

Wellington Unites

A Unique Grade Separation
for an Ohio Village



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For most rural communities, rail traffic is no big deal. Rail lines are typically on the edge of town – or outside of town completely. And, when there's no grade separation, getting stuck at a rail crossing just means a little lost time.

Not so for Wellington, Ohio.

In Wellington, until their recent grade separation project, rail lines cut the town in two. Running right through the downtown business district, 47 trains a day brought life to a standstill on both sides of State Route 58.

This high volume of train traffic posed quite a problem for local residents, schools, businesses and emergency responders.

A Clear and Apparent Need

Trains cut through town day and night, hurtling along at 60 mph or faster.

At the same time, SR 58 – a two-lane road with a posted speed limit of 25 mph – carried more than 10,000 vehicles a day through Wellington.

Sometimes traffic on SR 58 could not clear from one side of town to the other between trains.

This represented more than an inconvenience for motorists and school buses; this raised public safety concerns. There was always potential for police, fire and rescue services to be blocked or separated from their service areas – at times when minutes and seconds counted.

The fire district, in fact, was especially vulnerable. The second largest in northeastern Ohio (after the City of Cleveland), the fire district served both sides of the rail line across an extended area – with no grade-separated crossings. Train traffic could block essential fire and rescue services for multiple communities.

Awarding Wellington a grade separation grant, the Ohio Department of Transportation selected TranSystems to design and manage construction for what would become one of the most unique and welcomed community projects ever undertaken.

A Truly Collaborative Approach

At first blush, a grade separation may seem like a purely utilitarian construction project. In many instances, it can be.

The people of Wellington, though, wanted more. They wanted to solve their traffic congestion problem and help ensure public safety – while preserving and protecting a historic and vital downtown business district.

So the first and most obvious alternative – to go over the rail line using the same SR 58 road alignment – was quickly ruled out. The overpass and retaining walls would have required the demolition of several businesses in the town's center, which is listed on the National Register of Historic Places.

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Instead, going under the rail line with a new SR 58 alignment became the preferred alternative. This approach protected the nearby historic business district, minimized the project's permanent impact on private property – and represented a truly collaborative effort between TranSystems, the Ohio Department of Transportation and the town of Wellington.

Unique Project Specifications

With this approach, the grade separation required a temporary rail runaround, a railroad bridge structure, retaining walls that resembled the brick buildings in the historic downtown and a completely new roadway alignment. Plans also included a storm water pump station (and associated on-site detention basin) to manage the surface drainage of the new road and protect the bridge's foundation from an underground aquifer – while at the same time regulating flow into a nearby creek that had been known to cause localized flooding.

The rail runaround. The runaround was approximately 2,400 feet (0.45 miles) long and maintained rail traffic during construction. This temporary set of tracks, including temporary retaining walls, ran adjacent to the mainline and met all of the railroad company's criteria for running a heavy schedule at consistently high speeds.

Railroad bridge structure. With bridge design and construction, we addressed several aesthetic elements not normally considered. The brick fascia on the retaining walls not only resembled downtown's brick buildings but also included insets depicting the town's rich history. Finally, the name of Wellington was prominently formed into the structure over the roadway.

Storm water pump station. The pump station needed to be able to protect the bridge's foundation not just from storm water but also from any buoyancy issues from a groundwater aquifer. As a result, the tank was much bigger than usual for this type of construction: 30-feet in diameter and buried 40 feet underground to help collect water from the low point underneath the rail bridge.

New roadway alignment. The site selected for the rail crossing was located north of the downtown area and just west of a residential neighborhood. It extended approximately one block to each side of the rail crossing. During construction, five streets were temporarily closed until they could be reconfigured for vehicular traffic.

A Positive Community Impact

Not long after completion, Wellington hosted an official ribbon cutting ceremony to celebrate the newly unified town. A local church hosted lunch and community organizations served food. Everyone turned out. TranSystems, Beaver Excavating Company, the Ohio



Department of Transportation and others were all invited and attended. A large cake celebrating the opening of the new underpass included an artist's rendering of the new bridge.

In many ways, the project represented an ideal partnership of various stakeholders, all working together to find the most feasible solution within the project's budget.

Without a doubt, the grade separation project has had a deep and positive community impact. Traffic flow has improved. The downtown area is much more accessible for employees, vendors and customers. Most important, emergency services now enjoy quick and easy access to both sides of the rail line.

From design approval to completion, the project took approximately two-and-a-half years with a total cost of \$12.3 million.

About the Author

Nabil Farah has extensive experience in structural engineering, primarily involving highway and bridge improvements. He is responsible for the management, design and preparation of construction plans and specifications on various projects for various departments of transportation. Nabil is especially knowledgeable in the design of primary and secondary vehicular and railroad bridges and retaining walls. His experience includes lead roles in projects involving railroad grade separation, interchange design and reconfigurations, and Design/Build projects.

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