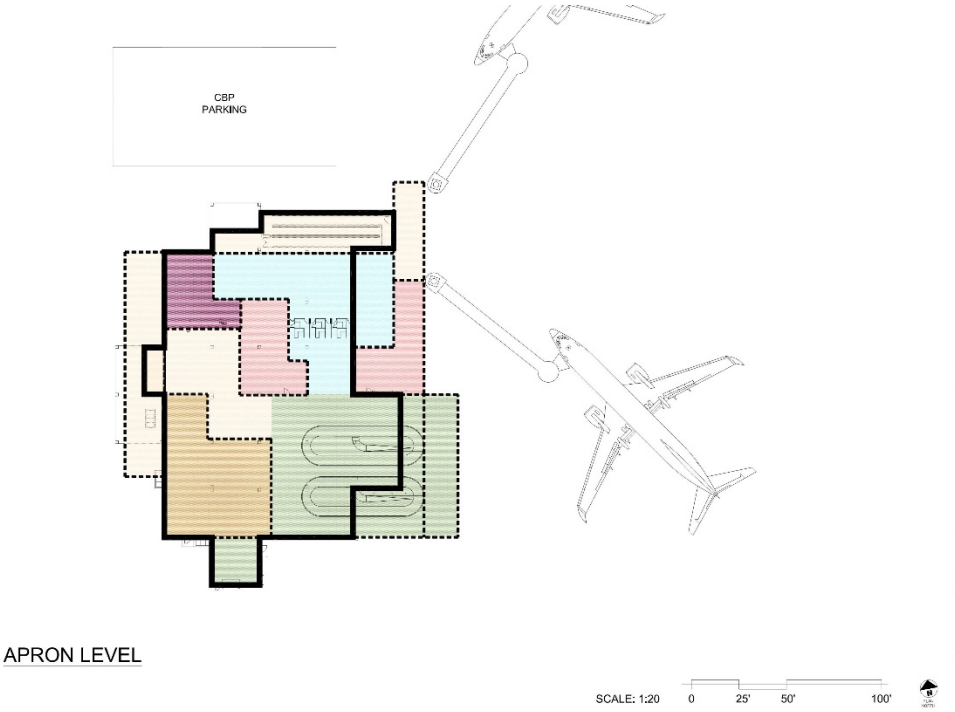
The following describe and provide key details for the reviewed and updated Concept Design Options:

4.2.1. Option 1 – Renovation & Addition to Existing IAB

Option 1 considers an addition and renovation of the existing International Arrivals Building. The option would address compliance with CBP and FIS requirements and standards; however, the redevelopment of this option would not address the remote location of the IAB from the Terminal, connecting flights, or other terminal amenities. This option would not support dual function domestic and international gate capabilities, and it would not support arrivals and departures so aircraft would need to be towed over to the terminal for out-bound flights. Option 1 would likely require the existing IAB facility be taken offline for a period of 12 to 24 months and require temporary FIS and CBP facilities during that modernization. Finally, this option would not likely support any future growth for international arrivals.

- COSTS: $25M to $30M
- CAPACITY: ~300 INTL PAX/HR, ~150,000 INTL PAX/YR
- SCOPE: ~9,500 GSF addition, ~21,000 GSF renovation
- Advantages
    - None Noted
- Disadvantages
    - Site Constraints
    - Towing of Aircraft to Terminal for Departures
    - Not Expandable, Maximum Int'l Passenger Capacity of ~300 PAX/HR
    - Does not have Domestic &/ International Swing Gate
    - Not connected for Re-check & Parking
    - Temporary IAF during Renovation
    - Transit of passengers to the Main Terminal for connecting flights
    - Transit of passengers to the Main Terminal for Parking for ground transportation access
    - Remote staffing of CPB staff
    - FIS and CBP Administration space limitations
    - Rest Room limitation may still exist
    - No concession spaces or revenue

FIGURE 9 – Concept Design, Option 1



Prepared by Miller Dunwiddie Architecture

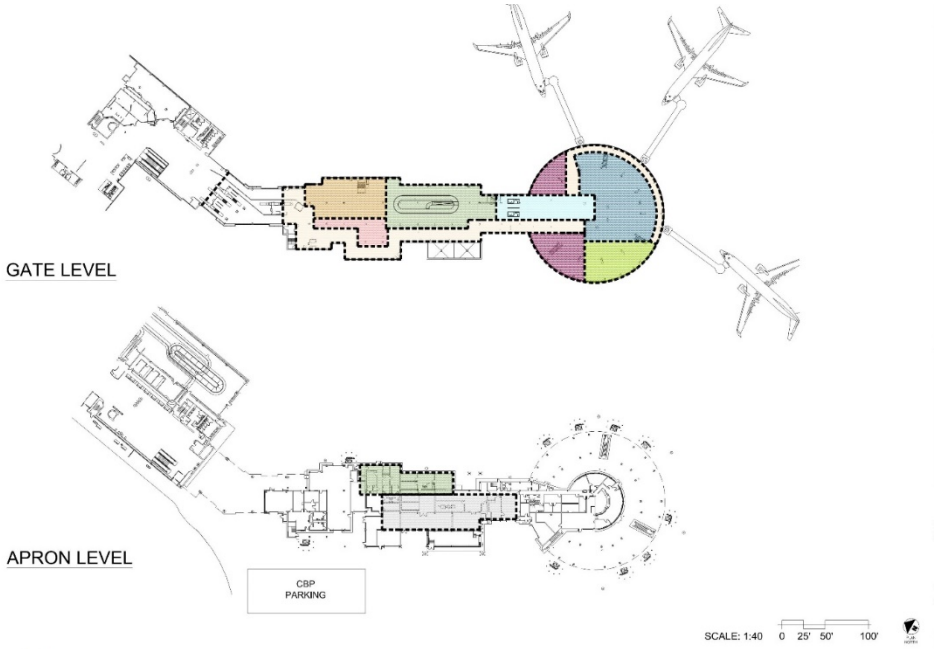
4.2.2. Option 2 – Renovation to Concourse E

Option 2 considers a renovation of existing Concourse E. The CBP and FIS functions would be located on the Gate Level along with Gate Hold, Concessions, and Restroom spaces. Minimal baggage handling spaces would be renovated on the Apron Level and most the Apron Level would remain unoccupied. Concourse E has over 70,000 GSF and this option's goal is to maximize existing facilities for reuse. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 2 would support dual function domestic and international gate capabilities, and it would support in-bound and out-bound flights. This option could be executed while the existing IAB is still functioning avoiding temporary facilities. This option would support limited future growth for international arrivals with constraints mostly in the CBP and FIS program areas.

- COSTS: $25M to $30M
- CAPACITY: ~300 INTL PAX/HR, ~150,000 INTL PAX/YR
- SCOPE: 0 GSF addition, ~48,000 GSF renovated
- Advantages
    - Existing ramp pavement, fueling, and utility infrastructure reuse
- Disadvantages
    - Irregular facility footprint
    - Capacity limitation
    - Significant structural and system modernization
    - Cost Effective

- Limited Expandability
- Iconic Rotunda Structure Preserved

FIGURE 10 – Concept Design, Option 2



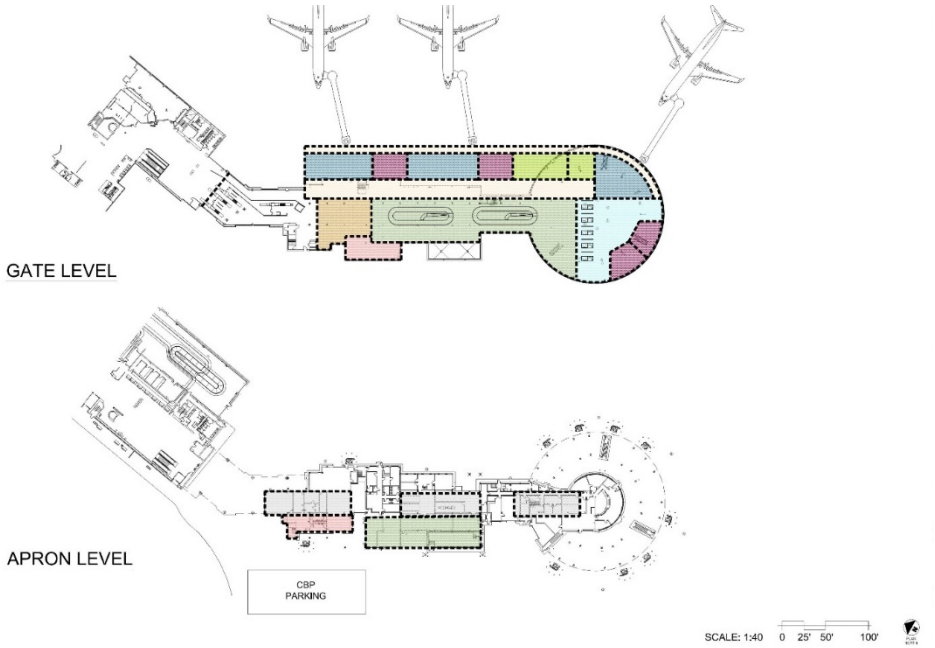
Prepared by Miller Dunwiddie Architecture

4.2.3. Option 3 – Renovation & Addition to Concourse E

Option 3 considers a renovation of and addition to existing Concourse E. The CBP and FIS functions would be located on the Gate Level along with Gate Hold, Concessions, and Restroom spaces. Minimal baggage handling spaces would be renovated on the Apron Level and most the Apron Level would remain unoccupied. The addition would add gate hold, restroom, concession space, and a sterile corridor that would allow gates to connect to the FIS or be switched over to domestic operations. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 3 would support dual function domestic and international gate capabilities, and it would support in-bound and out-bound flights. This option could be executed while the existing IAB is still functioning avoiding temporary facilities. This option would support moderate future growth for international arrivals with constraints mostly in the CBP and FIS program areas.

- COSTS: $45M to $50M
- CAPACITY: ~400 INTL PAX/HR, ~175,000 INTL PAX/YR
- SCOPE: ~49,000 GSF addition, ~20,000 GSF renovated
- Advantages
  - Expansion on one side of concourse improves efficiency
  - Limited ramp/apron work
- Disadvantages
  - Limited Expandability
  - One Level FIS

FIGURE 11 – Concept Design, Option 3



Prepared by Miller Dunwiddie Architecture

4.2.4. Option 4 - Renovation & Addition to Concourse E

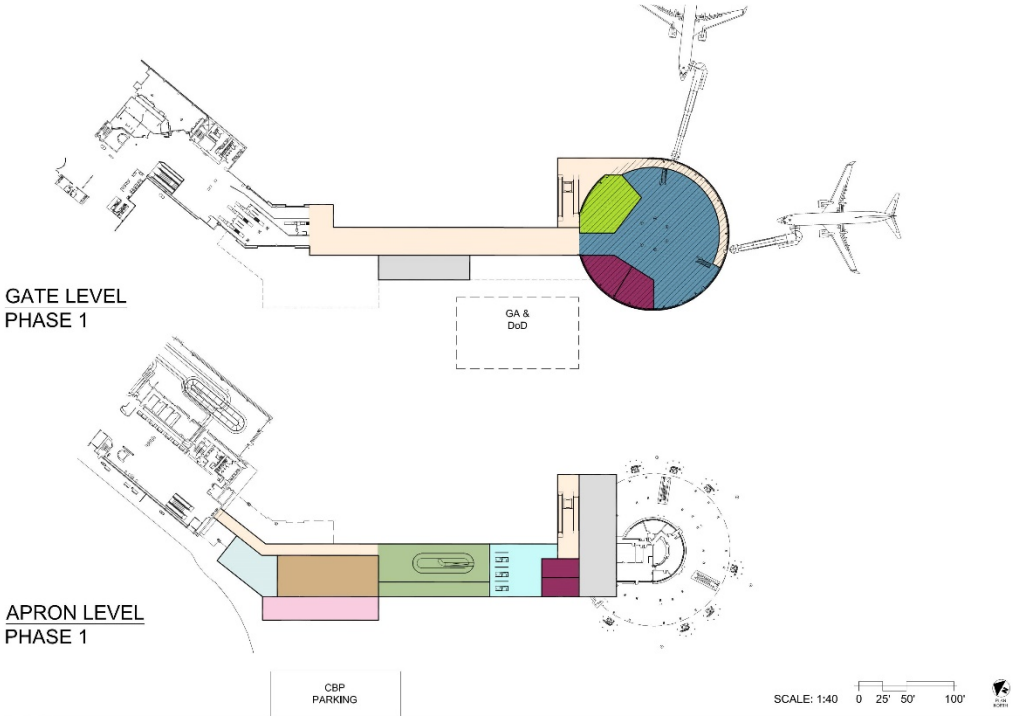
Option 4 was selected as a finalist for the Preferred Concept Design Option (along with Option 5) by GMIA departmental staff. Options 4 was further reviewed and evaluated based on input from GMIA staff and overall project goals and this option was updated from its concept design option. Option 4 centers on keeping the iconic rotunda of the current Concourse E, while rebuilding the space between the rotunda and the core terminal so that it can support international passenger processing. See **FIGURES 13 to 15** for Option 4, Phases 1, 2 & 3 floor diagram. The CBP and FIS functions would be located on the Apron Level. Gate Hold, Concessions, and Restroom spaces would be in the existing rotunda on the Gate Level allowing more flexibility for domestic/international operations and future expandability. A portion of the Apron Level would remain unoccupied. The addition would add FIS, CBP, gate hold, restroom, concession space, and a sterile corridor that would allow gates to connect to the FIS or be switched over to domestic operations. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 4 would support dual function domestic and international gate capabilities, and it would support in-bound and out-bound flights. This option could be executed while the existing IAB is still functioning avoiding temporary facilities. This option would support substantial future growth for international arrivals.

An advantage of Option 4 includes that the existing fuel hydrants are already in locations that can be reused, and there is a minimum amount of site paving work that would need to be completed. As is illustrated in the **FIGURE 16** below, a wide body gate can be accommodated at the southwest corner of the rotunda. General aviation and military aircraft can be cleared on the west side of the concourse, while the east side of the concourse can accommodate ADG-III aircraft. If power in and power out operations are desired for the general aviation aircraft, then the number of aircraft that

can be staged to the west of the concourse is limited. If defined parking positions are established, and tug push out operations are implemented, then more general aviation aircraft can be staged at the Customs ground clearance area.

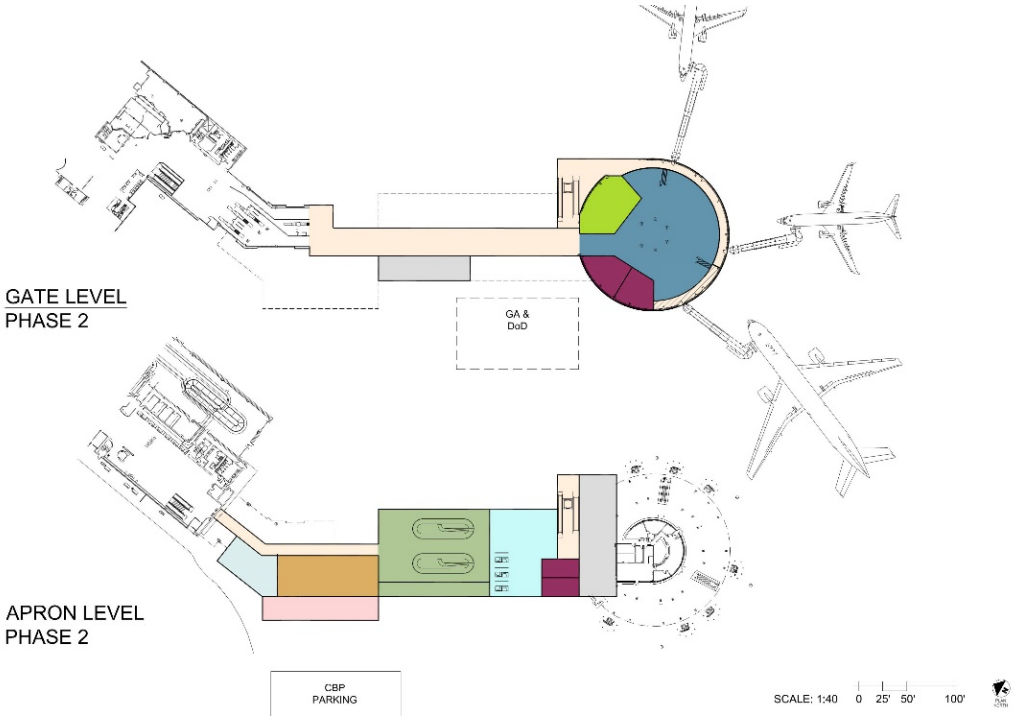
- COSTS: ~$58 Million (Phase 1 Budget)
- CAPACITY: 300-400 INTL PAX/HR, +175,000 INTL PAX/YR
- SCOPE: ~44,620 GSF addition, ~20,000 GSF renovated, ~45,000 GSF demolition
- Advantages
    - Recheck/Connecting Flights
    - Access to Terminal Parking & Multi-Modal Transit
    - Modern Facility: Retain Iconic Rotunda (existing), Irregular Structure Replaced with New Construction
    - Domestic & International Switchable Gates
    - Limited Flexible Gate Layout (Rotunda)
    - Two Level FIS (Access to Ticket and Gate Levels)
    - Energy Efficient Option
    - Low to Mid-Level Cost
- Disadvantages
    - Limited Expandability
    - Existing Rotunda Long-Term Operations and Maintenance Efficiency

FIGURE 13 – Concept Design, Option 4, Phase 1



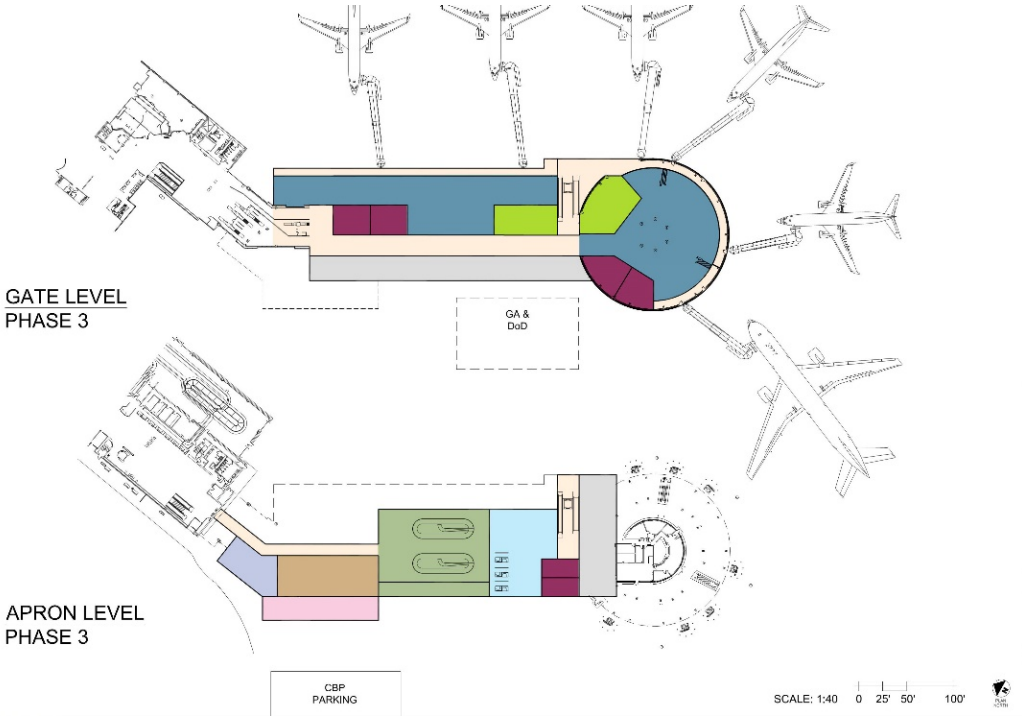
Prepared by Miller Dunwiddie Architecture

FIGURE 14 – Concept Design, Option 4, Phases 2



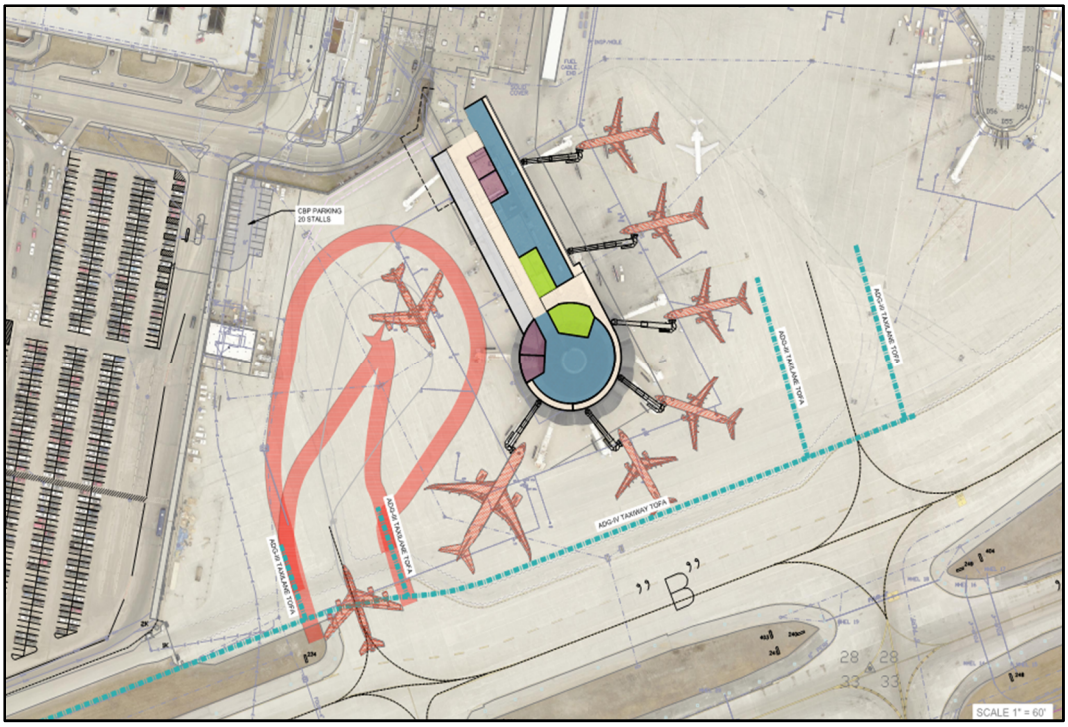
Prepared by Miller Dunwiddie Architecture

FIGURE 15 – Concept Design, Option 4, Phases 3



Prepared by Miller Dunwiddie Architecture

FIGURE 16 – Concept Design Ramp Layout, Option 4, Phase 3



Prepared by Foth Infrastructure & Engineering

4.2.5. Option 5 – Construct New IAF, Replace Concourse E

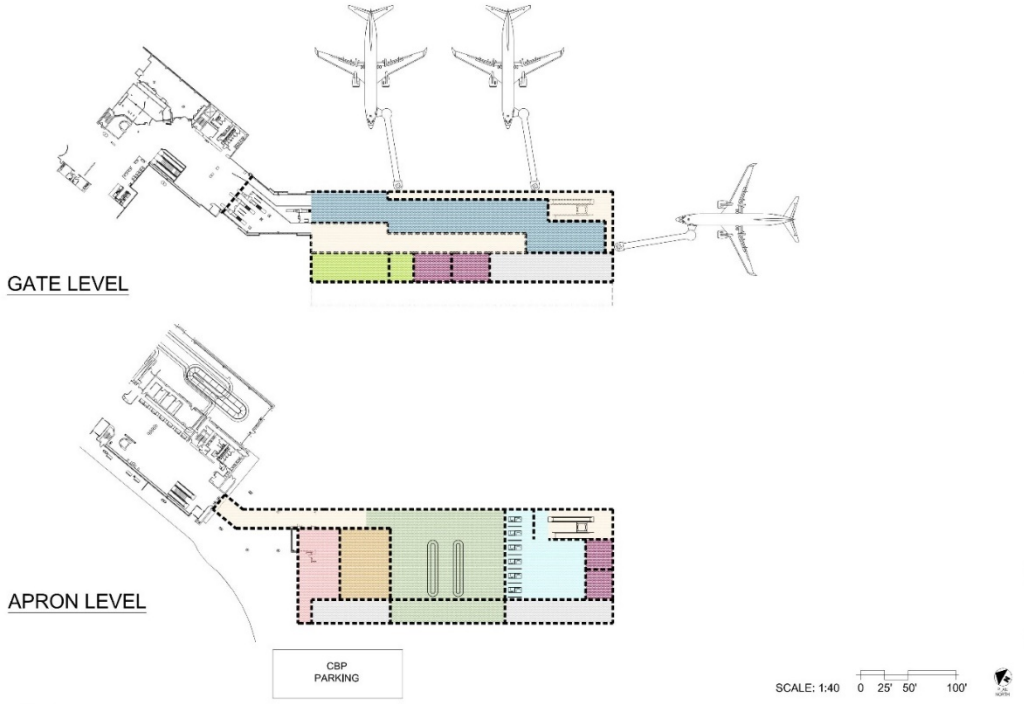
Option 5 considers a replacement of Concourse E with a new International Arrivals Concourse. Concourse E would be demolished and the IAF would connect the terminal with new construction. The CBP and FIS functions would be located on the Apron Level. Gate Hold, Concessions, and Restroom spaces would be on the Gate Level allowing more flexibility for domestic/international operations and future expandability. The new construction would provide FIS, CBP, gate hold, restroom, concession space, and a sterile corridor that would allow gates to connect to the FIS or be switched over to domestic operations. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 5 would support dual function domestic and international gate capabilities, and it would support in-bound and out-bound flights. This option could be executed while the existing IAB is still functioning avoiding temporary facilities. This option would support substantial future growth for international arrivals.

- COSTS: $55M to $60M
- CAPACITY: +400 INTL PAX/HR, +175,000 INTL PAX/YR
- SCOPE: ~71,000 GSF addition, 0 GSF renovated
- Advantages
    - Recheck/Connecting Flights: Shortest Pedestrian Travel
    - Access to Terminal Parking & Multi-Modal Transit
    - Modern Facility: All New Uniform Construction
    - Phasing Potential & High Expandability
    - Domestic & International Switchable Gates

- Most Flexible Layout
- Two Level FIS (Access to Ticket and Gate Levels)
- Energy Efficient Option
- Mid-Level Cost

- Disadvantages
  - None Noted

FIGURE 17 – Concept Design, Option 5



Prepared by Miller Dunwiddie Architecture

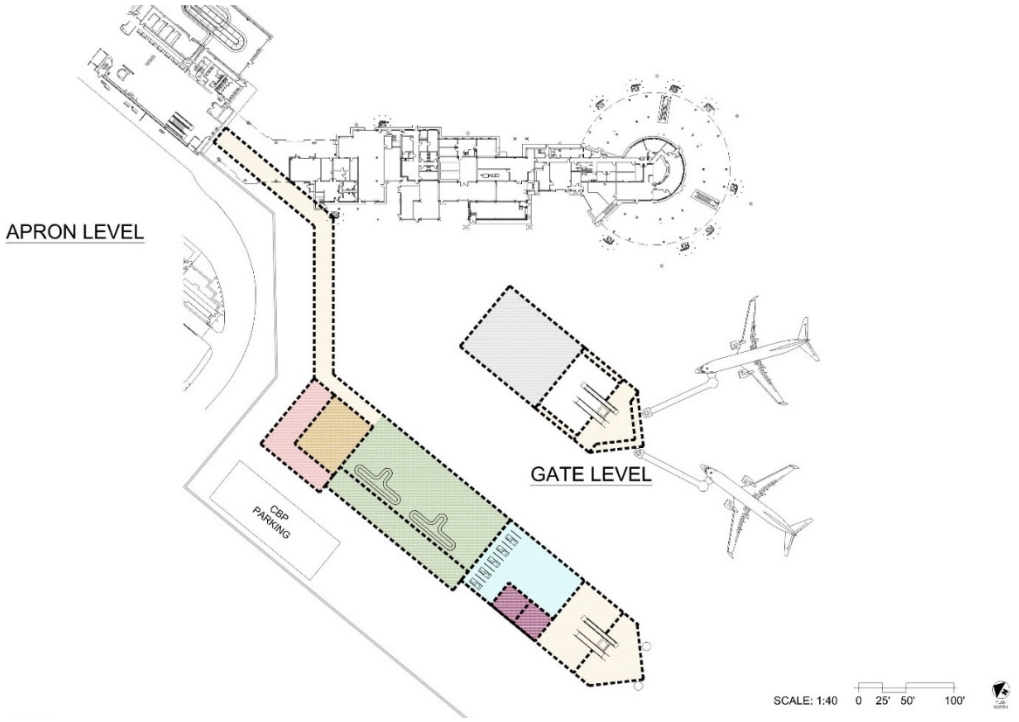
4.2.6. Option 6 – Construct New IAF (East of Concourse E)

Option 6 considers an addition east of Concourse E for a new the IAF, the existing Concourse E could continue to be used for domestic traffic. This option reflects potential outcomes suggested in GMIA's 2008 Master Plan. The CBP and FIS functions would be located on the Apron Level. Gate Hold, Concessions, and Restroom spaces would be in Concourse E as they currently exist. The new construction would provide FIS, CBP, restroom, and a sterile corridor that would allow gates to connect to the FIS. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 6 would not support dual function domestic and international gate capabilities, but it would support in-bound and out-bound domestic flights (Concourse E) and in-bound international flights (IAF). This option could be executed while the existing IAB and much of Concourse E is still functioning avoiding temporary facilities. This option would support limited future growth for international arrivals.

- COSTS: $35M to $40M
- CAPACITY: ~400 INTL PAX/HR, ~175,000 INTL PAX/YR
- SCOPE: ~59,000 GSF addition, ~0 GSF renovated

- Advantages
  - Least construction impact
  - Limits flexibility
- Disadvantages
  - Longest pedestrian travel distance for arrivals
  - Impacts some gates on Concourse E
  - Ramp Development Cost

FIGURE 18 – Concept Design, Option 6



Prepared by Miller Dunwiddie Architecture

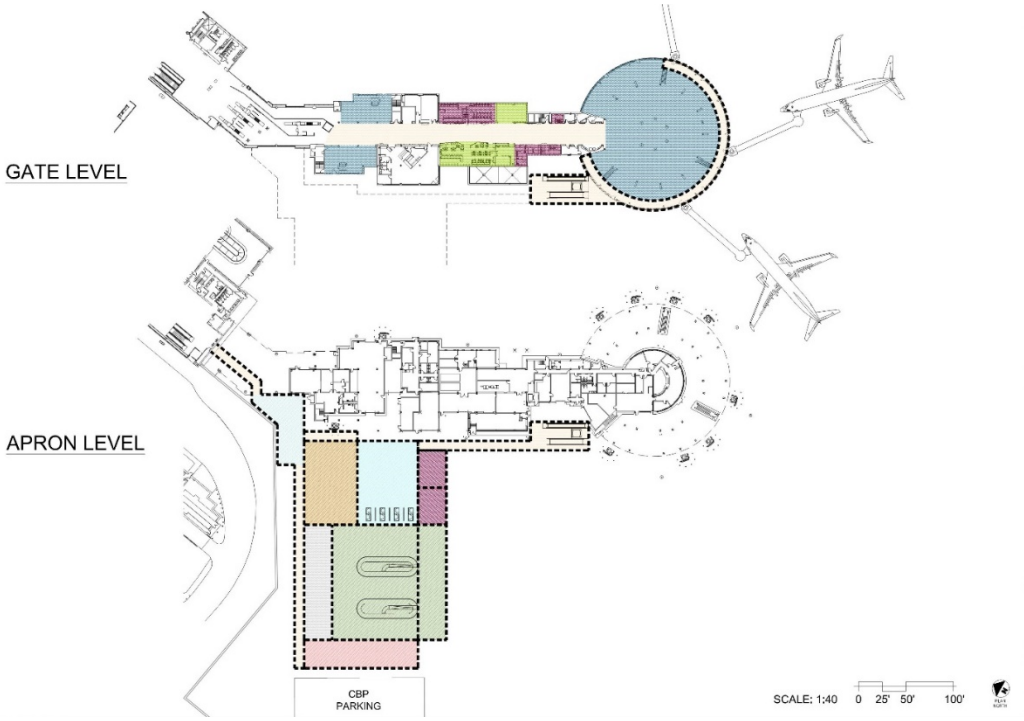
4.2.7. Option 6A – Construct New IAF (East of Concourse E), Phase 1

Option 6A was developed based on responses provided by GMIA staff during the concept design review meetings in February 2017. This option considers an addition east of Concourse E for a new IAF, the existing Concourse E could continue to be used for domestic traffic thus retaining or slightly increasing overall terminal capacity. This option would have future phases that would demolish Concourse E and expand the IAF. This option reflects potential outcomes suggested in GMIA's 2009 Master Plan. The CBP and FIS functions would be located on the Apron Level and brought closer to Concourse to reduce travel distance and address potential future phased expansion. Gate Hold, Concessions, and Restroom spaces would be in Concourse E as they currently exist. The new construction would provide FIS, CBP, restroom, and a sterile corridor that would allow gates to connect to the FIS. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 6A would not support dual function domestic and international gate capabilities in Phase 1 (but would in later phases), but it would support in-bound and out-bound domestic flights (Concourse E) and in-bound international flights (IAF). This option could be

executed while the existing IAB and much of Concourse E is still functioning avoiding temporary facilities. This option would support limited future growth for international arrivals.

- COSTS: $50M to $55M
- CAPACITY: 300 to 400 INTL PAX/HR, +175,000 INTL PAX/YR
- SCOPE: ~36,000 GSF addition, ~20,000 GSF renovated
- Advantages
    - Lowest Phase 1 construction impact
    - Limits flexibility
    - Impacts some gates on Concourse E
    - Low-Level Cost
- Disadvantages
    - Longest pedestrian travel distance for arrivals
    - Low Energy Efficient Option
    - Phase 3 Construction Sequencing may be difficult
    - Phase 3 Ramp Development Cost will be significant

FIGURE 19 – Concept Design, Option 6A, Phase 1



Prepared by Miller Dunwiddie Architecture

4.3. Preferred Concept Design Options

Option 5 was selected as the Preferred Concept Design Options by consensus by a combination of GMIA departmental staff due to their ability to meet the goals of the project, have a lower Phase 1 cost, are expandable, and minimize the amount of ramp pavement, fueling system, and utility modifications. Option 5 was then further reviewed and evaluated based on input from GMIA staff

and overall project goals, with each preferred option being updated from their concept design options to address the following key issues:

- Meeter/Greeter Lobby was added at FIS exit point on the Apron Level to reduce impact to passengers moving into the ticket hall and to provide direct curbside pickup at the International Concourse.
- Programming was updated (GSF generally reduced) based on CBP, and GMIA input.
- CBP program requirements for General Aviation Facility (GAF) and Department of Defense (DoD) operations were updated and added to the project scope, program, and options (pending).
- Construction phasing was added to provide scalable solutions that reduced first project costs and addressed future expandability. The phasing plans have project trigger points based on international passenger traffic loads.
- Additional development of CBP access/parking, aircraft parking and aircraft ramp movement.
- Existing fueling and other ramp infrastructure were evaluated for integration (reuse) of options and potential cost impacts to the project. The preferred concept design options both maximizes the potential use of existing site infrastructure (pavement, fueling, and utilities) and minimizes changes to aircraft movement from the terminal area to the taxiways and runways.

See Appendix D for full Concept Design Drawings.

The following describe and provide key details for the reviewed and updated Preferred Concept Design Option:

4.3.1. Option 5 – Construct New IAF, Replace Concourse E

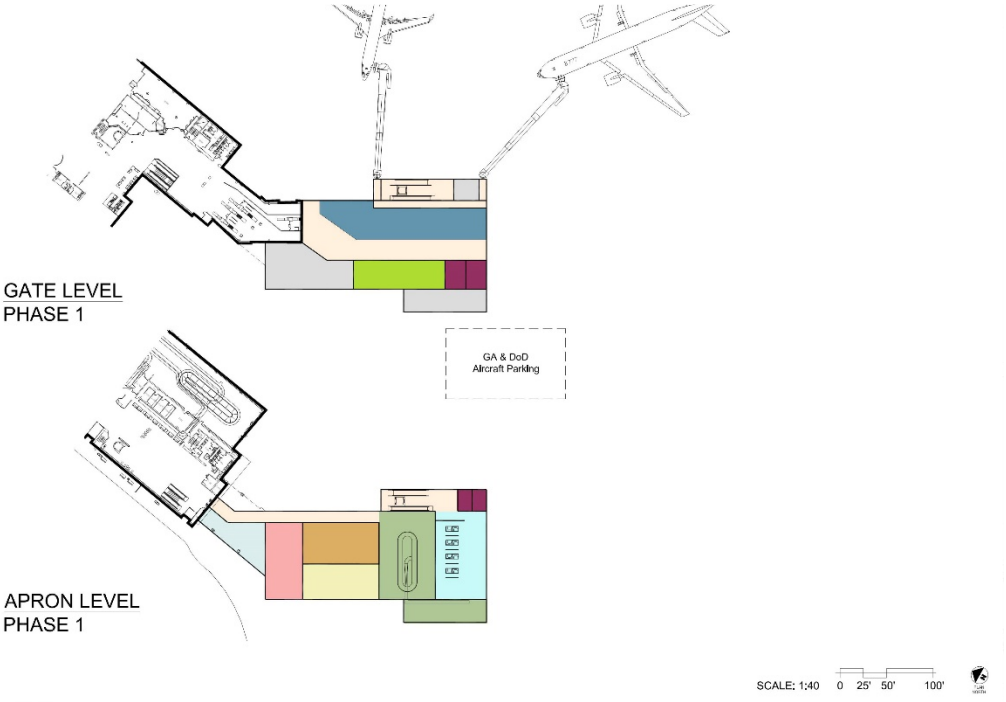
Option 5 considers a replacement of Concourse E with a new International Arrivals Concourse. Concourse E would be demolished and the IAF would connect the terminal with new construction. See **FIGURES 20 to 22** for Option 5, Phases 1, 2 & 3 floor diagram. The CBP and FIS functions would be located on the Apron Level. Gate Hold, Concessions, and Restroom spaces would be on the Gate Level allowing more flexibility for domestic/international operations and future expandability. The new construction would provide FIS, CBP, gate hold, restroom, concession space, and a sterile corridor that would allow gates to connect to the FIS or be switched over to domestic operations. This option would address compliance with CBP and FIS requirements and standards and would connect international arrivals to the Terminal, connecting flights, and other terminal amenities. Option 5 would support dual function domestic and international gate capabilities, and it would support in-bound and out-bound flights. This option could be executed while the existing IAB is still functioning avoiding temporary facilities. This option would support substantial future growth for international arrivals. With a complete demolition and construction of a new concourse, there is the greatest flexibility with the site configuration.

The Phase 1 buildout would accommodate two aircraft, with one of the gates being designated for wide body access. Where the existing concourse is removed and replaced with pavement, a thinner pavement section can be used, so long as the gate positions are such that the aircraft parking areas are located on the existing full-strength pavement. As is illustrated in the **FIGURE 23** below, a wide body gate can be accommodated at the southeast corner of the new concourse. General aviation and military aircraft can park and passengers cleared on the west side of the concourse at ramp level. Separate facilities are provided for screening GA and DoD passengers in the CBP FIS facilities.

If power in and power out operations are desired for the general aviation aircraft, then the number of aircraft that can be staged to the west of the concourse is limited. If defined parking positions are established, and tug push out operations are implemented, then more general aviation aircraft can be staged at the Customs ground clearance area.

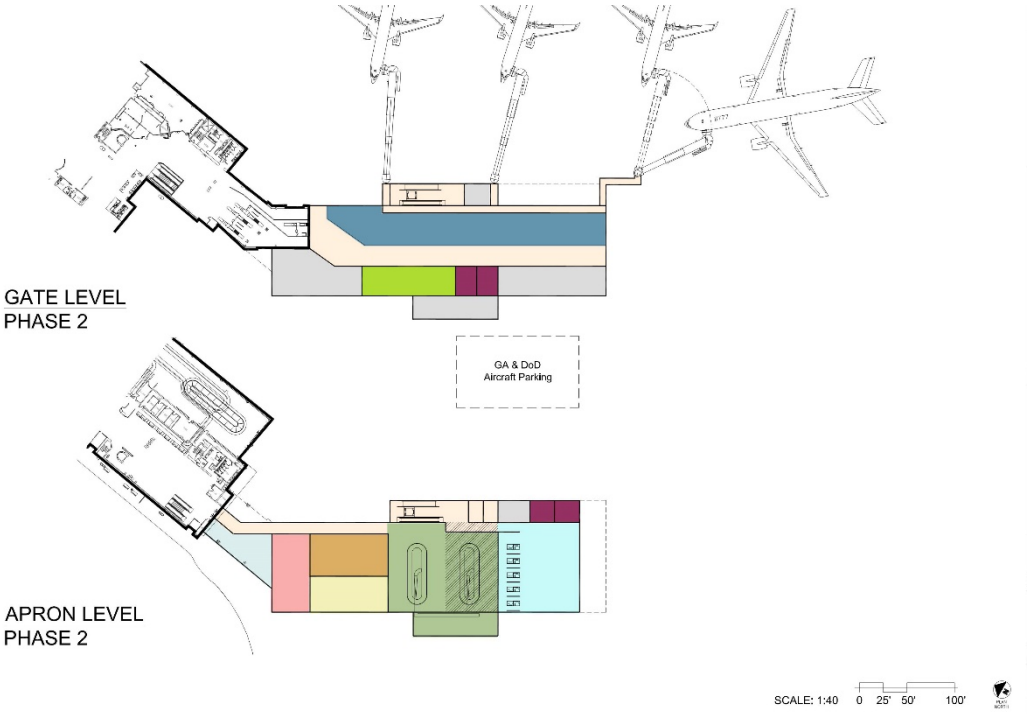
- COSTS: $53.545 Million (Phase 1 Budget)
- CAPACITY: 300-400 INTL PAX/HR, +175,000 INTL PAX/YR
- SCOPE: ~55,700 GSF addition, ~0 GSF renovated, ~66,000 demolition
- Advantages
    - Recheck/Connecting Flights: Shortest Pedestrian Travel
    - Access to Terminal Parking & Multi-Modal Transit
    - Modern Facility: All New Uniform Construction
    - Phasing Potential & High Expandability
    - Domestic & International Switchable Gates
    - Most Flexible Layout
    - Two Level FIS (Access to Ticket and Gate Levels)
    - Energy Efficient Option
    - Mid-Level Cost
- Disadvantages
    - None Noted

FIGURE 20 – Preferred Concept Design, Option 5, Phase 1



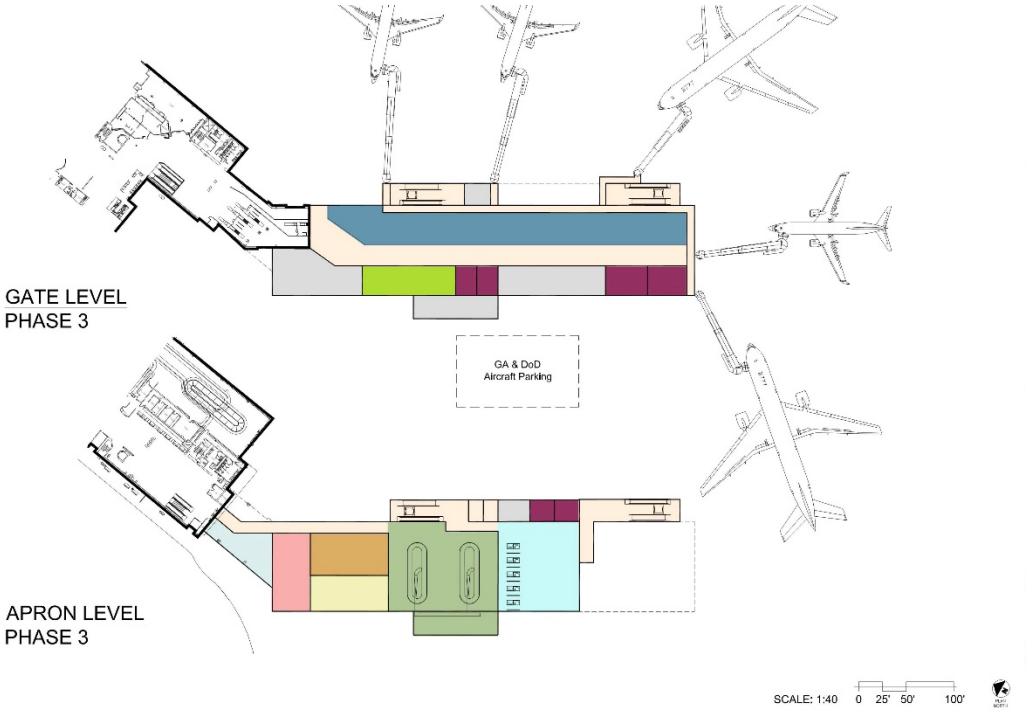
Prepared by Miller Dunwiddie Architecture

FIGURE 21 – Preferred Concept Design, Option 5, Phase 2



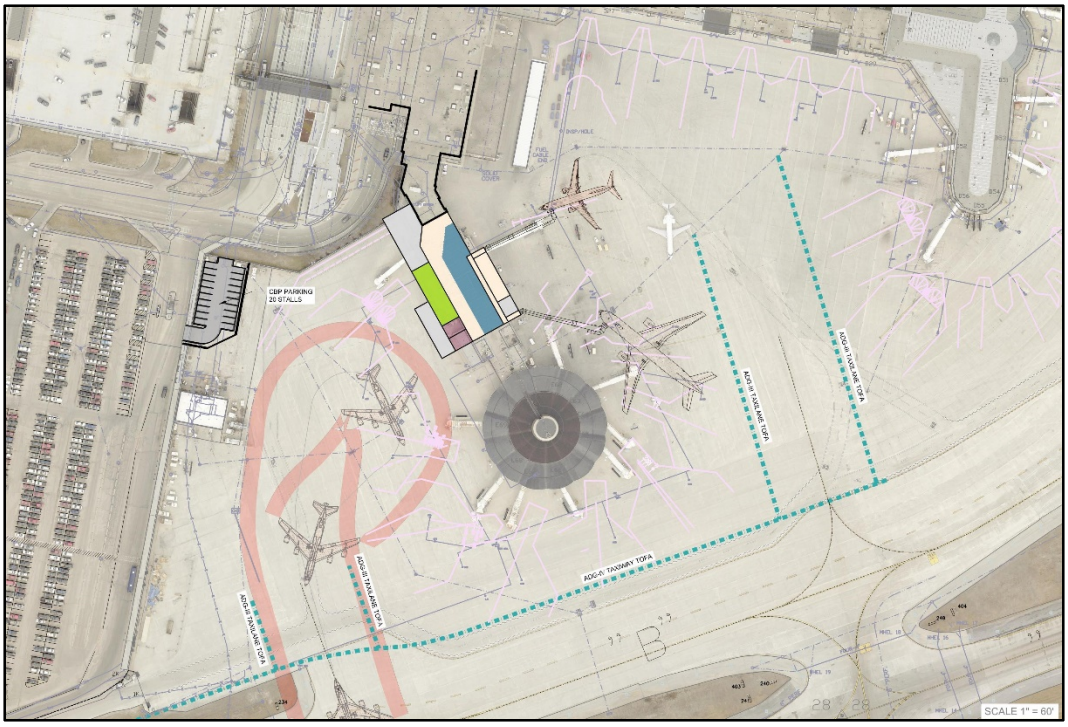
Prepared by Miller Dunwiddie Architecture

FIGURE 22 – Preferred Concept Design, Option 5, Phase 3



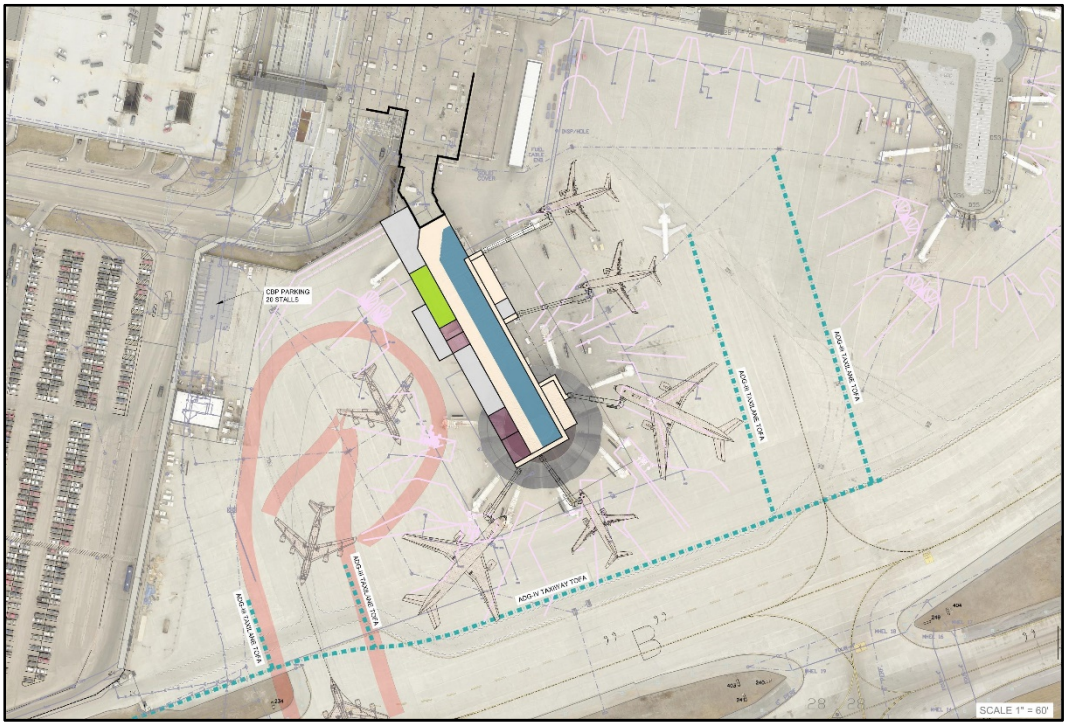
Prepared by Miller Dunwiddie Architecture

FIGURE 23 – Preferred Concept Design Ramp Layout, Option 5, Phase 1



Prepared by Foth Infrastructure & Engineering

FIGURE 24 – Preferred Concept Design Ramp Layout, Option 5, Phase 3



Prepared by Foth Infrastructure & Engineering

4.4. Recommendations

The Miller Dunwiddie team recommends that GMIA proceed with Preferred Concept Design Option 5 as the planning basis for its new International Concourse. The combination of: quality of Level of Service, lowest first cost with comparative cost at the end of Phase 3, and the most efficient and lowest operational cost makes Option 5 a predictable, manageable, and expandable solution for GMIA's long-term international concourse.

Key criteria when considering Options 5 include:

- Option 5
    - Best meets GMIA's project goals except for $50 Million first cost.
    - Lowest first cost with low to moderate cost to Phase 3.
    - All new construction provides most predictable and longest life-cycle operational systems and energy efficiency.
    - Meets current FAA and CBP standards.
    - All new construction provides long-term flexibility and lowest impact to operations for future years.

End of Section

5. FINANCIAL EVALUATION

To assess the overall financial feasibility and affordability of GMIA's proposed International Concourse options, a financial analysis was conducted as part of the study. In general, the FIS financial plan was conducted as follows:

- An overview of the Airport's financial structure was prepared to present the current accounting practices, financial operating environment, and key provisions of the Airport's agreement with the airlines.
- Rough order of magnitude (ROM) cost estimates for each International Concourse alternative concept were prepared in previous sections of this report and are summarized in this chapter, along with proposed timing for each International Concourse option.
- Potential funding sources were identified, including Passenger Facility Charges (PFCs), the Airport's Airport Development Fund Account (ADFA), and GARBs. Annual GARB debt service estimates were then prepared for each International Concourse option.
- Estimates of the Airport's incremental airline CPE were prepared based on the incremental GARB debt service and terminal O&M Expenses associated with each International Concourse option.
- A break-even analysis was prepared to calculate the required FIS Fee needed to fully recover all costs associated with each International Concourse option. These full cost recovery FIS Fees were then compared to FIS fees charged at other airports to assess the overall feasibility of each International Concourse option.

5.1. MKE Financial Structure

The County owns and operates the GMIA and Timmerman Airport, which together comprise the Airport System. The Airport System is accounted for as an enterprise fund within Milwaukee County. The Airport System is economically self-sustaining and operates solely on revenue generated from operations and concessions, plus federal and state funding of primarily airfield improvements. For financial purposes, and in the calculation of airline rates and charges, the County combines the financial operations of the GMIA and Timmerman Airport.

5.2. Airline-Airport Use and Lease Agreement

The County and each Signatory Airline executed an amendment to extend the AULA for an additional five years. The amended AULA expires on December 31, 2020. As defined in the amended AULA, the following summarize key terms and provisions of the AULA:

- The primary airline rates charged by the Airport are landing fees, terminal rents, flexible response security charges, and apron fees. The revenues generated by these fees are used to finance the activities of the Airport, including operating and maintaining the terminal complex, the airfield, and the apron facilities.
- The County has established various cost centers within the Airport System to which it allocates the direct and indirect costs of providing the facilities within such cost centers and from which it recovers such costs from the users of such facilities.
- Overall, airline rates and charges at the Airport are established based on a residual rate methodology, and allows for certain deposits into the Airport's Surplus Fund. In general, under a

residual rate-setting methodology, the airlines are responsible for paying for any net remaining costs after the credit of all non-airline revenues. In general, the terminal rental rates, landing fee, and apron fee at the Airport are calculated pursuant to the following general methodologies:

  - Airline terminal rents are calculated based on a residual rate-setting methodology. The total terminal requirement, which includes allocated direct and indirect terminal O&M Expenses, debt service, depreciation, and debt service coverage, is reduced by 90 percent of all revenues generated by terminal concessions, FIS fees, rental car, public parking, and other terminal revenues to determine the net terminal requirement. The net terminal requirement is then divided by rented airline space to determine the average airline terminal rental rate per square foot.
  - Airline Landing Fees are calculated based on a residual rate-setting methodology. The total airfield requirement, which includes allocated direct and indirect airfield O&M Expenses, debt service, depreciation, and debt service coverage, is reduced by general aviation revenues, non-signatory landing fees, air cargo rental revenue, MKE Regional Business Park net revenues (or net costs), and other airfield revenues to determine the net airfield requirement. The net airfield requirement is then divided by signatory landed weight to determine the signatory landing fee per thousand pounds of airline landed weight.
  - Airline Apron Fees are calculated based on a residual rate-setting methodology. The total apron requirement, which includes allocated direct and indirect apron O&M Expenses, debt service, depreciation, and debt service coverage, is reduced by other apron revenues to determine the net apron requirement. The net apron requirement is then divided by linear feet of apron to determine the signatory apron fee per linear foot.

- Deposits to the ADFA are allowed at an amount equivalent to 10 percent of the Airport's concession revenues (including terminal concessions, public parking, rental car, FIS fees, and other terminal revenues). Monies deposited into the ADFA can be used for capital improvements or any lawful Airport System purpose, subject to certain limitations. The maximum amount that may be held in the ADFA is $15 million. If the amount on deposit in the ADFA is less than $15 million, deposits can continue to be made to the ADFA. As of the end of FY 2016, the Airport had approximately $12.7 million in the ADFA that could be used toward future airport capital projects.
- The Amended AULA provides for a pre-approved Five-Year Capital Improvement Program (CIP) for 2016-2020 (Five-Year CIP) totaling $147.8 million, with a Net Financing Requirement totaling $9.0 million. The 2016 - 2020 CIP was subsequently revised and reduced internally by the County from a total of approximately $147.8 million to $108.5 million. The reduced budget is the result of several projects being eliminated or deferred, while other projects were updated or reprioritized. The revised Five-Year CIP consists of $44.2 million for Airfield projects, $50.5 million for Terminal projects (including $42 million for the FIS project), with the balance totaling $13.7 million for various other Airport projects. The primary funding consists of:
  - $37.7 million from the ADFA;
  - $33.6 million in total FAA Airport Improvement Program (AIP) grants;
  - $21.6 million Pay as You Go (PAYGO) PFCs;
  - $9.0 million in Additional Bonds;

  - $4.9 million in State Grants, and;
  - $1.7 million in Capital Improvement Reserve Fund ("CIRF") expenditures.
- Under the Amended AULA, the Signatory Airlines consented to the Airport System's CIP for the years 2016 through 2020 as a condition of entering into the Amended AULA. The Airport can add or modify projects without Majority-In-Interest (MII) approval provided that the Net Financing Requirement Cap on the total capital improvement plan is not exceeded.
- If additional projects are proposed to be added to the CIP that would exceed the negotiated financing cap amount that the Signatory Airlines and the County have agreed to in the Amended AULA for the years 2016 through 2020, then the projects must be submitted to the Signatory Airlines for MII approval. Similarly, any new projects not included in the 2016 to 2020 Capital Improvement Program would require airline MII approval. Under the Amended AULA, projects having an impact on Airport rates and charges must be approved by 51 percent of the Signatory Airlines, which collectively pay more than 51 percent of associated cost center expenses during the most recent six-month period.

5.3. Federal Inspection Service (FIS) Fees

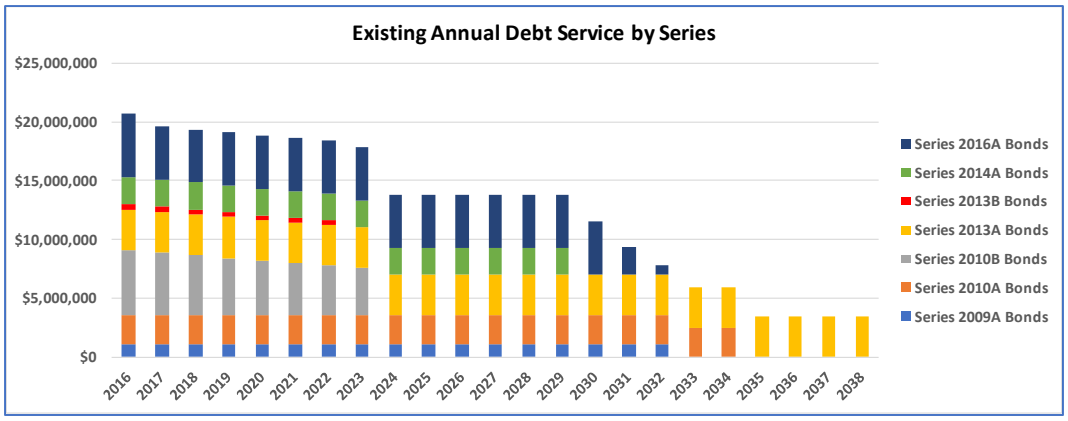
GMIA currently charges an FIS fee to the airlines using the International Concourse facility of $7.50 per screened passenger. The Airport's FIS fee has not been adjusted for a number of years. The FIS fee is only charged to those airlines that require screening of international passengers, and is not assessed to airlines serving international passengers that have already been pre-screened (such as those arriving from Canada).

In FY 2016, a total of 37,098 international passengers were screened at MKE, generating FIS Fee revenues of approximately $278,000. Per the Amended AULA described above, 90 percent of the Airport's FIS fee revenue are credited toward the terminal rental rates at the Airport and thereby are used to offset the airlines' terminal rental revenues. The remaining 10 percent of FIS fee revenue is deposited into the ADFA and are available for future airport capital projects.

5.4. Existing Airport Bonds

The County has previously issued Airport Revenue Bonds to fund various airport infrastructure projects at the MKE. As of the end of FY 2016, the Airport had $190.56 million of principal outstanding from seven Airport Revenue Bonds (Series 2009A, Series 2010A, Series 2010B, Series 2013A, Series 2013B, Series 2014A, and the Series 2016A). As shown in **Figure 25**, total annual debt service on the Airport's existing bonds is approximately $19.6 million in FY 2017, and will decrease to $14.6 million in FY 2024 following the retirement of the Series 2010B and 2013B Bonds. Beyond FY 2024, the Airport's existing debt service is expected to remain level through FY 2029, and then decrease each year thereafter through the term of the debt.

FIGURE 25 – Existing Annual Debt Service by Series



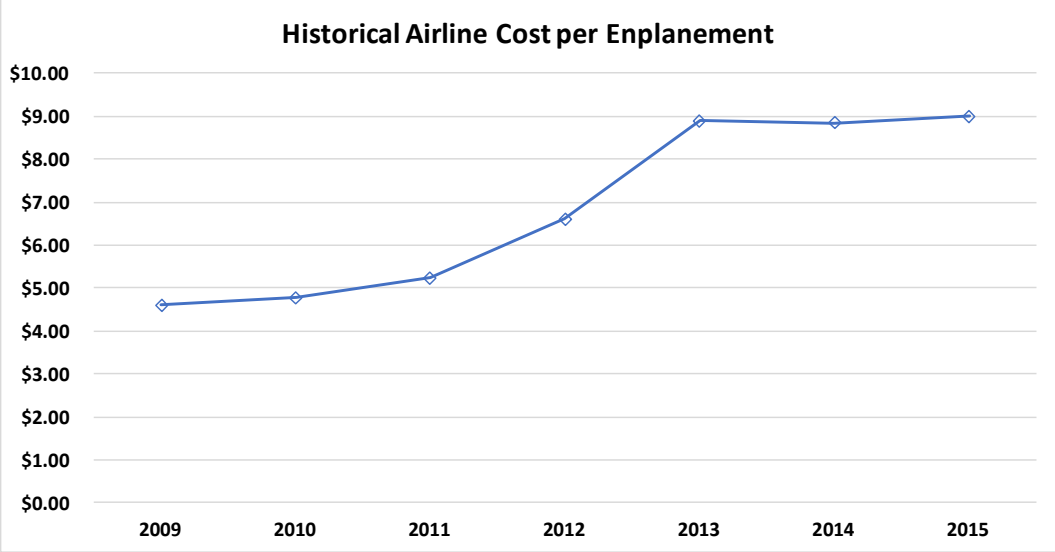
Source: Airport official statements.
Prepared by Trillion Aviation

As part of the County's General Bond Resolution (Resolution), the County has covenanted to establish and collect such rates, rentals, fees and charges sufficient so that in each fiscal year the Net Revenues, together with Other Available Funds (defined as the amount of unencumbered funds on deposit or anticipated to be on deposit on the first day of the fiscal year in the Coverage Fund and the Surplus Fund in an amount up to 25 percent of debt service in the fiscal year), will be at least equal to 125 percent of debt service on all Bonds then Outstanding. PFC Revenues are treated as Revenues under the Rate Covenant only to the extent they are specifically designated as Revenues in the respective Supplemental Resolutions authorizing the bonds. Accordingly, PFCs are currently being used to pay debt service on PFC-approved projects financed with the Series 2005A Bonds, Series 2006A Bonds, Series 2007A Bonds, Series 2009A Bonds, Series 2010A Bonds, Series 2013A Bonds, Series 2014A Bonds, and Series 2016 Bonds and on a PAYGO basis for other FAA-approved projects.

5.5. Airline Cost per Enplanement (CPE)

Figure 26 presents the Airport's historical airline CPE from FY 2009 to FY 2015. The airline CPE (all airline fees and rentals divided by enplaned passengers) is a metric used to compare the overall cost of airline operations to other airports throughout the U.S. As shown, due primarily to decreased enplaned passengers since 2009, the Airport's airline CPE increased from $4.60 in FY 2009 to $8.90 in FY 2013. Since then, the Airport's airline CPE has remained relatively flat, increasing only slightly to $9.00 in FY 2015.

FIGURE 26 – Historic Airline Cost per Enplanement



Source: Airport official statements.
Prepared by Trillion Aviation

5.6. International Concourse Options - Capital Costs and Funding Sources

Table 5 presents a summary of the estimated capital cost of each FIS option presented earlier in this report.

TABLE 5 - Estimated International Concourse Construction Costs by Option ($'s in millions)

FIS Project Element	AULA Pre-Approved FIS Costs	MKE Revised FIS Costs	Option 4 (Phase 1) Costs	PCD Option 5 (Phase 1) Cost
Engineering & Design	--	--	$5.10	$4.73
Construction [1]	--	--	35.80	32.39
Demolition [1]	--	--	1.20	1.83
Soft Costs/Contingency	--	--	15.90	14.60
TOTAL COST [2]	**$41.96**	**$49.90**	**$58.00**	**$53.55**

[1] Includes inflation to midpoint of construction.
[2] Totals may not add due to rounding.
Sources: Airport records (AULA FIS Costs) and Miller Dunwiddie Architecture (Preferred Concept Design Option 4 and Preferred Concept Design Option 5 Costs).
Prepared by Trillion Aviation

As part of the Airport's Amended AULA, total FIS costs were initially estimated to be approximately $42 million. This figure was subsequently updated by the Airport to $49.9 million (see "Revised FIS Costs" in the table above). Total estimated costs for the various International Concourse options from this study are estimated range from approximately $53.6 million for the Preferred Concept Design Option 5 (Phase 1) up to $58.0 million for Option 4 (Phase 1).

As discussed above, the Signatory Airlines previously approved the funding of the Airport's proposed International Concourse facility as part of the Amended AULA; this funding plan was subsequently revised by the Airport. **Table 6** presents the International Concourse facility project costs and

funding sources that were pre-approved by the Signatory Airlines in the Amended AULA, the revised Airport funding plan, as well as the projected funding sources for each International Concourse option developed as part of this study.

TABLE 6 - FIS Funding Sources by Option ($'s in millions)

FIS Funding Source	AULA Pre-Approved FIS Sources	MKE Revised FIS Sources	Option 4 (Phase 1) Sources	PCD Option 5 (Phase 1) Sources
PAYGO Passenger Facility Charges (PFCs)	$9.37	$4.00	$4.00	$4.00
Airport Development Fund Account (ADFA) Reserves	23.59	$15.90	$15.90	$15.90
PFC-Backed General Airport Revenue Bonds	--	30.00	$38.1	$33.65
General Airport Revenue Bonds (GARBs)	9.00	--	--	--
TOTAL FIS COST [1]	**$41.96**	**$49.90**	**$58.00**	**$53.55**

[1] Totals may not add due to rounding.

Sources: Airport records (AULA Pre-Approved FIS Costs and Funding Sources) and Trillion Aviation (GARBs). Prepared by Trillion Aviation

A brief discussion of each of the proposed funding source for the International Concourse facility is provided in the following sections.

5.7. Passenger Facility Charges

On July 24, 2015, the Airport submitted PFC amendment applications 10, 12, and 13 to the FAA requesting authority to amend the collection rates from $3.00 to $4.50. The FAA approved the amendment applications, resulting in the current $4.50 collection authority being extended until February 1, 2020. The Airport is currently in the process of amending applications 14 through 17 and preparing a new PFC application 18.

PFCs are currently being used to pay debt service on PFC approved projects financed with the Series 2005A Bonds, Series 2006A Bonds, Series 2007A Bonds, Series 2009A Bonds, Series 2010A Bonds, Series 2013A Bonds, Series 2014A Bonds, and Series 2016 Bonds and on a PAYGO basis for other FAA approved projects. In total, the Airport collects approximately $14.1 million in PFCs, of which approximately $8.3 million is applied toward debt service on the above-mentioned bonds. Any remaining PFCs are used on a PAYGO basis or deposited into the Airport's PFC Fund. As of the end of FY 2016, the Airport had approximately $28.7 million remaining in the PFC Fund to be used toward future approved PFC eligible project costs and/or debt service.

Under the Amended AULA, the Airport programed approximately $9.37 million in PFCs on a Pay-as-you-go basis toward the future costs of constructing the proposed International Concourse facility. This amount was subsequently revised by the Airport to approximately $4.0 million of pay-as-you-go PFCs. In addition, the Airport revised its FIS funding to assume that approximately $30 million of the International Concourse facility would be funded through the issuance of PFC-backed bonds.

5.8. Airport Development Fund Account (ADFA) Reserves

As discussed previously, any monies deposited into the ADFA can be used for capital improvements or any lawful Airport System purpose, subject to certain limitations. The maximum amount that may be held in the ADFA is $15 million. If the amount on deposit in the ADFA is less than $15 million, deposits can continue to be made to the ADFA. As of the end of FY 2016, the Airport had approximately $12.7 million in the ADFA that could be used toward future airport capital projects.

Based on the Amended AULA, the Airport had programed approximately $23.6 million in ADFA funds toward the future costs of constructing the proposed International Concourse facility, however, this amount was subsequently revised by the Airport to approximately $15.9 million of ADFA Reserve funds.

5.9. Airport Revenue Bonds

All remaining costs not funded with Pay-as-you-go PFCs and ADFA Reserve funds will need to be funded through the issuance of Airport Revenue Bonds. As presented in **Table 7**, the amount of revenue bonds needed to fund the remaining FIS construction costs varies for each FIS alternative, ranging from $9.0 million up to $38.1 million. Based on these revenue bond amounts needed to fund the remaining FIS project costs, Trillion prepared estimates of annual debt service associated with each FIS option. In general, debt service estimates associated with the issuance of bonds included the following assumptions:

- Level debt service with a fixed interest rate of approximately 6.0%
- Bonds are issued at the beginning of FY 2018 with a 30-year bond term
- 2-year construction period with a Date of Beneficial Occupancy (DBO) of January 1, 2020
- For bonds backed by general airport revenues (GARBs), a portion of the bond proceeds are assumed to fund capitalized interest during construction of the FIS facility (assumed to be 2 years). For PFC-backed bonds, no capitalized interest was assumed.
- A portion of the bond proceeds will fund a debt service reserve account deposit

TABLE 7 - Bond Sources and Uses by Option

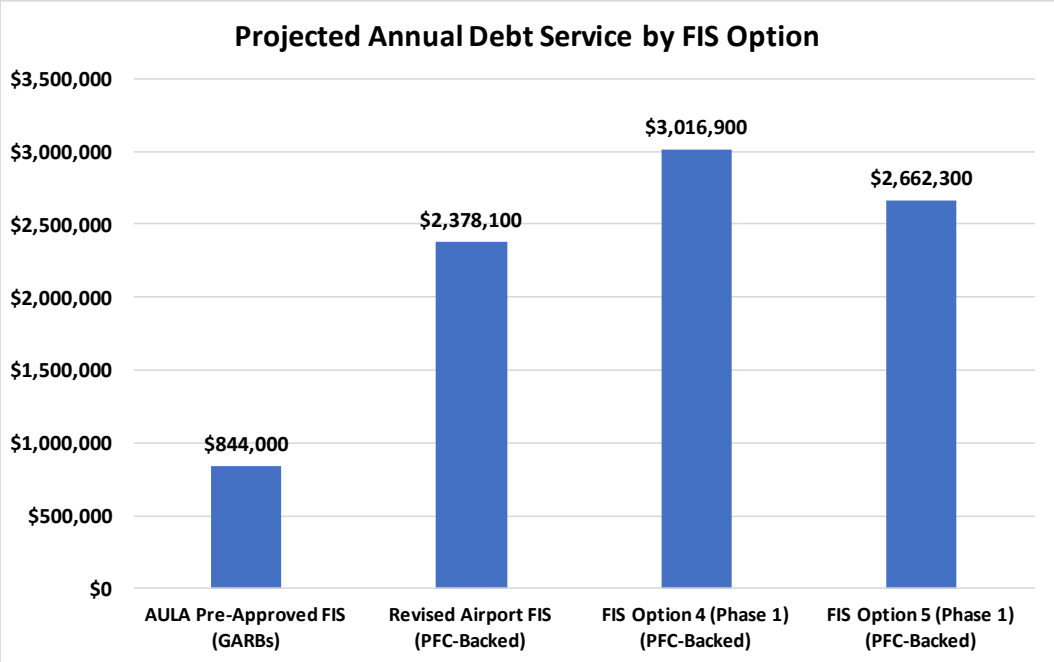
Bond Proceed Sources and Uses	AULA Pre-Approved FIS (GARBs)	MKE Revised FIS (PFC-Backed)	Option 4 (Phase 1) (PFC-Backed)	PCD Option 5 (Phase 1) (PFC-Backed)
Sources				
Par Amount of Bonds	**$11,315,000**	**$32,705,000**	**$41,535,000**	**$36,680,000**
Uses				
Construction Fund	$9,000,000	$30,000,000	$38,100,000	$33,645,000
Debt Service Reserve Fund	844,015	$2,375,983	3,017,473	2,664,762
Capitalized Interest	1,357,800	0	0	0
Costs of Issuance	113,150	327,050	415,350	366,800
Rounding	35	1,967	2,177	3,438
Total Uses	**$11,315,000**	**$32,705,000**	**$35,780,000**	**$30,755,000**

Note: The AULA Pre-Approved FIS was assumed to be funded with General Airport Revenue Bonds (GARBs). The Revised FIS and all other International Concourse Options are assumed to be funded with PFC-backed bonds.

Prepared by Trillion Aviation.

Figure 26 presents the estimated annual debt service for each FIS option. As shown, annual debt service for the AULA Pre-Approved FIS, which was assumed to be secured by general airport revenues, is estimated to be approximately $844,000. Under the revised FIS funding plan and for each of the proposed International Concourse options, the debt service is anticipated to be secured by PFC revenues and is estimated to range from approximately $2.24 million for Preferred Concept Design Option 5 (Phase 1) up to approximately $2.6 million for Option 4 (Phase 1). In each case, annual debt service is projected to remain level at the amounts shown through the 30-year term of the bonds (through FY 2047).

FIGURE 26 – Projected Annual Debt Service by International Concourse Option



Note: The AULA Pre-Approved FIS was assumed to be funded with General Airport Revenue Bonds (GARBs). The Revised FIS and all other International Concourse Options are assumed to be funded with PFC-backed bonds.
Prepared by Trillion Aviation

5.10. Estimated FIS Operating and Maintenance Expenses

Rough order of magnitude Operating and Maintenance (O&M) Expenses were estimated for each International Concourse option based on the incremental amount of terminal building square footage either added or subtracted from the GMIA's existing terminal facilities. In general, terminal O&M Expenses typically range from between $20 and $30 per square foot and include certain direct O&M Expenses such as janitorial services, building and system maintenance, and heating and cooling costs (utilities).

Table 8 presents the projected incremental terminal O&M Expenses associated with each FIS option based on an estimated O&M Expense ratio of $25 per square foot (assumed to be in 2020 dollars,

when the International Concourse facility was assumed to be operational).[1] As shown, the AULA Pre-Approved and Revised FIS are estimated to result in incremental terminal O&M Expenses of approximately $375,000 per year. Option 4 is not estimated to result in any material increase to Terminal O&M, while Preferred Concept Design Option 5 is estimated to decrease terminal O&M Expenses by approximately $326,000 since it results in a net overall reduction in the Airport's terminal space.

TABLE 8 - Estimated Incremental Terminal O&M Expenses by International Concourse Option

	AULA Pre-Approved FIS	MKE Revised FIS	Option 4 (Phase 1)	PCD Option 5 (Phase 1)
Incremental Terminal Square Footage Increase / Decrease	15,000 sf	15,000 sf	10 sf	(13,053) sf
Assumed Terminal O&M Expense per Square Foot [1]	$25	$25	$25	$25
TOTAL INCREMENTAL TERMINAL O&M EXPENSES [1]	**$375,000**	**$375,000**	**$250**	**($326,325)**

[1] Actual terminal O&M Expense figures were not available. O&M Expense assumptions represent rough order of magnitude estimates only.
Sources: Airport records (AULA FIS space) and Miller Dunwiddie Architecture (Option 4 and Preferred Concept Design 5 apace).
Prepared by Trillion Aviation

Based on the estimated FIS annual capital and operating costs presented in the previous sections, Trillion Aviation prepared a financial analysis that examined the reasonableness of the proposed costs associated with each International Concourse option. The financial analysis examined the results under two different approaches, which are summarized below:

- **Incremental Airline Cost per Enplaned Passenger** – Examined the incremental airline cost per enplanement necessary to fund the capital costs and incremental O&M Expenses associated with each International Concourse option.
- **Incremental Cost Recovery FIS Fee** – Examined the incremental increase to the Airport's current FIS Fee necessary to fully recover all the capital costs and incremental O&M Expenses associated with each International Concourse option.

Each of these approaches are discussed in greater detail in the following sections.

5.11. Incremental Airline Cost per Enplaned Passenger (CPE)

Based on the Airport's residual rate-setting methodology, any incremental terminal capital costs and O&M Expenses resulting from the new International Concourse facility would be recovered through airline terminal rents charged to the airlines. As such, any increased or decreased terminal rents would in turn result in a corresponding increase or decrease to the Airport's airline CPE.

Table 9 presents the estimated incremental impact to the Airport's airline CPE, including both annual debt service and incremental O&M Expenses for each International Concourse option in FY

[1] Actual terminal O&M Expense figures were not available. O&M Expense assumptions represent rough order of magnitude estimates only.

2020. As shown, the AULA Pre-Approved FIS costs and Preferred Concept Design Option 5 results in an incremental increase to the Airport's airline CPE of $0.26. This increase in airline costs is primarily a function of the fact that the associated debt service for the AULA Pre-Approved FIS was assumed to be backed by general airport revenues (i.e., airline revenues) rather than PFC revenues as is the case with the Revised FIS and each of the corresponding International Concourse options identified as part of this study.

As shown, due to the use of PFC-backed bonds and relatively minor O&M Expense increases, the Revised FIS and Option 4 would result in little to no increase to the Airport's future airline CPE. Because of a decrease in overall terminal space, Preferred Concept Design Option 5 is projected to reduce the Airport's airline CPE by approximately $0.09.

TABLE 9 - Incremental Airline Cost Per Enplaned Passenger by International Concourse Option (FY 2020)

	AULA Pre-Approved FIS	MKE Revised FIS	Option 4 (Phase 1)	PCD Option 5 (Phase 1)
Annual FIS Debt Service	$844,000	$2,378,100	$3,016,900	$2,662,300
LESS: Debt Service Paid for with PFCs	0	($2,378,100)	($3,016,900)	($2,662,300)
Annual Incremental O&M Expenses	125,000	125,000	250	(326,325)
Net Annual FIS Costs	**$969,000**	**$125,000**	**$250**	**($326,325)**
2020 Enplaned Passengers (est.)	3,696,000	3,696,000	3,696,000	3,696,000
ESTIMATED 2020 INCREMENTAL AIRLINE CPE	**$0.26**	**$0.03**	**$0.00**	**($0.09)**

Note: The AULA Pre-Approved FIS was assumed to be funded with General Airport Revenue Bonds (GARBs). The Revised FIS and all other International Concourse Options are assumed to be funded with PFC-backed bonds.
Prepared by Trillion Aviation.

5.12. Break-Even Cost Recovery FIS Fee

As mentioned previously, GMIA currently charges the airlines a $7.50 fee for every arriving international passenger that is screened by Customs and Border Patrol (CBP) at the Airport. As an alternative to increasing airline terminal rents and subsequently increasing the Airport's airline CPE, the Airport could instead choose to increase its FIS fee from the $7.50 fee currently charged to help offset some, or all, of the increased capital and O&M Expense costs associated with the new FIS facility. Increasing the Airport's FIS Fee would help to offset any increases (or decreases) to the Airport's airline CPE.

Table 10 presents the FIS fee that would be required by the Airport based on a full cost recovery methodology and an assumption of 50,000 international screened passengers in 2020 for each International Concourse development option.

TABLE 10 - Calculated Full Cost Recovery FIS Fee (FY 2020)

	AULA Pre-Approved FIS	MKE Revised FIS	Option 4 (Phase 1)	PCD Option 5 (Phase 1)
Annual FIS Debt Service	$844,000	$2,378,100	$3,016,900	$2,662,300
LESS: Debt Service Paid for with PFCs	0	($2,378,100)	($3,016,900)	($2,662,300)
Annual Incremental O&M Expenses	125,000	125,000	250	(326,325)
Net Annual Net FIS Cost	**$969,000**	**$125,000**	**$250**	**($326,325)**
2020 FIS Int'l Screened Passengers	50,000	50,000	50,000	50,000
ESTIMATED COST RECOVERY FIS FEE (per screened passenger)	**$19.38**	**$2.50**	**$0.01**	**($6.53)**
Current FIS Fee	$7.50	$7.50	$7.50	$7.50
TOTAL FIS FEE REQUIRED (per screened passenger)	**$26.88**	**$10.00**	**$7.51**	**$0.97**

Prepared by Trillion Aviation.

As shown, in order to fully recover all of the costs associated with the AULA Pre-Approved FIS, the Airport's FIS Fee would need to increase to approximately $26.88. Under the Revised FIS, the FIS fee would need to increase to approximately $10, and Option 4 would not require and increase to the Airport's existing FIS fee of $7.50. Finally, due to is reduce O&M Expense costs, Preferred Concept Design Option 5 could result in a decrease to the Airport's FIS fee to approximately $0.97 (note however, that any decrease to the Airport's FIS fee would be offset by an increase to the Airport's overall airline CPE discussed in the previous section).

To assess the reasonableness of these calculated cost-recovery FIS fees, Trillion Aviation reviewed the FIS fees at other airports throughout the U.S. FIS Fees at other U.S. airports are not often published, and of those that are publicly available, they can vary significantly. Some larger airports calculate their FIS fees annually based on a full cost recovery methodology, while many will simply establish their FIS Fee based on a market rate. Often, this market rate is established well below the full cost recovery rate simply to help attract international service and is often based on the rates established at other competing or nearby airports.

Table 11 presents FIS fees charged at other airports throughout the U.S. As shown, many of the airports charge based on a per international arriving passenger basis, while others assess an FIS fee based on the number of flights and/or size of aircraft. Of those airport's that charge on a per international arriving passenger basis, their FIS fee ranges anywhere from $3.08 at Houston Hobby (HOU) up to $12.35 at Los Angeles International (LAX).

TABLE 11 - FIS Fees at Other Airports

AIRPORT	CODE	FIS FEE(S)	BASIS FOR FIS FEE
Anchorage International Airport	ANC	$5.51	per FIS arriving passenger (2018)
Baltimore-Washington International Airport	BWI	$6.00 $7.50	per international deplaned passenger (w/ agreement) per international deplaned passenger (w/o agreement)
Charlotte International Airport	CLT	$5.68	Per arriving international seat (2017)
Columbus International Airport	CMH	$400.00 $550.00	per Turn (<200 seats) per Turn (>200 seats)
Fresno Yosemite International Airport	FAT	$12.00	per deplaned passenger using FIS facility
George Bush Intercontinental Airport	IAH	$5.87	per international deplaned passenger
Los Angeles International Airport	LAX	$10.50 $12.35	per international deplaned passenger (w/ agreement) per international deplaned passenger (w/o agreement)
Minneapolis International Airport	MSP	$5.19	per international passenger
Oakland International Airport	OAK	$10.00	per arriving international passenger
Orange County - John Wayne Airport	SNA	$6.80	per FIS arriving passenger based on allocated costs and FIS square footage (2016)
Phoenix International Airport	PHX	$1.30 $430.00	per FIS arriving passenger (2016) per aircraft turn fee (2016)
Portland International Airport	PDX	$4.28 $5.35	per international deplaned passenger (w/ agreement) per international deplaned passenger (w/o agreement)
San Antonio International Airport	SAT	$8.50	per international deplaned passenger
San Diego International Airport	SAN	$2.00	per arriving international seat
William P. Hobby Airport	HOU	$3.08	per international deplaned passenger

Source: Individual airport records.
Prepared by Trillion Aviation

Based on the calculated FIS Fees necessary to fully recover it FIS costs (presented in **Table 10**), the Airport's required FIS Fee under the AULA Pre-Approved FIS would be substantially higher those assessed at other airports throughout the U.S., and therefore is not considered viable. Alternatively, however, the Airport could choose to only partially increase its current FIS Fee to help offset increased terminal rents and airline CPE (presented earlier in **Table 10**). Every $2.50 increase to the Airport's FIS Fee would generate approximately $125,000 additional FIS revenues to help offset increased terminal rents and the airline CPE at the Airport.[2] As such, every $2.50 increase to the Airport's FIS Fee would help reduce the Airport's estimated incremental airline CPE by roughly $0.03 to $0.04.

5.13. Findings and Conclusions

The following summarizes the finding of the FIS financial analysis presented in the previous sections:

- **AULA Pre-Approved FIS** was estimated to have the lowest capital cost to construct ($42 million), however, given that it was assumed to be funded in part by General Airport Revenue Bonds, it results in the highest incremental increase to the Airport's airline CPE ($0.26).

[2] Assumes approximately 50,000 international passengers are screened through the Airport's FIS facility in 2020.

- The **Revised FIS** funding plan by the Airport anticipates using PFC-backed bonds to fund the debt funded portion of the FIS project (in addition to PFC pay-as-you-go and ADFA funds). As a result, the Revised FIS funding plan is not anticipated to have any impact on the Airport's future airline CPE.
- ***Option 4*** has the highest capital costs (~$58 million), however, it also would not result in any measurable increase to terminal space or incremental terminal O&M Expenses. Given the use of PFC-backed bonds, Option 4 is not expected to increase the Airport's airline CPE.
- ***Preferred Concept Design Option 5*** is expected to have a net reduction in terminal space, and therefore is expected to result in an overall reduction (savings) of annual terminal O&M Expenses. Given the use of PFC-backed bonds, Option 4 is not expected to increase the Airport's airline CPE, overall, *Preferred Concept Design* Option 5 is estimated to decrease the Airport's airline CPE by roughly $0.09.

In assessing the overall financial feasibility of the various International Concourse options, there are several other factors that warrant consideration by the Airport, including:

- **Implementing a Partial Increase to the GMIA's Existing FIS Fee** – The Airport could choose to partially increase its existing FIS Fee to help offset increased terminal rents and airline CPE. As demonstrated above, every $2.50 increase to the Airport's FIS fee would serve to reduce the Airport's estimated incremental airline CPE by roughly $0.03 to $0.04. Given the negligible impact that increasing the Airport's FIS Fee would have, however, it may not be prudent to increase the Airport's FIS fee until such time that the Airport's international traffic increases to levels that can justify an increase to its FIS Fee.
- **Use of Additional Pay-As-You-Go PFCs** – As of the end of FY 2016, the Airport had approximately $28.7 million remaining in the PFC Fund to be used toward approved PFC eligible project costs and/or debt service. The Airport collects approximately $14.1 million in PFCs annually, of which, approximately $8.3 million is used toward eligible debt service. The remaining PFCs (approximately $5.8 million per year) are used on a PAYGO basis toward eligible project costs, or are deposited into the Airport's PFC Fund. Given the Airport's current PFC PAYGO approvals of approximately $31.5 million, combined with the Airport's planned 5-year CIP PFC PAYGO expenditures of approximately $21.6 million, it appears that most of the Airport's PFC collections through the year 2020 are either currently committed or already earmarked toward eligible projects.

  However, if any of the Airport's currently approved or planned PFC PAYGO expenditures are delayed or deferred, additional PFCs may be available to apply toward the planned FIS facility prior to 2020, and thereby could be used to lower the anticipated PFC-backed bond funding for the International Concourse facility.
- **Use of Additional Airport Development Fund Account (ADFA) Funds** – Like PFCs, additional ADFA funds that might become available over the next few years could be used to apply toward the planned International Concourse facility prior to 2020, and help to lower the necessary bond funding for the International Concourse facility.

  As of the end of 2016, the Airport had a balance of approximately $12.7 million in the ADFA Fund, and deposits an additional $4.7 million into the ADFA Fund each year. Based on the

Amended AULA, the Airport and the airlines agreed to apply approximately $24.6 million of ADFA funds toward the new International Concourse facility, in addition to another $13.1 million of ADFA funds for other AULA approved 5-year CIP projects. Given the current ADFA Fund balance and future ADFA funding commitments, most, if not all, of the Airport's expected future ADFA funds are earmarked toward the FIS or other projects through the year 2019. However, if any of the Airport's currently planned ADFA funding expenditures are delayed or deferred, additional ADFA funds may be available to apply toward the planned International Concourse facility prior to 2020, and thereby could be used to lower the necessary bond funding for the International Concourse facility.

- **Short-Term Financing** – Given the existing near-term commitments of the Airport's PFCs and ADFA Funds toward the International Concourse facility and other CIP projects through 2020/2021, the Airport could consider using short-term financing (1 to 5 years) to finance some, or all, of the costs to be funded with long-term revenue bonds. The amount funded with short-term notes could then be repaid using PFCs and/or ADFA funds, thereby saving costs associated with long-term bond financing and interest costs.
- **Potential Savings from Closure or Reuse of Existing IAB** – All of the International Concourse options considered would relocate the Airport's FIS functions from of the Airport's existing International Arrivals Building (IAB) and into either a remodeled/rebuilt Concourse E or a new International Concourse facility attached to the Airport's existing domestic terminal. As such, the existing IAB facility would no longer be used, and would either be "moth-balled" and/or repurposed to use for another function.

  Currently, the existing IAB encompasses approximately 20,830 square feet. Based on the O&M Expense ratio of approximately $25 per square foot assumed previously, it is estimated that the Airport could potentially save roughly $500,000 per year in O&M Expenses if it were to stop using the Airport's existing IAB.[3] These potential O&M Expense savings would serve to directly reduce the airline CPE by approximately $0.14 per enplanement.

  If the existing IAB were to be repurposed and reused for another function, the O&M Expenses savings would depend on its new function and whether it is expected to generate additional revenues from that new function.
- **Generation of Additional Concession, Parking, and Rental Car Revenues** – While difficult to quantify, it is important to note that any additional incremental international flights and arriving passengers (i.e., above those that currently fly out of the Airport) at the Airport in the future as a result of the improved International Concourse facility would also generate additional terminal concession, rental car, and parking revenues at the Airport. These additional international passenger revenues would serve to help decrease the airlines' CPE, as well as generate additional funds to deposit into the Airport's ADFA.

[3] Terminal O&M Expense figures represent rough order of magnitude estimates only. Actual O&M Expense savings from the closure of the existing IAB would need to be reviewed and studied to estimate more accurate cost savings.

In 2015, GMIA generated approximately $8.88 per enplanement from parking revenues; $2.89 per enplanement from rental car revenues; and $1.65 per enplanement from terminal concession revenues, totaling $13.42 per enplanement. As such, for every additional 10,000 international enplaned passengers using the Airport, approximately $134,000 of additional passenger revenue could be generated. Of this amount, 90% would serve to reduce the airline's terminal rents and airline CPE, and the remaining 10% would be deposited into the Airport's ADFA.

- **Airline MII Approval for Additional Bond Funding** – As discussed earlier in this chapter, per the Amended AULA, the Airport can add or modify projects and/or the project costs included in the Amended ALUA without MII approval provided that the Net Financing Requirement Cap on the total capital improvement plan is not exceeded. As such, using additional PFCs or ADFA funds as discussed in the points above would not require MII approval from the Signatory Airlines.

  If, however, financing costs for the International Concourse facility are expected to exceed the negotiated financing cap for the new International Concourse facility agreed to in the Amended AULA, the Airport would need to seek MII approval from the Signatory Airlines. Given that Preferred Concept Design Options 4 and 5 would likely exceed the $9 million revenue bond financing cap established in the Amended AULA, MII approval of the Signatory Airlines would be required. Under the Amended AULA, projects having an impact on Airport rates and charges must be approved by 51 percent of the Signatory Airlines, which collectively pay more than 51 percent of associated cost center expenses during the most recent six-month period.

As presented, Preferred Concept Design Option 5 would result in decrease to the Airport's overall airline CPE by roughly $0.09 in 2020. As a result, from a financial standpoint, Preferred Concept Design Option 5 is considered more affordable to the Airport and the Airlines.

Implementing and funding the Airport's proposed new International Concourse facility will largely be a function of the total construction cost and the PFC and ADFA funding sources available at the time of specific project implementation. The financial feasibility of the Airport's proposed International Concourse facility is based on a number of factors, most notably of which is the level of external bond funding the Airport is able to get approval from the airlines to fund the International Concourse facility and the corresponding increase to the Airport's airline CPE. While an increase of the Airport's airline CPE of $0.20 to $0.30 per year in itself is not considered unreasonable, it does run counter to the Airport's on-going strategy of continuing to decrease its airline CPE to remain competitive with other competing airports in the region.

End of Section

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6. BUDGET ESTIMATE

The budget estimating process used by MDA is intended to provide a robust definable approach and comprises three fundamentals.

- Geographic area adjusted costs based on related construction types around the upper Midwest.
- Cost per GSF for the functional intended use of the spaces incorporated into the design scope options.
- Cost estimating publications updated to first-quarter 2017 cost values.

The budget estimate was developed in March 2017 is based upon Preferred Concept Design Option, providing a gross square foot area for the purpose use within the terminal facility. Each function is projected to provide a concept level of finishes; plumbing, HVAC, fire suppression, electrical, communications &Technology (MEP); in addition to the basic building envelope (vanilla box). All the cost considerations are translated into a cost per GSF.

Our team developed a recommendation for GMIA's project soft cost based on additional owner's costs related to the International Concourse design and construction project. For the Feasibility Study, we are recommending using a soft cost fund equal to 25% of the project construction cost. Soft costs for this project will include: airport project management/coordination, code/plan review, temporary facilities, and professional services.

GMIA's design contingency recommendations were developed based on the relative expectation for the future development of design. For the Feasibility Study, we are recommending using a design contingency fund equal to 15% of the projected construction cost. As the details of the design are developed, this design contingency adjustment factor is reduced until it is zeroed out at the end of the Construction Documents phase.

GMIA's construction contingency recommendations were developed based on the relative expectation of risk of unknown factors that may be discovered once demolition and new construction is underway. For the Feasibility Study, we are recommending using a construction contingency fund equal to 10% of the projected construction cost. GMIA would retain the construction contingency into construction through construction.

Cost escalation recommendations were developed to the expected timeframe of construction is also added to the cost totals. Currently, projects of this scale are projected to escalate at 3% per year. We are using December 2019 as the expected midpoint of construction to calculated escalation.

Our team utilized comparative budget analysis during the initial concept design option using a broader price range of based on preliminary gross square footage quantities and broad terminal cost/GSF units. This comparison allowed each option to be compared based on several factors including: capacity, program elements, and cost. These comparative costs can be seen in the Design Options presentation made to GMIA in February 2017 (See Appendix B). Upon selection of Preferred Concept Design Option 5, our team developed budget estimate. The budget estimate is based on the criteria outlined in this report including: basis of cost, geographic location, contingency, soft cost, and other factors. Budgetary

Estimates for the Preferred Concept Design Option 5 is summarized below. See Appendix D for full Budget Estimate information.

During the Preferred Concept Design development phase, peak passenger capacity of 400 PAX/HR options budgetary estimates continued to show pricing beyond stated airport funding capabilities. In response, our team developed a three-phase construction approach for each preferred concept design options that lower initial (Phase 1) budget estimates based on reduced peak passenger capacity (200 PAX/HR). Subsequent phases (Phase 2 and 3) can be initiated by GMIA as peak passenger capacity trigger points are achieved at 300 PAX/HR (Phase 2) and 400+ PAX/HR (Phase 3).

6.1. Budget Estimate - Preferred Concept Design Option 5

See **TABLE 12** for a summary of the Budget Estimate Cost for Option 5, Phases 1 through 3. Based on GMIA stated funding, the summary below focuses on Phase 1 with Total Construction Budget shown for later Phases 2 and 3. See Appendix E for full Budget Estimate information.

TABLE 12 - OPTION 5, Phase 1 Budget Estimate Summary

BUDGET ITEM	UNIT		TOTAL
Total Cost of Construction			$31,499,810
Design Contingency	15%		$4,725,000
Sub-Total			$36,224,810
Escalation to Mid-Point of Construction (12/2019)	7.5%		$2,716,900
Sub-Total			$38,941,710
Airport Soft Cost	25%		$9,735,500
Sub-Total			$48,677,210
Construction Contingency	10%		$4,867,800
TOTAL CONSTRUCTION BUDGET			$53,545,010

Prepared by Miller Dunwiddie Architecture

- Option 5, Phase 2 Total Construction Budget: $17,938,300
- Option 5, Phase 3 Total Construction Budget: $15,789,900

6.2. Peer Review

A peer review of the budget estimates was conducted of Preferred Concept Design Option 5. Gilbane Building Company provided review and comment regarding the Milwaukee construction market, overall costs, mark-ups, escalation, and unit pricing on a range of systems and assemblies. These comments were evaluated, discussed with Gilbane for clarification, and integrated into the overall budget estimate where there was concurrence.

6.3. Cost Drivers

The budget estimate from early concept design to final preferred concept have increased as design criteria, program, and budget evaluation have increased in detail. The key elements that have affected the total cost of Preferred Concept Design Option Five are:

- The International Concourse overall square footage was increased to account for the addition of the general aviation facility (GAF). This added program will support processing

of general aviation and department of defense flights of up to 20 passengers. This program increase is required to comply with CBP standards. Other program modifications were also made generally reducing the size of the International Concourse.

- Additional detail has been provided for ramp utilities, fueling, and pavement impacts.
- Adjustments were made to the budget estimate values following the peer review conducted by Gilbane Building Company.
- Adjustments were made to the budget estimate based on changes to the midpoint of construction, resulting in a higher escalation modifier. Midpoint of construction is estimated to be December 2019 based a construction start of January 2019 and substantial completion of construction of December 2020. Changes in construction start and duration will impact the estimate 7.5% escalation factor being used for the budget estimate.

6.4. Cost Management Options

The budget estimate exceeds GMIA's identified funding. Options to manage the budget estimate to keep it at or under the funding limits include:

- Terminal Finishes
  - Reduce the level of finish and incorporate Alternate Bid additions for improved finishes until such time that design contingency can be released.
  - Impact: Deduct $1.114 Million (55,700 GSF x $20/GSF)
- Furniture, Fixtures, and Equipment (FFE) Funding
  - Determine whether FFE funding primarily related to furniture is considered a construction budget item or would be included under a separate budget. This cost is included in two distinct areas of the International Concourse:
  - Impact:
    - Deduct $1.011 Million for CBP FIS facilities
    - Deduct $823,000 for other areas of the International Concourse including the Gate Hold and other concourse areas.
- CPB General Aviation Facility (GA and DoD processing) Options
  - CBP facilities for general aviation are often not located in the main terminal of an airport based on plane movement, type of facility and staffing. Options for locating the GAF facility at GMIA include:
    - Move GAF to Fixed Base Operator (FBO)
    - Retain GAF operations in the existing IAB
  - Impact: Deduct $1.569 Million ($523/GSF x 3,000 GSF)
- Reduce Construction Contingency
  - The preferred concept Option 5 is all new construction (with structural demolition and some existing site work).
  - The focus on new construction often allows for Construction Contingencies to be reduced.
  - Impact: Deduct $2.434 Million (reducing from 10% to 5% contingency)
- Reduce Design Contingency
  - Design Contingency is 15% or $4.725 Million.
  - There is no recommendation to reduce the design contingency, however, efforts should be made to preserve the contingency to reduce overall project cost. Not expending the design contingency may provide the budget savings necessary to maintain the project within funding limits.

- Impact: No change

Note: Several of the options above overlap in budget accounting and should not be taken as additive. It is recommended that a detailed review of budget saving options should be conducted early in the design phase to align the budget estimate with project funding.

End of Section

7. SCHEDULE

The schedule was developed based on GMIA's ability to proceed immediately into design phase services in 2017 with a project budget of $50 Million. The schedule is based on a design-bid-build project delivery model with 12 to 18 months for design services and 18 to 24 months for construction. Alternative project delivery models can have an impact on construction cost and construction phasing/bid packages but are unlikely to significantly reduce the overall construction schedule based on current project status.

General Mitchell International Airport has pre-positioned financial and funding support for the International Arrival Concourse project with Milwaukee County and key airport stakeholders. These efforts should allow GMIA, upon completion of the Feasibility Study, to proceed quickly with design services procurement and project execution.

Based on current information, **TABLE 13** reflects Phase 1 milestone schedule and GMIA's desire to proceed directly into design, then construction procurement, and construction:

TABLE 13 – Milestone Schedule

ACTIVITY		MILESTONE DATE
Complete Feasibility Study		June 2017
Design Services Selection		July to August 2017
Start Design Services		September 2017
Pre-Design & Schematic Design		Sept. to Nov. 2017 (3 Months)
Design Development		Dec. 2017 to Feb. 2018 (3 Months)
Construction Documents		March to Aug. 2018 (6 Months)
Bidding & Contract Negotiation		Sept. to Nov. 2018 (3 Months)
Construction Award		December 2018
Start Construction		January 2019
Construction Completion		December 2020 (24 Months)
Occupancy		January 2021

Prepared by Miller Dunwiddie Architecture

GMIA is considering alternative project delivery methods that may have impacts to the project schedule. Alternative project delivery methods include Construction Management and Design-Build.

End of Report

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8. APPENDIX

- Appendix A - Requested Information
- Appendix B - Meeting Minutes & Presentations
- Appendix C – Design Criteria
- Appendix D - Drawings
- Appendix E - Budget Estimate

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8.1. Appendix A – Requested Information

8.1.1. Requested Information Memorandum

miller dunwiddie
ARCHITECTURE

6 December 2016 (Updated 1/25/2016)

To: James Zsebe, Project Engineer
General Mitchell International Airport

From: Gregory Hulne, Project Manager
Miller Dunwiddie Architect

RE: Requested Information
GMIA International Concourse Feasibility Study
General Mitchell International Airport
Milwaukee County
Milwaukee, WI
MKE Project No.: A221-16023
MDA Project No.: MKE1601

Jim,

Please see list of requested information below. Additional Items added in RED. Feel free to contact me if you have any questions.

A. Requested Information:

INFORMATION/ITEM:	ACTION BY:	DATE RECEIVED:	REMARKS:
Kick-Off Meeting Agenda	MDA	12/13/2016	
Stakeholder Meeting Agenda	MDA	1/16/2017	Revised to Programming Mtg
Charrette Agenda	MDA		
Stakeholder/Charrette Location(s)	MKE	1/5/2017	
Design & Construct Standards MKE TSA CBP	 MKE MDA MDA		 Awaiting draft standards
Building Code & Regulations Airport State and Local Codes TSA, CB	 MKE MDA MDA		
Airport Financial Information Copy of current airline agreement Most Recent Calculated Airlines Rate & Charges for Budget 2017 Recent FIS/International Facility Financial Studies or Analysis	 MKE MKE MKE	 1/5/2017	We recommend a call between MKE Financial Staff and Garfield Eaton Additional information may be needed, see below See studies below. Any separate financial analysis on IAB needed.

INFORMATION/ITEM:	ACTION BY:	DATE RECEIVED:	REMARKS:
Proposed IAB funding sources (PFCs, Airport cash, debt service, etc.) Projected International Enplanements to be used for the study (would this come from the Master Plan?)	MKE		
Airport Operational Information			
Gate Layout	MKE		
Gate Usage (Domestic/International)	MKE		
Monthly Master Schedule	MKE	1/29/2017	2016 only, by concourse not gate
PAX by Concourse	MKE	12/29/2017	2002 to 2014
Emphasis on Concourse E			
Diversions	MKE	1/23/2017	Years 2013 to 2017
Connecting PAX	MKE	1/23/2017	DL and SWA (CUN location only)
Historic Activity – Air Freight	MKE	12/29/2017	Downloaded from GMIA
Historic Activity – Air Mail	MKE	12/29/2017	Downloaded from GMIA
Historic Activity – Customs PAX	MKE	12/29/2017	Downloaded from GMIA
Historic Activity – Operations	MKE	12/29/2017	Downloaded from GMIA
Historic Activity – PAX	MKE	12/29/2017	Downloaded from GMIA
Monthly Data	MKE	12/29/2017	Years 2011 to 2016
Air Traffic Reports	MKE	12/29/2017	Downloaded from GMIA
Monthly PAX Activity	MKE	12/29/2017	2002 to 2016
Passenger Statics	MKE	12/29/2017	2001 to 2016
SITE			
GIS Data	MKE		
Area Map	MKE		
Base Map	MKE		
Aerial Photos	MKE	12/16/2016	Tim Kipp FTP
Photos of Site	MDA	12/14/2016	Taken during site visit
Seismic Zone	MDA	NA	Design Phase info.
Parking	MKE	NA	Design Phase info.
Utility Information (w/ Civil drawings) Gas Water Hydrant Location/Flow Test Electric Communication Fuel Systems Sanitary Sewer Storm Drainage	MKE		
Sustainable Design LEED Rating ASHRAE or other standards use Energy Goals	MKE		

INFORMATION/ITEM:	ACTION BY:	DATE RECEIVED:	REMARKS:
Environmental Any assessment reports (facility & site)	MKE		
Safety hazards Overhead lines Airfields Bridges Other	MKE NA NA	 NA NA	
Pollution Air Water Noise	MKE		
Weather Solar Data Prevailing Wind Average Rainfall	 MDA MDA MDA		
GMIA International Arrivals Studies Proposed Terminal Expansion & Central Checkpoint Feasibility Study & Cost Estimate (3/17/2015) Supplement to Proposed Con E Intl Terminal Study & Cost Estimate (6/10/2016) Other Studies? Existing Intl Terminal, Parking, Passenger or Market	 MKE MKE MKE	 September 2016 September 2016 	 None noted by GMIA Staff
GMIA Facility Information MKE Sustainable Master Plan MKE Airport Layout Plant (ALP) MKE Master Plan	 MKE MKE MKE	 12/16/2016 12/29/2016	 MDA downloaded from MKE website. MKE to Confirm Any Updates
GMIA AutoCAD (or REVIT) files GMIA Infrastructure (Ramp & Airfield) GMIA International Arrivals Bldg GMIA Terminal GMIA Parking Ramp	 MKE MKE MKE MKE	 12/16/2016 12/16/2016 12/16/2016 12/16/2016	 On levels in one file
GMIA PDF Drawings Concourse E Remodel ALP	MKE MKE MKE	 12/16/2016 12/16/2016	

B. Expected Stakeholders:

ORGANIZATION/ROLE/PERSON:	EMAIL:	PHONE:	ADDRESS:
GMIA Management Izzy Bonilla, Airport Director Tom Stastny, Deputy Airport Dir.	 ibonilla@mitchellairport.com tstastny@mitchellairport.com	 414.747.5300 414.747.5328	5300 South Howell Avenue Milwaukee, WI 53207-6189
GMIA Engineering James Zsebe, Project Engineer Timothy Kipp, Project Manager Kim Berry, Noise Program Manager	 jzsebe@mitchellairport.com tkipp@mitchellairport.com kberg@mitchellairport.com	 414.747.5394 414.747.5716 414.747.3889	5300 South Howell Avenue Milwaukee, WI 53207-6189
US CBP Ranay Blanford William Braun	 ranay.m.blanford@cbp.dhs.gov william.braun@dhs.gov		
FAA To Be Determined			
TSA To Be Determined			
MDA Team Principal In Charge, Joel Stromgren Project Manager, Greg Hulne Civil, Adam Wilhelm Financial, Garfield Eaton Stakeholder Engagement, Steve Wareham Airport Planning, Jim Wilson Cost Estimating, Tom Hoffoss	 jstromgren@millerdunwiddie.com ghulne@millerdunwiddie.com Adam.Wilhelm@Foth.com geaton@trillionav.com swareham@trillionav.com jim.wilson@jacobsendaniels.com thoffoss@millerdunwidie.com	 612.278.7690 612.278.7778 515.254.1393 513.550.8556 612.919.3481 734.961.3200 612.278.7688	123 North Third Street Suite 104 Minneapolis, MN 55401

End of Memorandum

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8.2. Appendix B – Meeting Minutes & Presentation

8.2.1. December 14, 2016 – Kick-Off Meeting
8.2.2. January 19, 2017 – Stakeholder & Programming Meeting
8.2.3. February 14, 2017 – Design Concept Review Meeting
8.2.4. March 21, 2017 – Preferred Design Concept Review Presentation

MKE IAF PROGRAMMING WORKSHOP:

JANUARY 19, 2017

Potential Impacts of a new IAF @ MKE:

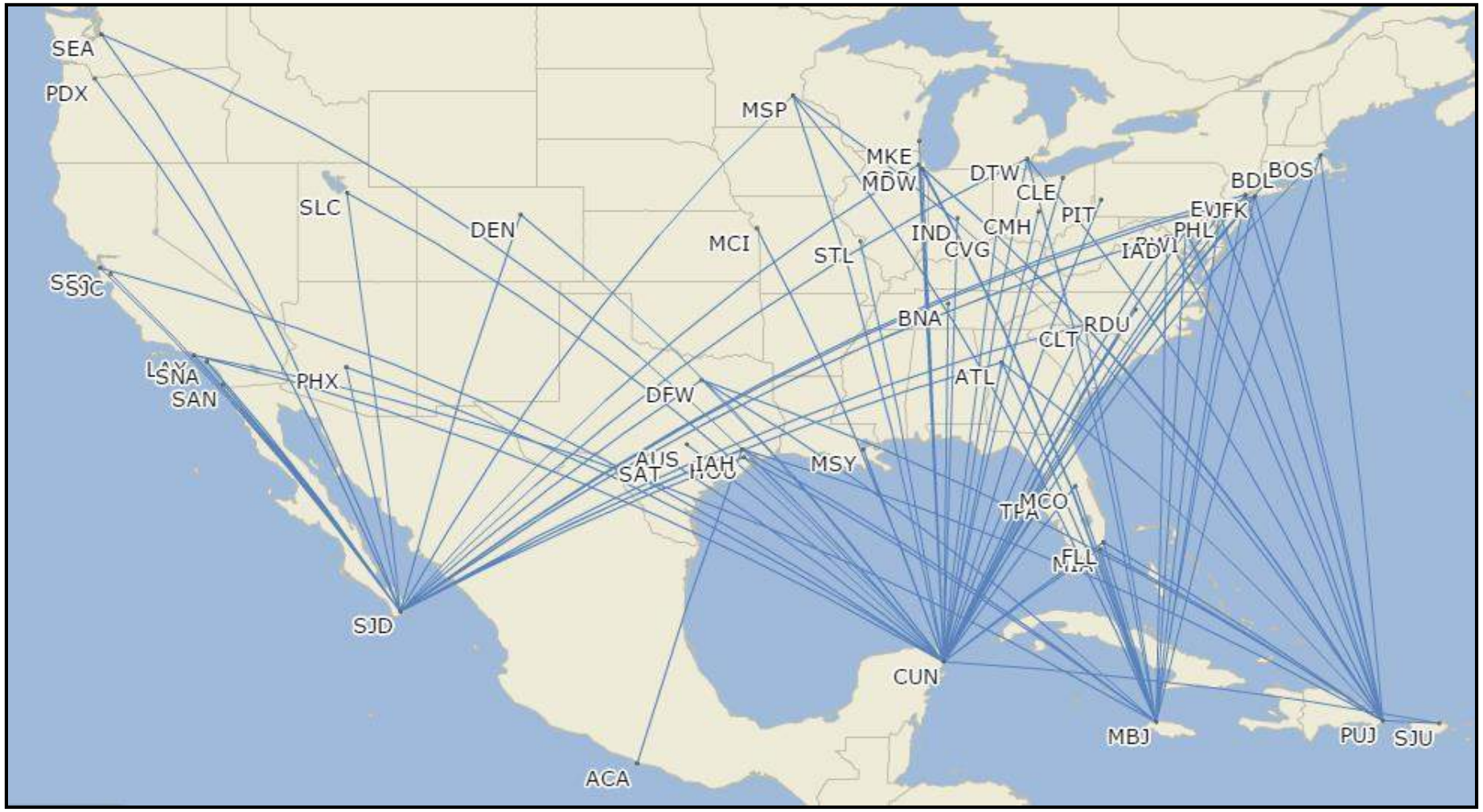
Review of initial research conducted.

1. Discuss today's international traffic at MKE
2. Review catchment areas
3. Discuss industry patterns, direction and potential service options
4. Discuss importance of airline support
5. Build it and they will come? Review MSP's story

Milwaukee is the 34th largest Core Based Statistical Area in the U.S. (2012); behind most of markets with nonstop international service

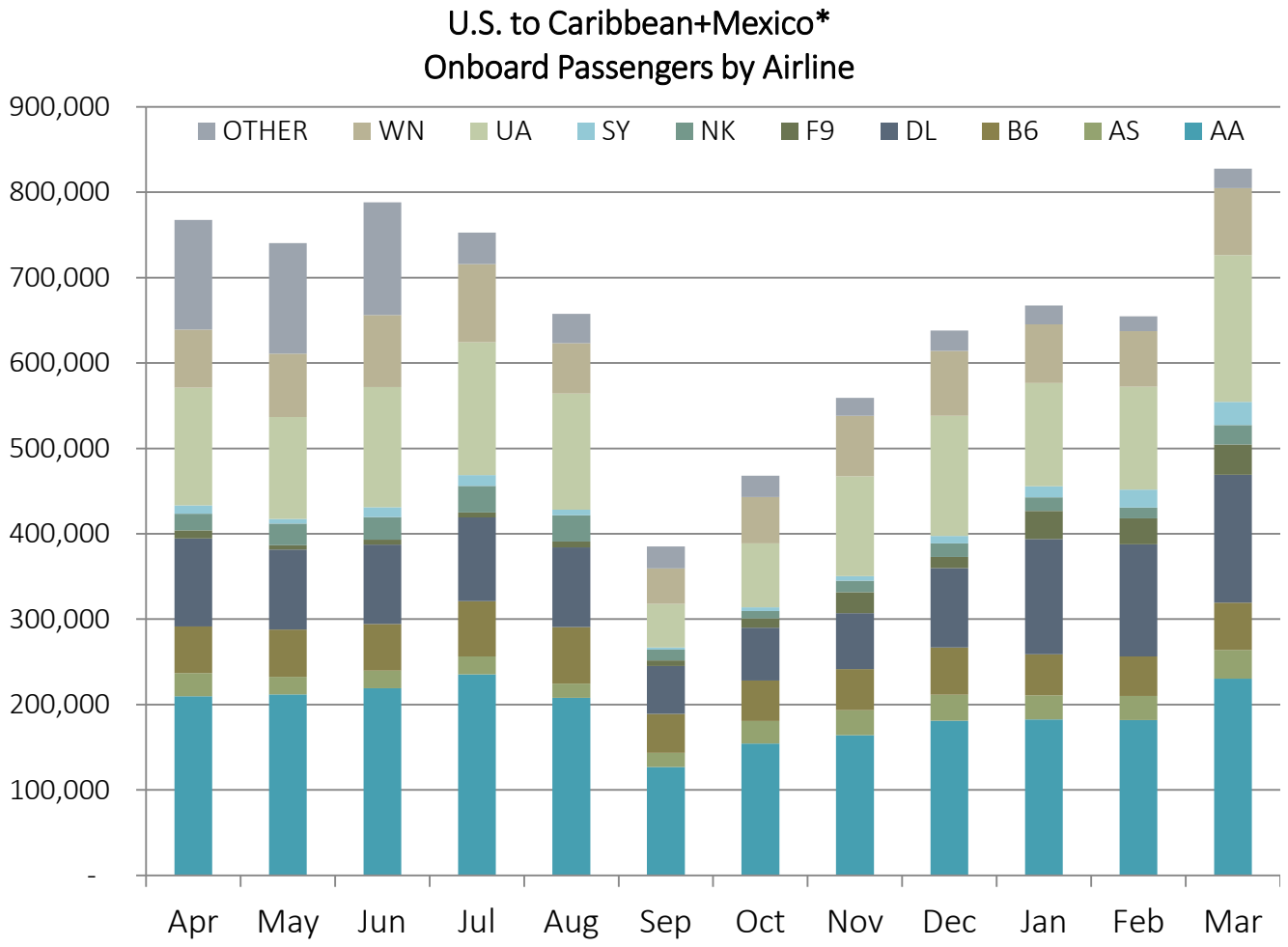
Rank	Metropolitan or micropolitan area	CSA 2012 Population	Rank	Metropolitan or micropolitan area	CSA 2012 Population
1	New York metropolitan area	23,723,696	26	Salt Lake City metropolitan area	2,467,709
2	Greater Los Angeles Area	18,679,763	27	Kansas City metropolitan area	2,428,362
3	Chicago metropolitan area	9,923,358	28	Columbus metropolitan area, Ohio	2,424,831
4	Baltimore metropolitan area	9,625,360	29	Indianapolis metropolitan area	2,372,530
5	Greater San Francisco Bay Area	8,713,914	30	San Antonio metropolitan area	2,384,075
6	Boston metropolitan area	8,152,573	31	Las Vegas metropolitan area	2,362,015
7	Dallas–Fort Worth metroplex	7,504,362	32	Cincinnati metropolitan area	2,216,735
8	Philadelphia metropolitan area	7,183,479	33	Raleigh metropolitan area	2,117,103
9	Houston metropolitan area	6,855,069	**34**	**Milwaukee metropolitan area**	**2,046,692**
10	Miami metropolitan area	6,654,565	35	Austin metropolitan area	2,000,860
11	Atlanta metropolitan area	6,365,108	36	Nashville metropolitan area	1,951,644
12	Detroit metropolitan area	5,319,913	37	Virginia Beach metropolitan area	1,828,187
13	Seattle metropolitan area	4,602,591	38	Greensboro metropolitan area	1,642,506
14	Phoenix metropolitan area	4,574,531	39	Providence metropolitan area	1,613,070
15	Minneapolis-St. Paul metropolitan area	3,866,768	40	Jacksonville metropolitan area	1,573,606
16	Cleveland metropolitan area	3,493,596	41	Hartford metropolitan area	1,488,570
17	Denver metropolitan area	3,418,876	42	Louisville metropolitan area	1,478,637
18	San Diego metropolitan area	3,299,521	43	New Orleans metropolitan area	1,452,502
19	Orlando metropolitan area	3,110,906	44	Grand Rapids metropolitan area	1,395,128
20	Portland metropolitan area	3,110,906	45	Greenville metropolitan area, South Carolina	1,384,996
21	Tampa metropolitan area	2,975,225	46	Memphis metropolitan area	1,369,548
22	St. Louis metropolitan area	2,916,447	47	Oklahoma City metropolitan area	1,367,325
23	Pittsburgh metropolitan area	2,648,605	48	Birmingham metropolitan area, Alabama	1,309,818
24	Charlotte metropolitan area	2,583,956	49	Richmond metropolitan area	1,231,980
25	Sacramento metropolitan area	2,544,026	50	Harrisburg metropolitan area	1,228,559

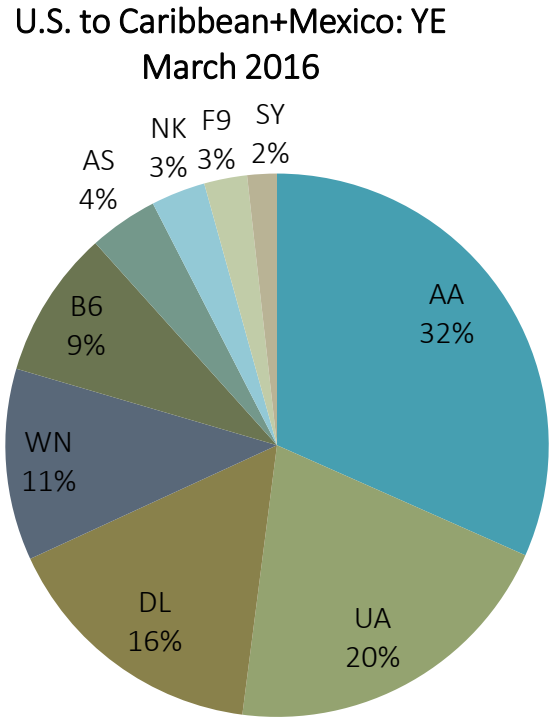
U.S. to Caribbean & Mexico* Route Map: Dominated by larger U.S. cities



**Caribbean + Mexico: CUN, ACA, SJD, PUJ, and MBJ*

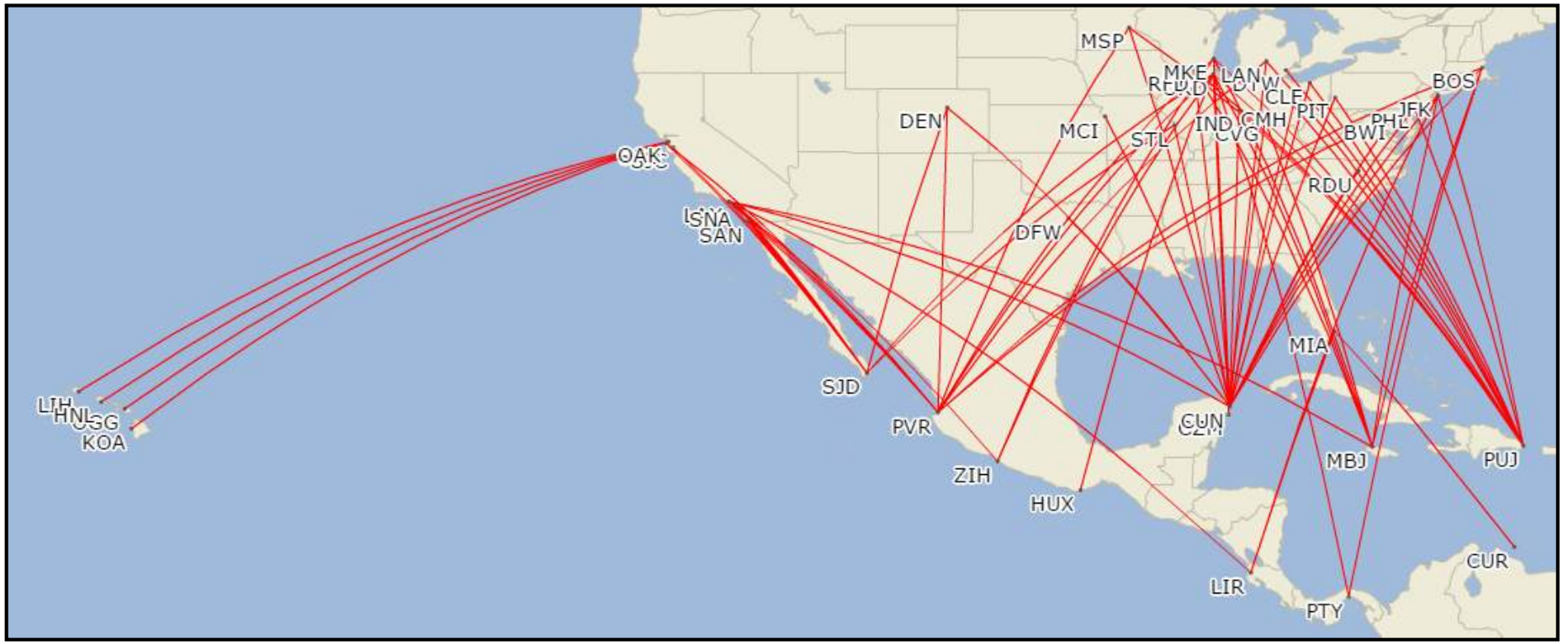
Top Scheduled Airlines by Month: 4 largest airlines control 79% of seat capacity to Mexico & the Caribbean: **Key point to keep in mind!**



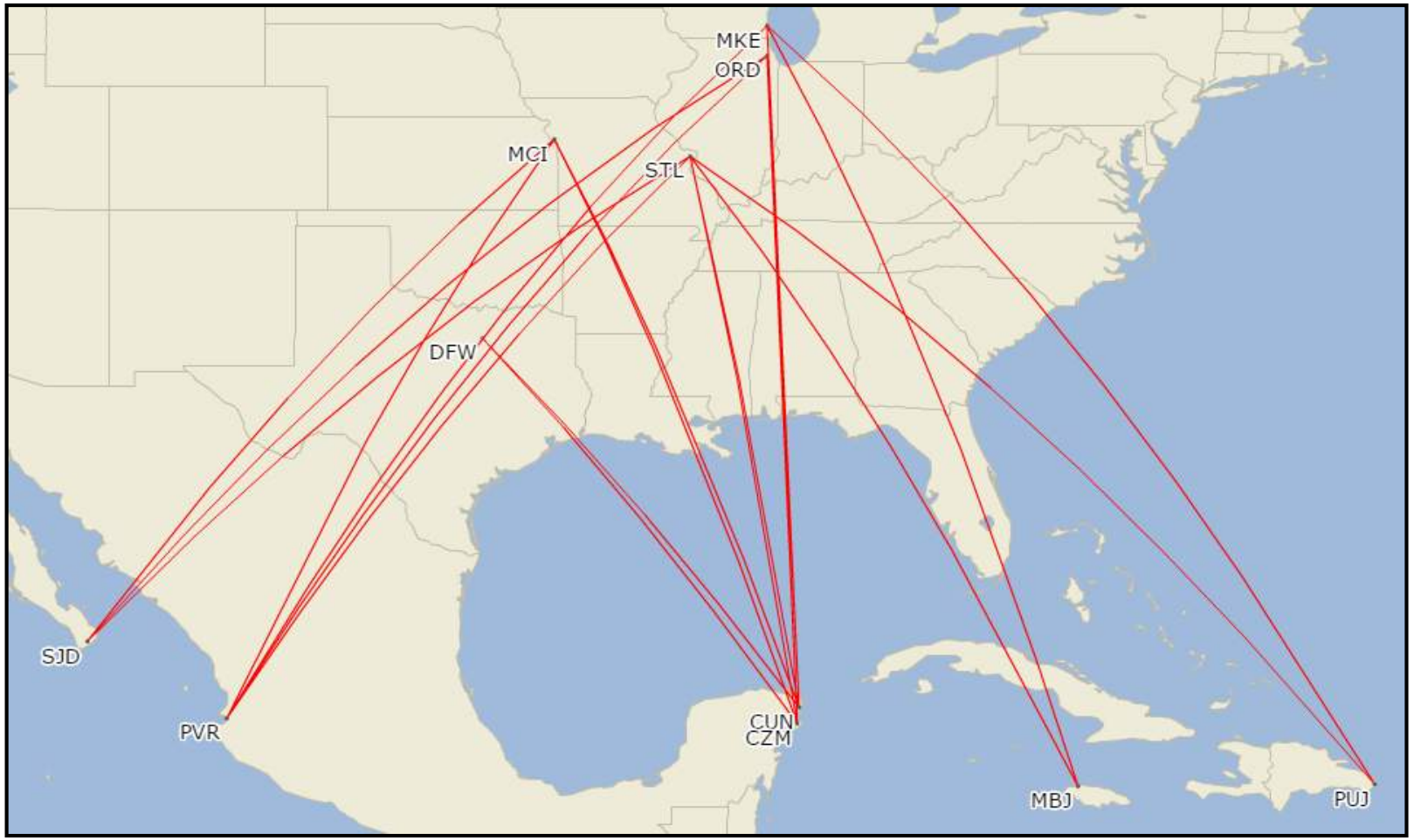


**Caribbean+Mexico: CUN, ACA, SJD, PUJ, and MBJ*

Apple Vacations Route Map



Funjet Route Map



Top U.S. Origin Charter Markets: Dominated by markets in the north – most with historical charter presence: **MSP used to top this list!**

Top U.S. Origin Charter Markets to Caribbean/Mexico*: YE March 2016

Rank	Market	Departs Annual	Departs Daily	Onboards	Seats	Load Factor
1	ORD	481	1.3	74,030	85,906	86
2	STL	361	1.0	51,732	61,594	83
3	CLE	214	0.6	29,424	37,461	78
4	PIT	227	0.6	28,429	34,565	83
5	PHL	177	0.5	27,333	31,409	87
6	SJU	221	0.6	26,884	34,937	78
7	BWI	142	0.4	16,292	21,706	75
8	MKE	119	0.3	14,433	19,081	75
9	MIA	112	0.3	11,994	17,363	70
10	CVG	81	0.2	9,418	12,141	78
11	DFW	54	0.1	7,442	8,640	86
12	IAH	72	0.2	7,263	8,928	81
13	DEN	45	0.1	6,438	7,932	82
14	ATL	43	0.1	5,285	6,450	83
15	MCI	38	0.1	4,877	6,080	80
16	MSY	81.5	0.2	4,760	13,768	35
17	MDW	41	0.1	4,166	5,214	80
18	CMH	23.5	0.1	2,868	3,641	79
19	IND	16.5	0.0	2,215	2,694	83
20	CLT	12.5	0.0	1,281	1,875	68

**Caribbean+Mexico: CUN, ACA, SJD, PUJ, and MBJ*

Most of markets have had charter service for many years

Markets like Chicago O'Hare, St. Louis and Cleveland

Markets like Pittsburgh have seen growth subsequent to hub being eliminated

Many of these are Apple Vacations or Funjet Vacations, with aircraft operator being split among many different carriers

MKE Current Service

MKE has historically been a relatively large charter market to Mexico and the Caribbean

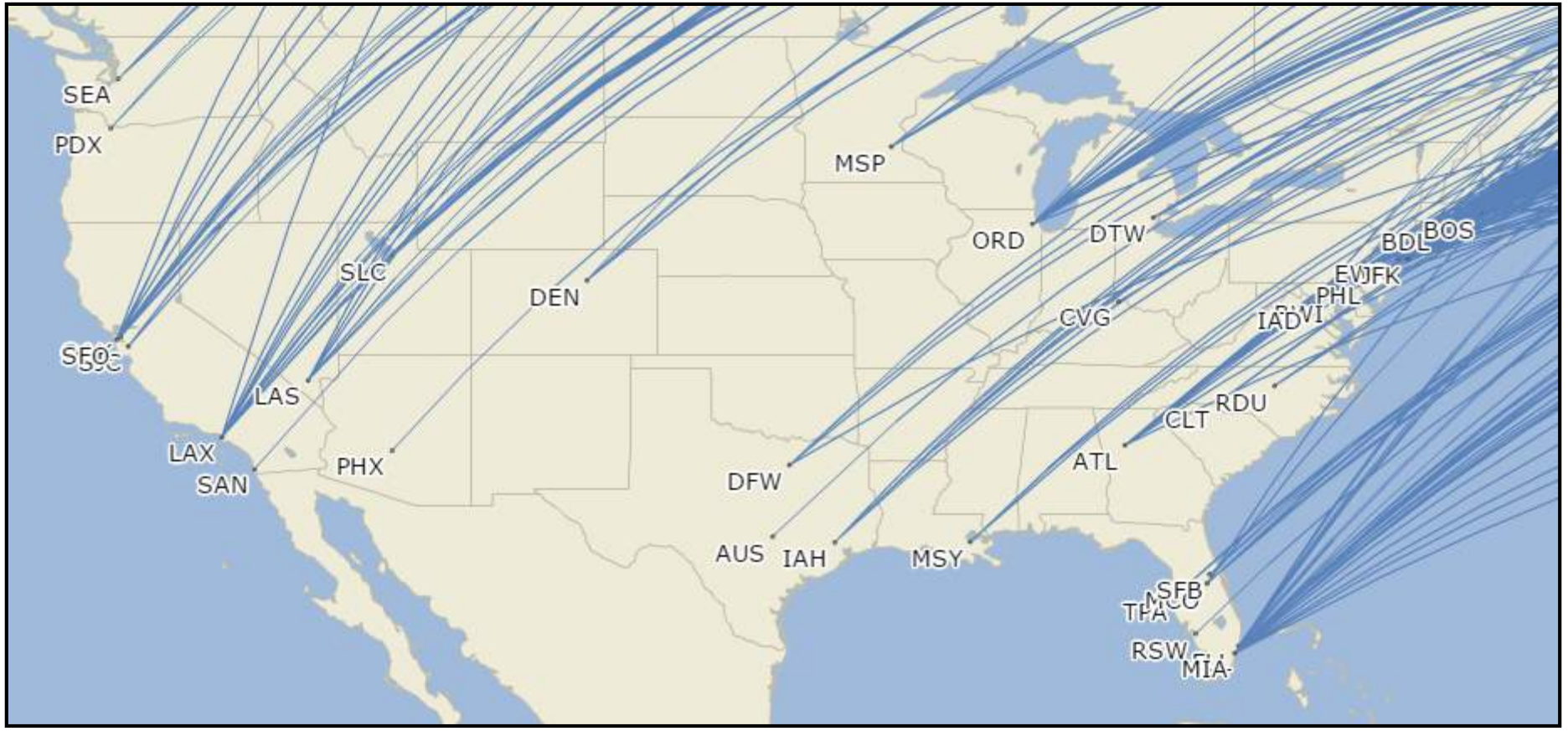
MKE is a major base for Funjet Vacations and also has Apple Vacations service

Over the years, aircraft has been operated by a number of airlines, while the current season will be operated by Norwegian Airlines

As Norwegian is a growing LCC, providing low fare service between Europe and the U.S., this could be a potential option for MKE service to Europe

**Dec 2016 Article: http://www.bizjournals.com/milwaukee/news/2016/12/23/mitchells-newest-airlinenorwegian-air-launches.html*

U.S. to Europe Route Map: Non-stops are typically to largest U.S. cities and hubs



Condor Airlines (DE): Low cost German airline who is adding service to some of smaller cities in U.S.

**DE also flies to/from SJU*

Condor has been growing at a fast pace in 2016-17 and may be a good option going forward

	Jun 2017		Jun 2015		Diff		Percent Diff	
Dest	Flights	Seats	Flights	Seats	Flights	Seats	Flights	Seats
ANC	14	3,570	13	3,241	1	329	7.7%	10.2%
AUS	9	2,273	0	0	9	2,273		
BWI	16	4,336	2	522	14	3,814	700.0%	730.7%
FLL	0	0	9	2,335	(9)	(2,335)	(100.0%)	(100.0%)
LAS	26	6,593	17	4,221	9	2,372	52.9%	56.2%
MSP	14	3,626	2	518	12	3,108	600.0%	600.0%
MSY	8	2,071	0	0	8	2,071		
PDX	14	3,556	4	1,036	10	2,520	250.0%	243.2%
PIT	3	749	0	0	3	749		
PVD	0	0	4	1,036	(4)	(1,036)	(100.0%)	(100.0%)
SAN	10	2,464	0	0	10	2,464		
SEA	19	4,873	17	4,346	2	527	11.8%	12.1%
SJU	4	1,035	4	1,036	0	(1)	0.0%	(0.1%)
TOTAL	137	35,146	72	18,291	65	16,855	90.3%	92.1%

Norwegian Air (DY): LCC adding new service to largest markets – also looking to grow going forward

Norwegian Air has also been growing a great deal with more likely coming

	Jun 2017		Jun 2015		Diff		Percent Diff	
Dest	Flights	Seats	Flights	Seats	Flights	Seats	Flights	Seats
BOS	30	10,500	0	0	30	10,500		
EWR	8	2,328	0	0	8	2,328		
FLL	39	11,821	26	7,566	13	4,255	50.0%	56.2%
JFK	104	32,860	81	23,571	23	9,289	28.4%	39.4%
LAX	80	25,522	51	14,841	29	10,681	56.9%	72.0%
MCO	22	7,169	13	3,783	9	3,386	69.2%	89.5%
OAK	58	18,176	22	6,402	36	11,774	163.6%	183.9%
TOTAL	341	108,376	193	56,163	148	52,213	76.7%	93.0%

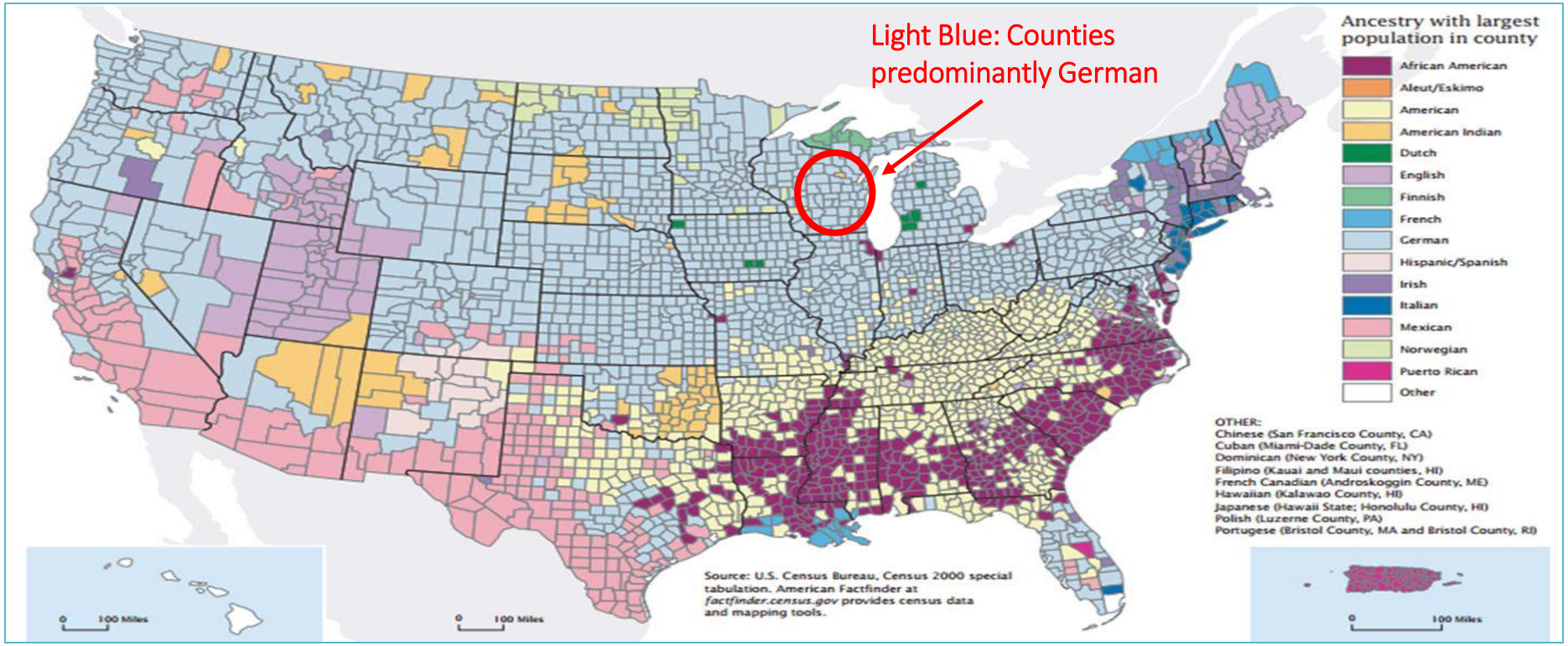
Icelandair (FI): Adding U.S. markets with a mix of large and mid-sized markets (may be another option)

Flies non-stop to Reykjavik, Iceland; offers lower priced connections to most of top European destinations

Icelandair: Also growing at a brisk pace between Reykjavik and the U.S.

	Jun 2017		Jun 2015		Diff		Percent Diff	
Dest	Flights	Seats	Flights	Seats	Flights	Seats	Flights	Seats
ANC	8	1,464	8	1,464	0	0	0.0%	0.0%
BOS	90	18,480	88	16,104	2	2,376	2.3%	14.8%
DEN	38	6,954	30	5,490	8	1,464	26.7%	26.7%
EWR	30	6,480	29	5,307	1	1,173	3.4%	22.1%
IAD	60	12,990	43	7,869	17	5,121	39.5%	65.1%
JFK	60	12,990	60	11,970	0	1,020	0.0%	8.5%
MCO	4	732	0	0	4	732		
MSP	30	7,500	30	5,490	0	2,010	0.0%	36.6%
ORD	30	5,490	0	0	30	5,490		
PDX	20	3,660	9	1,647	11	2,013	122.2%	122.2%
PHL	16	2,928	0	0	16	2,928		
SEA	48	8,784	34	6,222	14	2,562	41.2%	41.2%
SFB	0	0	1	183	(1)	(183)	(100.0%)	(100.0%)
TOTAL	434	88,452	332	61,746	102	26,706	30.7%	43.3%

Charter airlines looking at service will consider the ethnic background of the market – MKE is largely German



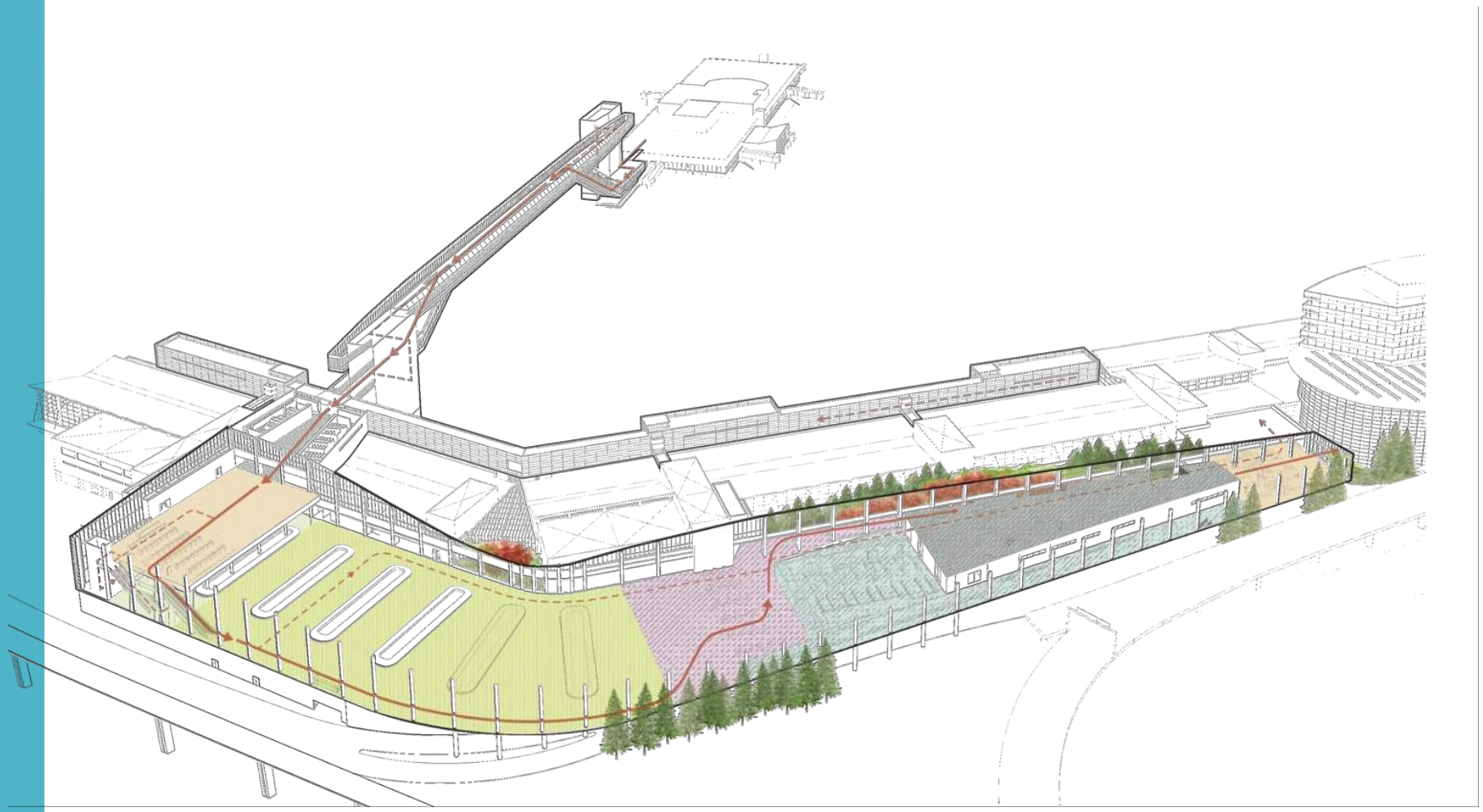
Customs and Border Protection (CBP) Standards:

New Standards out for Industry Comment

1. Efficiency and Customer Service
2. Enhanced border security
3. Kiosk use
4. “Bags First”
5. Automated Primary (SAN, SEA)

Customs and Border Protection (CBP) Standards planned for SEA:

Automated Primary



In-depth Financial Analysis a part of Study

How much will it cost and how is it paid for?

1. Scenario Cost estimates
2. Plan of Finance
3. Generation of additional passenger revenues and O&M Expenses
4. Competitiveness of FIS/Airline Fees

Community Benefits with expanded International Air Service:

From Recent ICAO Report

1. Tourism
2. Business Opportunities
3. Employment
4. City becomes a “destination”
5. Direct Financial impacts vary per City and Region but are considerable.

MKE North Chicago Brand?

Competition is RFD and ORD

Good service and an enhanced customer experience can draw from a larger catchment area (Madison?)

Cost of facilities and flexibility key

Competitive IAF rates are important

Stakeholder education and support is important

MSP Experience

Heavy Charter Market to warm weather locations in late 90s but Facilities inferior

This team lead the way to building a new T-2 (Humphrey) in 2001 with a flexible use but efficient IAF

Charter market exploded but soon major airlines noticed, Sun Country moved from a charter approach to scheduled service and….

Most traffic to international locations is now scheduled service! Northwest's former Saturday service (with surplus aircraft) is a tradition continued by Delta

T-2 today serves Icelandair, Condor and hopes to see Norwegian one day – with the cooperation and support from Sun Country

Executive Summary

The vast majority of international service from mid-sized markets like MKE is to Mexico and the Caribbean

Most of this international service is in the form of charter (non-scheduled) service

MKE is already one of the top charter markets, serving Mexico and the Caribbean, in the U.S.

U.S. to Europe service is almost exclusively on scheduled service, serving the largest U.S. population centers and hubs

Where mid-sized U.S. cities are seeing some growth is on LCCs such as Condor, Icelandair and Norwegian – this is the segment that MKE should target, particularly Norwegian, who is operating as Apple Vacations this year

Thank you! Any Questions? Touch base with me at:

swareham@trillionav.com

IAF BUILDING AT AUTOMATED PRIMARY
LEVEL 3 SIGN PROGRAMMING

SCALE: 1/2" = 1'-0"

CLARK CONSTRUCTION GROUP LLC
SKIDMORE, OWINGS & MERRILL LLP

SCHEMATIC DESIGN | 27 APRIL 2016 | PAGE 30

Port of Seattle

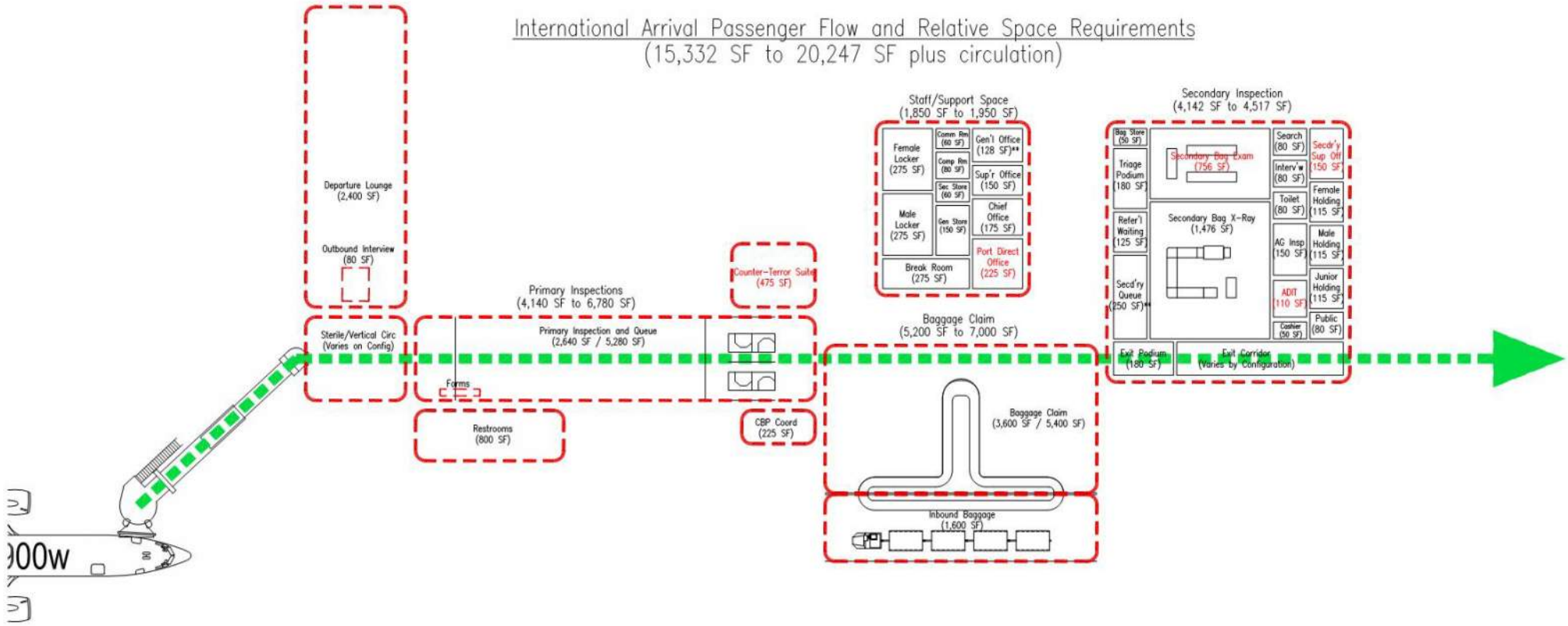
MKE IAF FEASIBILITY STUDY:

CONCEPT DESIGN WORKSHOP

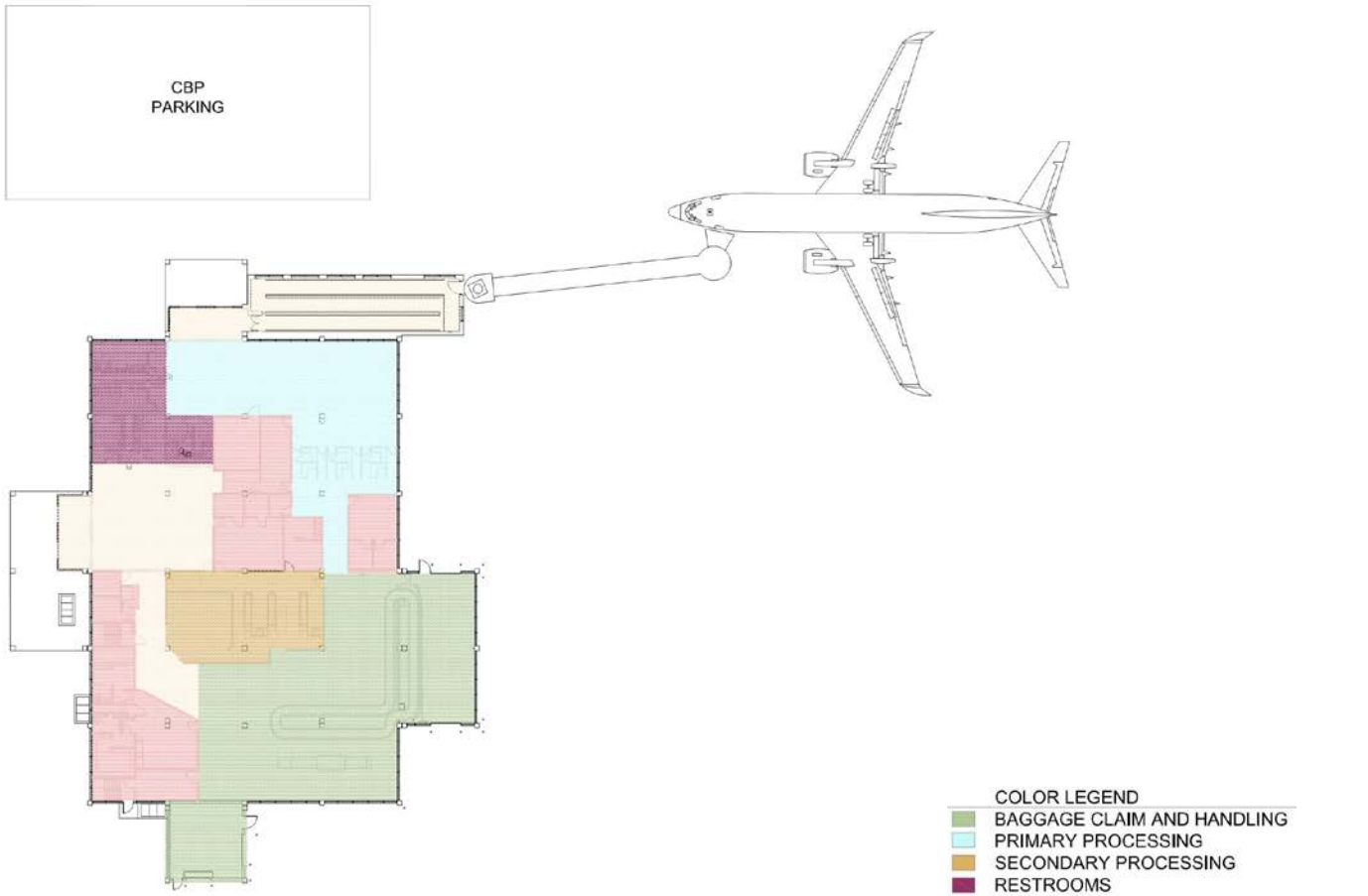
Design Concept Updates 2/24/2017

MKE IAF – DESIGN CONCEPTS

INTERNATIONAL ARRIVALS FACILITY – FLOW DIAGRAM



INTERNATIONAL ARRIVALS BUILDING (IAB) - EXISTING



APRON LEVEL

PAX

140 – INTL PAX/HOUR
~120,000 – INTL PAX/ANNUAL

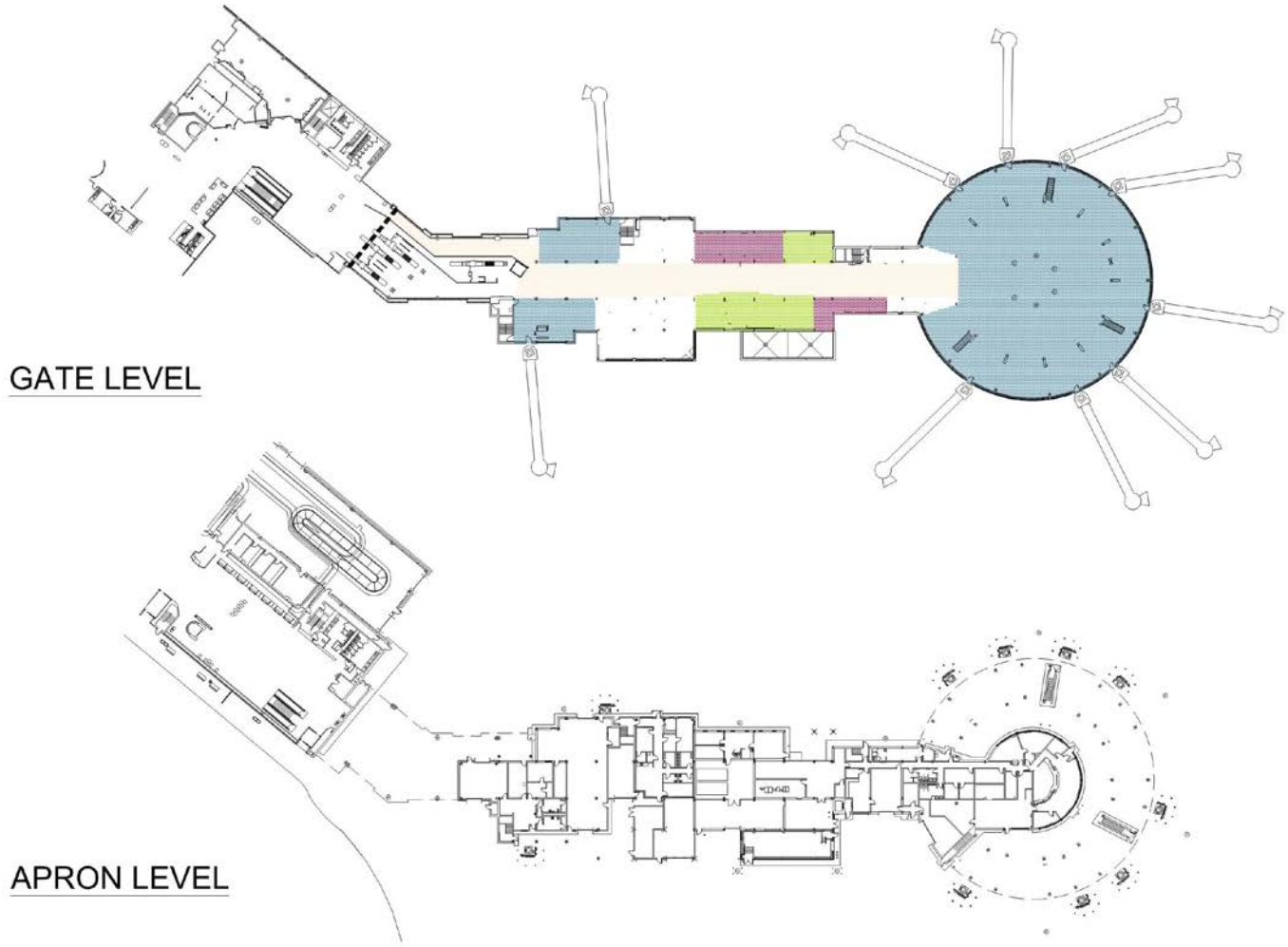
CAPACITY

4 – CBP LANES
2 – GATES (1 PBBs)

COST

$NA - TOTAL
$NA - PER GATE

CONCOURSE E - EXISTING



PAX

NA – INTL PAX/HOUR
NA – INTL PAX/ANNUAL

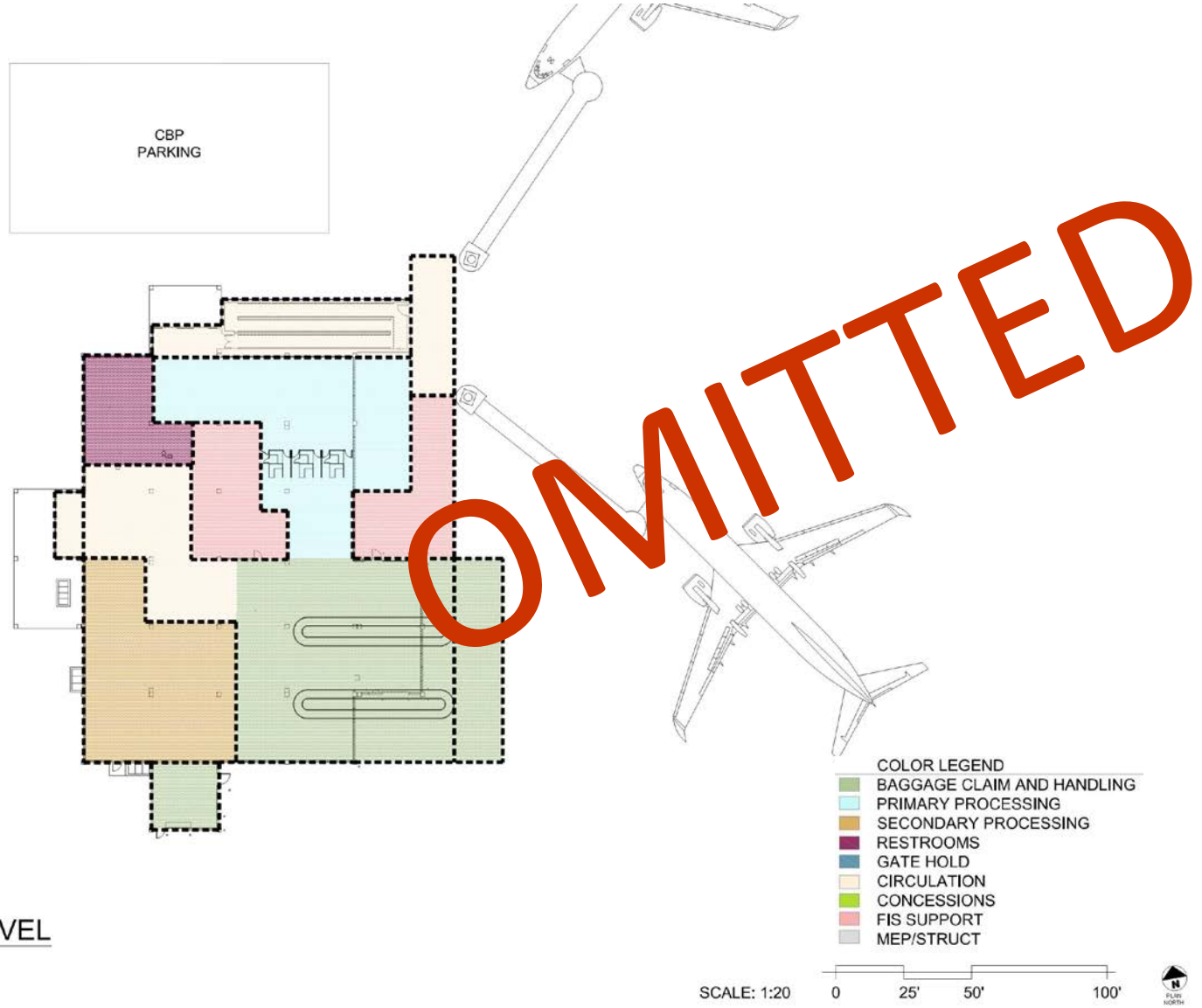
CAPACITY

NA – CBP LANES
8 – GATES (8 PBBs)

COST

$NA - TOTAL
$NA - PER GATE

OPTION 1 – RENOVATION & ADDITION TO IAB



APRON LEVEL

NOTES

- Site Constraints
- Tugging Plane to Terminal for Departures
- Not Expandable
- Not Dom/Intl Swing
- Not connected for Re-check & Parking
- Temporary IAF during Reno.

PAX

300 – INTL PAX/HOUR
~150,000 – INTL PAX/ANNUAL

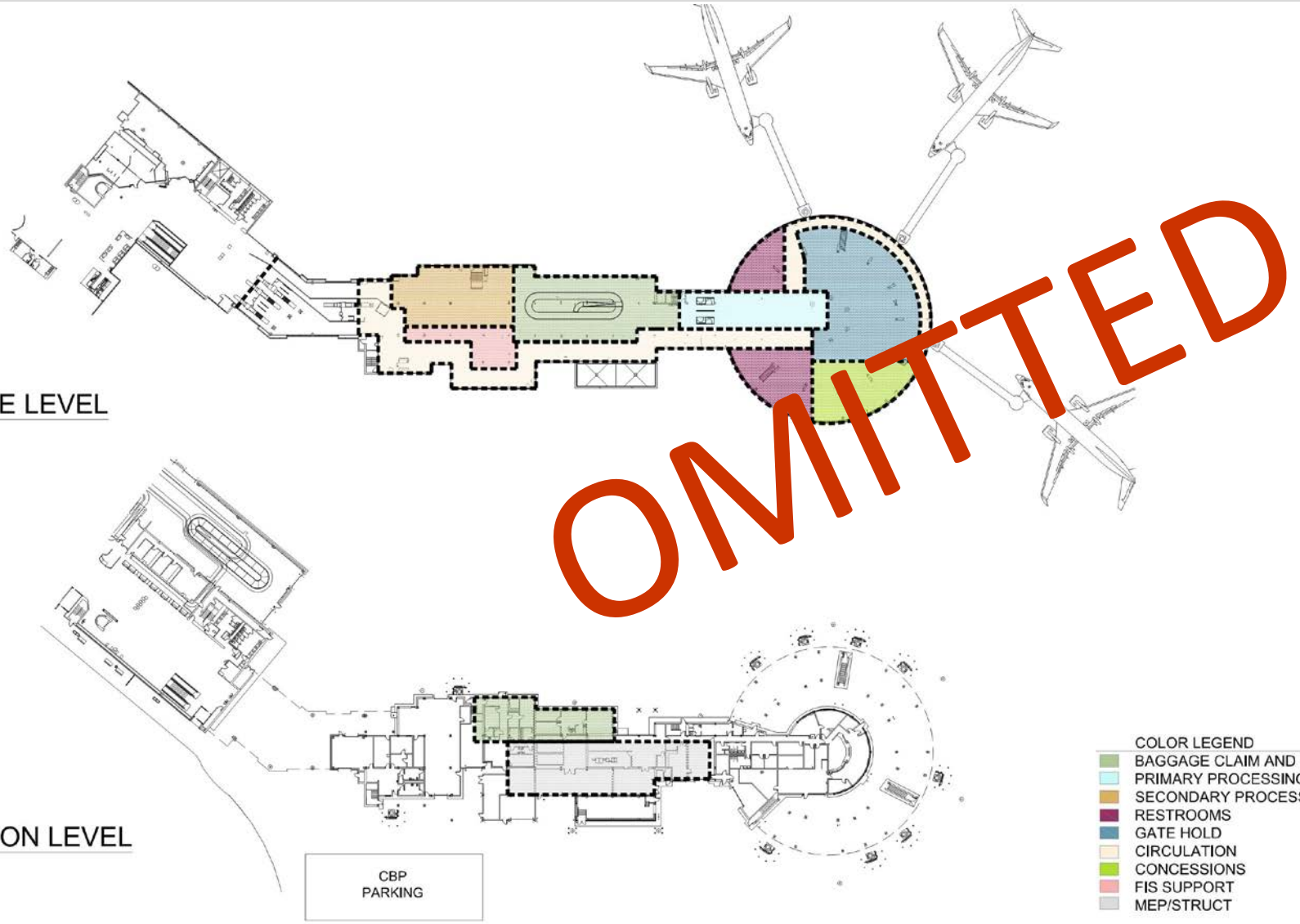
CAPACITY

4 – CBP LANES
2 – GATES (2 PBBs)

COST

$15M to $20M - TOTAL
$10M - PER GATE

OPTION 2 – RENOVATION TO CONCOURSE E



NOTES

- Irregular facility footprint
- Capacity Limitation
- Significant structural and system modernization
- Cost Effective
- Limited Expandability
- Iconic Structure Preserved

PAX

300 – INTL PAX/HOUR
~150,000 – INTL PAX/ANNUAL

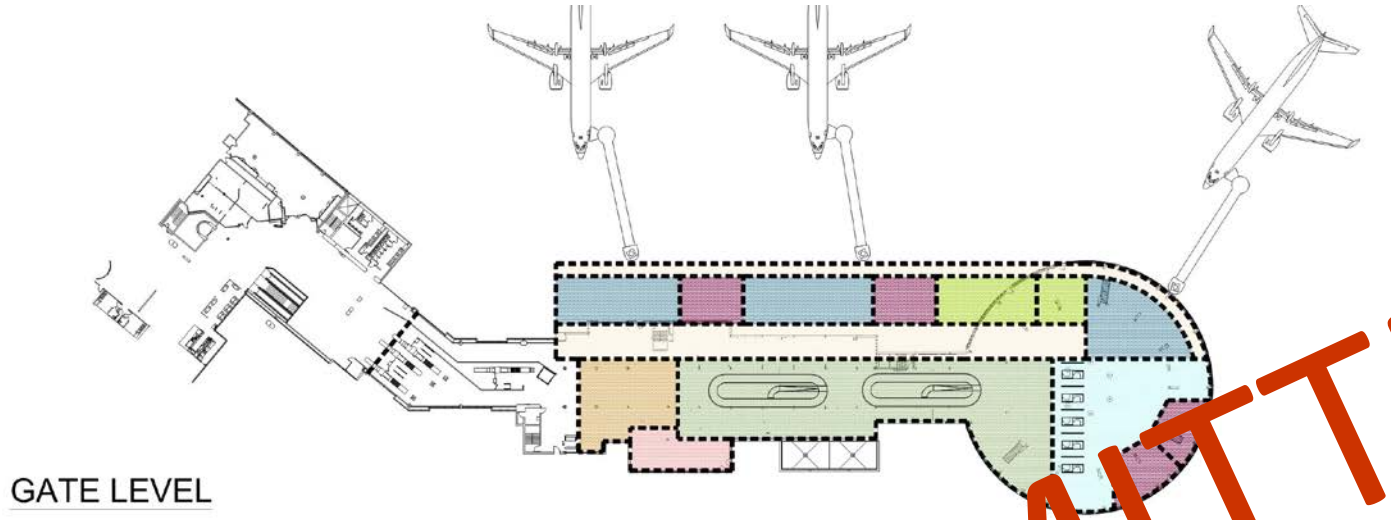
CAPACITY

4 – CBP LANES
3 – GATES (3 PBBs)

COST

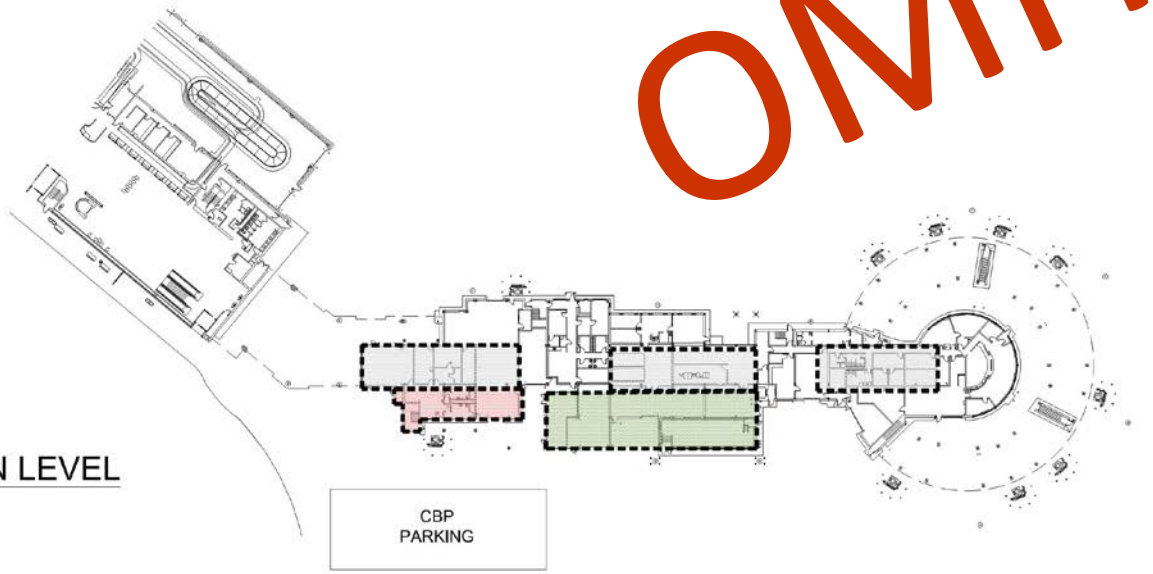
$25M to $30M - TOTAL
$10M - PER GATE

OPTION 3 – RENOVATION & ADDITION TO CONCOURSE E



GATE LEVEL

OMITTED



APRON LEVEL

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

SCALE: 1:40 0 25' 50' 100'

NOTES
- Expansion on one side of concourse improves efficiency
- Limited ramp/apron work
- Limited Expandability
- One Level FIS

PAX

400 – INTL PAX/HOUR
~175,000 – INTL PAX/ANNUAL

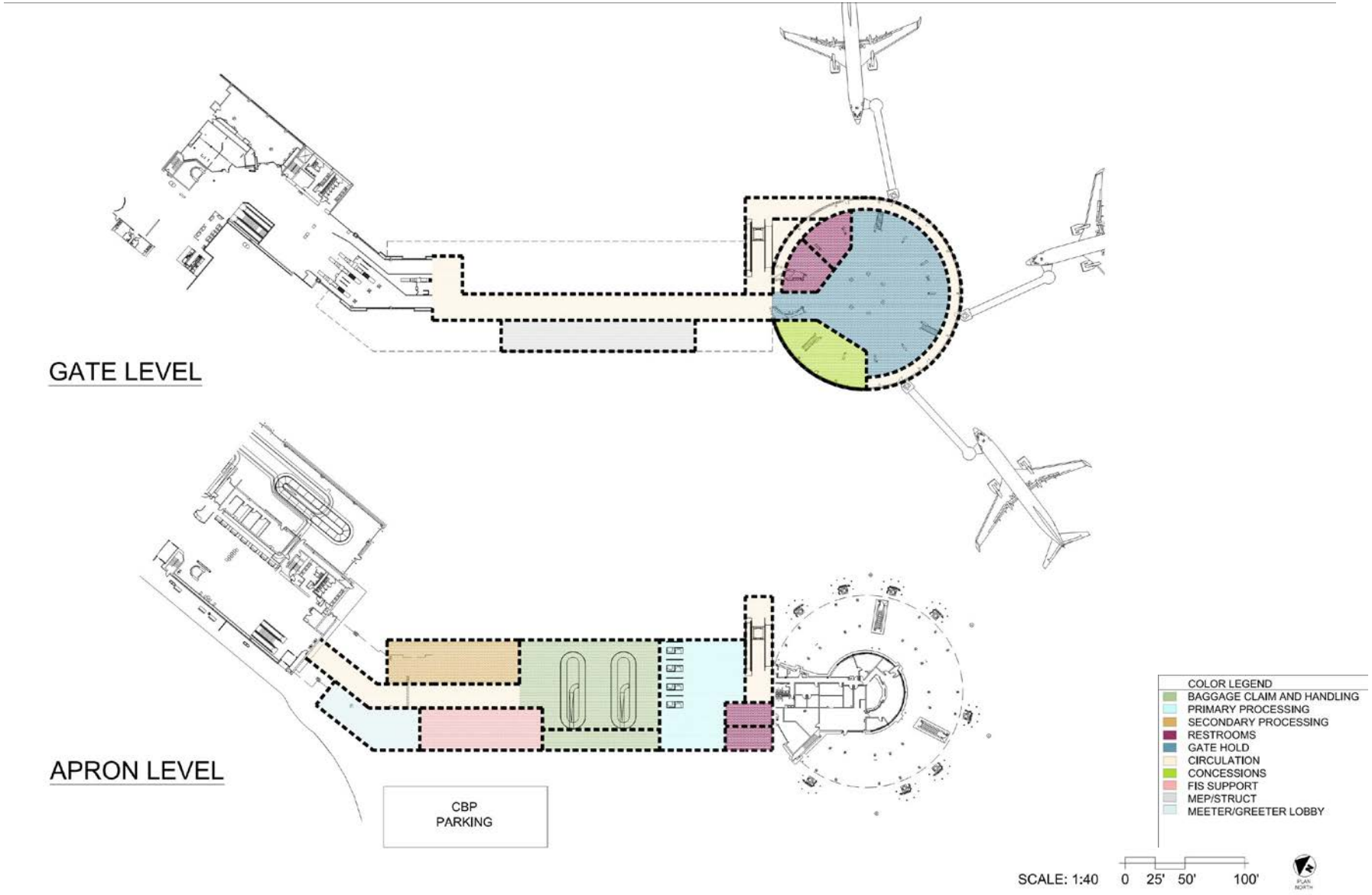
CAPACITY

4 – CBP LANES
3 – GATES (3 PBBs)

COST

$45M to $50M - TOTAL
$16.6M - PER GATE

OPTION 4 – RENOVATION & ADDITION TO CONCOURSE E



NOTES

- Irregular concourse replaced with new construction
- Concrete structure of Gate Rotunda renovated
- Limited Expandability
- Two Level FIS

PAX

400 – INTL PAX/HOUR
~175,000 – INTL PAX/ANNUAL

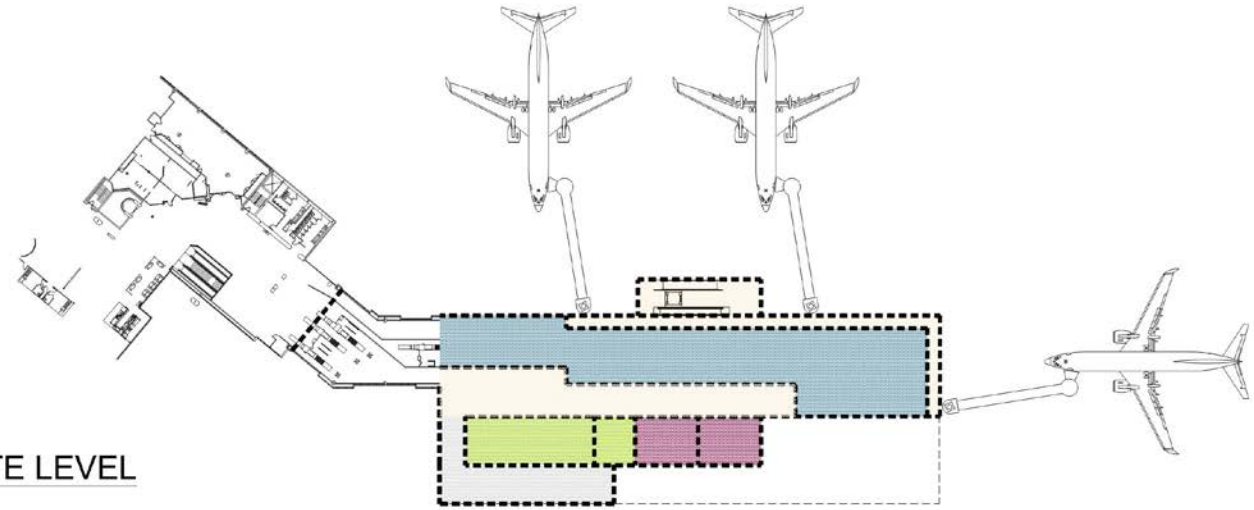
CAPACITY

4 – CBP LANES
3 – GATES (3 PBBs)

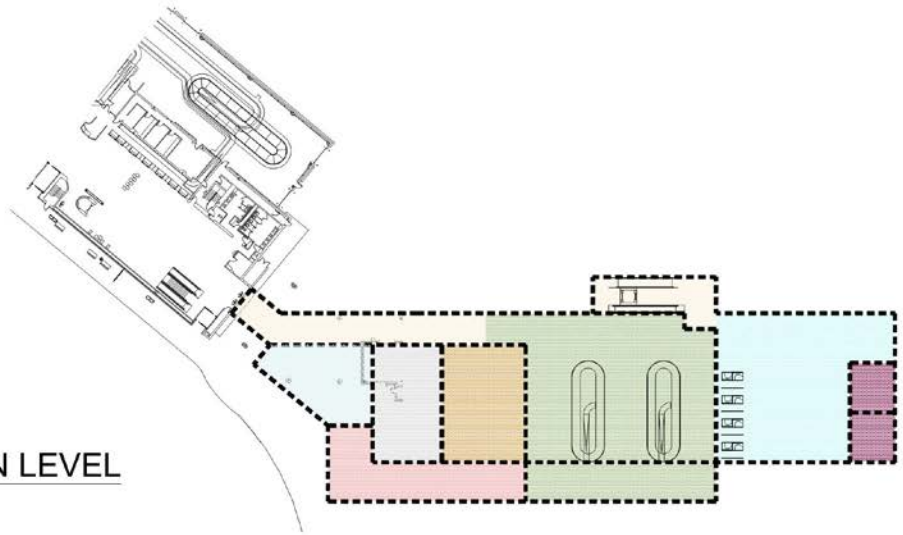
COST

$50M to $55M - TOTAL
$18.3M - PER GATE

OPTION 5 – CONSTRUCT NEW IAF, REPLACE CONCOURSE E



GATE LEVEL



APRON LEVEL

CBP PARKING

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT
- MEETER/GREETER LOBBY

SCALE: 1:40 0 25' 50' 100'

NOTES
- All new construction
- Most efficient layout
- Most flexible layout
- Most energy efficient option
- Most expandable

PAX

400 – INTL PAX/HOUR
~175,000 – INTL PAX/ANNUAL

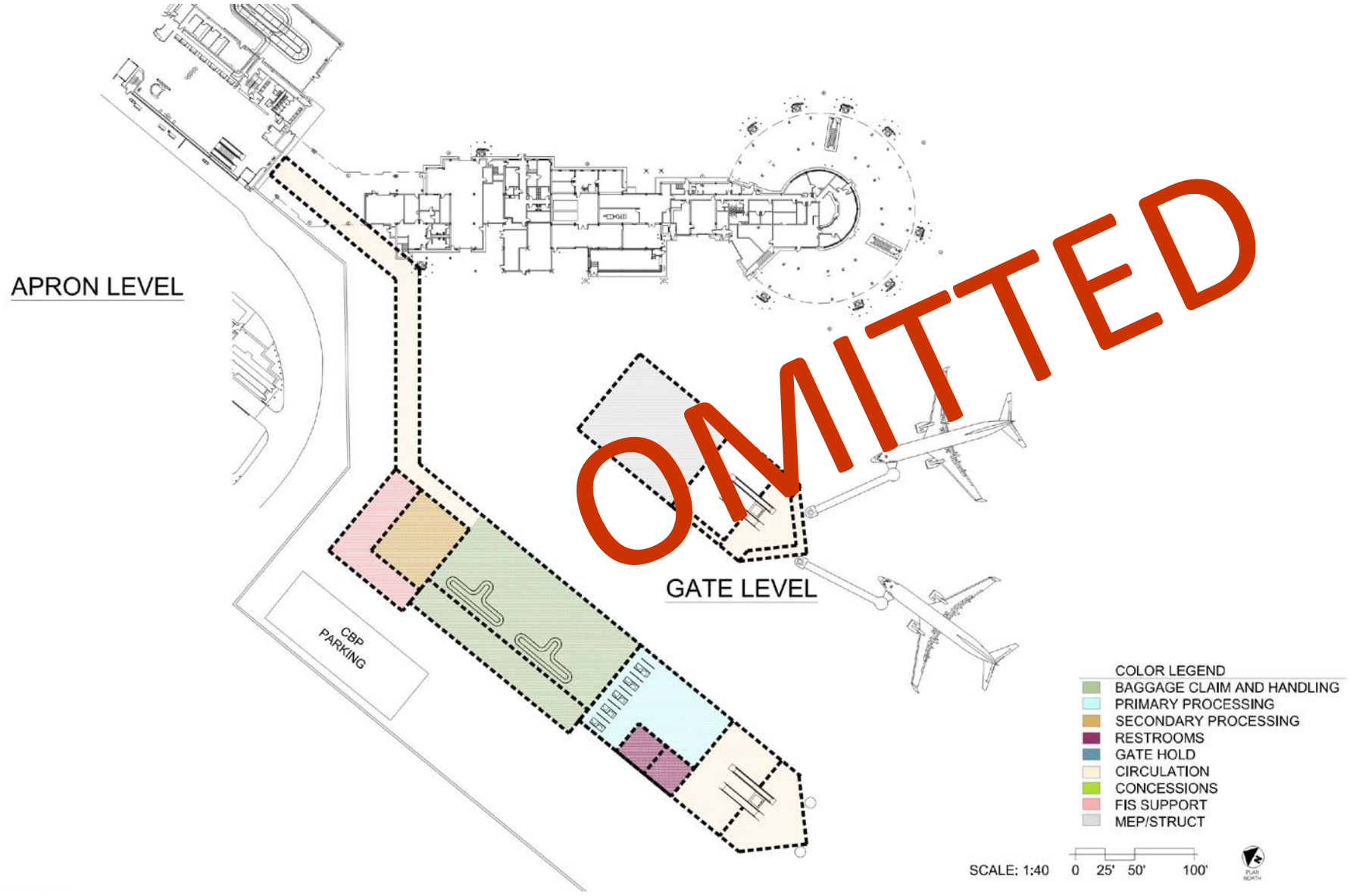
CAPACITY

4+ – CBP LANES
3+ – GATES (3+ PBBs)

COST

$55M to $60M - TOTAL
$20M - PER GATE

OPTION 6 – CONSTRUCT NEW IAF (EAST OF CONCOUSE E)



NOTES

- Least construction impact
- Longest pedestrian travel distance for arrivals
- Limits flexibility
- Impacts some gates on Concourse E
- Ramp Development Cost

PAX

400 – INTL PAX/HOUR
~175,000 – INTL PAX/ANNUAL

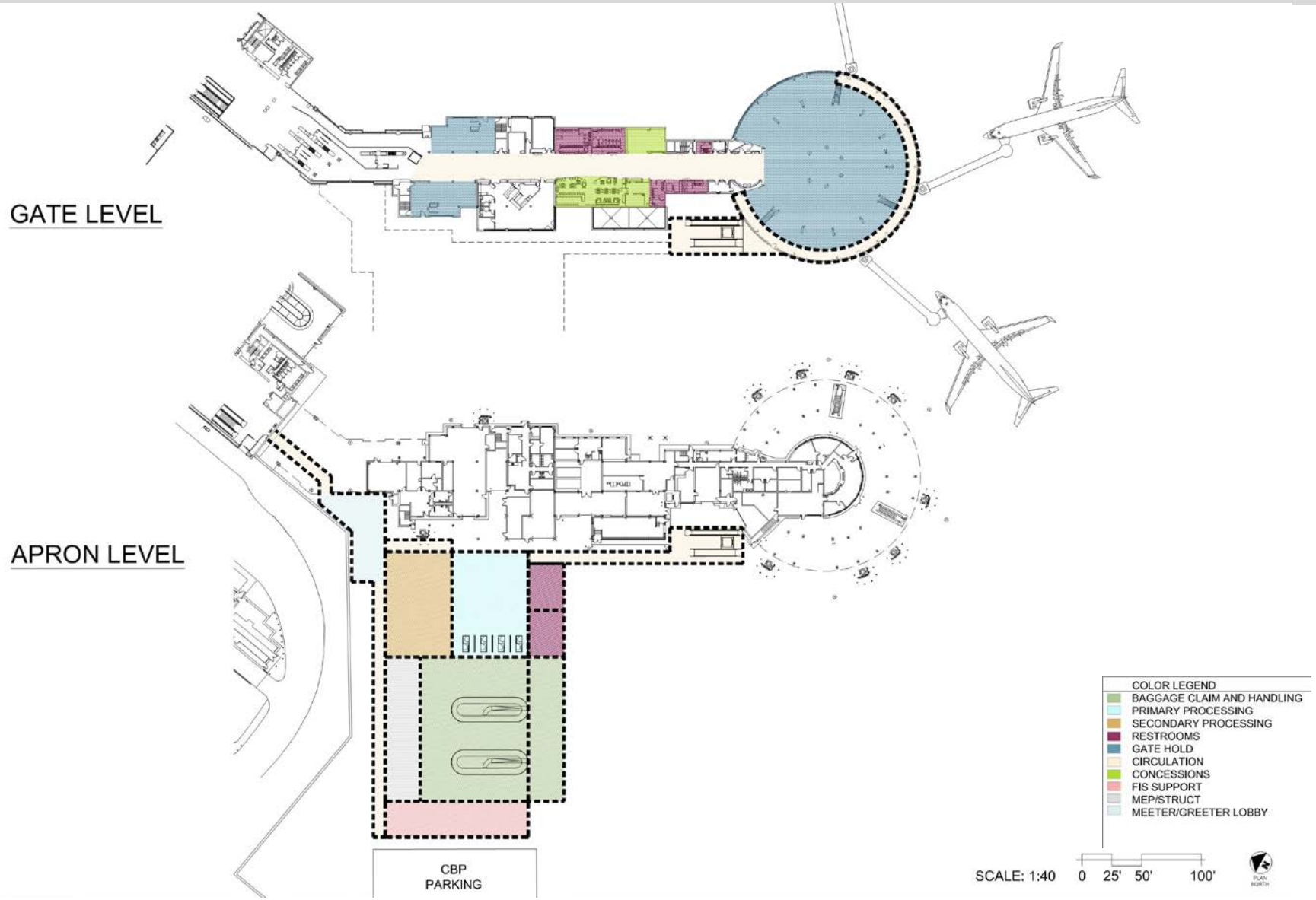
CAPACITY

4+ – CBP LANES
2+ – GATES (2+ PBBs)

COST

$35M to $40M - TOTAL
$20M - PER GATE

OPTION 6A - CONSTRUCT NEW IAF (WEST OF CONCOUSE E)



NOTES

- Modified Option 6 – Hybrid of Options 2 & 6
- Impacts on Concourse E gates
- Future Gate Expansion
  - Locate above FIS
  - Demolition of Concourse E
  - Ramp Development Cost

PAX

400 – INTL PAX/HOUR
~175,000 – INTL PAX/ANNUAL

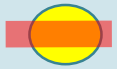
CAPACITY

4+ – CBP LANES
3+ – GATES (3+ PBBs)

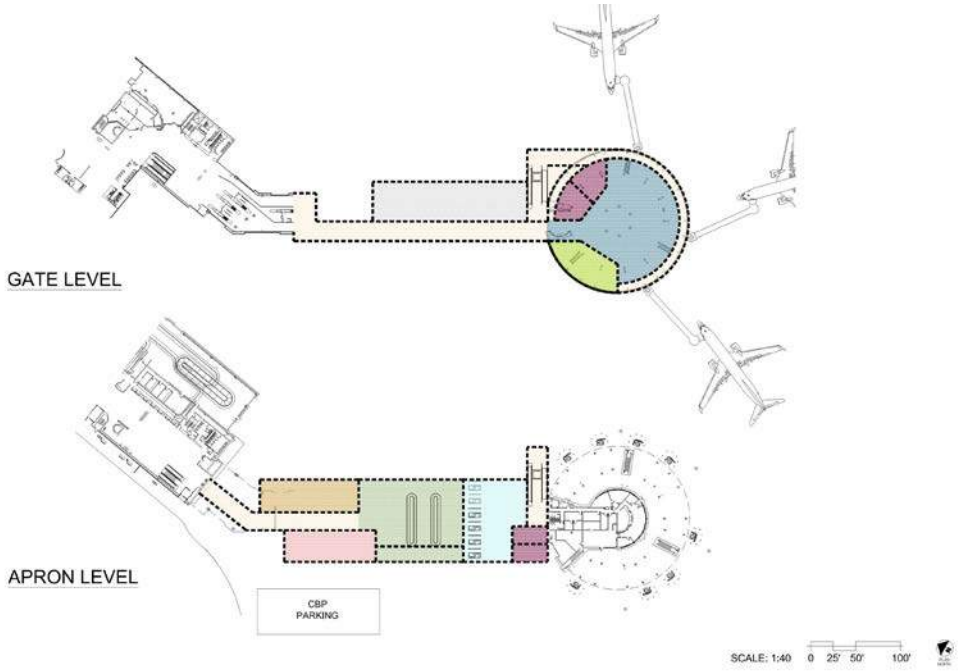
COST

$30M to $35M - TOTAL
$11.66M - PER GATE

MKE – PROGRAM MATRIX

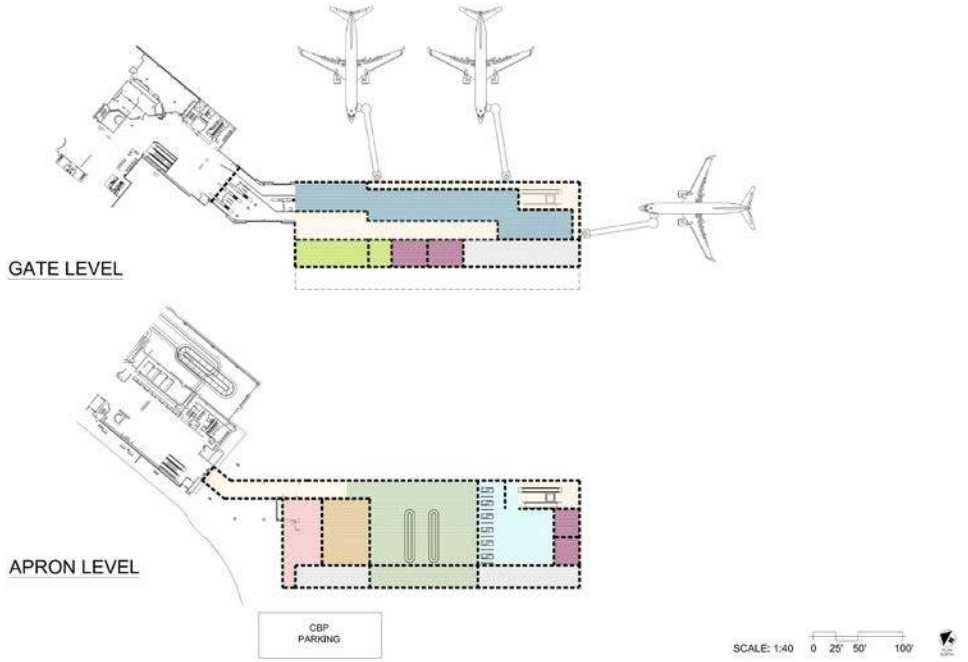
DESIGN CONCEPT OPTION	CBP PAX 200-400	Planes & PBBs	DoD & GA Parking	Switch Gates Dom-Intl	Baggage Recheck	Transit & Parking Access	Expand.	Const. Cost	NOTES
Existing International Arrivals Building								NA	
OPTION 1: Renovation/Additions to Existing IAB								$15 - $20M	
OPTION 2: Renovation to Existing Concourse E to Int'l Arrivals Facility								$25 - $30M	
OPTION 3: Renovation/Addition (Minor) to Concourse E IAF								$45 - $50M	Additional Dom/Intl Gate Potential
OPTION 4: Renovation/Addition (Major) to Concourse E IAF								$50 - $55M	Additional Dom/Intl Gate & CBP Potential
OPTION 5: Construct a New Int'l Arrivals Facility (replace Concourse E)								$60-$65M	Phased Gate/CBP Development Potential
OPTION 6: Construct a New Int'l Arrivals Facility (West of Concourse E)								$35 – $40M	
OPTION 6A: Construct a New Int'l Arrivals Facility (West of Concourse E)								$30-$35M	Future cost are higher to address existing Concourse E

MKE – RECOMMENDED CONCEPT DESIGNS



OPTION 4 - RECOMMENDATIONS:

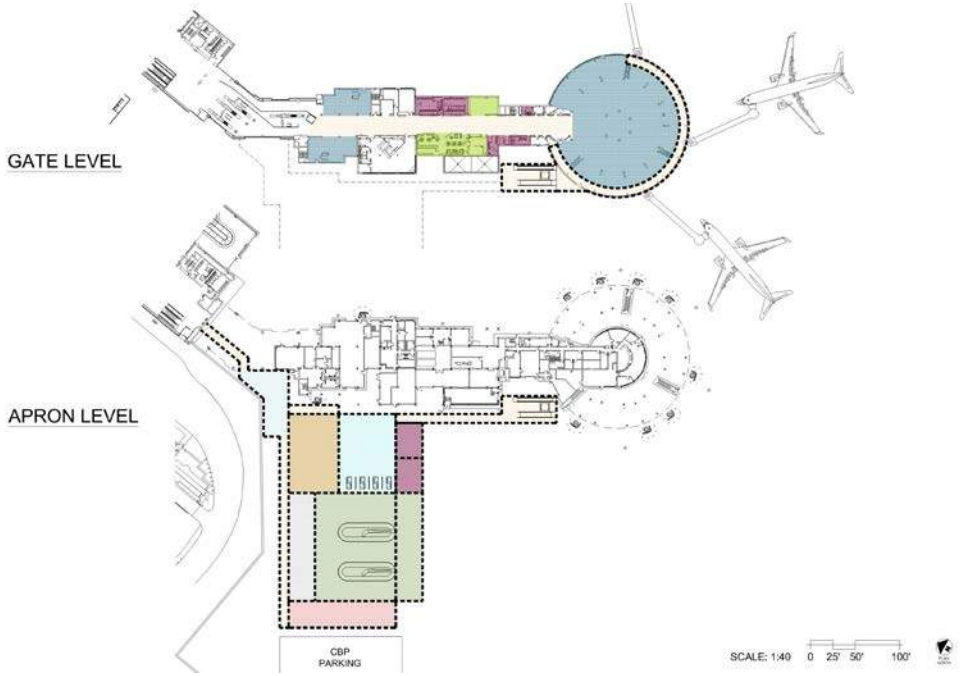
- ✓ Meets Capacity: 400 PAX/HR
- ✓ Recheck/Connecting Flights
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: Retain Iconic Rotunda, Irregular Structure Replaced
- ✓ Limited Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Limited Flexible Gate Layout (Rotunda)
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Energy Efficient Option
- ✓ Mid-Level Cost



OPTION 5 - RECOMMENDATIONS:

- ✓ Meets Capacity: 400 PAX/HR
- ✓ Recheck/Connecting Flights: Shortest Pedestrian Travel
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: All New Uniform Construction
- ✓ Phasing Potential & High Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Most Flexible Layout
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Energy Efficient Option
- ✓ High-Level Cost

MKE – RECOMMENDED CONCEPT DESIGNS (cont.)



OPTION 6A - RECOMMENDATIONS:

- ✓ Meets Capacity: 400 PAX/HR
- ✓ Recheck/Connecting Flights
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: Retains Concourse E for early phases
- ✓ Expandable
- ✓ Domestic & International Switchable Gates
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Low-Level Cost
- ✓ Modified Option 6 – Hybrid of Options 2 & 6
- ✓ Impacts on Concourse E gates
- ✓ Future Gate Expan.: Locate above FIS, Demo Concourse E, Ramp Devel. Cost

MKE IAF FEASIBILITY STUDY:

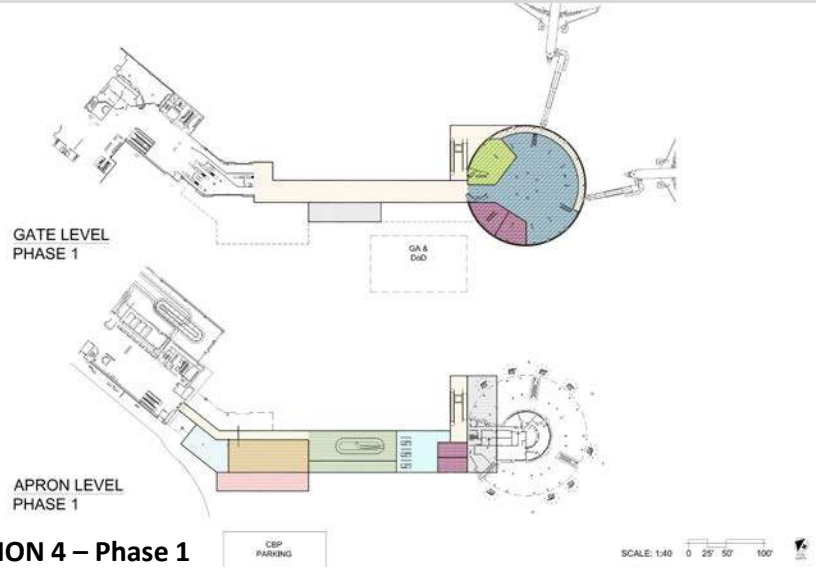
Preferred Concept Design Executive Summary

31 March 2017

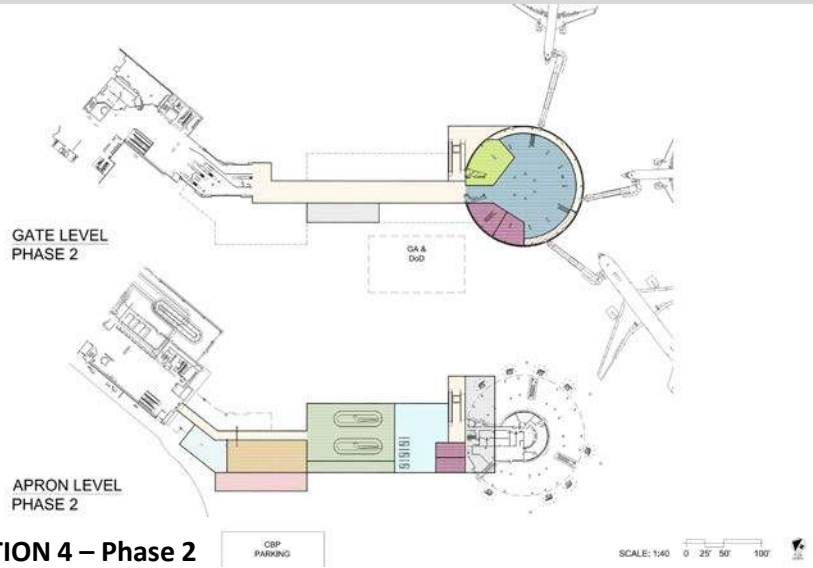
MKE – PREFERRED CONCEPT DESIGN EXECUTIVE SUMMARY

1. GMIA Basis for New International Arrivals Concourse & FIS
   - *Existing International Arrivals Building (IAB) does not meet CPB requirements*
   - *IAB does not meet current passenger load capacity. Passenger load is increasing*
   - *IAB facility Assemblies and Systems are at or past end of life cycle and need significant modernization or replacement*
   - *IAB is not connected to the rest of the terminal complex creating logistics for passengers connecting to other flights*
   - *IAB is not connected to the rest of the terminal complex creating logistics for passengers accessing ground transportation options, parking, and pick-up*
   - *IAB's current use requires ramp-up/ramp-down of facility operations and staffing that create inefficiencies for Airline, CBP, Airport staff.*
2. GMIA Provided Stakeholder Input, Reviewed & Commented on 6 Concept Designs, & Down Select from 6 Concept Designs to 3 Preferred Concept Design:
   - *Option 4 – Retain Concourse E Rotunda/Infill New Concourse & FIS*
   - *Option 5 – New International Arrivals Concourse*
   - *Option 6A – New FIS Only (Short Term)/New Int'l Arrivals Concourse (Long Term)*
3. MDA Team Updates to Preferred Concept Designs (2/16 to 3/31)
4. GMIA is Requested to Down-Select to 1 Preferred Concept Design
5. MDA Team Recommendations

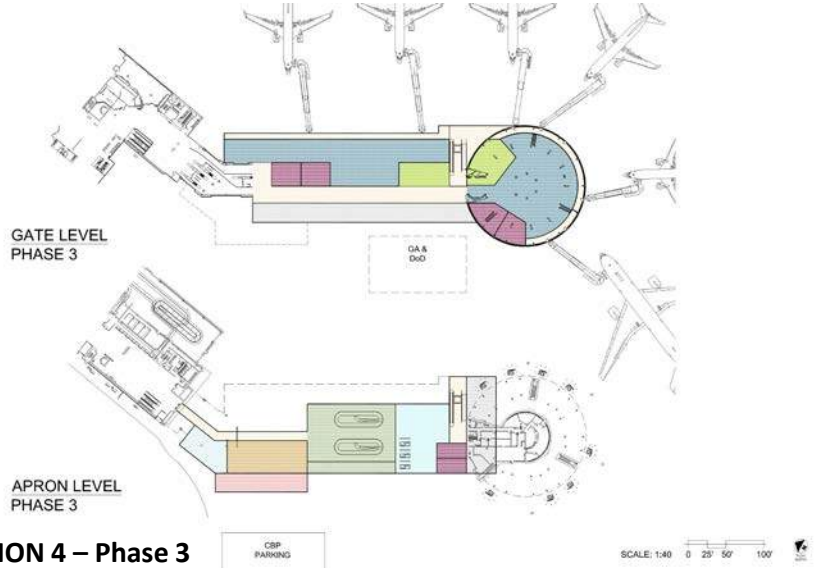
March 21, 2017 – Preferred Concept Design: Option 4



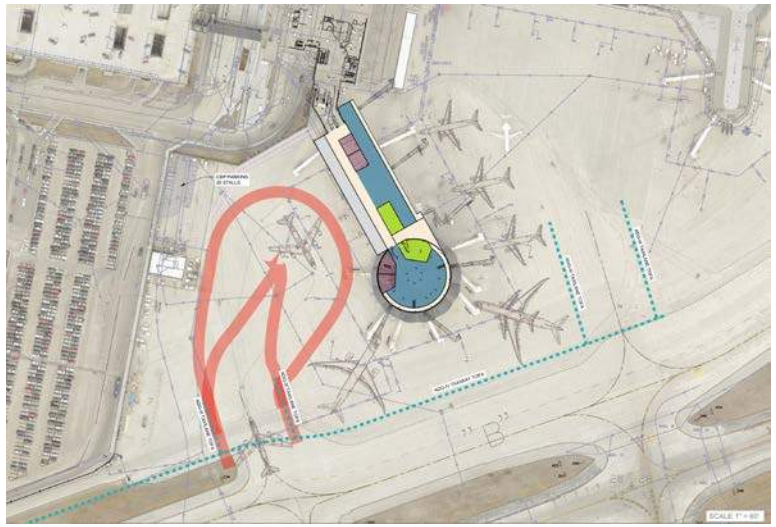
OPTION 4 – Phase 1



OPTION 4 – Phase 2



OPTION 4 – Phase 3



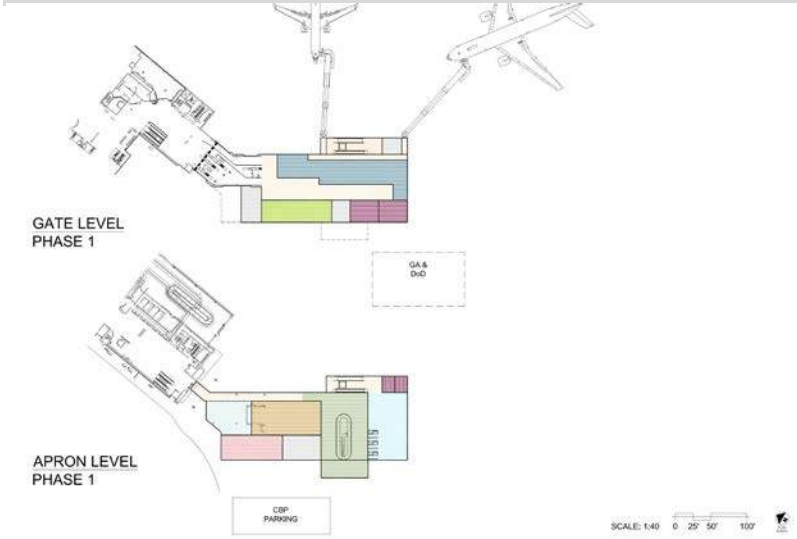
OPTION 4 – Phase 3 Airfield

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

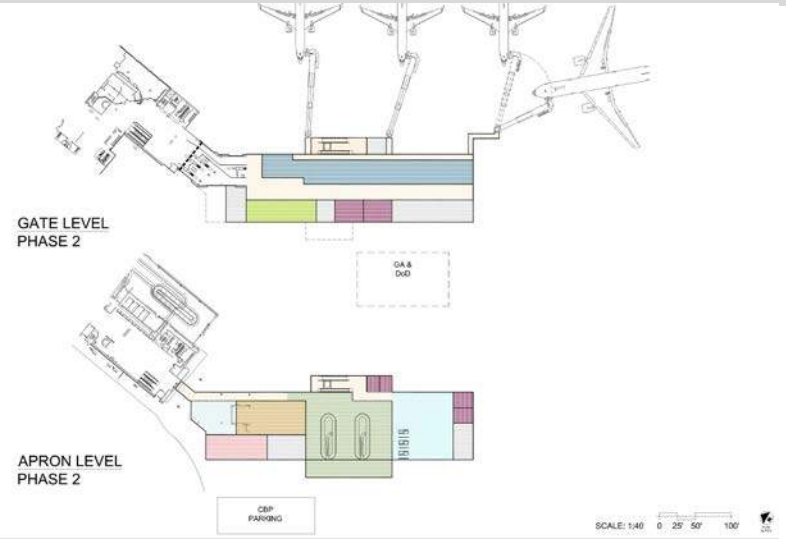
OPTION 4 NOTES

- CAPACITY
  - Phase 1: 300-400 PAX/HR
  - Phase 2: +400 PAX/HR
  - Phase 3: 400-600 PAX/HR
- SIZE
  - Phase 1: 2 Gates/64,620 SF
  - Phase 2: 3 Gates/71,550 SF
  - Phase 3: 5 Gates/94,000 SF
- COST
  - Phase 1: $50-$55M
  - Phase 2: $6-$8M
  - Phase 3: $28-$32M
- GENERAL COMMENTS
  - Rotunda Retained Gate Hold
  - Dom./Int'l Flex Gates
  - New Const. to Infill Space Between Rotunda/Terminal
  - New FIS Facilities
  - Supports +300 PAX/HR FIS
  - Expanded as Capacity Requires
  - Phasing Potential & Expandable
  - Mid-Level Flexible Layout
  - Mid-Level Energy Efficient Option
  - High Operational Cost

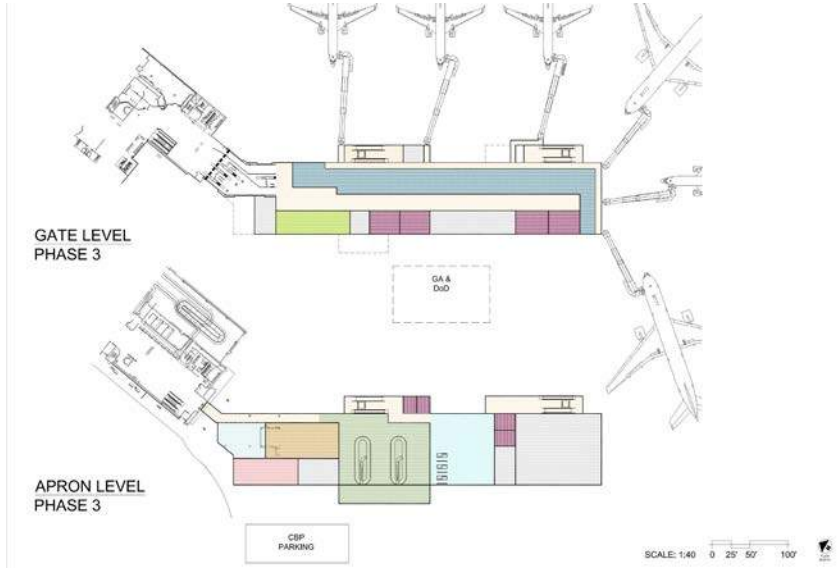
March 21, 2017 – Preferred Concept Design: Option 5



OPTION 5 – Phase 1



OPTION 5 – Phase 2



OPTION 5 – Phase 3

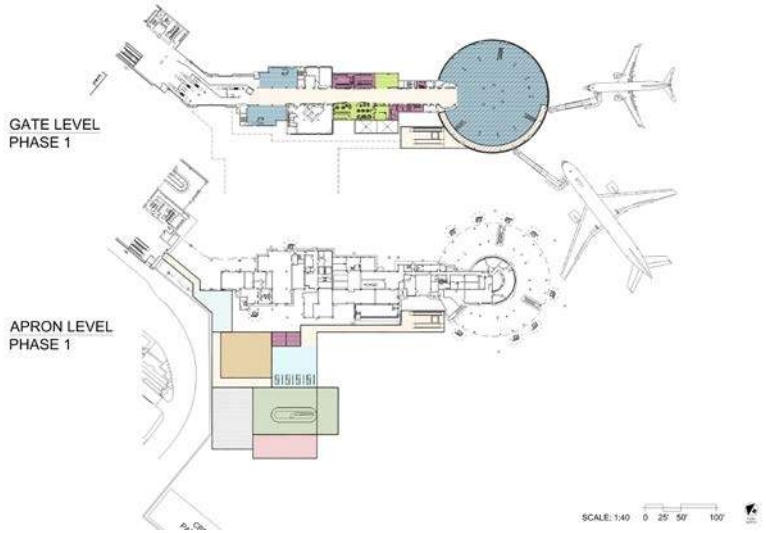
OPTION 5 – Phase 1 Airfield

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

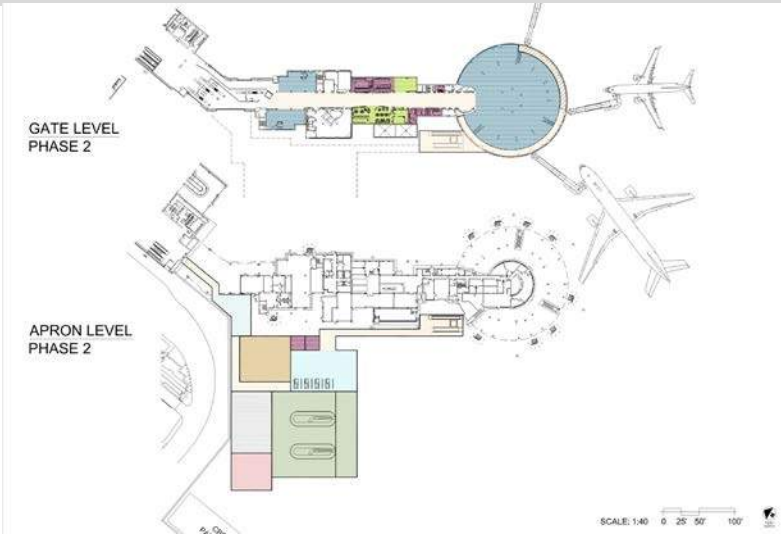
OPTION 5 NOTES

- CAPACITY
  - Phase 1: 300-400 PAX/HR
  - Phase 2: +400 PAX/HR
  - Phase 3: 400-600 PAX/HR
- SIZE
  - Phase 1: 2 Gates/53,300 SF
  - Phase 2: 3 Gates/73,600 SF
  - Phase 3: 6 Gates/102,310 SF
- COST
  - Phase 1: $46-$49M
  - Phase 2: $14-$18M
  - Phase 3: $30-$34M
- GENERAL COMMENTS
  - Concourse E Demolished
  - Dom./Int'l Flex Gates
  - Minimal first New Const. to Support +300 PAX/HR FIS
  - New Gate Hold, Concessions, & Rest Rooms
  - New FIS Facilities
  - Expanded as Capacity Req.
  - Modern Facility: All New Uniform Construction
  - Phasing Potential & High Expandability
  - Most Flexible Layout
  - Highest Energy Efficiency
  - Lowest Operational Cost

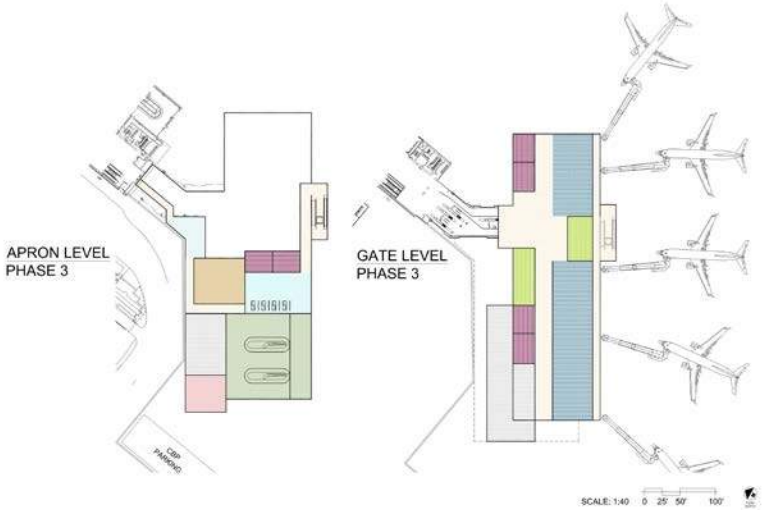
March 21, 2017 – Preferred Concept Design: Option 6A



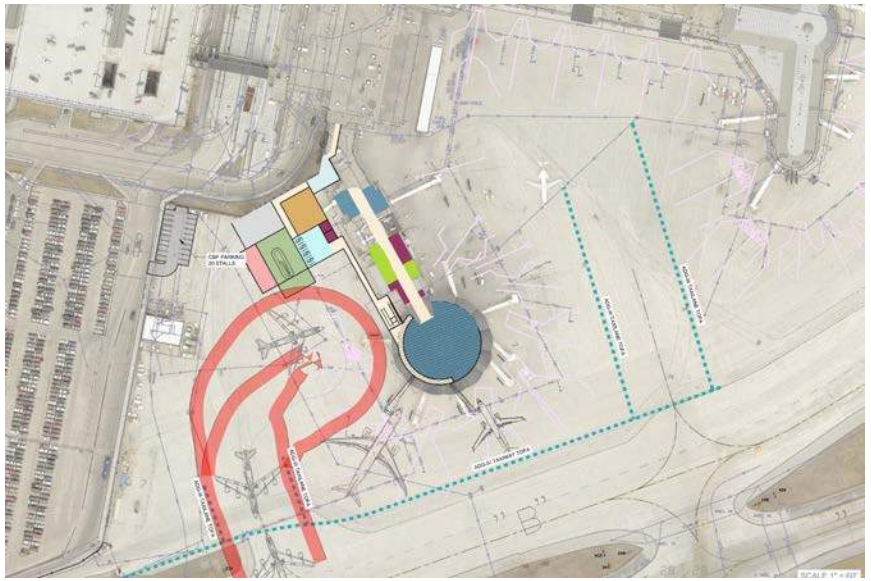
OPTION 6A – Phase 1



OPTION 6A – Phase 2



OPTION 6A – Phase 3



OPTION 6A – Phase 1 Airfield

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

OPTION 6A NOTES

- CAPACITY
  - Phase 1: 300-400 PAX/HR
  - Phase 2: +400 PAX/HR
  - Phase 3: 400-600 PAX/HR
- SIZE
  - Phase 1: 2 Gates/106,173 SF
  - Phase 2: 3 Gates/114,543 SF
  - Phase 3: 5 Gates/108,364 SF
- COST
  - Phase 1: $43-$46M
  - Phase 2: $2-$3M
  - Phase 3: $53-$58M
- GENERAL COMMENTS
  - Concourse E Retained
  - Dom./Int'l Flex Gates
  - Minimal New Const. to Support +300 PAX/HR FIS
  - Existing Gate Hold, Concessions, & Rest Rooms
  - New FIS Facilities
  - Expanded as Capacity Req.
  - Phasing Potential & Expandable
  - Least Flexible Layout
  - Lowest Energy Efficiency
  - Highest Operational Cost

MKE – PROGRAM MATRIX

DESIGN CONCEPT OPTION	CBP PAX 200-400	Planes & PBBs	DoD & GA Parking	Switch Gates Dom-Int'l	Baggage Recheck	Transit & Parking Access	Expand-ability	Opera-tions Cost	Phase 1 Const. Cost	NOTES
Existing International Arrivals Building									NA	
OPTION 4: Renovation/Addition (Major) to Concourse E IAF									$50 -$55M	
OPTION 5: Construct a New Int'l Arrivals Facility (replace Concourse E)									$46-$49M	
OPTION 6A: Construct a New Int'l Arrivals Facility (East of Concourse E)									$43-$46M	

MDA TEAM RECOMMENDATION

1. Option 4
   - *Highest First Cost, but Lowest Cost to Phase 3*
   - *Retention of Existing Rotunda Creates Infill Construction That Impacts Efficiency, Flexibility & Phasing of New Construction*
   - *Integration of Existing Rotunda with New Infill Construction Creates Limitations on Height and Horizontal Layout that is not Compatible with Current/Future Fleet Standards (Group V)*

2. Option 6A
   - *Lowest First Cost, but Highest Cost to Phase 3*
   - *Slightly Lower Phase 1 Capital Cost - Higher Phase 1 & 2 Operational Cost*
   - *Existing Concourse E Provides A Low Level of Service for Gate Hold, Restroom & Concessions*
   - *Deferred Demolition of Existing Concourse E Creates Multiple Construction & Operational Concerns*
   - *Phase 3 will have Significant Construction Phasing, Sequence, & Ramp Use Complications*

3. MDA Team Recommends that GMIA Proceed with Option 5
   - *Low to Moderate First Cost, but Moderate Cost to Phase 3*
   - *Slightly Higher Phase 1 Capital Cost – Lowest Phase 1-3 Operational Cost*
   - *All New Construction Provides Predictability for Operational & Energy Efficiency & Meeting Current FAA and CBP Standards*
   - *All New Construction Provides Long-Term Flexibility and Lowest Impact to Operations for Future Years*

SCHEDULE UPDATES

Notice to Proceed:	11/28/2016	
Kick-Off Meeting:	12/14/2016	
Issue Requested Information:	12/1 to 1/15/2017	
Programming Meeting:	1/19/2017	
Conference Call with MKE Finance:	Week of 1/23	
IAF Programing & Concept Development:	1/19 to 2/10/2017	
IAF Design Concepts Developed:		
Design Meeting:	2/16/2017	
Finance & CPB Meetings		
Program Update/Concept Design & Preferred Concept Review		
Update Preferred Concepts (4, 5, & 6A)	2/16 to 3/27/2017	
CBP & Finance Follow-Up Conference Calls		
CBP Program Updates	3/1 to 3/10/2017	
Preferred Concept Down-Select	tbd	
Submit Draft Report:	~~Week of 2/27/2017~~	+2 Weeks from Down Select
GMIA Review & Comment Period/Meeting:	~~2/27 to 3/10/2017~~	2 weeks
Stakeholders Meeting(s):		
AAAC Meeting	5/4/2017	
Other Stakeholder Meeting(s)	tbd	
Submit Final Report:	~~Week of 3/20~~	5/5/2017

MKE IAF FEASIBILITY STUDY:

PREFERRED CONCEPT DESIGN CONFERENCE CALL

15 May 2017

MKE – PREFERRED CONCEPT DESIGN CONFERENCE CALL

1. Introductions
2. Goals
3. MKE IAF Capacity – No Changes
4. MKE IAF Program Summary - Updates
5. MKE IAF Design Concepts – Updates
   - 2/16/2017
   - 3/3/2017
   - 3/21/2017
6. Schedule - Updates
7. Next Steps
8. Questions

INTRODUCTIONS & GOALS

1. Introductions
2. Meeting Goals
   - MKE International Arrivals Capacity – No Changes
   - MKE International Arrivals Program – Review Updates

     CBP Feedback
   - MKE Intl Arrivals Design Concepts & Preferred Concepts – Review & Comment

     2/16/2017: Design Concepts – Options 1 to 6

     2/16/2017: Down Select to Preferred Design Concepts – Options 4, 5, & 6A

     3/3/2017: Prepare Option 6A, Update Preferred Concepts 4 & 5 per 2/16 Comments

     3/21/2017: Update Preferred Concepts for Program Changes & Target Budget Goals
   - Schedule

     Review Updates

     Review May Airlines Meeting Schedule/Support

MKE IAF – INT'L ARRIVALS CAPACITY [NO CHANGES]

MKE – EXISTING IAB CAPACITY [NO CHANGES]

		AREA		PAX/HOUR
Plane Parking Positions/PBBs		= 2 Plane (Group III)/1 PBB		
2 Plane x 160 PAX = 320 x 50%				= 160 PAX/HR
Primary Processing		= 2,658 SF		
200 PAX/HR = 3,300 x 80%				= 160 PAX/HR
Baggage Claim		= 2,468 SF		
200 PAX/HR = 6,000 x 41%				= 82 PAX/HR
Claim Presentation		= 100 LF		
200 PAX/HR = 150 x 67%				= 133 PAX/HR
Secondary Processing		= 2,723 SF		
200 PAX/HR = 3,400 x 80%				= 160 PAX/HR
AVERAGE:				= 140 PAX/HR

MKE - INTERNATIONAL ENPLANEMENT CAPACITY [NO CHANGES]

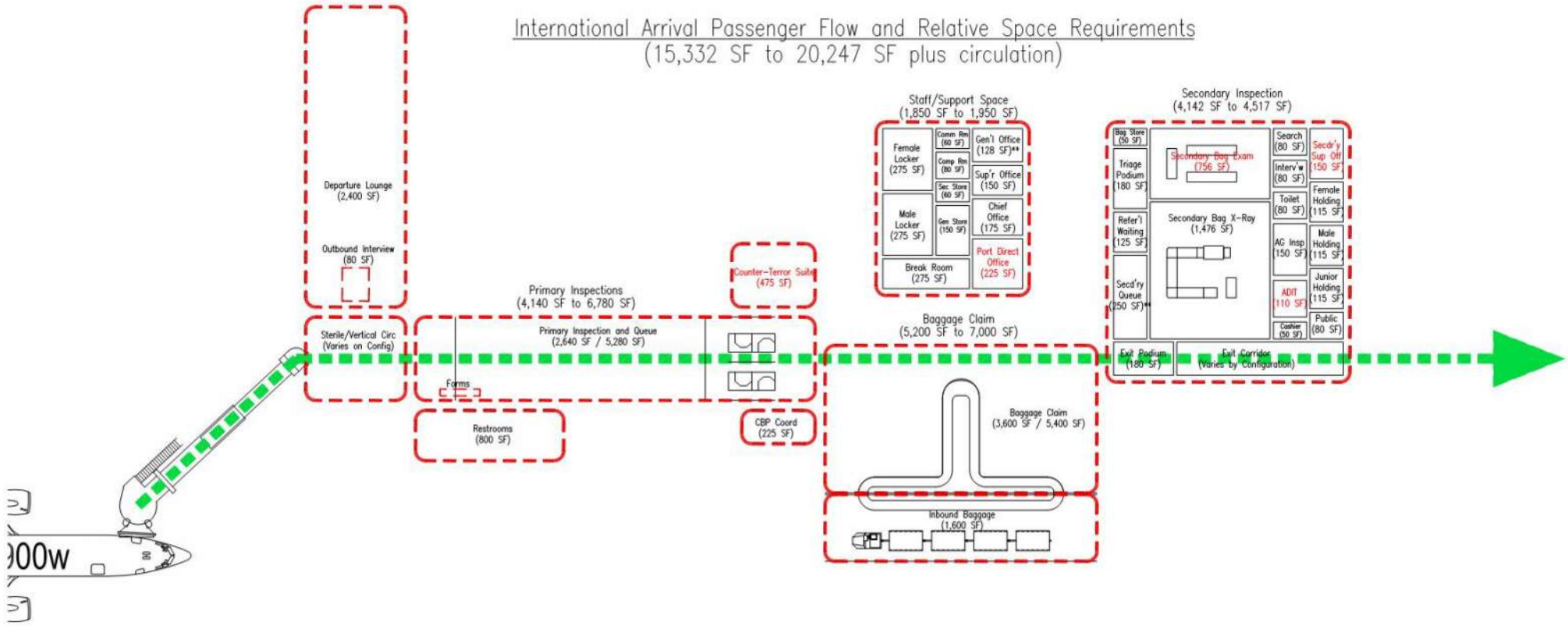
		2014	2015	FUTURE (+15%)
Annual PAX		110,258 PAX	112,901 PAX	~130,000 PAX
PEAK SEASON (JAN to APR) AVERAGE		19,910 PAX	19,891 PAX	~23,000 PAX
PEAK MONTH (MAR)		27,558 PAX	25,276 PAX	~32,000 PAX
OFF-PEAK SEASON (MAY to DEC)		3,828 PAX	4,167 PAX	~4,800 PAX
PEAK MONTH (DEC)		4,528 PAX	4,929 PAX	~5,800 PAX
WEEKDAYS/SUNDAY (PEAK SEASON)		~280 PAX	~300 PAX	~345 PAX
1-2 FLIGHTS/DAY				
SATURDAYS (PEAK SEASON)		~1,000 PAX	~1,050 PAX	~1,210 PAX
6-7 FLIGHTS/DAY				
PEAK HOUR (PEAK/SAT, 14:00 to 19:00)		~350 PAX/HR	~350 PAX/HR	~400 PAX/HR
2x 737 single aisle configuration, 175 MAX PAX				
DIVERTS (~200/YR, 10% INTL)		~600 PAX	~600 PAX	~700 PAX
2-3 Diverts Deplane/YR				
GENERAL AVIAITON/DoD (per CBP)		tbd	tbd	tbd

MKE IAF – PROGRAM SUMMARY [NO CHANGES]

MKE – IAF PROGRAM SUMMARY [NO CHANGES]

		200 PAX/HR	400 PAX/HR	600 PAX/HR	Exist IAB
CBP Requirements					
Primary Processing		3,294 SF	5,934 SF	8,574 SF	2,658 SF
Secondary Processing		3,531 SF	3,531 SF	3,531 SF	2,723 SF
FIS Support Areas		3,334 SF	3,562 SF	3,840 SF	2,700 SF
Grossing Factor (25%)		2,540 SF	3,260 SF	3,990 SF	2,020 SF
Bag Claim Frontage		150 LF	300 LF	450 LF	100 LF
Total CBP Required Functions		12,699 SF	16,287 SF	19,935 SF	10,101 SF
Concourse Level		16,750 SF	26,300 SF	35,850 SF	3,542 SF
Gates/PBBs		2/2	3/3	4/4	2/1
Grossing Factor (25%)		4,190 SF	6,580 SF	8,960 SF	890 SF
Total Concourse Functions		20,940 SF	32,880 SF	44,810 SF	4,432 SF
GRAND TOTAL:		33,639 SF	49,167 SF	64,745 SF	14,533 SF

INTERNATIONAL ARRIVALS FACILITY – FLOW DIAGRAM

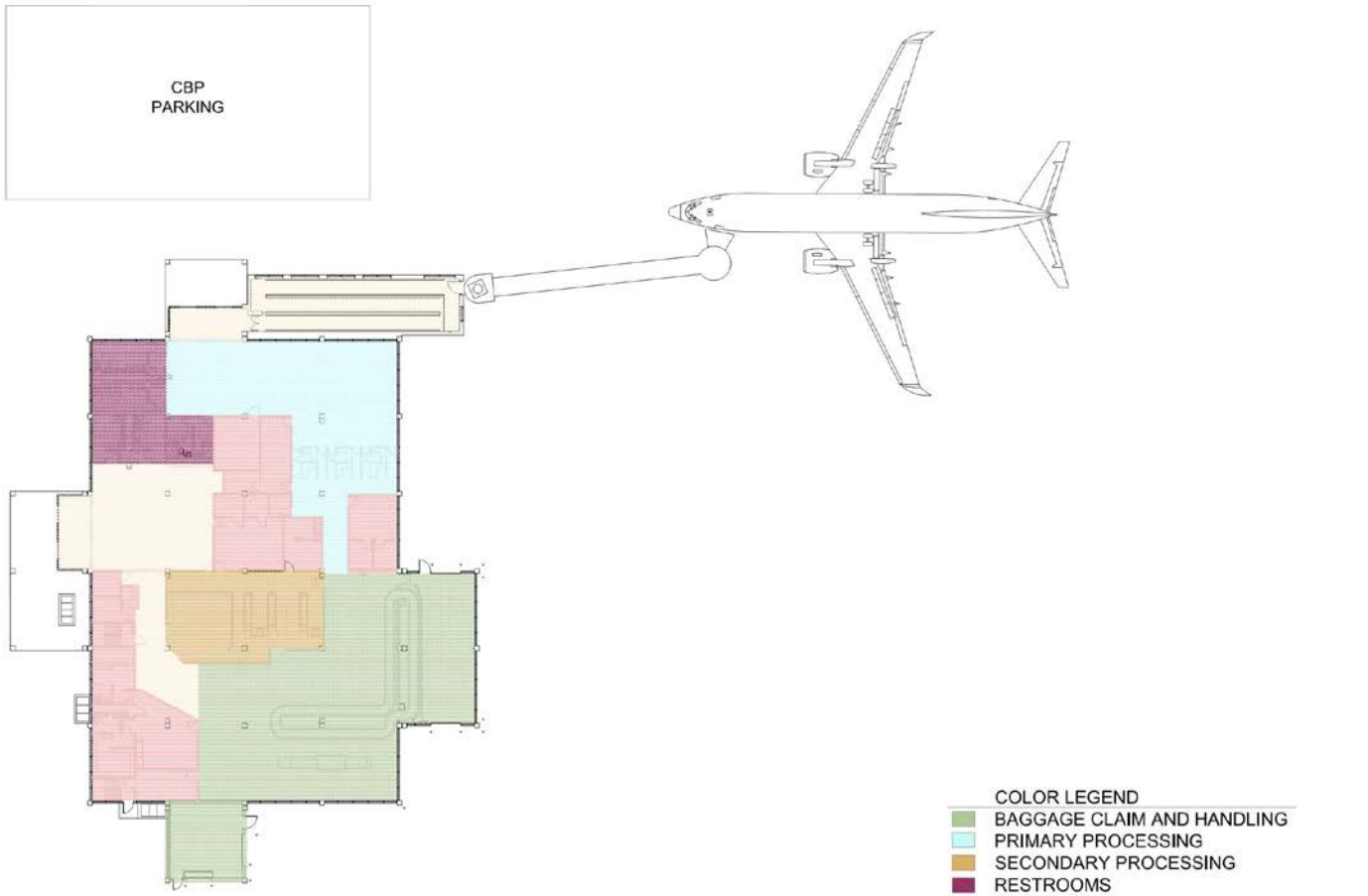


MKE IAF – DESIGN CONCEPTS UPDATES 2/16 to 3/31/2017

EXISTING IAF & CONCOURSE E

1. Evaluated Existing Conditions at Concourse E and International Arrivals Building (IAB)
2. Identified Existing Program Layout for Each
3. Estimated Existing Intl Passenger Capacity of IAB

INTERNATIONAL ARRIVALS BUILDING (IAB) - EXISTING



APRON LEVEL

PAX

140 – INTL PAX/HOUR
~120,000 – INTL PAX/ANNUAL

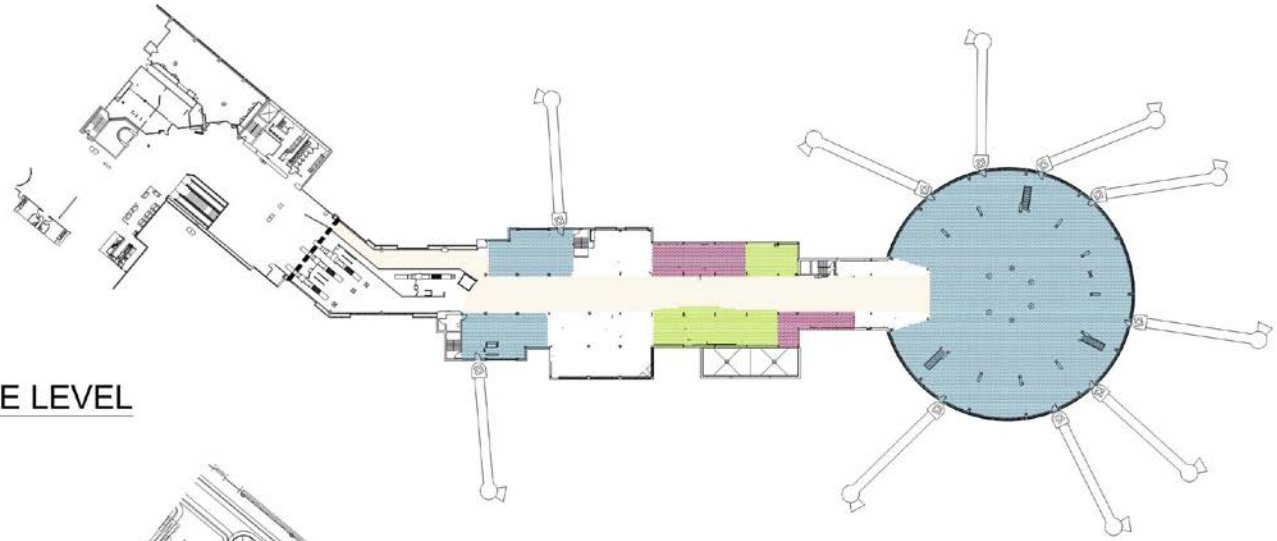
CAPACITY

4 – CBP LANES
2 – GATES (1 PBBs)

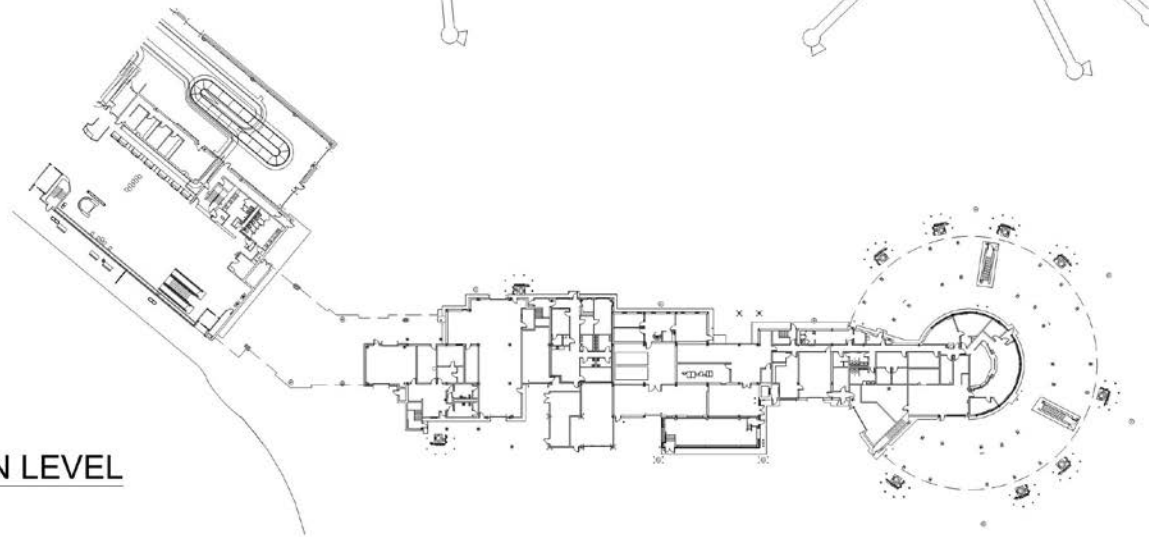
COST

$NA - TOTAL
$NA - PER GATE

CONCOURSE E - EXISTING



GATE LEVEL



APRON LEVEL

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

SCALE: 1:40 0 25' 50' 100'

PAX

NA – INTL PAX/HOUR
NA – INTL PAX/ANNUAL

CAPACITY

NA – CBP LANES
8 – GATES (8 PBBs)

COST

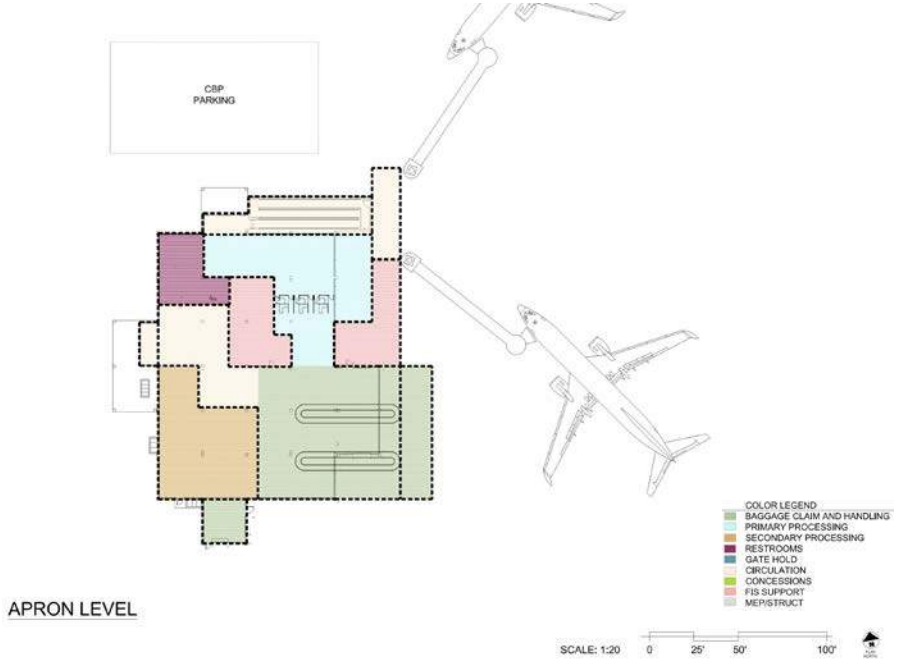
$NA - TOTAL
$NA - PER GATE

FEBRUARY 16, 2017

TASKS COMPLETED:

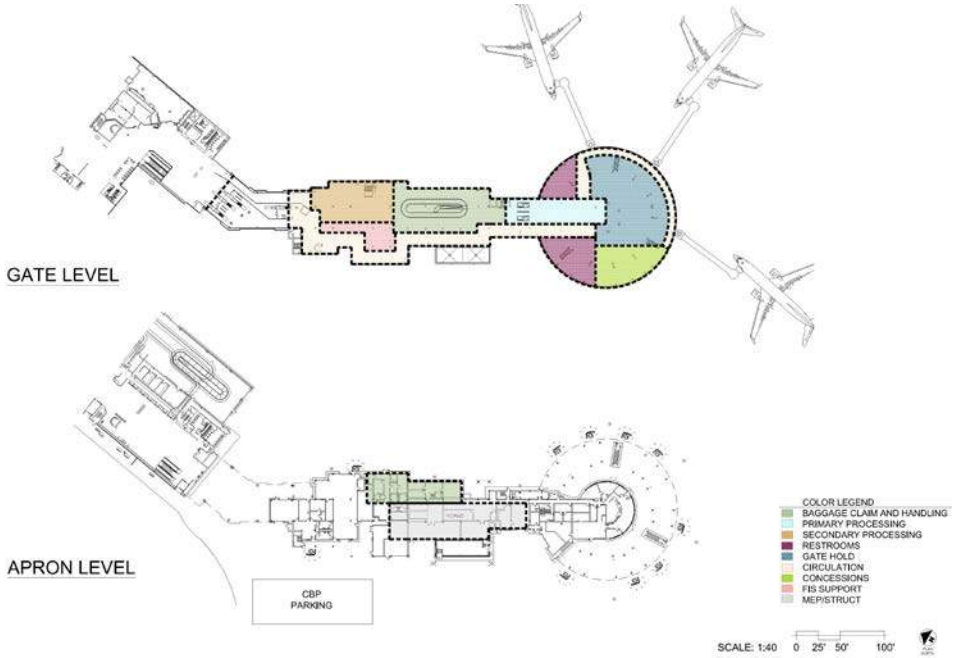
1. Prepared INT'L Passenger (PAX) Capacity Metrics for Peak Hour and Annual
2. Prepared a Preliminary Program Based on Assumptions for CBP FIS
3. Prepared 6 Concept Design Options for MKE Review
4. Prepared Budget Ranges for Each Option
5. GMIA Reviewed & Selected 3 Preferred Concept Design Options
   - Option 4
   - Option 5
   - Directed that Option 6 be modified to Option 6A

FEBRUARY 16, 2017 - CONCEPT DESIGNS



OPTION 1 - NOTES:

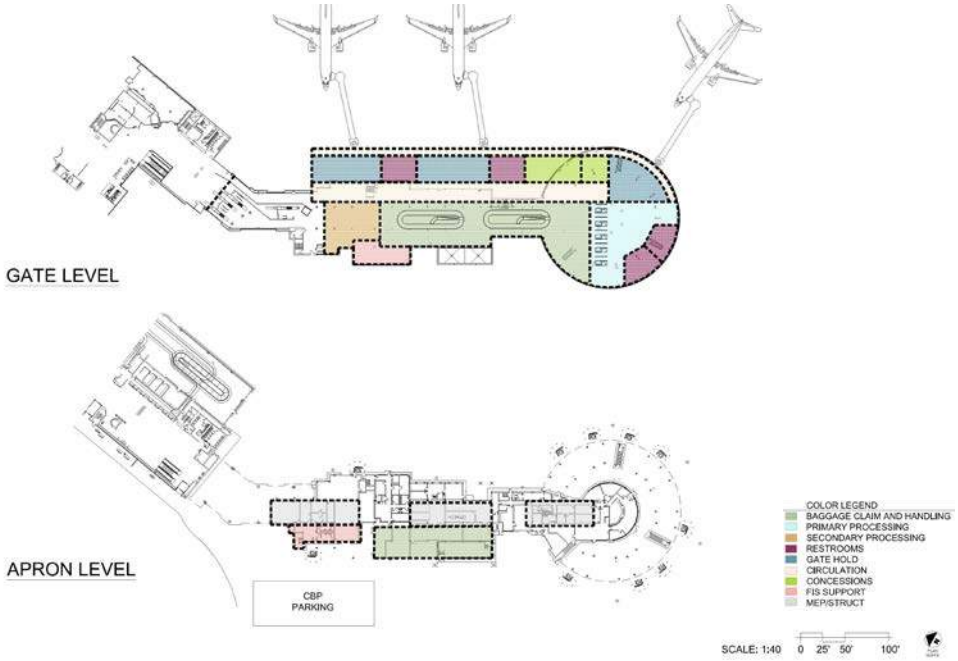
- ✓ COSTS: $15M to $20M
- ✓ CAPACITY: ~300 INTL PAX/HR, ~150,000 INTL PAX/YR
- ✓ Site Constraints
- ✓ Tugging Plane to Terminal for Departures
- ✓ Not Expandable
- ✓ Not Dom/Intl Swing
- ✓ Not connected for Re-check & Parking
- ✓ Temporary IAF during Reno.



OPTION 2 - NOTES:

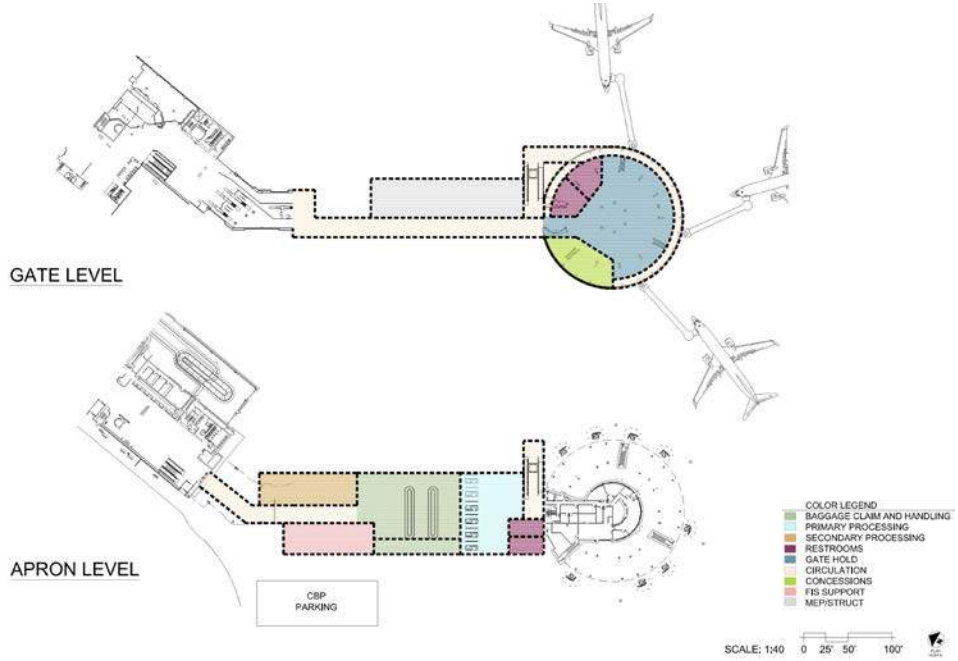
- ✓ COSTS: $25M to $30M
- ✓ CAPACITY: ~300 INTL PAX/HR, ~150,000 INTL PAX/YR
- ✓ Capacity Limitation
- ✓ Irregular facility footprint
- ✓ Significant structural and system modernization
- ✓ Cost Effective
- ✓ Limited Expandability
- ✓ Iconic Structure Preserved

FEBRUARY 16, 2017 - CONCEPT DESIGNS



OPTION 3 - NOTES:

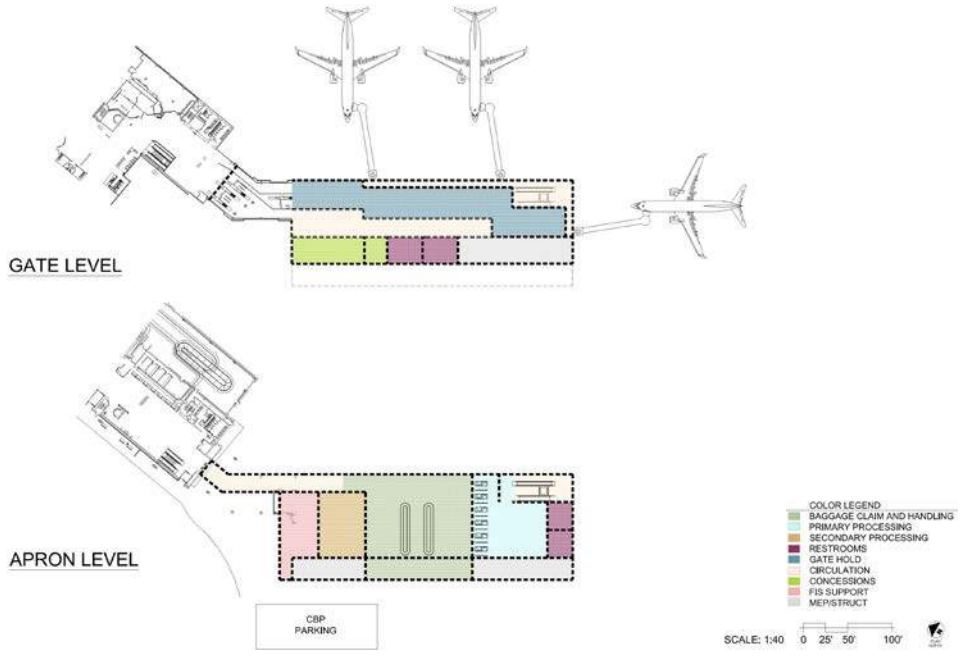
- ✓ COSTS: $45M to $50M
- ✓ CAPACITY: ~400 INTL PAX/HR, ~175,000 INTL PAX/YR
- ✓ Expansion on one side of concourse improves efficiency
- ✓ Limited ramp/apron work
- ✓ Limited Expandability
- ✓ One Level FIS



OPTION 4 - NOTES:

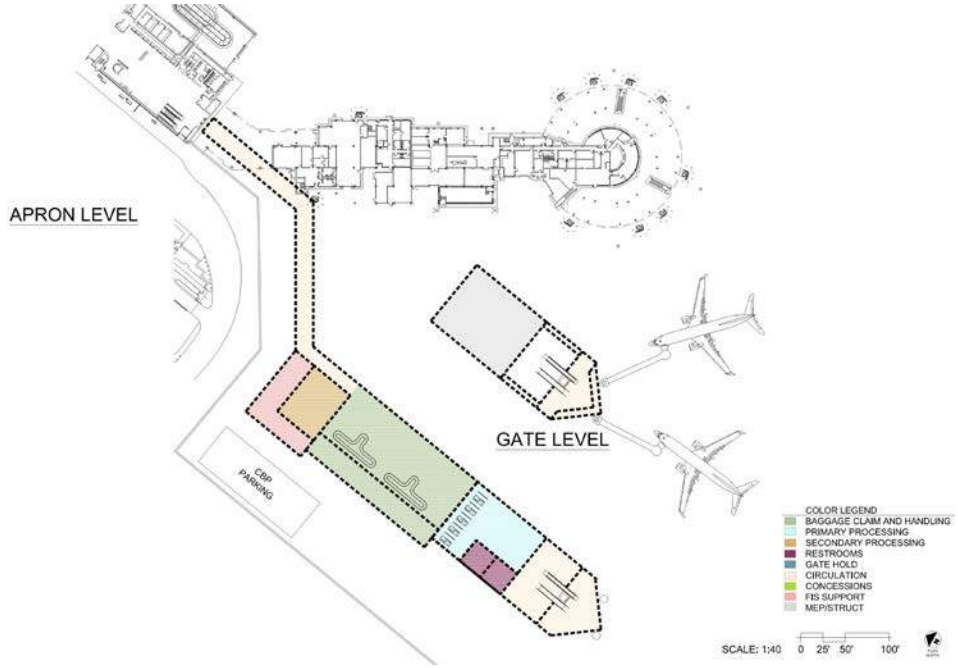
- ✓ COST: $50M to $55M
- ✓ Meets Capacity: +400 INTL PAX/HR, +175,000 INTL PAX/YR
- ✓ Recheck/Connecting Flights
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: Retain Iconic Rotunda, Irregular Structure Replaced
- ✓ Limited Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Limited Flexible Gate Layout (Rotunda)
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Energy Efficient Option
- ✓ Mid-Level Cost

FEBRUARY 16, 2017 - CONCEPT DESIGNS



OPTION 5 - NOTES:

- ✓ COSTS: $55M to $60M
- ✓ CAPACITY: +400 INTL PAX/HR, +175,000 INTL PAX/YR
- ✓ Recheck/Connecting Flights: Shortest Pedestrian Travel
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: All New Uniform Construction
- ✓ Phasing Potential & High Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Most Flexible Layout
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Energy Efficient Option
- ✓ High-Level Cost



OPTION 6 - NOTES:

- ✓ COSTS: $35M to $40M
- ✓ CAPACITY: ~400 INTL PAX/HR, ~175,000 INTL PAX/YR
- ✓ Least construction impact
- ✓ Longest pedestrian travel distance for arrivals
- ✓ Limits flexibility
- ✓ Impacts some gates on Concourse E
- ✓ Ramp Development Cost

FEBRUARY 16, 2017 - CONCEPT DESIGNS

2/16/2017 NOTES:

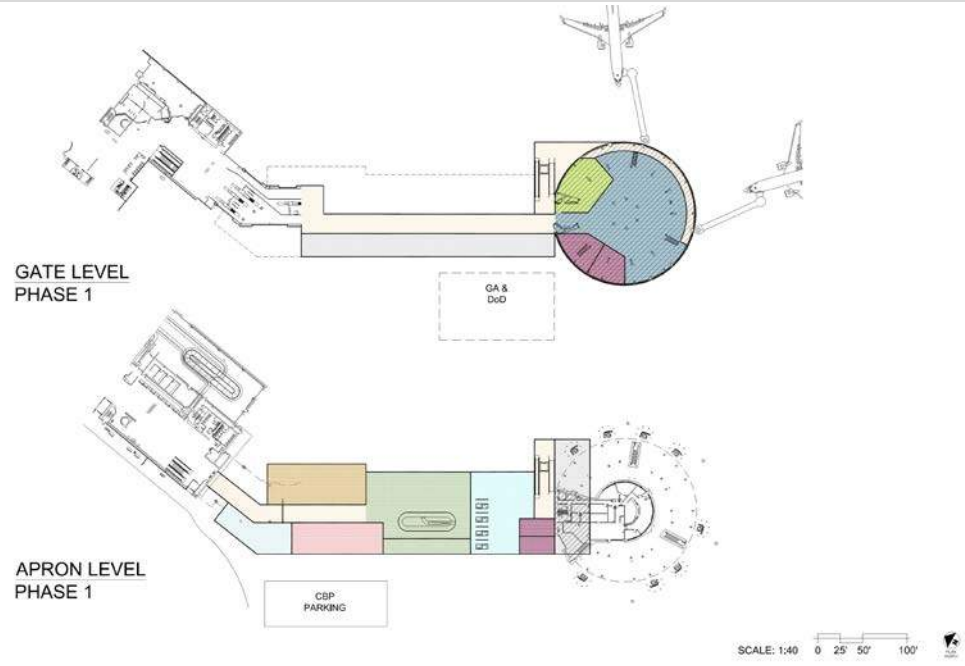
1. GMIA Leadership Team Review 6 Options
2. Budget Estimates are all too high for GMIA Targeted Funding
3. MDA Team recommended Introducing Phasing into Concept Designs to reduce first (Phase 1) cost to program minimum for current and near term (to be defined) passenger capacity
4. GMIA down selected to Options 4 and 5
5. GMIA directed that Option 6 be revised to address concerns raised during the discussion – this will be called Option 6A

MARCH 3, 2017

TASKS COMPLETED:

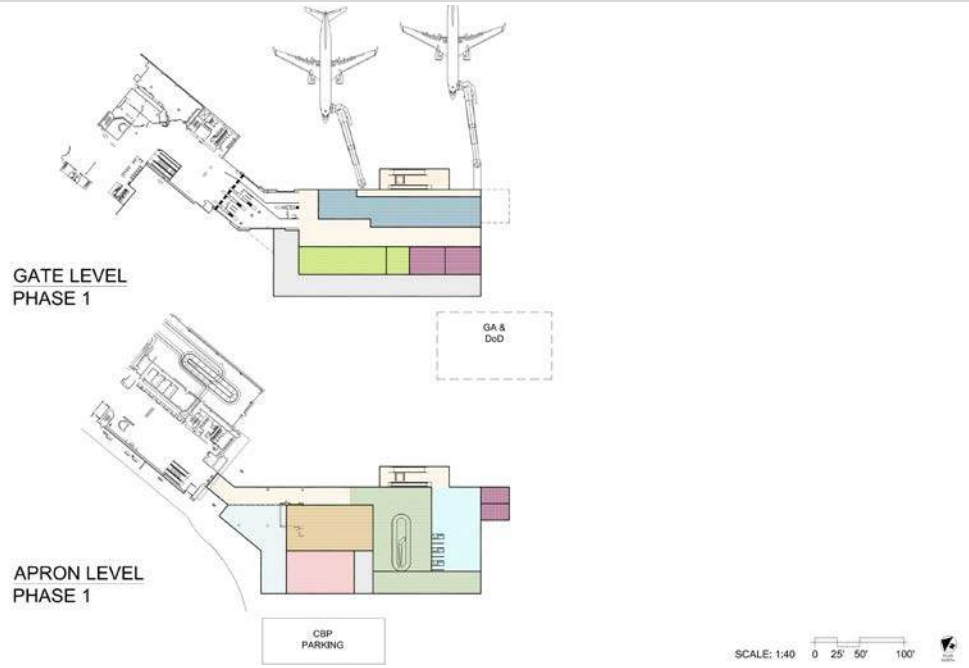
1. Option 6A Developed Based on GMIA Input
2. Preferred Concept Designs: 4, 5, & 6A Added Phasing
3. Preferred Concept Designs Updated based on GMIA Input 2/16
4. Budget Estimates Updated

March 3, 2017 – Preferred Concept Design Options: 4, 5, & 6A (Phase 1 Shown)



OPTION 4 (Phase 1) - COMMENTS:

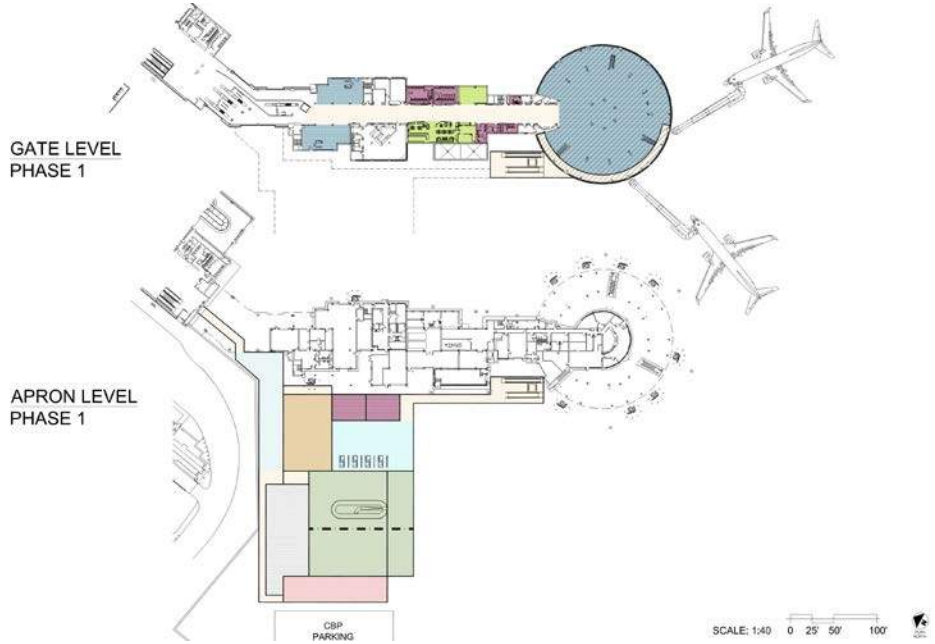
- ✓ COSTS: $53M to $58M (Phase 1 Budget – No RAMP $$$)
- ✓ CAPACITY: 300 to 400 INTL PAX/HR, +175,000 INTL PAX/YR
- ✓ SIZE: 77,100 GSF, GATES: 2 Gates/2 PBBs
- ✓ Recheck/Connecting Flights
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: Retain Iconic Rotunda, Most Irregular Structure Replaced
- ✓ Limited Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Limited Flexible Gate Layout (Rotunda)
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ Mid-Level Energy Efficient Option
- ✓ Mid-Level Cost



OPTION 5 (Phase 1) - COMMENTS:

- ✓ COSTS: $50M to $55M (Phase 1 Budget – NO RAMP $$$$)
- ✓ CAPACITY: 300 to 400 INTL PAX/HR, +175,000 INTL PAX/YR
- ✓ SIZE: 64,100 GSF, GATES: 2 Gates/2 PBBs
- ✓ Recheck/Connecting Flights: Shortest Pedestrian Travel
- ✓ Access to Terminal Parking & Multi-Modal Transit
- ✓ Modern Facility: All New Uniform Construction
- ✓ Phasing Potential & High Expandability
- ✓ Domestic & International Switchable Gates
- ✓ Most Flexible Layout
- ✓ Two Level FIS (Access to Ticket and Gate Levels)
- ✓ High-Level Energy Efficient Option
- ✓ Low-Level Cost

March 3, 2017 – Preferred Concept Design Options: 4, 5, & 6A



OPTION 6A (Phase 1) - COMMENTS:

- ✓ COSTS: $50M to $55M (Phase 1 Budget)
- ✓ CAPACITY: 300 to 400 INTL PAX/HR, +175,000 INTL PAX/YR
- ✓ SIZE: 106,173 GSF (all existing Concourse E GSF), GATES: 2 Gates/2 PBBs
- ✓ Least Phase 1 construction impact
- ✓ Longest pedestrian travel distance for arrivals
- ✓ Limits flexibility
- ✓ Impacts some gates on Concourse E
- ✓ Low Energy Efficient Option
- ✓ Low-Level Cost
- ✓ Phase 3 Construction Sequencing may be difficult
- ✓ Phase 3 Ramp Development Cost will be significant

3/3/2017 NOTES:

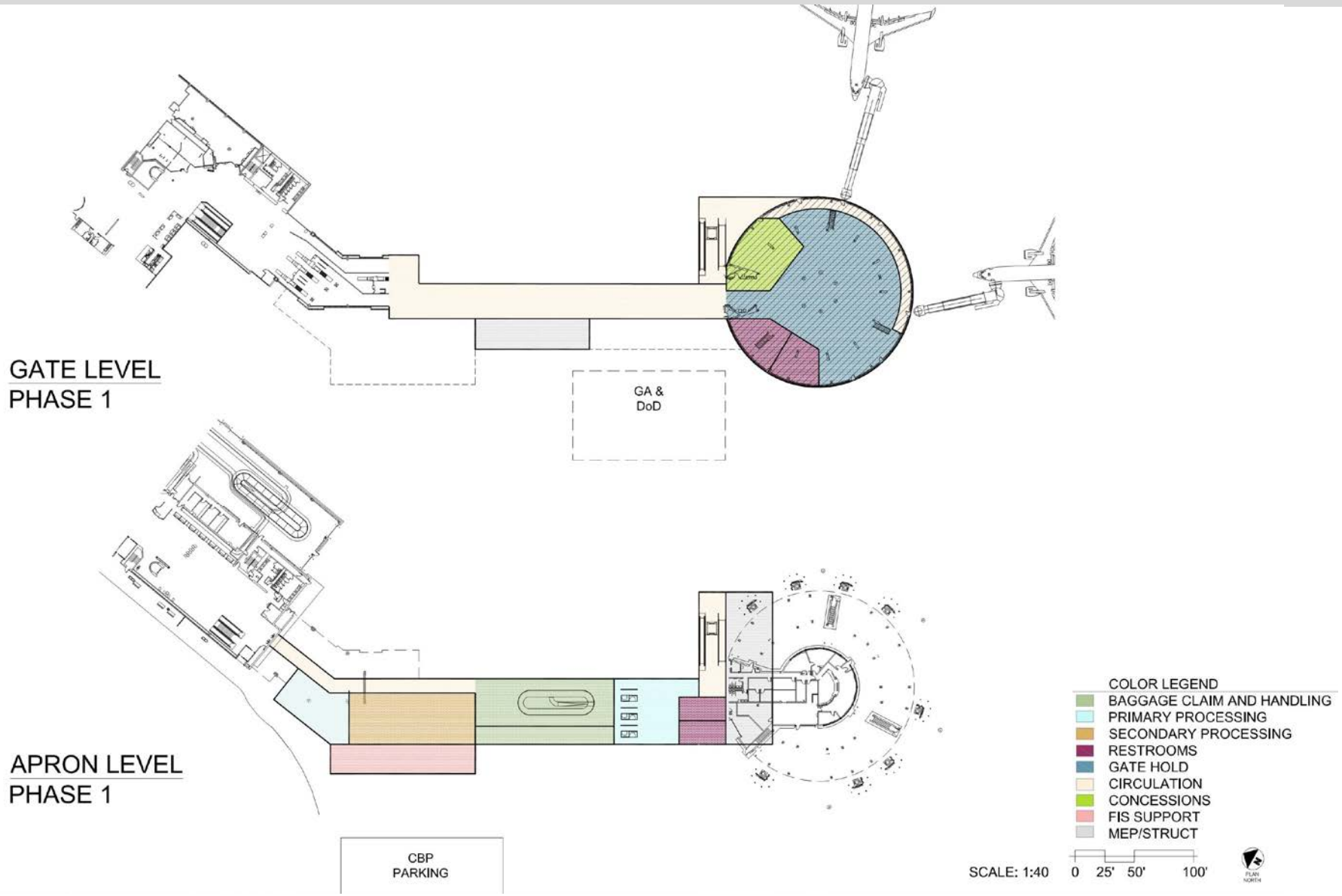
1. Each Option Budget Estimates are still has too high for the GMIA's noted target funding.
2. MDA Team to further reduce program square footages for Phase 1 to meet CBP and GMIA requirements for a 400 PAX/HR CBP FIS.
3. MDA Team to show each option with 3 phases for ultimate site build out capacity.
4. Phase 4:
   - Highest initial cost
   - Preserves Rotunda
   - Walk to Gates will be circulation only until Phase 3 is completed
5. Phase 5:
   - Lower initial cost
   - All new facility, lowest operational cost
   - Controlled staging and phasing throughout
6. Option 6A:
   - Lower initial cost – limited demolition/gate re-use
   - Significant concerns regarding integration to existing Concourse E during Phase 1
   - Construction staging, phasing, and ramp cost for Phase 3

MARCH 21, 2017

TASKS COMPLETED:

1. Program Updated based on CBP Input
2. Preferred Concept Designs Adjusted for Program and Phase 1 Targeted Funding
   - Overall Phase 1 Square Footage Reduced in All 3 Preferred Concept Designs
3. Aircraft Parking and Movement on Ramp Area (Options 4 & 5) Evaluated
   - Ramp Infrastructure Still Being Evaluated
4. Budget Estimates Updated for Phase 1 Scope – Phases 2 & 3 Still Being Updated
5. CBP Vehicle Parking Options Evaluated
6. CBP Program Requirements for GA and DoD Aircraft to be Defined

March 21, 2017 – Preferred Concept Design: Option 4, Phase 1



NOTES

- Oldest Portion of Conc. E Demo
- Existing Rotunda Renovated for Gate Hold, Conc, & Rest Rooms
- Minimal Infill to Support +300 PAX/HR FIS
- 2 Gates/PBBs

PAX

300 to 400 – INTL PAX/HOUR
175,000 – INTL PAX/ANNUAL

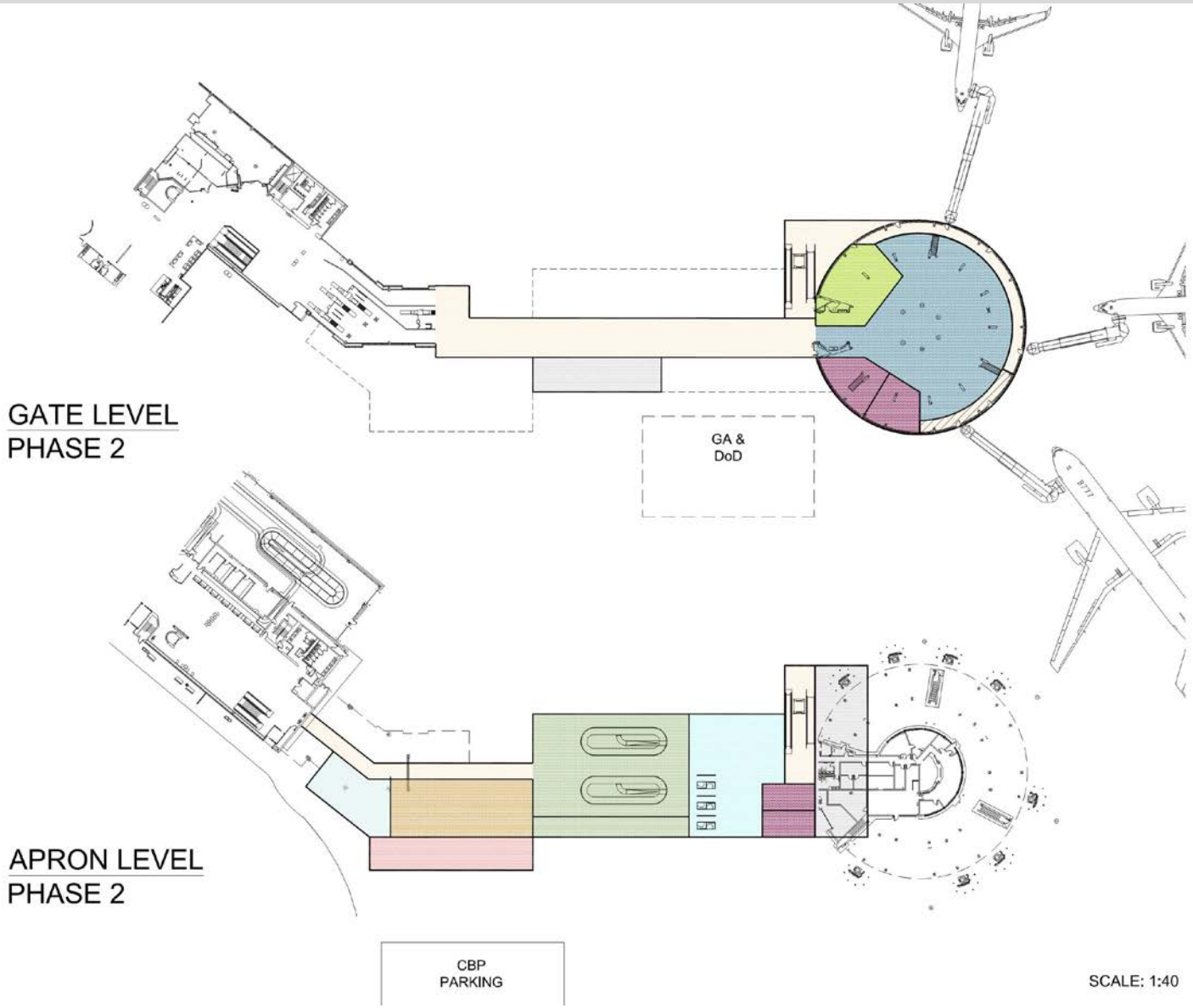
CAPACITY

4 – CBP LANES
2 – GATES (2 PBBs)

COST

$50M to $55M - TOTAL
$25M - PER GATE

March 21, 2017 – Preferred Concept Design: Option 4, Phase 2



NOTES

- 3rd Gate/PBB Added
- Sterile Corridor Extended
- Primary Processing Expanded
- Bag Handling Expanded
- 2nd Bag Claim Device Added

PAX

~400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

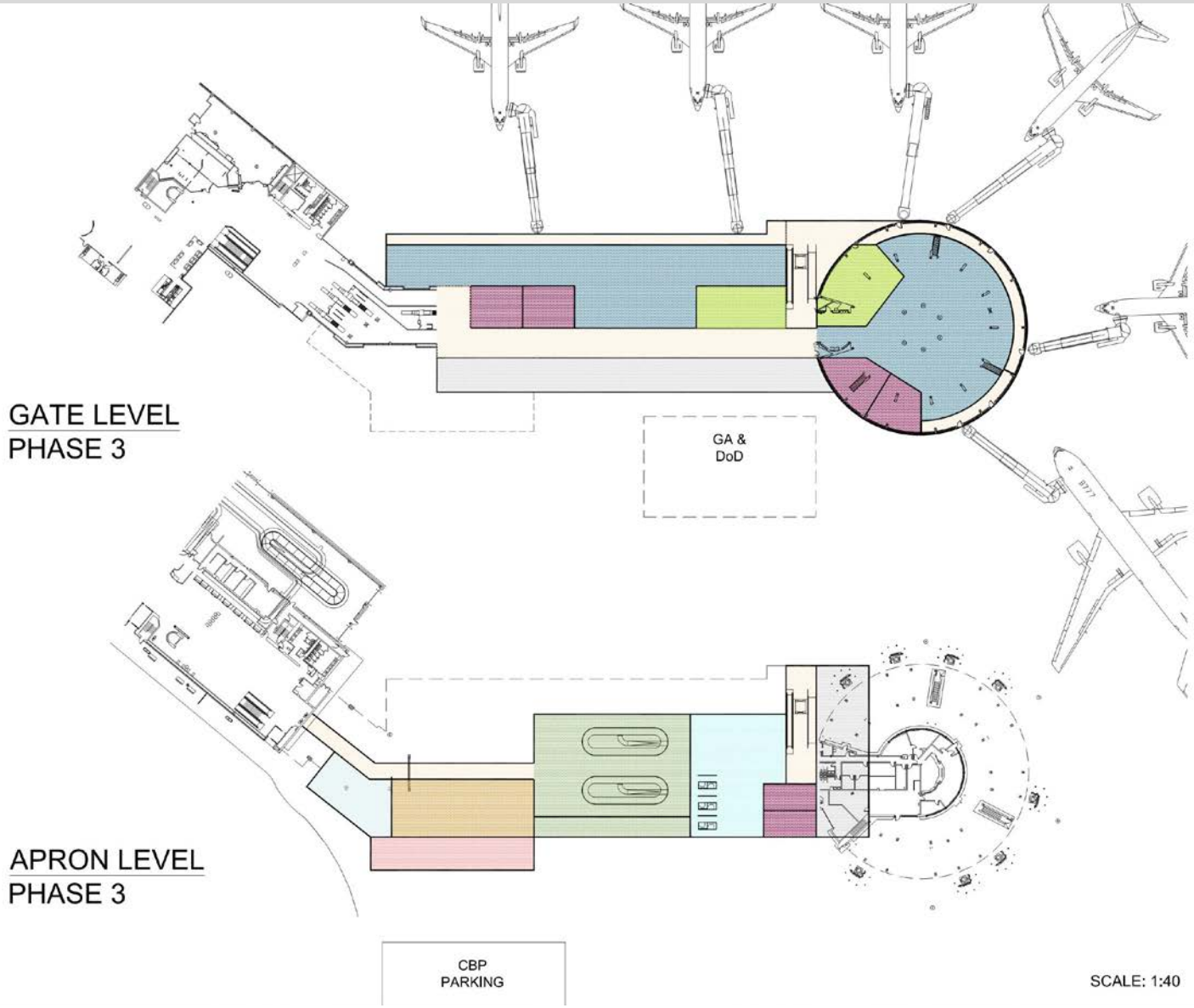
CAPACITY

4+ – CBP LANES
3 – GATES (3 PBBs)

COST

Budget Estimate Not Updated

March 21, 2017 – Preferred Concept Design: Option 4, Phase 3



NOTES

- 3 Gates/PBBs Added
- Sterile Corridor Extended
- Gate Hold, Restroom & Concessions expanded
- Phase 3 Work Would have Airside Logistic Concerns

PAX

+400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

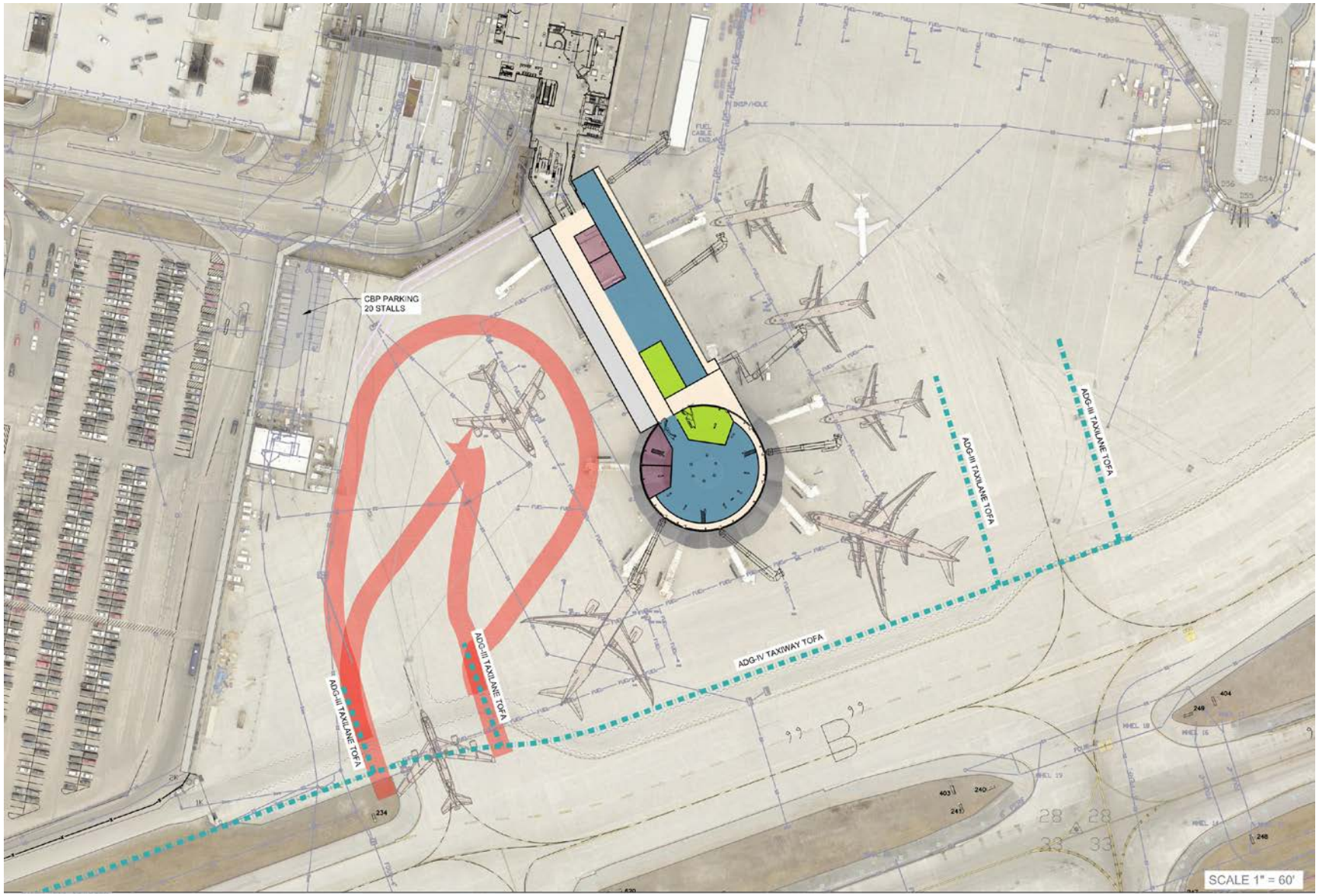
CAPACITY

8 – CBP LANES
6 – GATES (6 PBBs)

COST

Budget Estimate Not Updated

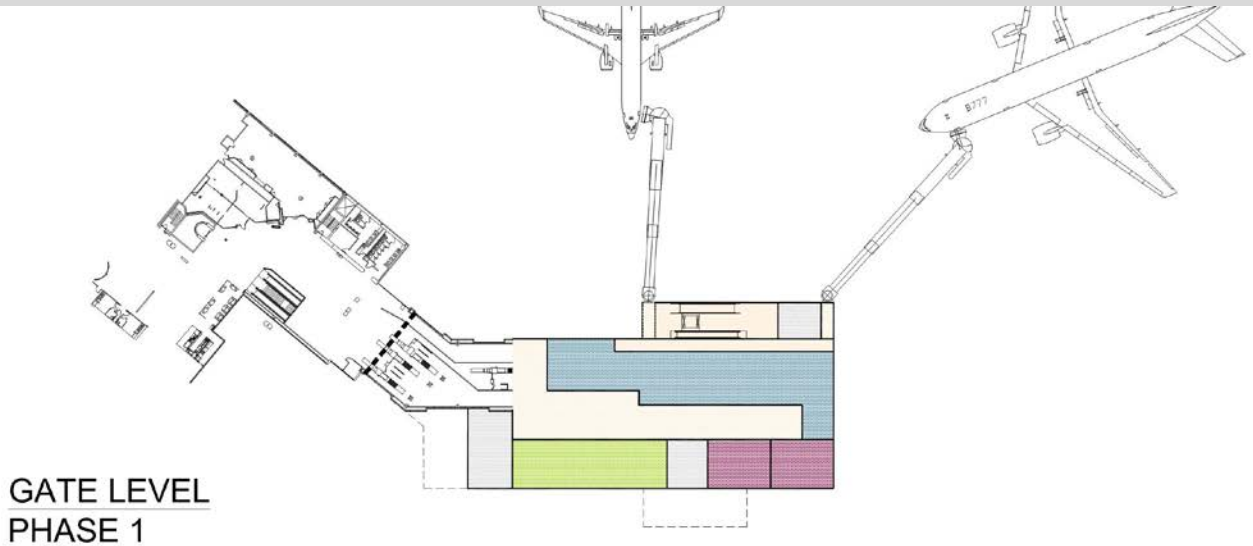
March 21, 2017 – Preferred Concept Design: Option 4, Airfield



NOTES

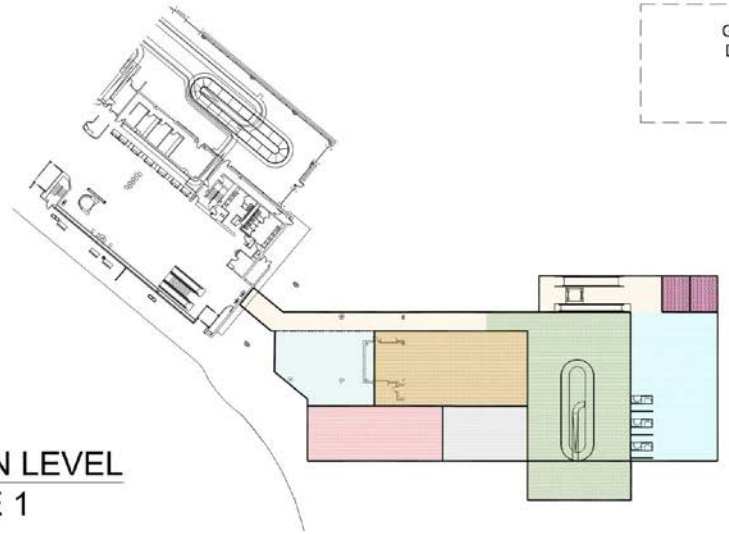
- General Aviation and Military aircraft requiring CBP clearance can access the west side of the IAB with power-in and power-out operation. If desired to accommodate more than one aircraft, then will need to place pavement markings for parking positions, and have power-in and push back out.
- Aircraft Design Group (ADG) III clearance along east side of IAB
- Can accommodate two wide body aircraft off the end of the rotunda.
- Utilize existing fuel hydrant locations to the maximum extent possible

March 21, 2017 – Preferred Concept Design: Option 5, Phase 1



GATE LEVEL
PHASE 1

GA &
DoD



APRON LEVEL
PHASE 1

CBP
PARKING

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT

SCALE: 1:40 0 25' 50' 100'

NOTES
- Concourse E Demolished
- Minimal New Construction to Support +300 PAX/HR FIS
- New Gate Hold, Concessions, & Rest Rooms
- 2 Gates/PBBs

PAX

300 to 400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

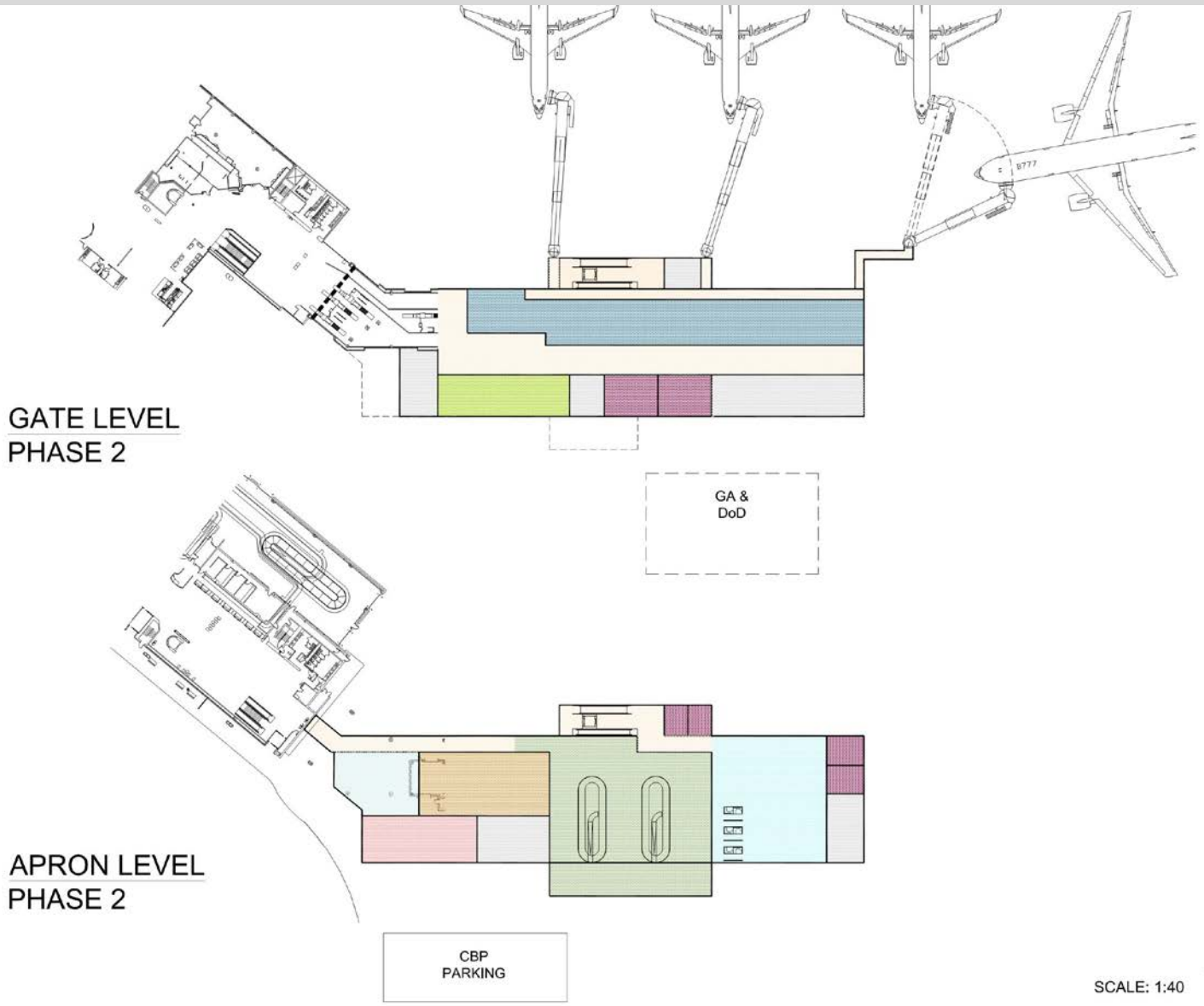
CAPACITY

4 – CBP LANES
2 – GATES (2 PBBs)

COST

$46M to $49M - TOTAL
$24M - PER GATE

March 21, 2017 – Preferred Concept Design: Option 5, Phase 2



NOTES

- 3rd Gate/PBB Added, Dual Pos.
- Sterile Corridor Extended
- Gate Hold Area Expanded
- Primary Processing Expanded
- Bag Handling Expanded
- 2nd Bag Claim Device Added

PAX

+400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

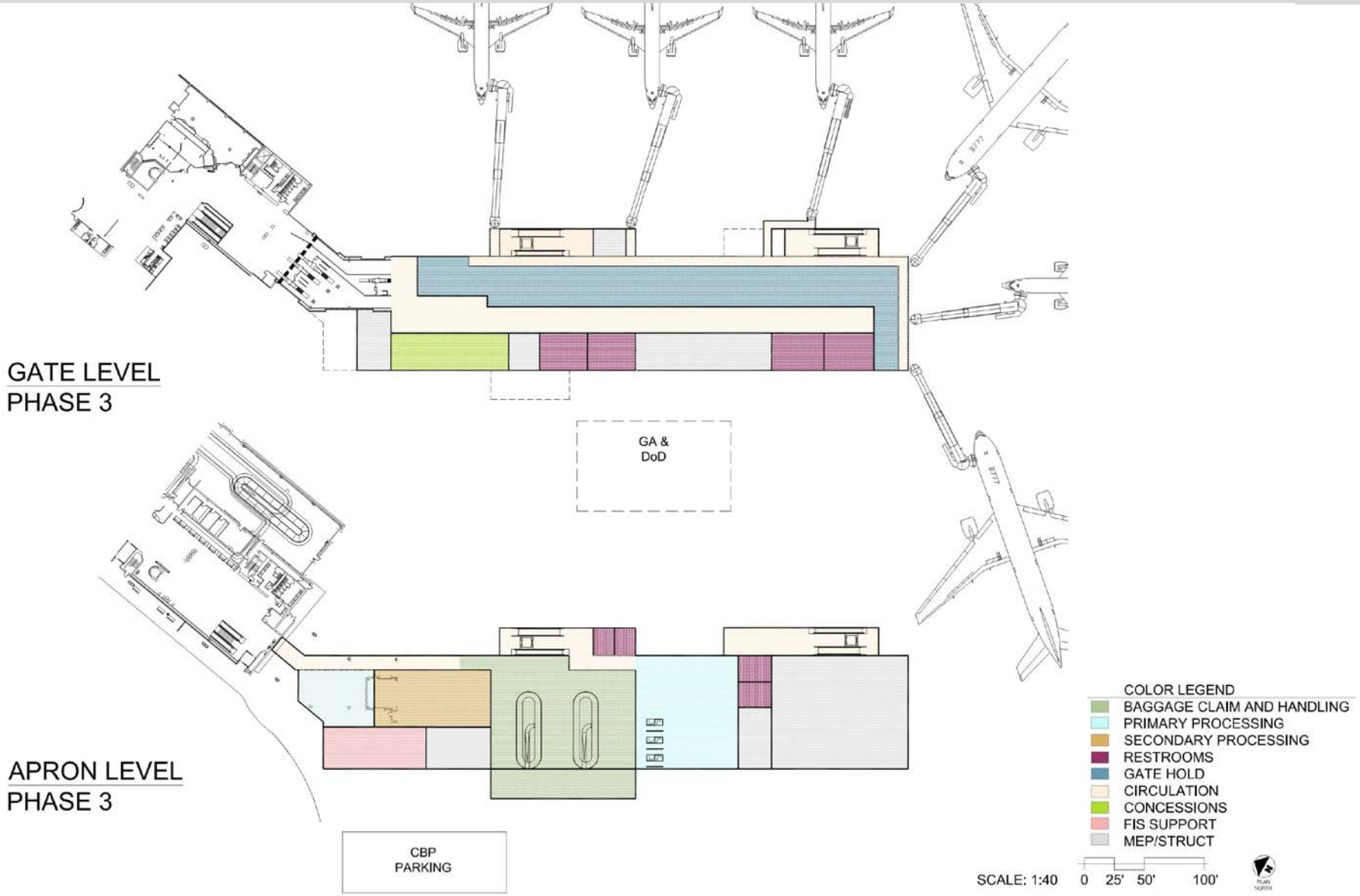
CAPACITY

4+ – CBP LANES
4 – GATES (4 PBBs)

COST

TBD

March 21, 2017 – Preferred Concept Design: Option 5, Phase 3



NOTES

- 3 Gates/PBBs Added
- Sterile Corridor Extended
- Gate Hold, Restroom & Concessions expanded

PAX

+400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

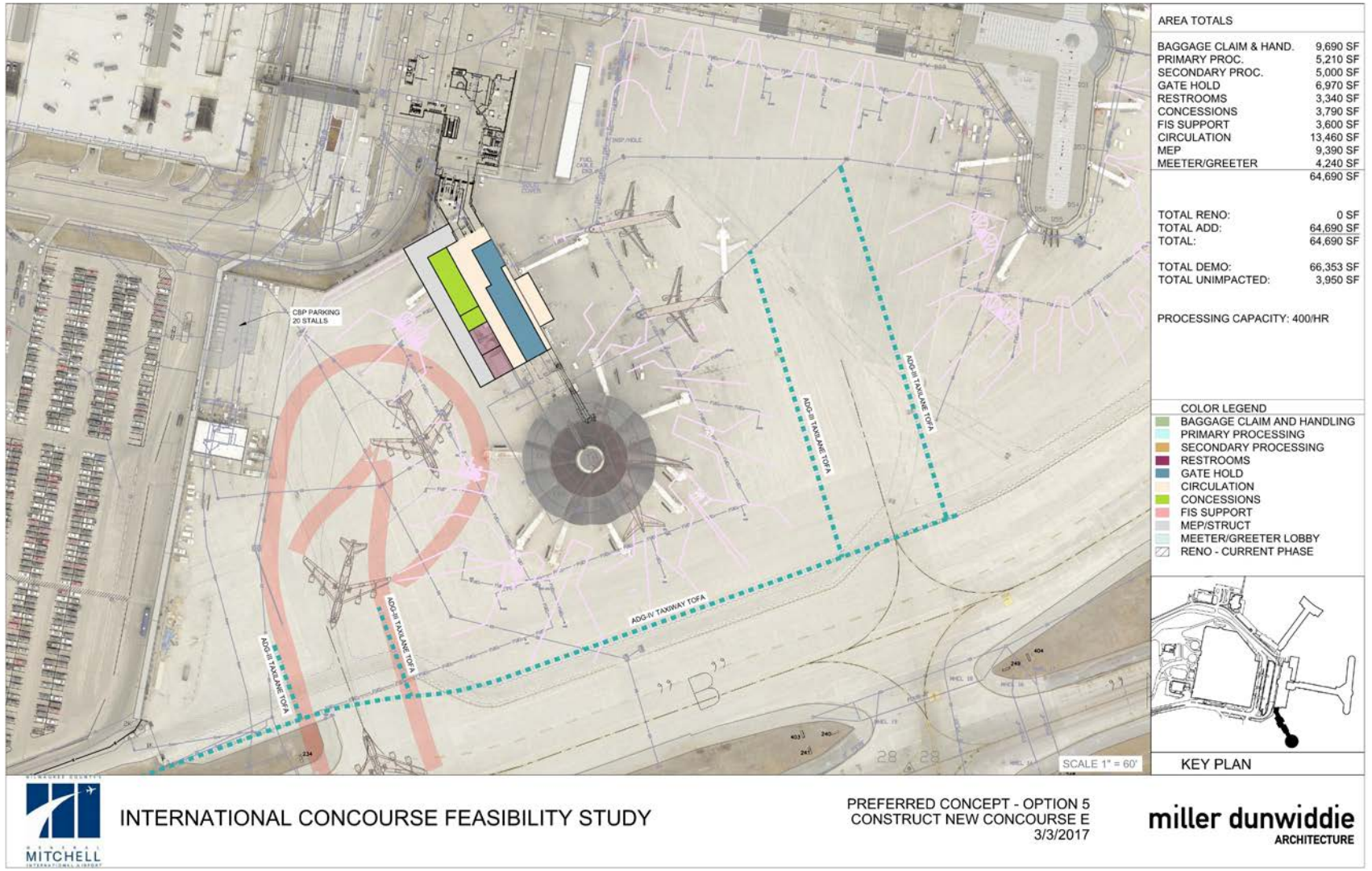
CAPACITY

8 – CBP LANES
6 – GATES (6 PBBs)

COST

TBD

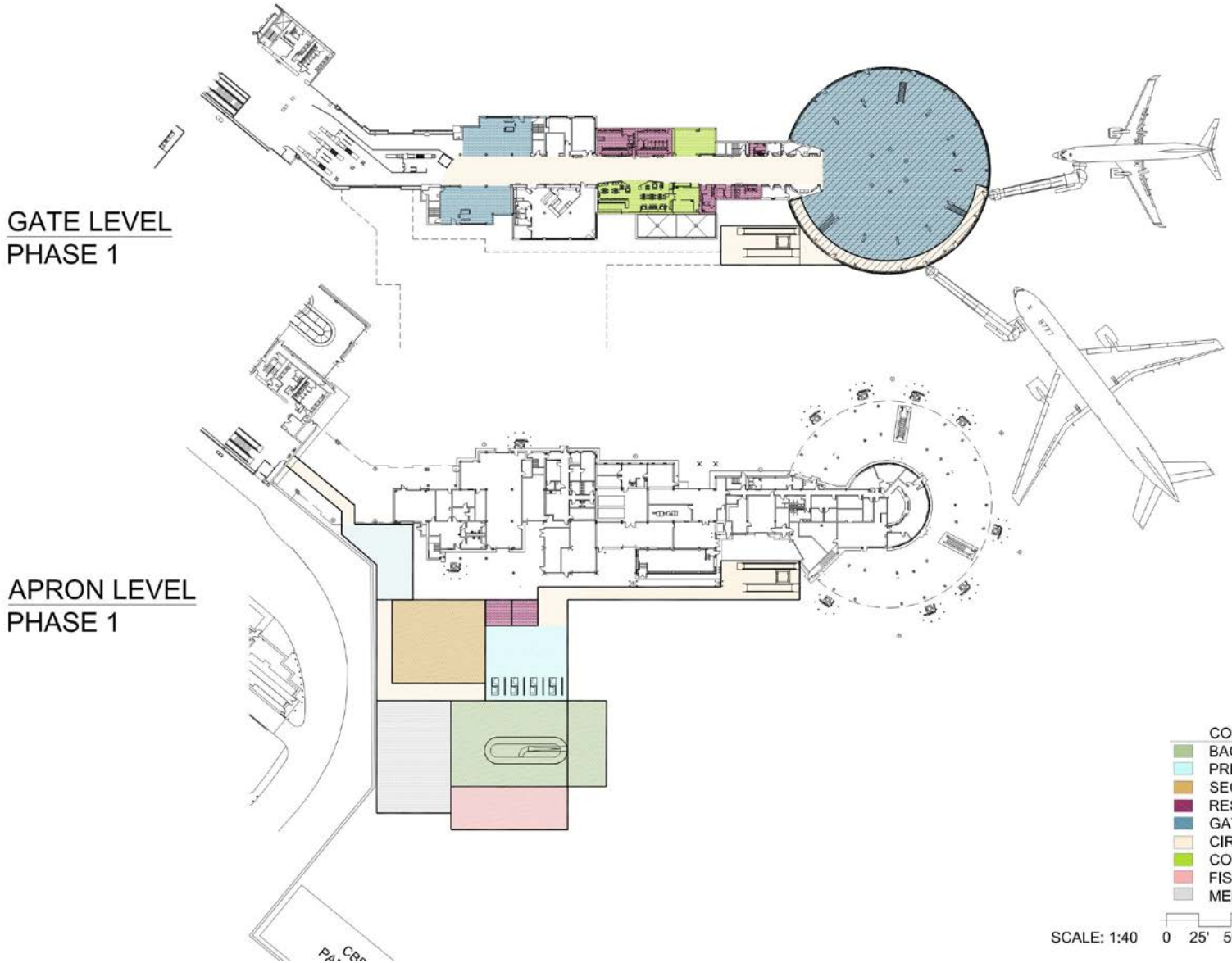
March 21, 2017 – Preferred Concept Design: Option 5, Airfield



NOTES

- General Aviation and Military aircraft requiring CBP clearance can access the west side of the IAB with power-in and power-out operation. If desired to accommodate more than one aircraft, then will need to place pavement markings for parking positions, and have power-in and push back out.
- Aircraft Design Group (ADG) III clearance along east side of IAB.
- Utilize existing fuel hydrant locations to the maximum extent possible.
- Infill the apron where the concourse has been removed with non-aircraft rated pavement, then remove as needed for future expansion.
- Phase 1 and 2 allows for a single wide body gate. Phase 3 allows for two wide body gates.

March 21, 2017 – Preferred Concept Design: Option 6A, Phase 1



NOTES

- Exist. Concourse E Remains.
- Existing Domestic Gate Hold, Concessions, & Rest Rooms Could be Utilized
- 2 Gates/PBBs – Dom/Int'l Use
- Addition to Support +300 PAX/HR FIS

PAX

+300 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

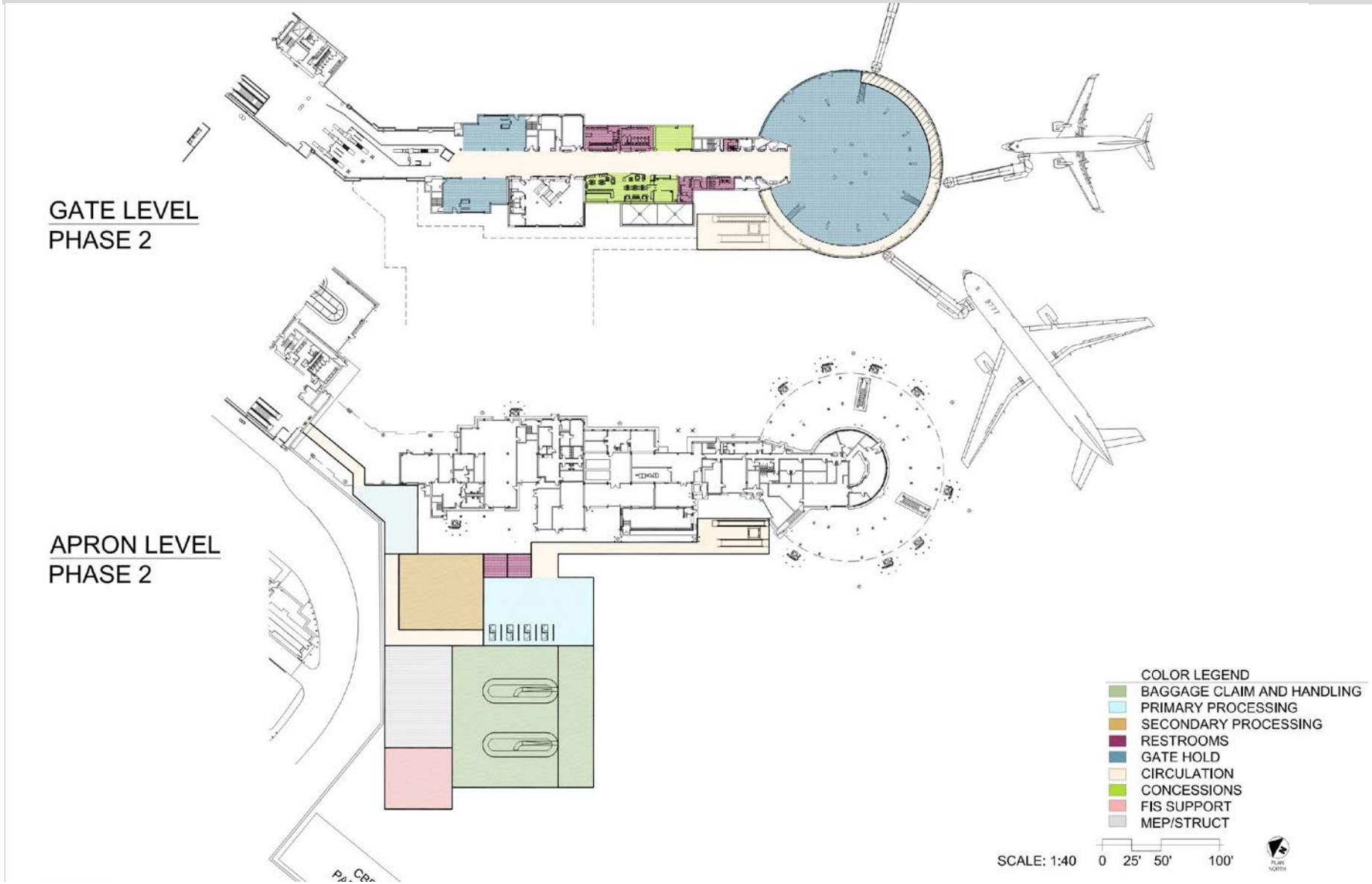
CAPACITY

4 – CBP LANES
2 – GATES (2 PBBs)

COST

$43 to $46M - TOTAL
$22M - PER GATE

March 21, 2017 – Preferred Concept Design: Option 6A, Phase 2



NOTES

- 3rd Dom./Intl Gate/PBB Added
- Sterile Corridor Extended
- Primary Processing Expanded
- Bag Handling Expanded
- 2nd Bag Claim Device Added

PAX

+400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

CAPACITY

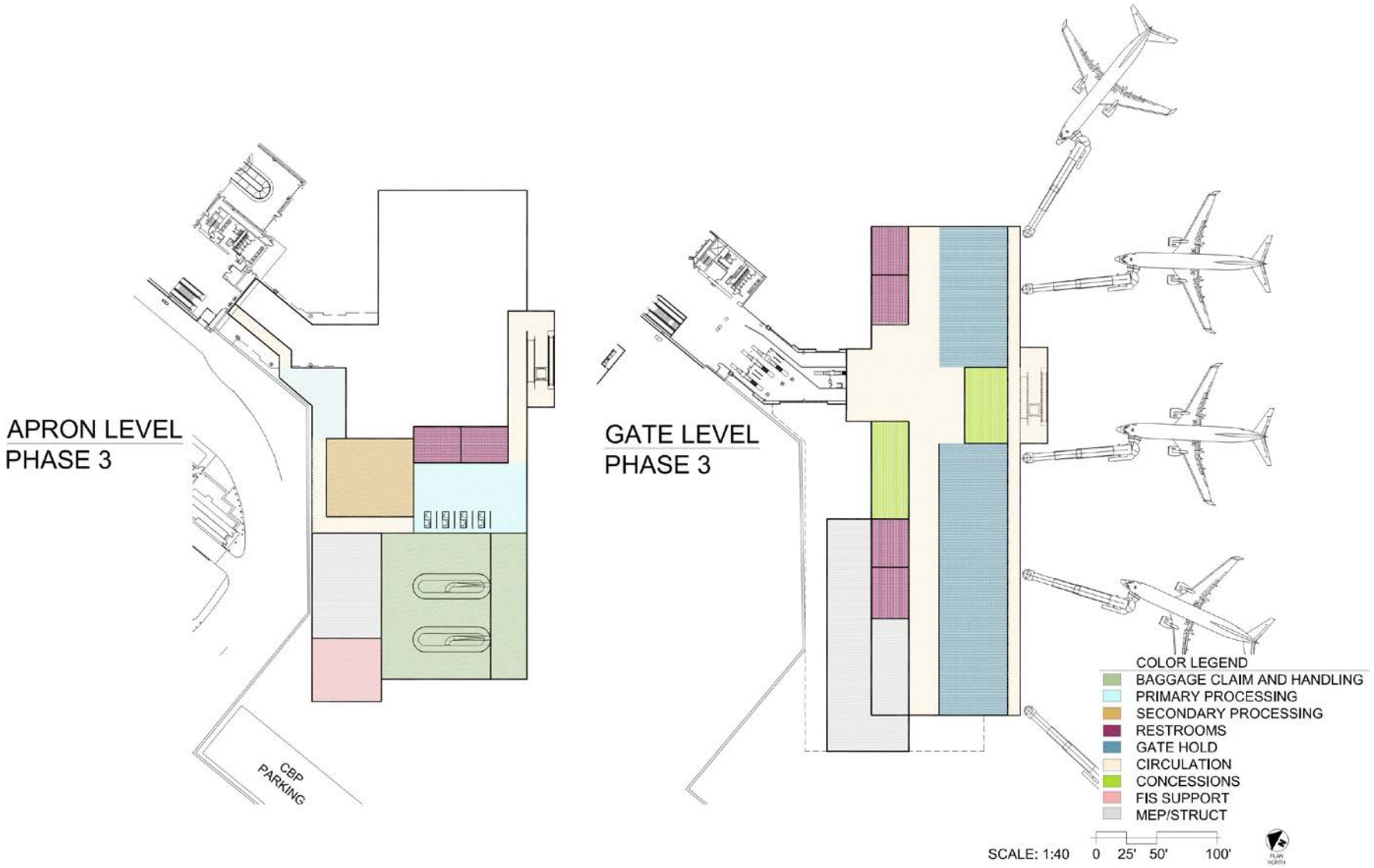
4+ – CBP LANES
3 – GATES (3 PBBs)

COST

TBD

March 21, 2017 – Preferred Concept Design: Option 6A, Phase 3

NOTES
- Exist. Concourse E Demolished
- 5 Dom/Intl Gates/PBBs Added
- New Gate Hold, Concessions & Rest Room
- New Ramp Fuel, & Pavement
- Phase 3 Work Would have Airside Logistic Concerns



PAX

+400 – INTL PAX/HOUR
+175,000 – INTL PAX/ANNUAL

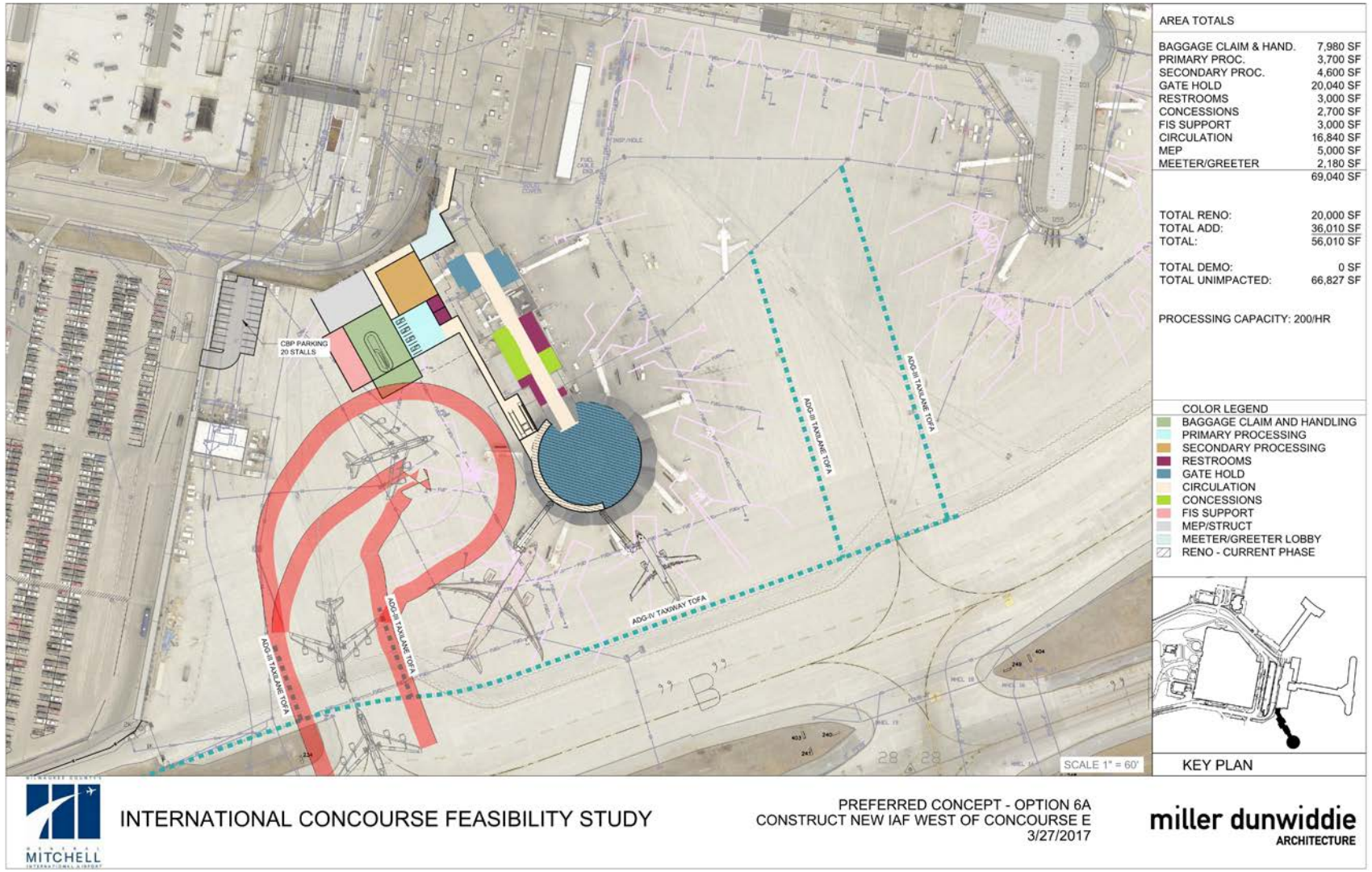
CAPACITY

8 – CBP LANES
5 – GATES (5 PBBs)

COST

TBD

March 21, 2017 – Preferred Concept Design: Option 6A, Airfield



NOTES

- General Aviation and Military aircraft requiring CBP clearance can access the west side of the IAB with power-in and power-out operation. If desired to accommodate more than one aircraft, then will need to place pavement markings for parking positions, and have power-in and push back out.
- Utilize existing fuel hydrant locations to the maximum extent possible. Need to relocate fuel line to accommodate IAF buildout.
- Relocate
- Phase 1 and 2 allows for a single wide body gate.

MKE – PROGRAM MATRIX

DESIGN CONCEPT OPTION	CBP PAX 200-400	Planes & PBBs	DoD & GA Parking	Switch Gates Dom-Int'l	Baggage Recheck	Transit & Parking Access	Expand-ability	Opera-tions Cost	Phase 1 Const. Cost	NOTES
Existing International Arrivals Building									NA	
OPTION 4: Renovation/Addition (Major) to Concourse E IAF									$50 -$55M	Ramp Cost still in development
OPTION 5: Construct a New Int'l Arrivals Facility (replace Concourse E)									$46-$49M	Ramp Cost still in development
OPTION 6A: Construct a New Int'l Arrivals Facility (East of Concourse E)									$43-$46M	Ramp Cost still in development

BUDGET UPDATE

PREFERRED CONCEPT DESIGN - BUDGET ESTIMATE NOTES

1. Budget Estimates Updated based on Program/Preferred Design Concept Changes
2. Team is still working on Ramp Budget Estimates – Updates to Follow
   - Options 4 & 5 have greater potential for ramp infrastructure reuse
   - Option 6A will have more new ramp infrastructure and cost
   - Ramp Infrastructure includes:
     - *Pavement*
     - *Fuel Hydrant System*
     - *Electric Power System*
3. Phase 2 Budget Estimate still need to be updated based on 3/10 to 3/21 program/design changes
4. Phase 3 Budget Estimate still need to be updated based on 3/10 to 3/21 program/design changes

PREFERRED CONCEPT DESIGN - PHASE 1 BUDGET ESTIMATE UPDATES

1. Option 4
   - Total Construction Cost: $30 to 33 Million
   - Escalation: $2 Million
   - Design & Construction Contingency: $9 to $10 Million
   - Owner Soft Cost: $9 to $10 Million
   - Total Budget Estimate: $50 to $55 Million
2. Option 5
   - Total Construction Cost: $28 to $29 Million
   - Escalation: $2 Million
   - Design & Construction Contingency: $8 to $9 Million
   - Owner Soft Cost: $8 to $9 Million
   - Total Budget Estimate: $46 to $49 Million
3. Option 6A
   - Total Construction Cost: $26 to $27 Million
   - Escalation: $2 Million
   - Design & Construction Contingency: $7 to $8 Million
   - Owner Soft Cost: $8 to $9 Million
   - Total Budget Estimate: $43 to $46 Million

FIS Financial Analysis Results – Based on Phase 1 Cost

Airline Approved FIS Costs

- The $42 Million FIS costs approved under the Airline Use and Lease Agreement (AULA) are estimated to increase the Airport's airline CPE by roughly $0.26 (2015 CPE = $9.00)

FIS Option 4

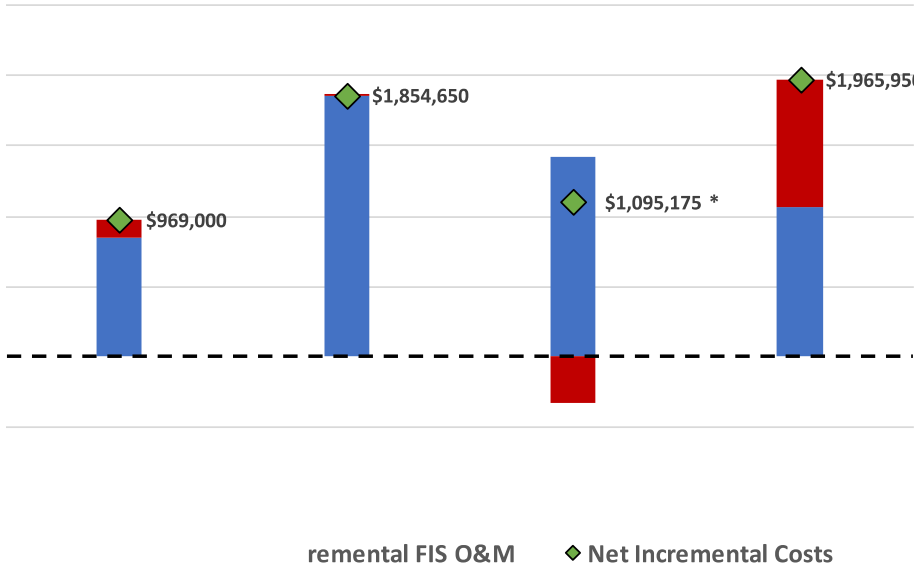
- Results in highest capital and debt service costs
- Would not result in any measurable increase to terminal space or terminal O&M
- *Estimated to increase the Airport's airline CPE by roughly $0.50*

FIS Option 5

- Results in moderate construction cost and annual debt service costs
- However, savings in terminal O&M would mostly offset the increased debt service (due to a net reduction in terminal space)
- *Estimated to have roughly the same overall impact to the Airport's airline CPE as the Amended AULA FIS project costs ($0.30)*

FIS Option 6A

- Results in lowest capital and debt service costs of the FIS options considered
- Would result in highest terminal O&M (due to retention of existing Concourse E and construction of a new FIS)
- *Estimated to increase the Airport's airline CPE by roughly $0.53*



* FIS Option 5 would result in a decrease of terminal space, and therefore would lower terminal O&M Expenses.

Incremental Airline Cost Per Enplaned Passenger by FIS Option (FY 2020)

	AULA Pre-Approved FIS	FIS Option 4 (Phase 1)	FIS Option 5 (Phase 1)	FIS Option 6A (Phase 1)
Annual FIS Deb Service	$844,000	$1,854,400	$1,421,500	$1,065,700
Annual Incremental O&M Expenses	125,000	250	(326,325)	900,250
Total Annual FIS Costs	**$969,000**	**$1,854,650**	**$1,095,175**	**$1,965,950**
2020 Enplaned Passengers (est.)	3,696,000	3,696,000	3,696,000	3,696,000
ESTIMATED 2020 INCREMENTAL AIRLINE CPE	**$0.26**	**$0.50**	**$0.30**	**$0.53**

AULA = Airline Use and Lease Agreement.
Prepared by Trillion Aviation.

RECOMMENDATION

MDA TEAM RECOMMENDATION

1. Option 4
   - *Highest First Cost, but Lowest Cost to Phase 3*
   - *Retention of Existing Rotunda Creates Infill Construction That Impacts Efficiency, Flexibility & Phasing of New Construction*
   - *Integration of Existing Rotunda with New Infill Construction Creates Limitations on Height and Horizontal Layout that is not Compatible with Current/Future Fleet Standards (Group V)*

2. Option 6A
   - *Lowest First Cost, but Highest Cost to Phase 3*
   - *Slightly Lower Phase 1 Capital Cost - Higher Phase 1 & 2 Operational Cost*
   - *Existing Concourse E Provides A Low Level of Service for Gate Hold, Restroom & Concessions*
   - *Deferred Demolition of Existing Concourse E Creates Multiple Construction & Operational Concerns*
   - *Phase 3 will have Significant Construction Phasing, Sequence, & Ramp Use Complications*

3. MDA Team Recommends that GMIA Proceed with Option 5
   - *Low to Moderate First Cost, but Moderate Cost to Phase 3*
   - *Slightly Higher Phase 1 Capital Cost – Lowest Phase 1-3 Operational Cost*
   - *All New Construction Provides Predictability for Operational & Energy Efficiency & Meeting Current FAA and CBP Standards*
   - *All New Construction Provides Long-Term Flexibility and Lowest Impact to Operations for Future Years*

SCHEDULE UPDATE

SCHEDULE UPDATES

Notice to Proceed:	11/28/2016	
Kick-Off Meeting:	12/14/2016	
Issue Requested Information:	12/1 to 1/15/2017	
Programming Meeting:	1/19/2017	
Conference Call with MKE Finance:	Week of 1/23	
IAF Programing & Concept Development:	1/19 to 2/10/2017	
IAF Design Concepts Developed:		
Design Meeting:	2/16/2017	
Finance & CPB Meetings		
Program Update/Concept Design & Preferred Concept Review		
Update Preferred Concepts (4, 5, & 6A)	2/16 to 3/27/2017	
CBP & Finance Follow-Up Conference Calls		
CBP Program Updates	3/1 to 3/10/2017	
Preferred Concept Down-Select	tbd	
Submit Draft Report:	~~Week of 2/27/2017~~	+2 Weeks from Down Select
GMIA Review & Comment Period/Meeting:	~~2/27 to 3/10/2017~~	2 weeks
Stakeholders Meeting(s):		
AAAC Meeting	5/4/2017	
Other Stakeholder Meeting(s)	tbd	
Submit Final Report:	~~Week of 3/20~~	5/5/2017

NEXT STEPS

QUESTIONS

8.3. Appendix C – Design Criteria Documents

8.3.1. Stakeholder Engagement

8.3.2. Capacity

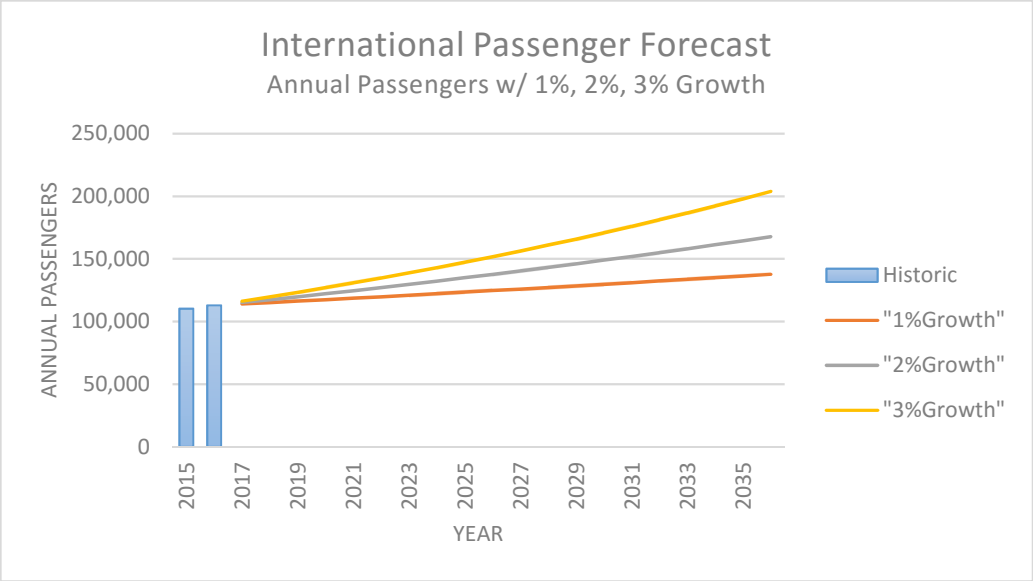
8.3.3. Program

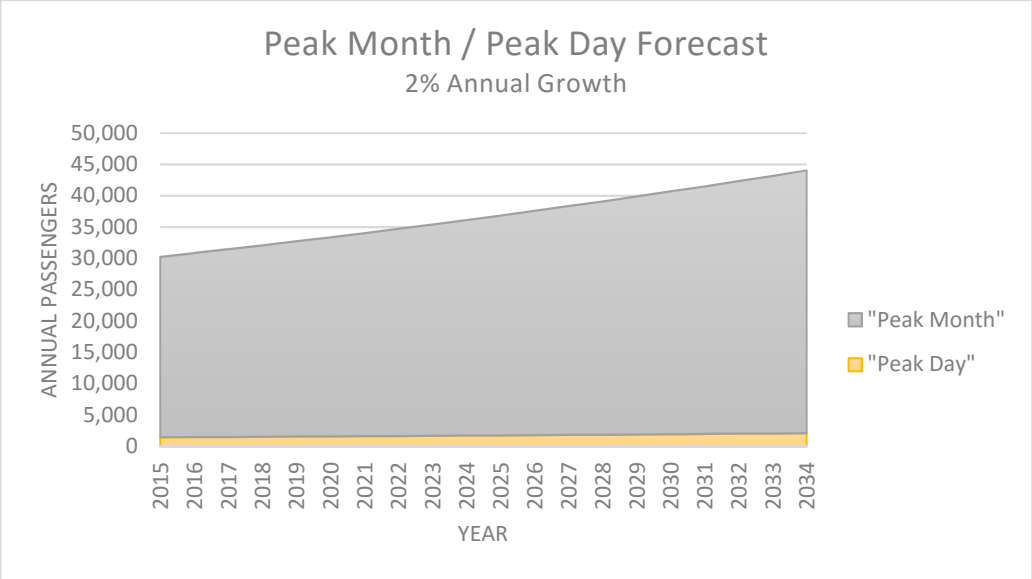
MKE – EXISTING IAB CAPACITY

		AREA		PAX/HOUR
Plane Parking Positions/PBBs		= 2 Plane (Group III)/1 PBB		
2 Plane x 160 PAX = 320 x 50%				= 160 PAX/HR
Primary Processing		= 2,658 SF		
200 PAX/HR = 3,300 x 80%				= 160 PAX/HR
Baggage Claim		= 2,468 SF		
200 PAX/HR = 6,000 x 41%				= 82 PAX/HR
Claim Presentation		= 100 LF		
200 PAX/HR = 150 x 67%				= 133 PAX/HR
Secondary Processing		= 2,723 SF		
200 PAX/HR = 3,400 x 80%				= 160 PAX/HR
AVERAGE:				= 140 PAX/HR

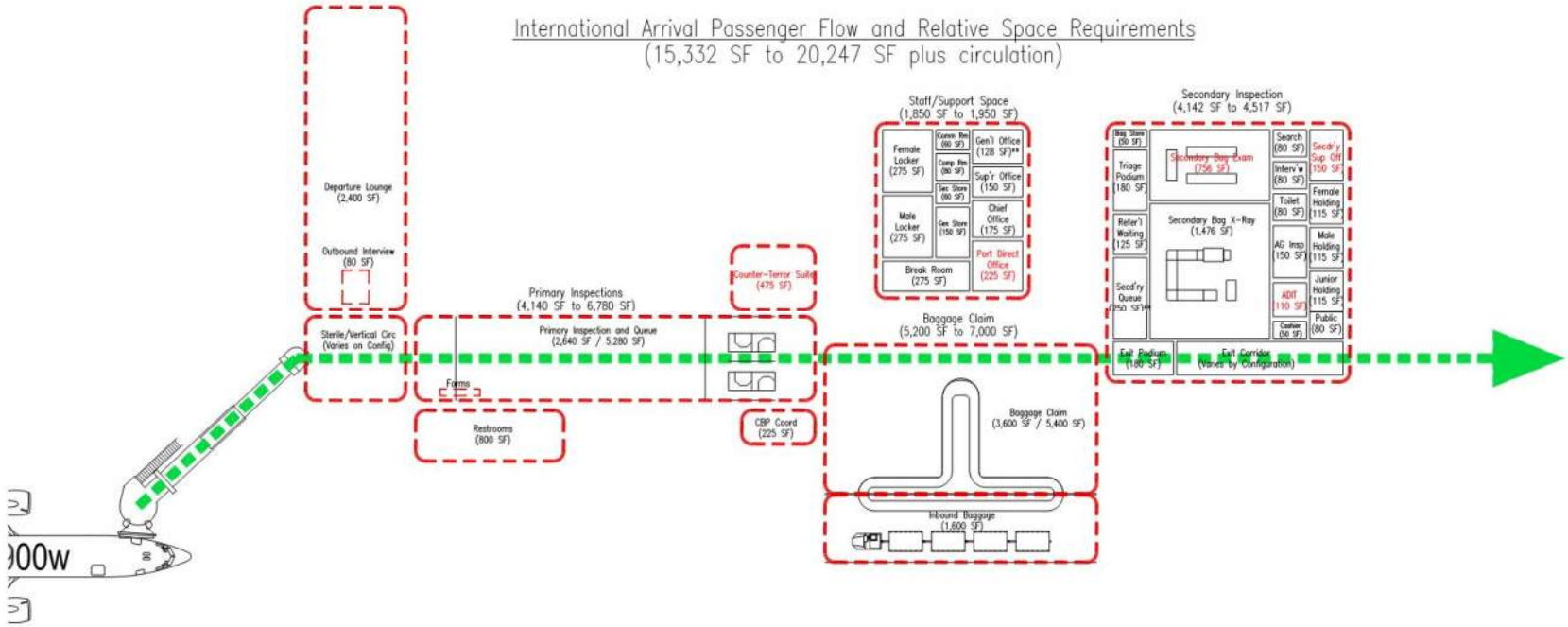
MKE - INTERNATIONAL ENPLANEMENT CAPACITY

		2014	2015	FUTURE (+15%)
Annual PAX		110,258 PAX	112,901 PAX	~130,000 PAX
PEAK SEASON (JAN to APR) AVERAGE		19,910 PAX	19,891 PAX	~23,000 PAX
PEAK MONTH (MAR)		27,558 PAX	25,276 PAX	~32,000 PAX
OFF-PEAK SEASON (MAY to DEC)		3,828 PAX	4,167 PAX	~4,800 PAX
PEAK MONTH (DEC)		4,528 PAX	4,929 PAX	~5,800 PAX
WEEKDAYS/SUNDAY (PEAK SEASON)		~280 PAX	~300 PAX	~345 PAX
1-2 FLIGHTS/DAY				
SATURDAYS (PEAK SEASON)		~1,000 PAX	~1,050 PAX	~1,210 PAX
6-7 FLIGHTS/DAY				
PEAK HOUR (PEAK/SAT, 14:00 to 19:00)		~350 PAX/HR	~350 PAX/HR	~400 PAX/HR
2x 737 single aisle configuration, 175 MAX PAX				
DIVERTS (~200/YR, 10% INTL)		~600 PAX	~600 PAX	~700 PAX
2-3 Diverts Deplane/YR				
GENERAL AVIAITON/DoD (per CBP)		tbd	tbd	tbd


International Passenger Forecast
Annual Passengers w/ 1%, 2%, 3% Growth
ANNUAL PASSENGERS
250,000
200,000
150,000
100,000
50,000
0
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
YEAR
Historic
"1%Growth"
"2%Growth"
"3%Growth"


Peak Month / Peak Day Forecast
2% Annual Growth
ANNUAL PASSENGERS
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
YEAR
"Peak Month"
"Peak Day"

INTERNATIONAL ARRIVALS FACILITY – FLOW DIAGRAM



MKE – IAF PROGRAM SUMMARY

		200 PAX/HR	400 PAX/HR	600 PAX/HR	Exist IAB
CBP Requirements					
Primary Processing		3,294 SF	5,934 SF	8,574 SF	2,658 SF
Secondary Processing		3,531 SF	3,531 SF	3,531 SF	2,723 SF
FIS Support Areas		3,334 SF	3,562 SF	3,840 SF	2,700 SF
Grossing Factor (25%)		2,540 SF	3,260 SF	3,990 SF	2,020 SF
Bag Claim Frontage		150 LF	300 LF	450 LF	100 LF
Total CBP Required Functions		12,699 SF	16,287 SF	19,935 SF	10,101 SF
Concourse Level		16,750 SF	26,300 SF	35,850 SF	3,542 SF
Gates/PBBs		2/2	3/3	4/4	2/1
Grossing Factor (25%)		4,190 SF	6,580 SF	8,960 SF	890 SF
Total Concourse Functions		20,940 SF	32,880 SF	44,810 SF	4,432 SF
GRAND TOTAL:		33,639 SF	49,167 SF	64,745 SF	14,533 SF

MKE International Arrivals Programming Summary

		Planning Parameters		NSF	Processing Capacity (PAX/HR) 200 Qty	200 NSF	400 Qty	400 NSF	600 Qty	600 NSF	Existing IAB
Primary Processing											
ATD-01-03	Primary Queing and Processing Hall (Including Booths and Podiums)	Per Processing lane with 1 booth or 2 podiums		1,320	2	2,640	4	5,280	6	7,920	
ATD-01-04	Forms Counter			24	1	24	1	24	1	24	
ATD-01-05	Command and Control Center	Review location with CBP.		225	1	225	1	225	1	225	
ATD-01-07	Exit Podium (single, single aisle)			180	1	180	1	180	1	180	
ATD-01-08	Exit Podium (double, double aisle)			315	0	0	0	0	0	0	
ATD-01-09	Rover Command and Control Center (RCC)	For multi-level facilities		225	1	225	1	225	1	225	
		Subtotal Primary Processing:				3,294		5,934		8,574	2,658
Secondary Processing											
ATD-02-01	Secondary Waiting Area Restrooms (ABAAS)	Per code.		varies	2	120	2	120	2	120	
ATD-02-02	Triage Podium (single and double)			varies	1	50	1	50	1	50	
ATD-02-04	Referred Passenger Waiting			varies	v	60	v	60	v	60	
ATD-02-05	Unified Secondary Review Position	Minimum of 2 required		100	2	200	2	200	2	200	
ATD-02-06	Secondary Baggage NII (X-Ray) Processing Area	4'1 x 36' processing area min.		1,476	1	1,476	1	1,476	1	1,476	
ATD-02-07	Cashier's Office			50	0	0	0	0	0	0	
ATD-02-08	Admissibility Processing Room			110	1	110	1	110	1	110	
ATD-02-09	IDENT/Identification Area			80	0	0	0	0	0	0	
ATD-02-10	Fraudulent Document Analysis Room			150	0	0	0	0	0	0	
ATD-02-11	Secondary Supervisor's Office			150	1	150	1	150	1	150	
ADT-03-01	Outbound Interview Room			v	1	60	1	60	1	60	
ADT-03-02	Tactical Terrorism Response Team (TTRT) Waiting Area			475	1	475	1	475	1	475	
ADT-03-03	TTRT Observation/Collections Room			150	v	v	v	v	v	v	
ADT-03-04	TTRT Interview Room			100	v	60	v	60	v	60	
ADT-03-05	Violator Personal Property Storage			50	1	50	1	50	1	50	
ADT-03-06	Interview Room			100	1	100	1	100	1	100	
ADT-03-07	Search Room	Detention fixtures required		100	1	100	1	100	1	100	
ADT-03-08	Hold Room	Detention toilet and fixtures required.		110	2	220	2	220	2	220	
ADT-03-09	Food Preparation/Storage Area			100	0	0	0	0	0	0	
ATD-04-01	Agricultural Laboratory	As required by CBP		150	1	150	1	150	1	150	
ATD-04-02	Agricultural Disposal Room	As required by CBP		100	1	100	1	100	1	100	
ATD-04-04	APHIS / VS / Bird Holding	As required by CBP		varies	1	50	1	50	1	50	
		Subtotal Secondary Processing:				3,531		3,531		3,531	2,723

MKE International Arrivals Programming Summary

		Planning Parameters		NSF	Processing Capacity (PAX/HR) 200 Qty	200 NSF	400 Qty	400 NSF	600 Qty	600 NSF	Existing IAB
FIS Support Areas											
ATD-05-01	Kennel Room			80	1	80	1	80	1	80	
ATD-05-02	Day Kennel			300	1	300	1	300	1	300	
ATD-05-03	Kennel Runs			40	1	40	1	40	1	40	
ATD-05-04	Animal Processing Area			150	1	150	1	150	1	150	
ATD-05-05	Laundry Room			varies	1	60	1	60	1	60	
ATD-05-06	Food Preparation Area			150	1	150	1	150	1	150	
ATD-05-07	Canine Storage - Dry Food			75	1	75	1	75	1	75	
ATD-05-08	Canine Unit Narcotics Training Aid Storage (Hard & Soft)			50	1	50	1	50	1	50	
ATD-05-09	Canine Ag Training Aid Storage (Target & Non-Target)			50	1	50	1	50	1	50	
ATD-05-10	Canine Storage - Currency Training			64	1	64	1	64	1	64	
ATD-05-11	Canine Storage - Blank Training Aid			64	1	64	1	64	1	64	
ATD-05-12	Canine Supervisor's Office			150	1	150	1	150	1	150	
ATD-05-13	Canine Storage - General			80	1	80	1	80	1	80	
ATD-05-14	Canine Officer Workstation			64	1	64	1	64	1	64	
ATD-06-02	Secure Storage			60	1	60	1	60	1	60	
ATD-06-05	Personal Protective Equipment (PPE) Storage			150	1	150	1	150	1	150	
ATD-06-11	Chief's Office			150	1	150	1	150	1	150	
ATD-06-12	Watch Commander's Office			150	1	150	1	150	1	150	
ATD-06-13	Supervisor's Office			150	1	150	1	150	1	150	
ATD-06-145	Officer's Workstation			64	2	128	4	256	6	384	
ATD-06-27	Security LAN Room (SLAN)			150	1	60	1	60	1	60	
ATD-06-28	Local Area Network Room (LAN)			150	1	80	1	80	1	100	
ATD-06-29	Intermediate Distribution Frame (IDF)			80	1	80	1	80	1	100	
ATD-06-31	General Storage / File Storage Room			150	1	150	1	150	1	150	
ATD-06-32	Temporary Seized Property Storage Room			60	1	60	1	60	1	60	
ATD-06-33	Staff Break Room			275	1	275	1	275	1	285	
ADT-07-01	Male and Female Staff Toilets / Showers/ Lockers		varies	v	1	400	1	500	1	600	
ADT-07-04	Lactation Support Room		64	1	1	64	1	64	1	64	
		Subtotal FIS Support Areas:				3,334		3,562		3,840	2,700
		Primary Processing And Inspection:				3,294		5,934		8,574	2,658
		Secondary Processing:				3,531		3,531		3,531	2,723
		FIS Support Spaces				3,334		3,562		3,840	2,700
		SUBTOTAL:				10,159		13,027		15,945	8,081
		Grossing Factor / Circulation:		25%		2,540		3,260		3,990	2,020
		TOTAL CBP Required Functions:				**12,699**		**16,287**		**19,935**	**10,101**

			NSF	SMALL 200 Qty	200 NSF	400 Qty	400 NSF	600 Qty	600 NSF	Existing IAB
Concourse Level										
	International Baggage Claim Presentation Frontage	Assumed 150 lf claim carousel per 200 pax	150	1	150	2	300	3	450	100
	International Baggage Claim Area	Assumed 40 sf per lf presentation frontage	40		6,000		12,000		18,000	2,468
	Gate Hold Area			2	5,200	3	7,800	4	10,400	n/a
	Concessions			1	3,000	2	3,200	3	3,400	n/a
	Restrooms			1	2,400	2	3,000	2	3,600	974
	International Meeter/Greeter Lobby	Included in Circulation		0	0	0	0	0	0	
		Subtotal Other Required Space:			16,750		26,300		35,850	3,542
		Grossing Factor / Circulation:	25%		4,190		6,580		8,960	890
		TOTAL Other Required Space Functions:			**20,940**		**32,880**		**44,810**	**4,432**
		GRAND TOTAL:			**33,639**		**49,167**		**64,745**	**14,533**

MKE International Arrivals Programming Summary

				Processing Capacity (PAX/HR)						Existing IAB
				200		400		600		
	Planning Parameters		NSF	Qty	NSF	Qty	NSF	Qty	NSF	
CBP Spaces and Functions to Verify										
ATD-01-01	Sterile Corridor	Varies. Coordinate with CBP		varies	v	v	v	Varies	v	Varies
ATD-01-02	VIP Lounge	Varies. Coordinate with CBP		varies	v	v	v	Varies	v	Varies
ATD-01-06	Public Male and Female Toilet (ABAAS)	Per code.		varies	v	v	v	Varies	v	Varies
ATD-01-10	Exit Control Queing			varies	v	v	v	Varies	v	Varies
ATD-01-11	Expedited/Voluntary Removal Suite	As required by CBP.		150	0	0	0	0	0	0
ATD-02-03	Triage Podium (quad)			varies	0	v	0	v	0	v
ATD-04-03	Bird Quarantine	As required by CBP		varies	v	v	v	v	v	v
ATD-06-01	Enforcement Office			150	0	0	0	0	0	0
ATD-06-156	Anti-Terrorism Contraband Enforcement Team (ATCET) Officer's Workstation	4 - 64 sf Workstations		256	0	0	0	0	0	0
ATD-06-17	Passenger Analysis Unit (PAU) Officer's Workstation	4 - 64 sf Workstations		256	0	0	0	0	0	0
ATD-06-18	Outbound Team (OBT) Officer's Workstation	6 - 64 sf Workstations		256	0	0	0	0	0	0
ATD-06-19	Airport Reception			120	0	0	0	0	0	0
ATD-06-20	Public Reception / Entrance and Clearance (E&C) Office			120	0	0	0	0	0	0
ATD-06-21	CBP Badging Office			100	0	0	0	0	0	0
ATD-06-22	Conference Room - Muster / Training			300	0	0	0	0	0	0
ATD-06-23	Training Storage Room			100	0	0	0	0	0	0
ATD-06-24	Document Handling and Processing Room			100	0	0	0	0	0	0
ATD-06-25	Weapons Storage			100	0	0	0	0	0	0
ATD-06-26	Weapons Cleaning Room			80	0	0	0	0	0	0
ATD-06-30	HSDN Room			130	0	0	0	0	0	0
ATD-06-34	Trusted Traveler Enrollment Center	As required by CBP	varies	v	v	v	v	v	v	v
ATD-06-35	Ink Room		80	1	1	80	1	80	1	80

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8.4. Appendix D – Drawings

8.4.1. Existing Facilities

8.4.1.1. International Arrivals Building

8.4.1.2. Concourse E

8.4.2. Concept Design Options

8.4.2.1. Option 1 - Renovation & Addition to Existing IAB

8.4.2.2. Option 2 – Renovation to Concourse E

8.4.2.3. Option 3 – Renovation & Addition to Concourse E

8.4.2.4. Option 4 – Renovation & Addition to Concourse E

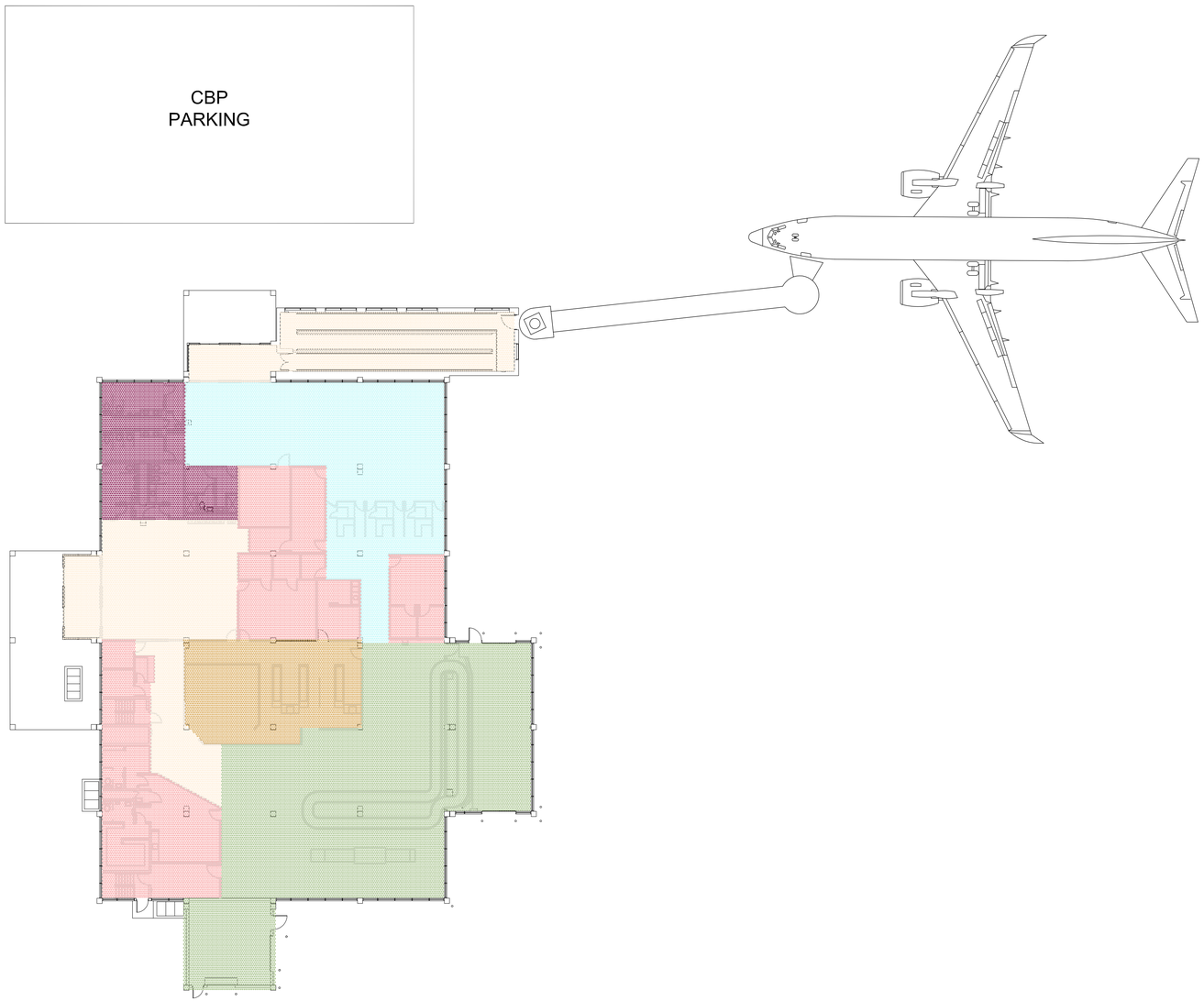
8.4.2.5. Option 5 – Construct New IAF, Replace Concourse E

8.4.2.6. Option 6 – Construct New IAF (East of Concourse E)

8.4.2.7. Option 6A – Construct New IAF (East of Concourse E)

8.4.3. Preferred Concept Design Option

8.4.3.1. Option 5 – Construct New IAF, Replace Concourse E



APRON LEVEL

SCALE: 1:20 0 25' 50' 100'

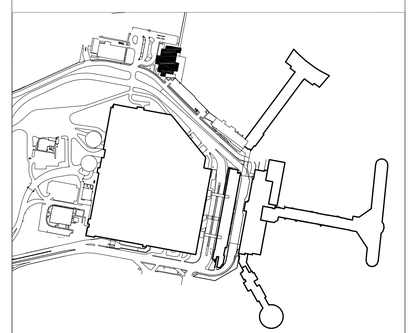
PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	5,540 SF
PRIMARY PROC.	2,920 SF
SECONDARY PROC.	1,420 SF
GATE HOLD	0 SF
RESTROOMS	1,120 SF
CONCESSIONS	0 SF
FIS SUPPORT	2,080 SF
CIRCULATION	3,670 SF
MEP	2,000 SF
	20,830 SF
TOTAL EXISTING	20,830 SF

PROCESSING CAPACITY: 150/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



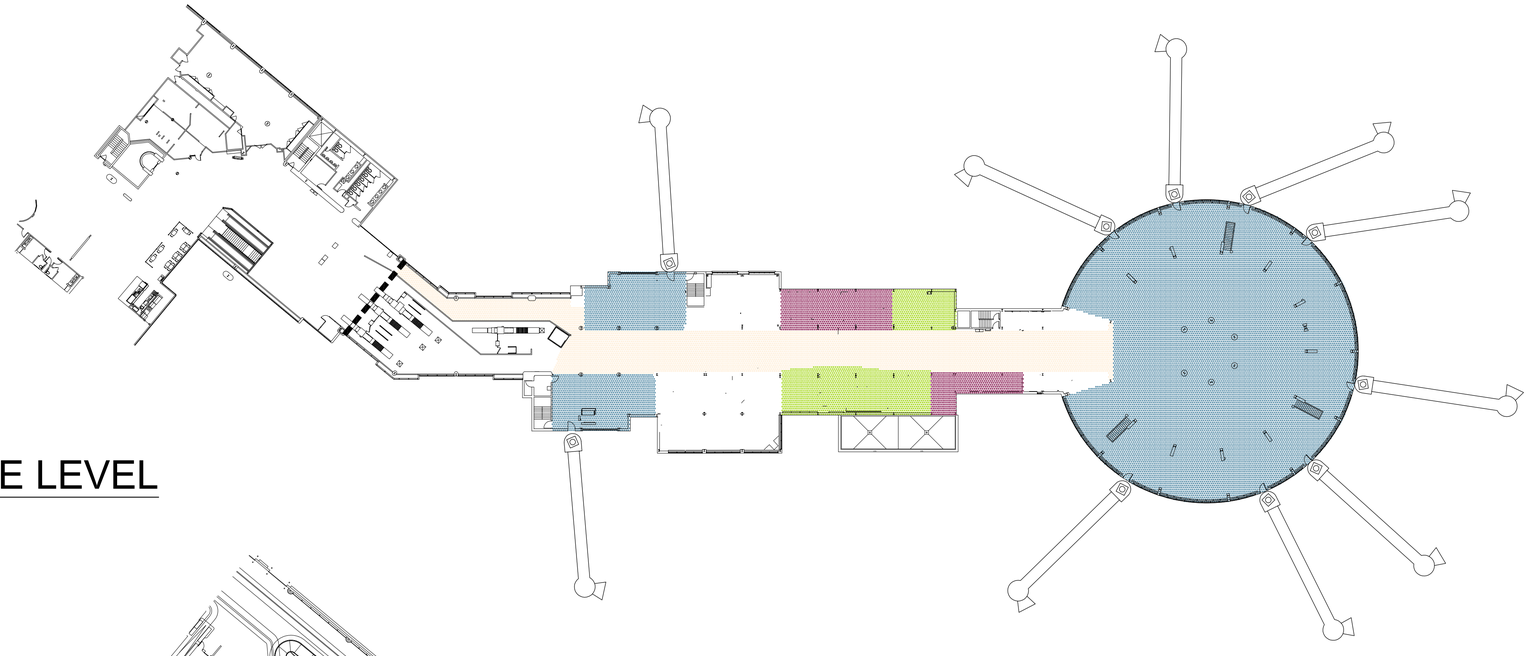
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

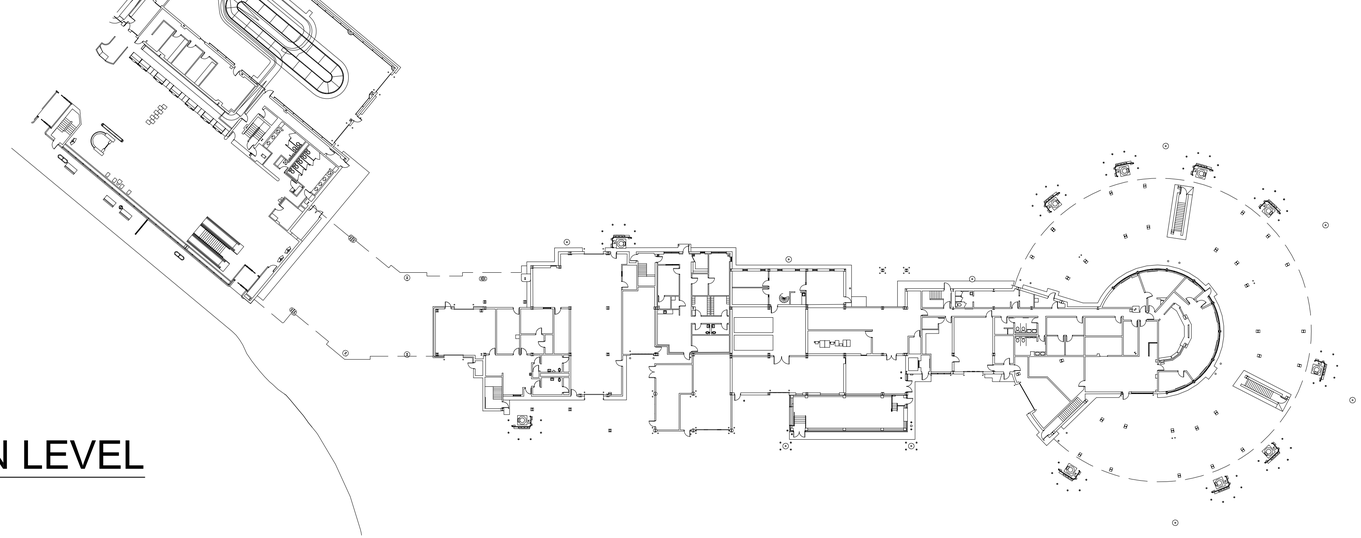
INTERNATIONAL CONCOURSE FEASIBILITY STUDY

EXISTING INTERNATIONAL ARRIVALS BUILDING
2/15/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL



APRON LEVEL

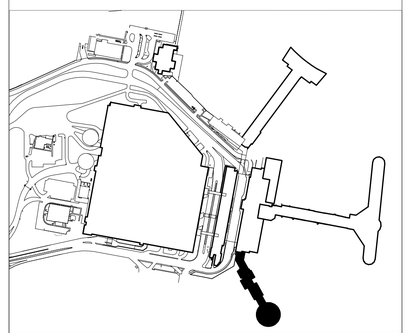
SCALE: 1:40 0 25' 50' 100'

PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM	0 SF
PRIMARY PROC.	0 SF
SECONDARY PROC.	0 SF
GATE HOLD	22,083 SF
RESTROOMS	2,020 SF
CONCESSIONS	2,700 SF
FIS SUPPORT	0 SF
CIRCULATION	7,348 SF
OTHER	35,896 SF
TOTAL EXISTING	70,047 SF

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



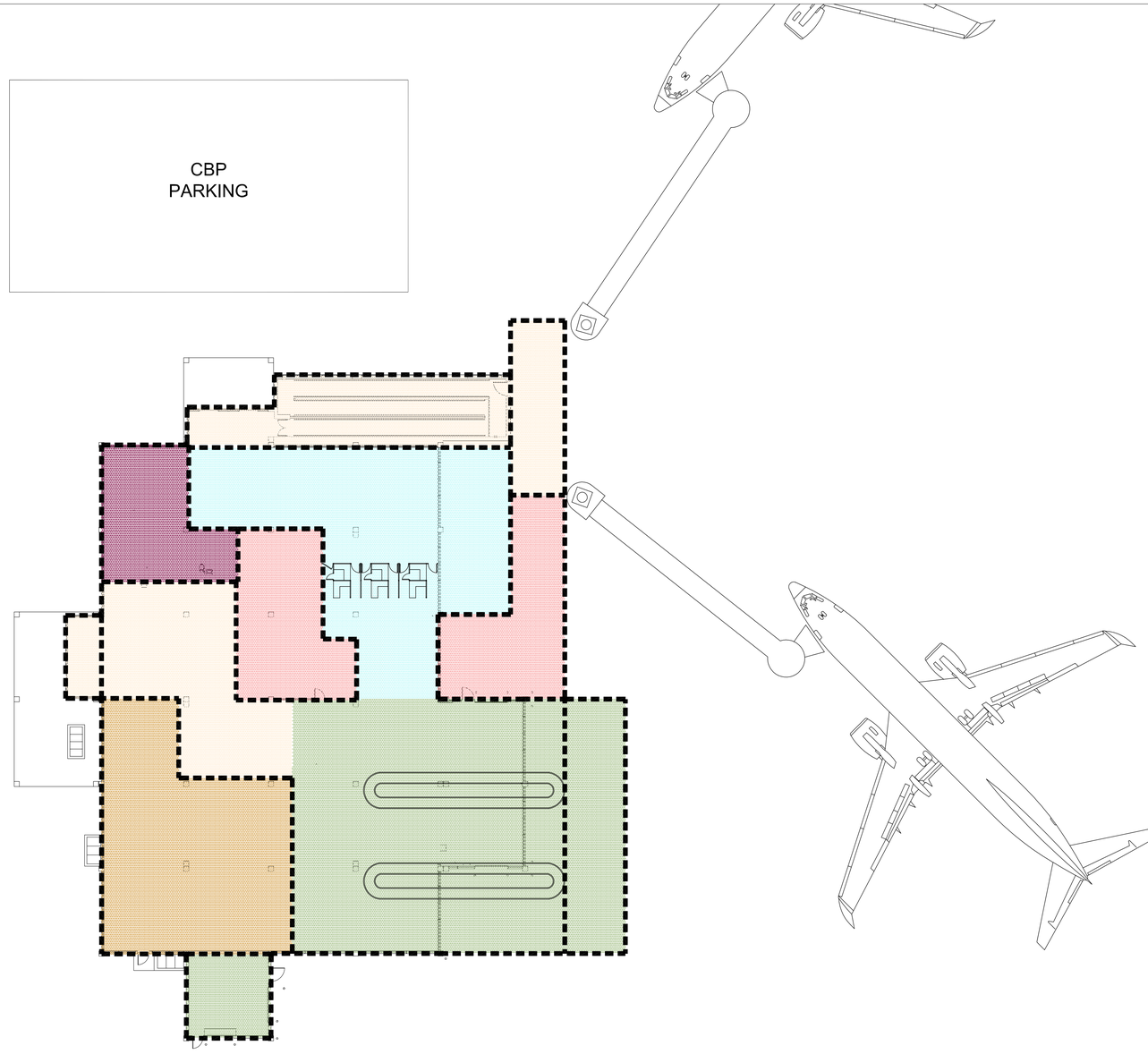
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

EXISTING CONCOURSE E
2/15/2017

miller dunwiddie
ARCHITECTURE



APRON LEVEL

SCALE: 1:20 0 25' 50' 100'

PLAN NORTH

AREA TOTALS

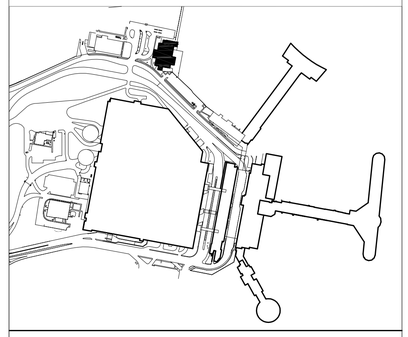
BAGGAGE CLAIM & HAND.	8,000 SF
PRIMARY PROC.	4,350 SF
SECONDARY PROC.	3,450 SF
GATE HOLD	0 SF
RESTROOMS	1,260 SF
CONCESSIONS	0 SF
FIS SUPPORT	2,960 SF
CIRCULATION	5,000 SF
MEP	2,000 SF
	27,020 SF

TOTAL RENO:	20,830 SF
TOTAL ADD:	6,190 SF
TOTAL:	27,020 SF

PROCESSING CAPACITY: 300/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



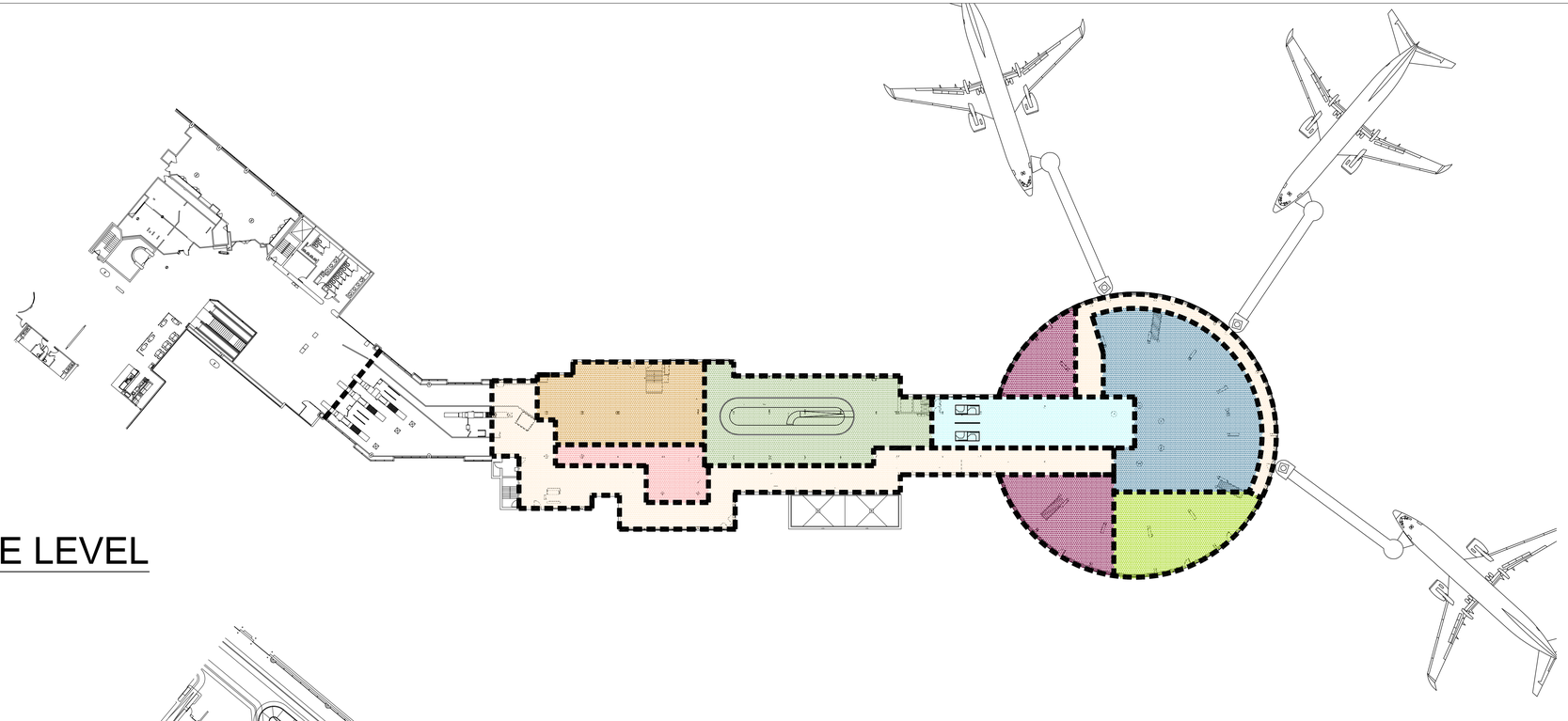
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

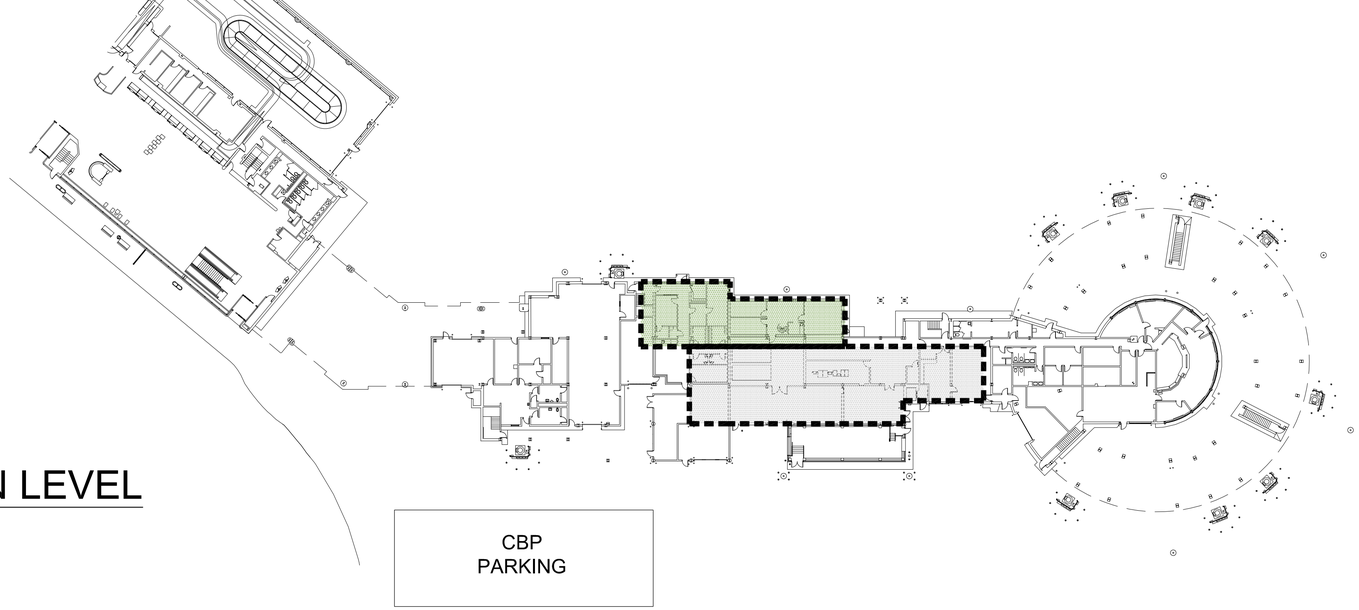
INTERNATIONAL CONCOURSE FEASIBILITY STUDY

OPTION 1 - RENOVATE & ADDITION TO EXISTING IAB
2/15/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL



APRON LEVEL

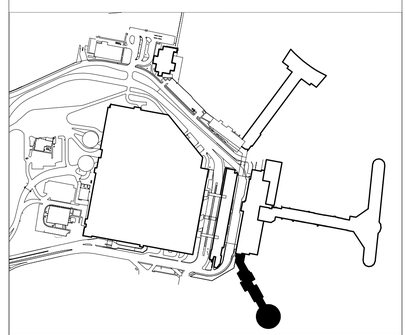
SCALE: 1:40 0 25' 50' 100'

PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	9,150 SF
PRIMARY PROC.	3,250 SF
SECONDARY PROC.	4,070 SF
GATE HOLD	7,410 SF
RESTROOMS	3,900 SF
CONCESSIONS	3,080 SF
FIS SUPPORT	1,700 SF
CIRCULATION	9,860 SF
MEP	5,800 SF
	48,220 SF
TOTAL RENO:	48,220 SF
TOTAL ADD:	0 SF
TOTAL:	48,220 SF
TOTAL UNIMPACTED:	21,827 SF

PROCESSING CAPACITY: 300/HR

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



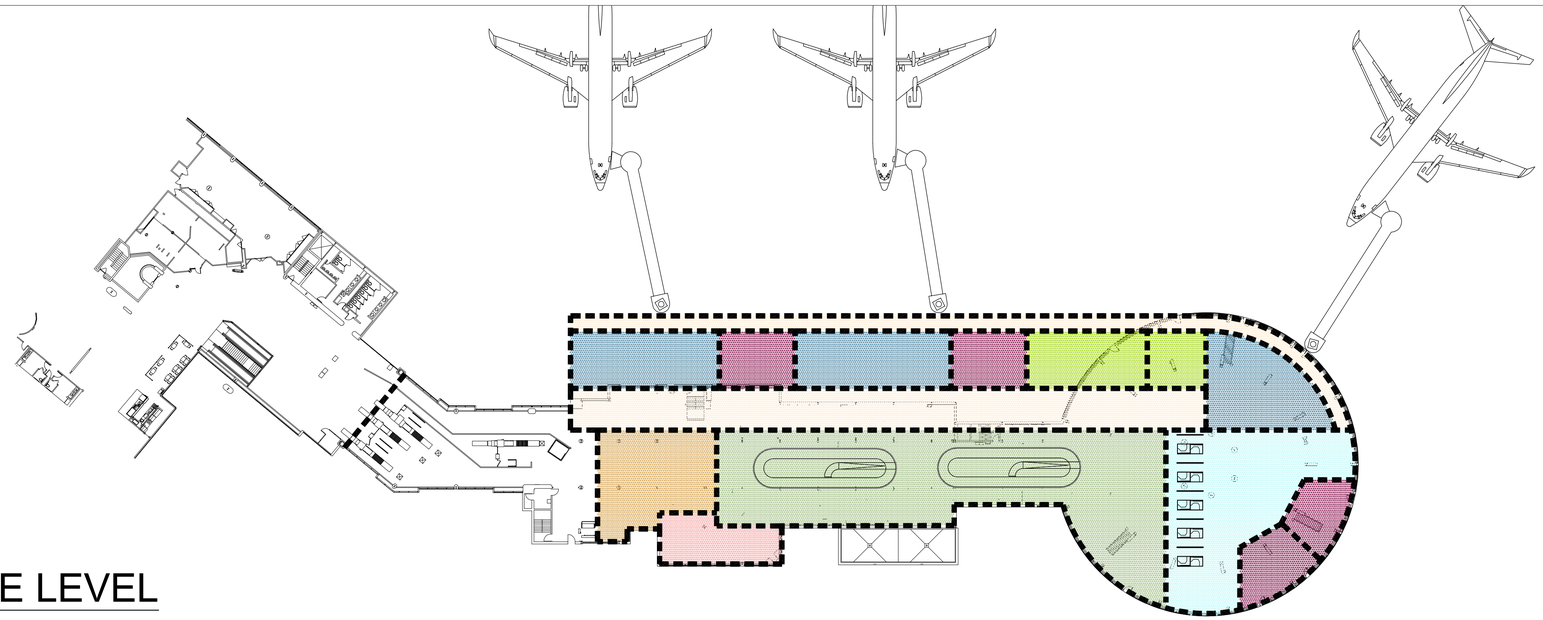
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

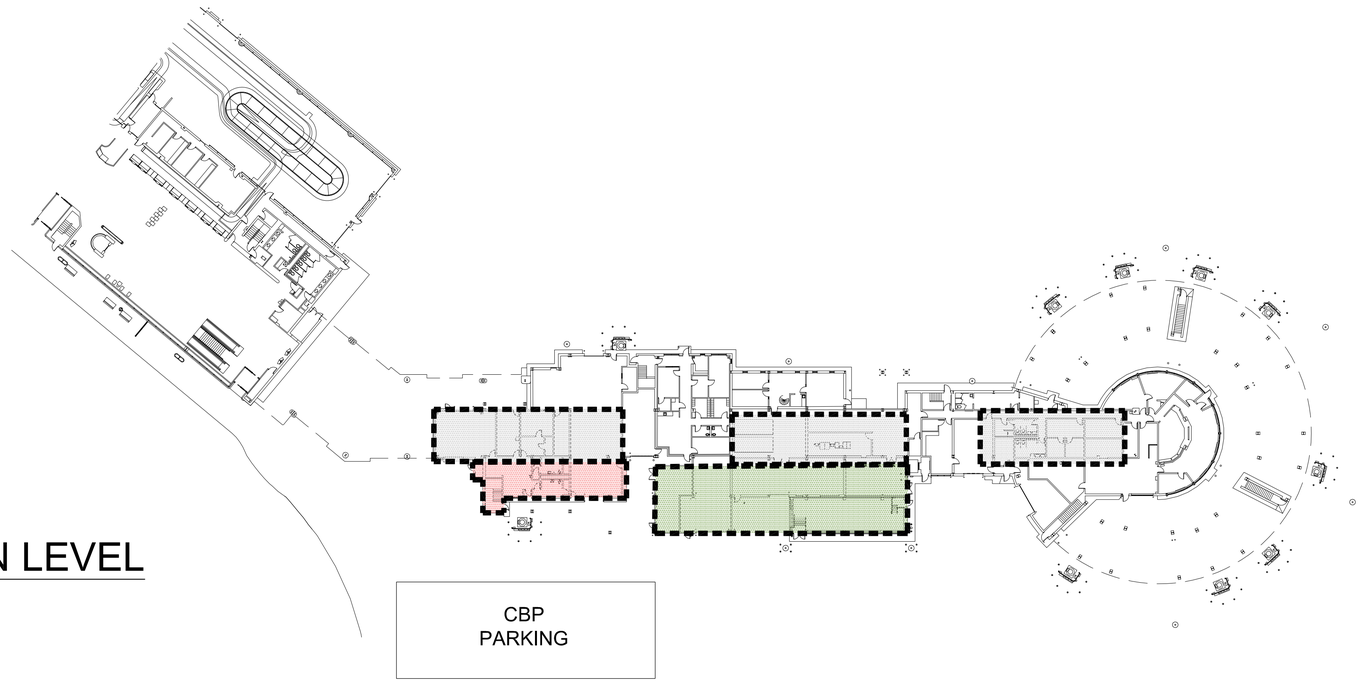
INTERNATIONAL CONCOURSE FEASIBILITY STUDY

OPTION 2 - RENOVATE EXISTING CONCOURSE E
2/15/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL



APRON LEVEL

SCALE: 1:40 0 25' 50' 100'

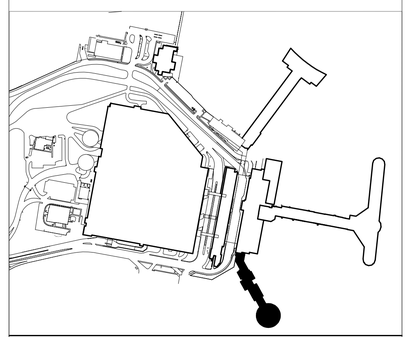
PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	17,480 SF
PRIMARY PROC.	6,130 SF
SECONDARY PROC.	3,130 SF
GATE HOLD	10,650 SF
RESTROOMS	4,500 SF
CONCESSIONS	3,000 SF
FIS SUPPORT	3,600 SF
CIRCULATION	10,850 SF
MEP	7,330 SF
	66,670 SF
TOTAL RENO:	53,720 SF
TOTAL ADD:	12,950 SF
TOTAL:	66,670 SF
TOTAL UNIMPACTED:	16,327 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



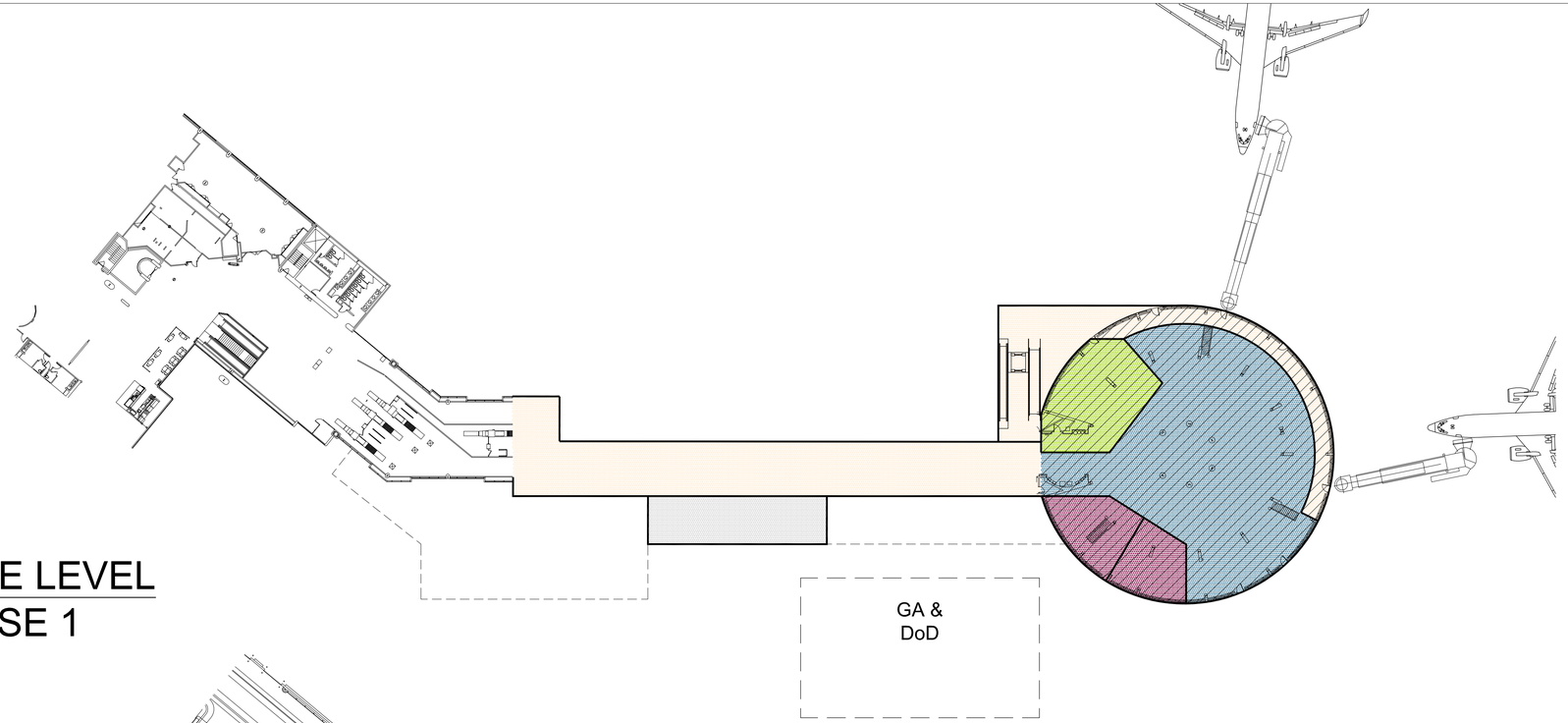
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

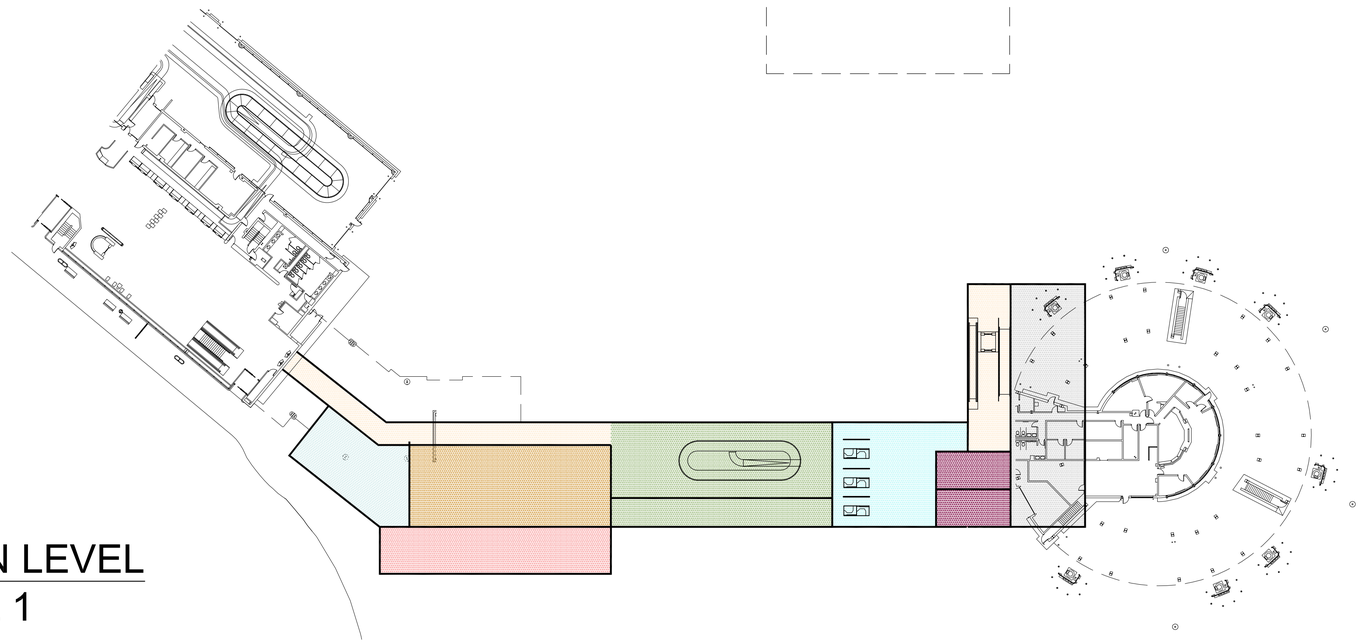
INTERNATIONAL CONCOURSE FEASIBILITY STUDY

OPTION 3 - RENOVATE & ADDITION TO CONCOURSE E
2/15/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL
PHASE 1



APRON LEVEL
PHASE 1

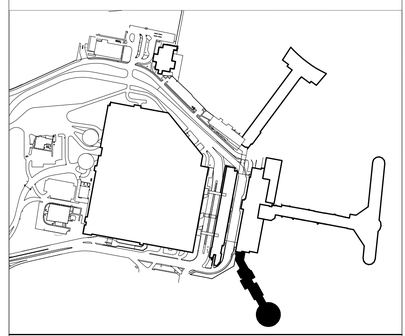
SCALE: 1:40 0 25' 50' 100'

PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	6,450 SF
PRIMARY PROC.	3,200 SF
SECONDARY PROC.	4,600 SF
GATE HOLD	12,540 SF
RESTROOMS	4,100 SF
CONCESSIONS	3,000 SF
FIS SUPPORT	3,000 SF
CIRCULATION	17,960 SF
MEP	7,500 SF
MEETER/GREETER	2,270 SF
	64,620 SF
TOTAL RENO:	20,000 SF
TOTAL ADD:	44,620 SF
TOTAL:	64,620 SF
TOTAL DEMO:	44,630 SF
TOTAL UNIMPACTED:	3,950 SF

PROCESSING CAPACITY: 200/HR

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT
- MEETER/GREETER LOBBY
- RENO - CURRENT PHASE



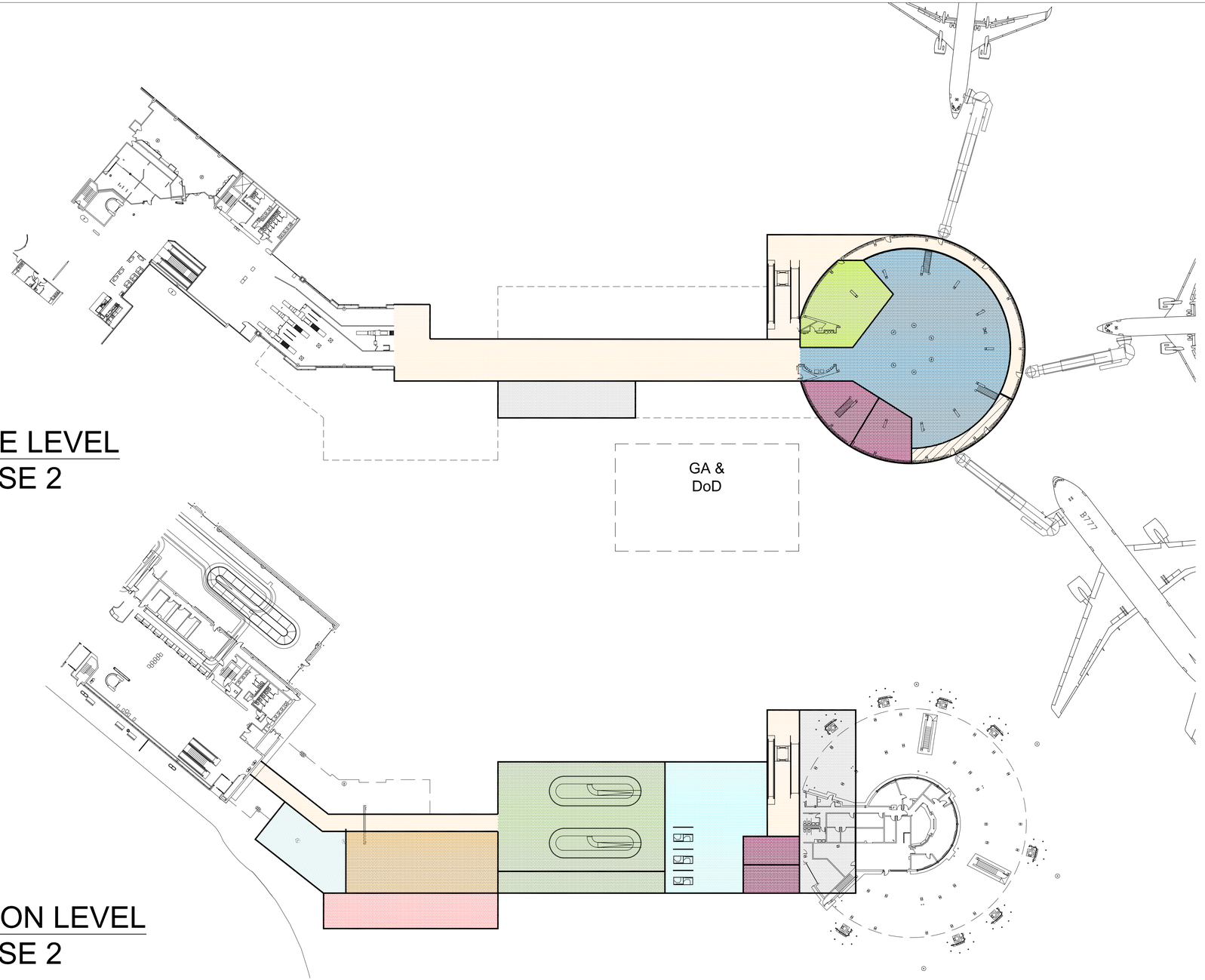
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

PREFERRED CONCEPT - OPTION 4
RENOVATE AND ADDITION TO CONCOURSE E
3/27/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL
PHASE 2

APRON LEVEL
PHASE 2

SCALE: 1:40 0 25' 50' 100'

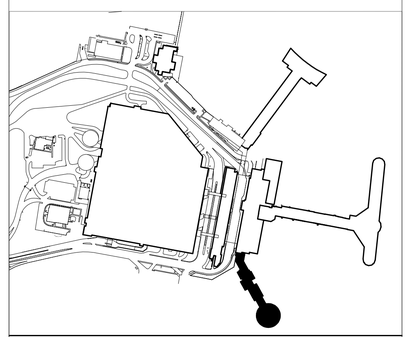
PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	10,740 SF
PRIMARY PROC.	5,900 SF
SECONDARY PROC.	4,600 SF
GATE HOLD	11,670 SF
RESTROOMS	4,100 SF
CONCESSIONS	3,000 SF
FIS SUPPORT	3,000 SF
CIRCULATION	18,770 SF
MEP	7,500 SF
MEETER/GREETER	2,270 SF
	71,550 SF
TOTAL RENO:	900 SF
TOTAL ADD:	6,910 SF
TOTAL:	7,810 SF
TOTAL DEMO:	0 SF
TOTAL UNIMPACTED:	63,740 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT
- MEETER/GREETER LOBBY
- RENO - CURRENT PHASE



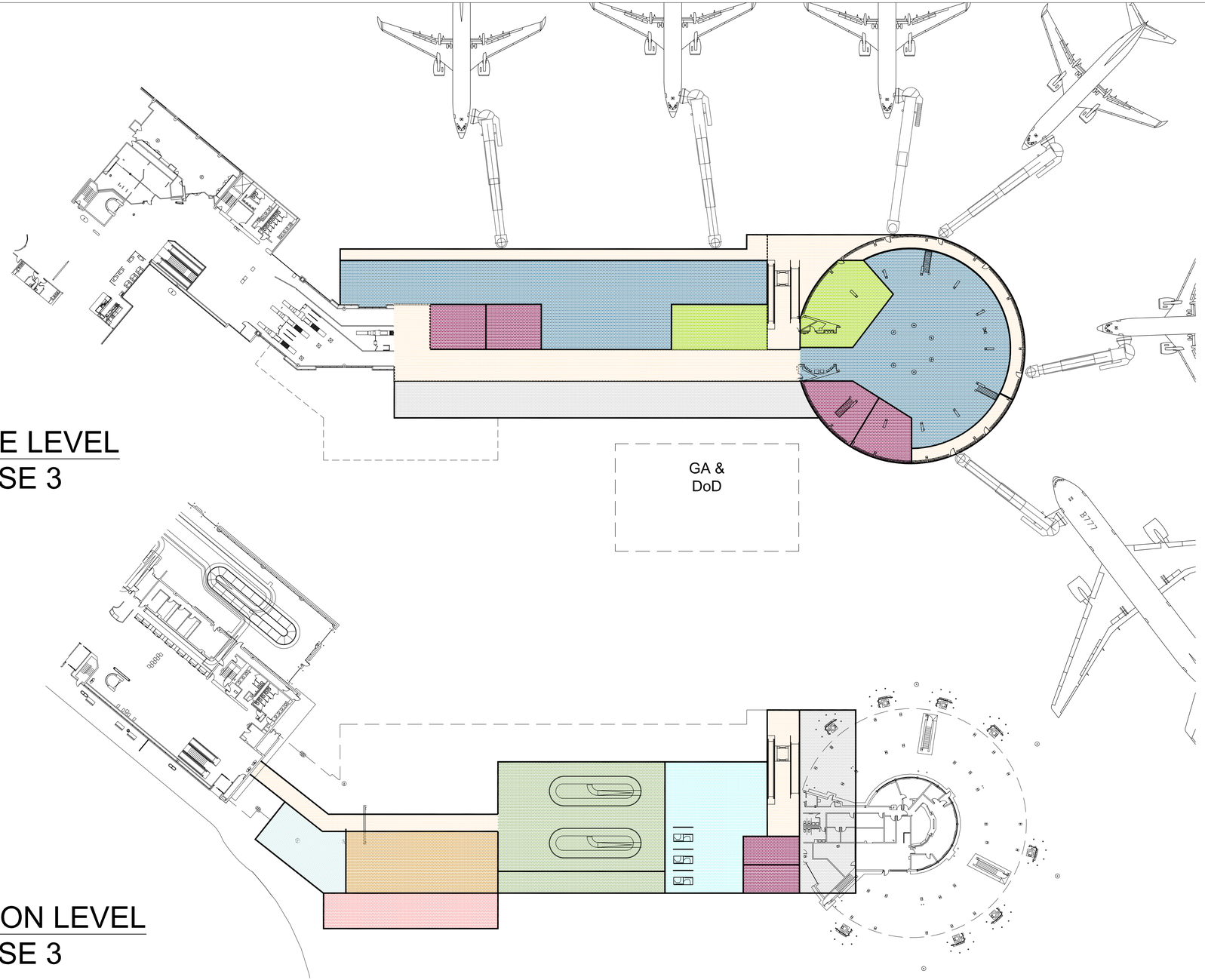
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

PREFERRED CONCEPT - OPTION 4
RENOVATE AND ADDITION TO CONCOURSE E
3/27/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL
PHASE 3

APRON LEVEL
PHASE 3

SCALE: 1:40 0 25' 50' 100'

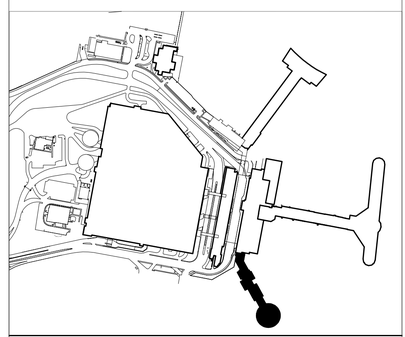
PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	10,740 SF
PRIMARY PROC.	5,900 SF
SECONDARY PROC.	4,600 SF
GATE HOLD	23,780 SF
RESTROOMS	6,550 SF
CONCESSIONS	5,100 SF
FIS SUPPORT	3,000 SF
CIRCULATION	19,560 SF
MEP	12,500 SF
MEETER/GREETER	2,270 SF
	94,000 SF
TOTAL RENO:	0 SF
TOTAL ADD:	22,450 SF
TOTAL:	22,450 SF
TOTAL DEMO:	0 SF
TOTAL UNIMPACTED:	71,550 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT
- MEETER/GREETER LOBBY
- RENO - CURRENT PHASE



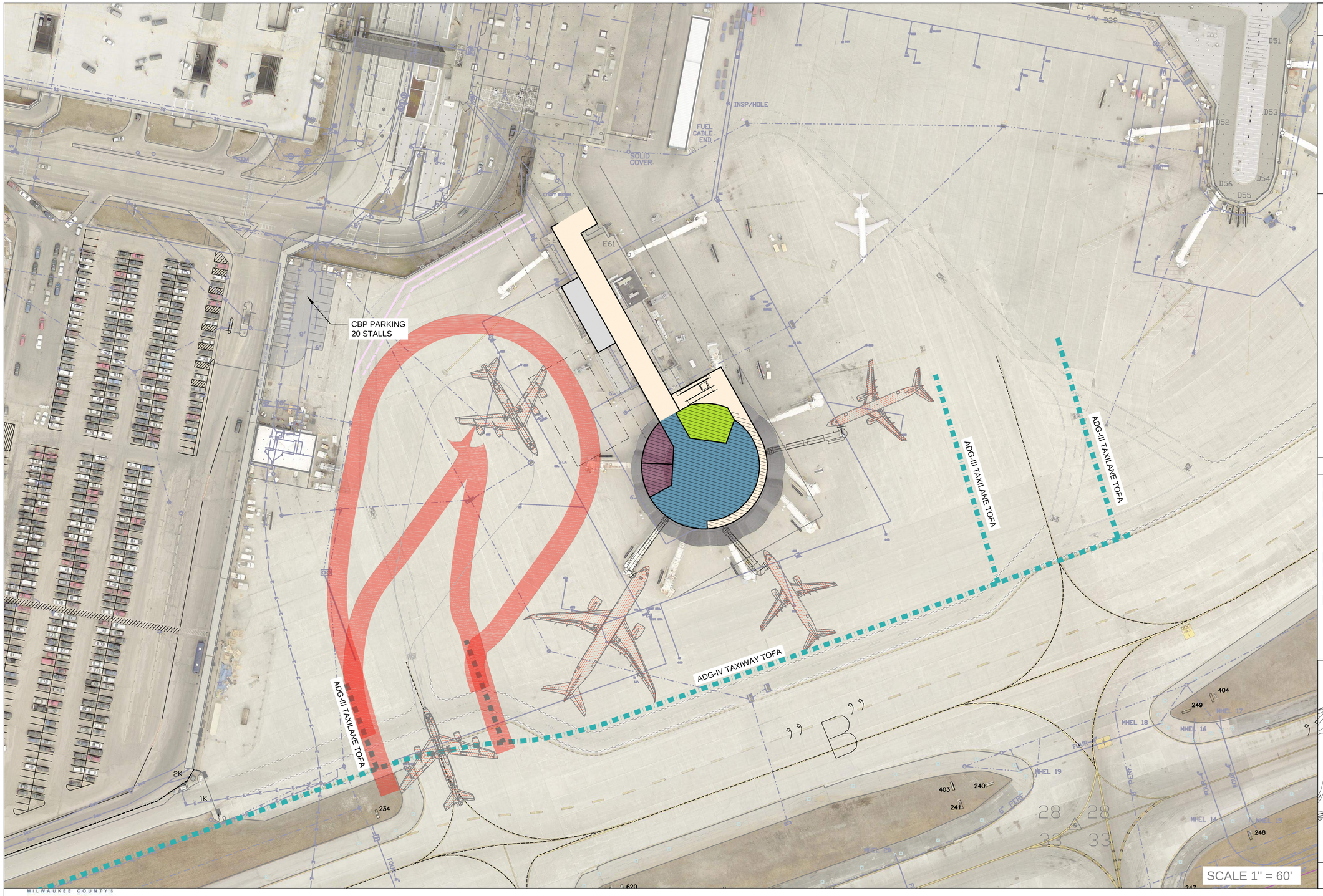
KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

PREFERRED CONCEPT - OPTION 4
RENOVATE AND ADDITION TO CONCOURSE E
3/27/2017

miller dunwiddie
ARCHITECTURE



AREA TOTALS

BAGGAGE CLAIM & HAND.	10,060 SF
PRIMARY PROC.	5,900 SF
SECONDARY PROC.	5,200 SF
GATE HOLD	12,540 SF
RESTROOMS	4,340 SF
CONCESSIONS	2,760 SF
FIS SUPPORT	3,600 SF
CIRCULATION	17,740 SF
MEP	12,360 SF
MEETER/GREETER	2.660 SF
	77,100 SF

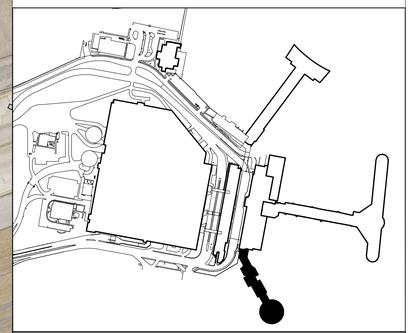
TOTAL RENO:	25,040 SF
TOTAL ADD:	52,060 SF
TOTAL:	77,100 SF

TOTAL DEMO:	42,115 SF
TOTAL UNIMPACTED:	3,950 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

PREFERRED CONCEPT - OPTION 4
RENOVATE AND ADDITION TO CONCOURSE E
4/12/2017

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ARCHITECTURE

CBP PARKING
20 STALLS

ADG-III TAXILANE TOFA

ADG-III TAXILANE TOFA

ADG-IV TAXIWAY TOFA

ADG-III TAXILANE TOFA

ADG-III TAXILANE TOFA

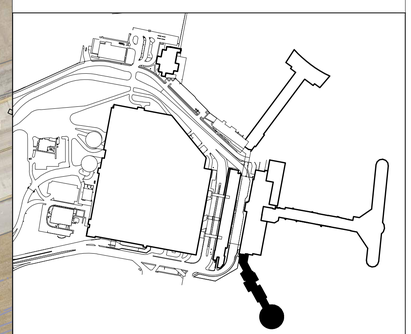
SCALE 1" = 60'

AREA TOTALS	
BAGGAGE CLAIM & HAND.	10,060 SF
PRIMARY PROC.	5,900 SF
SECONDARY PROC.	5,200 SF
GATE HOLD	23,790 SF
RESTROOMS	6,790 SF
CONCESSIONS	4,870 SF
FIS SUPPORT	3,600 SF
CIRCULATION	21,110 SF
MEP	12,360 SF
MEETER/GREETER	2.660 SF
	96,340 SF
TOTAL RENO:	0 SF
TOTAL ADD:	21,260 SF
TOTAL:	21,260 SF
TOTAL DEMO:	0 SF
TOTAL UNIMPACTED:	75,080 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



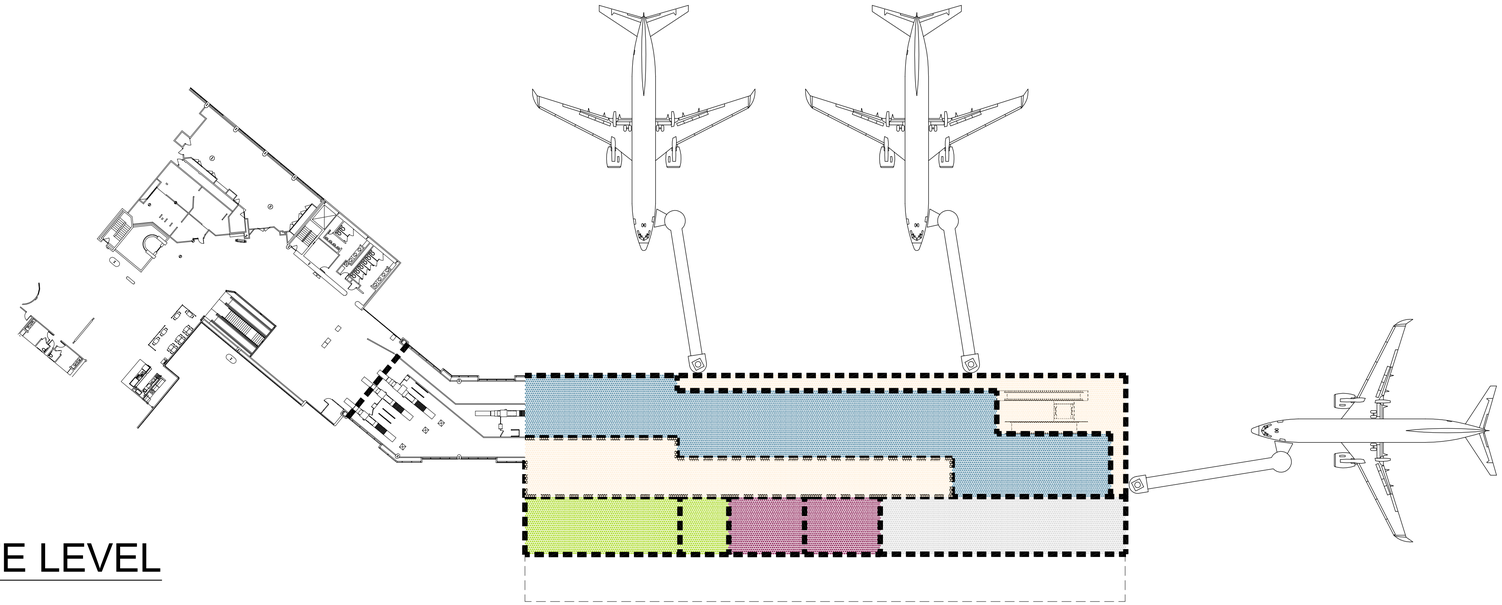
KEY PLAN

MILWAUKEE COUNTY'S
GENERAL MITCHELL INTERNATIONAL AIRPORT

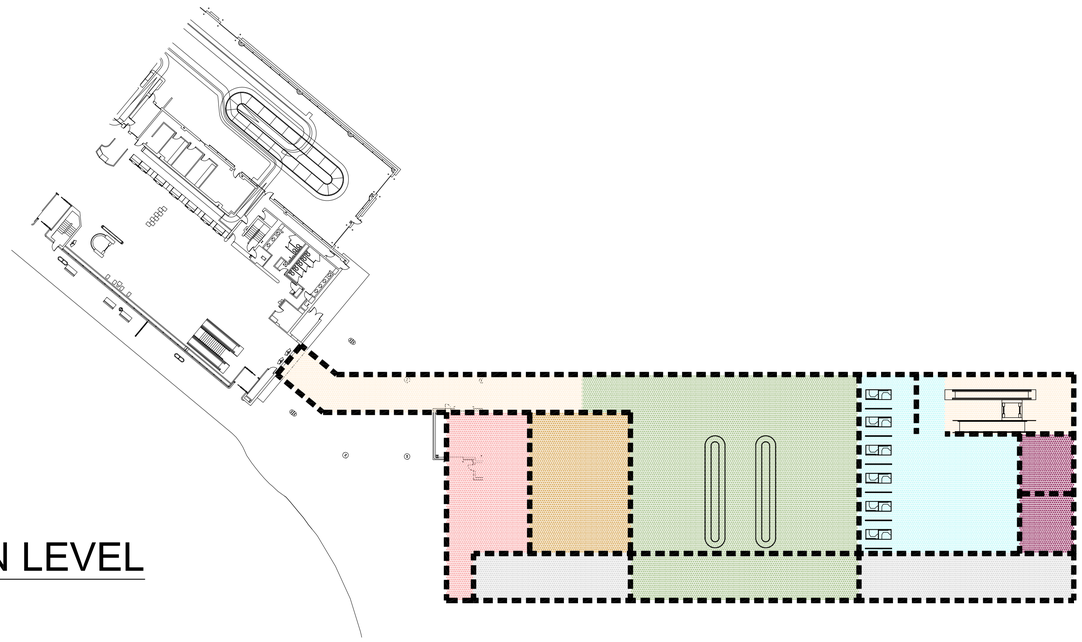
INTERNATIONAL CONCOURSE FEASIBILITY STUDY

PREFERRED CONCEPT - OPTION 4
RENOVATE AND ADDITION TO CONCOURSE E
4/12/2017

miller dunwiddie
ARCHITECTURE



GATE LEVEL



APRON LEVEL

CBP
PARKING

SCALE: 1:40 0 25' 50' 100'

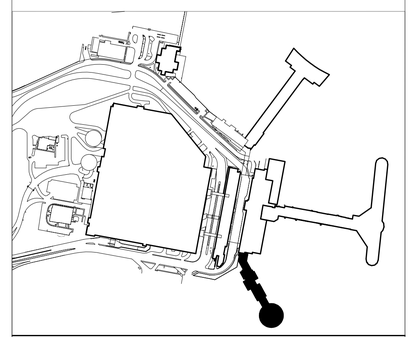
PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	14,900 SF
PRIMARY PROC.	6,770 SF
SECONDARY PROC.	3,950 SF
GATE HOLD	11,000 SF
RESTROOMS	4,250 SF
CONCESSIONS	3,300 SF
FIS SUPPORT	3,600 SF
CIRCULATION	14,620 SF
MEP	8,800 SF
	71,190 SF
TOTAL RENO:	0 SF
TOTAL ADD:	71,190 SF
TOTAL:	71,190 SF
TOTAL UNIMPACTED:	3,950 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND

- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

OPTION 5 - CONSTRUCT NEW CONCOURSE E
2/15/2017

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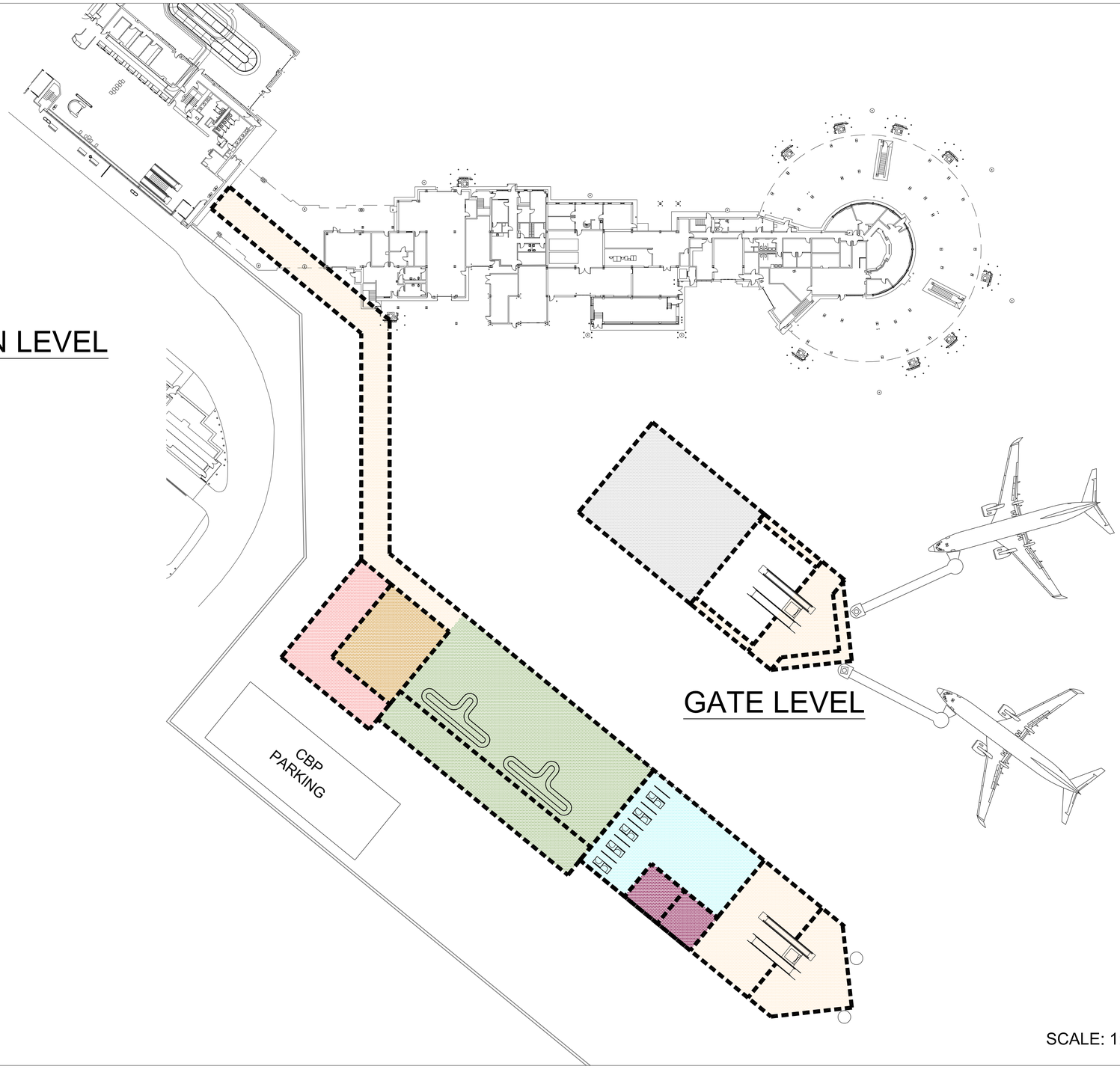
ARCHITECTURE

APRON LEVEL



GATE LEVEL

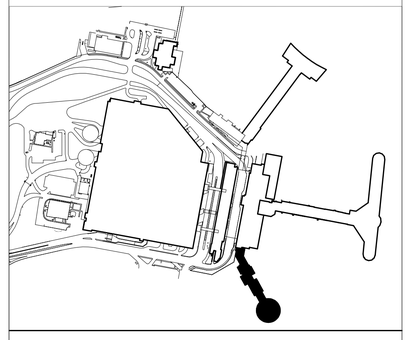
SCALE: 1:40 0 25' 50' 100'

PLAN NORTH

AREA TOTALS	
BAGGAGE CLAIM & HAND.	16,500 SF
PRIMARY PROC.	6,400 SF
SECONDARY PROC.	3,500 SF
GATE HOLD	0 SF
RESTROOMS	1,800 SF
CONCESSIONS	0 SF
FIS SUPPORT	3,500 SF
CIRCULATION	18,860 SF
MEP	8,500 SF
	59,060 SF
TOTAL RENO:	0 SF
TOTAL ADD:	59,060 SF
TOTAL:	59,060 SF
TOTAL UNIMPACTED:	70,047 SF

PROCESSING CAPACITY: 400/HR

COLOR LEGEND
- BAGGAGE CLAIM AND HANDLING
- PRIMARY PROCESSING
- SECONDARY PROCESSING
- RESTROOMS
- GATE HOLD
- CIRCULATION
- CONCESSIONS
- FIS SUPPORT
- MEP/STRUCT



KEY PLAN

MILWAUKEE COUNTY'S GENERAL MITCHELL INTERNATIONAL AIRPORT

INTERNATIONAL CONCOURSE FEASIBILITY STUDY

OPTION 6 - CONSTRUCT NEW IAF EAST OF CONCOURSE E
2/15/2017

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ARCHITECTURE

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8.5. Appendix E – Budget Estimate

8.5.1. Option 5 – Construct New IAF, Replace Concourse E

8.5.1.1. Phase 1 Budget Estimate

8.5.1.2. Phase 2 Budget Estimate

8.5.1.3. Phase 3 Budget Estimate

miller dunwiddie
ARCHITECTURE

Opinion of Probable Cost

Date: **6/16/2017**
Project: **General Mitchell International Airport**
Milwaukee, Wisconsin

Design Complete: **TBD**
Bid Opening: **6/1/2018**
Construction Start: **7/1/2018**
Construction Midpoint: **12/31/2019**

Option 5 Phase 1
MDA Commission #: **MKE1601**
Status: **Planning**

Project Summary (Option 5)

Total Cost of Construction		**$31,499,810**
Design Contingency	**15%**	**$4,725,000**
Subtotal		**$36,224,810**
Escalation to midpoint of construction	**7.5%**	**$2,716,900**
Subtotal		**$38,941,710**
Soft Costs	**25%**	**$9,735,500**
Subtotal		**$48,677,210**
Owner's Construction Contingency	**10%**	**$4,867,800**
Total Construction Budget		**$53,545,010**

In providing opinions of probable construction cost, the Client understands that the Consultant has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, express or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

Category	Area		$$$ / SF Area
Building Demolition	66353	SF	
Selective Demolition	0	SF	
Remodel Existing	0	SF	
New	55700	SF	
	55700		

							Totals
1	**DEMOLITION**					$1,034,810	$1,034,810
	Building Demolition	66,353	SF				$1,034,810
	Raze Building (42115 SF)					$562,050	
	Demo, load, haul	1,327,060	CF	$0.40	$530,830		
	Tipping Fees	279	TN	$112.00	$31,220		
	HazMat					$28,110	
	5% of "Raze Bldg"	1	LS	$28,102.50	$28,110		
	Foundations					$351,290	
	Slab on Grade	66,353	SF	$0.90	$59,720		
	Footings	1,030	LF	$15.10	$15,560		
	Foundation Walls	8,243	SF	$0.90	$7,420		
	Load/Haul debris	1,504	TN	$87.80	$132,040		
	Tipping Fees	1,504	TN	$90.80	$136,550		
	Utility Disconnects					$13,730	
	Excavate & Backfill	100	BCY	$90.80	$9,080		
	Remove Pipe	250	LF	$12.10	$3,030		
	Cap line at street connection	1	LS	$1,615.10	$1,620		
	Misc. Debris Removal					$79,630	
	15% of "Raze Bldg"	1	LS	$79,624.50	$79,630		
2	**Option 5 - Phase 1**					$27,535,700	$30,465,000
	Terminal Building					$15,551,700	
	Vanilla Box RENOVATED Space	-	SF	$27.70			
	Vanilla Box NEW Space	55,700	SF	$158.80	$8,845,200		
	Vertical Circulation	55,700	SF	$16.60	$924,700		
	HVAC & Plumbing	55,700	SF	$55.30	$3,080,300		
	Fire Protection	55,700	SF	$7.00	$389,900		
	Electrical	55,700	SF	$41.50	$2,311,600		
	Baggage Claim & Handling					$1,746,000	
	Finishes	7,900	SF	$138.10	$1,091,000		
	Equipment	7,900	SF	$82.90	$655,000		
	Primary Processing					$1,263,600	
	Finishes	5,200	SF	$173.00	$899,600		
	Furnishings	5,200	SF	$70.00	$364,000		
	Secondary Processing					$874,800	
	Finishes	3,600	SF	$173.00	$622,800		
	Furnishings	3,600	SF	$70.00	$252,000		
	GAF					$729,000	
	Finishes	3,000	SF	$173.00	$519,000		
	Furnishings	3,000	SF	$70.00	$210,000		
	Gate Hold					$2,076,000	
	Finishes	6,000	SF	$242.00	$1,452,000		
	Furnishings	6,000	SF	$104.00	$624,000		
	Restrooms					$764,000	
	Finishes	2,000	SF	$277.00	$554,000		
	Furnishings	2,000	SF	$35.00	$70,000		
	MEP	2,000	SF	$70.00	$140,000		
	Concessions					$0	
	Finishes (vendor cost)	3,000	SF				
	Equipment (vendor cost)	3,000	SF				
	MEP (vendor cost)	3,000	SF				
	FIS Support					$755,700	
	Finishes	3,300	SF	$173.00	$570,900		
	Furnishings	3,300	SF	$56.00	$184,800		
	Circulation					$3,352,800	
	Finishes	12,700	SF	$208.00	$2,641,600		
	Furnishings	12,700	SF	$56.00	$711,200		
	MEP					$422,100	
	Finishes	6,700	SF	$63.00	$422,100		
	Meeter/Greeter					$526,700	
	Finishes	2,300	SF	$173.00	$397,900		
	Furnishings	2,300	SF	$56.00	$128,800		

Site Work						
Site Work					$690,400	
Option 1	1	LS	$690,375	$690,400		
Passenger Boarding Bridges						
Remove all and install two new					$1,712,200	
Removal	8	EA	$41,423	$331,400		
New	2	EA	$690,375	$1,380,800		

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Opinion of Probable Cost

Date: **6/16/2017**
Project: **General Mitchell International Airport**
Milwaukee, Wisconsin

Design Complete: **TBD**
Bid Opening: **6/1/2018**
Construction Start: **7/1/2018**
Construction Midpoint: **12/31/2019**

Option 5 Phase 2
MDA Commission #: **MKE1601**
Status: **Planning**

Project Summary (Option 5)

Total Cost of Construction		**$10,552,800**
Design Contingency	**15%**	**$1,583,000**
Subtotal		**$12,135,800**
Escalation to midpoint of construction	**7.5%**	**$910,200**
Subtotal		**$13,046,000**
Soft Costs	**25%**	**$3,261,500**
Subtotal		**$16,307,500**
Owner's Construction Contingency	**10%**	**$1,630,800**
Total Construction Budget		**$17,938,300**

In providing opinions of probable construction cost, the Client understands that the Consultant has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, express or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

Category	Area		$$$ / SF Area
Building Demolition	0	SF	
Selective Demolition	0	SF	
Remodel Existing	5200	SF	
New	16000	SF	
	21200		

							Totals
1	**Option 5 - Phase 2**					$9,862,400	$10,552,800
	Terminal Building					$5,085,600	
	Vanilla Box RENOVATED Space	5,200	SF	$28.00	$145,600		
	Vanilla Box NEW Space	16,000	SF	$163.00	$2,608,000		
	Vertical Circulation	21,200	SF	$5.00	$106,000		
	HVAC & Plumbing	21,200	SF	$56.00	$1,187,200		
	Fire Protection	21,200	SF	$7.00	$148,400		
	Electrical	21,200	SF	$42.00	$890,400		
	Baggage Claim & Handling					$878,900	
	Finishes	4,700	SF	$104.00	$488,800		
	Equipment	4,700	SF	$83.00	$390,100		
	Primary Processing					$680,400	
	Finishes	2,800	SF	$173.00	$484,400		
	Furnishings	2,800	SF	$70.00	$196,000		
	Secondary Processing						
	Finishes	-	SF	$173.00			
	Furnishings	-	SF	$70.00			
	GAF						
	Finishes	-	SF	$173.00			
	Furnishings	-	SF	$70.00			
	Gate Hold					$1,314,800	
	Finishes	3,800	SF	$242.00	$919,600		
	Furnishings	3,800	SF	$104.00	$395,200		
	Restrooms					$496,600	
	Finishes	1,300	SF	$277.00	$360,100		
	Furnishings	1,300	SF	$35.00	$45,500		
	MEP	1,300	SF	$70.00	$91,000		
	Concessions						
	Finishes	-	SF	$208.00			
	Equipment	-	SF	$139.00			
	MEP	-	SF	$70.00			
	FIS Support						
	Finishes	-	SF	$173.00			
	Furnishings	-	SF	$56.00			
	Circulation					$1,135,200	
	Finishes	4,300	SF	$208.00	$894,400		
	Furnishings	4,300	SF	$56.00	$240,800		
	MEP					$270,900	
	Finishes	4,300	SF	$63.00	$270,900		
	Meeter/Greeter						
	Finishes	-	SF	$173.00			
	Furnishings	-	SF	$56.00			
	Passenger Boarding Bridges						
	Install three new					$690,400	
	New	1	EA	$690,375.00	$690,400		

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ARCHITECTURE

Opinion of Probable Cost

Date: **6/16/2017**
Project: **General Mitchell International Airport**
Milwaukee, Wisconsin

Design Complete: **TBD**
Bid Opening: **6/1/2018**
Construction Start: **7/1/2018**
Construction Midpoint: **12/31/2019**

Option 5 Phase 3
MDA Commission #: **MKE1601**
Status: **Planning**

Project Summary (Option 5)

Total Cost of Construction		**$9,288,900**
Design Contingency	**15%**	**$1,393,400**
Subtotal		**$10,682,300**
Escalation to midpoint of construction	**7.5%**	**$801,200**
Subtotal		**$11,483,500**
Soft Costs	**25%**	**$2,870,900**
Subtotal		**$14,354,400**
Owner's Construction Contingency	**10%**	**$1,435,500**
Total Construction Budget		**$15,789,900**

In providing opinions of probable construction cost, the Client understands that the Consultant has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Consultant's opinions of probable construction costs are made on the basis of the Consultant's professional judgment and experience. The Consultant makes no warranty, express or implied, that the bids or the negotiated cost of the Work will not vary from the Consultant's opinion of probable construction cost.

Category	Area		$$$ / SF Area
Building Demolition	0	SF	
Selective Demolition	0	SF	
Remodel Existing	0	SF	
New	13800	SF	
	13800		

							Totals
1	**Option 5 - Phase 3**					$7,908,100	$9,288,900
	Terminal Building					$3,739,900	
	Vanilla Box RENOVATED Space	-	SF	$27.70			
	Vanilla Box NEW Space	13,800	SF	$163.00	$2,249,400		
	Vertical Circulation	13,800	SF	$4.20	$58,000		
	HVAC & Plumbing	13,800	SF	$55.30	$763,200		
	Fire Protection	13,800	SF	$7.00	$96,600		
	Electrical	13,800	SF	$41.50	$572,700		
	Baggage Claim & Handling						
	Finishes	-	SF	$103.60			
	Equipment	-	SF	$82.90			
	Primary Processing						
	Finishes	-	SF	$172.60			
	Furnishings	-	SF	$69.10			
	Secondary Processing						
	Finishes	-	SF	$172.60			
	Furnishings	-	SF	$69.10			
	GAF						
	Finishes	-	SF	$173.00			
	Furnishings	-	SF	$70.00			
	Gate Hold					$1,001,500	
	Finishes	2,900	SF	$241.70	$701,000		
	Furnishings	2,900	SF	$103.60	$300,500		
	Restrooms					$987,900	
	Finishes	2,600	SF	$276.20	$718,200		
	Furnishings	2,600	SF	$34.60	$90,000		
	MEP	2,600	SF	$69.10	$179,700		
	Concessions						
	Finishes	-	SF	$207.20			
	Equipment	-	SF	$138.10			
	MEP	-	SF	$69.10			
	FIS Support						
	Finishes	-	SF	$172.60			
	Furnishings	-	SF	$55.30			
	Circulation					$2,178,800	
	Finishes	8,300	SF	$207.20	$1,719,800		
	Furnishings	8,300	SF	$55.30	$459,000		
	MEP						
	Finishes	-	SF	$62.20			
	Meeter/Greeter						
	Finishes	-	SF	$172.60			
	Furnishings	-	SF	$55.30			
	Passenger Boarding Bridges						
	Install three new					$1,380,800	
	New	2	EA	$690,375.00	$1,380,800		

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