6. AIRPORT DEVELOPMENT PLAN

Following the identification of a preliminary preferred alternative backbone (Alternative B), components of the three shortlisted alternatives were incorporated into the preliminary preferred alternative in order to accommodate stakeholder input and/or to strengthen aspects of the preliminary preferred alternative. These components necessitated refinement and adjustment of future facilities already depicted for Alternative B. To meet future demand for various facilities, as well as to ensure a right-sized airfield and incorporate feedback from MKE representatives and TAG/SAG membership, the preliminary preferred alternative underwent a final refinement. **Exhibit 6-1** depicts the results of this effort, incorporating the refinements identified in Section 5, Alternatives Analysis, as well as those needed to ensure appropriate connectivity and circulation. The result is the Airport Development Plan.

The selection of the preferred alternative is the culmination of the identification, integration, and evaluation of airfield, terminal, landside, and support facilities development concepts. Through the evaluation of different development concepts, opportunities to refine the preferred alternative to mitigate weaknesses and strengthen the overall utility of the development plan were noted. Refinement of the preferred alternative yielded the Airport Development Plan documented on the Airport Layout Plan (ALP) drawing set and in the supporting ALP Narrative. This development plan was the basis for the implementation planning, development of a general phasing plan, environmental review, noise analysis, cost estimating, and financial analyses. **Appendix F** contains reduced-size reproductions of the ALP drawing set.

6.1 REFINED AIRFIELD DEVELOPMENT

6.1.1 AIRFIELD

While only two air carrier runways are required to meet the 2040 baseline forecast demand, the Airport Development Plan includes three of the existing five runways, given that aeronautical activity is forecast to be within the range that would dictate additional capacity planning within the planning horizon, as explored in Section 4, Demand/Capacity and Facility Requirements. The airfield improvements that comprise the future plan include the following:

- decommissioning of Runway 1R-19L (interim conversion of partial length to a taxiway) and modification of supporting taxiway network
- decommissioning of Runway 13-31 and modification of supporting taxiway network
- extension of Runway 1L-19R by 10 feet (to the north) to provide a total length of 10,000 feet to accommodate future operational needs of the WI ANG should a potential mission change trigger the need
- extension of Runway 7L-25R by 300 feet to provide a total length of 5,100 feet to meet the needs of higher performance GA aircraft, including extension of the parallel inboard taxiway segment (Taxiway V)
- construction of a partial length parallel taxiway outboard of Runway 7L-25R to support aircraft circulation to GA facilities in the northern portion of the airfield and to provide a secondary air carrier routing between the terminal area and Runway 19R
- relocation of Taxiway V to the south to provide 400 feet of separation to Runway 7L-25R

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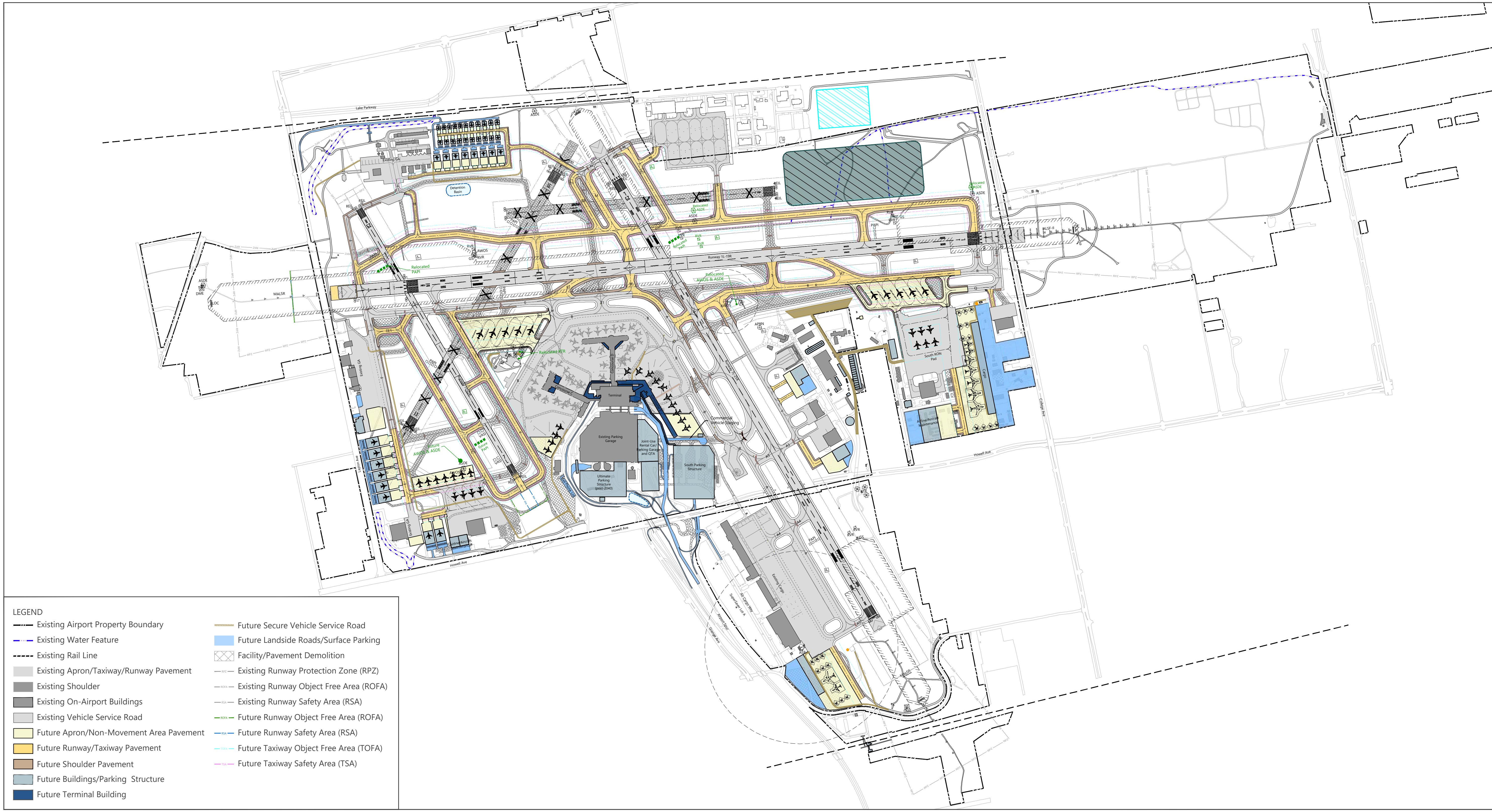

SOURCES: Crawford, Murphy and Tilly, *Milwaukee International Airport Approved Airport Layout Plan*, May 2020 (base linework); Ricondo & Associates, Inc., February 2022 (preferred alternative).

NORTH

0 1,500 ft

EXHIBIT 6-1

AIRPORT DEVELOPMENT PLAN

Drawing: P:\Project-Chicago\MKE\MKE Master Plan Update\Master Plan Project 2018\08 - Alternatives Analysis\8.3 - Selection of Preferred Alternative\CAD\MKE Prefered Alternative Refinements-2022-03-23.dwgLayout: Preferred Alternative 11x17 Plotted: Apr 13, 2022, 10:05PM

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- construction of a full-length parallel taxiway outboard of Runway 1L-19R to support aircraft circulation to GA and military facilities on the east/northeast side of the airfield, Runway 25L, and potential future development in the southeast quadrant of the airfield
- relocation of various taxiways to improve compliance with FAA standards, ensuring no direct taxiway path between the runway and apron areas and eliminating wide expanses of pavement at pavement intersections
- reconfiguration of taxiways to support safe and efficient circulation of aircraft and to mitigate designated taxiway hot spots (HS 1 and HS 2)
- incorporation of two future deice pads (Central and South Deice Pads) to accommodate non-terminal area (off-gate) deicing in locations that support primary winter runway operating configurations
- realignment of Taxiway R to parallel Runway 1L-19R, accommodating the future South Deice Pad and protecting the ultimate accommodation of second parallel taxiway (extension of Taxiway Q) in this area

The refined airfield plan continues to apply declared distances to Runway 7L-25R and Runway 1L-19R. Runway 7R-25L is not impacted by future facilities or development; therefore, no changes to existing declared distances are anticipated. **Exhibit 6-2** and **Exhibit 6-3** depict the declared distances applicable to the future configuration of Runway 1L-19R and Runway 7L-25R, respectively.

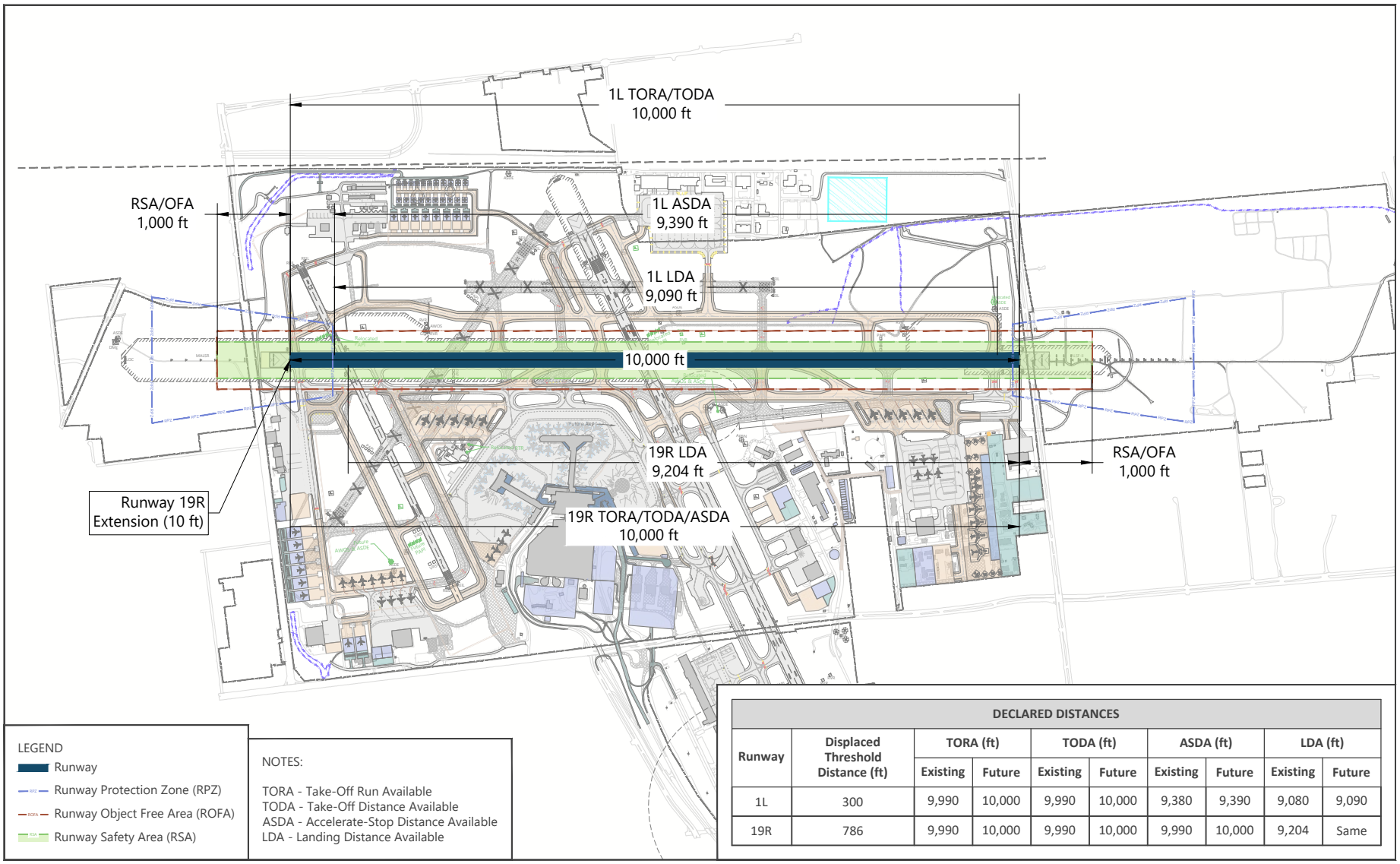
6.1.2 DEICE PADS

In addition to the existing 7R Deice Pad, the refined airfield includes two future dedicated deice pads: one in proximity to the terminal complex and one in proximity to Runway 1L. The future deice pads would be triggered by a need to centralize deicing operations at a facility that is equipped to collect and contain deicing fluid and contaminated runoff, as well as by a need to decongest the terminal gate area during winter/deicing weather conditions. **Exhibit 6-4** and **Exhibit 6-5** illustrate the location and configuration of the Central and South Deice Pads, respectively, as well as the access taxiways supporting each deice pad.

The deice pads are both configured to accommodate five ADG-III aircraft positions in a pull-through configuration with ADG III access taxiways and taxilanes. Larger aircraft can be accommodated within these deice pads with a restriction on adjacent positions. Similarly, the taxilanes and taxiways supporting deice operations accommodate ADG-III movements when the deice pads are in operation, ADG-IV and larger aircraft can utilize the taxiway/taxilane system, however, deicing vehicles must be parked in the vehicle safety zone (VSZ) to ensure they remain clear of the ADG-IV taxilane OFAs. The deice pads can also support Remain Overnight (RON) parking when deicing conditions are not anticipated.

6.1.3 AIRCRAFT REMAIN OVERNIGHT / HOLD PADS

The refined airfield plan includes four aircraft RON/hold pads (two existing and two future) that are intended to support more intensive gate utilization by providing a location for remote aircraft parking during overnight periods or extended ground times. These pads would also be used to support aircraft that have diverted to MKE and may experience extended ground times. Three of the RON/hold pads are in proximity to the terminal gates on the north side of the terminal complex, and the fourth is located in the South Ramp area within the MKE Regional Business Park. **Exhibit 6-6** illustrates the location and configuration of each RON/hold pad in the terminal vicinity, as well as the access taxiways/taxilanes supporting each pad. **Exhibit 6-7** depicts the South RON Pad location and parking configuration.



DECLARED DISTANCES									
Runway	Displaced Threshold Distance (ft)	TORA (ft)		TODA (ft)		ASDA (ft)		LDA (ft)	
		Existing	Future	Existing	Future	Existing	Future	Existing	Future
1L	300	9,990	10,000	9,990	10,000	9,380	9,390	9,080	9,090
19R	786	9,990	10,000	9,990	10,000	9,990	10,000	9,204	Same

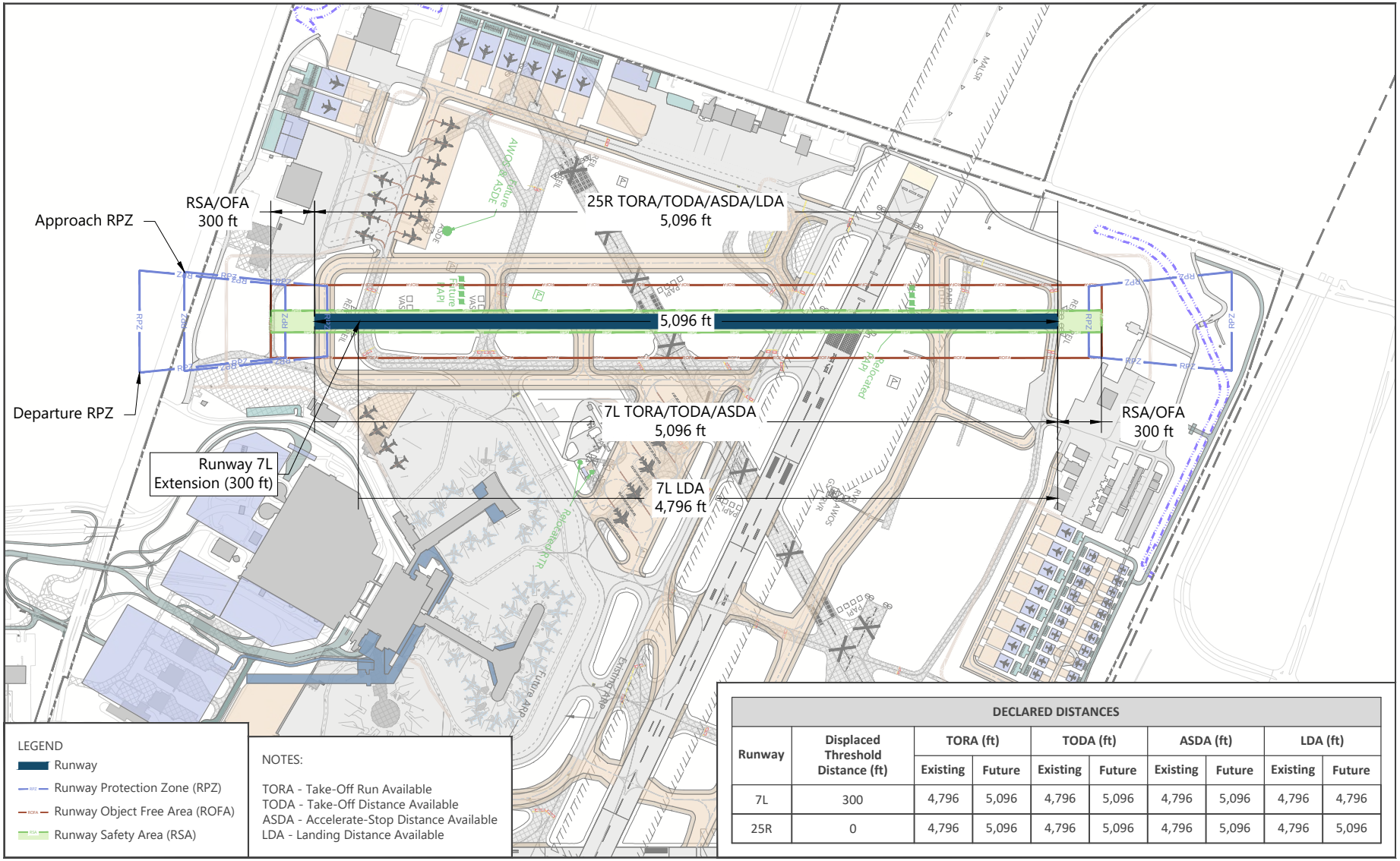
SOURCES: Crawford, Murphy, & Tilly, *General Mitchell International Airport Approved Airport Layout Plan,* February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (preferred alternative).

NORTH 0 2,000 ft

EXHIBIT 6-2

FUTURE RUNWAY 1L-19R DECLARED DISTANCES

Drawing: P:\project-chicago\mke\mke master plan update\master plan project 2018\08 - Alternatives Analysis\8.3 - Selection of Preferred Alternative\CAD\MKE Declared Distances.dwgLayout: Declared Distance 1L-19R Plotted: Apr 5, 2022, 11:35AM



DECLARED DISTANCES									
Runway	Displaced Threshold Distance (ft)	TORA (ft)		TODA (ft)		ASDA (ft)		LDA (ft)	
		Existing	Future	Existing	Future	Existing	Future	Existing	Future
7L	300	4,796	5,096	4,796	5,096	4,796	5,096	4,796	4,796
25R	0	4,796	5,096	4,796	5,096	4,796	5,096	4,796	5,096

SOURCES: Crawford, Murphy, & Tilly, *General Mitchell International Airport Approved Airport Layout Plan,* February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (preferred alternative).

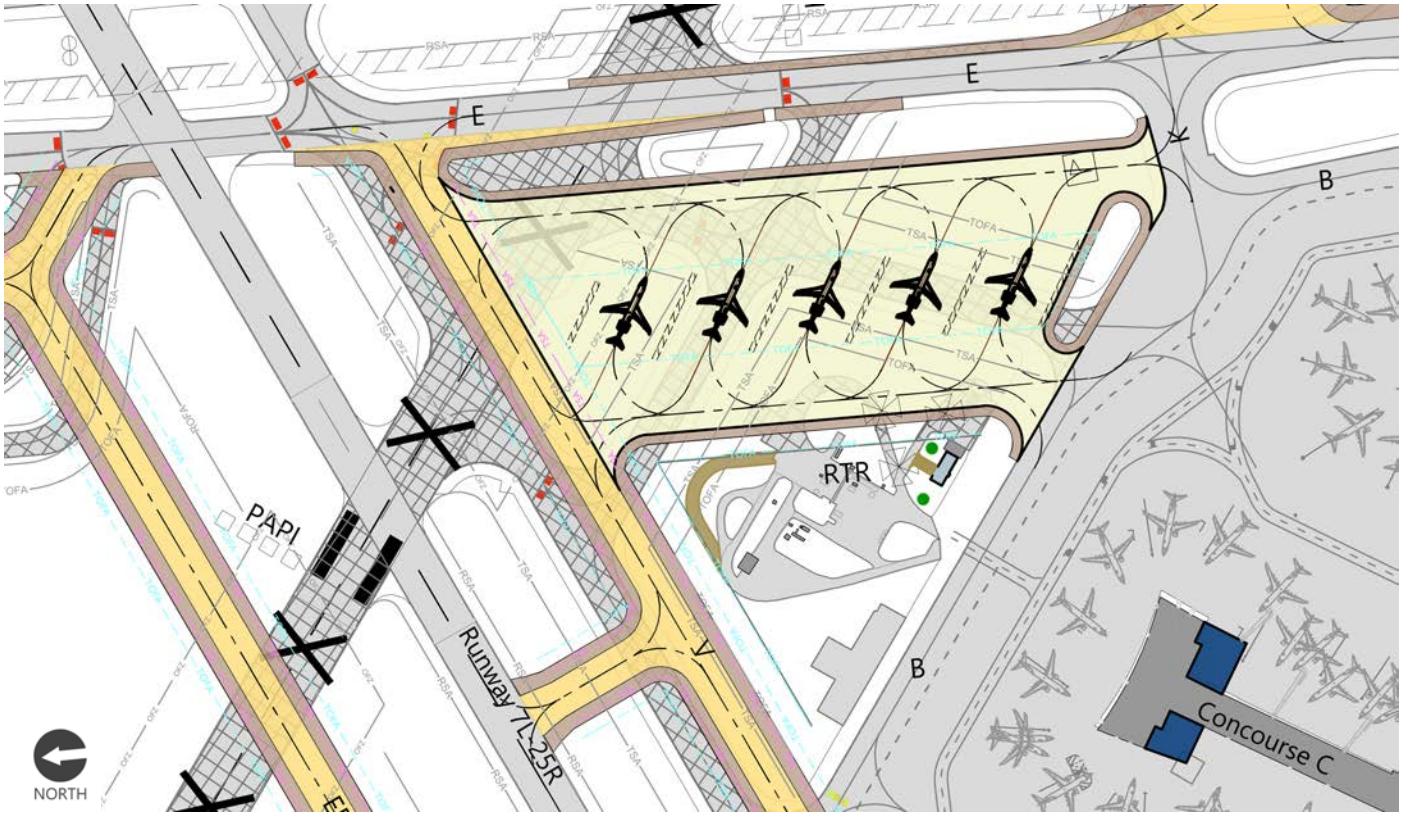
NORTH 0 1,000 ft

EXHIBIT 6-3

FUTURE RUNWAY 7L-25R DECLARED DISTANCES

Drawing: P:\project-chicago\mke\mke master plan update\master plan project 2018\08 - Alternatives Analysis\8.3 - Selection of Preferred Alternative\CAD\MKE Declared Distances.dwgLayout: Declared Distance 7L-25R Plotted: Apr 5, 2022, 11:41AM

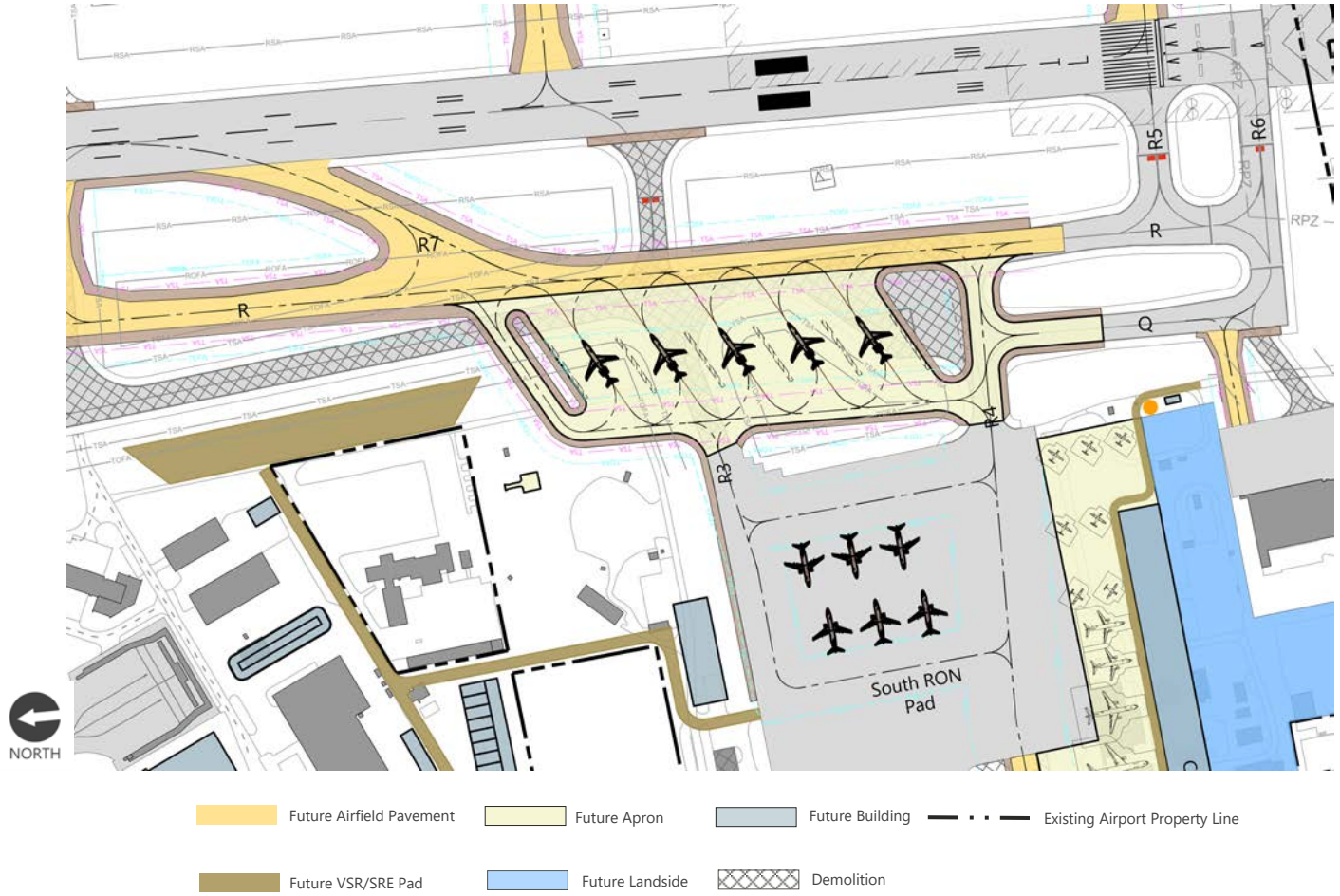
EXHIBIT 6-4 CENTRAL DEICE PAD



NOTES:
1 NAVAID – Navigational Aid
2 PAPI – Precision Approach Path Indicator
3 VSR – Vehicle Service Road
4 RTR – Remote Transmitter/Receiver

SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (deice pad layout and location).

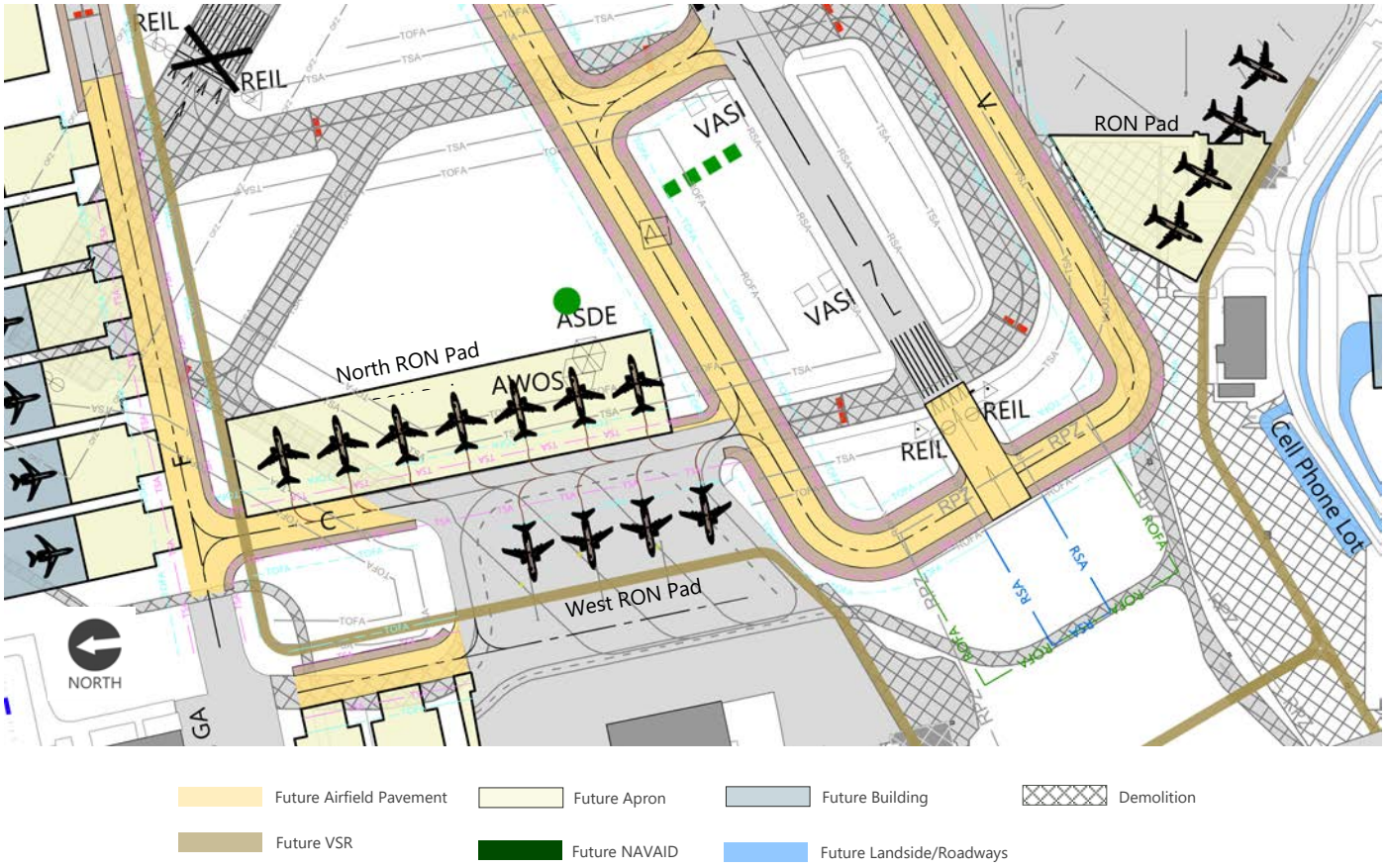
EXHIBIT 6-5 SOUTH DEICE PAD



NOTES:
1 RON – Remain Overnight
2 SRE – Snow Removal Equipment
3 VSR – Vehicle Service Road

SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (deice pad layout and location).

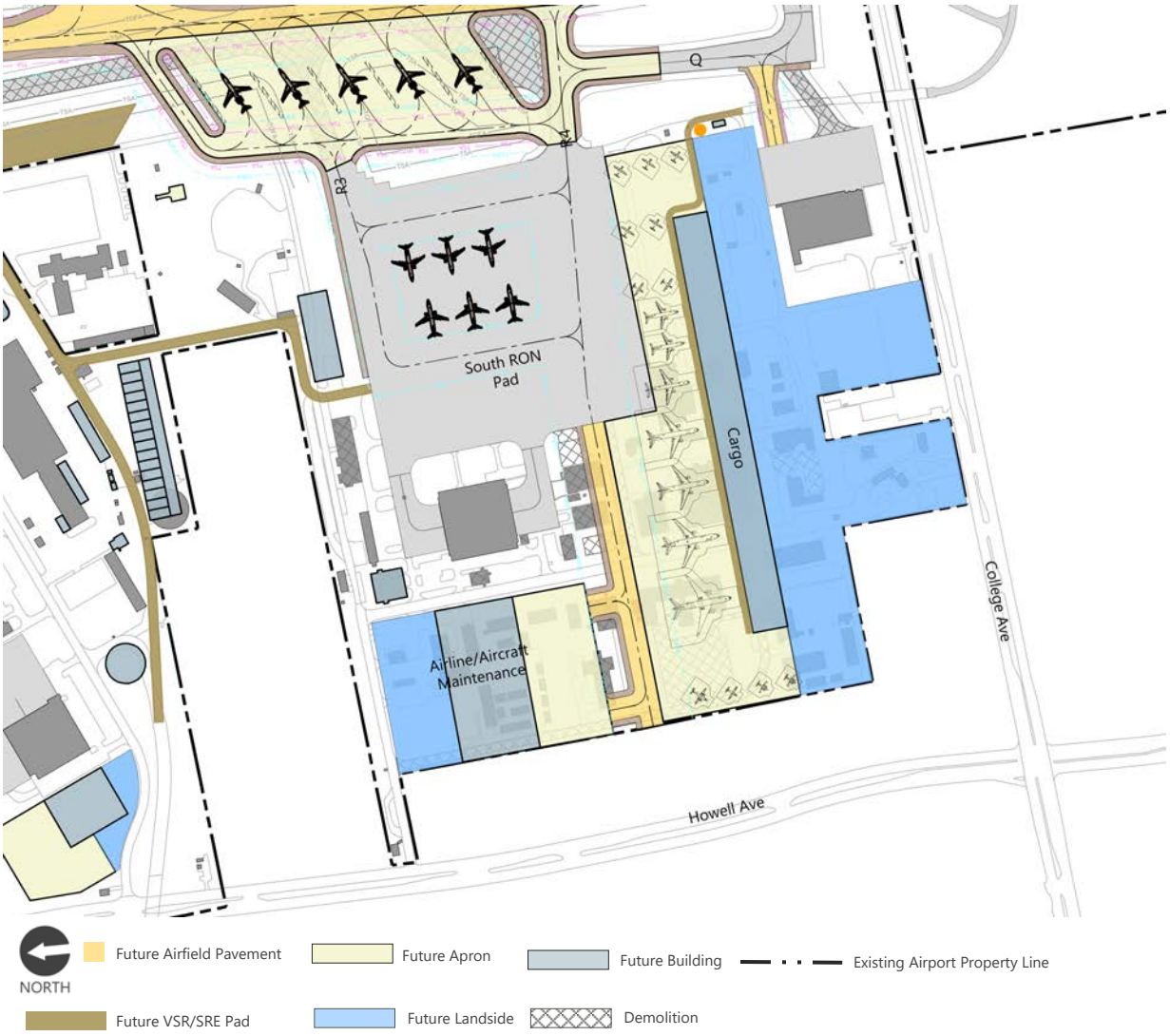
EXHIBIT 6-6 TERMINAL AREA REMAIN OVERNIGHT / HOLD PADS



NOTES:
1 ASDE – Airport Surface Detection Equipment
2 AWOS – Automated Weather Observation System
3 NAVIAD – Navigational Aid
4 REIL – Runway Edge Identification Lights
5 RON – Remain Overnight
6 VASI – Visual Approach Slope Indicator
7 VSR – Vehicle Service Road

SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (remain overnight pad layout and location).

EXHIBIT 6-7 SOUTH REMAIN OVERNIGHT / HOLD PAD



NOTE:
1 RON – REMAIN OVERNIGHT

SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (remain overnight pad and deice pad layout and location).

The RON/hold pads are configured to accommodate ADG-III aircraft positions in a taxi-in/pushback configuration, except for the existing West Pad that accommodates pull-through aircraft movements with an ADG-III access taxiway. Larger aircraft can be accommodated within the South Pad and the Concourse C Pad with a restriction on adjacent positions and, potentially, the access taxiway/taxilane.

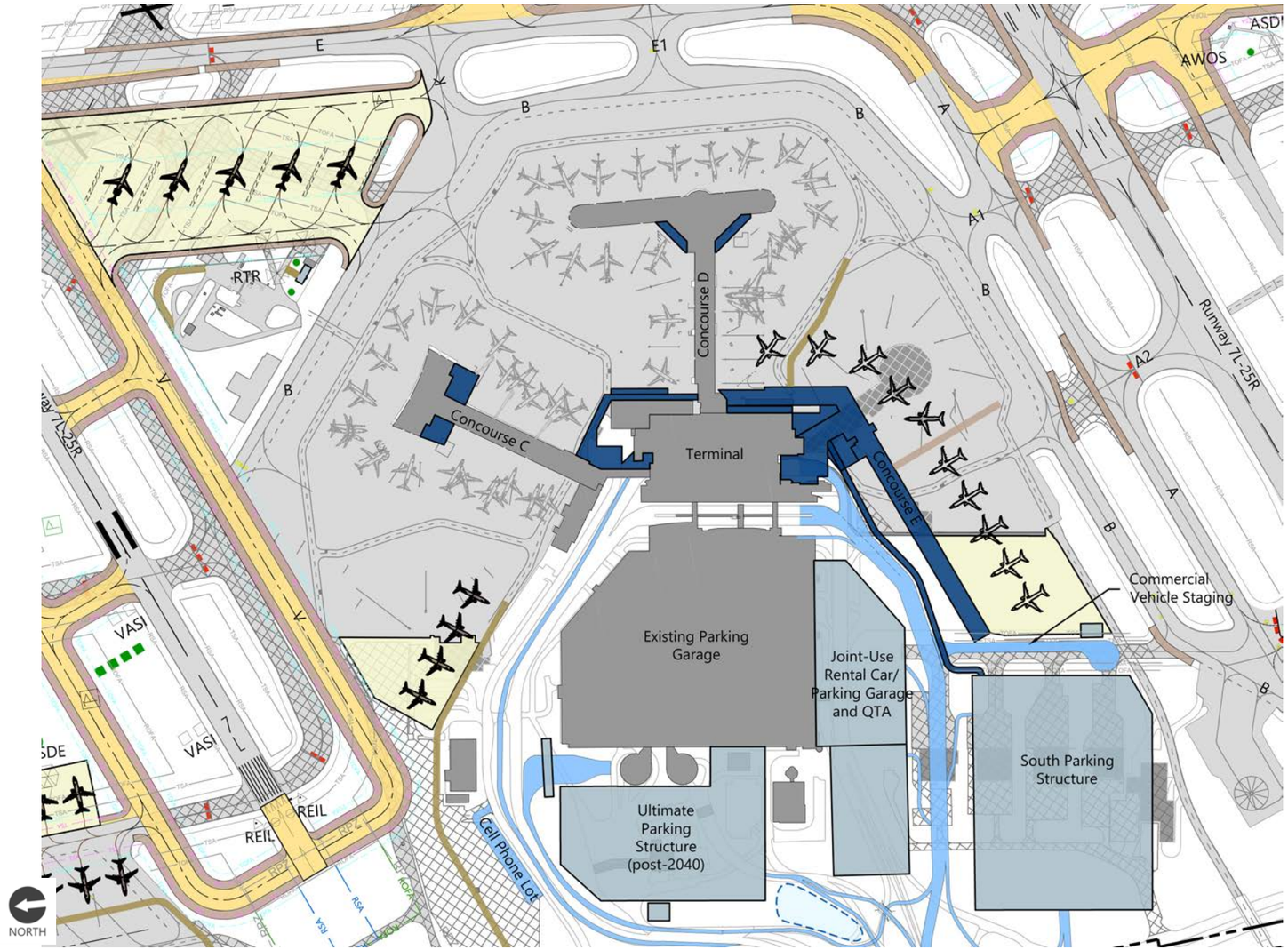
6.2 REFINED TERMINAL DEVELOPMENT

Exhibit 6-8 depicts the refined overall terminal development plan. Consistent with the existing terminal configuration, the refined terminal plan is bounded by an apron edge taxiway network: Taxiway B on the south and east sides and relocated Taxiway V on the north side. Future gate expansion will be accommodated with a linear extension of redeveloped Concourse E to the southwest. The refined terminal development plan efficiently accommodates an expanded terminal complex without increasing the number of single-lane cul-de-sac apron taxilanes. It also encompasses an efficient terminal apron configuration and provides flexibility to support incremental expansion.

The refined terminal building expansion/reconfiguration, depicted in **Exhibit 6-9** (apron level) and **Exhibit 6-10** (concourse level), includes the following major components:

- expansion of the Concourse C hammerhead and reconfiguration of existing functional spaces (holdrooms, concessions, restrooms, and support spaces)
  - meet aggregate functional space needs and accommodate the adjustment of aircraft parking positions to accommodate ADG-III aircraft at each gate
  - reconfiguration and expansion of interior functional spaces will support the move toward universal gate sizing, which will enhance the operational flexibility and utility of these gates
- expansion of the Concourse D hammerhead and reconfiguration of existing functional spaces (holdrooms, concessions, restrooms, and support spaces)
  - to meet aggregate functional space needs and adjustment of aircraft parking positions to accommodate ADG-III aircraft at each gate, as well as an ADG V aircraft (spanning two gate positions)
  - reconfiguration and expansion of interior functional spaces will support the move toward universal gate sizing, which will enhance the operational flexibility and utility of these gates
- redevelopment of existing Concourse E
  - incorporate arriving international passenger processing facilities, currently housed in the International Arrivals Building, with the capacity to process up to 800 peak-hour international arrivals, including CBP primary and secondary inspection, international bag claim, and support spaces
  - initial phase of the redevelopment will include two gates and a third aircraft parking position, all connected to the international passenger processing facilities in the lower level of the concourse
- linear extension/expansion of Concourse E as a single-loaded concourse to accommodate ADG-III aircraft
  - expansion triggered by gate operational policies and demand
  - phased expansion of Concourse E will ultimately encompass up to 10 ADG_III-capable gates with the ability to accommodate one widebody aircraft occupying two of the ADG III gates

EXHIBIT 6-8 REFINED TERMINAL AREA DEVELOPMENT PLAN



NOTES:
APBN – Airport Beacon ASDE – Airport Surface Detection Equipment AWOS – Automated Weather Observing System NAVIAD – Navigational Aid QTA – Quick Turn-Around
PAPI – Precision Approach Path Indicator REIL – Runway Edge Identification Lights VASI – Visual Approach Slope Indicator VSR – Vehicle Service Road
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (future terminal area plans); Mead & Hunt Inc. January 2021 (deice pads).

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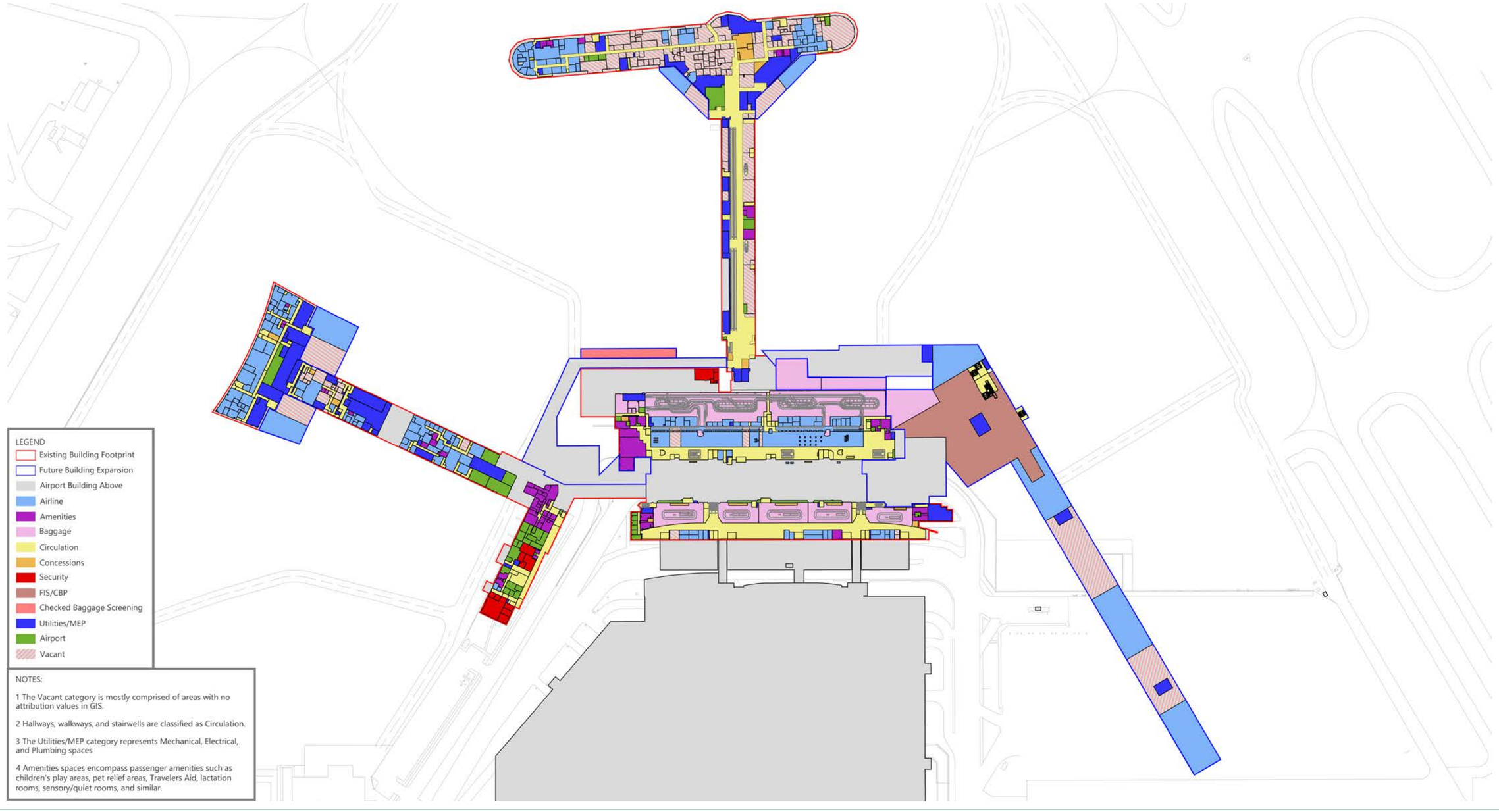
EXHIBIT 6-9 REFINED TERMINAL SPACE ALLOCATION – APRON LEVEL



SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., February 2022 (future terminal space allocations).

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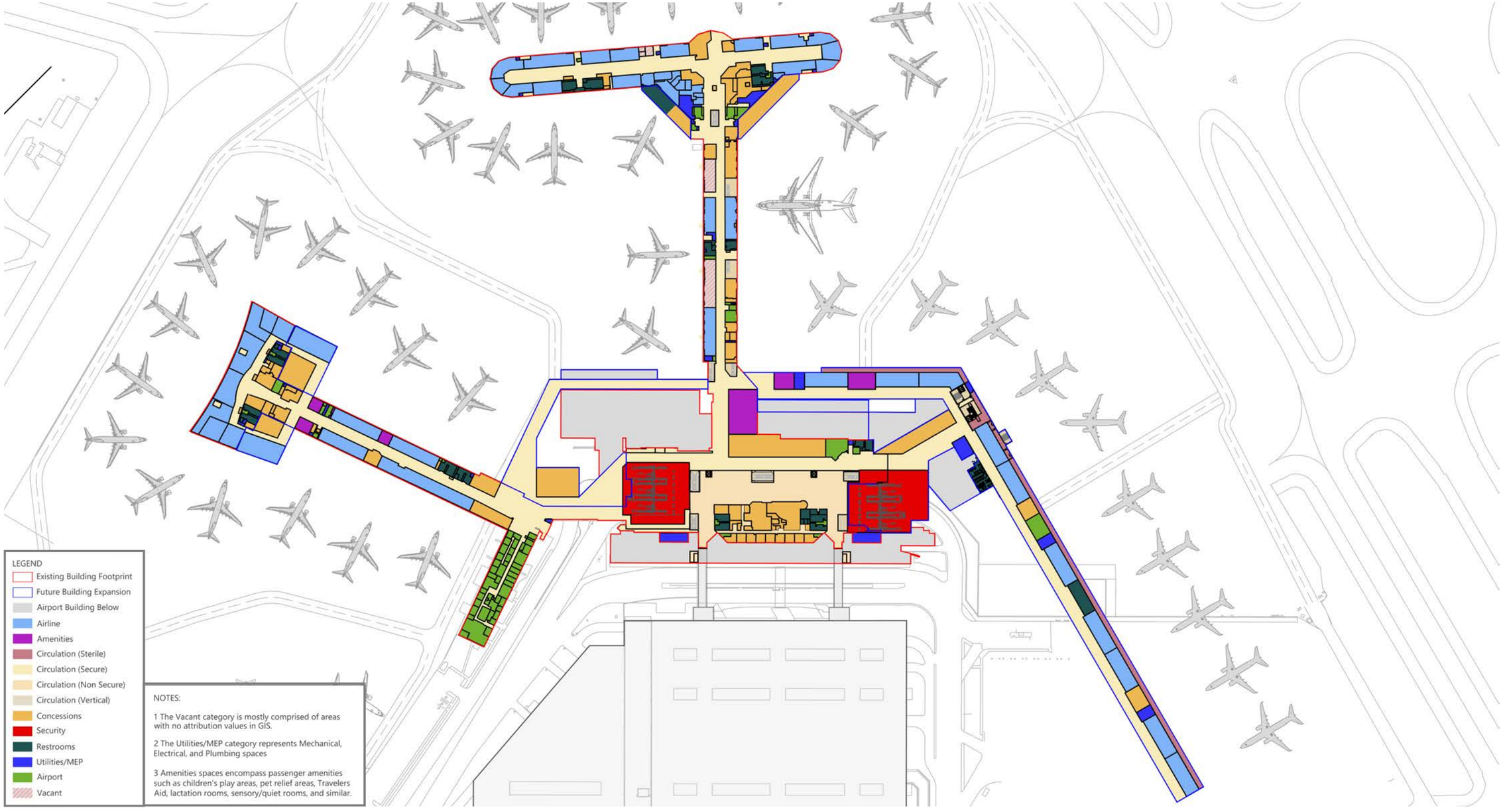
EXHIBIT 6-10 REFINED TERMINAL SPACE ALLOCATION – CONCOURSE LEVEL



SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., February 2022 (future terminal space allocations).

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- expansion and consolidation of passenger security screening checkpoints (SSCPs)
  - a dual-sided consolidated SSCP will increase capacity and operational flexibility
  - coupled with secure connectors among the three concourses, consolidation will facilitate the flow of passengers and employees among concourses without requiring rescreening
  - expansion of Concourse C SSCP by one lane, as triggered by demand, if necessary, based on the schedule for consolidation of existing SSCPs
- phased expansion of baggage makeup area to support growth in airline and passenger activity
- expansion of checked baggage screening to accommodate functional and space requirements based on passenger demand
- reconfiguration of various terminal spaces to accommodate functional and space needs based on passenger and tenant demand

There are multiple ways to flexibly modify the interior of the terminal and concourses and phase new expansion according to demand profile changes. As the need for expansion or reconfiguration nears, additional analyses will be undertaken to define the optimal and balanced expansion concept, given the conditions and activity characteristics at that time.

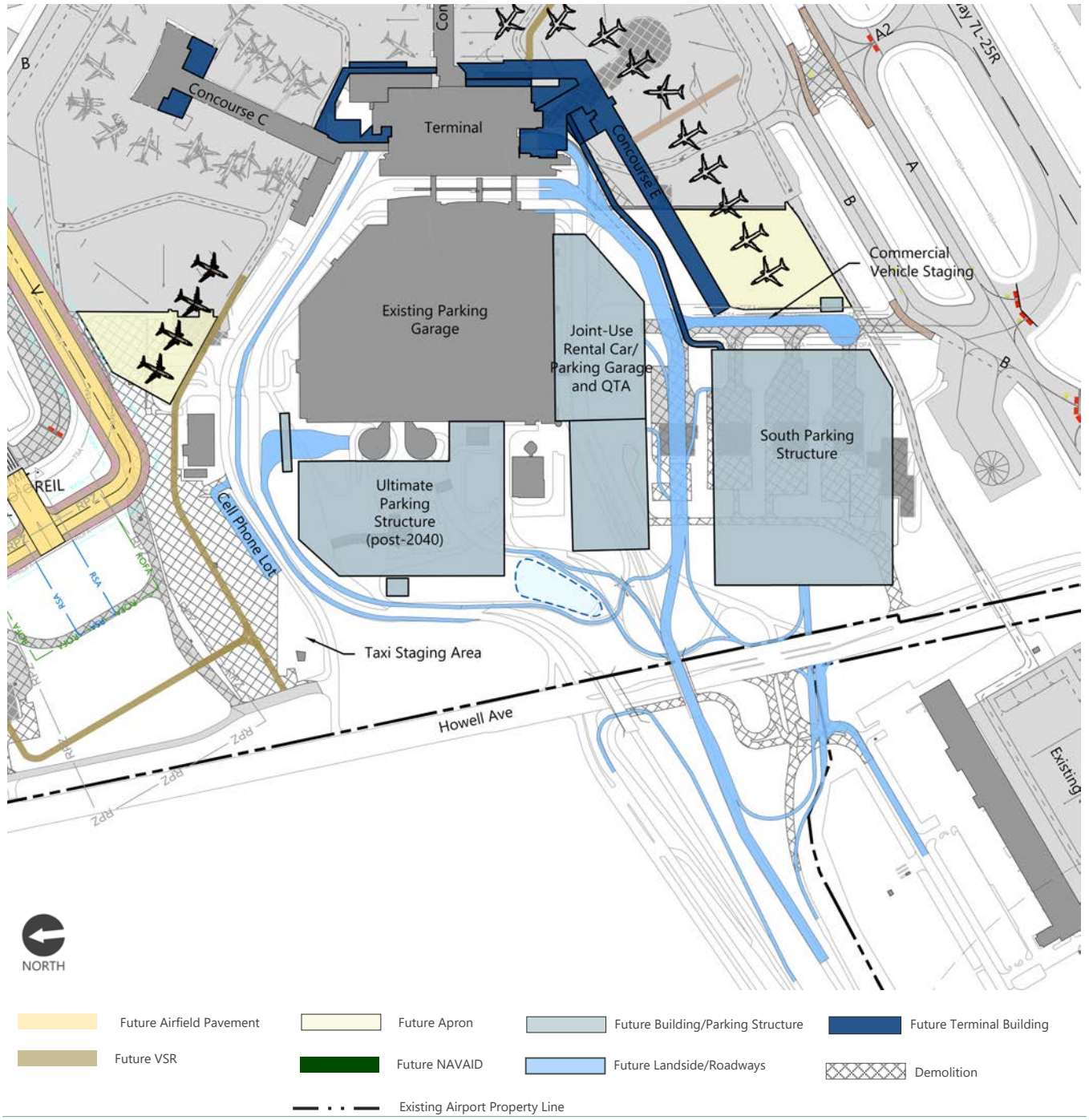
6.3 REFINED LANDSIDE DEVELOPMENT

Exhibit 6-11 illustrates the refined airport access and landside facilities in the terminal core area that are part of the preferred landside development plan. There are no remote landside facilities planned or needed to meet forecast demand through 2040.

The facilities considered in the refined landside development plan include the following:

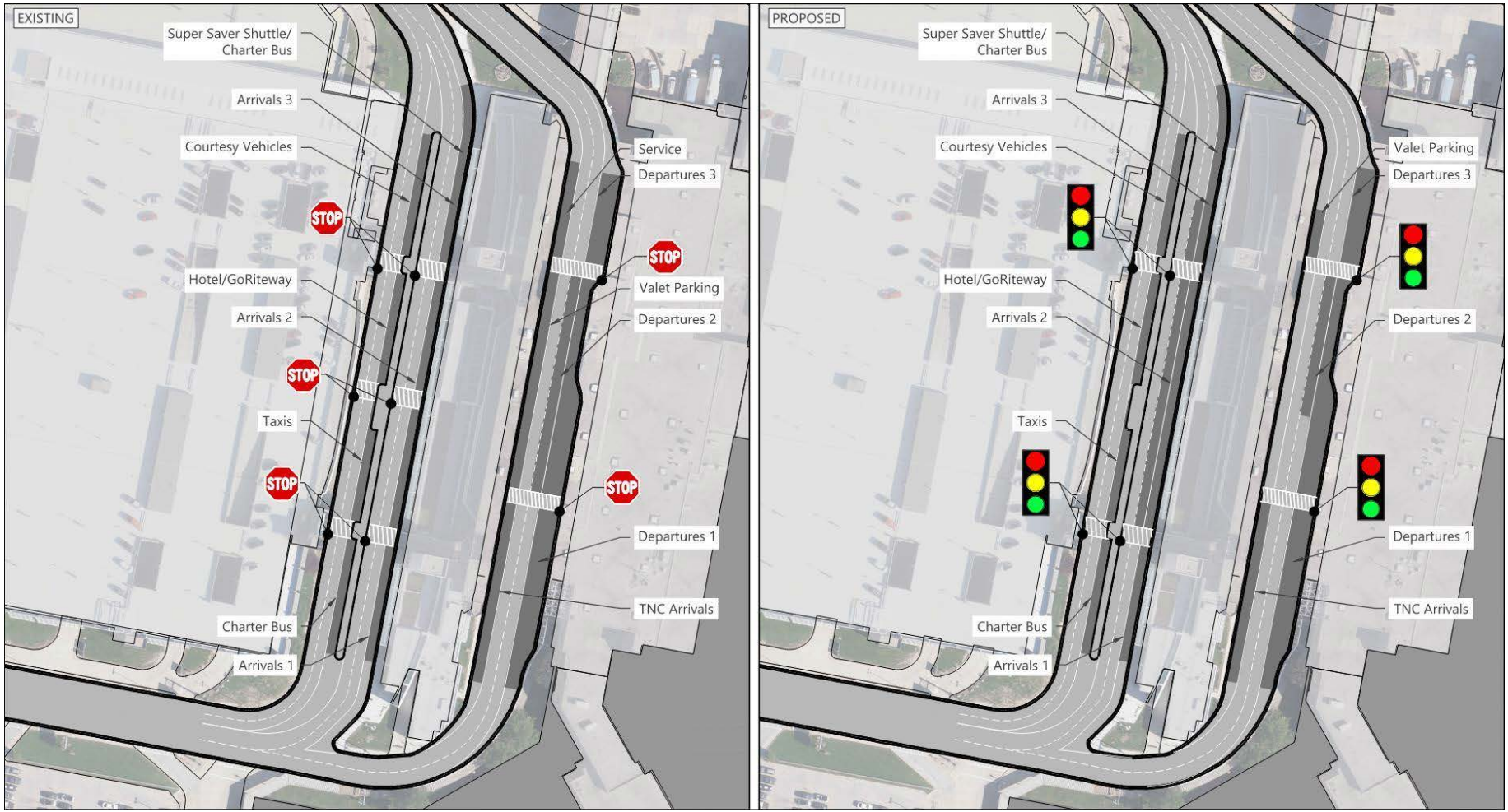
- reallocation of dedicated terminal curbside
  - reallocation by mode based on demand characteristics
  - signalization (or signage modification) of pedestrian crossings of terminal curbfront roadways to reduce the capacity impacts of existing signage
  - **Exhibit 6-12** depicts the refined terminal curbside configuration as well as the proposed replacement of existing stop signs with pedestrian signals and the proposed elimination of the central pedestrian crossing on the arrival roadway to reduce anticipated congestion caused by traffic interruptions at this location
  - As the curbside reallocation is implemented in response to future demand, accommodation of required vehicle loading zones on the departures curbside and arrivals curbside will be incorporated to meet Americans with Disabilities Act (ADA) requirements
- realignment of terminal roadways to support future terminal area facility development and modification, as well as improved merge and weave distances, vehicle segregation by destination, and sightlines
  - **Exhibit 6-13** identifies specific elements of the terminal area roadway and related facility improvements
  - relocation of the inbound roadway approximately 385 feet to the south to accommodate a future joint use rental car/public parking facility (abutting the existing parking structure) and associated rental car QTA (element 1 in Exhibit 6-13)

EXHIBIT 6-11 REFINED LANDSIDE DEVELOPMENT



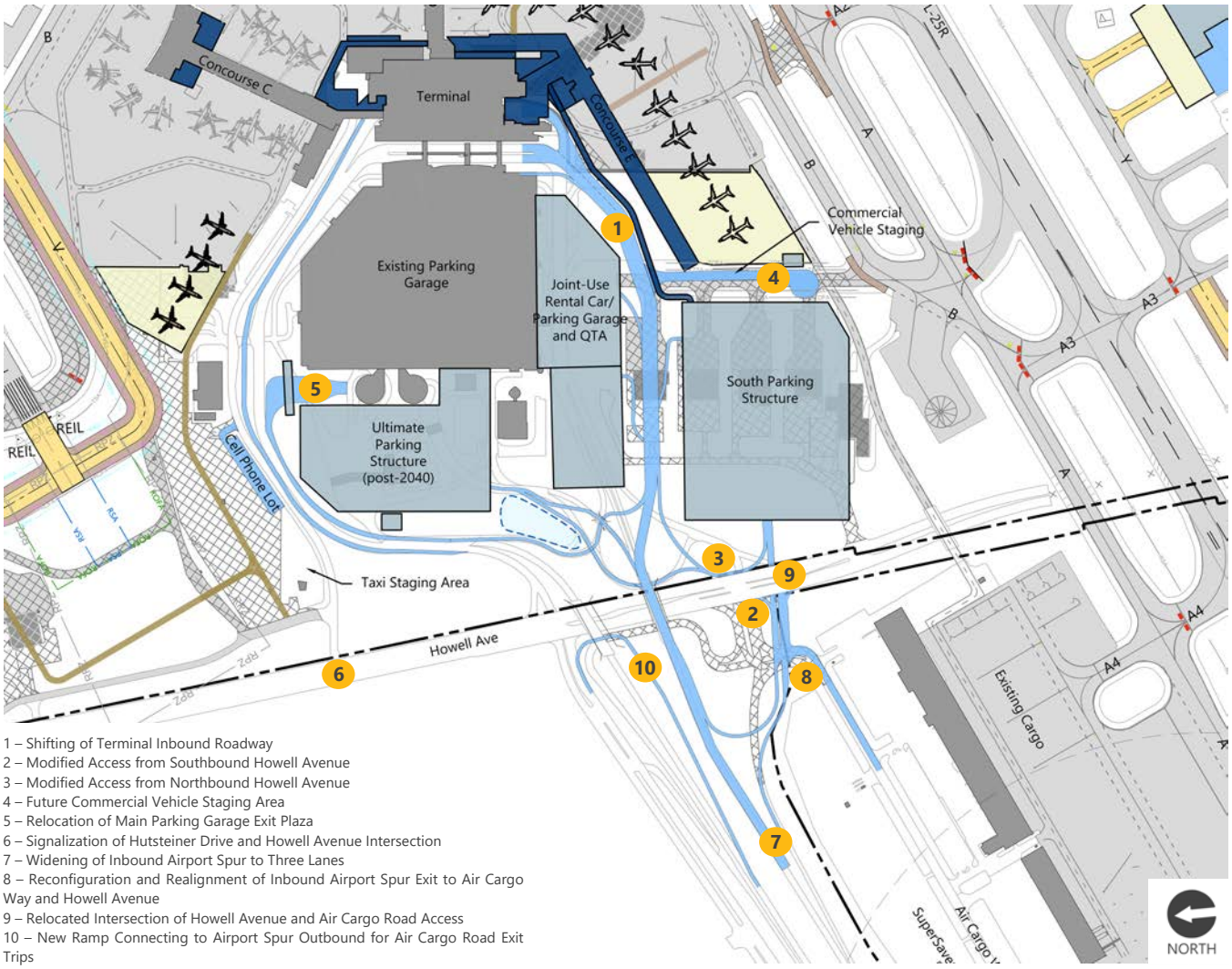
NOTES:
NAVIAD – Navigational Aid QTA – Quick Turn-Around REIL – Runway End Identification Lights RTR – Remote Transmitter/Receiver
RVR – Runway Visual Range VASI – Visual Approach Slope Indicator VSR – Vehicle Service Road
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., December 2019 (future landside development).

EXHIBIT 6-12 REFINED TERMINAL CURBSIDE



NOTES:
TNC – Transportation Network Company
Service – Service Vehicles
SOURCES: Martinez Geospatial, June 2018 (aerial imagery); Ricondo & Associates, Inc., May 2021 (curbside reallocations).

EXHIBIT 6-13 REFINED AIRPORT ACCESS ROADWAY IMPROVEMENTS

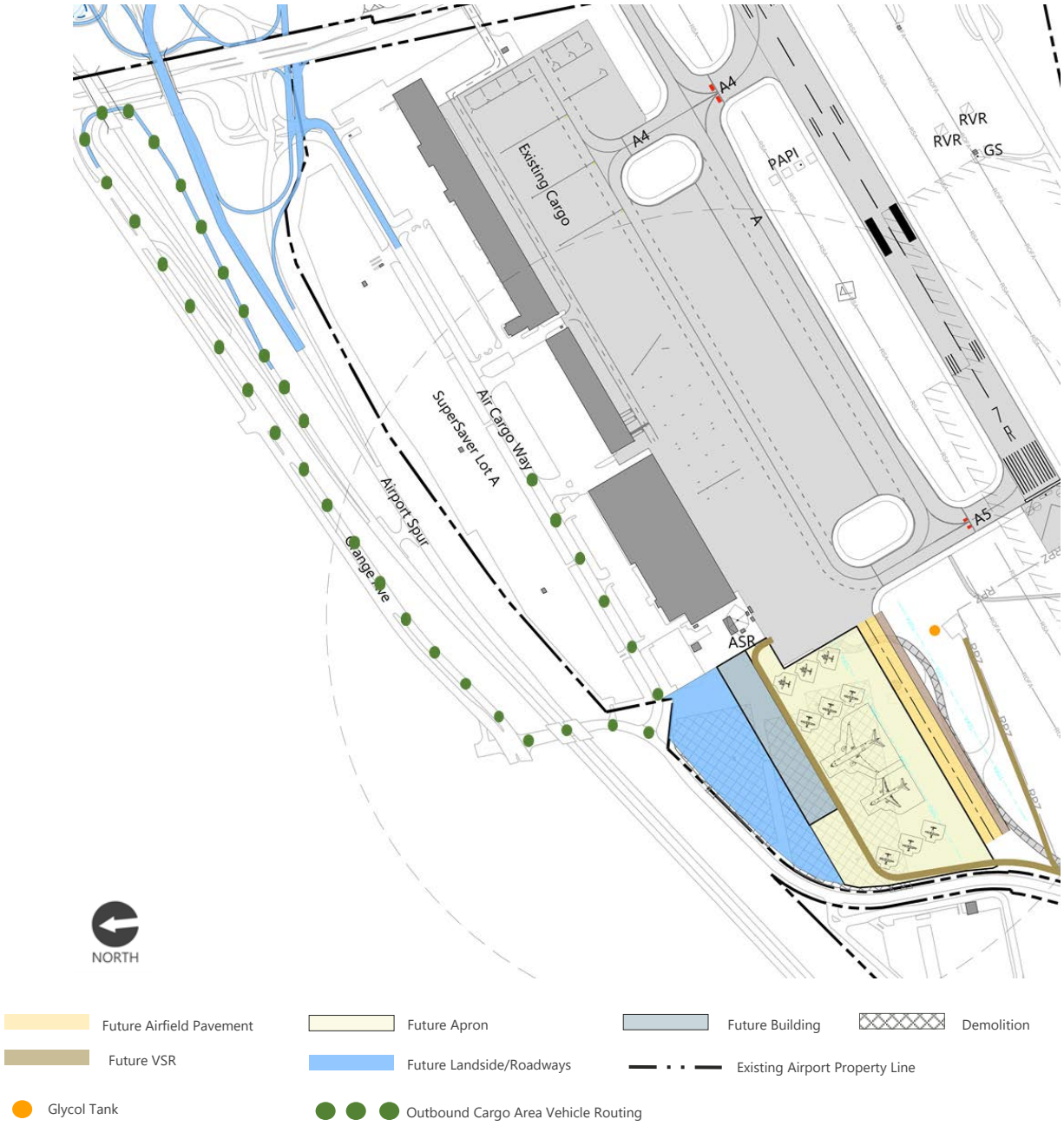


NOTES:
PAPI – Precision Approach Path Indicator
RTR – Remote Transmitter/Receiver
RVR – Runway Visual Range
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., December 2019 (future landside development).

- modification of inbound access to the terminal from southbound Howell Avenue, incorporating a new (righthand) roadway loop ramp splitting from Howell Avenue just north of the relocated intersection of Howell Avenue and Air Cargo Way (approximately 180 feet south of existing intersection), looping around to connect to the terminal inbound Airport Spur (element 2 in Exhibit 6-13)
- modified northbound Howell Avenue inbound access to terminal and parking (element 3 in Exhibit 6-13)
- incorporation of new future commercial vehicle staging area with turnaround loop located east of the future South Garage public and employee parking structure (element 4 in Exhibit 6-13)
- northeastward relocation of Main Parking Garage exit revenue plaza to intersect the terminal exit roadway closer to the parking structure, increasing the available weave distances for outbound vehicles by 500 to 600 feet and improving sightlines in merge areas (element 5 in Exhibit 6-13)

- improvement of access roadways to ensure safe and efficient access to the Airport
  - implementation of intersection improvements at E. Hutsteiner Drive as it intersects northbound and southbound Howell Avenue, including signalization and widening (element 6 in Exhibit 6-13)
  - widening of the eastbound Airport Spur bridge over Howell Avenue by striping one additional travel lane on the inbound Airport Spur to create a three-lane section (widening starts approximately 1,000 feet west of South 6th Street and continues to the bridge over Howell Avenue)—no widening of bridge structure is anticipated (element 7 in Exhibit 6-13)
  - reconfiguration and southward realignment of the inbound I-94 Airport Spur exit to Air Cargo Road and Howell Avenue to accommodate the new inbound terminal loop ramp and to improve the performance/level of service of the intersection of Air Cargo Way with the Airport Spur exit ramp (element 8 in Exhibit 6-13)
  - relocate signalized intersection (approximately 160 feet south of existing location) on Howell Avenue between Air Cargo Road access and the exit from the future South Garage (public/employee parking structure), supported by synchronized signaling (element 9 in Exhibit 6-13)
  - rerouting of outbound Air Cargo Way trips to the outbound Airport Spur (vehicles head west on Air Cargo Way to northbound 6th Street, to eastbound W. Grange Avenue, to a new connecting ramp to the repurposed reconfigured U-turn ramp under the Airport Spur outbound bridge, to the outbound ramp; the new ramp which merges on the left (south) side of the Airport Spur mainline to exit the Airport (element 10 in Exhibit 6-13) – **Exhibit 6-14** depicts the described routing.

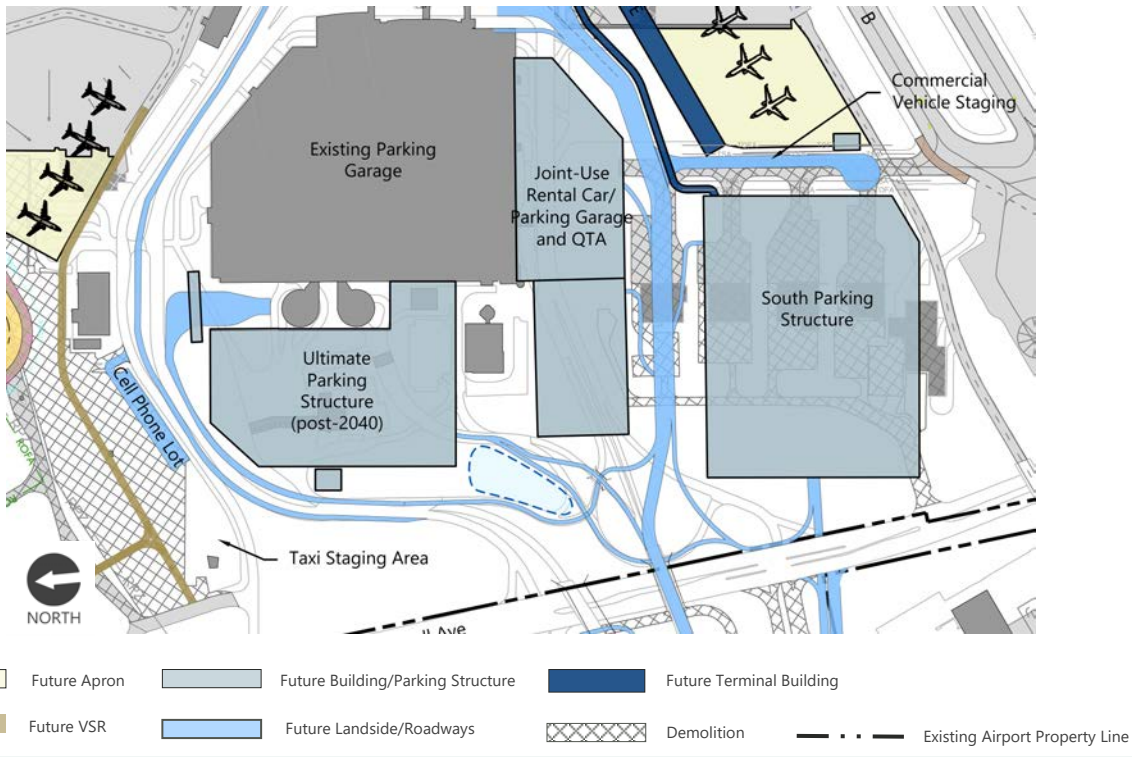
EXHIBIT 6-14 OUTBOUND AIR CARGO WAY VEHICLE ROUTING



SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., December 2019 (future landside development).

- accommodation of commercial vehicle staging in the terminal core area (public and charter buses, taxis, limousines, and commercial and TNC vehicles)
  - relocation of TNC vehicle staging, currently located in a lot in the MKE Regional Business Park on Burrell Street, to the future South Garage located on the south side of the reconfigured terminal entrance road (450 spaces)
  - relocation of bus staging to a dedicated staging roadway (adjacent to the future South Garage), configured for linear staging supported by a vehicle turnaround area at its south end and connected to the terminal entrance road
  - **Exhibit 6-15** shows the vehicle staging area components

EXHIBIT 6-15 VEHICLE STAGING AREAS



NOTE:
QTA – Quick Turn-Around
SOURCES: Crawford, Murphy & Tilly, Inc., *Milwaukee Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Ricondo & Associates, Inc., January 2021 (future landside development).

- relocation of cell phone lot to occupy the area immediately east of the modified taxi staging lot, accessible via E. Hutsteiner Drive so that vehicles are not required to transit the terminal roadway – Exhibit 6-15 depicts the relocated cell phone lot
- Phased expansion of public parking to meet future demand, recognizing that the parking facilities constitute a system intended to meet aggregate parking demand; as facilities are programmed and designed in the terminal core area, the incremental parking spaces gained may ultimately differ from that defined during the refinement of the Airport Development Plan due to project timing or project dependencies, revised project scopes, site

limitations, financial constraints, or other factors—should the number of spaces in the core area increase or decrease from that identified, sizes of other public parking facilities would be adjusted accordingly.

  - construction of new South Garage, located on the south side of the relocated terminal entrance roadway, to accommodate up to 9,000 spaces in a maximum six-level structure; this parking structure would be phased to meet demand with an anticipated 3-phase development
  - demolition of existing SuperSaver Lot B to allow cargo expansion, accommodating the 1,200 displaced spaces in the future South Garage
  - provision of an enclosed and conditioned grade-level walkway connection between a terminal entrance and the future South Garage, planned for a 10-foot width; a future option would be protected to ultimately replace the walkway with a second or third level pedestrian bridge connecting to the expanded joint use rental car/public parking facility on the north side of the terminal access road
  - southward expansion of the existing parking structure, accommodating up to 1,500 spaces in a six-level joint use rental car-parking structure
  - alternative or supplemental construction of up to a five-level parking structure (four levels for public parking and up to one level to accommodate FAA parking associated with the adjacent air traffic control tower and related facilities) immediately west of and connected to the existing parking structure, accommodating up to 2100 public parking spaces; timing and sizing of this ultimate parking structure expansion will be influenced by parking demand characteristics and allows for flexibility in accommodating future landside development (based on the potential for significant rehabilitation or required reconstruction of a portion of the existing parking structure near the end of the 2040 planning horizon, additional spaces may be needed to meet demand at that time)—the objective of the alternative expansion is to protect the area for future or replacement parking development
  - relocation of employee parking (approximately 600 spaces) to the future South Garage; limited Airport Administration employee parking to remain in existing gated lot west of the existing Airport Administration office space at the base of Concourse C
- expansion of rental car facilities and accommodation of an integrated Quick Turnaround (QTA) Facility
  - construction of a six-level joint use consolidated rental car facility (CONRAC) in the terminal core area (rental cars at lower levels, public parking on upper levels)
  - incorporation of the existing customer service area (currently located in the first level of the existing parking structure) into the CONRAC
  - accommodation of ready/return vehicle parking within the CONRAC
  - construction of an adjacent three-level QTA facility, which will accommodate vehicle fueling, washing, maintenance, stacking/staging, and administrative functions
  - continue rental car storage and staging at off-Airport locations (currently primarily located south of the terminal area and east of Howell Avenue) given the cost and space constraints associated with integrating it into a structure; shuttling between storage and the ready/return spaces would be done in off-peak times to limit the impact on roads/traffic
- accommodation of potential future transit connection (preserving the existing Amtrak station west of the Airport)

- accommodation of a future multimodal facility, should a transit or similar system extend closer to the Airport, is anticipated to be located outside of the terminal core area
- integration of a multimodal facility may occur on the east side of the Airport, which could be linked to the terminal by shuttle buses; specific facility requirements were not developed (without specific system parameters or vehicle type) but land is available on or adjacent to the Airport for this type of facility should an on-Airport public transportation connection emerge

6.4 REFINED SUPPORT FACILITIES DEVELOPMENT

Aviation support facilities were refined as a component of the Airport Development Plan. The refined support facilities include the following major components: general aviation (GA) facilities, cargo facilities, airline maintenance facilities, airport maintenance facilities, aircraft rescue and firefighting facilities (ARFF), Airport Administration, and other support facilities.

An addition to the ARFF station was recently completed, accommodating future emergency response needs developed under a separate study. No additional ARFF facilities were determined to be needed as the critical aircraft remained the same for the Airport.

6.4.1 GENERAL AVIATION FACILITIES

In the Airport Development Plan, GA facilities are accommodated in two campuses in the northern part of the Airport: one in the northwest quadrant and one in the northeast quadrant adjacent to existing GA facilities. Representative future GA development is defined for each of the two campuses/quadrants. In both, the taxiway backbones and existing GA facilities remain fixed; however, the plan retains flexibility to vary the individual facility (hangar) sizes based on specific user requirements at the time of development. The defined GA campuses provide a flexible guide for Milwaukee County to respond to both current and future GA development opportunities, with knowledge of how specific development will fit with the overall long-term plan.

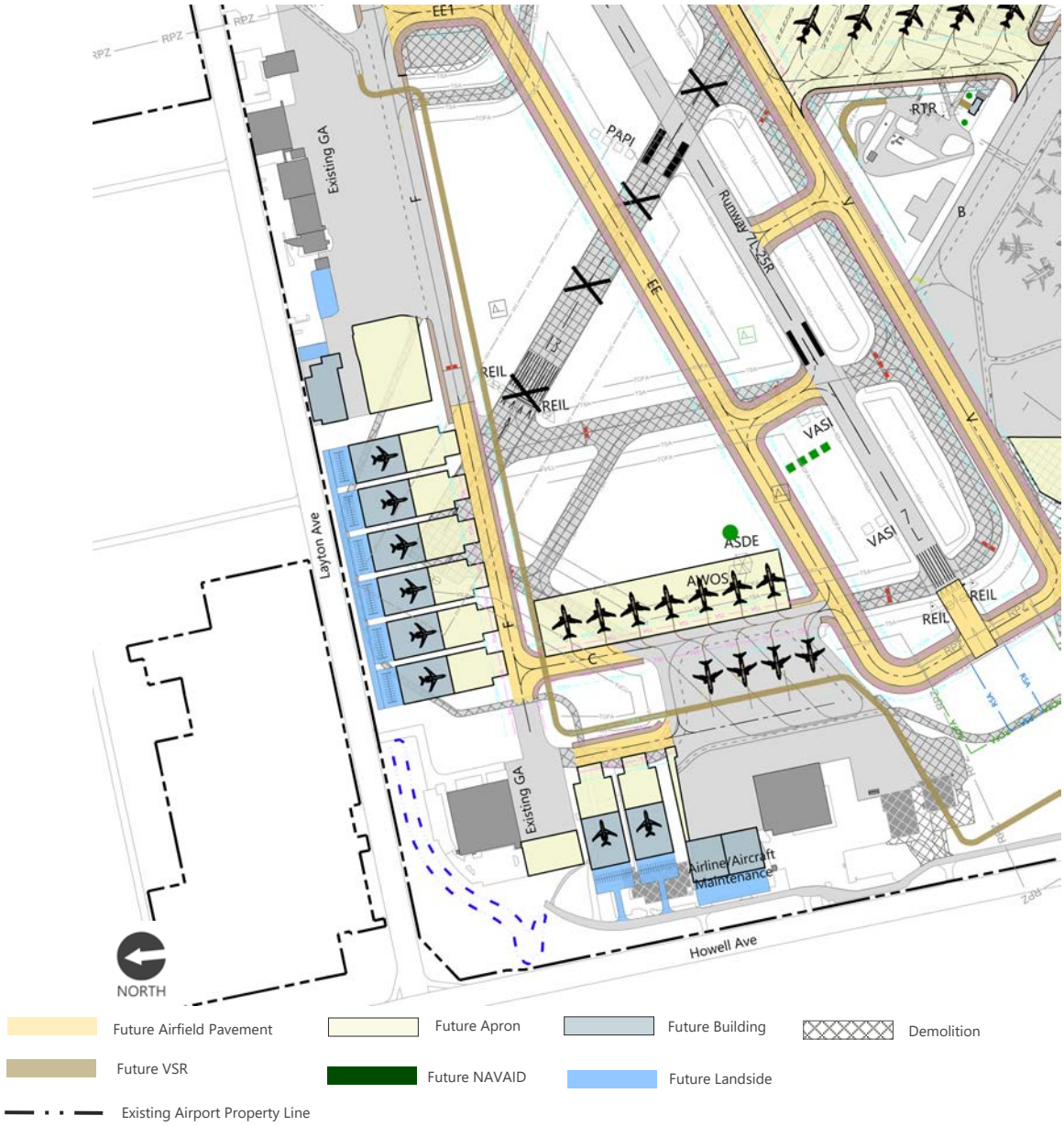
Standardized templates were used to define representative hangar sizes in planning the campus layouts. These include large and small corporate hangars, FBO and community aircraft storage hangars, and small and large single aircraft box hangars. Each of these would have an adjacent aircraft apron to accommodate the aircraft expected to use the facilities, as well as provide access to taxilanes. Tenant parking is planned for each area with access from public roadways. The two GA areas are identified as the Northwest GA Campus and the Northeast GA Campus.

6.4.1.1 NORTHWEST GA CAMPUS

The Northwest GA Campus is intended to accommodate corporate tenants with larger aircraft or multiple aircraft in their fleets. As depicted on **Exhibit 6-16**, each hangar has dedicated vehicle parking and apron. Each apron is planned to provide at least the depth of the associated hangar to allow aircraft to be staged for departure and for maneuvering multiple aircraft into and out of hangars. Each apron is connected to the network of airfield taxilanes and taxiways (Taxiways C and F).

Hangars in the northwest quadrant should be capable of accommodating representative business jets, such as Challenger 600 and 800 series, Falcon 900, and Gulfstream G500, G550, and G650. Taxilanes in this area are planned to support ADG III aircraft. To ensure future user flexibility and maintain the intent of this campus area as a home to larger corporate tenants, facilities should be planned to a minimum standard accommodating the current corporate GA market, with consideration of the potential for larger aircraft. A secure vehicle service road is provided through the Northwest GA Campus, at the limits of the Taxiway C and Taxiway F Object Free Areas.

EXHIBIT 6-16 NORTHWEST GA CAMPUS



NOTES:
ASDE – Airport Surface Detection Equipment AWOS: - Automated Weather Observing System REIL – Runway End Identification Lights
VASI – Visual Approach Slope Indicator
SOURCES:Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future general aviation development); Ricondo & Associates, Inc., January 2021 (future facilities).

6.4.1.2 NORTHEAST GA CAMPUS

The northeast quadrant GA campus is intended as a location for smaller aircraft, typically flown by a mix of recreational and business tenants. As depicted on **Exhibit 6-17**, the area is adjacent to and south of the existing GA facilities in this area. Airfield access is provided by two taxiways, one connecting to Runway 25R (via Taxiway H) and another to Runway 31 (interim condition) and Runway 25L (future condition, via Taxiway N). Vehicle access is provided by an existing public road off Layton Avenue (realigned to clear the Runway 25R runway RPZ in this area) via a new 24-foot wide access road. The future hangar access road would provide access to all three rows of GA hangars without vehicles having to cross active airfield pavement.

Subject to specific stormwater evaluation as development advances, a future detention basin is planned in the vicinity of the Northeast GA Campus to accommodate runoff from expanded impervious surfaces.

Existing GA facilities, immediately north of the future GA development, may eventually be redeveloped as age, size, or conditions dictate. This would occur in a phased manner within the Northeast GA campus as necessary.

As configured, hangars in the area could accommodate up to 21 aircraft in individual box hangars, with 8 small corporate hangars capable of storing a mix of small- to medium-sized GA aircraft. Representative hangars include the following:

- small corporate hangars of 10,000 square feet (approximately 100 feet by 100 feet)
- small box hangars of 1,968 square feet (approximately 48 feet wide by 41 feet deep for a single unit, with a door clearance of 44.5 feet wide by 14 feet high)
- large box hangars of 4,030 square feet (approximately 65 feet wide by 62 feet deep for a single unit, with a door clearance of 64.5 feet wide by 18 feet high)

The hangars are arranged in rows, either single depth or stacked back-to-back to use the space efficiently. Taxilanes and aircraft circulation areas are planned to accommodate ADG II aircraft. Vehicle parking is provided in proximity to the future hangars.

6.4.1.3 OTHER

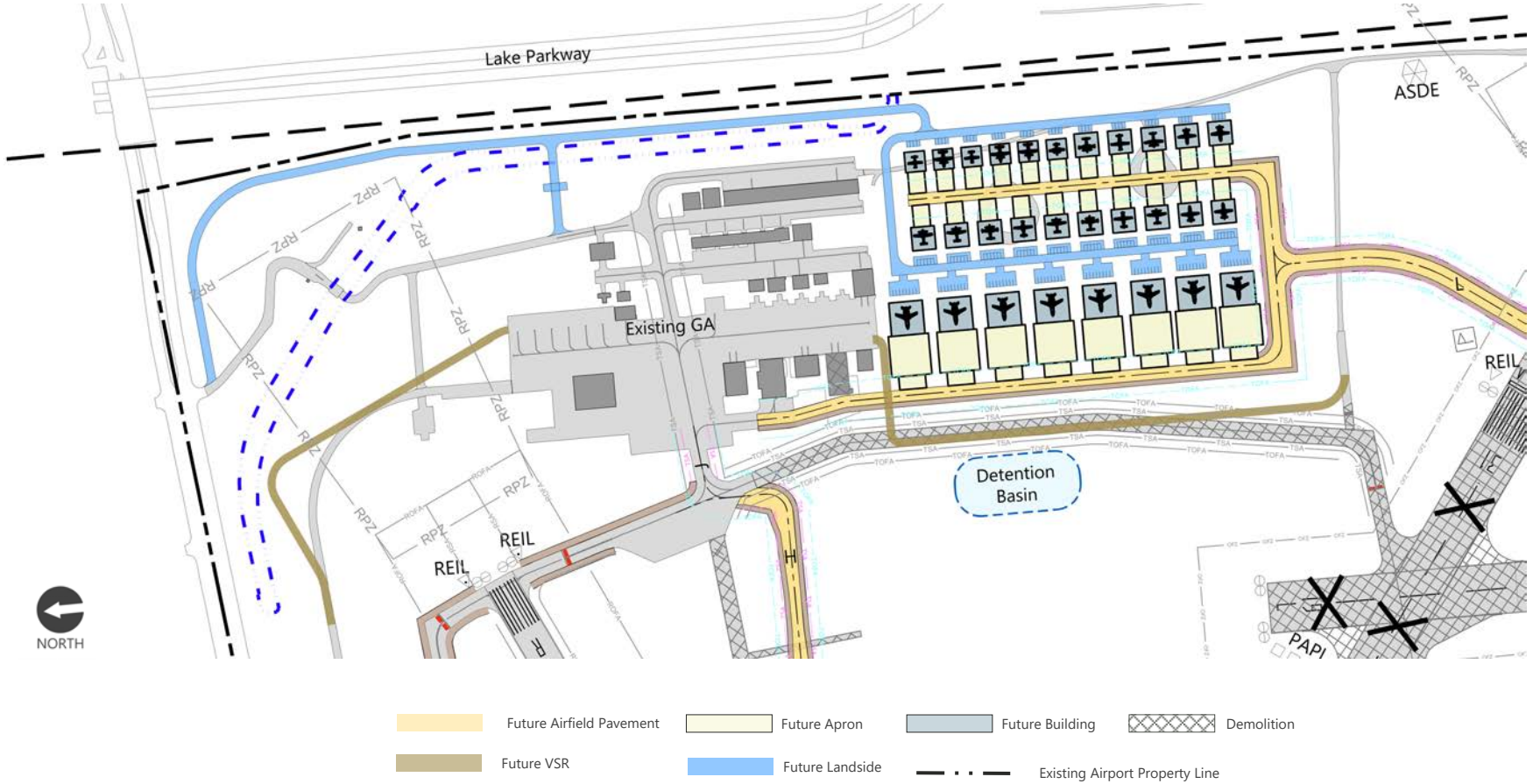
Additional existing GA facilities in the southern part of the Airport will remain in use and are accounted for in ensuring the future facility requirements are accommodated at the Airport.

6.4.2 CARGO FACILITIES

Approximately 681,000 square feet of additional cargo development (apron, building, landside facilities) would be required over the 2040 planning horizon under the baseline forecast, with an additional 558,000 square feet needed to support the high growth scenario. In addition to the existing cargo facilities located in the Runway 7R west cargo area, which will remain in place and operational to meet overall cargo demand, the west cargo area will be expanded to the southwest to accommodate additional cargo building, aircraft ramp, and landside facilities, as shown on **Exhibit 6-18**. The existing secure vehicle service road (VSR) will be realigned to accommodate this expansion, configured similarly to the existing service road adjacent to existing cargo buildings. This expanded cargo area will be connected to the existing west cargo ramp by a taxilane meeting ADG V standards.

Defined expansion of the west cargo area will require the relocation of the existing glycol storage tank in this area and protection of the existing Airport Surveillance Radar (ASR). Vehicle access is provided by Air Cargo Way.

EXHIBIT 6-17 NORTHEAST GA CAMPUS



NOTES:
ASDE – Airport Surface Detection Equipment
GA – General Aviation
PAPI – Precision Approach Path Indicator
REIL – Runway End Indicator Lights
VSR – Vehicle Service Road
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future general aviation development); Ricondo & Associates, Inc., January 2021 (future facilities).

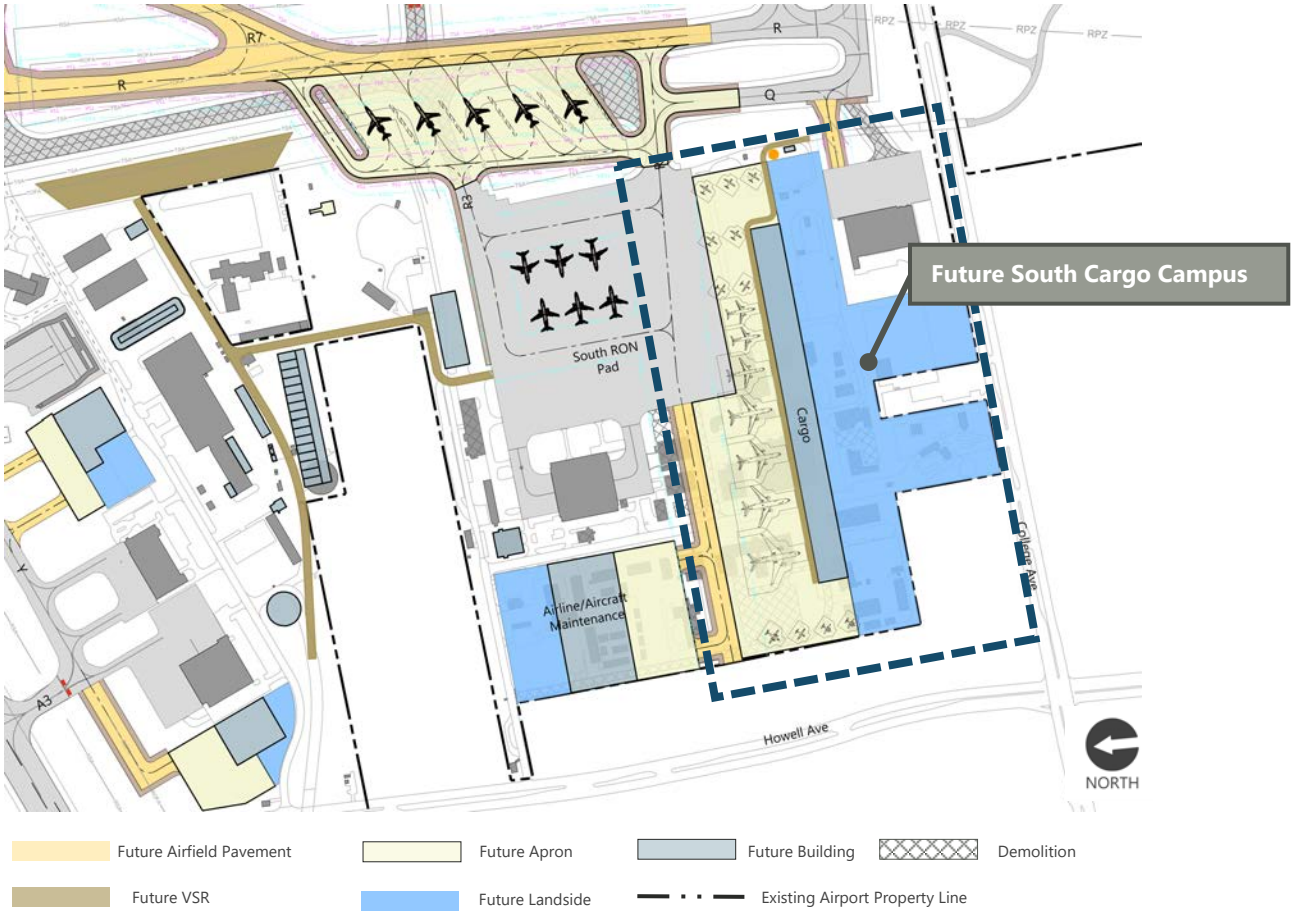
EXHIBIT 6-18 WEST CARGO CAMPUS EXPANSION

NOTES:
DME – Distance Measuring Equipment
LOC – Localizer
MALSR – Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights
PAPI – Precision Approach Path Indicator
RVR – Runway Visual Range System
VSR – Vehicle Service Road
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future cargo development).

Future cargo activity will also be accommodated by the redevelopment of the MKE Regional Business Park (business park), as triggered by demand and/or tenant requests. **Exhibit 6-19** depicts this conceptual redevelopment. The southern portion of the business park would encompass cargo buildings, aircraft ramp, and supporting landside facilities. The cargo ramp would be connected to the airfield by a taxilane meeting ADG V dimensional standards, connecting to Taxiway R4.

The south cargo campus aircraft apron is planned to accommodate up to four widebody aircraft and three narrowbody aircraft, as well as anticipated smaller "feeder" aircraft used to deliver air freight to smaller markets.

EXHIBIT 6-19 FUTURE SOUTH CARGO CAMPUS



NOTES:
RON – Remain Overnight
SRE – Snow Removal Equipment
VSR – Vehicle Service Road
SOURCES: Crawford, Murphy & Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future cargo development); Ricondo & Associates, Inc., January 2021 (future facilities).

6.4.3 AIRLINE/AIRCRAFT MAINTENANCE FACILITIES

Approximately 242,000 square feet of airline/aircraft maintenance facilities (apron, building, landside facilities) would be required over the 2040 planning horizon under the baseline forecast, with an additional 55,000 square feet needed to support the high growth scenario. In addition to the existing airline maintenance facilities located in the Runway 7R west cargo area, future airline maintenance facility development is planned for a redeveloped area in the northwest portion of the MKE Regional Business Park, a redeveloped site in the northwest quadrant of the airport (one existing airline maintenance hangar requires relocation to accommodate the future westward extension of Runway 7L), and a future site on the south side of Runway 7R-25L. This development will be triggered by demand and/or tenant requests.

The conceptual business park redevelopment is depicted on **Exhibit 6-20**, while the facility relocation in the northwest quadrant and the future facility on the south side of Runway 7R are shown on **Exhibit 6-21** and **Exhibit 6-22**, respectively. These developments will encompass maintenance hangars, aircraft ramp, and supporting landside facilities. The airline/aircraft maintenance campus in the MKE Regional Business Park would be connected to the airfield by a taxilane meeting ADG V dimensional standards, which would also be used by cargo aircraft. Maintenance facilities in the northwest quadrant would be connected to the airfield by refinements to the existing taxiway network, accommodating ADG III aircraft.

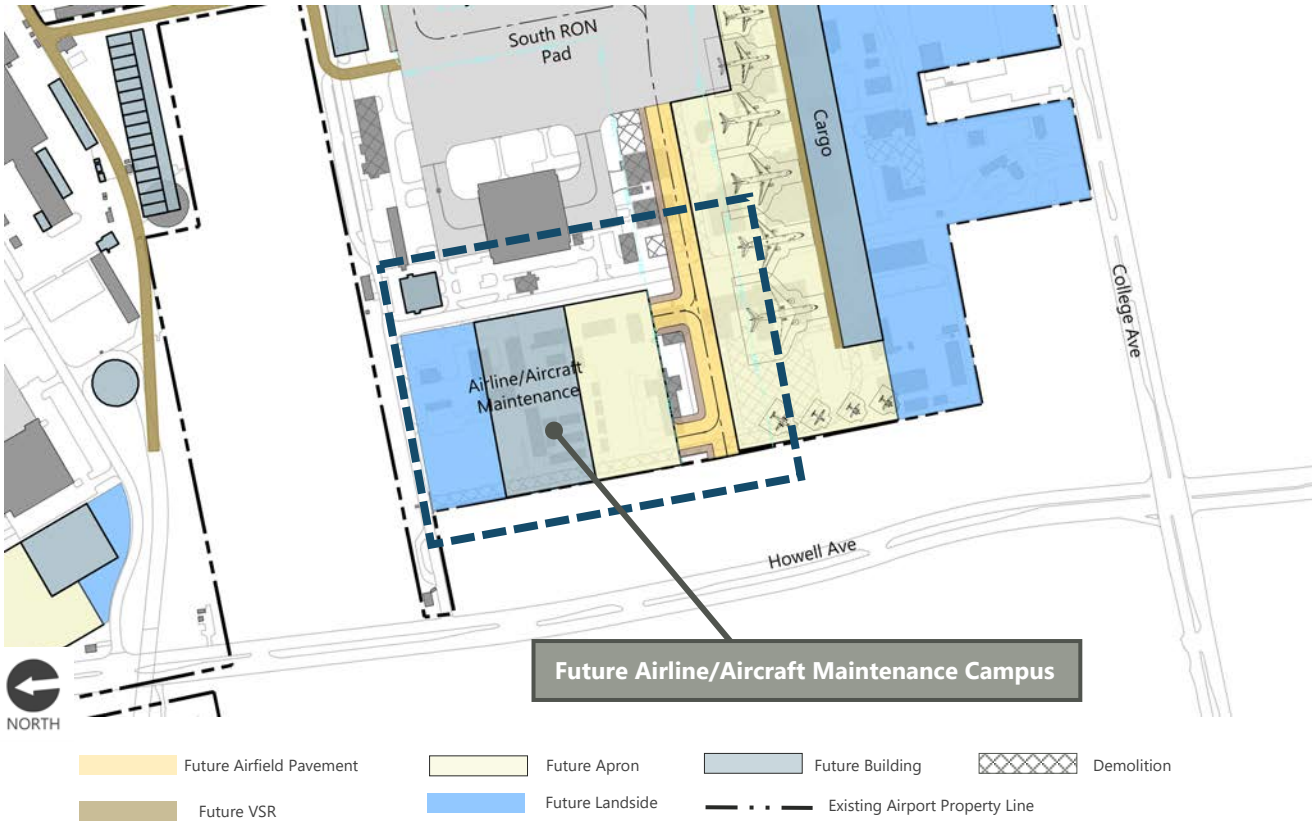
Additionally, the current Delta Air Lines ground service equipment (GSE) maintenance facility would be relocated south of future Concourse E to accommodate expansion of the concourse in this area.

6.4.4 AIRCRAFT RESCUE AND FIRE FIGHTING FACILITIES

No modifications are planned for the existing aircraft rescue and fighting (ARFF) facility as it meets current equipment, extinguishing agent, and response time requirements for Index C and was recently expanded. Even though designated as ARFF Index C the Airport can accept aircraft diversions, including the diversion of aircraft with fuselage lengths of 159 feet or greater (Index D or Index E). The Airport's ARFF Index is determined based on the longest aircraft with five or more scheduled daily departures; however, this does not prohibit the operation of larger aircraft on a limited basis.

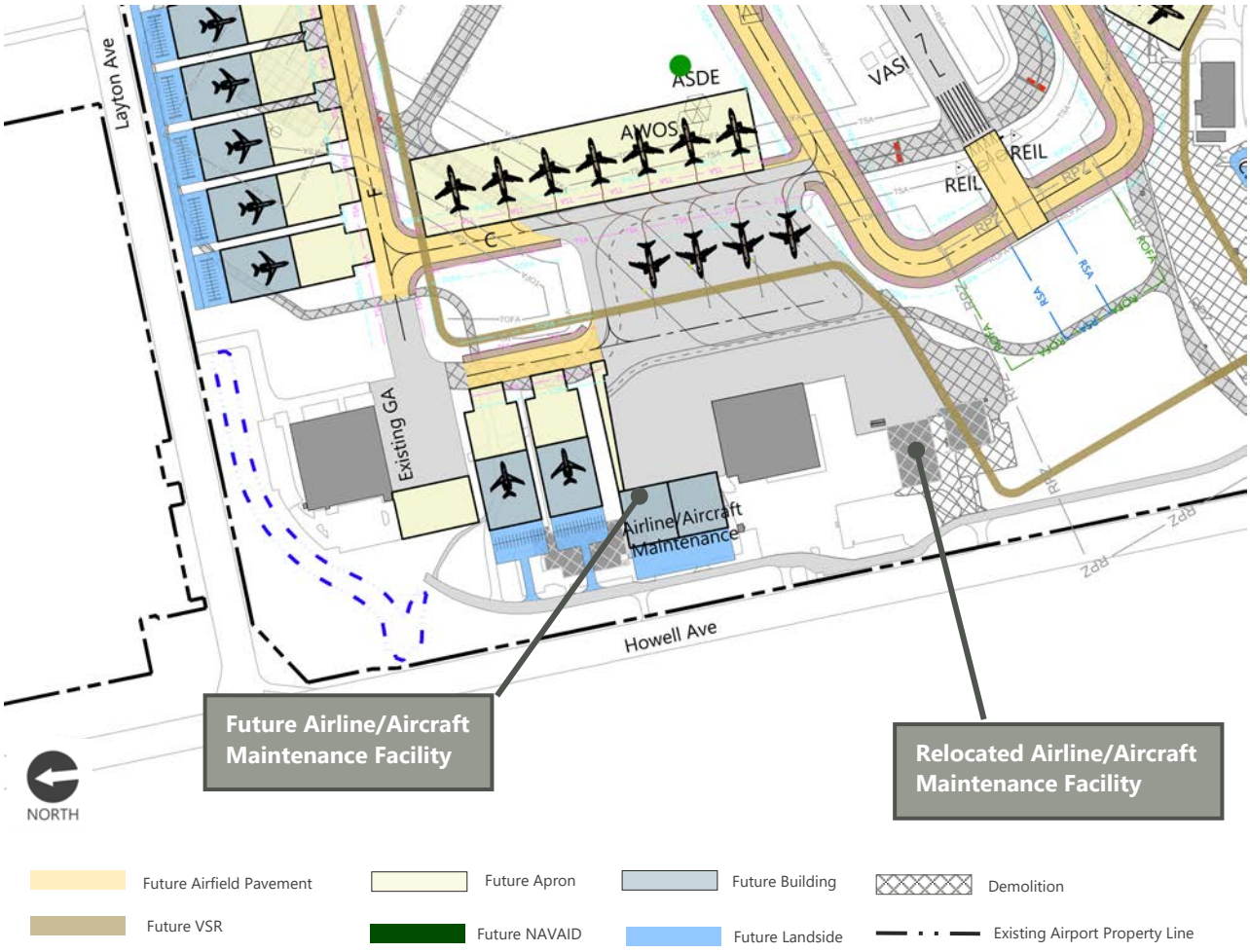
A future snow removal equipment (SRE) staging pad, located at the east end of the Airport Maintenance complex of facilities, west of existing Taxiway R, will allow the staging of SRE equipment without the need to use a portion of the ARFF access road to access the airfield. This will minimize the potential for interaction between staging SRE and responding ARFF vehicles.

EXHIBIT 6-20 FUTURE AIRLINE/AIRCRAFT MAINTENANCE FACILITY CAMPUS



NOTES:
RON – Remain Over-Night
SRE – Snow Removal Equipment
VSR – Vehicle Service Road
SOURCES: Crawford, Murphy and Tilly *Milwaukee Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future airline maintenance development); Ricondo & Associates, Inc., January 2021 (future facilities).

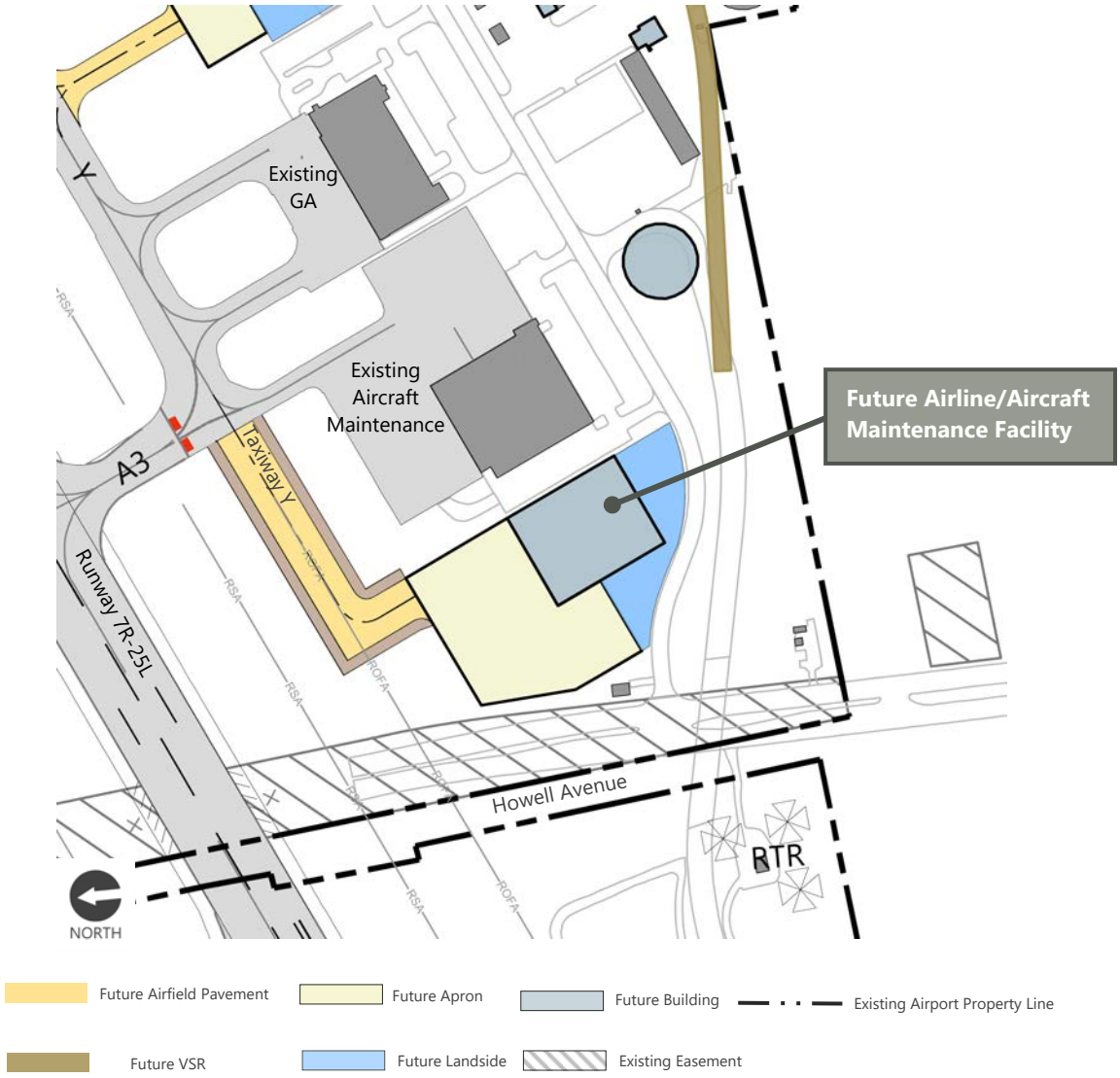
EXHIBIT 6-21 FUTURE AIRLINE/AIRCRAFT MAINTENANCE FACILITIES – NORTHWEST QUADRANT



NOTES:
1 ASDE – Airport Surface Detection Equipment
2 GA – General Aviation
3 VSR – Vehicle Service Road

SOURCES: Crawford, Murphy and Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February May 2019 (base linework); Mead & Hunt, Inc., March 2019 (future airline maintenance development); Ricondo & Associates, Inc., January 2021 (future facilities).

EXHIBIT 6-22 FUTURE AIRLINE/AIRCRAFT MAINTENANCE FACILITIES – WEST



NOTES:
1 RTR – Remote Transmitter/Receiver
2 VSR – Vehicle Service Road

SOURCES: Crawford, Murphy and Tilly, Inc., *General Mitchell International Airport, Airport Layout Plan*, February 2019 (base linework); Mead & Hunt, Inc., March 2019 (future airline maintenance development); Ricondo & Associates, Inc., January 2021(future facilities).

6.4.5 FEDERAL AVIATION ADMINISTRATION FACILITIES

6.4.5.1 AIR TRAFFIC CONTROL TOWER

The air traffic control tower (ATCT) is proposed to remain in place, at its current elevation. A high-level line-of-sight analysis was performed to ensure that future facilities would not impact the line-of-sight between the ATCT and critical operational pavements. No line-of-sight impacts to runway centerlines were identified as part of the airport development plan line-of-sight assessment; key features of the plan are not anticipated to cause adverse impacts. **Exhibit 6-23** depicts the line-of-sight to the runway ends based on runway threshold elevations reflected on the ALP.

However, it is critical that line-of-sight be considered in the design of specific projects that have the potential to impact clear line-of-sight to critical airfield facilities. In particular, the future parking structures to the north and south of the ATCT are anticipated to be restricted in maximum elevation to prevent impact to air traffic controller line-of-sight to critical airfield elements.

- Future South Garage – a maximum of up to six levels may be possible (depending on floor spacing and equipment or appurtenances on the top level) without shadowing the air traffic control line-of-sight to the centerline of Runway 7R-25L. Consideration of potential impacts to the line of sight to the Taxiway A and Taxiway B centerlines will be required. The southern corner adjacent to the airport service road may require terracing (reducing a portion of the top level of the structure by up to one level) to ensure adequate line-of-sight to Taxiway A and the intersection with Taxiways A and B, south of the compass pad. The compass pad may require a westward shift or additional terracing may be needed if line-of-sight is required to be maintained to the pavement in this area. Adequacy of visibility to aircraft fuselages or tails will be determined prior to parking structure design.
- Future West Garage – a maximum of up to five levels may be possible (depending on floor spacing and equipment or appurtenances on the top level) without shadowing the air traffic control line-of-sight to the centerline of Runway 7L-25R. Consideration of potential impacts to the line-of-sight to the future Taxiway V centerline will be required.

6.4.5.2 AIRPORT SURFACE DETECTION EQUIPMENT AND AIRPORT SURFACE OBSERVATION STATION

The Airport Surface Detection Equipment (ASDE) facility and Airport Surface Observation Station (ASOS) facilities will be relocated to accommodate future expanded RON parking areas and future taxiway systems north of Runway 7L-25R. These facilities will be relocated adjacent to the existing locations and will not shift significantly relative to other airfield elements.

6.4.5.3 COMPASS CALIBRATION PAD

The compass pad may require a westward shift or relocation to accommodate the future South Garage given the potential for structures within 300 feet or a magnetic object (e.g., vehicle parking) within 600 feet of the calibration pad to impact magnetic readings. The future South Garage has the potential to impact the compass calibration pad given that it will house parked vehicles. Garage design may be able to mitigate some potential for magnetic interference; however, additional analysis will be required at the time of the design the parking structure.

Additionally, further terracing of one or more upper levels of the future South Garage may be needed if the compass calibration pad remains in the current location and unobstructed line-of-sight is required to the pavement in this area.

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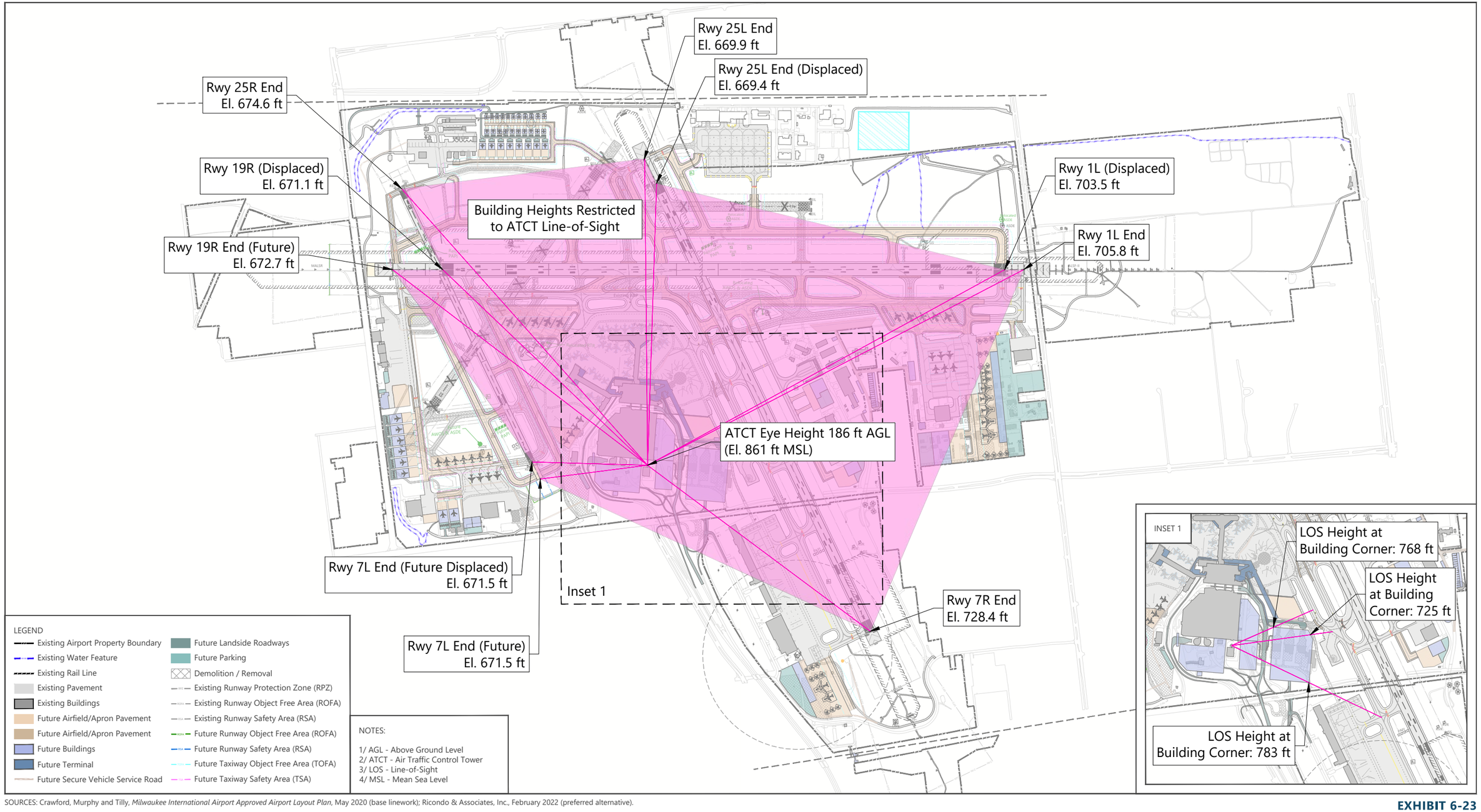

SOURCES: Crawford, Murphy and Tilly, *Milwaukee International Airport Approved Airport Layout Plan*, May 2020 (base linework); Ricondo & Associates, Inc., February 2022 (preferred alternative).

EXHIBIT 6-23

AIR TRAFFIC CONTROL TOWER LINE-OF-SIGHT

Drawing: P:\Project-Chicago\MKE\MKE Master Plan Update\Master Plan Project 2018\08 - Alternatives Analysis\8.3 - Selection of Preferred Alternative\CAD\MKE LOS.dwgLayout: LOS Plotted: Apr 13, 2022, 10:08PM

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6.4.6 OTHER AIRPORT FACILITIES

6.4.6.1 COUNTY HIGHWAY DEPARTMENT

Future modifications to the existing Airport Maintenance Complex, which currently houses Milwaukee County Highway Department facilities and equipment, are focused on accommodating projected expansion needs and organizing facilities for more efficient and segregated operation of the Airport and the Highway Department. As the Airport Maintenance Complex evolves, Airport maintenance facilities will remain along the northern edge of the MKE Regional Business Park, connected by a secure vehicle service road (VSR). The VSR modifications will eliminate the current need for Airport vehicles to leave and reenter the secure environment when transiting this area, as well as enhance the overall on-Airport perimeter VSR.

6.4.6.2 AIRPORT ADMINISTRATION

No changes to existing Airport Administration office footprint, located in a two-level pier at the base on Concourse C, are planned through the 2040 planning horizon. As Airport Administration space needs increase over the planning horizon, it is anticipated that these needs will be accommodated through reorganization of existing spaces and utilization of portions of the existing upper level of the terminal building as security screening checkpoint consolidation provides both expanded space at the upper level and allows the reconfiguration of existing spaces from concessions to other uses.

6.4.6.3 DATA RECOVERY CENTER

The Airport's current data recovery center, located in the MKE Regional Business Park, may be impacted by future redevelopment, depending on the size, type, and configuration of future facility development in this area. If impacted, this facility would be redeveloped in the northern portion of the existing business park, adjacent to aeronautical facilities and accessible by public roadway.

6.4.6.4 ELECTRICAL VAULT

The electrical vault serving the terminal and parking structures, currently located immediately west of the existing parking structure and north of the FAA ATCT, will require relocation in the event the future West Parking Garage expansion project is initiated. If necessary, the electrical vault would be relocated to the west side of the future West Garage in order to accommodate vehicle circulation between the existing and future parking facilities.

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