JACK BARSTOW AVIATION ADVISORY COMMISSION
SPECIAL MEETING AGENDA

Tuesday, August 9, 2022 at 5:00 pm
City Council Chambers

1. Call to Order - Roll Call
2. Review of Options for Runway 18-36 (Sarah Pagano)
    a. Discussion of Options for Runway 18-36
3. Adjourn

Jack Barstow Airport (IKW)

Presentation Regarding Runway 18/36

July 12, 2022

Background on Justification

The current Airport Layout Plan (ALP) update assessed wind coverage that comes directly from the IKW AWOS data, whereas the old ALP used data from the MSB AWOS. The new data shows that IKW is not justified to have a crosswind runway (Runway 18/36) due to over 95% wind coverage being provide by Runway 6/24. A coverage of 95% is the cut-off for FAA participation in a runway, using the needs of the critical aircraft for the airport. As shown in the **Wind Coverage Table**, even at the lowest amount of crosswind component, the lowest coverage is 97.05% which is above the 95% threshold, thus making Runway 18/36 un-justified for federal funding.

WIND COVERAGE TABLE

RUNWAY	CROSSWIND			
	10.5 knots	13 knots	16 knots	20 knots
	VFR			
6-24	97.05%	98.62%	99.81%	99.98%
18-36	93.21%	96.44%	99.31%	99.89%
COMBINED	98.84%	99.77%	99.97%	100.00%
	IFR			
6-24	98.45%	99.23%	99.90%	99.99%
18-36	95.13%	97.54%	99.48%	99.95%
COMBINED	99.60%	99.92%	99.00%	100.00%
	ALL WEATHER			
6-24	97.19%	98.68%	99.82%	99.98%
18-36	93.41%	96.55%	99.33%	99.90%
COMBINED	98.92%	99.78%	99.97%	100.00%

SOURCE

NATIONAL CLIMATIC DATA CENTER; FAA STANDARD WIND ANALYSIS TOOL

- STATION: JACK BARSTOW AIRPORT
- STATION NO: 720629
- NO. OF OBSERVATIONS: 269,277
- PERIOD OF RECORD: 2010-2019

Licensing and Funding Implications

Since the runway has had limited investment of Federal funds in the past 20 years, the FAA has deemed the runway to be both un-justified (not necessary for operational use), as well as being un-obligated from FAA requirements (not being tied to any federal funding constraints), meaning it could be closed if the City of Midland, as owners of the airport, elected to remove the runway from use. However, if the City of Midland elects to keep the runway open and operational, the City must maintain it to appropriate state licensing standards. One of those standards is clear state approach surface areas.

If the runway is not maintained such that the state airport license is maintained in good standing, then the issuance of the federal funds can be held, thus freezing the $150,000 in federal non-primary entitlement funds that the airport receives annually. This may also impact the Bi-Partisan Infrastructure Legislation (BIL) funds as well. These funds are expected to account for $159,000, per year, for the next five years.

Consequently, the City of Midland needs to determine a path forward to address the approach obstruction issues on Runway 18/36 so that it ties into the timing of the projects on Runway 6/24, that are being funded with federal dollars, so they come together at the same time to allow for use of the IKW federal funds once Runway 6/24 is meeting necessary federal compliance issues.

Options for Addressing Runway 18/36

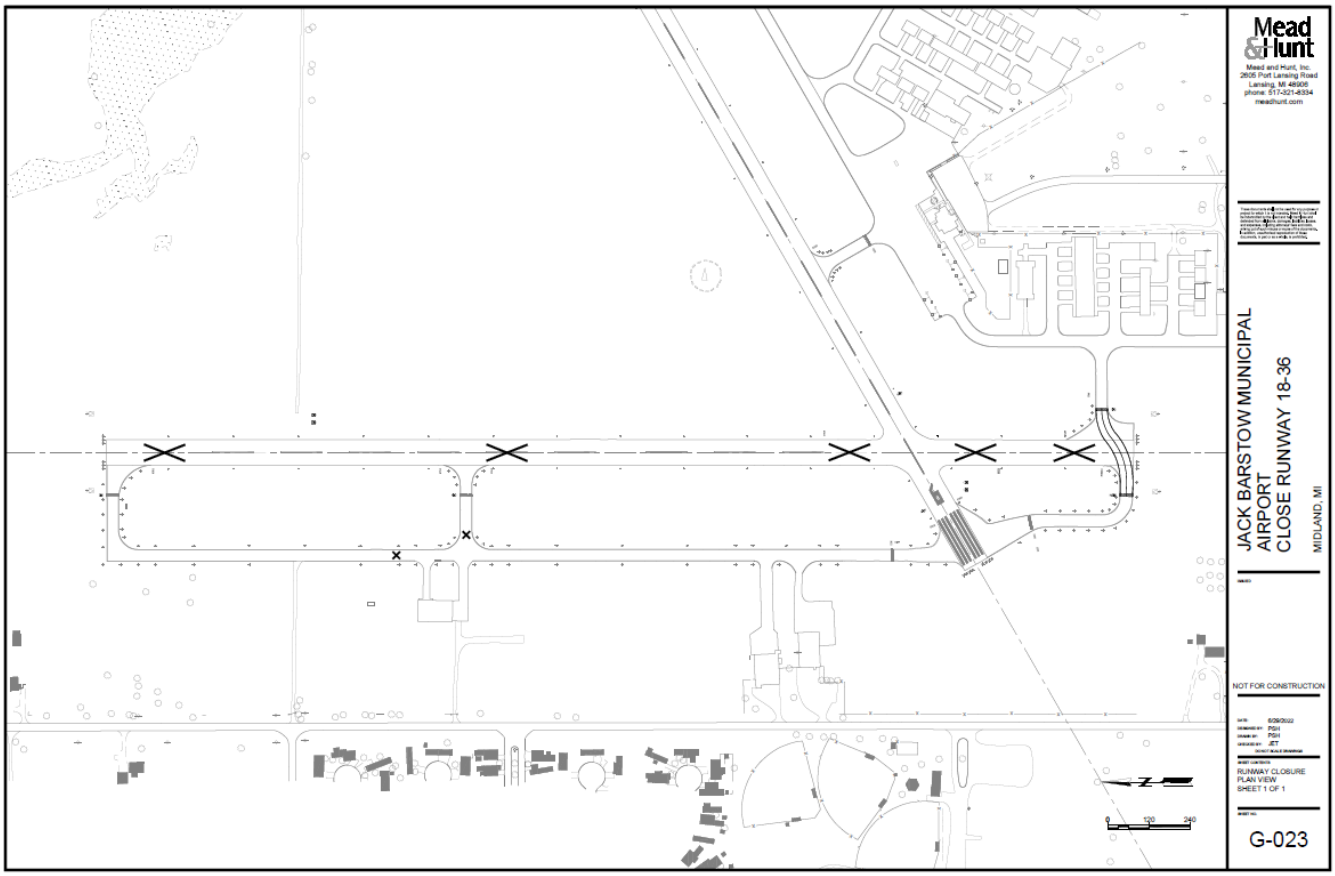
The following options have been developed to outline alternatives to address the issues of Runway 18/36. Keep in mind, these costs will be the sole responsibility of the City of Midland – no federal funds will be available to assist with these options since the FAA has deemed the runway to be un-justified. Costs shown are general “order-of-magnitude” costs and have been prepared as an estimate of costs, without the benefit of any formal design, on-site investigation, equipment assessment, or coordination with any impacted property owners.

Each alternative includes the construction cost, and 20% construction contingencies, as well as engineering design and construction administration, assuming the project would be bid to a private contractor and managed like a typical federally funded project. It is anticipated these costs could be reduced if the project were conducted using City of Midland staff or if more limited design and construction administration were undertaken.

Closure of Runway 18/36 – No Pavement Removal

Elements – Removal of current pavement marking, surface treatment to areas where pavement is removed (approx. 1,200 sqft) so new pavement marking to reflect closure of the runway can be applied (approx. 1,900 sqft of pavement area), as well as removal of approximately six guidance signs. Assumption is that pavement would be left in place. Along the northern end of the runway, the pavement may be able to be reused for hangar development area.

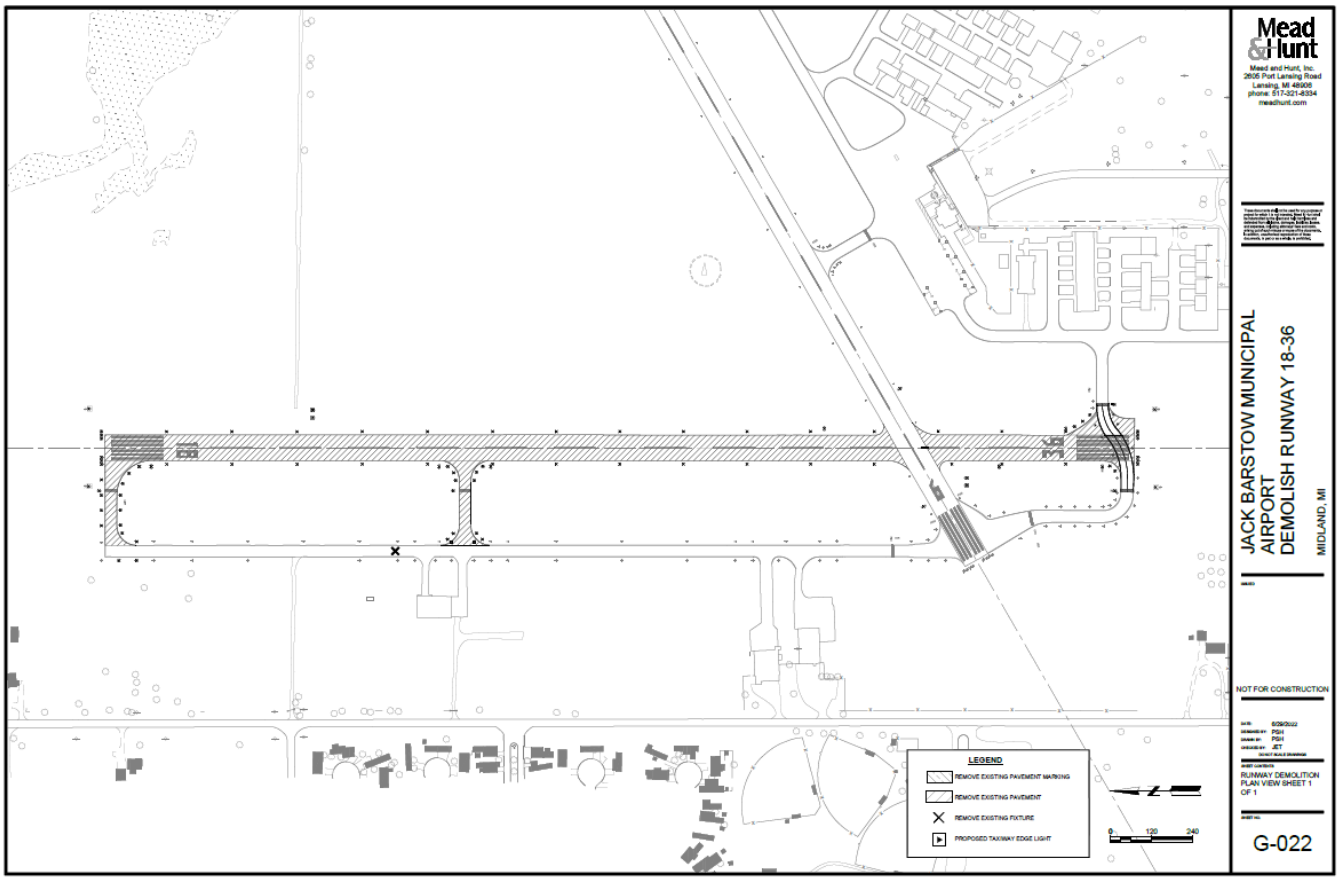
Anticipated Cost $70,000



Closure of Runway 18/36 – Removal of All Runway Infrastructure

Elements – Assumes the removal of all infrastructure related to the runway including pavement, lighting, and NAVAIDS, as well as providing for six acres of site restoration including 4,700 cubic yards of topsoil. This cost includes new taxiway lighting and remarking of pavement o show the pavement left for the taxiway connector to Runway 6.

Anticipated Cost $735,000



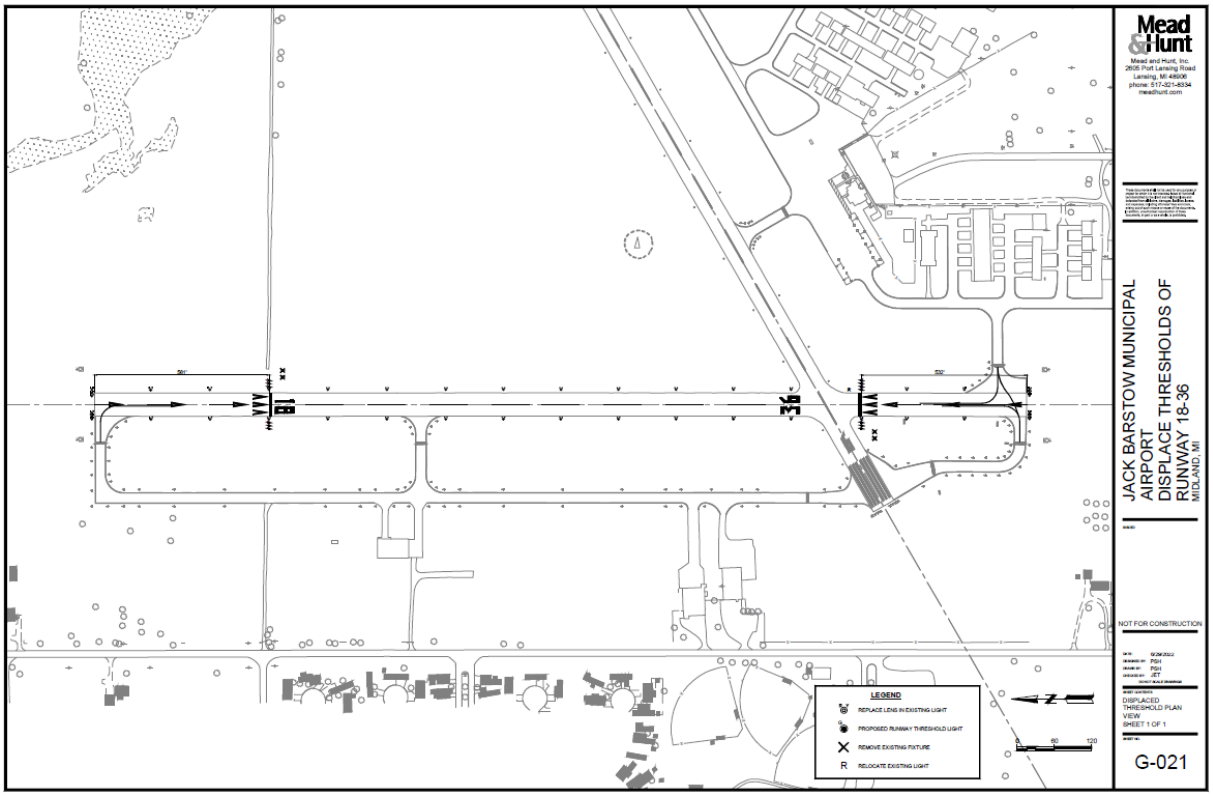
Displaced Threshold of Both Ends of Runway 18/36 – Temporary Solution

To provide a clear approach over the trees in the Runway 18 and Runway 36 approaches, the threshold could be displaced for each end to provide adequate clearance. It must be noted that this alternative provides only a temporary solution since trees are expected to continue to grow and will require additional clearance in the future. The proposed displaced thresholds are anticipated to provide several years of clearance, however this is not a long-term solution, and the runways may need to be displaced, yet again, later, as trees continue to grow and penetrate the displaced threshold approach surface. For both runway ends, the Precision Approach Path Indicators (PAPIs) would not be functional since the area necessary for their surface clearance is even larger than the state licensing standards and the FAA approach surface. This alternative is focused solely on addressing the state licensing surface.

The two displacements have taken anticipated the amount of growth expected to have taken place since the ALP data was collected in September 2019, as well as provide for growth for the next several years. Additionally, the siting has considered the location of existing runway light locations which can be re-used by changing the color of the light lens to address the displaced threshold. This reduces the costs to relocate runway lights to support the displaced threshold. With the existing runway length of 3,001 feet; Runway 18 is proposed to be displaced 561 feet resulting in 2,441 feet for landing, while Runway 36 would be displaced 532 feet, providing 2,470 for landing. The full runway would still be usable for take-off in each direction, the displaced threshold would impact the landing distance.

There are costs associated with pavement marking, runway light lens replacement, and new displaced threshold lights.

Anticipated Cost $204,000



Removal of the Obstructions – State Licensing Standards Only

To maintain the operational capacity of the airport and specifically Runway 18/36, the option of removing the obstructions should be considered. This would ideally use a process for first acquire an avigation easement on properties where obstructions are present so that the City has a long-term right to address obstruction removals as they may occur. The local airport zoning ordinance could be used; however, it does not provide a long-term, deeded right to removals like an easement. Use of the zoning ordinance may have to be litigated with each parcel and each occurrence when using the zoning ordinance, having a court deem the trees to be a hazard and then requiring the removal, as necessary.

It is important to remember that an "obstruction point" is a point on the top of the canopy of an area covered in vegetation. Once that vegetation is examined at ground level, the canopy could be representative of one tree, 3 trees, or more, etc. Conversely, more than one obstruction point could be attributed to the same tree, if it is a large tree with an expansive canopy. This can only be determined with ground investigation. Consequently the "number of obstructions" should be used as a general guide since the actual number of trees can vary until field investigation is completed. Additionally, the specific number of parcels is also an estimation. Just like the tree canopy, the specific location of the trunk of a tree cannot be confirmed, relative to specific property lines without field verification, if the trees are near property edges. Consequently, the number of parcels impacted should also be used as a general guide and cannot be verified until formal design is completed. This needs to be kept in mind with the cost estimates that follow. One final qualification that needs to be made is the number of trees that would be removed. The lidar data used to determine the number of trees is accurate for the tree canopy, it does not consider where a tree is in context to other trees. For example, a single obstruction point may indicate the tallest tree in a larger wooded area. The other trees may be fast approaching the surface and be an obstruction in the very near future and should be considered, additionally, if the single tree is in the middle of this wooded area, it may be difficult to remove the tree from the wooded area without causing collateral damage to other trees in the area. These are all issues that should be considered as an obstruction removal plan is being developed. For the purposes of these estimates, only single tree removal has been budgeted, which means costs would likely be higher, if additional tree removal were included to address either larger areas or collateral damage impacts. It must be noted that this alternative addresses only known obstructions to 2019 survey and does not plan for any future obstructions or any that have become obstructions since 2019 or would be obstructions by 2025 when Runway 6/24 is expected to meet state licensing standards. Keep in mind that this solution does not address Part 77 Surfaces, it is only intended to address state licensing standards, consequently, there will be Part 77 Surface obstructions that will remain after this project, if it were undertaken.

Assumptions:

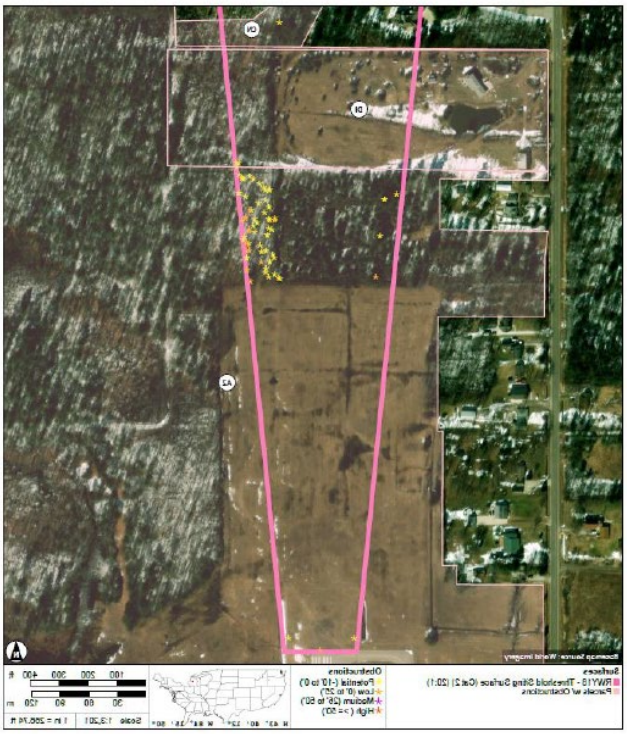
Runway 18	2 privately owned parcels and the airport for total of 80 obstruction points
Runway 36	12 privately owned parcels and the airport for total of 45 obstruction points

- Easements assume approximately $25,000 in consultant costs (negotiations, survey, appraisal, review appraisal, title work, closing) and approximately $40,000 for easements and $10,000 for mitigation per parcel, as a planning figure.
- Costs for Removals assume selective removal of individual trees and not clear-cutting. Mobilization and General Conditions are estimated at $10,000 per parcel, safety and security are estimated at $4,00 per parcel, restoration is estimated at $5,000 per parcel and removals are estimated at $1,000 per tree. Design and Construction Admin are also included in each runway end at a total of 17% as well as some ancillary costs for a rounded total as shown above.

Runway 18	Element	Costs
	2 New Easements	$150,000
	Obstruction Removal	$170,000
	Estimated Total	$320,000

Runway 36	Element	Costs
	5 Existing Easements	None
	7 New Easements	$525,000
	Obstruction Removal	$300,000
	Estimated total	$825,000

Total to address both runway ends estimated at a minimum of $1,145,000.



Estimated Timing

As noted previously, the tree obstructions on Runway 18/36 will need to be accomplished by the time the issues with Runway 6/24 are completed, if the City wishes to have the existing provisional license removed and receive a full state airport license and obtain federal funding for projects other than those associated with obstruction removal. The environmental assessment for Runway 6/24 is underway and anticipated to be completed by mid-summer 2023, assuming no unforeseen issues arise. This would allow for tree removal on airport and City-owned properties in winter 2023/2024. Concurrently with that, acquisition of the easements for Runway 6/24 (4 Runway 6 and 4 Runway 24) would be pursued. This is estimated at $500,000 and would hopefully be completed such that removals could be accomplished in winter 2024/2025. This schedule is created due to time it takes to negotiate easements, the required lead time on bids and the associated funding and the environmental window for tree removals between November 1st and March 31st. With this anticipated completion, the alternative to address Runway 18/36 would need to be completed by Spring 2025 to allow for federal funds to address other airfield projects.

Summary of Estimated Costs for Runway 18/36 Alternatives

The following summarizes the costs of each of the alternatives discussed to address Runway 18/36.

- Close Runway – no pavement removal $70,000
- Close Runway – remove airfield infrastructure $735,000
- Displace Thresholds (Rwy 18-561' / Rwy 36-532') temporary fix $204,000
- Acquire Easements and Remove Trees temporary fix $1,145,000
  This addresses only known obstructions to 2019 survey

Schedule of Projects (Best Case)

Current – Summer 2023	Environmental Assessment (EA) for Runway 6/24 easements and tree removal
Late Summer 2023	Design On-Airport Tree Removal Runway 6 (City fund for reimbursement)
Fall 2022	Bid for On-Airport Tree Removal Runway 6
Spring 2023	FAA Grant Application for On-Airport Tree Removal
Summer 2023 – Winter 2023	Runway 6/24 easement acquisition
	Assumes City of Midland will use BIL funds to assist with payments and provide flexibility for scheduling. Estimate is $200,000 for consultant costs and $300,000 for easements
Winter 2023	Bid for Off-Airport Tree Removal Runway 6/24
Winter 2023/2024	On-Airport Tree Removal
Spring 2024	FAA Grant Application for Tree Removal Runway 6/24
Winter 2024/2025	Tree Removal Runway 6/24
Spring 2055	Both Runway 6/24 and Runway 18/36
	Compliant with State Licensing Standards for Runway Approach