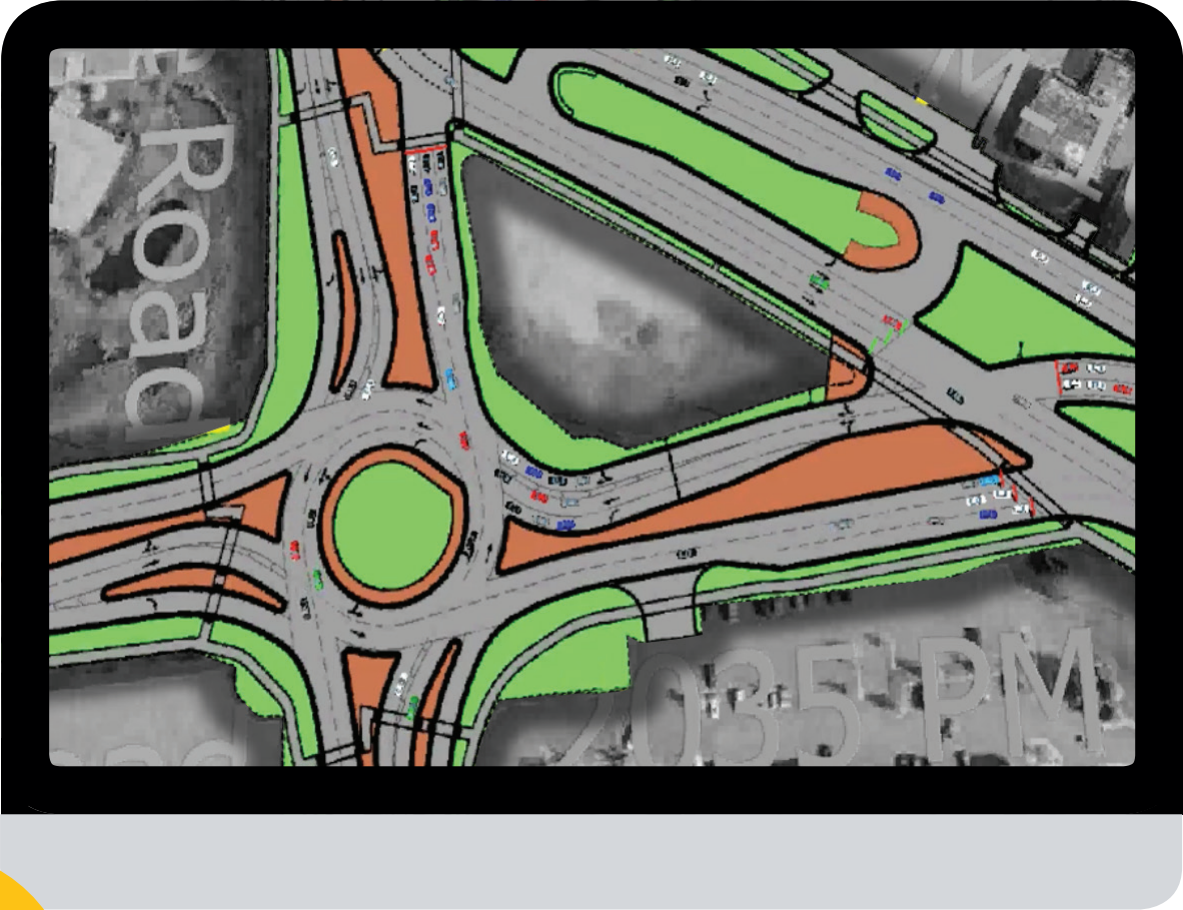
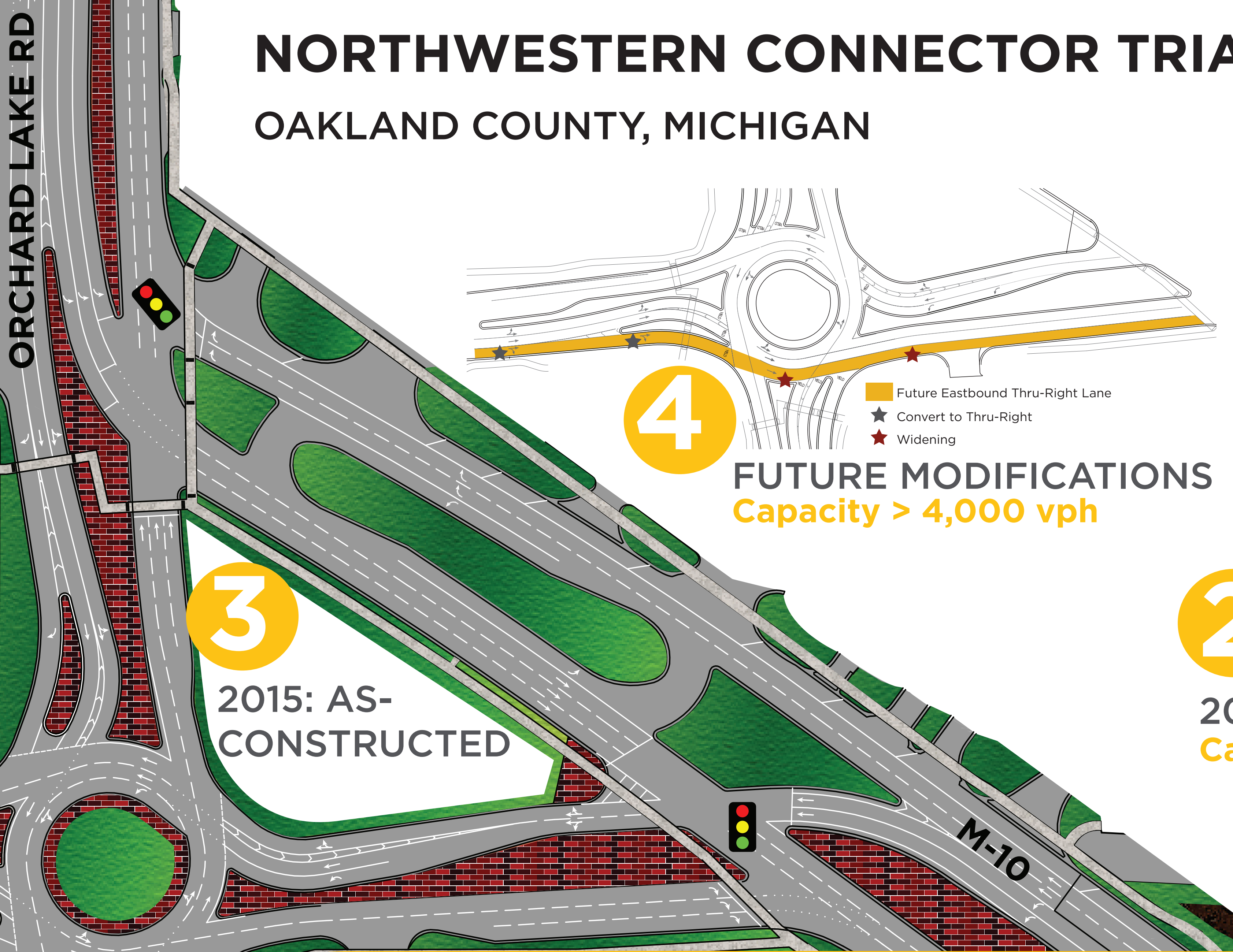
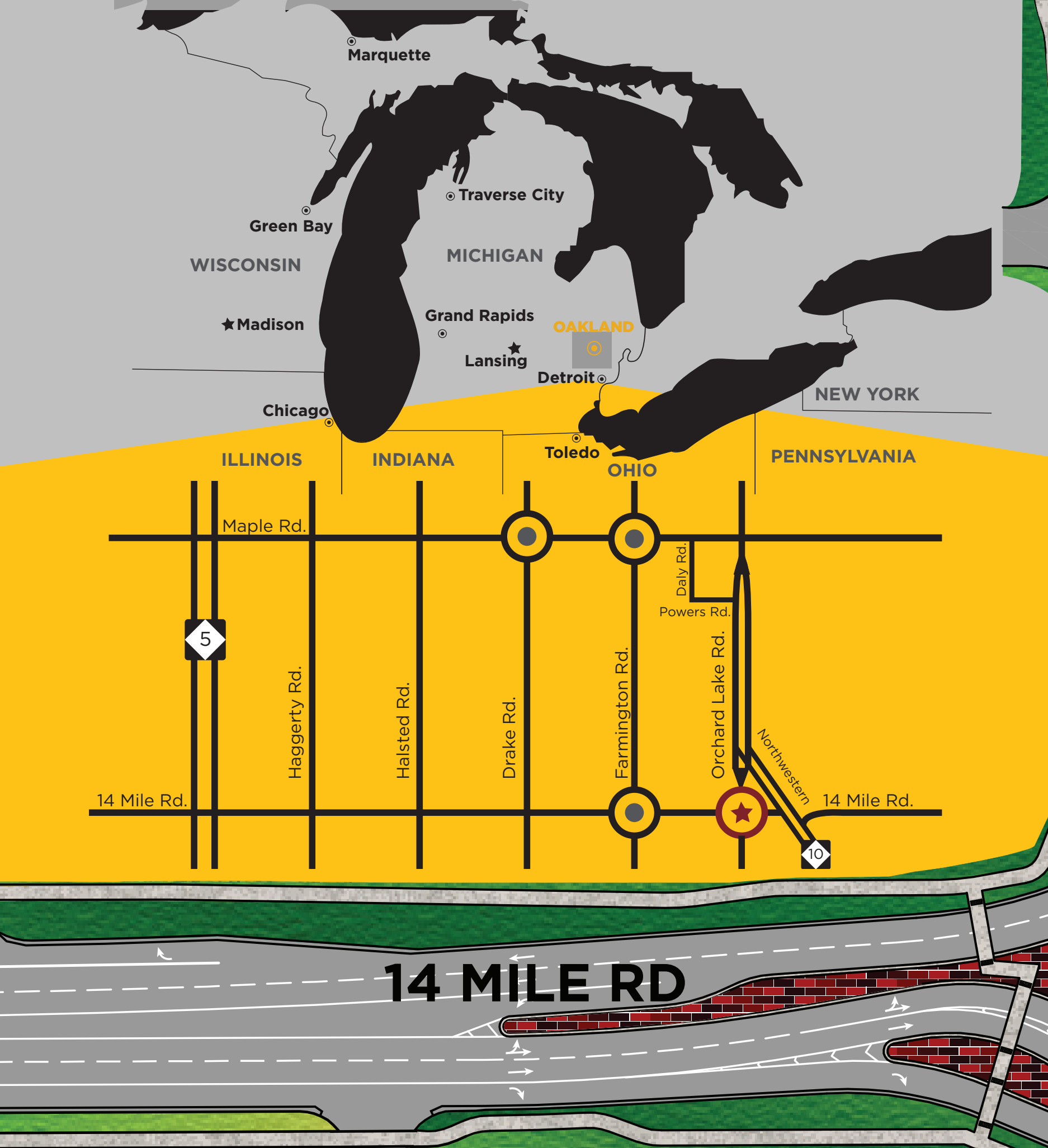


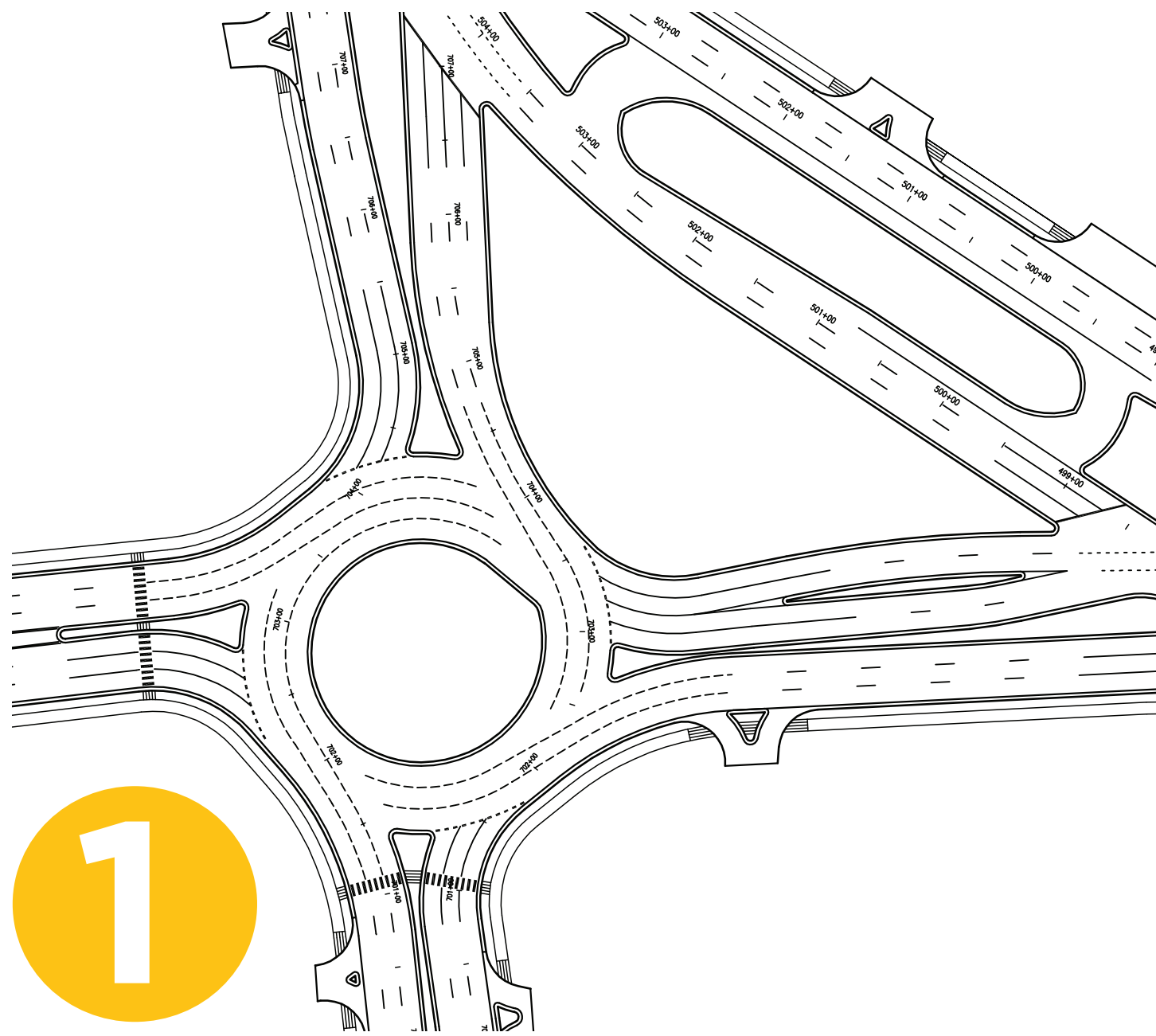
PROJECT DETAILS

Project: Northwestern Connector Triangle Project
Lead Agency: Road Commission for Oakland County
Project Cost: \$16 million
Completion Date: September 25, 2015
Prime Contractor: Dan's Excavating, Inc.
Consulting Engineer Team: OHM Advisors, MTJ, Omni-Means

NORTHWESTERN CONNECTOR TRIANGLE PROJECT
OAKLAND COUNTY, MICHIGAN



2011: MODELED NETWORK
Capacity ~ 4,000 vph



2002: ENVIRONMENTAL ASSESSMENT
Capacity ~ 8,000 vph

Network Traffic Volumes

ROADWAY SEGMENT	DIRECTION	PROJECTED VOLUMES PER ENVIRONMENTAL ASSESSMENT		AS-MODELED FOR "OPENING DAY"		PROJECTED	
		*2002		2015		2035	
		AM	PM	AM	PM	AM	PM
Orchard Lake Rd, North of M-10	NB	1875	3550	1013	1726	1315	2030
	SB	2750	2500	1855	1487	2190	1915
14 Mile Rd, West of Orchard Lake Rd	EB	1550	1100	1334	815	1340	830
	WB	375	1475	470	1224	475	1240
Orchard Lake Rd, South of 14 Mile Rd	NB	675	1525	812	1175	955	1370
	SB	1075	1450	915	1003	1090	1265
M-10, South of 14 Mile Rd	NWB	1325	3475	795	1909	875	2080
	SEB	3100	1675	2167	1205	2350	1405
14 Mile Rd, East of M-10	EB	400	500	418	391	450	445
	WB	375	425	341	319	350	345

* The Environmental Assessment used 2020 as the Horizon Year.

PROJECT SUMMARY

Background
The Northwestern Connector (NWC) Project is a key solution to a long-standing regional traffic bottleneck in Oakland County, Michigan. The project has a complex history, stemming from planning decisions in the 1950's 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 2011, 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.