

FIRING RANGE BUSINESS CASE

JANUARY 2021





FIRING RANGE BUSINESS CASE SUMMARY

DOCJT is seeking approval to construct a new indoor firing range. After extensive assessments of the existing structure, it has been determined that it is beyond its useful life, not meeting current training needs and presents multiple safety hazards. It is envisioned that a new facility will contain a 50-yard, 30-lane firing range, with a 10-yard staging area behind the 50 yard line. The new range is designed for active-shooter-style training and will include needed space for a reception area, security, offices, classrooms, observation/scoring areas, weapons cleaning/maintenance room, armory, storage room, locker rooms and roll-up door for vehicle access.

An assessment conducted by EOP architectural firm identified a series of issues in the failing infrastructure. In many places, the building is quite literally crumbling. The range is not ballistically sound, which means rounds could escape the firing range, creating an unsafe environment. The range's back stop is well beyond its useful life and requires constant attention to ensure its safety.

DOCJT has made efforts to shore up immediate, catastrophic failures. However, long-term repairs are not recommended by EOP. Any funds used to make repairs that might help the struggling facility for another three to five years doesn't alleviate the issue that the range also is not currently meeting programmatic needs. Downtime required to make repairs also would impact the training schedule.

Additionally, DOCJT's tactical training facility is currently unusable in anticipation of upgrades to provide proper lead ventilation. The estimate for this necessary project is \$250,000. This facility has become an integral part of DOCJT's skills training and provides opportunities

for real-life scenarios unequaled across the Commonwealth (consideration has been made to include space for a new, properly-ventilated tactical training area within the footprint of the new firing range facility being requested).

The total estimated cost of a new firing range facility is \$22,984,449.88.

As part of the request to build a new indoor firing range, DOCJT has prepared a projection of revenues, expenditures and fund balances through the foreseen end of construction. This projection demonstrates that all associated costs related to the new firing range can be paid from the Kentucky Law Enforcement Foundation Program Fund (KLEFPF), and still result in an increased fund balance at the end of the construction period. At this time, DOCJT does not anticipate the need for an appropriation increase in order to fund the design fees. Of course, the FY 2022 budget will need to be increased to pay for the construction itself, but KLEFPF will be the sole source of the project's funding.

DOCJT is committed to offering training facilities that serve the needs of more than 8,000 law enforcement officers across the Commonwealth. Having a functional range is an integral part of teaching these officers the critical firearms skills they need to protect and serve their communities. If we experience a period of time with no firearms range, either because McKinney Range fails prior to the completion of a replacement or during extensive repairs on McKinney, the agency would be unable to conduct legislatively-mandated Basic Training curriculum. Replacing this facility will allow DOCJT to improve the service it offers to these clients and ensure that service is delivered in a safe environment.

DOCJT FIRING RANGE BUSINESS CASE

REQUEST

The Department of Criminal Justice Training (DOCJT) seeks approval to construct an indoor firing range. After extensive assessments of the existing structure, it has been determined that the McKinney Firing Range on DOCJT's campus is beyond its useful life, not meeting current training needs and presents multiple safety hazards.

It is envisioned that a new facility will contain a 50-yard, 30-lane firing range, with a 10-yard staging area behind the 50 yard line. The new range is designed for active-shooter-style training with recruits and students moving safely forward toward the range's target system. A roll-up bay door on the facility's side wall will allow vehicle access inside the range. It also will include needed space for a reception area, security, offices, classrooms, observation/scoring areas, weapons cleaning/maintenance room, armory, storage room and locker rooms.

CURRENT STRUCTURE

Constructed in 1992, the McKinney Firing Range is a semi-enclosed, unconditioned firing range with 16 lanes for handgun training. This facility is heavily used by DOCJT's Basic Training recruits, in-service training students, School Resource Officers, Certified Court Security Officers and other Kentucky law enforcement agencies requiring essential firearms training space. The average DOCJT Basic Training class size includes 30 recruits, meaning the existing range can only accommodate half of one class at a time. DOCJT operates, under normal circumstances, four to five Basic Training classes simultaneously on a rotating training schedule. This shortage of training space severely limits firearms training time.

In 2020, 1,520 recruits and students spent a total of 26,920 hours on the McKinney Range, firing 627,200 rounds of ammunition. As the existing range does not accommodate all firearms training needs, an additional 800 recruits and students used an off-campus, outdoor firing range at Boonesboro for an additional 29,400 training hours this year. Training on the Boonesboro range cannot be conducted in a controlled environment due to weather and lighting constraints.

The McKinney Range requires lead-free ammunition due to the lack of a proper ventilation system. This ammunition is significantly more expensive than leaded ammunition. The use of shotgun or rifles are also restricted to use on the Boonesboro range. Travel to the Boonesboro range, even when not interrupted by uncontrollable environmental circumstances, reduces the number of available training hours because of the 16 mile drive to and from the outdoor range, and increases costs of meals that must be provided to recruits and staff due to the remote location of the training site.

The McKinney Firing Range's open air configuration does not allow for containment of acoustical nuisances to surrounding properties, which include a community hospital and EKU's main campus. This configuration also leads to training disruptions due to inclement weather, and limits students' ability to learn.

The range is not ballistically sound, which means rounds could escape the firing range, creating an unsafe environment. The open air configuration also cannot accommodate simulated nighttime training, meaning DOCJT instructors regularly earn compensatory time for conducting training after hours when the sun has set.

A small, enclosed, conditioned area of the existing facility contains storage, bathrooms and a viewing area. Due to moisture issues, the armory cannot be housed within the McKinney Firing Range. The armory, therefore, must be housed in the adjacent Sayre building, which also provides limited instructor offices and classroom space.

IDENTIFIED ISSUES

The EOP architecture firm recently provided an updated facility assessment of the firing range, identifying continued deterioration from an assessment conducted in March 2019. The EOP report states that, "It is our opinion that the building is beyond its useful life in regards to its current condition and other limitations in performance and meeting program requirements . . . We do not feel that it would be prudent to spend the necessary funds to fully correct all of the exterior envelope deficiencies, as this would not address all of the other inadequacies of the building."

Among the 117 page report, numerous safety hazards are noted to the crumbling infrastructure, and the firm also identifies multiple attempts at previous repairs to shore up the 28-year-old facility that are also failing.

Below is a condensed, highlighted list of these identified issues:

MCKINNEY FIRING RANGE

EXTERIOR: Building facade is comprised of hollow, metal-framed windows, doors, storefront, wood trim, painted-scored concrete masonry units (CMU) and exterior insulation finish systems (EIFS). Painted scored CMU masonry block is double-width, load-bearing stack bond CMU, consisting of an 8" exterior and 4" interior face block with 12" tie blocks every other course. CMU vertical control joints occur at each bay along the north and south facades. There are no control joints on the west facade, and the east facade has joints at the transition point from CMU to EIFS.



Image retaken September 2020, note CMU has continued to deteriorate.

Enlarged image, exposed expansion joint and failing CMU at through-wall scupper



Paint and CMU spald adjacent to through wall conductor head. Typ at most conductor head location, especially along South Facade

Enlarged image, lower section of expansion joint



Failed CMU control joint, has opened up allowing moisture infiltration

There is an expansion joint between the semi-enclosed area and the conditioned one story section. **All of these joints have failed.**

Paint is severely deteriorated, peeling and faded. Multiple cracks, fissures and spalling of CMU face are evident across the entire building. **Previous repairs have been made at failed Truss pockets. Several locations need to be repaired. This will continue to be an ongoing issue until the underlying issue of water intrusion is addressed.** Portions of CMU walls extend below grade and below grade waterproofing is most likely failing, allowing water to wick up block. Moisture is entering the block face through multiple means including: wicking, failed joints, small fishers in paint system, spalled areas and gaps around flashing. Moisture appears to be from exterior sources rather than interior vapor drive.

South facade shows the most signs of deterioration, spalling and cracking of CMU, most likely due to having the most direct solar and wind exposure. North facade has more biological growth, due to indirect sun exposure. Facade shows signs of further deterioration from initial assessment conducted in March of 2019.



Failed previous repair attempt at hollow metal window

FENESTRATIONS: Hollow, metal-framed paint finish is chalking and many locations are exhibiting surface rust and spall. **Seals do appear to be an issue as previous repair attempts are failing.** Clear insulated glazing appears to be in good condition, but has low energy performance compared to today's options and **would not meet current energy codes.**

EXTERIOR OVERHEAD DOOR: Overhead Cornell door track anchors have spalled to the point that the surrounding CMU has cracked and chipped away. **This area is a safety concern as there does not appear to be any track anchors that have not been severely compromised.**

Front entry doors perimeter joint sealants have almost completely disintegrated



Overhead door lintel, CMU is in a heavy state of deterioration



Overhead door track anchors are all heavily corroded and spalling caused adjoining CMU to crack and chip away

ROOFING, FLASHING AND GUTTERS: The main roof is in a saw tooth configuration. Original roof system was asphalt roll good on top of plywood wood deck. Saw tooth portion was re-covered within the past five years with a dimensional asphalt shingle. Wood roof joists at behind steel backstop did **show some signs of damage from ricochet and some members were split extending from beam notch.** Underside of wood roof deck appears to be in good condition. Built up dimensional wood beams have water stained areas indicating **leaking gutters and failed flashing around truss members and base flashing. Flashing was repaired or replaced some time ago and is in poor condition and sealants have failed.**

At the bottom of each saw tooth is a continuous gutter leading to a through-wall scupper and conductor head on each end. **Gutter was replaced at some point. Gutter is flat, undersized and mounted too low, allowing water to overshoot the gutter in a heavy rain event.** This has not caused any damage, as interior is a concrete floor and freely vents to the outside. **However, it does create a slipping hazard.** Open roof trusses with bird screen allow rain to enter the space during a wind-driven rain event from the east, which is not the prevailing wind direction. **Through-wall scuppers and conductor heads are in poor condition and are allowing water to infiltrate into the CMU.** Some downspouts are also damaged. One conductor head was full of water at time of inspection and it appeared that another downspout boot was clogged from adjacent soil erosion. Tower has a standing seam metal roof. It appeared from a distance to be in OK shape.



Underside of plywood roof deck

ENCLOSED ROOF AREA: Roof is SBS modified and is **currently 28 years old, which is at the life expectancy for this type of roof system. Roof is showing signs of failure which is evident in water damage on the interior. One section of roof has warped and buckling wood decking** that needs to be replaced. A hole in the membrane was observed in this area. There appears to be 70 percent granule adherence with some fissuring present.



Gutter & through-wall scupper



Gutter through-wall opening at expansion joint, which is allowing water infiltration into CMU wall, note joint is completely open on back side



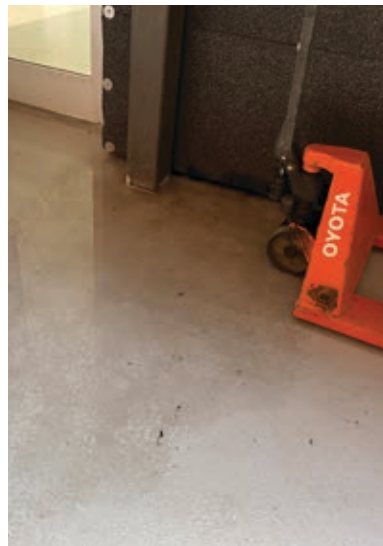
Note pop rivets have failed at top edge of roof flashing



Failing CMU beam pocket repair

STRUCTURE: Steel columns within firing range area are showing rust at the base and finish is failing, which has been exacerbated by gunfire ricochet. Steel truss units finish is peeling, faded, chalking and showing signs of rust. **Paint has exceed life expectancy.** Top of CMU wall primarily on south side of building show **signs of vertical cracking** and are offset at several locations, most likely due to thermal expansion of steel roof trusses. CMU also shows signs of **damage due to water infiltration** primarily adjacent to through-wall scuppers which sit just above steel truss end bearing points. **Infiltration has caused fissure cracks and spalling of block face due to freeze thaw cycles.** Some block has deteriorated to such a point that replacement is recommended. Several rafters behind backstop show **damage from bullet ricochet and have longitudinal splits originating from rafter notch.** It also appears that a second layer of plywood was added on top of roof decking to **cover holes created from ricochet.** Rafters in this area are also covered in black soot, most likely a result of gunfire.

MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS: Through-wall units serve the interior spaces with a split system serving the tower portion. **There are signs of water leakage around these units.** Bathroom water heater has been recently replaced based on recommendations from previous report. Some exterior LED lighting upgrades have also occurred. **Not all lighting is functional within the firing range area. Electrical wall outlets along demising wall have been switched off at the breaker due to continued water infiltration.** Currently access control at exterior doors is not functioning properly.



Ponding water on floor slab, due to leaking gutter and wind driven rain. Could be trip hazard through formation of ice in winter

Exterior concrete masonry wall reconstruction extents



EXTENSIVE WALL DETERIORATION: The deterioration is severe at the vertical control joint behind the rain water leader. It is less severe, but still significant and extensive, at the adjacent man door and overhead door located just to the west of the joint. At the joint, where the deterioration is most severe, the wall supports a steel roof truss. **There is potential for the wall to fail, leading to a catastrophic partial collapse of the adjacent roof structure.** It is

our opinion that the existing steel roof truss should be temporarily shored just inside the wall immediately and until the wall can be reconstructed.

The wall at the overhead door is also in very poor condition. While the potential for collapse is low, the potential for localized failure such as the overhead door to wall connection failing or pieces of masonry falling is high. It is our

opinion that the overhead door should be disconnected temporarily until the wall is reconstructed, including a new lintel at the head of the opening. Upon completion of the masonry reconstruction, the overhead door should then be reinstalled.

The deterioration at the man door between the overhead door and the control joint is not severe. However, it is our opinion that the wall in this area will be easier to replace than to preserve during the reconstruction of the areas immediately adjacent on both sides. It is also our opinion that it will be easier and less costly to reconstruct the wall full height rather than to shore it and try to preserve the upper portions.



Severe deterioration at control joint

RECTIFICATION PLAN

As a result of these catastrophic failures, DOCJT is concerned for the safety of its clients and staff working daily in the McKinney Firing Range. Because of the immediate need for protection, the agency has taken steps to temporarily shore up items listed as critical in EOP's assessment. Previous attempts to repair this structure, however, have failed, as noted above. Due to the number of recruits and students served on a daily basis by this facility, it is a critical part of DOCJT's training obligations. Upon review of the assessment's identified issues, DOCJT believes the only course of action is to replace this dilapidated facility.

In the last budget, the Department requested, and the Governor recommended, bond funds to replace the firing range with the debt service coming from Kentucky Law Enforcement Foundation Program Fund (KLEFPF) reimbursing the General Fund for payment of the debt service. That project did not get approved by the 2021 Session. The KLEFPF fund revenues have consistently exceeded expenditures for several years. The debt service obligation can be easily accommodated with the current revenue streams from the existing insurance premium surcharge rates.

It is important to note that any delay in funding this project would result in an estimated 4% escalation per year as referenced below:

Budget Escalation				
The above budget calculation is based on estimated construction costs as of October 2020. Escalation at 4% per year is calculated below for 2, 4 and 6 year terms.				
October 2020 Budget Estimate =	\$22,984,449.88			
2 Year Escalation =	\$22,984,449.88	x 1.04	x 1.04	\$24,859,980.98
4 Year Escalation =	\$24,859,980.98	x 1.04	x 1.04	\$26,888,555.43
6 Year Escalation =	\$26,888,555.43	x 1.04	x 1.04	\$29,082,661.56

CONCLUSION

The Department of Criminal Justice Training is committed to offering training facilities that serve the needs of more than 8,000 law enforcement officers across the Commonwealth. The McKinney Firing Range is an integral part of teaching these officers the critical firearms skills they need to protect and serve their communities. If DOCJT experiences a period of time with no firearms range, either because McKinney Range fails prior to the completion of a replacement or during extensive repairs on McKinney, the agency would be unable to conduct legislatively-mandated Basic Training curriculum. Replacing this facility will allow DOCJT to improve the service it offers to these clients and ensure that service is delivered in a safe environment.





DEPARTMENT OF CRIMINAL JUSTICE TRAINING

