CINCINNATI MUNICIPAL LUNKEN AIRPORT
FLOOD CONTROL PROCEDURES

Purpose

The purpose of this procedure is to communicate to Lunken Airport staff, tenants, operators, and community members what actions need to be taken to protect health, safety, and property in the event of flooding from either the waters of the Ohio River or the Little Miami River.

Background

Lunken Airport and its surrounding environs are prone to periodic flooding primarily caused by storm water events affecting the Ohio and Miami Rivers. The Miami River directly borders the Airport on the east. The Ohio River is approximately 500 yards from the Airport to the south of Kellogg Avenue. In 1964, the latest engineering improvements to control the flooding of Lunken Airport were established by the City of Cincinnati, in cooperation with the U.S. Army Corps of Engineers, which is responsible for flood control in the Ohio River basin. These controls include improvement to a flood levy and dike system which encircles the perimeter of the Airport, positioning of four strategic flood gates which enable vehicular and train traffic to pass through the Airport environment in non-flood periods but which are erected and secured during flood events, and the installation of a flood water pumping system on the Airport.

Scope And Responsibility

Airport Management is provided by the City of Cincinnati under City Council Ordinances and the Administration of the City Manager. In accordance with the Council Administrative Code, the Citys Department of Transportation and Engineering is responsible for provision of Airport management and the supervision of Lunken and Blue Ash Municipal Airports. For purposes of flood events, the City's Airport management has specific jurisdiction inside the property boundaries of the Airport. These property boundaries are determined by Beechmont Levy on the north, the Little Miami dike system on the east and south, Airport Road west to Wilmer Avenue, the passage of Wilmer Avenue by the dike and flood gate to Airport Road on the west, and then Wilmer Avenue north returning to the Beechmont Levy as the western boundary.

For information purposes, the Airport can advise adjoining property owners along Wilmer Avenue of plans for flood control operations, but neither the City nor the Airport is responsible for property west of Wilmer Avenue and north of Airport Road.

Operation During Flood Events

During the months of December through May, the Airport is most at risk for flood events.

The Airport management begins its readiness for flood events during the predominantly dry weather months of August through November. During these months, pump station and outfall maintenance is conducted, and inspections and corrective actions are scheduled for completion of flood control equipment and facilities.

The first level of flood control operations is at an Ohio River elevation of 34 feet, which is 18 feet below flood stage, and only 8 feet above normal pool stage. At this stage, Airport management commences operation of the Airport pump station, due to the incursion of waters from the floor of the Playfield to the north. Hydrostatic pressure begins to build on the Airport field floor from the Little Miami water table under and adjacent to the Airport. Essentially, as the waters of the Little Miami and the Ohio Rivers rise, this water table creates the greatest flood impact on the Airport.

The Airport levy and dike system is engineered to protect the field to a height of 72 feet of the Ohio River. This is 20 feet over the flood stage of the Ohio River and 46 feet above the normal pool stage of the Ohio River. For reference, the floor of the Airport is engineered to a level of 495 feet of elevation or 52 feet of the Ohio River, i.e., it is equal to flood stage, but protected for 20 more feet by the surrounding levy, dike, and flood gate system.

At a flood stage of 42 feet, Airport management begins to receive regular floodwater updates from the Metropolitan Sewer District (MSD). The Airport is in regular contact with MSD and the City of Cincinnati Public Works Department, which is responsible for floodgate erection at this stage, regarding the ascent of floodwaters and the schedule for more active flood control measures.

At 42 feet, the Airport maintenance staff initiates 24-hour/7-day staffing of the pumping station on the field. This includes procedures for monitoring and oiling the pumps, monitoring flood water level reports, and measuring and observing floodwater sources and gauges on the field. These measures continue, along with concurrent planning, as flood conditions increase.

At approximately 48 feet, if flood water forecasts continue to call for rising waters, planning is initiated with the Public Works Department to install flood gates, which are stored in secure storage on Airport Road inside the Airport property and flood dike. Actual deployment of floodgates commences at a height of 58 feet, determined jointly by the Transportation & Engineering and Public Works Departments. This decision is made in coordination with City management and Public Safety in light of traffic and neighborhood impacts. Press releases and internal communications are made so that adjoining neighbors as well as Airport tenants and operators are fully apprised.

Flood Gate Operations

The four floodgates, which protect Lunken Airport follow a sequence of installation dependent upon their elevation, proximity to affected City operations, and departmental capacity to install. The locations, installation flood height, and responsible installation agency are as follows:

Flood Gate Location	Impacted Flood Elevation	Responsible Department
Northeast of Little Miami Treatment Plant	63 feet	MSD
Wilmer Avenue south of Airport Road	64 feet	Public Works
Penn Central Railroad crossing at Airport Road	64.5 feet	Public Works
Beechmont Circle under Beechmont Viaduct bridge	66 feet	Public Works

The northeast corner of the Little Miami Treatment Plant gate is the least obtrusive to any community or street traffic. Notification of the Penn Central Railroad is all that is required for erection of this gate. The Little Miami Plant Manager should be contacted when Ohio River flood elevation of 58 feet is reached regarding timing and notification for installation of the gate.

At this same elevation, plans for installation of the three other flood gates should be made with the Public Works Department. These require coordination with the Equipment Supervisor from the Office of the Director, the Assistant Superintendent of Highway Maintenance, and the Principal General Engineer. Each assures the necessary equipment, manpower, and engineering help will be provided. In addition, a plan and communication should be prepared for notification of community and motoring public, as well as Penn

Central Railroad. This communication is prepared by the Public Works Director=s Office in coordination with Public Safety and other offices. Community Council representatives also receive this communication and are advised by Public Works to assure that community members outside of the Airport boundaries will receive it.

Concurrently, Airport management prepares a parallel communication for Airport tenants and operators, advising of the floodgate installations, and also initiating the first advisory for emergency readiness operations on Lunken Airport.

Emergency Flood Control/Readiness Operations And Evacuation

The 1964 Flood Control Improvements surrounding Lunken Airport engineered the field to a maximum protection of 72 feet of flood stage of the Ohio River. In actuality, the improvements have never been tested beyond the height of 66.4 feet of flood stage, which occurred in March 1997. Due to pressures observed on the Airport during this flood event, field evacuation should be achieved between a flood height of 68 feet and 70 feet of the Ohio River. A flood caused by the headwaters of the Little Miami River only should impact a decision to install the floodgate at the Beechmont Circle location, but generally should not affect a need for emergency evacuation of Lunken Airport.

The philosophy behind the flood protection of Lunken Airport was to engineer the field to flood protection of 72 feet, at which point pumping operations would cease and the field would be deliberately flooded through inflow tubes in the Little Miami dike so that the flood dike pressure would begin to be equalized. The engineering philosophy is to forestall the risk of a break in the flood dike due to water pressure.

Accordingly, the decision to evacuate Lunken Airport must be made in mindfulness of preserving the flood control infrastructure, as well as the safety, health, and well-being of Airport and tenant lives and property.

Evacuation Procedures

At a flood height of 66 feet, with indications of continued rising flood levels, Airport management will complete an evacuation plan and sequence in coordination with the ATC Tower Chief. All tenants and operators will be notified in writing of the planned order and evacuation sequence. In addition, all property owners adjacent to the Airport will also be advised in writing, through the Department of Public Works, since flooding of the Airport is likely to impact their property to the west of Wilmer Avenue.

1. Field Evacuation

   Evacuation of aircraft and property contents, and securing of property for flood impact, are strictly the responsibility of property owners. The City of Cincinnati and Airport management are not liable for flood damage to private property. The field evacuation plan will take into account the following objectives:

   A. The first priority is to assure personal safety. No persons should plan to be on the Airport or neighboring property along Wilmer Avenue once flood levels reach 68 feet. The only exception will be City of Cincinnati personnel or their permitted emergency personnel directly engaged in emergency life-safety operations by the City Manager, Director of Public Safety, Director of Public Works, or Director of Transportation and Engineering.

   B. All aircraft on the Airport will receive a Sequence and Preferred Date/Time of Departure of their aircraft from Lunken Airport. Tenants and operators are certainly free to schedule departures in advance of this Sequence. The Sequence will be established in writing at both the ATC Tower and Airport management office, but communicated over phone lines to each affected tenant or operator. To the extent practical, written notice by certified mail to the address of record at the Airport

management office will also be provided.

C. Property, which is susceptible to damage by floodwaters, is the responsibility of the tenant to secure or remove. In particular, fuel storage tanks that are below ground must be filled and sealed by the time of a flood height of 66 feet. Above ground storage tanks must be firmly bolted and double secured to the ground or structure in which located. Above ground tanks must be emptied of contents at a flood height of 66 feet. Airport management will inspect all fueling facilities for compliance with this procedure.

D. Any tenant or operator who may need traffic passage from the field should coordinate their passage requirements with the Lunken Airport office as soon as passage is planned. Passage must be completed by a flood height of 68 feet of Ohio River flood stage. Passage may require coordination with the Public Safety Department depending upon roadways desired.

E. Emergency flood impact on all airside facilities will be coordinated by the ATC Tower at Lunken Airport. Airside operations will be suspended and the Airport will be closed to incoming and outgoing air traffic by order of the Airport management by the time evacuation operations are concluded. It is expected that this order will be given at no greater of an Ohio River flood height than 70 feet. It is expected that, concurrently, the airfield will begin to be flooded at this time to ease floodwater pressure on the dike system. If at any time in the judgment of Airport management, due to observed conditions affecting property and personal safety, it is necessary to commence evacuation and closure procedures sooner, Airport operators and tenants will be notified by Airport management.

F. Airport Management will be responsible for the floodwater protection and security of airside assets to the extent possible and practical, given staff and resources available. The intentional flooding of the field will likely damage lighting and instrumentation positioned on the field, as well as City building property and contents. To the extent possible, navaids, lighting facilities, and other infrastructure will be secured. Temporary pumps will be positioned in City buildings to help mitigate building flooding (i.e., Terminal and ATC Tower buildings).

G. Airport management will inspect Lunken Airport to ensure that all persons and property are evacuated from the field, and secured at an elevation of 70 feet of Ohio River flood stage. Cooperation of all tenants and operators is essential. Access to the Airport will be physically closed. Failure to cooperate will result in immediate call-up of either Public Safety or Ohio National Guard personnel, physical removal from the Airport, and possible citation by appropriate law enforcement personnel. Future permits to operate on Lunken Airport may also be affected. These sanctions are essential in light of the impending danger of floodwaters against the flood dike system.

Emergency Recall Operations

Once floodwaters have receded sufficiently for recovery of Lunken Airport from flood waters, Airport management will initiate recovery operations and cleaning of the field. Reopening of the Airport airside facilities will be decided by Airport management and communicated to the ATC Tower. The ATC Tower should be contacted regarding the status of airside facilities.

Cooperation will be sought from the Cincinnati Fire Division Company 18, located on Lunken Airport, relative to flushing the Airport runways and taxiways with water. Other City agency and contract rental units will also be deployed to the extent necessary to clean and re-establish Airport operations as soon as possible.

Once airside facilities are available for access, tenants and operators will be notified. Tenants and operators are responsible to inspect their properties and re-establish safe operating procedures. Any unsafe conditions should be reported to Airport management so that proper mitigation and restoration can be planned with both the property owner and Airport in mind.