



PROJECT PROFILE

Lincoln Park Pedestrian Bridge

Annual Inspection, Field Testing, and Structural Rehabilitation | Chicago, IL



CLIENT

Chicago Park District

BACKGROUND

The Lincoln Park Pedestrian Bridge spans Lake Shore Drive, joining one of the City of Chicago's largest parks and the Lincoln Park Zoo to the lakefront. The bridge is a three-hinged steel arch supporting a concrete-filled steel grid walkway by means of a series of hangers. Its span center-to-center of lower hinges is 189 feet. The width between the arch ribs is approximately 13 feet. The bridge was designed and constructed in the mid-1930s.

For over eighty-five years, the Lincoln Park Pedestrian Bridge has linked Chicago's neighborhoods to the beaches and parks along the shores of Lake Michigan. Given its age, the bridge requires periodic inspection and maintenance. Abutment movements, the addition of planter boxes, and perceptible vibrations caused by pedestrians, wind, and traffic moving under the bridge have also needed to be addressed. The Chicago Park District has relied on WJE's engineering and testing expertise to study these and other issues and to develop repairs for this iconic bridge.



SOLUTION

Since 1990, WJE has provided annual inspection and periodic maintenance recommendations and repair designs that support the Chicago Park District's continued operation of the Lincoln Park Pedestrian Bridge.

Using information collected through visual inspection, field testing, and vibration measurements, WJE developed repair designs that stabilized the separation of abutments by adding post-tensioned tiebacks and restored the smoothness of the arch profile by cutting away the center hinge, jacking the bridge and welding in a new hinge. Cross bracing was installed between vertical hangers to reduce vibrations and prevent buckling due to asymmetric loadings, thus increasing the bridge's load carrying capacity to satisfy current AASHTO loading requirements and accommodate planters. In addition, a landscaping subconsultant was retained to assist with planter box design and study visual implications of the boxes' placement. WJE also furnished specialty engineering and in-house construction services to execute repair of vehicular impact damage.

