

**DRAFT
THOROUGHFARE PLAN**

- a. Thoroughfare Master Plan Presentation Summary Memo
- b. Volume to Capacity Map and Projections







CITY OF NOVI
MASTER PLAN STEERING COMMITTEE
THOROUGHFARE MASTER PLAN PRESENTATION SUMMARY
May 03, 2023

INTRODUCTION

The material provided in this presentation gives an overview of the capacity analysis of the transportation network in the City of Novi. Select maps are provided to best convey the information. The evaluation was based on data from multiple sources including but not limited to the City of Novi, the Road Commission for Oakland County (RCOC), the Michigan Department of Transportation (MDOT), and the Southeast Michigan Council of Governments (SEMCOG). Below is a summary of the capacity analysis.

CAPACITY ANALYSIS

A capacity analysis was performed to assess the transportation network's capacity performance. The analysis was based on the Volume-to-Capacity (V/C) ratio. The V/C ratio is a measure of the level of congestion on a given roadway and can determine which parts of the network operate at acceptable levels and which have capacity constraints. The V/C ratio is a function of demand and capacity. Demand is represented by traffic volumes. Whereas capacity represents the maximum traffic flow that can be accommodated in a transportation facility during a given time under various road conditions. Capacity is typically expressed in passenger cars per hour per lane (pc/h/ln) and is a function of various factors such as the number of lanes and free flow speed (FFS). The V/C ratio ranges on a scale of 0 to 1 or greater and can generally be defined as follows:

- ≡ 0  no demand
- ≡ 0.8 to 1  demand reaching capacity
- ≡ 1  demand equals capacity
- ≡ Greater than 1  demand exceeds capacity

The SEMCOG 2015 and 2035 Travel Demand Forecast Models (TDFM) for PM peak were used to determine existing and future capacity for all public non-local roads. The 2015 model was used to evaluate existing (2022) capacity conditions, and the 2035 model was used to evaluate future (2032) capacity conditions. Both models were reviewed and modified to include the most up to date traffic volumes and road lane configurations. Traffic volumes were collected from various sources such as RCOC Transportation Data Management System (TDMS), RCOC Traffic Count Database System (TCDS), MDOT TDMS, and SEMCOG volumes. Priority was given to actual traffic counts, recent data, and conservative volumes. In both cases growth rates were applied to project all volumes to 2022 (existing) or 2032 (future) traffic volumes.

Existing road lane configurations were also reviewed through aerial imagery and revised to accurately reflect current road capacities. These modifications were applied to both the existing (2022) and future (2032) models. The 2032 model included an additional round of review for road capacity. It included changes to the road configuration based on ongoing or planned projects which are either funded or likely to be funded and are currently not fully captured in the 2035 SEMCOG model. These projects were identified based on coordination with City staff and review of sources such as the City's 2021-2027 Capital Improvement Projects (CIP), Road Committee Reports, the 2016 Thoroughfare Master Plan, 2023-2026 SEMCOG's Transportation Improvement Program (TIP), and RCOC projects. The following eligible projects were identified in the City

and incorporated in the 2032 model as part of this review:

- ≡ I-96 Flex Route
- ≡ 10 Mile Rd, Meadowbrook Rd to Haggerty Rd – Install TWLTL
- ≡ 12 Mile Rd, Beck Rd to Cabaret Dr – Widen to 4-lane boulevard
- ≡ Beck Rd, 11 Mile Rd to Providence Dr – Widen to 5-lane road
- ≡ Wixom Rd, Drakes Bay Dr to Kelsey Bay Dr – Install TWLTL
- ≡ Wixom Rd, Ravine Dr to Island Lake Dr – Install TWLTL

Following the development of the 2032 capacity models, select areas and those with V/C ratios where demand is reaching or exceeding capacity were evaluated further to determine potential corridor-wide capacity improvements. The evaluation considered factors such as land use, functional classification, safety, and potential available ROW in the identification of improvements. **Table 1** below presents corridor related capacity improvements identified as part of this evaluation.

Table 1: Potential Corridor Related Capacity Improvements

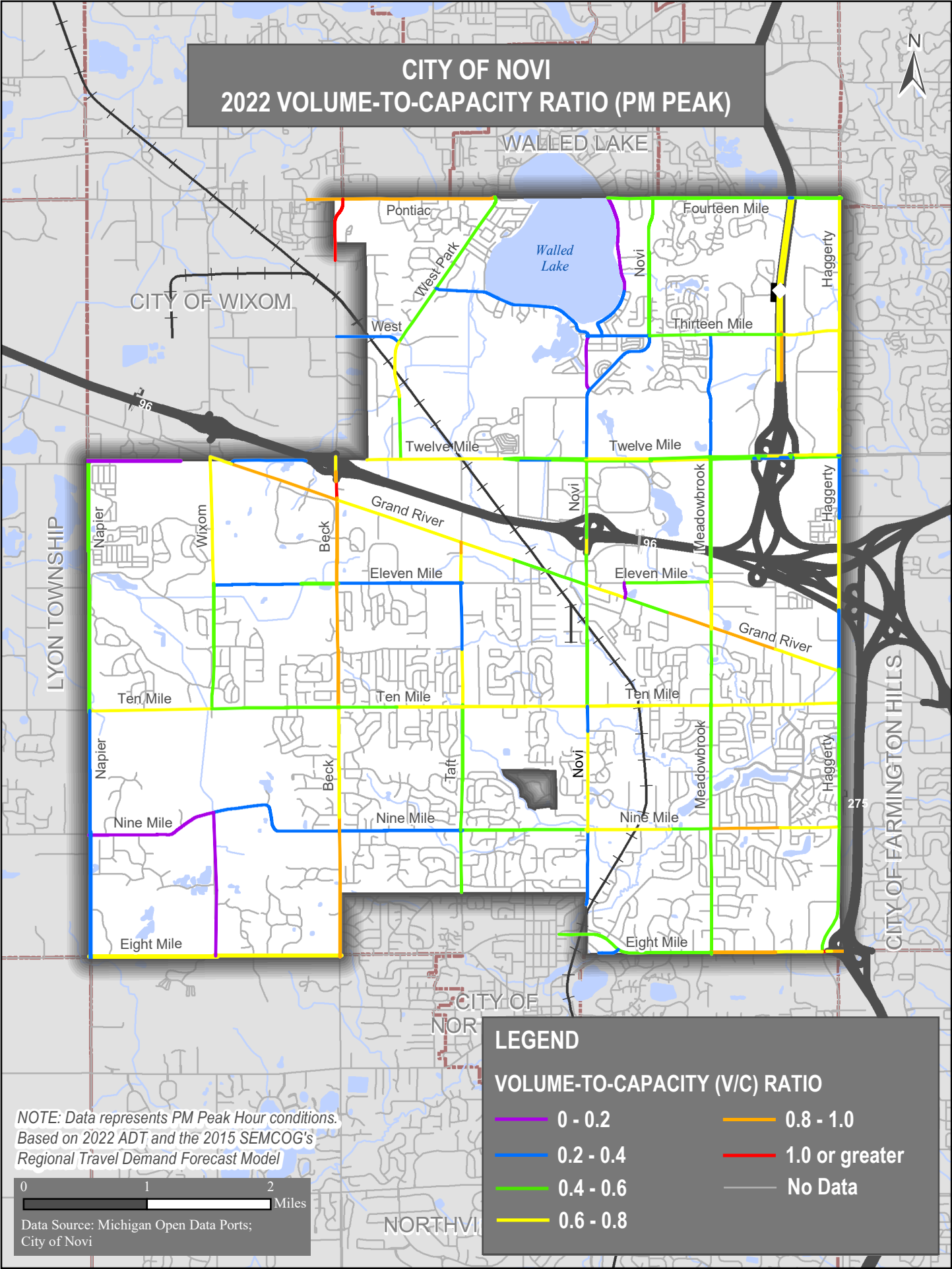
ROAD NAME	FROM	TO	POTENTIAL IMPROVEMENT	2032 V/C RATIO	
				BEFORE	AFTER
9 Mile Rd	Napier Rd	Beck Rd	Pave gravel road	0.40	0.57
9 Mile Rd	Meadowbrook Rd	Haggerty Rd	Install TWLTL	0.73	0.68
10 Mile Rd	Wixom Rd	Beck Rd	Install TWLTL	0.61	0.53
10 Mile Rd	Novi Rd	Meadowbrook Rd	Install TWLTL	0.63	0.60
Beck Rd	8 Mile Rd	11 Mile Rd	Widen to 5-lane road	0.84	0.44
Beck Rd*	City Limit	Pontiac Trl	Widen to 5-lane road	1.52	0.86
Grand River Ave	Novi Rd	Haggerty Rd	Widen to 5-lane road	0.86	0.62
Haggerty Rd	8 Mile Rd	10 Mile Rd	Install TWLTL where missing	0.46	0.46
Haggerty Rd	12 Mile Rd	13 Mile Rd	Install TWLTL where missing	0.75	0.69
Pontiac Trl	Beck Rd	West Park Dr	Install TWLTL	1.04	0.82
Taft Rd	Grand River Ave	12 Mile Rd	New 2-lane road extension	n/a	0.80
West Park Dr	West Rd	South Lake Dr	Install TWLTL	0.83	0.47
West Park Dr	Bristol Cir	Gateway Dr	Install TWLTL	0.72	0.53

**5-lane cross-section should extend south to 12 Mile Rd*

V/C ratios provided are for the entire segment. Parts of the segment may exhibit lower or greater V/C ratios. V/C ratios can vary by direction.

TWLTL = Two-Way Left Turn Lane

CITY OF NOVI 2022 VOLUME-TO-CAPACITY RATIO (PM PEAK)



LEGEND

VOLUME-TO-CAPACITY (V/C) RATIO

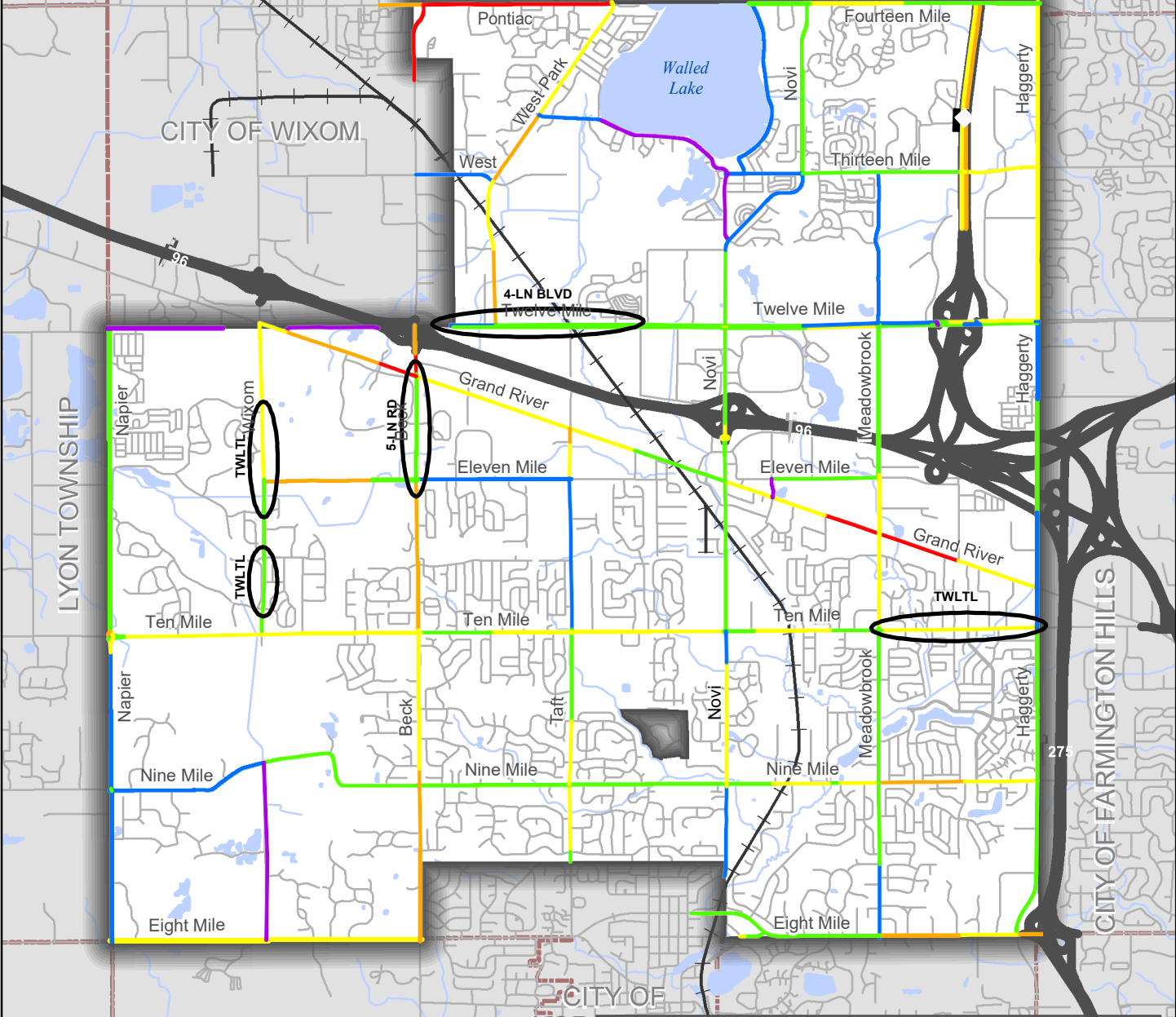
— 0 - 0.2	— 0.8 - 1.0
— 0.2 - 0.4	— 1.0 or greater
— 0.4 - 0.6	— No Data
— 0.6 - 0.8	

NOTE: Data represents PM Peak Hour conditions.
Based on 2022 ADT and the 2015 SEMCOG's
Regional Travel Demand Forecast Model

0 1 2 Miles

Data Source: Michigan Open Data Ports;
City of Novi

CITY OF NOVI 2032 VOLUME-TO-CAPACITY RATIO (PM PEAK) with PLANNED CAPACITY IMPROVEMENTS

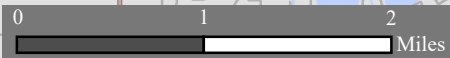


LEGEND

VOLUME-TO-CAPACITY (V/C) RATIO

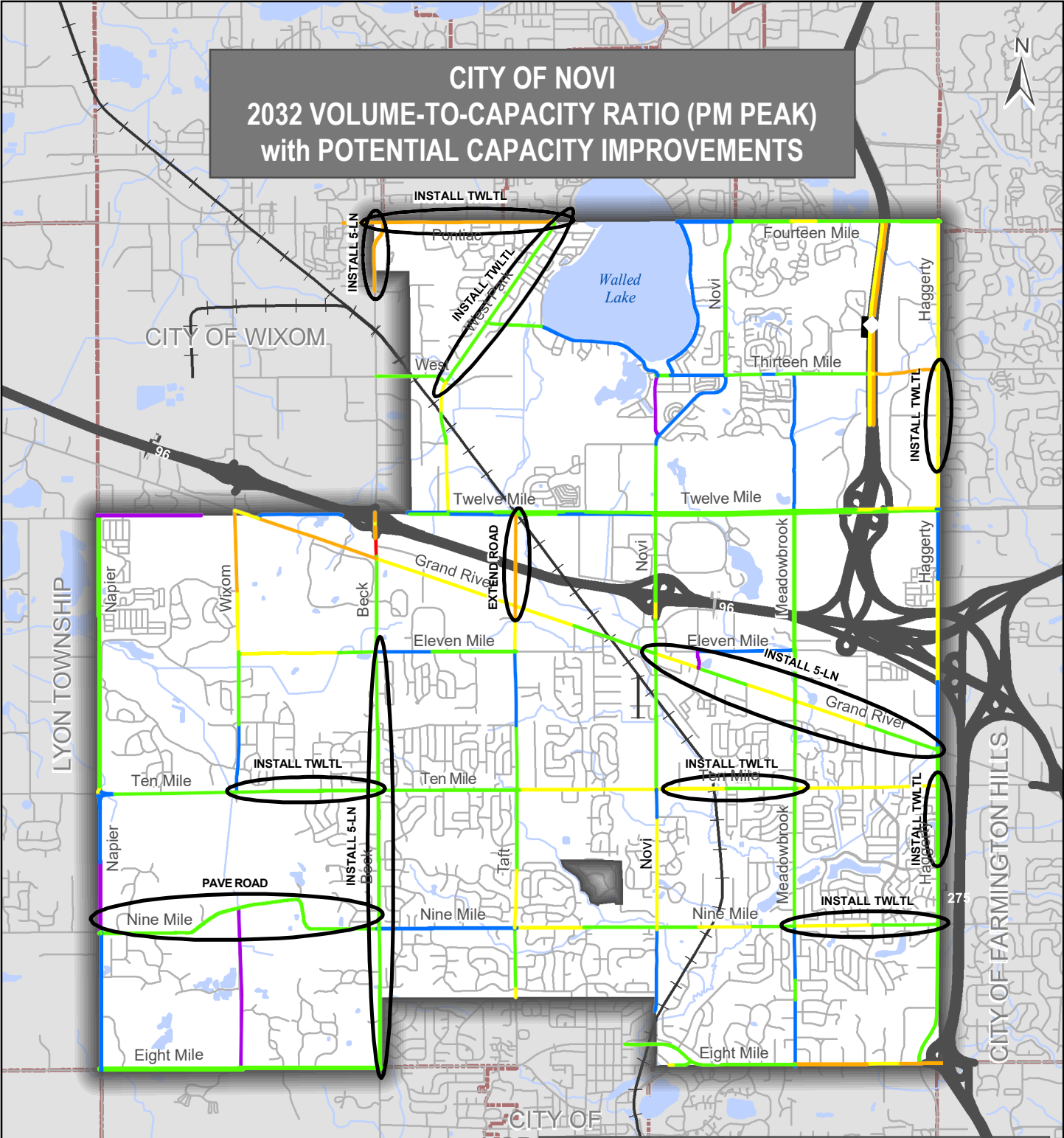
— 0 - 0.2	— 0.8 - 1.0
— 0.2 - 0.4	— 1.0 or greater
— 0.4 - 0.6	— No Data
— 0.6 - 0.8	

NOTE: Data represents PM Peak Hour conditions. Based on 2032 ADT, the 2035 SEMCOG's Regional Travel Demand Forecast Model, and planned future projects current as of 2023.



Data Source: Michigan Open Data Ports; City of Novi

CITY OF NOVI 2032 VOLUME-TO-CAPACITY RATIO (PM PEAK) with POTENTIAL CAPACITY IMPROVEMENTS

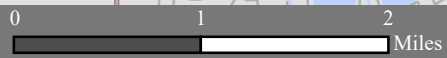


NOTE: Data represents PM Peak Hour conditions. Based on 2032 ADT, the 2035 SEMCOG's Regional Travel Demand Forecast Model, planned future projects current as of 2023, and potential capacity improvements at select roads.

LEGEND

VOLUME-TO-CAPACITY (V/C) RATIO

- 0 - 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0
- 1.0 or greater
- No Data



Data Source: Michigan Open Data Ports; City of Novi