



Project

Teamwork and soil expertise deliver new highway lanes in Virginia

10 miles?

of new highway construction?

30% more people

accommodated via new lanes

66% more capacity?

for traffic during peak traffic periods?

Summary

- To accommodate growing traffic, the Virginia Department of Transportation (VDOT) planned an expansion of Interstate 95 Express Lanes near Fredericksburg. The project, a public-private partnership, called for building approximately 10 miles of new highway in challenging Potomac Formation soil conditions.
- The project's lead designer, HNTB, previously relied on Haley & Aldrich's geotechnical expertise for two other Express Lane projects. HNTB trusted us to address the needs of multiple stakeholders and provide solutions-oriented project management, drawing on existing relationships with VDOT and Transurban, the concessionaire.
- We also brought previous experience with the local geology to overcome the technical challenges of the extension. Moving fast so that the new lanes could open as soon as possible, we conducted geotechnical investigations, drilling nearly 700 borings in approximately 22 weeks to support the project design. Based on those investigations and our previous experience, we developed design recommendations for bridge foundations, retaining walls, culverts, pavement, subgrade undercuts, stormwater management, and earthwork.
- Given the presence of the Potomac Formation soil conditions, our designs had to account for stabilizing more than 100 slopes before roadway construction could start. Taking advantage of our experience to develop designs that would work in the area, we recommended a variety of solutions, including pile stabilization and densified aggregate piers.
- With the schedule a priority because of an urgent timeline, we installed instrumentation that facilitated remote monitoring to measure settlement at bridge abutments. This saved time by avoiding the need to have surveyors on-site to measure settlement, and it allowed us to know the settlement reached acceptable levels.

- The new lanes opened in 2023, allowing easier travel for drivers and increased toll revenue for the state of Virginia – which, in turn, supports better infrastructure for everyone in the state.

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