



PROJECT PROFILE

605 Waterford Garage

Condition Assessment | Plymouth, MN



CLIENT

CB Richard Ellis

BACKGROUND

Built in 1989, the 605 Waterford Parking Garage is a single-story structure containing two parking levels, with each level measuring approximately 105,000 square feet. The upper level of the parking garage consists of an unbonded post-tensioned concrete flat deck and is accessed by grade-supported drive ramps. The upper level is divided into three sections. The east- west sections are divided by two tree wells and expansion joints. A brick pavement turnaround area with planters is present on the upper level. The lower level has a bituminous pavement floor and includes an enclosed parking section.

After acquiring the 605 Waterford Parking Garage in 2005, CB Richard Ellis noticed that water leakage was occurring through the upper level deck at expansion joints and the brick pavement area. In addition, two failed post-tensioning tendons were observed. WJE was retained to perform a condition assessment of the garage and to provide general recommendations for the necessary repairs.



SOLUTION

WJE found the parking garage to be in good condition; however, localized structural distress and water leakage problems were present at various locations which warranted repair. The structural distress primarily resulted from water infiltration, and potentially chloride ion ingress, into the concrete and included the two failed tendons. The water leakage primarily resulted from the deterioration and failure of the expansion joints and from defects in the waterproofing installed below the brick pavement turnaround.



To maintain the serviceability of the structure, partial-depth concrete repairs, post-tension tendon repairs, guard rail post and cable repairs were recommended, along with replacement of the waterproofing system. WJE also recommended that a more durable expansion joint seal system be designed and installed during replacement of the existing expansion joints.

Construction observations were subsequently performed during the repair of the two failed post-tensioning tendons.