**SURVEYORS REPORT**

# US-20 (Central Ave.) & N McCord Rd.

# JN 110486

#  Design Survey & Right-of-Way Survey

November 18, 2019 through December 6, 2019

Ohio activities performed in compliance with Ohio law relative to land surveying and applicable OSHA safety standards. Arvin N. Butterfield was the QA/QC officer for the survey.

**Project Team:**

* Tetra Tech Survey Project Manager – Fred H. Yoerg, P.S., 810-225-8402
* Tetra Tech Crew Chief – Jeff Corey, P.S.
* Tetra Tech Crew Chief – Casey Wilson, LSIT
* Tetra Tech CAD/ OpenRoads – Beverly Sidorski
* QA/QC – Arvin N. Butterfield, 810-225-8417

**Equipment:**

* Leica GS15 dual frequency GPS (rover) receivers
* Leica TS15 robotic total stations
* Leica LS10 digital levels

**Objectives:**

Tetra Tech provided surveying services in support of signal redesign by Arcadis at the on US 20 at the intersections of Percentum Rd & McCord Rd:

Survey consisted of control modernization, topographic mapping of intersections, and determination of legal right-of-way & alignments.

**Health & Safety:**

A Health & Safety plan was drafted in accordance with ODOT standards. Work was conducted within “Typical SC-01 Work Outside of Shoulder” (short-duration mobile operation) constraints. Off-road parking, vehicle beacon lights, signage, and work during mandated hours ensured that traffic exposure was minimal. Priority was placed on capturing in-road features with total station “reflectorless” function. Gaps from traffic signals allowed some flexibility. Two-person crews were used for all tasks. Survey methods described in the work plan, as well as traffic control approach, were subject to regional ODOT Safety Engineer review.

**Control:**

We were able to recover original horizontal and vertical control at the US-20 & McCord. Which we held NGS monuments “MCCORD aka 101” and “BM815” for vertical. We also set one new (100) 36 x 5/8” iron and 2.5” aluminum cap in a concrete monument. A static OPUS campaign of three four-hour sessions was completed. Of which we held the horizontal component. The vertical matched within 0.025’, compared to BM815 and MCCORD, however the later were held. We also set six (6) mapping points (601-606) which were measured four 3-minute GPS occupations from two separate using Ohio VRS, GEOID 12B. These points were then differentially leveled, with an initial closure of 0.007’. Two additional mapping points (301-302) were set using total station setup on one primary control back sighting another primary control point.

**Alignment and Right-of-Way Determination:**

For our 2019 survey, road alignments were determined by locating existing section corners (G-8, G-9 & G-10). As well as Lucas county engineering alignment monuments (31, 32, 33, 33A).

The road rights-of-way were determined using calls from multiple recorded plan sets recovered from the Lucas County Engineering website.

* LUC- McCord Rd From Regents to Central (LUC. C.R. NO. 73) dated 07/2010
	+ Held the called opening of McCord to the south at 60 feet wide as well as called deflections up to 65 feet wide on the East side of the road, and down to 40 feet on the west side relative to the section line which is the controlling element (G-9 to G-10).
* G-9 (corner common to Sections 20, 21, 27 & 28) holds as the deflection point of the alignment of McCord to the North and South. As well as the PI of a curve to the right along the alignment of US-20)
	+ LUC 20-90.10-2004
	+ LUC – 020-06.83-1970
* Alignment to the North of Central on McCord (G-9 to G-8)
	+ LUC. C.R. NO. 73-04.48 dated 04/18/2008
* The McCord ROW was confirmed by the monuments at the intersection of McCord and Woodlake Dr., and the intersection of McCord and Kelker St. As well as two property irons found in the northeast quadrant of US-20 and McCord.
* The US-20 ROW was confirmed by 3 found property corners 2 on the south side and one on the north side of the alignment.

**Certification**

I Fredrick H. Yoerg, PS hereby certify that the listed Alignments were established by field surveys and records described above.

And that accuracy standards are in accordance with current ODOT Design Survey Standards. The alignments correctly represent the existing conditions at the time the survey was completed.

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Frederick H. Yoerg, PS #56048