



CASE STUDY - BRIDGE LIFT

• Burnaby, BC •

AT A GLANCE: Many parts of the Greater Vancouver have constant ground settling, causing buildings, roadways, and a variety of structures to drop over the course of time.



THE PROBLEM

While the bridge deck sits on piles, the approach ramps are hinged on the bridge to allow even, gradual settlement between the asphalt roadway resting on the grade and the bridge. After many years, the slope of the ramp became too great for traffic, causing almost a “jump” at the hinge point. This was also a high traffic location which could not allow the full bridge to be shut down for any length of time.



THE SOLUTION

A technique was designed to efficiently lift the hinged bridge slab and inject HMI polyurethane below a portion of the concrete to support it. Using hydraulic jacks and a fast setting high density polyurethane, the crew was able to lift and support the bridge section up 220mm using 19.5 cubic meters of polyurethane.



THE BENEFITS

1. The lightweight, high density HMI polyurethane added minimal weight to the constant settling grade for the bearing portion of the bridge slab.
2. Minimal down time of only 2 days for the lifting and supporting of each slab with the ability to drive on again the following day.
3. Cheaper solutions than removing the concrete, rebuilding the grade as required, and re pouring a section of the bridge approach.
4. All work could be completed regardless of weather conditions (unless the ground is frozen) keeping the project on time and on budget.



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