

PROJECT SPOTLIGHT:

FINES PRESERVATION & STABILIZATION FOR GRAVEL RUNWAYS

EK35® Stabilizes Secondary Unpaved Runway to Support Safe and Reliable Operations During Primary Runway Repairs

33% CBR value	+96%	+36,000
Improvement versus untreated	Average Maximum Dry Density Achieved During Compaction	Liters of EK35® Applied to the Runway

CHALLENGES

- Design and implement a solution that would safely and reliably support critical aircraft operations while the paved runway was being repaired.
- Improve the performance and durability of the existing crosswind runway surface – new aggregate overlay not feasible
- Insufficient gravel thickness on outer edges of runway preventing full-depth EK35® blending .
- Current runway conditions rated poor to moderate with high volume of loose stone on the surface.

SOLUTION

- Conducted lab testing to determine and verify the best application rate of EK35®.
- Removed the loose stones from the runway surface prior to installing EK35®.
- Work with the contractor on site to implement a hybrid EK35® installation approach.
 - Blended EK35® installation in the center 14 meters,
 - Topical EK35® installation on the outer 8 meters on each side of runway.
- Performed density measurements to confirm the target density was achieved.
- Continued compaction with wobbly wheel packer to tighten the treated surface.

RESULTS

- **Increased CBR By 33%:** Design lab testing indicates that the incorporation of EK35® into the runway material improved the CBR by 33% compared to the untreated material.
- **Average Compaction Exceeded 96% MDD:** QA/QC Compaction testing shows that the runway was compacted above the minimum recommended target of 95%.
- **Supported Critical Aircraft During Main Runway Repairs:** Critical aircraft safely continued operations on the EK35® treated gravel runway while the primary paved runway was being repaired.
- **Seamless Hybrid Installation:** Midwest worked with the contractor to install the dual approach installation in five days without any issues.



PROJECT BACKGROUND

Product: EK35®

Location: Manitoba, Canada

Industry: Aviation Infrastructure

This Regional Airport is a critical transportation hub for northern Manitoba and relies on both its primary paved runway and secondary gravel crosswind runway to maintain safe, reliable air service. Because the primary runway was scheduled for repair work in August and September, aircraft operations were expected to shift to the unpaved crosswind runway during that period. This made the condition and performance of the secondary gravel runway vital, as it would need to support regular aircraft traffic, including ATR-42, ATR-72, Dash 8-300, Basler BT67 aircraft and medivacs. To improve the performance of the secondary runway in preparation for the repair work, Midwest's EK35® was installed to improve the runway's operating surface by binding loose aggregate, reducing dust and FOD, improving surface durability, and providing safer takeoff and landing conditions while the primary runway was under repair. The installation was completed using a hybrid approach where EK35 was blended into the center of the runway where there was sufficient gravel and topically applied to the outer areas of the runway where the gravel thickness was insufficient.

LOOKING FORWARD

This project establishes a proven framework for stabilizing unpaved runways under constrained conditions, including limited aggregate thickness, insufficient fines, and tight construction schedules. The hybrid application approach demonstrates how the EK35® installation can be adapted to varying subsurface conditions—combining blended and topical treatments to optimize performance where full-depth construction is not feasible. Moving forward, this installation highlights the flexibility of EK35® to deliver improved performance tailored to site-specific challenges and operational demands.