**Northwestern Connector Triangle Project**

**Oakland County, Michigan**

**Project Details**
- **Project:** Northwestern Connector Triangle Project
- **Lead Agency:** Road Commission for Oakland County
- **Project Cost:** $16 million
- **Completion Date:** September 25, 2015
- **Prime Contractor:** Danik Excavating, Inc.
- **Consulting Engineering Team:** OHM Advisors, MTJ, Omni-Means

**Background**
The Northwestern Connector (NWC) Project is a key solution to long-standing regional traffic bottlenecks in Oakland County, Michigan. The project has a complex history, stemming from planning decisions in the 1950s and the inception of the Interstate Highway System. The goal of the project was to improve safety and facilitate traffic flow between the Orchard Lake Road/M-10 area, with a series of improvements to link the terminus of M-10 (Northwestern Highway) to another state trunkline, M-5. With an ADT over 80,000, the centerpiece of the project is a “Triangle” formed by the intersections of Orchard Lake Road, 14 Mile Road, and M-10.

**Right-Sizing the Geometry**
The Environmental Assessment (EA), from 1999 to 2002, included a 3x3 roundabout at Orchard Lake Road and 14 Mile Road, plus the widening of Orchard Lake Road and M-10 to a 6-lane boulevard to accommodate projected traffic demands. Subsequent to the EA, there was a significant reduction in traffic volumes within the project area driven by two key factors: 1) The completion of the M-5 expansion in late 2002, which diverted a substantial amount of traffic from M-10 and Orchard Lake Road to M-5. 2) The economic downturn in the mid to late 2000’s, which dramatically decreased population, economic activity, and resulted in reduced regional 20-year growth projections. As a result, projected traffic volumes decreased by approximately 25%, and some peak hour movements decreased by as much as 40%. The need to “right-size” the geometry was clear.

**Planning for the Future**
In 2015, OHM Advisors led a team comprised of MTJ and Omni-Means to model the “Triangle” network. Due to the close proximity of two signalized intersections, the team utilized Rodel to determine 95% queue lengths to calibrate the VISSIM model and used Synchro to determine signal timing. All parameters were added to the VISSIM network to determine storage length needs. The resultant design is a 3x2 roundabout with partial by-pass lanes for the two-lane approaches. The geometry was adequate to handle 2015 opening day traffic volumes. In addition, the geometry has the potential for minor modifications if future traffic volumes come to fruition.

**Future Modifications**
- Capacity > 4,000 vph

**Project Summary**

**FUTURE MODIFICATIONS**

**Capacity > 4,000 vph**

**2015: AS-CONSTRUCTED**

**Future Modifications**
- Convert to Thru-Right
- Widening

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