

Liberty & Jewett Road Intersection Improvements

Project Information

Project Background:

The intersection of Liberty Road and Jewett Road is a three-way, stop-controlled intersection located in Liberty Township, about ½ mile south of the City of Powell. About 12,000 vehicles per day pass through the intersection. The intersection is maintained by Delaware County.

In 2012, Powell voters approved a bond levy to fund various capital improvements including the extension of Murphy Parkway south to Liberty Road (which was opened to traffic in September 2016).

In 2013, anticipating significant growth in traffic due to this new roadway connection, the County Engineer initiated a study to analyze the current and future operation at Liberty and Jewett Road. The study concluded that traffic at Liberty Road and Jewett Road would grow by about 60 percent between 2013 and 2036. The additional traffic would cause long delays for residents and visitors in the area and create safety problems with traffic backups on the railroad on Liberty and Jewett Roads.



Area Transportation Needs:

Traffic congestion and lack of pedestrian and bike infrastructure are some of the most common complaints received from residents of southern Delaware County. The 2016 Powell Community Attitudes Survey showed that 65% of residents are dissatisfied with traffic flow in Powell. In addition, the new path along Liberty Road connecting Murphy Parkway to Tyler Run Elementary is not connected to Torrington Drive.

Improvements That Were Considered:

The project feasibility study looked at 3 different alternatives to meet the area transportation needs:

No-Build (i.e. Do Nothing)

This alternative was considered early on but dismissed once the study showed failing Level of Service (LOS) in the 2036 design year. The resulting delays would cause frequent backups onto the railroad tracks on Liberty Road and Jewett Road, creating a dangerous situation. In addition, the pedestrian/bikeway link from Torrington Drive to Murphy Parkway would remain unresolved.

Table 4: No-Build Design Year (2036) Peak Hour LOS & Delay (sec)

	AM				PM			
	NB	SB	WB	Overall	NB	SB	WB	Overall
Liberty Rd & Jewett Rd	A (0s)	A (5.7s)	F (831.5s)	F (174.8s)	A (0s)	A (6.8s)	F (not measurable)	F (2056s)

Traffic Signal with Turn Lanes

A traffic signal with 2 different combinations of lanes on each approach was analyzed. This alternative was determined to be more costly and operate no better than a modern roundabout. Traffic signals have statistically more crashes than modern roundabouts; therefore, no obvious advantages versus the modern roundabout, the traffic signal alternative was dismissed from further consideration.

Table 5: Design Year (2036) Peak Hour LOS & Delay for Alternatives

Alternative	AM				PM			
	NB	SB	WB	Overall	NB	SB	WB	Overall
Signalized Intersection Option #3	B (12.9s)	A (4.6s)	B (17.6s)	B (10.2s)	B (16.6s)	A (7.3s)	C (22.2s)	B (14.0s)
Modern Roundabout Option A	A (8s)	A (10s)	A (7s)	A	B (12s)	B (13s)	A (9s)	B

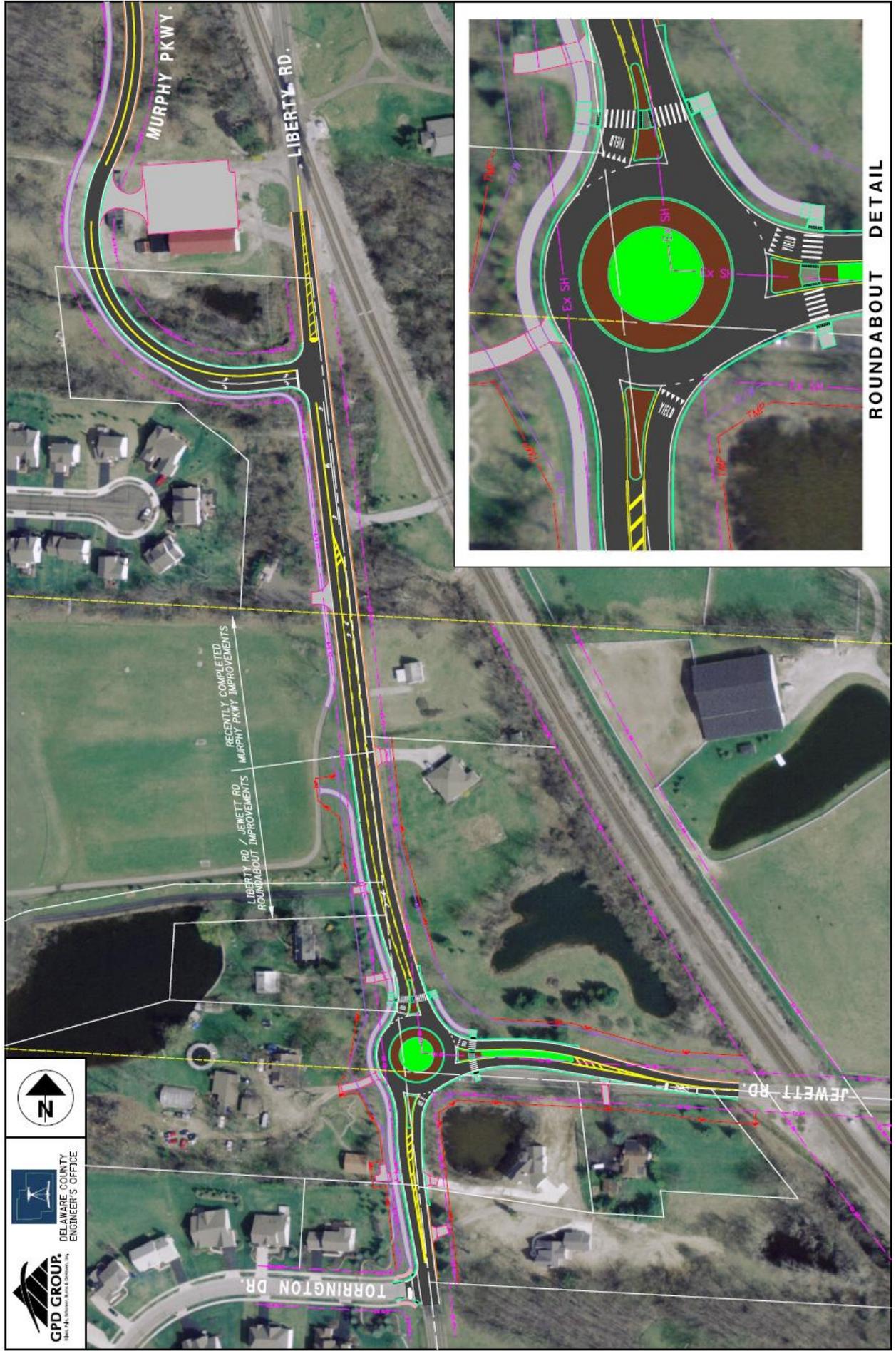
Modern Roundabout

A single lane modern roundabout was analyzed and determined to provide safe and efficient operation through the 2036 design year at a lower cost than installing a traffic signal with turn lanes. This was selected as the **preferred alternative** and advanced to final design.

Total Project Cost Estimate: \$1.5 million including engineering, land purchase and construction.

Schedule: The project could start construction as early as August 2017 and will take about 3 months to build.

Project Plan
Single-Lane Modern Roundabout
Liberty and Jewett Road, Delaware County, Ohio



ROUNDABOUT DETAIL