



Appendix 6.1: Hazard Worksheet



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HAZARD IDENTIFICATION							HAZARD RISK ASSESSMENT							
#	2) BRIEF HAZARD DESCRIPTION	3) CAUSE(S)	4) SYSTEM STATE	5) EXISTING AND/OR PROPOSED CONTROLS	6) JUSTIFICATION / SUPPORTING DATA (REFERENCES)	7) EFFECTS	8) SEVERITY	9) SEVERITY/ RATIONALE	10) LIKELIHOOD	11) LIKELIHOOD/ RATIONALE	12) INITIAL RISK	13) MITIGATIONS	14) MITIGATION RESPONSIBILITY	15) PREDICTED RESIDUAL RISK
Ref. #	Condition, real or potential; that can cause injury, illness, etc. This is a prerequisite for an accident or incident	Events that result in a hazard or failure; the origin of a hazard.	Conditions, characterized by quantities or qualities, in which a system can exist	Controls or Mitigations that exist to prevent or reduce hazard occurrence or mitigate its effect	Explanation and additional detailing of Existing Controls (what evidence do you have that the control is in place)	Potential outcome or harm of the hazard if it occurs in the defined system state – Worst Credible Outcome	Resultant matrix determination	Effect of the identified hazard producing the worst credible outcome (likelihood not considered)	Resultant matrix determination	Expression of how often an effect is expected to occur given existing controls and requirements (severity first)	Risk matrix ranking based on severity and likelihood of a hazard when it is first identified and assessed	Stated mitigation for this hazard	Who has the responsibility to implement the mitigation	Risk status predicted to occur when recommended controls or requirements are verified
Airfield Hazards														
1.	Taxiway Geometry – Direct access to runway from ramp (Taxiways K and L)	Existing Taxiways K and L have direct access from the GA ramp to Runway 17L-35R.	"Taxiways that lead directly from an apron to a runway are not recommended. These configurations may create the false expectation of a parallel taxiway prior to the runway which could lead to confusion and runway incursions."	Propose to modify Taxiways K and L access into the General Aviation/ Fixed Base Operator ramp area. Proposed New Airfield Layout resolves issue	DOT/FAA/TC-18-2 Problematic Taxiway Geometry Study Overview (January 2018) Geocode #8	Runway Incursion – Aircraft to Aircraft incident or accident high speed damage	See Exhibit 6.4-3 – Hazard eliminated with new airfield layout; control determined by SRM Panel to be sufficient to manage hazard. Panel Comment: all exhibits show a modification to Taxiways K and L between Parallels A and B the better solution is to relocate the connections between the GA aprons and Taxiway B. Response: Planning Team agrees that it would be better to relocate the taxiway connectors between the GA ramp area and Taxiway B. This change will be shown on the Future ALP drawing.							
2.	Change in airfield geometry – high energy taxiway intersection to runway	New Runway 17C-35C design will have connector taxiways crossing the runway from Taxiway D. This could result in pilot loss of situational awareness and inadvertently crossing Runway 17C-35C prior to contacting ATC. – only becomes issue when new Runway is built	Location of these connector taxiways in relation to the new Runway 17C-35C location might create a potential for a runway incursion.	Two taxiways are located 1300 feet from the Runway 17C-35C thresholds reflecting outer third of the runway area per FAA AC standards. A single taxiway is located at the Runway 17C-35C mid-point.	FAA AC 150/5300-13A Section 401(b)(5)(d) See #4 safety area review	Loss of life Aircraft to Aircraft incident or accident high speed damage	Taxiway G will be eliminated with implementation of the new proposed Runway 17C-35C. The first Rapid Exit Taxiway (RET) in each direction will be eliminated on Runway 17C-35C. Taxiway T will remain in place and a new 90-degree exit will be located approximately 3,000 feet from the 17C threshold. Existing Controls determined by SRM Panel to be sufficient to eliminate this hazard.							
3.	Loss of situational awareness by the pilot – multiple transitions between taxiway and taxilane movements	Multiple taxiway / taxilane transitions could be confusing and lead to pilot confusion and communication with ATC.	Proposed future taxiway layout and flows do not provide a straight-line access from one side of the airfield to the other. For safety and efficiency, aircraft are often sequenced from the east side to the west runway(s). There is no direct taxiway flow between the east and west runway for this to occur.	A single or dual ADG-V taxiway could be provided south of the South Terminal and north of the GA facilities.	AC: 150/5300-13 Airport Design See # 5 safety area review	Aircraft incident or accident based on the following multi-operational issue <ul style="list-style-type: none"> Pilot lack of situational awareness and related confusion Complex communications between pilot /ramp control and pilot /ATCT to transition between parallel runways Continuous control of aircraft movements by ATC between the parallel runway (lack of ADG-V cross-field taxiways) 	Action: Option 3 created to address crossing and 90-degree taxiway bend including an ADG-V North/South taxiway connector. Resolution: See Exhibit 6.4-2 Action: Additional analysis will be required to determine the final location of the next remote concourse and to determine the final location of a cross-field taxiway system. Resolution: This new crossfield taxiway is depicted in Exhibit 6.4-2.							
4.	Air Traffic Controller line of sight impact	ATC lack of visibility due to the remote concourse location and height ATC blind spots in ramp areas (if ATC manages gates).	The height of the new concourse may restrict FAA ATC view of taxiways and runways.	<ul style="list-style-type: none"> Compliance with FAA Order 6480.4A Airport Traffic Control Tower Siting Compliance with FAA AC 150/5300-13, Airport Design 	Height restrictions to be assessed as part of final master plan design for the new terminal and concourse. CCTV's and ground surveillance might be required	Aircraft to Aircraft incident or accident	Action: An existing ATCT line-of-sight analysis will be conducted to determine any future sighting issues. Resolution: Future controls will be recommended to mitigate any line-of-sight issues (e.g., concourse height restrictions, new ATCT, CCTV's, visual/ramp tower, etc.).							
Ramp Hazards														
5.	Lack of situational awareness by the pilot – ramp congestion	Deicing operations at the new terminal and concourse	Currently at BJT, deicing and anti-icing activities occur at gates. Beginning	<ul style="list-style-type: none"> Locate and identify future deicing pad(s) on ALP (possibly one pad on the 	<ul style="list-style-type: none"> Remote deicing pad option is favored by some airlines / ramp supervisors 	Aircraft to Aircraft accident or incident	Action: Identify and show future aircraft deicing pad locations on the ALP. Resolution: The future aircraft deicing pad locations will be depicted on the Future ALP.							

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	during deicing operations	gate areas. Increased congestion on the ramp may affect aircraft push back operations. Increase congestion may result in hold over times exceeded. Increased congestion may result in aircraft taking off with ice	2018/2019 Winter, Taxiway G1 and the South RON area between Taxiways G1 and G2 will function as a deicing pad and will accommodate deicing/ anti-icing ops for two Group IV aircraft or one Group V aircraft at a time. South Terminal has a separate plan for deicing and anti-icing activities with aircraft staged 150 feet between the South Terminal Service Lane and the closest taxi-line to the north. Deicing activities also occur on the Cargo Ramp.	<ul style="list-style-type: none"> east and one pad on the west side of the airfield) <ul style="list-style-type: none"> Ensure adequate access to and from pads from gate areas and future concourse (North flow to south side and south flow to north side for example) Airport to revise standard operating procedures (SOPs) to align with proposed changes (future) 	<ul style="list-style-type: none"> Reduce time from deicing fluid application to take off Decrease Hold Over Time Remove slippery conditions on ramp 	(tail to tail, or wingtip to tail)								
6.	Jet blast in ramp area	Heavy aircraft (ADG-V) making turns under break-away power from inner taxilanes near gates at end of terminal	<p>Jet blast of heavy aircraft (ADG-V) transitioning from inner taxilanes in close proximity to the western, eastern and mid-terminal end-cap gates raise ramp safety concerns from jet blast.</p> <p>It is anticipated that the majority of future aircraft operating at ABIA will continue to be in the ADG-III category.</p>	<ul style="list-style-type: none"> Most break-away thrust will be applied along the taxiway/taxilane straight sections, and thereby minimize the velocity of jet blast on the end gate positions Jet blast studies to be conducted prior to final design Operational protocols and power-up/out restrictions 	<p>AC: 150/5300-13 Airport Design</p> <p>See # 5 safety area review</p>	Aircraft jet blast injury to other aircraft, ramp equipment or personnel	Action: Jet blast study to be performed as part of the terminal/concourse project design phase.	Resolution: Future effort outside of ALP effort.						
Operational and Other Hazards														
7.	ATCT Blind Spot during aircraft push back operations	New Terminal gate layout might create various blind spot(s) during aircraft pushback and aircraft taxi operations from the ATCT.	The new concourse height might create blind spots from the ATCT on active taxiways and taxilanes.	<p>Possible new controls include:</p> <ul style="list-style-type: none"> Ramp control oversight CCTVs Aircraft flow assessments Ground surveillance Markings and signage assessments Operational coordination assessments 	A proposed new ramp control will allow for visibility /management of ground control operations and hand off to ATCT in these areas	Aircraft to Aircraft incident or accident	Action: Use of visual/ramp control tower or CCTV's to maintain visual control of aircraft pushback operations will be recommended.	Resolution: Future effort outside of ALP effort.						

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8.	ATCT Blind Spot in aircraft push back operations	New concourse gate layout might create ATCT blind spot(s) for vehicles on airside service roads.	The new concourse might create blind spots from the ATCT to the airside vehicle service roads.	<ul style="list-style-type: none"> Ramp control oversight CCTVs Aircraft flow assessments Ground surveillance Markings and signage assessments Operational coordination assessments Vehicle/pilot communication and training 	A proposed new ramp control will allow for visibility /management of ground vehicle operations in the non-movement areas	Aircraft to vehicle incident or accident	Same as #7 above.								
9.	ARFF response route	ARFF response time may be increased by the new airfield configuration and current location of the existing fire station.	Current ARFF location may not meet the required response times due to the reconfigured airfield.	<ul style="list-style-type: none"> FAA AC No.: 150/5220-10E National Fire Protection Association 414, Standard for Aircraft Rescue and Fire Fighting Vehicles ARFF Station relocation assessment ARFF route identification 	ARFF index standards will be applied to the new future airfield configuration, including equipment requirements for larger aircraft classifications	Delayed emergency response, increased chance of injuries / fatalities	Action: Conduct additional assessment for new ARFF station relocation. Resolution: The new ARFF station relocation is depicted on Exhibit 6.4-3 in the SRM Panel Report Action: Coordinate with ARFF staff to ensure proper response time analysis and specific routes to be taken are identified. Resolution: The new ARFF routes are depicted in the revised Exhibits A6.1-7 and A6.1-8. See Appendix 6.2 Item #26 for additional information.								
10.	People and property located in the Runway Protection Zone (RPZ) of future Runway 17C-35C	Aircraft accident occurs within the future Runway 17C-35C RPZ's	The U.S. Armed Forces Reserve Center is currently located in the future RPZ to Runway 35C. Staff and structure are operational 24/7. The existing cargo and Parking Spot are located in the future RPZ to Runway 17C.	<ul style="list-style-type: none"> RPZ area analyzed and identified. Partial relocation of the military facilities and staff are proposed. Relocation of various cargo facilities and acquisition of the Parking Spot are proposed to provide a clear RPZ area. 	<ul style="list-style-type: none"> Management and changes to new RPZ areas will comply with standards and follow FAA Advisory Circular 150/5300-13A Comply with Change # 11 to AC 150/5300-13A 	Loss of life	Action: FAA TX ADO to perform a review of the RPZ analysis to assist in identifying level of action required. Resolution: FAA provided review and analysis as presented below: See Appendix 6.2 Item #12 for additional information. <ul style="list-style-type: none"> Existing Runway 17R-RPZ- Acquire Avigation Easement Existing Runway 35L-RPZ- No Action Required Existing Runway 17L-RPZ- Acquire Avigation Easement Existing Runway 35R-RPZ- No Action Required Future Runway 17C-RPZ- Acquire Land Future Runway 35C-RPZ- Acquire Land & Avigation 								
11.	TX DOT Taxiway E access to Runway 17L-34R	Per Geocode #8 no direct taxiing access to runways from ramp areas. TxDOT ramp has somewhat direct (not a straight/direct line) access to runway 17L-34R	TX DOT ramp area access to Runway 17L-34R is not direct, thus reducing likelihood of inadvertent access to Runway 17L-34R	Create new parallel taxiway above Runway 17L-34R and eliminating direct route from TxDOT ramp to Runway 17L-34R	See Exhibit 6.4-3	Aircraft to Aircraft incident or accident	Action: Add partial parallel taxiway to the east side of Runway 17L-35R to eliminate this hazard. Resolution: See Exhibit 6.4-3-...								
12.	Taxiways G and H shape as a Y	Existing Taxiways G and H below Runway 17L-35R create a "Y" shaped surface that could be difficult to discern for pilots	Area is not changing as part of master planning	<ul style="list-style-type: none"> Markings ATC control of aircraft/pilots Ground surveillance 	Part 139 operations and related advisory circulars	Aircraft to Aircraft accident or incident (tail to tail, or wingtip to tail)	Operational hazard; Existing Controls determined by SRM Panel to be sufficient to manage hazard. Action: FAA ATC to assess aircraft taxi flows in this area with the new concourse and airfield geometry. Resolution: Future effort outside of ALP effort.								
13.	Pushbacks into a congested area	Congestion at new Taxiway/Taxilane area G and H at the east end of the future concourse.	Ramp area of future concourse is adjacent to Taxilane G and Taxiway H possibly creating complex pushback operations	<ul style="list-style-type: none"> Markings ATC control of aircraft/pilots Ground surveillance 	Part 139 operations and related advisory circulars	Aircraft to Aircraft accident or incident (tail to tail, or wingtip to tail)	Operational hazard. Note: Existing operational controls determined by SRM Panel to be sufficient to manage hazard								

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14.	Multiple 90-degree serpentine/ doglegs. Handoffs between ramp control and ATCT	See Hazard #3	See Hazard #3	See Hazard #3	See Hazard #3	See Hazard #3	Duplicate hazard; see Hazard #3							
15.	Jet blast	See Hazard #6	See Hazard #6	See Hazard #6	See Hazard #6	See Hazard #6	Duplicate hazard; see Hazard #6							
16.	Taxiway crossings and ATC contact requirements for emergency vehicle operations on airfield	Emergency vehicle during response may require access to movement area while in route to incident or accident	Currently emergency response staff contact ATC per Letters of Agreement (LOAs) when accessing/crossing movement areas	Review and revise LOAs for existing, similar operations to include changes to ARFF routes and airfield (Also see # 9)	LOA and standard operating procedures established between emergency response and ATC	Aircraft to Vehicle incident or accident; loss of life	Operational hazard; not related to changes to ALP. Note: Existing operational controls determined by SRM Panel to be sufficient to manage hazard.							
17.	Potential emergency access issue in the RPZ at the Onion Creek swamp area.	Aircraft overshoots or is unable to stop on future Runway 35C and crashes into the Onion Creek swamp area	New RPZ area is located in Onion Creek swamp area and would be difficult to access by emergency vehicles and response staff	ARFF and mutual aid response planning	ARFF response, mutual aid response, table top exercises, operational exercises	Delayed emergency response, increased chance of injuries / fatalities	Operational hazard; not related to changes to ALP.							

Note: Hazard rows highlighted in light blue are documented for reference only and reflect either duplicate or operational hazards not related to the ABIA Master Plan/ALP Project.