

Appendix B

APRON OPTIONS



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Eastside Apron Options

Apron Reconfiguration Needs

The master plan evaluated options to reconfigure the Eastside Apron (also called the East Ramp). The aged and deteriorated apron surface needs to be resurfaced in the next 5 years. During resurfacing, the airport also wishes to address:

- Increasing drive through tie downs.
- Increasing tie downs with electrical service.
- Consolidating ski tie downs into one area near the ski strip to reduce the amount of apron and taxiway surfaces maintained with a snow surface.
- Improved spacing for ski equipped aircraft areas to aid in maneuverability
- Providing drive through tie downs for all ski tie downs, due to the difficulties in taxiing ski equipped aircraft.
- Widening on-apron taxilanes to meet FAA standards.
- Removing parked aircraft from the Taxiways C and D Taxiway Object Free Areas (TOFA).
- Configuring tie downs to discourage incursions and provide indirect taxiway access from the apron to the runways.
- Providing vehicle driving lanes along Taxiway D to handle the large number of vehicles that currently drive on Taxiway D.
- Providing an on-apron fueling area for ski and wheeled equipped aircraft and locating transient tie downs near the fueling area.
- Providing a transient drop off/pickup area north of the pilot lounge, with a fence and personnel-gate separating the aircraft loading/unloading area from the vehicle loading/unloading areas. This would be located at the current Sholton Access Road, with vehicle access to the road permanently closed.

Apron Parking Demand

Table 1 below shows there are 294 existing tie downs and transient tie downs and approximately 204 are currently occupied. The master plan proposes construction of 229 tie downs and reduction of transient tie downs from 39 to 9. 255 existing non-transient tie downs are proposed to be reduced to 220. This reduction still permits modest growth and accommodates seasonal adjustments between paved, ski and floatpond areas to ensure year-round access for all.

Table 1: Existing/Proposed Tie Downs

Type of Tie Down Parking	Existing	Existing Occupied	Proposed 2020
Paved Pull Through	51	45	120
Paved Push Back	204	151	100
East Ramp Subtotal	255	196	220+
Paved Transient Tie-Downs	39	Peak day 8	9++
East Ramp Total	294	204	229

+ includes approximately 50 ski tie downs

++ Includes at least 4 transient ski tie downs

Aircraft Size Requirements

The master plan mapped the layout of the East Ramp apron based on aircraft wingspans using N Numbers from FAI records, the FAA N-Number database and manufacturer aircraft data. Results are summarized in Table 2. Most East Ramp apron-based aircraft have wingspans of 37 feet or less, well within ADG I standards. Ten aircraft have greater than a 37-foot wingspan and 2 aircraft exceed the ADG 1 standard of less than a 49-foot wingspan.

Table 2: East Ramp Wingspans

Wingspans 2018 (rounded)	Number of Tie Downs	% of Total
52	2	1%
48	2	1%
41	3	1.5%
39	2	1%
38	1	.5%
37	3	1.5%
36	104	54%
35	29	15%
34	6	3%
33	18	9%
32	2	1%
30	10	5%
29	1	.5%
26	5	3%
25	1	.5%
24	1	.5%
22	4	2%
Total	194	100%

Based on N Numbers reported to airport; where multiple N Numbers used largest wingspan

Based on these figures of 2018 East Ramp use, East Ramp apron options assume all ski aircraft have less than a 37 feet wingspan, 169 wheeled aircraft have less than a 37 feet wingspan, and 10 aircraft had wingspans from 38 to 52 feet. The East Ramp occasionally accommodates larger transient aircraft, so 2 larger transient tie downs are proposed for aircraft with wingspans of 46 feet and 65 feet.

Current Apron Layout

Sheet 1 shows the existing East Ramp apron layout. Notably, existing aircraft tie downs are located within the TOFA's for Taxiways C and D and taxilanes on the apron (between parking rows) are unusually narrow, approximately 50 feet wide. While most FAI tie downs are designed for aircraft of up to 40-foot wingspans, FAI's existing 50-foot-wide taxilanes are only adequate for aircraft of up to 25-foot wingspans (FAA AC 150/5300-13A). FAI's East Ramp apron taxilanes should be widened to meet FAA standards and improve safety.

Several existing apron taxilanes, S, B, T, U, and V, are directly in-line with runway connector taxiways providing direct runway access. FAA design standards (AC 150/5300-13A Chapter 4) discourage direct access between aprons and runways. FAI's East Ramp taxilanes should be reconfigured to prevent direct access between aprons and runways and to reduce runway incursions. A variety of options exist for FAI, including the addition of islands, aircraft parking configuration and taxiway connector location shifts.

Apron Options

Sheets 2 – 5 depict the apron options considered. 3 options orient aircraft in east-west rows and 1 option orients aircraft in north-south rows.

Taxiway/Taxilane Standards. All options assumed a Taxilane D Taxiway Design Group (TDG) 2 with a taxilane object free area (TOFA) of 115 feet to enable larger aircraft to taxi between lease lots and the GA runway. Taxiway C is assumed to have a TDG 2 taxiway TOFA of 131 feet. In certain options, TW C is partially reduced to a TDG 1 taxiway TOFA of 89 feet to allow for additional ski tie downs. The ski strip is also reduced to ADG I standards, as most FAI ski equipped aircraft are ADG I.

Recommended taxilane TOFA widths on the apron vary by location. In general, a wide 115 TOFA taxilane is recommended on the south end and at transient/fueling areas where larger aircraft operate and park. Most push back tie downs have a 65 foot TOFA, suitable for aircraft with a maximum wingspan of 37 feet. Most pull through tie downs have a 79-foot taxilane TOFA, suitable for all TDG 1 aircraft. To ease maneuvering challenges, ski aircraft taxilanes all feature 79-foot TOFA's. Transient aircraft areas are planned with wider TOFA's to account for differing aircraft sizes and lower airport familiarity.

Road/Taxiway Separation. To better separate vehicle and aircraft traffic on Taxilane D, options show a proposed driving lane parallel to Taxiway D. A delineator separating Taxiway D from the driving lane is recommended to aid vehicles and aircraft in identifying operational surface boundaries. The delineator should not be a hazard to aircraft or impede snow removal or snow pack management and should be

visible in all seasons, including heavy snow years. The delineator should not disrupt aircraft access to/from lease lots and, ideally would aid in identifying areas where aircraft will cross the driving lane to access lease lots. Some options to be considered include short sections of low-profile guardrail or bollards periodically placed along the edge of the driving lane, sections of curb, or plastic 'whiskers', similar to existing driving lane delineators used along FAI's West Ramp.

Option 2A/Sheet 2 – East/West Parking with Taxiway C Shifted 150' of Ski Strip, Expanded Hangar Lease Area

Description: This option continues the east/west parking orientation that exists today, which points aircraft into prevailing winds. This option assumes RW2R-20L is shortened prior to apron reconfiguration and that the ski strip is reduced to ADG 1, enabling a western shift of the Taxiway C centerline within 150 feet of the ski strip centerline. Push back tie downs are provided on shorter rows near the south end of the apron and pull through tie downs on longer rows are located near the north end. Ski aircraft are parked along relocated Taxiway C, all in pull through configuration for ease of maneuverability. Apron fueling and transient tie down areas are adjacent to ski and wheeled aircraft parking. This configuration allows for an expanded hangar lease area on the north end of the existing apron.

Meets Anticipated Demand? Yes. 230 total tie downs, 118 are pull through spaces.

Other Considerations: The area designated for new hangar leases provides flexibility to increase the number of pull through tie downs, increase wingspans and increase TOFA's if needed during design.

Cost: \$15.0 Million

Option 2B/Sheet 3 – East/West Parking with Taxiway C Shifted 350' of Ski Strip

Description: This option continues the east/west parking orientation that exists today, which points aircraft into prevailing winds. The option assumes the ski strip is reduced to ADG 1, enabling a western shift of the Taxiway C centerline within 150 feet of the ski strip centerline. Push back tie downs are provided on shorter rows near the south end of the apron and pull through tie downs on longer rows are located near the north end. Ski aircraft are parked on the north end of the apron, all in pull through configuration for ease of maneuverability. Apron fueling and transient tie down areas are adjacent to ski and wheeled aircraft parking.

Meets Anticipated Demand? Yes. 235 total tie downs, 123 are pull through.

Other Considerations: Most of this configuration fits on existing paved surfaces, and requires only a small expansion of the existing apron and Taxiway C. If more tie downs are needed in the future, Taxiway C could be shifted closer to the ski strip when needed.

Cost: \$14.2 Million

Option 2C/Sheet 4 – East/West Parking with Taxiway C Shifted 150' of Shorter RW 2R/20L, Expanded Hangar Lease Area

Description: This option continues the east/west parking orientation that exists today, which points aircraft into the prevailing winds. This option assumes RW2R-20L is shortened prior to apron reconfiguration and that the ski strip is reduced to ADG 1, enabling a western shift of the Taxiway C centerline within 150 feet of the ski strip centerline. A mix of push back and pull through tie downs are

provided on long rows near the south end created by shifting Taxiway C. Ski aircraft are parked along the north end of the new apron, all in pull through configuration for ease of maneuverability. Apron fueling and transient tie down areas are adjacent to ski and wheeled aircraft parking. Because of the southern shift of tie downs, the fueling area is closer to many of the southern lease lots than other options. This configuration allows for a very large hangar lease area on the north end of the existing apron.

Meets Anticipated Demand?: Yes. 240 total tie downs, 138 are pull through.

Other Considerations: The area designated for new hangar leases provides flexibility to increase the number of pull through tie downs, increase wingspans and increase TOFA's if needed during design.

Cost: \$15.6 Million

Option 2D/Sheet 5 – North/South Parking – Taxiway C Not Shifted

Description: This option features a north/south parking orientation, which points aircraft crosswind to the prevailing winds. This option does not require shortening RW2R/20L or reducing the ADG for the ski strip. Push back tie downs on the east side of the apron would push back into the TOFA of Taxiway D and onto the taxiway in the center of the apron. Pull through tie downs are located on the west side with direct access from Taxiway C. Ski aircraft are located adjacent to the ski strip, with both push back and pull through configurations. Apron fueling and transient tie down areas are adjacent to ski and wheeled aircraft parking.

Meets Anticipated Demand? Yes. This option meets total tie down demand, with 236 tie downs, however it only provides 79 pull through tie downs. It does not meet the goal to provide all ski tie downs as pull through.

Other Considerations: This configuration fits entirely on existing paved surfaces, and requires no expansion of the existing apron and Taxiway C. It is the least expensive option. If more tie downs are needed in the future, Taxiway C could be shifted closer to the ski strip when needed. Users have concerns about parking in a crosswind configuration.

Cost: \$12.2 Million

Recommended Apron Layout – 2. East/West Parking with Taxiway C Shifted 150' of Ski Strip, Expanded Hangar Lease Area

The recommended apron layout is a variation of Option 2A, shown on **Sheet 6**. The primary changes to Option 2A for the recommended apron layout were:

- Ski aircraft are all drive through and all in rows extending from TWC to TWD. 2A showed ski aircraft in partial rows allow TW C.
- Apron fueling and transient parking areas shift closer to existing pilot's lounge. It is expected that passenger and cargo loading will take place on a lease lot or in the transient loading/unloading area to prevent passengers from crossing taxiways to access aircraft.
- Provided larger aircraft parking areas near fueling area. Wheeled aircraft on the west side and ski aircraft on the east.
- Added area designated for a future aircraft wash facility.

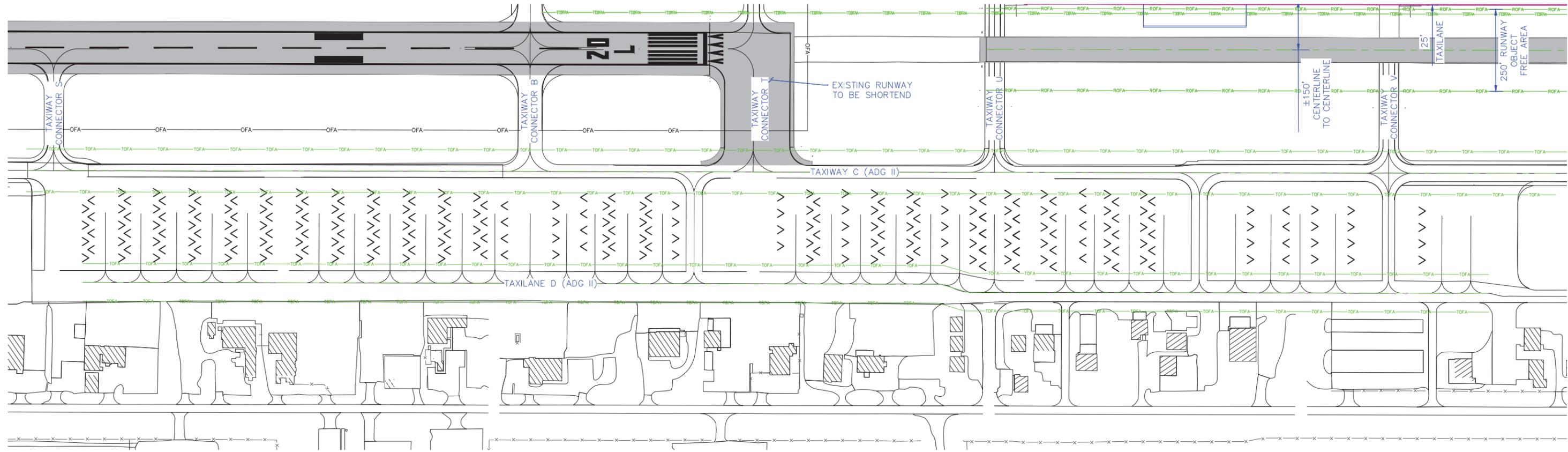
- Showed TC C as ADG II for its entire length, to allow larger aircraft to access new lease lots on north end.

Next Steps

The airport surveyed tie down permittees in August 2018 to request information on aircraft size and future tiedown type preferences (ski, wheeled, electrical, drive through, push back) and the response rate was low. Prior to the design of the reconfigured apron, the airport should re-survey tie down permittees, perhaps as part of five year permit renewal in 2020 or an invoice mailing. This would provide a final opportunity for users to weigh in on sizes and types of tie downs desired after apron reconfiguration. During final design, locations and numbers of TDG 2 115-foot-wide apron taxilanes should be reconfirmed with larger users (Part 135 carriers and flight schools) to confirm their needs are met. The large space designated for hangar lease areas on the north end can be adjusted as needed to increase the number, size or type of tie downs based on an updated assessment of airport and user needs.

Determine how to handle electrification of tie downs. Develop a plan for phasing electricity into apron and float plane tiedowns. It is recommended that subsurface infrastructure for electricity and any desired comm/water/sewer for lease lots and fueling areas be placed during apron repaving. Successful development of lease lots along the apron and float pond will require these services be accessible. It is also recommended that the airport isolate tiedown electrical from airfield lighting to assess and recoup costs from tiedown users. Conversely, the airport could have meters installed so users who want electricity may arrange this service directly with the local power company.

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TIE DOWN SUMMARY			
TIE DOWN TYPE	EXISTING	EXISTING OCCUPIED	PROPOSED 2020
DRIVE THROUGH	64	53	129
PUSH BACK	230	151	100
TOTAL	294	204	229+

+ INCLUDES 50 SKI TIE DOWNS AND ~4 SKI TRANSIENT TIE DOWNS

GENERAL NOTES

1. A PORTION OF EXISTING TIE DOWNS ARE LOCATED IN THE TAXIWAY C AND TAXILANE D OFA'S.
2. A MAJORITY OF EXISTING TIE DOWNS ACCOMMODATE MAXIMUM ±40' WINGSPAN.
3. EXISTING APRON TAXILANES ARE ±50'.

REVISIONS			
REV	DATE	DESCRIPTION	BY



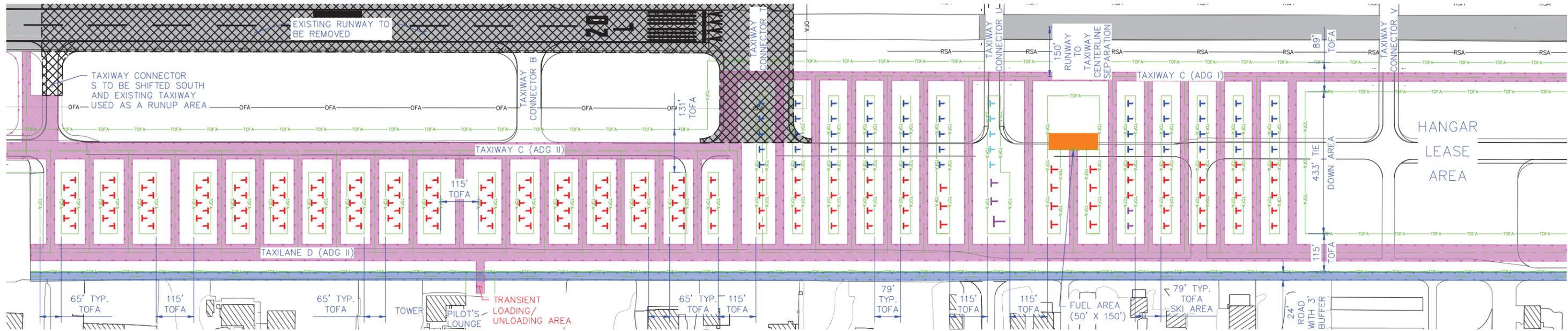
FAIRBANKS INTERNATIONAL AIRPORT (FAI)

EAST SIDE APRON
EXISTING CONFIGURATION

FAIRBANKS, ALASKA

PROJECT	62637
DATE	2/1/2019
SHEET	1

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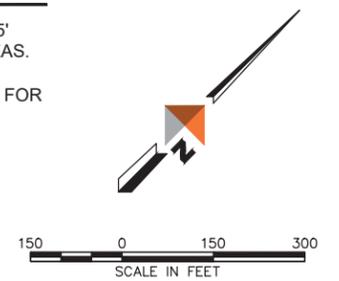


OPTION 2A - E/W PARKING - TW C/APRON SHIFTED 150' OF SKI STRIP, EXPANDED HANGAR LEASE AREA

TIE DOWN SUMMARY - 2A					
		PUSH BACK	PULL THROUGH	TOTAL	SIZES
+	SKI		50	50	50 - 36.7' MAX WINGSPAN
+	SKI-TRANSIENT		5	5	5 - 36.7' MAX WINGSPAN
-	WHEEL	112	58	170	159 - 36.7' MAX WINGSPAN 11 - 46' MAX WINGSPAN
-	WHEEL-TRANSIENT		5	5	2 - 36.7' MAX WINGSPAN 2 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN
	TOTAL	112	118	230	216 - 36.7' MAX WINGSPAN 13 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN

GENERAL NOTES

- ADG I TAXILANES (79' OFA) OR ADG II TAXILANES (115' OFA) FOR SKI, FUEL, AND TRANSIENT TIE DOWN AREAS.
- REDUCED 65' TOFA FOR MAXIMUM WINGSPAN OF 37' FOR MOST OF THE WHEELED TIE DOWN AREAS.
- EXISTING APRON TAXILANES ARE ±50' TOFA.



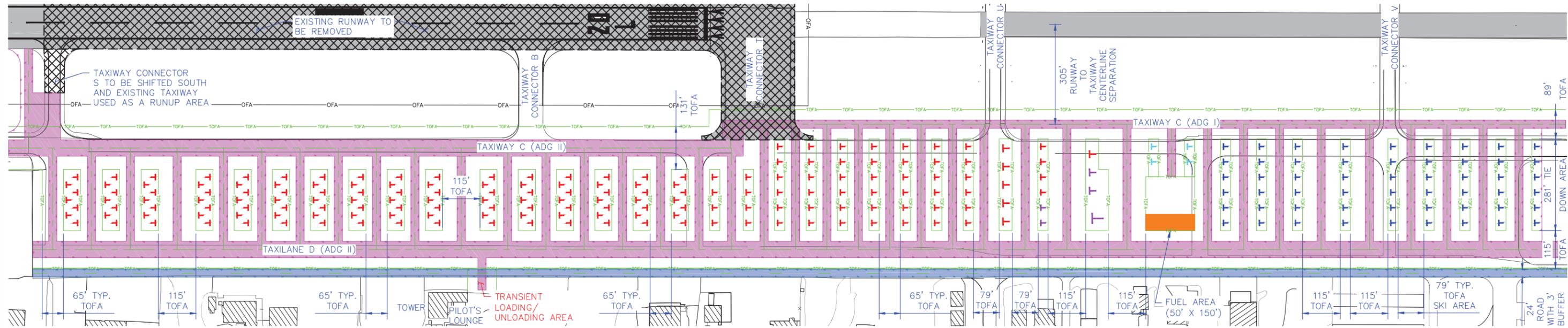
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FAIRBANKS INTERNATIONAL AIRPORT (FAI)
EAST SIDE APRON RECONFIGURATION
 OPTION 2A - E/W PARKING - TW C/APRON SHIFTED
 150' OF SKI STRIP, EXPANDED HANGAR LEASE AREA

PROJECT	62637
DATE	2/1/2019
SHEET	2

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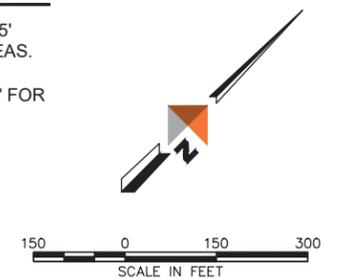


OPTION 2B - E/W PARKING - TW C/APRON SHIFTED 350' OF SKI STRIP

TIE DOWN SUMMARY - 2B					
		PUSH BACK	PULL THROUGH	TOTAL	SIZES
+	SKI		54	54	54 - 36.7' MAX WINGSPAN
+	SKI-TRANSIENT		4	4	4 - 36.7' MAX WINGSPAN
-	WHEEL	112	60	172	166 - 36.7' MAX WINGSPAN 6 - 46' MAX WINGSPAN
-	WHEEL-TRANSIENT		5	5	2 - 36.7' MAX WINGSPAN 2 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN
	TOTAL	112	123	235	226 - 36.7' MAX WINGSPAN 8 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN

GENERAL NOTES

- ADG I TAXILANES (79' OFA) OR ADG II TAXILANES (115' OFA) FOR SKI, FUEL, AND TRANSIENT TIE DOWN AREAS.
- REDUCED 65' TOFA FOR MAXIMUM WINGSPAN OF 37' FOR MOST OF THE WHEELED TIE DOWN AREAS.
- EXISTING APRON TAXILANES ARE ±50' TOFA.



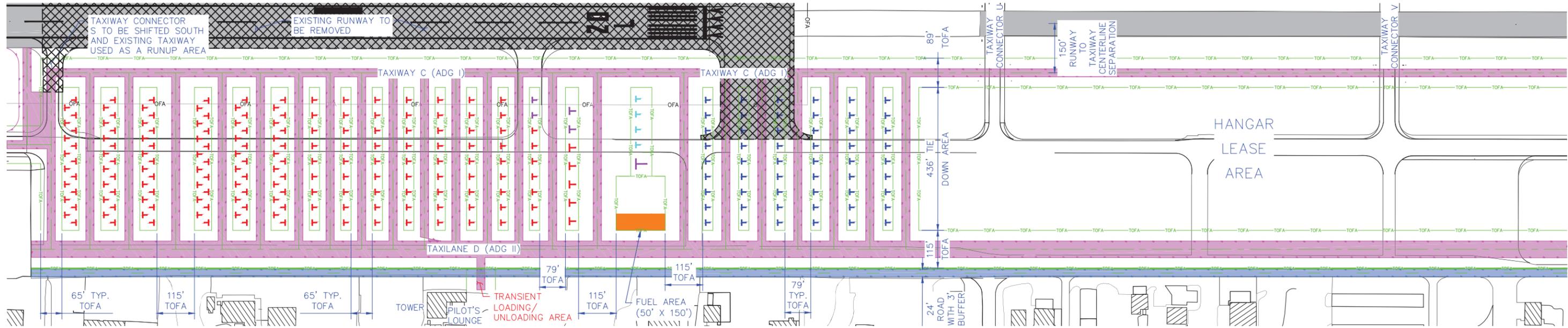
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FAIRBANKS INTERNATIONAL AIRPORT (FAI)
EAST SIDE APRON RECONFIGURATION
OPTION 2B - E/W PARKING -
TW C/APRON SHIFTED 350' OF SKI STRIP
 FAIRBANKS, ALASKA

PROJECT	62637
DATE	2/1/2019
SHEET	3

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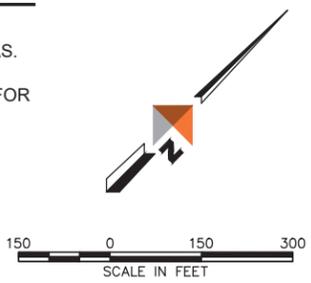


OPTION 2C - E/W PARKING - TW C/APRON SHIFTED 150' OF SHORTER 2R-20L, EXPANDED HANGAR LEASE AREA

TIE DOWN SUMMARY - 2C					
		PUSH BACK	PULL THROUGH	TOTAL	SIZES
+	SKI		54	54	54 - 36.7' MAX WINGSPAN
+	SKI-TRANSIENT		4	4	4 - 36.7' MAX WINGSPAN
-	WHEEL	102	75	177	172 - 36.7' MAX WINGSPAN 5 - 46' MAX WINGSPAN
-	WHEEL-TRANSIENT		5	5	2 - 36.7' MAX WINGSPAN 2 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN
	TOTAL	102	138	240	232 - 36.7' MAX WINGSPAN 7 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN

GENERAL NOTES

- ADG I TAXILANES (79' OFA) OR ADG II TAXILANES (115' OFA) FOR SKI, FUEL, AND TRANSIENT TIE DOWN AREAS.
- REDUCED 65' TOFA FOR MAXIMUM WINGSPAN OF 37' FOR MOST OF THE WHEELED TIE DOWN AREAS.
- EXISTING APRON TAXILANES ARE ±50' TOFA.



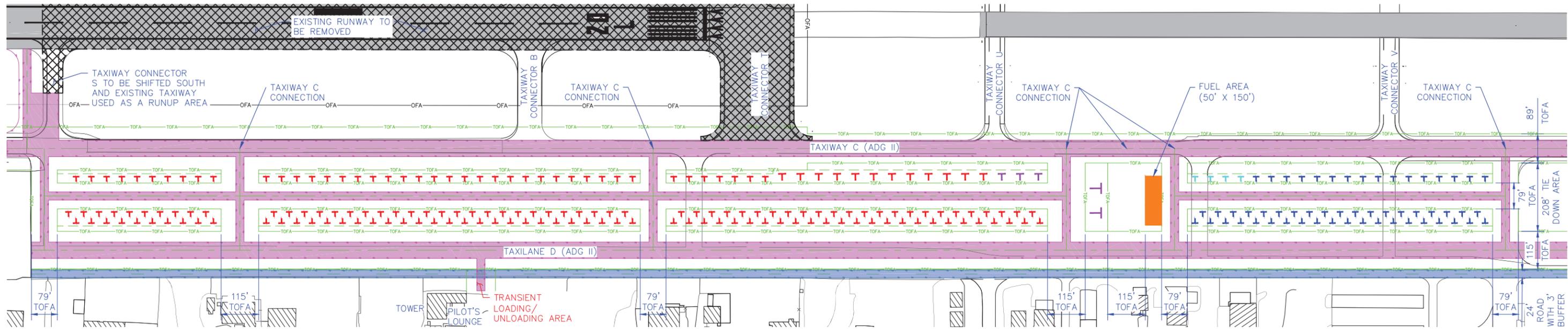
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FAIRBANKS INTERNATIONAL AIRPORT (FAI)
EAST SIDE APRON RECONFIGURATION
 OPTION 2C - E/W PARKING - TW C/APRON SHIFTED 150'
 OF SHORTER 2R-20L, EXPANDED HANGAR LEASE AREA
 FAIRBANKS, ALASKA

PROJECT	62637
DATE	2/1/2019
SHEET	4

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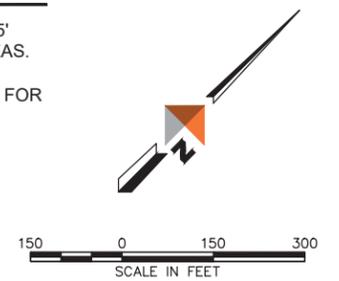


OPTION 2D - N/S PARKING - TW C NOT SHIFTED

TIE DOWN SUMMARY - 2D					
		PUSH BACK	PULL THROUGH	TOTAL	SIZES
+	SKI	39	16	55	55 - 36.7' MAX WINGSPAN
+	SKI-TRANSIENT		4	4	4 - 36.7' MAX WINGSPAN
-	WHEEL	118	54	172	160 - 36.7' MAX WINGSPAN 12 - 46' MAX WINGSPAN
-	WHEEL-TRANSIENT		5	5	0 - 36.7' MAX WINGSPAN 3 - 46' MAX WINGSPAN 2 - 65' MAX WINGSPAN
	TOTAL	157	79	236	219 - 36.7' MAX WINGSPAN 15 - 46' MAX WINGSPAN 2 - 65' MAX WINGSPAN

GENERAL NOTES

- ADG I TAXILANES (79' OFA) OR ADG II TAXILANES (115' OFA) FOR SKI, FUEL, AND TRANSIENT TIE DOWN AREAS.
- REDUCED 65' TOFA FOR MAXIMUM WINGSPAN OF 37' FOR MOST OF THE WHEELED TIE DOWN AREAS.
- EXISTING APRON TAXILANES ARE ±50' TOFA.



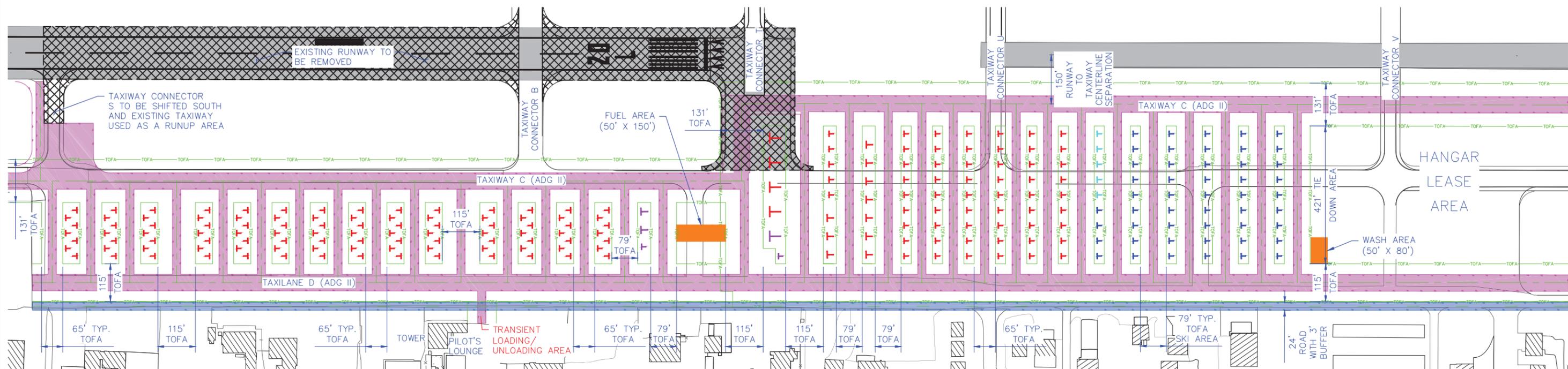
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FAIRBANKS INTERNATIONAL AIRPORT (FAI)
EAST SIDE APRON RECONFIGURATION
OPTION 2D - N/S PARKING -
TW C NOT SHIFTED
 FAIRBANKS, ALASKA

PROJECT	62637
DATE	2/1/2019
SHEET	5

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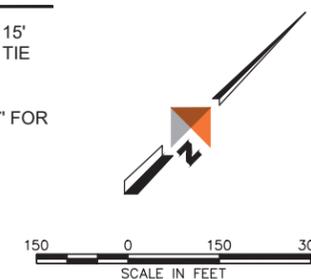


2. EASTSIDE APRON RECONFIGURATION - TW C/APRON SHIFTED 150' OF SKI STRIP, EXPANDED HANGAR LEASE AREA

TIE DOWN SUMMARY					
	TIE DOWN TYPE	PUSH BACK	PULL THROUGH	TOTAL	SIZES
+	SKI		49	49	49 - 36.7' MAX WINGSPAN
+	SKI-TRANSIENT		5	5	5 - 36.7' MAX WINGSPAN
+	WHEEL	98	73	171	157 - 36.7' MAX WINGSPAN 10 - 46' MAX WINGSPAN 4 - 65' MAX WINGSPAN
+	WHEEL-TRANSIENT		5	5	2 - 36.7' MAX WINGSPAN 2 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN
	TOTAL	98	132	230	225 - 36.7' MAX WINGSPAN 12 - 46' MAX WINGSPAN 1 - 65' MAX WINGSPAN

GENERAL NOTES

- ADG I TAXILANES (79' TOFA) OR ADG II TAXILANES (115' TOFA) ARE SHOWN FOR SKI, FUEL, AND TRANSIENT TIE DOWN AREAS.
- REDUCED 65' TOFA FOR MAXIMUM WINGSPAN OF 37' FOR MOST OF THE WHEELED TIE DOWN AREAS.
- EXISTING APRON TAXILANES ARE ±50' TOFA.



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RECOMMENDED APRON LAYOUT
2. EASTSIDE APRON RECONFIGURATION
TW C/APRON SHIFTED 150' OF SKI STRIP,
EXPANDED HANGAR LEASE AREA

PROJECT	62637
DATE	4/8/2019

FAIRBANKS, ALASKA