

Harney Street Garage preserved with major structural repairs and restoration

McGill Restoration returned structural integrity to the Harney Street Garage by making significant structural repairs to the columns and beams of the garage. The project required work through adverse winter conditions while protecting backup generators for a local data center on the upper level. The project was successfully completed in three months at budget.

THE CHALLENGE

Restore Structural Elements without Impacting Data Center Generators

The Harney Street Garage is a multiuse parking structure serving multiple businesses and residences for primary parking. Additionally, it houses heavy backup generators for a local data center on the top level.

The structure endured significant damage from years of heavy use, and wear and tear. Failed joint sealants allowed water to penetrate masonry, causing significant crumbling and delamination. Additionally, important beams and columns were compromised, creating a potentially dangerous situation.

Restoring the parking garage would require working through winter conditions while operating beneath the data center generator level. Shoring each level with timbers and using temporary ramps to alleviate pressure from existing structural support also required extensive planning. The timeline required a quick turnaround to return access for residents alongside revenue to each stakeholder.

THE BIGGEST ISSUES WERE:

- ⊗ Failed joint sealants
- ⊗ Water damage throughout structure
- ⊗ Crumbling masonry
- ⊗ Scaling surface
- ⊗ Compromised columns and beams



THE SOLUTION

Implement Creative Planning and Precision Structural Work for Complete Restoration

McGill Restoration completed the project in three months at \$500,000, restoring structural integrity and safety to the entire parking garage. Working closely with the engineers, they devised a systematic approach to repairing every major structural element in a tight space while taking special measures to work in winter conditions.

TO SUCCESSFULLY COMPLETE THE HARNEY STREET PROJECT, MCGILL RESTORATION EXPERTS NEEDED TO:

- ✓ Prep site for winter work
- ✓ Assess site damage and plan equipment and supplies
- ✓ Alleviate weight on columns to make repairs
- ✓ Repair structural beams
- ✓ Restore masonry throughout the entire garage

INSTALL CRIBBING AND TEMPORARY RAMPS

McGill Restoration faced a challenge with the top level data center generators adding weight to structural supports. Crumbling columns and beams required immediate attention so the team imported several truckloads of timbers and supports. They removed weight from the existing structural supports and transferred the load to temporary timbers.



RESTORE BEAMS AND COLUMNS

Overall, the project was intensive with numerous phases of restoration but the structural work was the primary and most significant element of the entire job. Cribbing to support each level while working on the primary structures reduced the working space on sensitive structures but the team positioned everything strategically to leave the space required to pour new concrete and use critical machinery.

WORKING ON STRUCTURAL ELEMENTS REQUIRED:

- ✓ Lifting each level to remove pressure from beams and columns
- ✓ Installing temporary cribbing for support
- ✓ Adding support to ramps for access
- ✓ Positioning equipment to complete repairs

MAINTAIN CRIBBING THROUGH LONG CONCRETE CURING PROCESS

While working through column repairs, McGill Restoration discovered additional damage that was concealed from surface-level inspections. The water seepage from failed joint sealants had persisted for years, penetrating the structure deeply. To properly restore the vertical and horizontal concrete, a more intensive process using a different concrete mix was required and the team adjusted their plan to ensure the optimal outcome was achieved.

THE STRUCTURAL REPAIRS INCLUDED:

- ✓ Beam repair or replacement
- ✓ Complete column restoration
- ✓ Maintaining cribbing while concrete cured
- ✓ Moving equipment to each structure with minimal space allowances

Pouring new concrete requires curing times to increase the material integrity and load-bearing capabilities. While the new concrete cured for up to several weeks, the cribbing was maintained to continue supporting each level. Once cured, the cribbing was slowly removed, returning weight to the new load-bearing structures.



BEYOND PRIMARY STRUCTURAL ELEMENTS

After completing sensitive structural repairs to beams and columns, the parking structure still faced significant damage to horizontal and vertical surfaces. The team tackled surface repairs and worked through ramps to restore integrity.

Ramp damage presented a serious risk because the deterioration threatened the ramp's ability to support a load. Failing ramps can collapse back onto themselves, creating a potentially dangerous situation for garage users. After restoring all damaged masonry surfaces in the structure, McGill Restoration added new joint sealant coating to protect the ramps and general structure against future water damage.

The parking structure will also utilize McGill Restoration for traffic coatings to upgrade and protect all horizontal surfaces in the near future.

TO RESTORE THE HARNEY STREET GARAGE, MCGILL RESTORATION HAD TO:

- ✓ Make significant structural repairs
- ✓ Pivot to address damage from intensive water penetration
- ✓ Restore horizontal and vertical surfaces from delamination and spalling
- ✓ Install new joint sealants to protect structure
- ✓ Work on a tight timeline in winter conditions
- ✓ Collaborate with PE to ensure repairs were structurally sound

WINTER SITE WORK PREP

Most parking garage projects are completed during summer and fall for repairs and restoration work. The Harney Street Garage ownership determined repairs were imperative and moved forward during the winter. McGill Restoration wrapped the garage and utilized several large heaters to continue work through all outdoor temperatures and conditions. The wrapping and heat system kept the project on track, eliminating weather delays.



THE RESULT

Harney Street Garage Safety Restored and Returned to Daily Operations

McGill Restoration's expert team returned integrity to the crumbling Harney Street Garage, ensuring residents and users had a safe structure to use for the foreseeable future. The structural repairs also helped to support the heavy top-level load from the data center, allowing the operation to continue without interruption.



The McGill Way: Harney Street Restoration Highlights



Completed the entire project in three months for \$500k



Returned structural integrity to entire garage



Adjusted beam repair process to account for higher level of damage



Restored masonry surfaces

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