
MILWAUKEE COUNTY'S



G E N E R A L
MITCHELL
INTERNATIONAL AIRPORT

Supplement to Proposed Concourse E
International Terminal Study & Cost Estimate

Proposed International / Domestic Concourse E
Abbreviated Conceptual Study

June 10, 2016

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Milwaukee County Project No. A201-14012

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1. Introduction/Overview

1.1 Overview and Study Process

This study is a further development of the March 2015 International Arrivals Terminal Concept and is based on demolishing the existing Concourse E and replacing the concourse with a new International / Domestic Concourse E. The study is prepared as a supplement to the “Proposed Terminal Expansion & Central Checkpoint Feasibility Study & Cost Estimate / Proposed Concourse E International Terminal Study & Cost Estimate” and should be considered an extension of the March 2015 report.

The primary objective of this study is to establish a total project budget as the first step in the process of obtaining funding leading to an in-depth planning process and eventual construction of a new International / Domestic Concourse E. The planning and design criteria contained in Section 3 of the Study were developed in coordination with General Mitchell International Airport and are based on limited preliminary programming activities. Since a formal in-depth Programming Process was not conducted in preparation of the study, a full scope programming phase is required to verify these preliminary criteria with Customs and Border Protection, TSA, General Mitchell International Airport, and to coordinate with the design of the proposed Central Checkpoint and Terminal Mall Expansion Project prior to proceeding with final design development of the International / Domestic Concourse E concept.

The study process began with a data gathering phase which included obtaining and reviewing available record drawings of the affected areas. The study process included a limited number of planning meetings with the design team and General Mitchell International Airport leadership to review issues, options, and concepts from a “60,000 foot level” viewpoint. The study process did not include in-depth specific user group meetings or contacts with Customs and Border Protection, TSA, and the airlines.

This report presents the conceptual design block plans and cost estimate assumptions in general terms. The only design alternative considered was orienting the Customs and Border Protection facility perpendicular to the existing Concourse E and allowing for a future Concourse Addition on the same axis as the existing concourse.

1.2 Project Team

This report was prepared for General Mitchell International Airport.

This report was prepared by:

- Graef-USA, Inc.
- James G Otto Architect, LLC
- Corgan Associates, Inc.
- Middleton Construction Consulting, LLC

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2. Executive Summary

2.1 Proposed International / Domestic Concourse E

The existing Concourse E demolition is planned to occur prior to the start of the new International / Domestic Concourse E design and construction. For budgeting purposes, it is assumed the Apron will only be impacted by the demolition at the concourse footprint. The budget includes an asphalt paving cap over the footprint area sufficient for vehicular traffic excluding aircraft, capping / terminating utility mains / feeds to the existing concourse, a temporary closure at the remaining end of the concourse level bridge, and salvaging the substation / switchgear and emergency generator, replacing the existing Concourse D substation / switchgear and emergency generator with the salvaged equipment.

The new International / Domestic Concourse E will operate as a domestic and international arrivals concourse with swing gates serving both domestic and international passengers. For domestic passengers, the concourse will function identical to the existing Concourse E, with passengers being screened by TSA prior to entering the concourse and leaving the concourse via a glass walled divided corridor. For international arrivals, passengers will traverse to the Customs and Border Protection facility located at grade level through glass walled secured passageways with interlocked doors. International arrivals passengers will exit the Customs and Border Protection facility at grade level into a ground transportation meter / greeter area adjacent to a new curb side pick-up location. Passengers who need access to the parking structure would use one of the Ticketing Lobby escalators to the Mall / Concourse Level for bridge access to the parking structure.

The new International / Domestic Concourse E anticipates a future addition including constructing a full build-out of the concourse level over the CBP roof area for three gates and support facilities and concessions areas along the west face of the concourse level.

2.2 Project Budget Summary

The planning level project budget for the International / Domestic Concourse E includes demolition of the Existing Concourse E, constructing a new International / Domestic Concourse E including apron level ground transportation meter / greeter area and concourse level bridge renovation, furniture fixtures and equipment, contingencies, and Milwaukee County soft costs as delineated in Sections 4 and 5 – Appendix A of this report.

The estimate of probable construction costs is based on an assumed demolition of the Existing Concourse E in 2017 and a construction start of the International / Domestic Concourse E in spring 2018. Estimated probable construction costs are based on a combination of square foot allowances, take-offs related specific high cost items and specialty work, and professional judgment regarding the assumed developed design.

The planning level Recommended Total Project Budget for the Concourse E International / Domestic Terminal based on the current conceptual level design is \$69,340,940.

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3.0 International / Domestic Concourse E

3.1 Planning and Design Criteria

The proposed International / Domestic Concourse E concept is a further development of the March 2015 International Arrivals Terminal Concept, which is based on demolishing the existing Concourse E and replacing it with a new International / Domestic Concourse E. The following planning and design criteria were developed in coordination with General Mitchell International Airport and are based on limited preliminary programming activities. A full scope programming phase is required to verify these preliminary criteria with US Customs and Border Protection (CBP), Transportation Security Administration (TSA), and to coordinate with the design of the proposed Central Checkpoint and Terminal Mall Expansion prior to proceeding with final design of the concept.

3.1.1 Concourse Criteria

Schedule

- Demolish the existing concourse E in 2017
- Design new International / Domestic Concourse E in 2017
- Begin construction of the new International / Domestic Concourse E in 2018

General

- The gates will be capable of operating as either domestic or international arrivals and/or departures
- Reduce the need for passengers to traverse between terminal levels to the greatest degree possible
- Design to allow for future expansion gates at the west face of the concourse and concessions
- The concourse will operate with a separate security checkpoint until the Central Checkpoint and Terminal Mall Expansion is completed

General – Airside

- Upgrade (restripe) Taxiway B to Group IV Aircraft
- Design new concourse and aircraft parking positions to allow Taxiway B to accommodate Group IV Aircraft
- Taxilane between Concourse D and Concourse E is planned to be Group IV
- Provide 1 wide body gate and 2 to 3 narrow body gates on the east side of Concourse E
- Impact existing Apron and Hydrant Fuel System minimally
- Convert some existing apron area near closed Gate 60 into the CBP staff secure parking

General – Landside

- Provide grade level access to ground transportation off of the departures roadway
- Ground Transportation meeter / greeter area to have an inviting street presence
- Wayfinding and architectural elements will be the primary means of directing passengers to the appropriate ground transportation points

Building Design Considerations

- The concourse design is to be simple clean industrial aesthetic similar to the Mall Level, Midwest sense of place
- Interior finishes are to be durable
- The design is to be cost effective
- No concessions functions are to be included in the first phase of design / construction

- The gates will function as swing gates serving both domestic and international passengers
- The facility needs to be expandable, the second level roof structure is designed to be flat and capable of supporting a full second level build-out. Future gates on the west side of the building are likely to be international swing capable

3.1.2 Customs and Border Protection Criteria

The CBP facility needs to be developed in a new structure which can expand as international traffic growth develops.

- International arrival facility is sized to support CBP arrivals processing of approximately 600 passengers per hour from multiple aircraft.
- Phase one development will have one vertical core and three swing gates. (two independent and one dependent swing gate)
- Future gates and vertical cores can be developed which would increase international gate schedule flexibility.
- CBP layout as presented in this report is a “one stop” concept. This concept has international arriving passengers connect from the plane to the CBP via sterile corridor and vertical core. Passengers that have Global Entry are allowed access to self-service device (SSD) while waiting for baggage to arrive in the international claim hall. Passengers present themselves with their baggage to CBP officials in one stop and are either cleared or they process thru secondary and out to Meeters & Greeters hall.
- Meeters & Greeters arrivals hall is on the lower level adjacent to ticketing (departures curb) with a view of the section of curb marked for international arrivals. From this M&G hall passengers can use the ATO vertical core to transit up and over the departures road to either the garage or down to the domestic arrivals curb.
- Apron area on the west side of the CBP will be fenced and marked for CBP parking.
- Reuse of the E connector needs further study due to it’s current sloping floor to a Floor to Floor height less than desired for the CBP space. Establishment of the Floor to floor height of this concourse is constrained by the PLB slope up from the aircraft door threshold and the desire for as much clear height as possible in the CBP.

3.2 Existing Concourse E and Adjacent Airfield Conditions

The existing Concourse E demolition is planned to occur prior to the start of the new International / Domestic Concourse E design and construction. For budgeting purposes, it is assumed the Apron will only be impacted by the demolition at the concourse footprint. The budget includes an asphalt paving cap over the footprint area sufficient for vehicular traffic excluding aircraft, capping / terminating utility mains / feeds to the existing concourse, a temporary closure at the remaining end of the concourse level bridge, and salvaging the substation / switchgear and emergency generator, replacing the existing Concourse D substation / switchgear and emergency generator with the salvaged equipment.

3.3 International / Domestic Concourse E Conceptual Design

Exhibits 3.1 through 3.5 illustrate the primary areas / functions of the proposed new International / Domestic Concourse E. However, these exhibits are not to be considered a complete concept design, but only a means to determine the general extent of the functional areas based on limited programming activities for the purpose of developing a project budget. For example, the exhibits do not illustrate all required mechanical spaces and airline operations spaces, however, these spaces are included in the overall scope budget. The budget anticipates 5,000 square feet of mechanical space and 4,000 square feet of airline operations space in addition to the footprint illustrated.

The new International / Domestic Concourse E will operate as a domestic and international arrivals concourse with swing gates serving both domestic and international passengers. For domestic passengers, the concourse will function identical to the existing Concourse E, with passengers being screened by TSA prior to entering the concourse and leaving the concourse via a glass walled divided

corridor. For international arrivals, passengers will traverse to the Customs and Border Protection facility located at grade level through glass walled secured passageways with interlocked doors.

International arrivals passengers will exit the Customs and Border Protection facility at grade level into a ground transportation meter / greeter area adjacent to a new curb side pick-up location. Passengers who need access to the parking structure would use one of the Ticketing Lobby escalators to the Mall / Concourse Level for bridge access to the parking structure.

It is anticipated the diagrammatic building footprint will move slightly eastward in the final design to accommodate the future airline support spaces and mechanical spaces and to provide appropriate separation of the concourse from the existing hydrant fuel system.

Landside improvements are anticipated to include a new curbside pick-up lane, new walkway and canopy and reconfiguring the existing blast wall and landscaping.

The new International / Domestic Concourse E anticipates a future addition including constructing a full build-out of the concourse level over the CBP roof area for three gates and support facilities and concessions areas along the west face of the concourse level.

3.4 Architectural and Engineering Narratives

This section of the report summarizes the architectural and engineering conceptual planning and design concerns and assumptions.

3.4.1 Architectural Concourse Level, CBP Corridor and Bag Claim Areas, and Apron Level Meeter / Greeter Connector Narrative

For budgeting purposes, the following materials / systems are assumed for the interior finishes:

- Floors – New Construction
 - Circulation Spline: Hard Surface either stained / ground concrete or polymer flooring
 - Holdrooms: GMIA standard carpet tile
- Floors – Existing Construction
 - Circulation Spline: Hard Surface either stained / ground concrete or polymer flooring
- Walls: Painted gypsum board
 - Extend toilet room walls to roof deck and insulate
- Divider Walls;
 - TSA Checkpoint / egress walkway: Laminated glass with tinted interlayer in aluminum framing
 - Gates / hold rooms: Safety glass in aluminum framing
- Ceiling: Exposed painted roof structure with large format acoustic tile clouds for sound control
- Toilet Rooms:
 - Floors; Large format tile
 - Walls: Large format tile
 - Ceiling: Washable acoustic tile with gypsum board soffit drops
 - Lavatory Tops: GMIA standard design granite with stand-off steel supports
 - Toilet Partitions: Stainless Steel
- Wall Protection:
 - Hard surface wainscot to 48": above floor, large format tile assumed for the budget estimate
 - Stainless steel corner guards at public areas
 - Stainless steel column protection to 48" above the floor

3.4.2 Architectural Apron Level – Customs and Border Protection Narrative

US Customs and Border Protection (CBP) facilities are required to follow the currently adopted "Airport Technical Design Standards". This report and design layout is based on the June 2012 Signature

Version. The final design team will need to work with local and Federal CBP officials in the final planning of the facility. Their detailed design standards have many prescriptive requirements, such as durable materials, finishes and wall types that are stronger than typical airport construction. The final designer working with these agencies will need to determine a final program and layout of spaces.

The program and design layout developed for this report has not had the benefit of any input from CBP officials. This initial program and space layout were developed using current project experiences at similar sized airports.

3.4.3 Architectural Building Envelope Narrative

For budgeting purposes, the following materials / systems are assumed for the building enclosure:

- Concourse Level Roof: Fully adhered PVC membrane on Polyisocyanurate insulation
- Concourse Level Roof Clearstory Windows: Raised roof areas with clearstory (storefront) windows spaced along the Concourse Circulation Spine
- CBP Level Roof (future concourse level floor): Fully adhered PVC membrane on Polyisocyanurate insulation
- Concourse Level Exterior Walls:
 - East and South Walls: Glass and aluminum curtain wall
 - North and Final Full Build-Out located Walls: Architectural metal panel system on metal studs with rigid insulation and air/ moisture barrier
 - West and Future Expansion Walls: Industrial exposed fastener metal panel system on metal studs with rigid insulation and air/ moisture barrier
 - Bridge Connector Walls: Remodel existing for tie-ins
- Apron Level Exterior Walls:
 - CBP and Mechanical Spaces and Airline Operations Spaces: Architectural precast concrete panel system (GMIA standard panel) on metal studs with rigid insulation and air/ moisture barrier, with punched windows at bag claim south wall, egress corridor, east circulation lobby, and airline operations spaces
 - West Wall Meeter / Greeter Connector: Glass and aluminum curtain wall
 - East Wall Meeter / Greeter Connector: Architectural precast concrete panel system (GMIA standard panel) on metal studs with rigid insulation and air/ moisture barrier, with punched windows

3.4.4 Civil Engineering Narrative

The proposed International / Domestic Concourse E will result in impacts to exterior infrastructure. These impacts are caused primarily because of a grade level in-fill of Concourse E connector to the main terminal and also an expanded building footprint. The relocation of underground facilities shall conform to the Milwaukee County Department of Public Works Standard Specifications. Relocation of facilities will be done in an effort to minimize service disruption for future routine and emergency maintenance activity.

For budgeting purposes, the following materials / systems are assumed for the civil site work:

- Sanitary Sewer:
 - Existing sanitary sewer service extends from the landside ticketing roadway, past the blast wall, beneath the Concourse E connector bridge, and to the concourse north facade
 - Demolition of existing sanitary sewer shall be required from airside to the landside ticketing roadway, which provides a new service connection point
- Storm Sewer:
 - An existing 36"x22" elliptical storm sewer extends beneath the building, from the east side of Concourse E, and picks up a number of roof drains
 - Demolition of the 36"x22" elliptical storm sewer shall be required to the proposed east facade, which provides a new service connection point

- Existing storm sewer that extends from the landside ticketing roadway, past the blast wall, beneath the Concourse E connector bridge, and to the concourse north facade will be removed entirely
- Fire Protection:
 - Existing 6-inch water main extends from the landside baggage claim roadway, past the ticketing roadway and blast wall, and then provides fire hydrant coverage along the concourse west facade
 - Demolition and/or abandonment of existing water main shall be required from airside to the landside baggage claim roadway
 - A larger water main service will be necessary to provide the new concourse with fire protection and hydrant coverage
- Fuel Line:
 - An existing hydrant fuel line that extends beneath Concourse E will require demolition and replacement to comply with that latest NFPA standards
 - Valve pits shall be provided on both sides of the new concourse to enable isolation
 - All high point vents and fuel hydrants shall be relocated at least 50' from the new concourse
- Miscellaneous:
 - The existing apron will require partial demolition and replacement to facilitate building construction activity, utility installation, hydrant fuel pit relocations, NFPA 415 fueling slope requirements, and grading transitions
 - An alignment revision for the blast wall is required to allow the proposed landside grade level access
 - The proposed landside grade level access will necessitate pavement and landscape improvements

3.4.5 Structural Engineering Narrative

For budgeting purposes, the following materials / systems are assumed for the building structure:

- Foundations will be spread footings at columns and strip footings at exterior precast walls. Exterior foundations will be down at frost depth (top of footing approximately 4 feet down below grade). Interior foundations will be 12 inches below slab-on-grade.
- The apron level floor will be a slab-on-grade, minimum 5 inches thick.
- The apron level roof is the concourse floor (see below). The portion of the apron level roof without concourse above will be designed for future expansion of the concourse, in addition to any current mechanical, electrical, and fire protection rooms.
- The concourse level floor will be concrete on metal deck over steel wide flange beams.
- The concourse level roof will be metal roof deck over wide flange beams.
- Steel beams and steel columns will be connected with moment connections to resist lateral loads.
- All walls will be non-load bearing.
- The existing connector bridge will be outfitted with a new 5 inch minimum slab on grade at ground level and will have strip footings down at frost depth to support non-load bearing curtain walls. At the concourse level, steel framing will be added off the existing bridge floor to raise the ramp pitch to meet the new higher concourse.
- The ground level drop off/pick-up canopy will be steel framing on spread footings down at frost depth, supporting architectural roof panels.

3.4.6 Plumbing and Fire Protection Engineering Narrative

For budgeting purposes, the following materials / systems are assumed for the building plumbing and fire protection systems. Currently, adequate water via a 4" domestic water line is provided to the Concourse through a maintenance tunnel running from the Baggage Pick-up building. Sewage is channeled to the sewer main on the exterior of the Baggage Pick-up building through a sewage ejector system that has

recently been upgraded/replaced in 2015. No existing fire protection systems, of either a wet pipe or standpipe system, are installed in the existing Concourse or Apron levels.

3.4.6.1 Plumbing:

- Concourse Level:
 - Relocation and reconfiguration of sanitary sewer and domestic water systems.
 - Relocation and reconfiguration of storm sewer piping and routing systems
- Apron Level:
 - Relocation and reconfiguration of sanitary sewer and domestic water systems to service new toilet rooms and concessions areas above.
 - Provisions for domestic water heating for new public toilet rooms.
 - Currently, the sanitary sewage ejector system is located directly below the upper walkway from Concourse E to the Main Terminal. The sewage ejector system serving Concourse E has recently been replaced, therefore relocation of the sewage ejector pit and associated piping will be necessary.
 - Note: the footprint of the new Meeters & Greeters Connector is a direct projection downward of the bridge footprint, revise the sewage ejector pit if necessary.

3.4.6.2 Fire Protection:

- Concourse Level:
 - The existing concourse currently does not contain a fire sprinkler system. A minimum of a 6" to a maximum of 8" fire main will need to be brought to the building from the existing water supply in the Baggage Claim building. The size of the fire main shall be determined once current hydrant flow test data is available. This can be accomplished through the maintenance tunnel that runs from the basement of the Baggage Building to Concourse E, then up through the Mechanical Chase which goes to the Concourse Level. Fire department connections to this standpipe can be installed at the Mechanical Chase as a hydrant associated with the campus hydrant loop system.
 - Installation of fire sprinkler systems for Ordinary Group 1 Hazard Occupancy for public areas, Ordinary Group 2 for mechanical spaces, airline service areas and the baggage pick-up area in the Apron Level for the International Arrivals.

3.4.7 Mechanical (HVAC) Engineering Narrative

This section of the report summarizes the heating, ventilating, and air conditioning conceptual planning and design concerns and assumptions.

3.4.7.1 Air Distribution System

A total of five packaged air handling units are proposed for heating and cooling of both levels of the proposed International / Domestic Concourse E. The units would be variable volume type with filters (including charcoal filters for air quality), hot water heating coils and chilled water cooling coils. The units would be located in dedicated mechanical equipment rooms.

3.4.7.2 Chilled Water System

Chilled water will be provided by the Central Power Plant's chillers. The impact of the proposed work can most likely be accommodated by the existing system and mains currently routed to the existing concourse. It is advisable that the chilled water distribution system (pumps and associated controls) be further analyzed to ensure that chilled water flow can be properly distributed for the proposed work as well as for the rest of the facility. While recent reconstruction associated with the baggage claim area may have impacted existing reserve capacity, the distribution system most likely has the necessary capacity but should be optimized to ensure flow is distributed appropriately.

3.4.7.3 Hot Water System

Heating hot water is provided by the Central Power Plant's boilers. The impact of the proposed work can most likely be accommodated by the existing system and mains currently routed to the existing concourse.

3.4.7.4 Proposed Mechanical Systems

In general the proposed International / Domestic Concourse E imposes cooling loads of approximately 300 tons and heating loads of 2,400 MBH. Chilled water and hot water piping will be extended to the new air handling units located in proposed mechanical equipment rooms. Hot water piping will also be extended to new hot water heating coils located in duct heating coils for zoned temperature control. Air distribution will be via variable air volume air handling units using variable frequency drives for modulation of system air flow. Control of all HVAC devices will be by extending the direct digital building automation system. The following provides airflow capacities and required mechanical room space for the proposed air handling units (unit tags are generic for reference only):

- AHU E1 (Level 1 CBP and Sec. Screen): 19,000 CFM – 800 SF required
- AHU E2 (Level 1 Primary Queueing and Baggage Claim): 37,000 CFM – 1,000 SF required
- AHU E3 (Level 1 Meet/Greet): 8,000 CFM – 600 SF required
- AHU E4 (Level 2 Gate/Holding): 30,000 CFM – 1,000 SF required
- AHU E5 (Level 2 Gate/Holding): 30,000 CFM – 1,000 SF required

3.4.8 Electrical and Systems Engineering Narrative

This section of the report summarizes the electrical and systems conceptual planning and design concerns and assumptions.

3.4.8.1 Electrical Demolition

The existing Concourse E will be demolished in its entirety. All existing electrical systems shall be de-energized, disconnected and removed. Where systems and circuits will be disrupted but that serve other areas of the airport that will remain in service, circuits and systems shall be reconfigured as necessary to maintain system continuity. Such systems may include taxiway lighting, apron lighting, and certain communication systems.

In accordance with all applicable codes and other governmental agency regulations, any items being removed that contain hazardous materials shall be handled and disposed in a manner compliant with the applicable regulations. Specifically such electrical items would include any transformers or lighting fixture ballasts containing PCB's or other materials classified as hazardous.

Standby emergency power for the existing Concourse E is provided by a 500 kW, 480 volt generator located on the concourse level in the wing. As part of this project this generator shall be removed from service and reinstalled in the "Hammerhead" portion of Concourse D.

Concourse E is currently served from two 15 kV feeders configured to provide redundant primary power to the building. These feeders will be re-used to serve the proposed International / Domestic Concourse E. Work associated with these feeders shall include de-energizing them and removing them back to the nearest accessible location within the main terminal that will be unaffected by the demolition. These feeders shall be spliced in subsequent phases of this project and new medium voltage conductors extended as the electrical power source for the new International Terminal.

Two unit substations are configured to provide the main sources of power for the existing Concourse E, one at 480Y/277 volt and the other at 208Y/120 volt. These are both double ended substations with main-tie-main arrangements. As part of this project these substations are to be salvaged and re-installed in existing Concourse D, replacing the similarly configured substations located in that building. The scope of this project shall include the removal of the disposal of the existing substations in Concourse D.

3.4.8.2 Primary Power

A 15 kV medium voltage distribution network provides power for the entire airport. This network shall be extended to the proposed International / Domestic Concourse E. Two new 15 kV feeders shall be spliced to the existing feeders that had served existing Concourse E and shall be extended to the proposed International / Domestic Concourse E. Splices shall take place at a convenient, accessible location in the main terminal area where the existing feeders were pulled back to as part of the demolition phase of the project.

New feeders shall be comprised of individual conductors in 4" Rigid Metal Conduit (RMC). Medium voltage feeder sizes, insulation characteristics, shielding specifications, jacket materials, and other characteristics shall match the existing feeders.

Feeders shall terminate on in 15 kV switchgear rated at 600 amps. Switchgear shall be comprised of termination switch bays and outgoing feeder bays to serve new unit substations described elsewhere in this narrative. Switchgear shall be freestanding with individual switch/fuse bays as manufactured by S&C. From the feeder bays, 15 kV feeders shall be extended to the unit substations described under the Secondary Power portion of this narrative.

3.4.8.3 Secondary Power

Two new double ended unit substations shall be provided at the apron level of the addition to both transform the primary power down to the necessary utilization voltages and to distribute that power to the proposed International / Domestic Concourse E electrical loads. One substation shall transform and distribute power at 480Y/277 volt and the other at 208Y/120 volt. Both systems shall be 3 phase, 4 wire. Each substation shall have two separate medium voltage main sections, two separate step down transformers, two separate secondary main breakers, two separate distribution sections, and two separate tie breakers. The tie breakers shall be connected with bus duct allowing one half of the substation to carry the entire load should the other half experience an outage. Any transfers are not required to be automatic but shall be manual, with the appropriate breakers key interlocked to prevent incorrect and potentially hazardous switching. Feeders shall be extended from the switchboard secondary breakers to serve lighting and receptacle branch panelboards and power distribution panelboards designed primarily to serve equipment room motor loads. Larger motors such as chillers, large roof top units, elevators, and jet bridges shall be served directly from one of the switchboards. Main electrical rooms shall be provided with copper ground busses around the room perimeters with driven ground rods as well as other grounding provisions to comply with the NEC.

Primary sections shall be freestanding fusible switch type as manufactured by S&C. Substation transformers shall be dry type, naturally ventilated with provisions to add fans in the future if necessary to increase transformer capacity. Fan cooled rating shall not be used when initially sizing the transformer for the anticipated load. Secondary main breakers and tie breakers shall be individually mounted insulated case type with field adjustable LSIG trip settings. Molded case breakers may be used for outgoing feeder protection. For the purposes of this report all feeders and bussing shall be individual copper conductors in metal raceways. Electronic customer metering shall be provided on the secondary main breakers. Switchboards shall be QED style as manufactured by Square D. Power panels for motor and equipment loads shall be Square D I-Line style or equivalent. Lighting panels for 277 volt lighting shall be Squared type NEHB or equivalent. Branch panels for 120 volt loads shall be Square D type NQOD or equivalent.

Sizing the electrical equipment is based on the following connected loads with no demand factors applied:

- Lighting - 1 ½ vA per square foot.
- General Purpose Receptacles – 3 vA per square foot
- Building Cooling – 4 vA per square foot
- Building HVAC Motors – 1 ½ vA per square foot
- Building plumbing motors – ½ vA per square foot

- Special purpose outlets and misc. loads – 1 vA per square foot
- Exterior lighting – 125 kVA
- Jet Bridges – 300 kVA per Jet Bridge
- Elevators – 25 kVA each
- Escalators – 15 kVA each
- Fire Alarm and Emergency Communications Systems – 15 kVA
- Concourse Paging Systems – 15 kVA
- Occupant provided Information Technology (IT) Equipment – 25 kVA
- Baggage Conveyor Motors – 75 kVA

Twenty-five percent capacity (minimum) shall be provided for to accommodate loads associated with future growth and expansion.

3.4.8.4 Standby Power

Emergency power shall be provided from a new standby, diesel fueled generator dedicated for the proposed International / Domestic Concourse E. The generator shall be located at the apron level of the new concourse. Three separate branches of back-up power shall be served from the generator. Those three branches will be the Emergency Branch (NEC article 700 loads), the Legally Required Branch (NEC article 701 loads), and the Optional Branch (NEC article 702 loads). Separate transfer switches and distribution systems shall be provided for each branch as required by the National Electrical Code (NEC).

Back-up generator shall be a diesel powered generator with a sub-base fuel tank, engine mounted radiator, critical grade exhaust muffler, unit mouthed controller, batteries and battery charger. Generator shall be mounted on spring vibration isolators. Transfer switches shall be automatic, 4 pole, dual operator, open transition switches. Back-up system panelboards shall match those indicated in the Secondary Power portion of this narrative, except that fusible panels shall be employed where needed to meet NEC required selective coordination for emergency and standby systems.

Sizing the generator and back-up electrical equipment is based on the following connected loads with no demand factors applied:

- Egress and exit lighting – ¼ vA per square foot.
- Exterior lighting – 125 kVA
- Fire Alarm and Emergency Communications Systems – 15 kVA
- Jet Bridges – 300 kVA per Jet Bridge (Provide capacity assuming only three would need to operate simultaneously under back up conditions)
- Elevators – 25 kVA each (Provide capacity assuming only one at a time would need to operate under back-up conditions)
- Occupant provided Information Technology (IT) Equipment – 25 kVA

Twenty-five percent capacity (minimum) shall be provided for to accommodate loads associated with future growth and expansion. Additional capacity as required to address full energization of connected loads within the times prescribed by the NEC for emergency and legally required loads.

Size fuel tank for a minimum of 36 hours of run time at 75% load.

3.4.8.5 Fire Alarm

New fire alarm initiation and signaling shall be provided as required by code and General Mitchell International Airport (GMIA) standards. Code requirements shall be as determined by the designated occupancy group of the terminal as defined by the International Building Code (IBC). The devices shall be configured to interface with the existing portions of the airport buildings so that alarms initiating in the new International Terminal will sound the signals in the existing buildings and vice-versa.

Initiation devices in general shall consist of;

- Manual pullstations.
- Elevator lobby and elevator machine room smoke detectors for elevator recall.
- Elevator shaft and elevator machine room heat detectors to shunt out power to the elevators.
- Duct smoke detectors in HVAC air duct systems as required by the IBC.
- Sprinkler tamper and flow switches for trouble and alarm signals respectively.
- Smoke detectors in electrical rooms and in IT communications rooms.

Signaling devices shall consist of audible speakers and visual strobes to provide emergency notification coverage as required by the IBC and by NFPA 72.

Interface fire alarm system with terminal paging system so that appropriate fire alarm signals will take precedence over terminal pages.

3.4.8.6 Interior Lighting and Lighting Controls

Primary light source for the proposed International / Domestic Concourse E shall be white LED's. Exact color temperature of LED's shall be determined in future design phases. In general, luminaires shall be modest in their design and their cost. Lighting controls shall be a combination of occupancy sensor controls in non-public, small spaces such as offices and conference rooms, with low voltage lighting controls with timed off functions in public spaces. Daylight sensors will be employed to address light reduction dictated by the International Energy Conservation Code (IECC).

Lighting systems for the concourse spaces shall be similar to the following spaces. Not all spaces are listed within this narrative.

- Private Offices, Open Offices, and Conference Rooms – 2 X 4 recessed indirect basket style LED fixtures designed for 50 footcandles. Local occupancy sensor controls with daylight sensors as applicable.
- Concourse, Bag Claim, Screening Areas, Waiting Spaces, and other public spaces. Linear direct/indirect pendant LED fixtures designed for 50 footcandles with integrated daylighting sensor controls in combination with relay switching for automatic timed on/off functions.
- Equipment Rooms and Utility Spaces – 4' LED chain hung industrial fixtures designed for 25 footcandles.

3.4.8.7 Site Lighting and Controls

Apron lighting shall be provided using LED flood lights mounted around the perimeter of the proposed International / Domestic Concourse E. Lights may be building mounted or mounted on poles located close to the building but structurally separate from the building. Illumination levels shall meet or exceed FAA and GMIA standards.

3.4.8.8 General Purpose Outlets

Three pole grounding duplex outlets shall be provided throughout the proposed International / Domestic Concourse E. General guidelines shall be as follows;

- Private Offices and Conference Rooms – Minimum one located at the desk with two additional outlets for general use.
- Concourse Areas and other Large Public Spaces – Around the room perimeter at 20' on center maximum, minimum one per wall. Provide additional outlets for electronics charging stations and airline gate counters.
- Toilet Rooms. One Ground Fault Circuit Interrupter (GFCI) in each toilet room.
- Passenger Screening Areas – Around the room perimeter at 20' on center maximum, minimum one per wall. Provide additional outlets at Customs Security Stations.
- Equipment and Utility Rooms - Around the room perimeter at 20' on center maximum.
- Jet Bridges – Minimum of two weatherproof, GFCI outlets at the jet bridge power distribution equipment. Power distribution rack is based on the GMIA standard rack currently installed at Concourses C and E.

- Building Exterior – One weatherproof, GFCI outlet at each exterior door at the apron level.

3.4.8.9 Special Purpose Outlets

Special Electrical connections shall be provided as required. Such connections in the proposed International / Domestic Concourse E shall include, but not be limited to;

- Touchless sensor faucets and flush valves in toilet rooms.
- Flight Information Display Systems (FIDS) monitors.
- Internally illuminated signage both interior and exterior to the building.
- Video monitors in conference rooms and other spaces.
- HVAC system temperature control panels.
- Baggage conveyor control panels.
- TSA security and scanning equipment.
- Paging System head end equipment, card access system control panels, video surveillance system power, and other low voltage electrical system components.
- Information technology voice/data racks and control equipment.

3.4.8.10 Motor Load Connections

Electrical connections to motors provided by others shall be provided as required. Loose motor starter (starters not provided integral to the equipment served) shall be furnished by the contractor responsible for the motor but installed and wired by the electrical contractor.

- Motor power wiring shall include but not be limited to;
- HVAC motors
- Plumbing motors
- Baggage conveyance motors
- Jet Bridges
- Elevators
- Escalators

3.4.8.11 Lightning Protection System

Provide UL Master Label Listed lightning protection system for the proposed International / Domestic Concourse E. System shall consist of roof mounted lightning rods, down conductors in PVC conduit, ground rods and a ground ring. All lightning protection system conductor shall be copper.

3.4.8.12 Voice/Structured Cabling

Four rooms will be required to address the voice/data cabling and rack needs for the proposed International / Domestic Concourse E, two on the apron level and two on the concourse level. Fiber optic cables will be extended to the new closets from the existing airport terminal structured cabling network. From each closet, horizontal cabling will be extended to outlets with voice/data jacks to allow access to the airport's data network. Closets in the vicinity of the Customs Border Patrol (CBP) spaces will be dedicated to CBP servers and distribution and will not be connected to the GMIA data network. Services to the CBP closets will be extended from the existing International Terminal located to the north of existing Concourse C.

Each closet will be outfitted with the following;

- Plywood mounting backboards on all room walls
- Two post data racks
- Ground bus with ground connection to building grounding electrode system
- Overhead ladder type cable tray for wire management
- Power outlets at both 120 volts and 208 volts single phase
- Cable patch panels
- Vertical wire management rack accessories

Individual outlets shall consist of electrical boxes with ¾" raceway between box and nearest accessible ceiling.

Each box shall have a minimum of two jacks, each jack served with a separate category 6E copper cable.

Jacks shall be provided in areas as follows;

- Offices
- Conference Rooms
- Departure Gate Counters
- TSA Screening Areas
- CPB Officer Stations
- Elevator Equipment Rooms
- FIDS Displays
- Wireless Access Points in private and Public Areas.
- Other areas as will be required as the Terminal program develops

3.4.8.13 Low Voltage Electrical Systems

Electrical systems that are to be part of the proposed International / Domestic Concourse E design will include:

Overhead paging for use by the airport, the airlines, and the CBP.

Card access system at all perimeter doors, at doors between sterile and non-sterile public areas, and other doors as the security protocol will dictate. Components will consist of card readers, keypads, door contacts, electric locking devices, and sensing request-to-exit devices.

Video surveillance cameras as the security protocol will dictate.

Central clock system.

3.5 Sustainability Opportunities Narrative

In accordance with direction received from General Mitchell International Airport, the Planning Level Project Budget for the Proposed International / Domestic Concourse E is based on the final design conforming to the Milwaukee County's Standard Green-Build Policy. The Project Budget does not include allocations for LEED Compliance / Certification or a formal Project Commissioning Process.

Potential Sustainability and LEED Opportunities include:

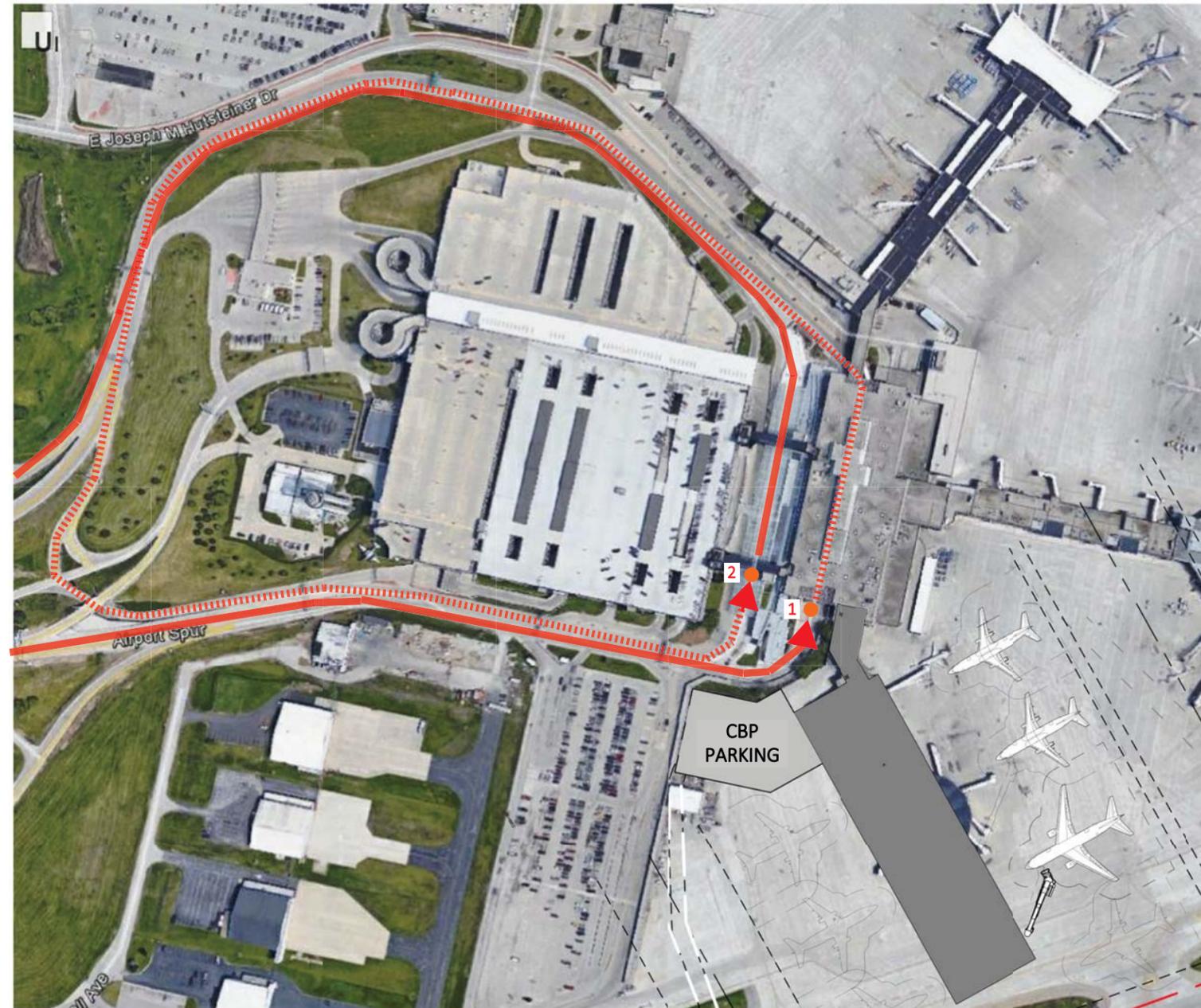
- Finish materials containing a percentage of either post-consumer or post-industrial recycled content
- Finish materials having a low V.O.C. (Volatile Organic Compounds)
- Low flow faucets
- Efficient urinals: waterless or low flow
- Energy efficient motors and controls
- Energy efficient transformers and lighting fixtures
- Lighting controls including occupancy/vacancy sensors and daylight harvesting controls
- Selecting materials and components based on the analysis of their full life-cycle and the conditions under which they will be used, including analyzing the durability of the products and verifying that they will remain serviceable over their anticipated service life
- Specifying demolition and construction procedures that require the diversion of as much waste as possible from landfill by recycling the demolition waste as well as waste created during the construction process



Exhibit 3.1

Concept Plan -Airside Apron and Taxiway

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LEGEND:

-  BUS ROUTE
-  BUS ROUTE RE-CIRCULATION
-  1 INTERNATIONAL BUS STOP
-  2 DOMESTIC BUS STOP

Exhibit 3.2

Concept Plan - Landside Ground Transportation Route

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**General Mitchell International Airport
Milwaukee, Wisconsin**

CBP REQUIREMENTS LEGEND	
SYMBOL	DESCRIPTION
○	GYPSUM WITH DIAMOND MESH TO DECK
■	GYPSUM OVER 9 GAUGE DIAMOND MESH EXPANDED METAL
○	SEAMLESS EPOXY RESIN

Area Plan Schedule - Concourse Level			
Area	Area Type	Presentation Color	Level
259 SF	Building Common Area	CBP INTERVIEW ROOM	LEVEL 03 - GATE
16369 SF	Building Common Area	CIRCULATION	LEVEL 03 - GATE
11366 SF	Building Common Area	CONCESSIONS	LEVEL 03 - GATE
9021 SF	Building Common Area	HOLDROOMS/INTERNATIONAL	LEVEL 03 - GATE
1540 SF	Building Common Area	MECHANICAL	LEVEL 03 - GATE
4830 SF	Building Common Area	RESTROOMS	LEVEL 03 - GATE
2577 SF	Building Common Area	SSCP/TSA	LEVEL 03 - GATE
45962 SF			
33438 SF	Building Common Area	ROOF	LEVEL 03 - GATE
33438 SF			

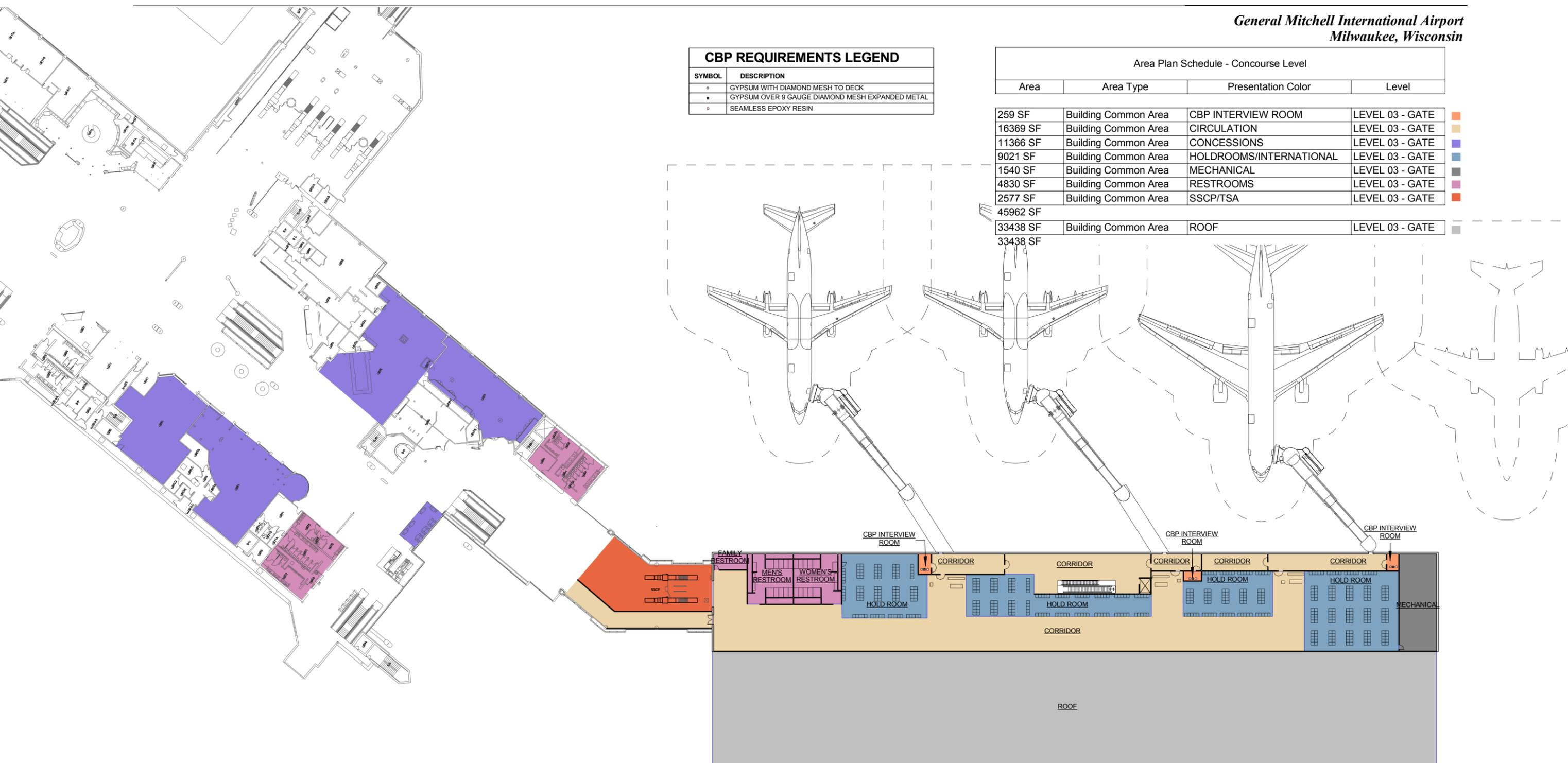


Exhibit 3.3

Concept Plan - Concourse Level

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**General Mitchell International Airport
Milwaukee, Wisconsin**

MKE - NEW BUILDING CONCEPT

Area	Level	Presentation Color
14643 SF	LEVEL 01 - GROUND	BAGGAGE CLAIM
9586 SF	LEVEL 01 - GROUND	CBP ADMIN
17985 SF	LEVEL 01 - GROUND	CIRCULATION
7176 SF	LEVEL 01 - GROUND	MECHANICAL
1022 SF	LEVEL 01 - GROUND	PRIMARY PROCESSING
1704 SF	LEVEL 01 - GROUND	RESTROOMS
12123 SF	LEVEL 01 - GROUND	SECONDARY PROCESSING
468 SF	LEVEL 01 - GROUND	SUPPORT

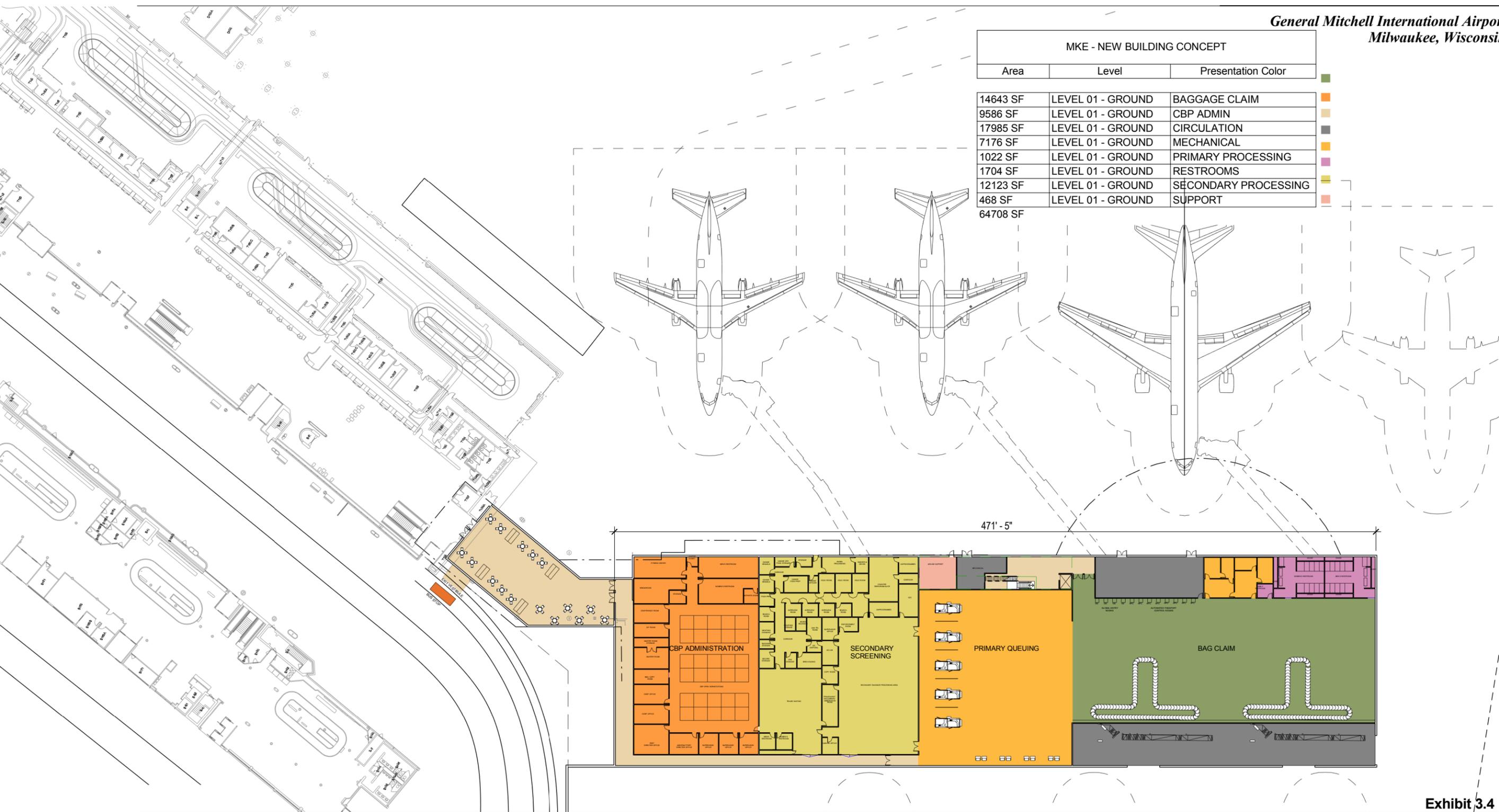


Exhibit 3.4

Concept Plan - Apron Level

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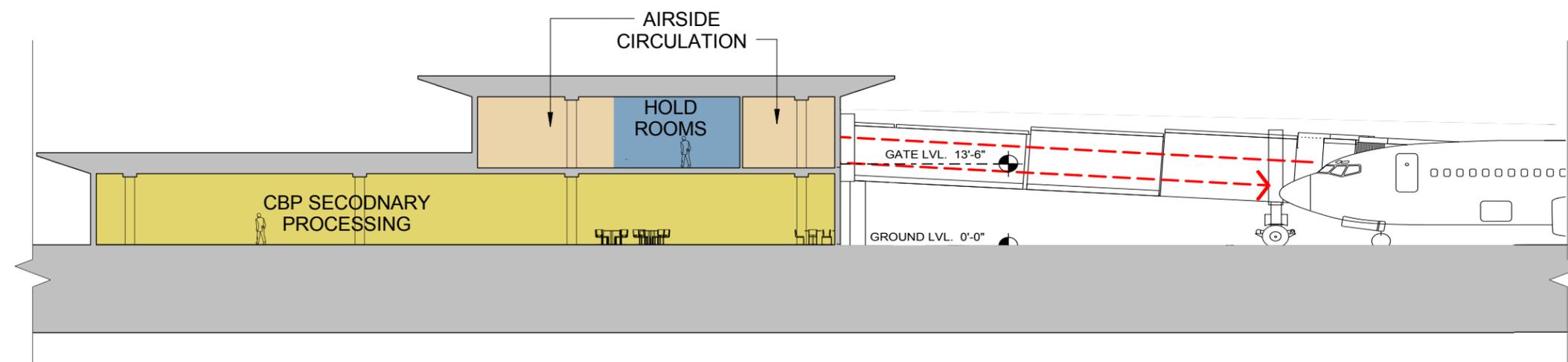


Exhibit 3.5
Concept Section

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4. Planning Level Project Budget

The concept level estimate of probable project costs for the International / Domestic Concourse E has been prepared by Middleton Construction Consulting, LLC, Inc. (refer to complete cost data and estimate conditions contained in Appendix A).

The cost estimates are based on an assumed construction start of Spring 2018 in accordance with direction given to the study team, and must be escalated by the actual rate of inflation to the actual construction start date. Demolition of the Existing Concourse E is planned to occur during 2017 along with construction of necessary temporary facilities. Given current market conditions in the construction industry, the applicable rate of inflation is assumed to range between 4.5% and 5% per year.

The cost estimates do not include allocations for LEED Certification or Project Commissioning. Compliance with Milwaukee County’s Standard Green-Build Policy are included in the estimates.

For budgeting and cost allocation purposes, the Planning Level Project Budget segregates the costs between the 2017 budget costs and the 2018 and beyond costs.

4.1 International / Domestic Concourse E

4.1.1	2017 Demolition of the Existing Concourse E		
	Concourse E Demolition	\$331,430	
	Apron Cap, Restripe Taxiway and Site Utilities Capping	\$500,530	
	Salvage and Relocate Switchgear and Generator	\$231,040	
	Subtotal Construction		\$1,063,000
	FIDS Monitors and Data Support	\$33,115	
	Design Phase Contingency (25%)	Included in above costs	
	Soft Costs @ 37.5%	\$398,625	
	Estimated Project Budget		\$1,494,740

4.1.1.1 Project Soft Costs / Notes – Demolition of the Existing Concourse E

The following soft costs are included in the above estimates:

Airport Logistics	5.0%	
Construction Phase Contingency	10.0%	
Permits, Plan Review and Testing	2.0%	
Hazardous Materials Abatement	2.0%	
Temporary Relocations	2.0%	
A/E Design Fees and Reimbursables	8.0%	
Construction Manager & County Project Management	8.5%	
Total Soft Costs*		37.5%

* excludes financing

* excludes TSA checkpoint equipment

4.1.2	2018 – Construction International / Domestic Concourse E		
	International / Domestic Concourse E ***	\$31,386,610	
	*** Excluding CBP Fit-Out		
	CBP Fit-Out	\$6,101,930	
	Airside Apron and Site Utility Renovations	\$3,553,380	
	Landside Roadway, Walkway and Site Utility Renovations	\$720,360	
	Baggage Handling System	\$975,940	
	Jet Bridges and Foundations	\$4,676,280	
	Subtotal Construction		\$47,414,500
	Wayfinding	\$200,000	
	FIDS Monitors and Data Support	\$500,000	
	FF&E**	\$3,350,000	
	** includes CBP furniture, fixtures and equipment		
	Design Phase Contingency (25%)	Included in above costs	
	Future Central Checkpoint Integration	Included in above costs	
	Soft Costs @ 34.55%	\$16,381,700	
	Estimated Project Budget		\$67,846,200
4.1.2.1	Project Soft Costs / Notes – International / Domestic Concourse E		
	The following soft costs are included in the above estimates:		
	Airport Logistics	5.0%	
	Construction Phase Contingency	8.0%	
	Permits, Plan Review and Testing	2.0%	
	Hazardous Materials Abatement	0.05%	
	Temporary Relocations	0.5%	
	A/E Design Fees and Reimbursables	10.5%	
	Construction Manager & County		
	Project Management	8.5%	
	Total Soft Costs*	34.55%	
	* excludes financing		
	* excludes TSA checkpoint equipment		
4.1.3	International / Domestic Concourse E Total Project		
	Recommended Total Project Budget		\$69,340,940
4.1.4	International / Domestic Concourse E Cost per Square Foot		
	Existing Concourse E Demolition including Site Work		
	Construction Cost	\$1,063,000	
	Estimated Project Budget	\$1,494,740	
	Project Area	27,220 Square Feet	
	Construction Cost per Square Foot		\$39.05
	Estimated Project Budget per Square Foot		\$54.90
	International / Domestic Concourse E including CBP Fit-Out, Airside and Landside Site Work		
	Construction Cost	\$47,414,500	
	Estimated Project Budget	\$67,846,200	
	Project Area	114,550 Square Feet	
	Construction Cost per Square Foot		\$413.90
	Estimated Project Budget per Square Foot		\$592.30

5. Appendices

5.1 Appendix A – International / Domestic Concourse E
Concept Level Estimate of Project Cost Detail

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5. Appendices

5.1 Appendix A

International / Domestic Concourse E – Concept Level Estimate of Probable Project Cost Detail

5.1.1 Explanation of cost data included in Appendix A

The concept level estimate of probable project cost for the International / Domestic Concourse E has been prepared by Middleton Construction Consulting, LLC, Inc.

The cost estimates are based on an assumed construction start of the International / Domestic Concourse E in Spring 2018 in accordance with direction given to the study team, and must be escalated by the actual rate of inflation to the actual construction start date. Demolition of the Existing Concourse E is planned to occur during 2017 along with construction of necessary temporary facilities. Given current market conditions in the construction industry, the applicable rate of inflation is assumed to range between 4.5% and 5% per year.

The cost estimates do not include allocations for LEED Certification or Project Commissioning. Compliance with Milwaukee County's Standard Green-Build Policy are included in the estimates.

The conceptual cost estimates include the following previously described scope;

- Demolition of the Existing Concourse E including;
 - Construction of a temporary asphalt Apron Cap at the building footprint
 - Capping existing utilities
 - Salvaging and relocating the existing switchgear / substation and emergency generator to replace existing equipment at Concourse D.
- Restripe Taxiway B for Group IV aircraft
- Construct new International / Domestic Concourse E including Apron Level Ground Transportation meeter / greeter area and Concourse Level Bridge Renovation (excluding TSA checkpoint equipment)
- Construct Airside Apron and Site Utility Renovations
- Construct Landside Roadway, Walkway and Site Utility Renovations
- Baggage Handling System
- Jet Bridges and Foundations
- Furniture Fixtures and Equipment (FF&E)
 - CBP complete fit-out
 - Holdroom Seating and Meeter / Greeter Seating
 - Gate Podiums
 - Wayfinding
 - FIDS System
- Contingencies
 - Design Phase Contingency
 - Construction Phase Contingency
 - Airport Logistics
 - Hazardous Materials Abatement (Owner Direct Cost)
 - Future Central Checkpoint Integration
 - Temporary Relocations
- Milwaukee County Soft Costs
 - A/E Fees
 - Milwaukee County Management
 - Construction Manager Fees
 - Permits and Plan Review Fees and Testing

The conceptual cost estimates contained in Appendix A are provided as the basis for the Planning Level Project Budget included in Section 4 of this report.

GENERAL MITCHELL AIRPORT

Concourse E

International/Domestic Terminal

Milwaukee, WI

Conceptual Design

June 1, 2016

Prepared For:

Graef Inc

125 South 84th Street

Milwaukee, WI 53214

NOTES REGARDING PREPARATION OF ESTIMATE

This estimate was prepared based on the following documents provided by Graef, James G. Otto Architecture LLC, and Corgan and Associates

1. Concourse E Pre-Design Study Prepared by Graef, James G. Otto Architecture LLC, and Corgan and Associates
2. Additional Information on the CBP area was provided by Corgan and Associates.
3. Information regarding the project was also obtained via meetings, phone conversations, and email messages that clarified the project scope.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been generated from current material/labor rates, historical production data, and discussions with relevant subcontractors and material suppliers. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated.

Pricing reflects probable construction costs obtainable in the Milwaukee, Wisconsin area on the bid date. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors with a minimum of 3 bidders for all items of subcontracted work and a with a minimum of 3 bidders for a general contractor. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since Middleton Consulting has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, this statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents Middleton Consulting's best judgment as professional construction cost consultants familiar with the construction industry. However, Middleton Consulting cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

ASSUMED CONSTRUCTION PARAMETERS

The pricing is based on the following project parameters:

1. A demolition start date of Summer 2017, and a Construction start date of Summer 2018
 2. Work will be done in 2 phases, demolition of existng terminal, then new construction
 3. The contract will be competitively bid to multiple contractors.
 4. All contractors will be required to pay prevailing wages.
 5. Work is assumed to be done during normal business, or trade hours
 6. Estimate includes pricing as of May 2016.
-

EXCLUSIONS

The following are excluded from the cost of this estimate:

1. Professional Design Fees
2. Testing Fees
3. Owner Contingencies/Scope Changes
4. Construction Contingency
5. Cost Escalation Beyond a Start Date of Summer 2017 for Demolition; and Summer 2018 for construction
6. Finance and Legal Charges
7. Environmental Abatement Costs
8. Equipment (Owner Furnished/Installed)
9. Artwork
10. CBP equipment is Included



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal

Conceptual Design
06/01/2016

COST SUMMARY		104,236	GSF	\$/SF	BUILDING TOTAL
Option 0	Concourse E Demolition			\$0.00	\$331,436
Option 1	Apron, Taxiway, and Site Utilities Capping			\$4.80	\$500,531
Option 2	Relocate Switchgear and Generator			\$0.00	\$231,045
Option 3	FIDS Monitors and Data Support-Remove Existing			\$0.32	\$33,114
Option 4	Concourse E Construction			\$301.11	\$31,386,613
Option 5	CBP Fit-Out			\$58.54	\$6,101,934
Option 6	Airside Apron and Site Utility Renovations			\$34.09	\$3,553,383
Option 7	Landside Roadway, Walkway and Site Utility Relocations			\$6.91	\$720,357
Option 8	Baggage Handling System			\$9.36	\$975,942
Option 9	Jet Bridges			\$44.86	\$4,676,275
SUBTOTAL		104,236	GSF	\$460.00	\$47,948,148
Add	WayFinding				\$200,000
Add	FIDS Monitor and Data Support-New				\$500,000
		104,236	GSF	\$466.71	\$48,648,148



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Concourse E Demolition

Conceptual Design
06/01/2016

COST SUMMARY - Option 0		27,220 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$7.74	\$210,703
03000	CONCRETE		\$0.00	\$0
04000	MASONRY		\$0.00	\$0
05000	METALS		\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES		\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.00	\$0
08000	OPENINGS		\$0.00	\$0
09000	FINISHES		\$0.00	\$0
10000	SPECIALTIES		\$0.00	\$0
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$0.00	\$0
22000	PLUMBING		\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING		\$0.00	\$0
26000	ELECTRICAL		\$0.00	\$0
27000	COMMUNICATIONS		\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY		\$0.00	\$0
31000	EARTHWORK		\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS		\$0.00	\$0
33000	UTILITIES		\$0.00	\$0
SUBTOTAL			\$7.74	\$210,703
	ESCALATION TO START OF CONSTRUCTION	4.0%	\$0.31	\$8,428
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$0.81	\$21,913
	CONTRACTOR'S FEES	10.0%	\$0.89	\$24,104
	DESIGN CONTINGENCY	25.0%	\$2.44	\$66,287
TOTAL ESTIMATED BID			\$12.18	\$331,436



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Apron, Taxiway, and Site Utilities Capping

Conceptual Design
06/01/2016

COST SUMMARY -Option 1		27,200	GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS			\$0.00	\$0
02000	EXISTING CONDITIONS			\$0.00	\$0
03000	CONCRETE			\$0.00	\$0
04000	MASONRY			\$0.00	\$0
05000	METALS			\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES			\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM			\$0.00	\$0
08000	OPENINGS			\$0.00	\$0
09000	FINISHES			\$0.00	\$0
10000	SPECIALTIES			\$0.00	\$0
11000	EQUIPMENT			\$0.00	\$0
12000	FURNISHINGS			\$0.00	\$0
13000	SPECIAL CONSTRUCTION			\$0.00	\$0
14000	CONVEYING EQUIPMENT			\$0.00	\$0
21000	FIRE SUPPRESSION			\$0.00	\$0
22000	PLUMBING			\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING			\$0.00	\$0
26000	ELECTRICAL			\$0.32	\$8,705
27000	COMMUNICATIONS			\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY			\$0.00	\$0
31000	EARTHWORK			\$3.68	\$100,109
32000	EXTERIOR IMPROVEMENTS			\$3.14	\$85,541
33000	UTILITIES			\$4.99	\$135,854
SUBTOTAL				\$12.14	\$330,209
	ESCALATION TO START OF CONSTRUCTION	4.0%		\$0.49	\$13,208
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%		\$1.26	\$34,342
	CONTRACTOR'S FEES	6.0%		\$0.83	\$22,666
	DESIGN CONTINGENCY	25.0%		\$3.68	\$100,106
TOTAL ESTIMATED BID				\$18.40	\$500,531



**GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Relocate Switchgear and Generator**

Conceptual Design
06/01/2016

COST SUMMARY -Option 2		27,200 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$0.00	\$0
04000	MASONRY		\$0.00	\$0
05000	METALS		\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES		\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.00	\$0
08000	OPENINGS		\$0.00	\$0
09000	FINISHES		\$0.27	\$7,476
10000	SPECIALTIES		\$0.00	\$0
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$0.00	\$0
22000	PLUMBING		\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING		\$0.52	\$14,068
26000	ELECTRICAL		\$4.61	\$125,338
27000	COMMUNICATIONS		\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY		\$0.00	\$0
31000	EARTHWORK		\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS		\$0.00	\$0
33000	UTILITIES		\$0.00	\$0
SUBTOTAL			\$5.40	\$146,882
	ESCALATION TO START OF CONSTRUCTION	4.0%	\$0.22	\$5,875
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$0.56	\$15,276
	CONTRACTOR'S FEES	10.0%	\$0.62	\$16,803
	DESIGN CONTINGENCY	25.0%	\$1.70	\$46,209
TOTAL ESTIMATED BID			\$8.49	\$231,045



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
FIDS Monitors and Data Support-Remove Existing

Conceptual Design
06/01/2016

COST SUMMARY -Option 3		27,200 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$0.00	\$0
04000	MASONRY		\$0.00	\$0
05000	METALS		\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES		\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.00	\$0
08000	OPENINGS		\$0.00	\$0
09000	FINISHES		\$0.00	\$0
10000	SPECIALTIES		\$0.00	\$0
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$0.00	\$0
22000	PLUMBING		\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING		\$0.00	\$0
26000	ELECTRICAL		\$0.00	\$0
27000	COMMUNICATIONS		\$0.80	\$21,846
28000	ELECTRONIC SAFETY AND SECURITY		\$0.00	\$0
31000	EARTHWORK		\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS		\$0.00	\$0
33000	UTILITIES		\$0.00	\$0
SUBTOTAL			\$0.80	\$21,846
	ESCALATION TO START OF CONSTRUCTION	4.0%	\$0.03	\$874
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$0.08	\$2,272
	CONTRACTOR'S FEES	6.0%	\$0.06	\$1,500
	DESIGN CONTINGENCY	25.0%	\$0.24	\$6,623
TOTAL ESTIMATED BID			\$1.22	\$33,114



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Concourse E Construction

Conceptual Design
06/01/2016

COST SUMMARY -Option 4		104,236 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$18.59	\$1,937,262
04000	MASONRY		\$0.00	\$0
05000	METALS		\$25.60	\$2,668,295
06000	WOODS, PLASTICS & COMPOSITES		\$1.72	\$179,687
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$8.43	\$879,200
08000	OPENINGS		\$21.14	\$2,203,803
09000	FINISHES		\$22.11	\$2,304,772
10000	SPECIALTIES		\$1.72	\$179,006
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$12.17	\$1,268,095
21000	FIRE SUPPRESSION		\$3.30	\$344,220
22000	PLUMBING		\$9.13	\$951,796
23000	HEATING, VENTILATING & AIR CONDITIONING		\$29.66	\$3,092,136
26000	ELECTRICAL		\$22.43	\$2,338,163
27000	COMMUNICATIONS		\$5.02	\$523,726
28000	ELECTRONIC SAFETY AND SECURITY		\$3.85	\$401,286
31000	EARTHWORK		\$5.12	\$533,814
32000	EXTERIOR IMPROVEMENTS		\$0.00	\$0
33000	UTILITIES		\$1.29	\$134,141
SUBTOTAL			\$191.29	\$19,939,402
	ESCALATION TO START OF CONSTRUCTION	8.0%	\$15.30	\$1,595,152
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$20.66	\$2,153,455
	CONTRACTOR'S FEES	6.0%	\$13.64	\$1,421,281
	DESIGN CONTINGENCY	25.0%	\$60.22	\$6,277,323
TOTAL ESTIMATED BID			\$301.11	\$31,386,613



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
CBP Fit-Out

Conceptual Design
06/01/2016

COST SUMMARY -Option 5		22,864	GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS			\$0.00	\$0
02000	EXISTING CONDITIONS			\$0.00	\$0
03000	CONCRETE			\$0.00	\$0
04000	MASONRY			\$0.00	\$0
05000	METALS			\$3.94	\$90,102
06000	WOODS, PLASTICS & COMPOSITES			\$3.93	\$89,858
07000	THERMAL & MOISTURE PROTECTION SYSTEM			\$0.00	\$0
08000	OPENINGS			\$4.17	\$95,238
09000	FINISHES			\$35.41	\$809,517
10000	SPECIALTIES			\$3.27	\$74,660
11000	EQUIPMENT			\$16.18	\$370,000
12000	FURNISHINGS			\$0.00	\$0
13000	SPECIAL CONSTRUCTION			\$0.00	\$0
14000	CONVEYING EQUIPMENT			\$0.00	\$0
21000	FIRE SUPPRESSION			\$5.20	\$118,831
22000	PLUMBING			\$6.66	\$152,290
23000	HEATING, VENTILATING & AIR CONDITIONING			\$44.00	\$1,006,016
26000	ELECTRICAL			\$23.22	\$530,964
27000	COMMUNICATIONS			\$13.13	\$300,162
28000	ELECTRONIC SAFETY AND SECURITY			\$10.45	\$238,821
31000	EARTHWORK			\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS			\$0.00	\$0
33000	UTILITIES			\$0.00	\$0
SUBTOTAL				\$169.54	\$3,876,459
	ESCALATION TO START OF CONSTRUCTION	8.0%		\$13.56	\$310,117
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%		\$18.31	\$418,658
	CONTRACTOR'S FEES	6.0%		\$12.09	\$276,314
	DESIGN CONTINGENCY	25.0%		\$53.38	\$1,220,387
TOTAL ESTIMATED BID				\$266.88	\$6,101,934



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Airside Apron and Site Utility Renovations

Conceptual Design
06/01/2016

COST SUMMARY -OPTION 6		27,200 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$0.00	\$0
04000	MASONRY		\$0.00	\$0
05000	METALS		\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES		\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.00	\$0
08000	OPENINGS		\$0.00	\$0
09000	FINISHES		\$0.00	\$0
10000	SPECIALTIES		\$0.00	\$0
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$0.00	\$0
22000	PLUMBING		\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING		\$0.00	\$0
26000	ELECTRICAL		\$0.00	\$0
27000	COMMUNICATIONS		\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY		\$0.00	\$0
31000	EARTHWORK		\$1.16	\$31,578
32000	EXTERIOR IMPROVEMENTS		\$49.34	\$1,342,132
33000	UTILITIES		\$32.49	\$883,696
SUBTOTAL			\$82.99	\$2,257,406
	ESCALATION TO START OF CONSTRUCTION	8.0%	\$6.64	\$180,592
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$8.96	\$243,800
	CONTRACTOR'S FEES	6.0%	\$5.92	\$160,908
	DESIGN CONTINGENCY	25.0%	\$26.13	\$710,677
TOTAL ESTIMATED BID			\$130.64	\$3,553,383



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Landside Roadway, Walkway and Site Utility Relocations

Conceptual Design
06/01/2016

COST SUMMARY -OPTION 7		24,000 GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS		\$0.00	\$0
02000	EXISTING CONDITIONS		\$0.00	\$0
03000	CONCRETE		\$0.00	\$0
04000	MASONRY		\$0.00	\$0
05000	METALS		\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES		\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM		\$0.00	\$0
08000	OPENINGS		\$0.00	\$0
09000	FINISHES		\$0.00	\$0
10000	SPECIALTIES		\$2.08	\$50,000
11000	EQUIPMENT		\$0.00	\$0
12000	FURNISHINGS		\$0.00	\$0
13000	SPECIAL CONSTRUCTION		\$0.00	\$0
14000	CONVEYING EQUIPMENT		\$0.00	\$0
21000	FIRE SUPPRESSION		\$0.00	\$0
22000	PLUMBING		\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING		\$0.00	\$0
26000	ELECTRICAL		\$1.04	\$25,000
27000	COMMUNICATIONS		\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY		\$0.00	\$0
31000	EARTHWORK		\$1.90	\$45,697
32000	EXTERIOR IMPROVEMENTS		\$10.71	\$256,934
33000	UTILITIES		\$3.33	\$80,000
SUBTOTAL			\$19.07	\$457,631
	ESCALATION TO START OF CONSTRUCTION	8.0%	\$1.53	\$36,610
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%	\$2.06	\$49,424
	CONTRACTOR'S FEES	6.0%	\$1.36	\$32,620
	DESIGN CONTINGENCY	25.0%	\$6.00	\$144,071
TOTAL ESTIMATED BID			\$30.01	\$720,357



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Baggage Handling System

Conceptual Design
06/01/2016

COST SUMMARY -OPTION 8		27,200	GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS			\$0.00	\$0
02000	EXISTING CONDITIONS			\$0.00	\$0
03000	CONCRETE			\$0.00	\$0
04000	MASONRY			\$0.00	\$0
05000	METALS			\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES			\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM			\$0.00	\$0
08000	OPENINGS			\$0.00	\$0
09000	FINISHES			\$0.00	\$0
10000	SPECIALTIES			\$0.00	\$0
11000	EQUIPMENT			\$22.79	\$620,000
12000	FURNISHINGS			\$0.00	\$0
13000	SPECIAL CONSTRUCTION			\$0.00	\$0
14000	CONVEYING EQUIPMENT			\$0.00	\$0
21000	FIRE SUPPRESSION			\$0.00	\$0
22000	PLUMBING			\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING			\$0.00	\$0
26000	ELECTRICAL			\$0.00	\$0
27000	COMMUNICATIONS			\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY			\$0.00	\$0
31000	EARTHWORK			\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS			\$0.00	\$0
33000	UTILITIES			\$0.00	\$0
SUBTOTAL				\$22.79	\$620,000
	ESCALATION TO START OF CONSTRUCTION	8.0%		\$1.82	\$49,600
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%		\$2.46	\$66,960
	CONTRACTOR'S FEES	6.0%		\$1.62	\$44,194
	DESIGN CONTINGENCY	25.0%		\$7.18	\$195,188
TOTAL ESTIMATED BID				\$35.88	\$975,942



GENERAL MITCHELL AIRPORT
Concourse E
International/Domestic Terminal
Jet Bridges

Conceptual Design
06/01/2016

COST SUMMARY -OPTION 9		27,200	GSF	\$/SF	BUILDING TOTAL
01000	GENERAL REQUIREMENTS			\$0.00	\$0
02000	EXISTING CONDITIONS			\$0.00	\$0
03000	CONCRETE			\$0.00	\$0
04000	MASONRY			\$0.00	\$0
05000	METALS			\$0.00	\$0
06000	WOODS, PLASTICS & COMPOSITES			\$0.00	\$0
07000	THERMAL & MOISTURE PROTECTION SYSTEM			\$0.00	\$0
08000	OPENINGS			\$0.00	\$0
09000	FINISHES			\$0.00	\$0
10000	SPECIALTIES			\$0.00	\$0
11000	EQUIPMENT			\$0.00	\$0
12000	FURNISHINGS			\$0.00	\$0
13000	SPECIAL CONSTRUCTION			\$109.22	\$2,970,761
14000	CONVEYING EQUIPMENT			\$0.00	\$0
21000	FIRE SUPPRESSION			\$0.00	\$0
22000	PLUMBING			\$0.00	\$0
23000	HEATING, VENTILATING & AIR CONDITIONING			\$0.00	\$0
26000	ELECTRICAL			\$0.00	\$0
27000	COMMUNICATIONS			\$0.00	\$0
28000	ELECTRONIC SAFETY AND SECURITY			\$0.00	\$0
31000	EARTHWORK			\$0.00	\$0
32000	EXTERIOR IMPROVEMENTS			\$0.00	\$0
33000	UTILITIES			\$0.00	\$0
SUBTOTAL				\$109.22	\$2,970,761
	ESCALATION TO START OF CONSTRUCTION	8.0%		\$8.74	\$237,661
	GENERAL CONDITIONS/BOND/INSURANCE	10.0%		\$11.80	\$320,842
	CONTRACTOR'S FEES	6.0%		\$7.79	\$211,756
	DESIGN CONTINGENCY	25.0%		\$34.38	\$935,255
TOTAL ESTIMATED BID				\$171.92	\$4,676,275



General Mitchell Airport
Concourse E Int'l/Domestic Terminal

Conceptual Estimate
06/01/2016

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
00 CONCORSE E DEMOLITION				
02000 EXISTING CONDITIONS				
Demolish Existing Concourse E	660,096	CUFT	0.32	210,703
SUBTOTAL: EXISTING CONDITIONS				\$210,703
TOTAL: CONCORSE E DEMOLITION				\$210,703

01 APRON CAP RESTRIPE TAXIWAY AND CAP SITE UTILITIES				
26000 ELECTRICAL				
Remove Apron lighting poles	12	EACH	725.38	8,705
SUBTOTAL: ELECTRICAL				\$8,705
31000 EARTHWORK				
Rough grading, small area	20,000	SQFT	0.46	9,140
Fine grading, small area	20,000	SQFT	0.66	13,266
Cut Sub-grade for new base	496	CUYD	4.14	2,052
Haul off excavated sub gradel as CCDD	496	CUYD	29.28	14,521
Haul off Concrete	2,088	CUYD	29.28	61,130
SUBTOTAL: EARTHWORK				\$100,109
32000 EXTERIOR IMPROVEMENTS				
CA-6 base, 8" thk at asphalt paving	496	CUYD	28.37	14,073
Asphalt pavement, 2" surface course, on 2" binder ap at existing terminal removal	20,000	SQFT	2.57	51,466
Restripping of Jet Way	1	LS	20,001.61	20,002
SUBTOTAL: EXTERIOR IMPROVEMENTS				\$85,541
33000 UTILITIES				
Excavate and remove existing Storm structures; backfill and compact after removal	6	EACH	2,726.96	16,362
Remove Fuel Hydrant	1	EACH	1,560.46	1,560
Remove Fire Hydrant	3	EACH	1,242.32	3,727
Excavate and remove existing underground utility piping; backfill and compact after removal	680	LNFT	70.89	48,205
Flush Fuel Lines	1	LS	40,000.00	40,000
Tie in And Test Fuel Lines	1	LS	26,000.00	26,000
SUBTOTAL: UTILITIES				\$135,854
TOTAL: APRON CAP RESTRIPE TAXIWAY AND CAP SITE UTILITIES				\$330,209

02 RELOCATE SWITCHGEAR AND GENERATOR				
09000 FINISHES				
Distribution Panel Room Build-out	80	SQFT	93.45	7,476
SUBTOTAL: FINISHES				\$7,476
23000 HEATING VENTILATION & AIR CONDITIONING				
AC split system for Generator Panel Location	1	EACH	9,418.88	9,419
Piping for AC Split System	200	LNFT	23.25	4,649
SUBTOTAL: HEATING VENTILATION & AIR CONDITIONING				\$14,068
26000 ELECTRICAL				



**General Mitchell Airport
Concourse E Int'l/Domestic Terminal**

Conceptual Estimate

06/01/2016

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Demolish existing switchgear at main terminal	1	EACH	5,335.36	5,335
Disconnect and remove switchgear	1	EACH	3,335.36	3,335
Demolish existing Generator set,	1	EACH	4,779.47	4,779
Disconnect and remove Generator set,	1	EACH	5,211.50	5,212
Install New Switchgear	1	EACH	9,359.55	9,360
Tie into existing switches	2	EACH	953.84	1,908
Tie ins to existing Panels	1	LS	4,840.35	4,840
Reinstall Generator	1	EACH	4,169.20	4,169
Wire New Generator to existing ATS	1	EACH	4,369.20	4,369
Generator Pad	1	EACH	2,250.75	2,251
Automatic transfer switch- needed at existing terminal	1	EACH	11,159.60	11,160
Emergency Distribution Panel	1	EACH	5,850.75	5,851
New Feeds to Existing Panels	1	LS	4,215.70	4,216
Feeder installation 600 V, including conduit and XHHW wire, 600A	200	LNFT	184.38	36,877
Emergency Service and distribution -Refeed existing circuits to new panel in Concourse D	1	LS	21,676.80	21,677
SUBTOTAL: ELECTRICAL				\$125,338
TOTAL: RELOCATE SWITCHGEAR AND GENERATOR				\$146,882

03 FIDS MONITOR AND DATA SUPPORT-REMOVE EXISTING

27000 COMMUNICATIONS

Relocate FIDS and Data Support System- Scope needs Clarified	1	LSUM	21,846.00	21,846
SUBTOTAL: COMMUNICATIONS				\$21,846

TOTAL: FIDS MONITOR AND DATA SUPPORT-REMOVE EXISTING				\$21,846
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04 CONCOURSE E CONSTRUCTION

03000 CONCRETE

Formwork for strip footings	4,362	SQFT	8.51	37,110
Formwork for isolated column footings	2,617	SQFT	9.72	25,434
Formwork for foundation walls	11,632	SQFT	9.25	107,629
Reinforcement in strip footings, avg 65 lbs/cy	5	TONS	2,877.04	15,248
Reinforcement in isolated column footings, avg 80 lbs/cy	4	TONS	2,877.04	11,278
Reinforcement in foundation walls, avg 115 lbs/cy	19	TONS	3,072.25	57,052
Concrete in strip footings, 4,000 psi	162	CUYD	173.67	28,135
Concrete in isolated column footings, 4,000 psi	98	CUYD	183.87	18,019
Concrete in foundation walls, 4,000 psi	323	CUYD	180.96	58,449
Concrete slab on grade, 5" thk, with W6x6-2.9x2.9	63,806	SQFT	5.09	324,543
CA-6 base at basement slab	1,182	CUYD	30.29	35,803
Vapor barrier at slab	63,806	SQFT	1.25	79,496
Precast panel architectural finish	23,260	SQFT	34.03	791,496
LTWT Concrete on metal deck, 4-1/2" thk, with W6x6-1.4x1.4	65,252	SQFT	5.33	347,571
SUBTOTAL: CONCRETE				\$1,937,262

05000 METALS

Structural steel beams & columns, floor, allow 11 lbs/sf	65,252	SQFT	18.64	1,216,506
Structural steel beams & columns, roof	38,984	SQFT	12.53	488,625
Clerestory framing	8,000	SQFT	20.82	166,543



General Mitchell Airport
Concourse E Int'l/Domestic Terminal

Conceptual Estimate

06/01/2016

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Composite metal floor deck, 2" thk, 18 ga	65,252	SQFT	2.91	189,688
Metal roof deck, galvanized, 1-1/2" thk, 18 ga	38,984	SQFT	2.55	99,362
Miscellaneous angles, channels, lintels, etc.	104,236	SQFT	1.63	169,686
Stainless Column Covers, Wall Protection	1	LS	337,884.00	337,884
SUBTOTAL: METALS				\$2,668,295
06000 WOODS, PLASTICS & COMPOSITES				
Miscellaneous wood blocking & rough carpentry	81,372	SQFT	0.91	74,260
Miscellaneous millwork& Carpentry	81,372	SQFT	1.10	89,509
Grainite countertops/Lavs	72	LNFT	221.08	15,918
SUBTOTAL: WOODS, PLASTICS & COMPOSITES				\$179,687
07000 THERMAL & MOISTURE PROTECTION				
Dampproofing on foundation wall	5,816	SQFT	2.01	11,699
Waterproof Elevator and Escalator Pits	520	SQFT	6.94	3,608
2" rigid insulation	5,816	SQFT	2.22	12,911
Metal siding at Exterior-corrugated	5,900	SQFT	23.11	136,345
Metal siding at Exterior-Dry Screen System	2,600	SQFT	46.63	121,246
Roofing and Insulation- Fully Adhered PVC	65,252	SQFT	8.29	540,939
Roof Flashing	2,840	SQFT	8.63	24,515
Roof Accessories/Walkways	1	LS	27,935.31	27,935
SUBTOTAL: THERMAL & MOISTURE PROTECTION				\$879,200
08000 OPENINGS				
HM frame-single	13	EACH	345.49	4,491
HM frames- Double	4	EACH	416.81	1,667
Doors	21	EACH	311.52	6,542
Security Doors and Frames	14	EACH	2,806.89	39,296
Elect operated OH door	5	EACH	8,341.34	41,707
Double Doors-Glass-Security	12	EACH	8,800.00	105,600
Clerestroy Glazing at Circulation	3,440	SQFT	83.56	287,440
Interior Glazing Systems-15' tall	7,198	SQFT	58.92	424,097
Punched Windows at West Wall and Apron Level	1,200	SQFT	68.90	82,680
Hardware set, single	13	EACH	713.78	9,279
Hardware set, double	4	EACH	1,230.05	4,920
Exterior curtainwall	11,384	SQFT	105.07	1,196,083
SUBTOTAL: OPENINGS				\$2,203,803
09000 FINISHES				
Future Checkpoint Integration	1	LS	250,000.00	250,000
3-5/8" 25 ga metal studs, 5/8" abuse-resistant gypboard each side, 3" mineral fiber blanket insulation, full-height 1s t floor	26,997	SQFT	10.49	283,231
Metal Stud,Air Barrier, Rigid Insulation and Drywall at Interior of Metal Panels	8,507	SQFT	4.34	36,948
Metal Stud. Air Barrier,Rigid Insulation and Drywall at Interior of Precast	23,260	SQFT	4.34	101,025
Ceramic tile floor	3,045	SQFT	14.00	42,618
Ceramic wall Full Height	6,096	SQFT	15.35	93,589
ACT system and Gyp Soffits, 2'-0" x 2'-0" @ Lower Level	42,388	SQFT	6.05	256,617
ACT system, 4'-0" x 4'-0", cloud @ 30% of Ceiling	10,195	SQFT	10.53	107,308
Concrete sealer	8,968	SQFT	1.62	14,545
Polymer Floors	59,497	SQFT	15.68	933,115



**General Mitchell Airport
Concourse E Int'l/Domestic Terminal**

Conceptual Estimate

06/01/2016

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Carpet tile/VCT Floors	12,120	SQFT	4.47	54,229
Paint exposed structure @ upper Terminal Level including 5,000 sqft mechanical area not shown	38,984	SQFT	1.65	64,378
Misc Painting	1	LS	25,928.80	25,929
Prime & paint drywall walls, by sprayer, 3 coats	59,007	SQFT	0.70	41,240
SUBTOTAL: FINISHES				\$2,304,772
10000 SPECIALTIES				
Toilet partition, Stainless	44	EACH	1,613.78	71,006
Interior wayfinding signage - allowance	1	LS	40,000.00	40,000
Toilet Accessories	1	LS	68,000.00	68,000
SUBTOTAL: SPECIALTIES				\$179,006
14000 CONVEYING EQUIPMENT				
Traction psgr elev stop	2	EACH	36,506.67	73,013
Add for glass enclosed cab	1	EACH	12,801.28	12,801
Escalators 16' F.F. Height	1	EACH	1,182,280.00	1,182,280
SUBTOTAL: CONVEYING EQUIPMENT				\$1,268,095
21000 FIRE SUPPRESSION				
Wet sprinkler system - \$/SF	81,372	SQFT	4.23	344,220
SUBTOTAL: FIRE SUPPRESSION				\$344,220
22000 PLUMBING				
Water Closet and Rough Ins	45	EACH	3,661.20	164,754
Sinks and Rough-Ins	45	EACH	3,250.55	146,275
Electric water cooler & rough-ins	6	EACH	4,844.80	29,069
Misc Plumbing Hook-ups/drains Etc.	1	LS	22,765.00	22,765
Plumbing Storm/Sanitary	104,236	SQFT	5.65	588,933
SUBTOTAL: PLUMBING				\$951,796
23000 HEATING VENTILATION & AIR CONDITIONING				
HVAC Systems	81,372	SQFT	38.00	3,092,136
SUBTOTAL: HEATING VENTILATION & AIR CONDITIONING				\$3,092,136
26000 ELECTRICAL				
Service and distribution - Main switchboard, distribution panels, transformers and associated feeders	104,236	SQFT	2.95	307,131
Service and distribution - Branch panelboards and associated feeders	104,236	SQFT	1.83	190,710
Emergency Service and distribution - Emergency generator and associated feeders	104,236	SQFT	0.84	87,527
Emergency Service and distribution - Distribution panels, ATs and associated feeders	104,236	SQFT	0.97	101,390
Lighting System - Light fixtures including installation and hook up	81,372	SQFT	8.90	724,203
Lighting System - Emergency and Exit Light fixtures including installation and hook up	81,372	SQFT	0.72	58,808
Lighting System - dual level, dimmed switching, occupancy sensors, time-based lighting control for exterior lighting	81,372	SQFT	1.57	127,974
Lighting System - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	81,372	SQFT	2.20	178,904
Branch Power - Miscellaneous receptacles and electrical equipment hook up	81,372	SQFT	3.90	317,725



General Mitchell Airport
Concourse E Int'l/Domestic Terminal

Conceptual Estimate

06/01/2016

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Branch Power - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	81,372	SQFT	2.20	178,904
Motors connection, disconnect switches and associated feeders	81,372	SQFT	0.80	64,886
SUBTOTAL: ELECTRICAL				\$2,338,163
27000 COMMUNICATIONS				
Telecommunication/Data & Television System, complete	81,372	SQFT	3.49	283,964
Public Address System, complete	81,372	SQFT	2.95	239,763
SUBTOTAL: COMMUNICATIONS				\$523,726
28000 ELECTRONIC SAFETY & SECURITY				
Fire alarm System, complete	81,372	SQFT	2.06	167,936
CCTV System, complete	81,372	SQFT	2.87	233,350
SUBTOTAL: ELECTRONIC SAFETY & SECURITY				\$401,286
31000 EARTHWORK				
Excavate for Foundations	63,806	SQFT	8.37	533,814
SUBTOTAL: EARTHWORK				\$533,814
33000 UTILITIES				
Site Electrical - Incoming service	104,236	SQFT	0.77	80,324
Site Electrical - Exterior lighting	104,236	SQFT	0.52	53,817
SUBTOTAL: UTILITIES				\$134,141
TOTAL: CONCOURSE E CONSTRUCTION				\$19,939,403
05 CBP FIT-OUT				
05000 METALS				
Stainless Column Covers, Wall Protection	1	LS	90,102.40	90,102
SUBTOTAL: METALS				\$90,102
06000 WOODS, PLASTICS & COMPOSITES				
Miscellaneous wood blocking & rough carpentry	22,864	SQFT	1.15	26,296
Miscellaneous millwork& Carpentry	22,864	SQFT	2.78	63,562
SUBTOTAL: WOODS, PLASTICS & COMPOSITES				\$89,858
08000 OPENINGS				
HM frame-single	49	EACH	345.49	16,929
Doors	49	EACH	311.52	15,265
Security Doors and Frames	10	EACH	2,806.89	28,069
Hardware set, single	49	EACH	713.78	34,975
SUBTOTAL: OPENINGS				\$95,238
09000 FINISHES				
8" CMU partition/Hardwalls	4,653	SQFT	16.62	77,338
3-5/8" 25 ga metal studs, 5/8" abuse-resistant gypboard each side, 3" mineral fiber blanket insulation, full-height 1s t floor	23,513	SQFT	10.49	246,680
3-5/8" 25 ga metal studs, 5/8" abuse-resistant gypboard each side with Mesh	8,721	SQFT	13.98	121,956
Ceramic tile floor	1,250	SQFT	14.00	17,495
Ceramic wall Full Height	1,800	SQFT	15.35	27,635
ACT system, 2'-0" x 2'-0"	10,811	SQFT	4.85	52,418
ACT system, 2'-0" x 2'-0", washable	449	SQFT	5.95	2,671

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
Metal pan ceiling, lay-in	393	SQFT	9.90	3,891
Gypsum Ceilings	8,618	SQFT	8.35	72,000
Gypsum Ceilings w/mesh	1,113	SQFT	10.05	11,182
Epoxy Floors	9,965	SQFT	8.08	80,519
Carpet tile/VCT Floors	7,877	SQFT	4.47	35,244
Prime & paint drywall walls, by sprayer, 3 coats	55,035	SQFT	0.70	38,464
Misc Painting	1	LS	22,024.00	22,024
SUBTOTAL: FINISHES				\$809,517
10000 SPECIALTIES				
Miscellaneous Division 10, Wall Protection, Lockers Etc.	22,864	SQFT	2.15	49,160
Interior wayfinding signage - allowance	1	LS	4,500.00	4,500
Toilet Accessories	1	LS	21,000.00	21,000
SUBTOTAL: SPECIALTIES				\$74,660
11000 EQUIPMENT				
Laundry equipment allowance	1	LSUM	15,000.00	15,000
Canine Kennels and Equipment	1	ALLO	20,000.00	20,000
Detention equipment allowance	1	ALLO	60,000.00	60,000
Queuing Booths	5	EA	45,000.00	225,000
Weapons Lockers and Armory	1	ALLO	20,000.00	20,000
Food service equipment allowance	1	LSUM	30,000.00	30,000
SUBTOTAL: EQUIPMENT				\$370,000
21000 FIRE SUPPRESSION				
Wet sprinkler system - \$/SF	22,864	SQFT	5.20	118,831
SUBTOTAL: FIRE SUPPRESSION				\$118,831
22000 PLUMBING				
Water Closet and Rough Ins	14	EACH	3,661.20	51,257
Sinks and Rough-Ins	14	EACH	3,250.55	45,508
Misc Plumbing Hook-ups/drains Etc.	1	LS	45,836.00	45,836
Electric water cooler & rough-ins	2	EACH	4,844.80	9,690
SUBTOTAL: PLUMBING				\$152,290
23000 HEATING VENTILATION & AIR CONDITIONING				
HVAC Systems	22,864	SQFT	44.00	1,006,016
SUBTOTAL: HEATING VENTILATION & AIR CONDITIONING				\$1,006,016
26000 ELECTRICAL				
Lighting System - Light fixtures including installation and hook up	22,864	SQFT	9.40	214,919
Lighting System - Emergency and Exit Light fixtures including installation and hook up	22,864	SQFT	0.72	16,524
Lighting System - dual level, dimmed switching, occupancy sensors, time-based lighting control	22,864	SQFT	1.57	35,958
Lighting System - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	22,864	SQFT	2.20	50,269
Branch Power - Miscellaneous receptacles and electrical equipment hook up	22,864	SQFT	4.89	111,794
Branch Power - Branch wiring installation 600 V, including 3/4" EMT conduit and THWN wire, 20A	22,864	SQFT	2.99	68,352
Motors connection, disconnect switches and associated feeders	22,864	SQFT	1.45	33,148



General Mitchell Airport
Concourse E Int'l/Domestic Terminal

Conceptual Estimate

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DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
			SUBTOTAL: ELECTRICAL	\$530,964
27000	COMMUNICATIONS			
Telecommunication/Data & Television System, complete	22,864	SQFT	5.51	126,001
Intercommunication System, complete	22,864	SQFT	3.88	88,623
Public Address System, complete	22,864	SQFT	2.95	67,369
Audio/visual System, Conference Room	1	EA	18,169.20	18,169
			SUBTOTAL: COMMUNICATIONS	\$300,162
28000	ELECTRONIC SAFETY & SECURITY			
Fire alarm System, complete	22,864	SQFT	2.06	47,187
Security Systems	22,864	SQFT	3.65	83,559
CCTV System, complete	22,864	SQFT	4.73	108,076
			SUBTOTAL: ELECTRONIC SAFETY & SECURITY	\$238,821
TOTAL: CBP FIT-OUT				\$3,876,460

06 AIRSIDE APRON AND SITE UTILITY RENOVATIONS

31000 EARTHWORK

Rough grading, small area	28,187	SQFT	0.46	12,881
Fine grading, small area	28,187	SQFT	0.66	18,696
			SUBTOTAL: EARTHWORK	\$31,578

32000 EXTERIOR IMPROVEMENTS

Remove concrete paving, 7"-24" rebar reinforced	2,088	CUYD	213.26	445,280
Parking Striping and Signage	1	LS	3,000.00	3,000
Concrete pavement, 24" total	28,187	SQFT	28.55	804,699
Blast Wall Modifications	1	LSUM	60,000.00	60,000
Fencing for Parking Area	300	LNFT	41.19	12,356
Parking Control Gates/Loops/Card Reader	2	EACH	8,398.33	16,797
			SUBTOTAL: EXTERIOR IMPROVEMENTS	\$1,342,132

33000 UTILITIES

Fire water service pipe and fittings, DIP, 6"	320	LNFT	29.68	9,497
Fire Hydrants	3	EACH	3,058.48	9,175
Thrust blocks	1	LSUM	1,702.39	1,702
Trench excavation, pipe bedding, and backfill (<=18" pipe)	320	LNFT	29.88	9,560
Line flushing, cleaning, and testing	1	LSUM	2,226.96	2,227
Revise Storm Drainage and grading	1	LS	60,000.00	60,000
Fuel Ductbanks	170	LNFT	297.49	50,574
Flush Fuel Lines	1	LS	40,000.00	40,000
Fuel Line Cathodic Protection	1	EA	25,000.00	25,000
Fuel Line High Point Vent	1	EA	18,000.00	18,000
Fuel Lines	170	LNFT	188.00	31,960
Isolation Valve Pit	5	EA	120,000.00	600,000
Tie in And Test Fuel Lines	1	LS	26,000.00	26,000
			SUBTOTAL: UTILITIES	\$883,696

TOTAL: AIRSIDE APRON AND SITE UTILITY RENOVATIONS				\$2,257,406
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DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
07 LANDSIDE ROADWAY, WALKWAY AND SITE UTILITIES				
10000 SPECIALTIES				
Sign and graphic allowance	1	LSUM	35,000.00	35,000
Wayfinding signage - allowance	1	LS	15,000.00	15,000
SUBTOTAL: SPECIALTIES				\$50,000
26000 ELECTRICAL				
Exterior Lighting	1	LS	25,000.00	25,000
SUBTOTAL: ELECTRICAL				\$25,000
31000 EARTHWORK				
Earth work at site improvements	1	LS	45,697.33	45,697
SUBTOTAL: EARTHWORK				\$45,697
32000 EXTERIOR IMPROVEMENTS				
Remove concrete paving, 6" mesh reinforced	12,000	SQFT	2.81	33,749
Remove sidewalks	2,400	SQFT	1.69	4,050
Remove curb and gutter	400	LNFT	9.51	3,803
CA-6 base, 8" thk at asphalt paving	298	CUYD	28.37	8,455
Concrete curb & gutter, hand formed, curved	400	LNFT	35.84	14,336
Concrete walk, 5" PC concrete w/6"x6" W4xW4 WWF	2,600	SQFT	6.00	15,589
Concrete pavement, 8" w/ 6"x6" W4xW4 WWF	12,000	SQFT	7.98	95,753
Misc Exterior Improvements	1	LS	61,198.60	61,199
Landscaping allowance	1	LSUM	20,000.00	20,000
SUBTOTAL: EXTERIOR IMPROVEMENTS				\$256,934
33000 UTILITIES				
Rework Water Service	1	LS	40,000.00	40,000
Rework Storm and Inlets at Drive Up	1	LS	40,000.00	40,000
SUBTOTAL: UTILITIES				\$80,000
TOTAL: LANDSIDE ROADWAY, WALKWAY AND SITE UTILITIES				\$457,631
08 BAGGAGE HANDLING SYSTEM				
11000 EQUIPMENT				
Baggage Conveyors	2	EA	310,000.00	620,000
SUBTOTAL: EQUIPMENT				\$620,000
TOTAL: BAGGAGE HANDLING SYSTEM				\$620,000
09 JET BRIDGES AND FOUNDATIONS				
13000 SPECIAL CONSTRUCTION				
Jet Bridge Electrical /System Hookups	3	EACH	50,253.80	150,761
Jet Bridge and Foundations	3	EACH	940,000.00	2,820,000
SUBTOTAL: SPECIAL CONSTRUCTION				\$2,970,761
TOTAL: JET BRIDGES AND FOUNDATIONS				\$2,970,761