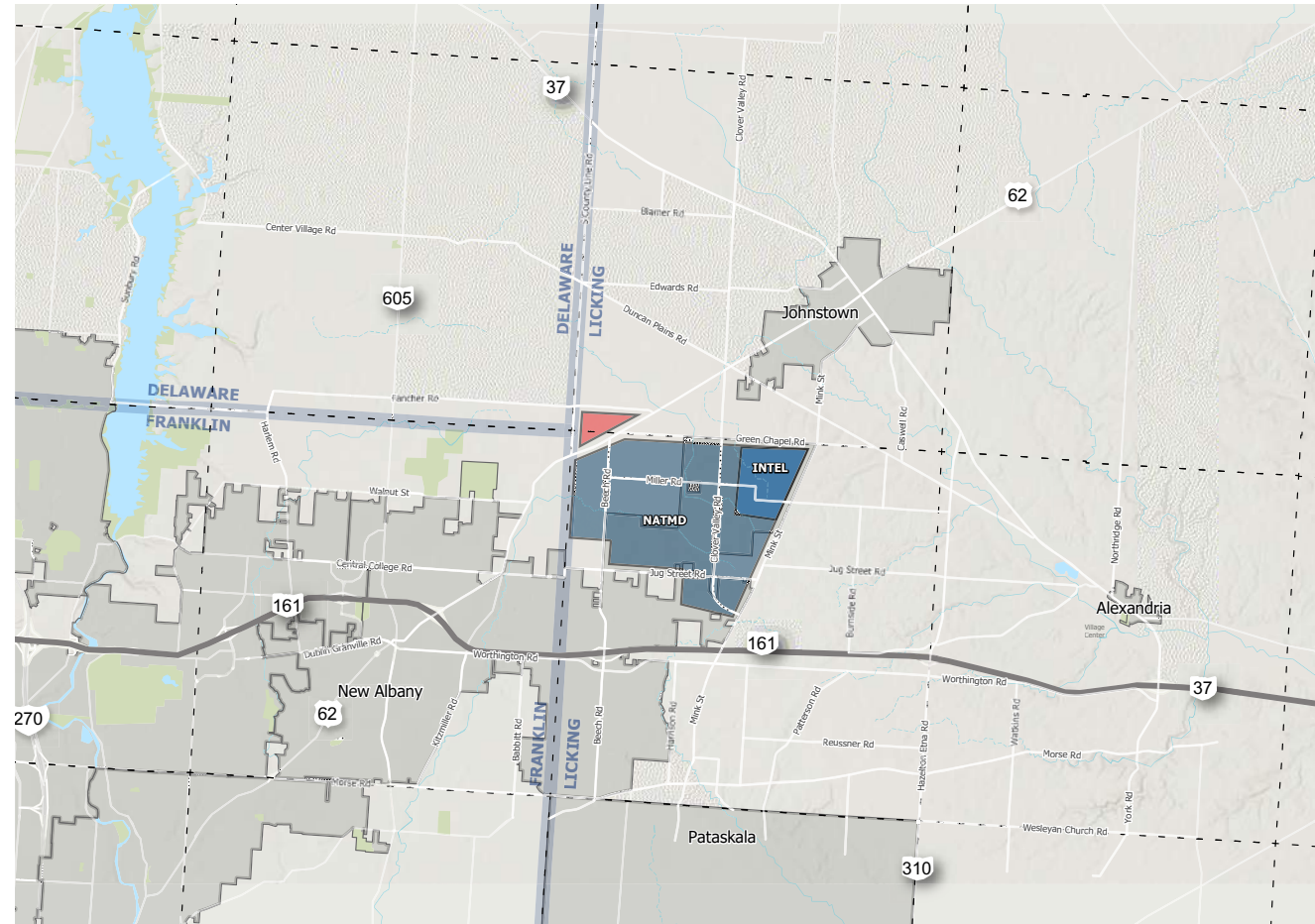


INTEL AREA 10-MINUTE TRAVEL TIME TIME TRANSPORTATION PLANNING STUDY

APRIL 2023



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FOR:
FRANKLIN COUNTY TID,
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INTRODUCTION

This document serves as a transportation planning study of the local road network in the region around the Intel chip manufacturing plant under construction in Licking County. The goal of this study to gain a cursory understanding of future traffic patterns and potential improvements needed on roadways in southwest Licking County, northeast Franklin County and southeast Delaware County due to current and future land use changes prompted by the addition of Intel, the largest commercial development in Ohio. This information allows the jurisdictions to identify roadway improvements that will be important to have in place or in process within the next few years to support increases in traffic.

A previous study for the new Intel site and surrounding uses, the New Albany Technology Manufacturing District (NATMD) Traffic Impact Study (TIS), was performed by Carpenter-Marty Transportation in March 2022 for the City of New Albany. The NATMD TIS evaluated numerous intersections in and around the proposed manufacturing facilities. However, this study focused on intersections mostly within or adjacent to the City of New Albany.

The Ohio Department of Transportation (ODOT) has formed a 20-Minute Travel Time Group, a 40-Minute Travel Time Group, and a 60-Minute Travel Time Group to assess regional transportation needs associated with the Intel site and related development. To address more localized transportation issues, the Licking County Transportation Improvement District (LCTID), in conjunction with the Franklin County Transportation Improvement District (FCTID), and Delaware County Transportation Improvement District (DCTID) have formed the 10-Minute Travel Time Group.

This new transportation planning study focuses on additional locations, mostly in unincorporated parts of Licking, Franklin, and Delaware Counties within a 10-minute travel time of the Intel site, and identifies future transportation needs resulting from Intel, NATMD, and/or other land use changes. Adjacent townships, Jersey, Monroe, St. Albans, and the City of Johnstown are also included in the 10-Minute Travel Time Group. Several meetings of the 10-Minute Travel Time Group have occurred in 2022 and 2023 to develop study goals, review land use assumptions, and review draft study findings.

It is important to note that this is a planning-level study. Much of the data used in the analysis is preliminary, and

thus any findings only represent the best estimation at this point in time. Development is already rapidly occurring, and land use and zoning changes will continue to evolve in coming months. Therefore, this study should be used as a high-level “snapshot” to gauge big-picture possible effects and needs, not a precise forecast of traffic volumes or congestion.

STUDY AREA

The study area includes adjacent jurisdictions to the Intel and New Albany Technology & Manufacturing District (NATMD) sites that were generally not covered in the NATMD traffic study. This study focuses on areas outside of the City of New Albany and includes the following:

- Jersey Township
- St. Albans Township
- Monroe Township south of SR 37
- City of Johnstown south of SR 37

Selected corridors in Plain Township, Franklin County

- Morse Road
- Dublin-Granville Road
- Central College Road
- Walnut Street
- Babbitt Road
- Harlem Road

Selected corridors in Genoa and Harlem Townships, Delaware County

- Smothers Road
- Fancher Road
- Center Village Road
- Sunbury Road
- Harlem Road

A map of the study area is shown on Figure 1. A concept map of the Intel and NATMD development areas is shown on Figure 2.

This study focuses on the local roadway network - collectors and arterial roadways. This study does not evaluate the SR 161 freeway or its interchange ramps, for which ODOT is currently studying and designing improvements.

ANALYSIS CONDITIONS

This study has developed daily traffic volumes for study area roadway links for three timeframes:

EXISTING YEAR

Existing year volumes were compiled using a variety of data sources including the ODOT TIMS website and the MORPC traffic count database. This includes dozens of traffic counts MORPC collected in the study area locations in 2022. Existing daily traffic volumes are shown on Figure 3.

OPENING YEAR (2025) CONDITION

The Opening Year condition is expected to coincide with the beginning of production at the Intel chip manufacturing facility in 2025. The Opening Year condition includes the following traffic components:

- Background traffic counts increased to 2025 levels
- Full buildout of the Intel manufacturing facility (all fabrication units)
- A small portion of the New Albany Technology & Manufacturing District (NATMD). It is assumed that 10% of the NATMD will be developed and operational by 2025.

FULL BUILD (2050) CONDITION

The Full Build condition reflects anticipated conditions by 2050. This condition assumes that Intel and NATMD have been fully built out and that adjacent Licking County jurisdictions have fully developed based on newly-evolving land use plans and zoning codes. Traffic volumes for the Full Build condition include the following components:

- MORPC 2050 travel demand model projections (based on a MORPC model developed without Intel-related development)
- Full buildout of the Intel manufacturing facility (all fabrication units)
- Full buildout of the NATMD
- Revised land use changes in adjacent Licking County jurisdictions, in excess of growth forecasts in the MORPC travel demand model. See Future Land Use Changes section for further details.

No construction traffic is included for any of the analysis conditions in this report. Table 1 summarizes the traffic volume condition:

Table 1: Study Analysis Conditions

	EXISTING YEAR	OPENING YEAR (2025)	FULL BUILD (2050)
Traffic Volumes	Traffic Counts	Traffic Counts	MORPC travel demand model
Intel	None	100% built out	100% built out
NATMD	None	10% built out	100% built out
Land Use Changes in Adjacent Licking County Jurisdictions	None	None	All land use changes

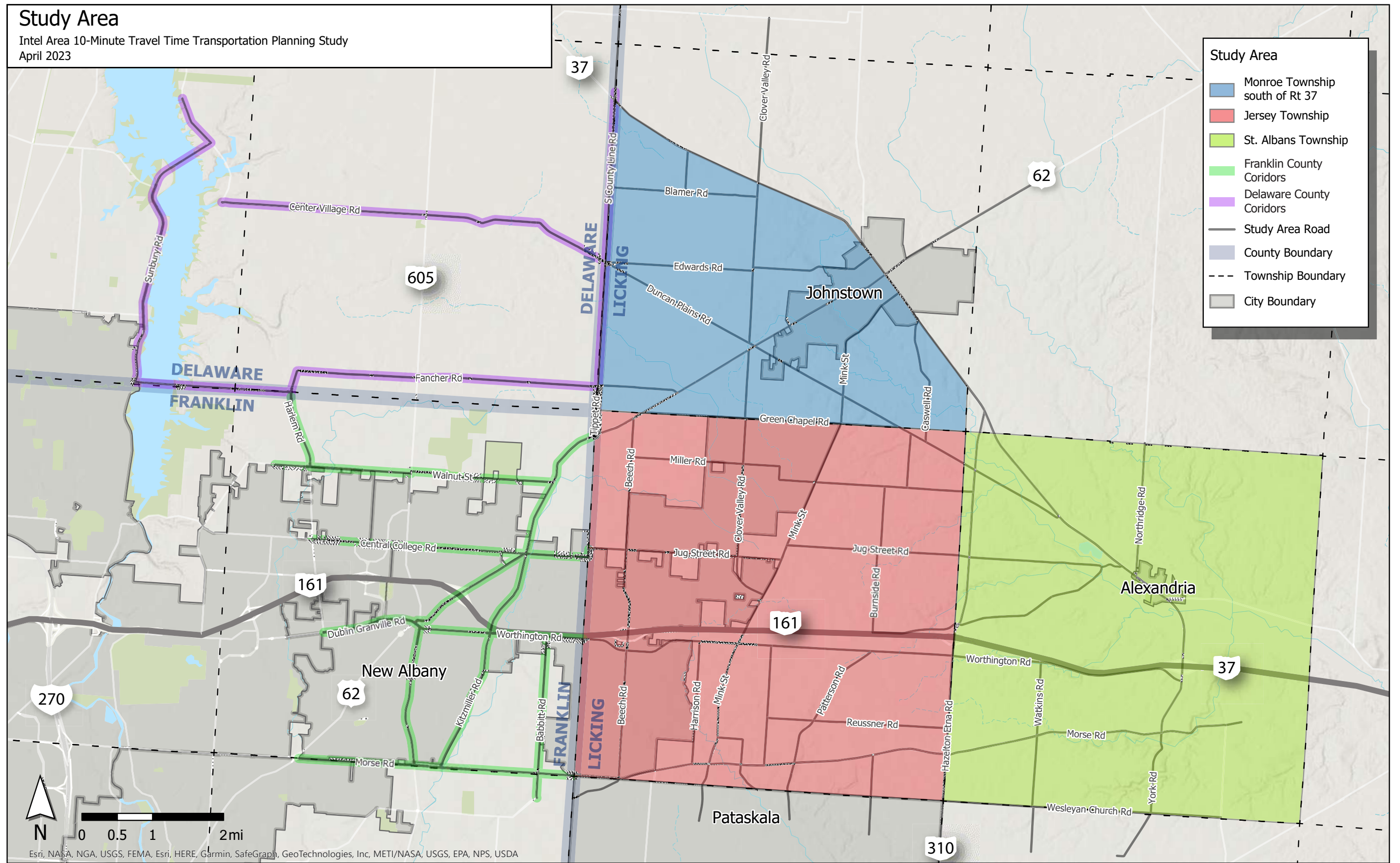


Figure 1: Study Area

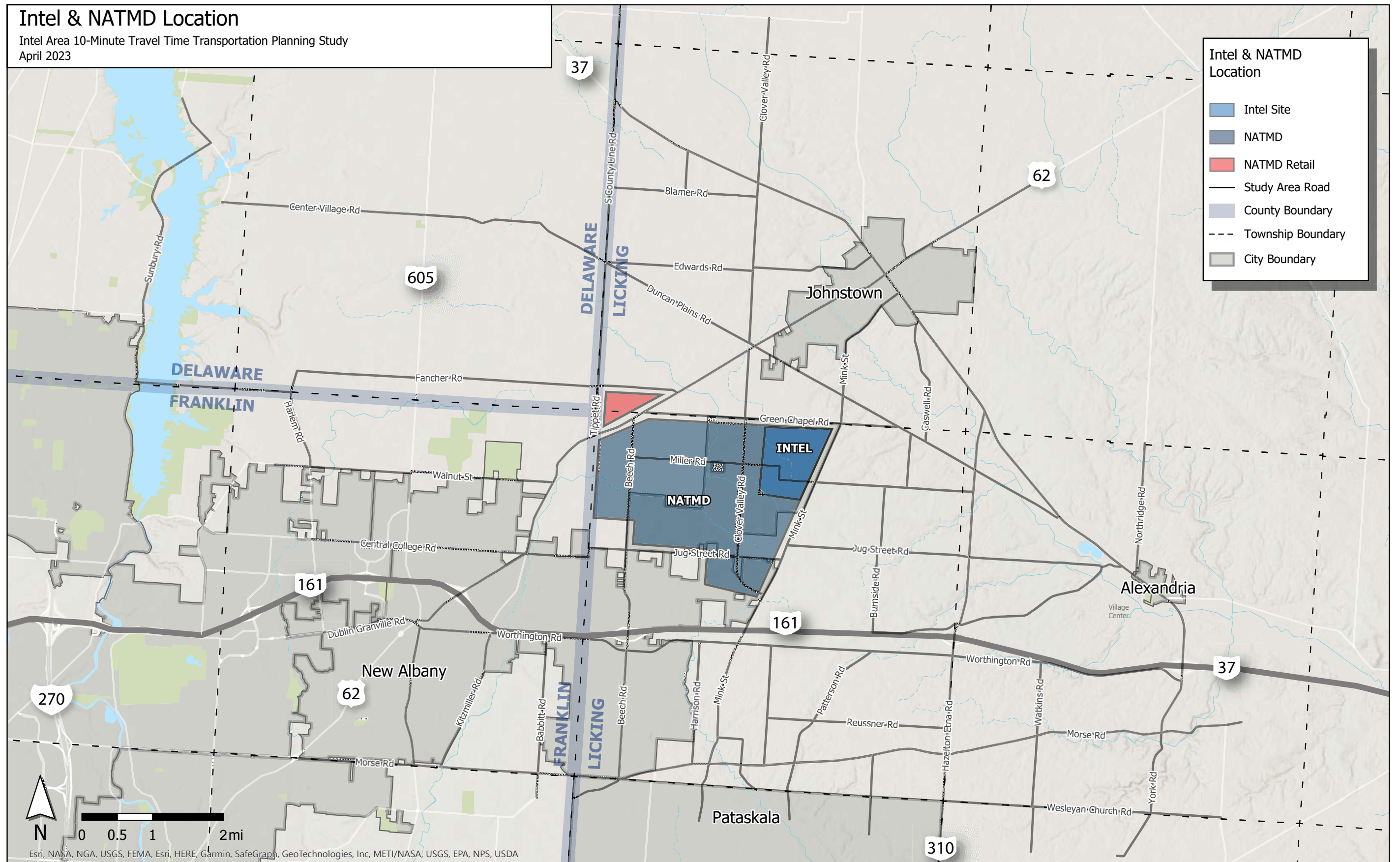


Figure 2: Intel & NATMD Location

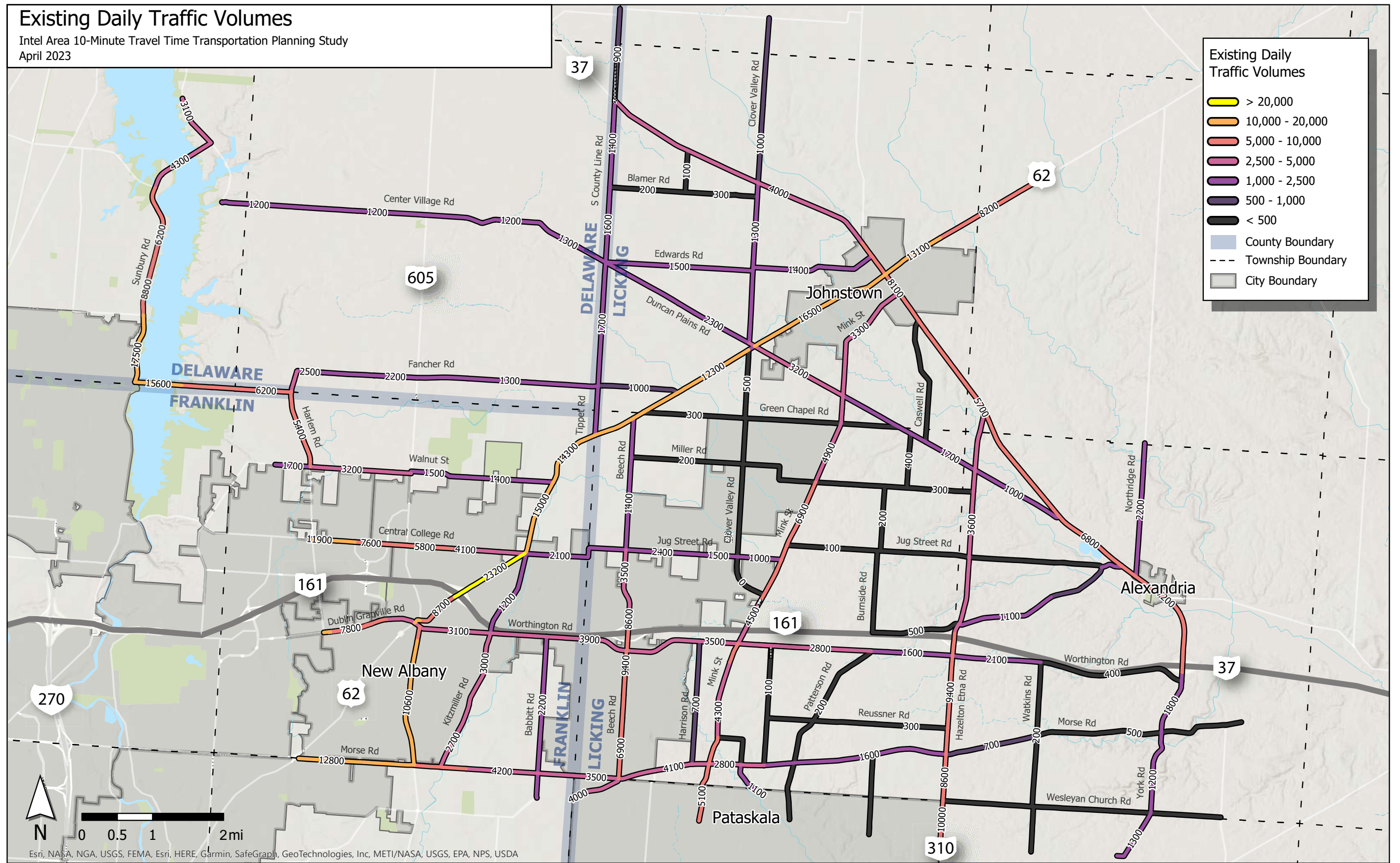


Figure 3: Existing Daily Traffic Volumes

FUTURE LAND USE CHANGES

Due to the presence of Intel and related developments, it is expected that land use in the surrounding areas of Licking County will change. The largely rural areas surrounding the township will see increased densities and more intense land use types. All of the jurisdictions in the study area are in the process of reviewing and/or updating their land use plans, zoning codes, or comprehensive plans to reflect and direct these changes. Representatives from each Licking County study area jurisdiction have attended a series of 10-Minute Travel Time Group meetings regarding this study and have provided updates on land use and zoning changes. The current assumptions for projected land uses are shown on Figure 4.

No additional land use changes were applied to Delaware County or Franklin County portions of the study area. It is assumed that the available MORPC model includes current development plans for these locations.

A summary of each jurisdiction’s land use changes is provided below. Appendix A contains further details on the land use assumptions, including correspondence with the local jurisdictions and draft land use maps where available.

JERSEY TOWNSHIP

Jersey Township is currently in the process of revising its land use plan. The township provided its latest draft land use map to ms consultants on January 13, 2023, along with written comments via email.

The draft land use plan indicates large areas of industrial land uses east of Mink Street north of SR 161. Retail land uses are anticipated near the SR 310 interchange. Higher-density residential land use is expected south of the Worthington Road corridor east of Mink Street, with lower-density residential areas north of SR 161 and near Morse Road

MONROE TOWNSHIP & CITY OF JOHNSTOWN

Monroe Township and Johnstown are discussed together because the planning area of Johnstown extends and covers much of currently unincorporated Monroe Township. The City of Johnstown provided comments on land use projections via email on January 12, 2023. Monroe Township provided feedback on land use projections during meetings on December 20, 2022 and January 25, 2023.

Increased residential densities are anticipated in most of Monroe Township. Additional retail areas are anticipated along the north side of US 62 east of Duncan Plains Road and near the Mink Street/Duncan

Plains Road intersection. Industrial and warehousing land uses are anticipated south of US 62 and Duncan Plains Road.

ST. ALBANS TOWNSHIP

St. Albans Township adopted a new comprehensive plan, including a future land use plan, on December 13, 2022. The future land use plan indicates planned commercial areas along the SR 310 corridor, as well as along both sides of SR 161 near the SR 37 interchange. For the purposes of this study, it has been assumed that retail is developed immediately adjacent to the SR 37 interchange and along the east side of SR 310 between Morse Road and Worthington Road. Light industrial or office land uses would comprise the remainder of the planned commercial acreage. Residential land uses are planned north and south of SR 161. The area north of Jersey Mill Road is anticipated to remain rural.

Residential land use acreages were converted to dwelling units using net densities provided by the local jurisdictions and current/future zoning codes. Commercial/industrial acreages were converted into square footages (commercial/industrial) based on rule-of-thumb development data. The proposed land use changes among these Licking County jurisdictions would greatly increase the population and employment over the levels previously planned for the study area. These changes would translate into over 20,000 new housing units, over 50,000 new residents and millions of square feet of new retail and industrial land uses.

TRIP GENERATION

Trip generation calculations were performed for the anticipated study area developments. This study focuses on daily traffic volumes – not peak hour traffic volumes. A summary of the trip generation, categorized by jurisdiction is provided in Table 1. The detailed trip generation calculations are provided in Appendix D.

INTEL

Intel is in the process of constructing computer chip fabrication facilities on property recently annexed into New Albany. The Intel site (shown on Figure 2) is bounded by Green Chapel Road, Mink Street, Miller Road, and Clover Valley Road. The main employee parking entrance is expected to be located on Green Chapel Road, with other access points on Clover Valley Road and Mink Street.

Trip generation for the Intel chip plant was taken from the 2022 NATMD Traffic Impact Study, prepared by Carpenter-Marty Transportation (Appendix C). But

unlike the NATMD, it was assumed that the entire Intel campus will be fully built out in the Opening Year (2025) condition, as well as the Full Build (2050) condition. Thus, the full buildout of 44,000 trips per day was used in both Opening and Full Build conditions.

Trips to/from the Intel facility were distributed per forecasts from the Ohio Department of Transportation (ODOT) Office of Statewide Planning and Research. This ODOT modeling projected where Intel employees would likely live. The ODOT projections are provided in Appendix E.

NEW ALBANY TECHNOLOGY & MANUFACTURING DISTRICT (NATMD)

The NATMD borders the Intel site to the south and west. The NATMD is expected to consist of approximately 20 million square feet of warehousing or data center land uses. As indicated in the NATMD Traffic Impact Study, several roads within the NATMD will be improved, realigned, or extended.

Trip generation for the NATMD was taken from the NATMD TIS. For the Opening Year, it is assumed that 10% of the NATMD will be constructed and operational (Phase 1 of NATMD). In the Full Build condition, all of the NATMD is expected to be built.

The majority of the NATMD is expected to be warehousing, industrial, or data center land uses. However, one portion of the NATMD – a triangular area north of US 62, east of County Line Road, and south of Fancher Road - is anticipated to be developed as retail. The NATMD TIS indicated that 500,000 square feet

of shopping center would be developed in this area, which would generate a large volume of traffic.

Industrial/warehouse trips to/from the NATMD were distributed to the road network using the same distribution as the Intel trips – using the ODOT modeling data shown in Appendix E. Trips to/from the NATMD retail component were distributed based on the location of surrounding population and residential areas.

LAND USE CHANGES

Outside of Intel and NATMD, no changes to surrounding land uses was assumed in the Opening Year condition. Land use and zoning changes were only assumed in the Full Buildout condition.

Daily trips were generated for the study area using *ITE Trip Generation, 11th Edition*. Because the 2050 MORPC traffic forecasts were used as a baseline in developing the Full Build condition traffic projections, development already included in MORPC’s travel demand model was removed from the trip generation totals.

For each land use area, trips were distributed onto the study area roadway network. Residential traffic distribution was based on proximity to employment centers, retail and education facilities. Office and industrial traffic distribution was based on regional workforce population. Retail trips were distributed according to nearby residential areas. Because of the rapidly changing dynamics, the accelerated timeframe needed for this study, travel demand modeling was not used in this study. MORPC is currently in the process of updating their travel demand model for the area and is expected to have updated forecasts later in 2023.

Table 2: Daily Trip Generation Summary

	OPENING YEAR (2025)	FULL BUILD (2050)
Intel	44,000	44,000
NATMD	4,600	46,000
Jersey Township land use changes	0	185,000
Monroe Township/Johnstown land use changes	0	95,000
St. Albans Township land use changes	0	110,000
TOTAL TRIPS	48,600	480,000

OPENING YEAR (2025) CONDITION

Opening Year traffic projections are shown on Figure 5. In the Opening Year condition, traffic volumes are expected to increase substantially on many roadways serving as routes to and from the Intel and NATMD sites. Traffic volumes on many routes expected to be used by Intel traffic are expected to increase by 2-3 times current levels (Figure 6). Most of these roadways are county roads with narrow lane widths and narrow or non-existent shoulders, and are not designed to carry heavier volumes of traffic. Traffic volumes will also increase at already-congested intersections (US 62/SR 37, SR 37/ Jersey Street) in the City of Johnstown.

Figure 7 shows roadways with narrow widths (less than 24' total width) that are expected to see volumes rise to levels in excess of 2,000 vehicles per day in the Opening Year (2025). Narrow low-volume roads are unlikely to be able to safely support daily volumes of 2,000 or more vehicles. At that level of traffic, full-depth pavement reconstruction is likely needed to provide a safe roadway or maintain structural integrity of the pavement.

In Licking County, Clover Valley Road, Fancher Road, most of Duncan Plains Road, and Jug Street Road west of Beech Road are narrow roads expected to carry over 2,000 daily vehicles in the 2025 Opening Year. In Delaware County, traffic volumes on Center Village Road, County Line Road, and Fancher Road are expected to cross the 2,000 vehicle-per-day threshold. Most roadways in Franklin County already have pavement widths and designs suitable to carry larger volumes of traffic, and would not require reconstruction to accommodate larger volumes in Opening Year.

Based on the projected traffic volumes and existing roadway/pavement conditions, the following recommendations in Table 3 have been developed for the Opening Year:

These Opening Year recommendations comprise 12 miles of reconstruction and 6 miles of resurfacing in Licking County, 14 miles of reconstruction in Delaware County, and 9 miles of resurfacing in Franklin County.

In addition to the roadway links, numerous intersections along these routes will see substantial increases in traffic. Many of these locations have geometric challenges such as skew angles, sight distance (nearby vertical curves), or over 4 legs at the intersection. Most of these are stop-controlled locations with high speeds, which may not be suitable to serve higher traffic volumes. Recommended intersections/spot locations for Opening Year improvements are summarized in Table 4.

Table 3: Opening Year (2025) Roadway Recommendations

COUNTY	ROADWAY	PROJECT LIMITS	RECOMMENDED IMPROVEMENT
Licking	Clover Valley Road	Green Chapel Rd. to US 62	Full-depth reconstruction
	Clover Valley Road	Duncan Plains Rd. to SR 37	Full-depth reconstruction
	Duncan Plains Road	County Line Rd. to SR 310	Full-depth reconstruction
	Fancher Road	County Line Rd. to US 62	Full-depth reconstruction
	Mink Street	Green Chapel Rd. to Duncan Plains Rd.	Full-depth reconstruction
	Duncan Plains Road	SR 310 to SR 37	Resurfacing
	Miller Road	Mink Street to SR 309	Resurfacing
	Jug Street Road	Mink Street to SR 310	Resurfacing
Delaware	Center Village Road	Red Bank Rd. to County Line Rd.	Full-depth reconstruction
	County Line Road	FRA Co. line to SR 37	Full-depth reconstruction
	Fancher Road	Harlem Rd. to County Line Rd.	Full-depth reconstruction
Franklin	Central College Road	Sunbury Rd. to FRA/LIC Co. line	Resurfacing
	Tippet Road	US 62 to DEL Co. line	Full-depth reconstruction
	Walnut Street	Harlem Rd. to US 62	Resurfacing

Table 4: Opening Year (2025) Intersection Improvement Recommendations

COUNTY	INTERSECTION
Licking	US 62 & Duncan Plains Rd./Clover Valley Rd.
	Mink Street & Duncan Plains Rd.
	Duncan Plains Rd. & Green Chapel Rd.
	Duncan Plains Rd. & Caswell Rd.
	SR 37 & Clover Valley Rd.
	SR 310 & Duncan Plains Rd.
	US 62 & Fancher Rd.
Delaware	SR 37 & County Line Rd.
	Center Village Rd. & County Line Rd./Edwards Rd.
	Fancher Rd. & County Line Rd.
Franklin	Central College Rd./Jug Street Rd. S-curve at FRA/LIC Co. line
	Central College Road

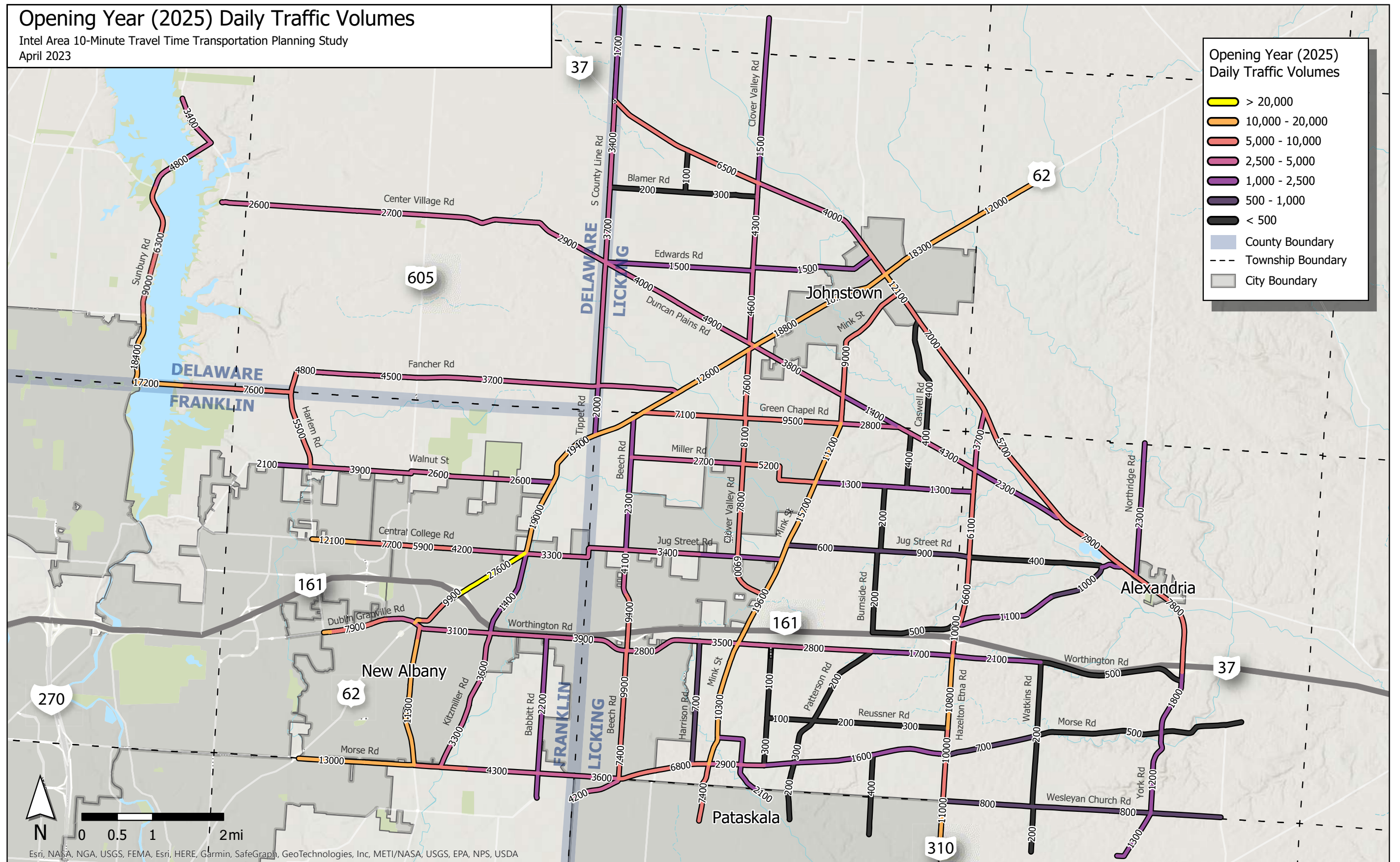


Figure 5: Opening Year (2025) Daily Traffic Volumes

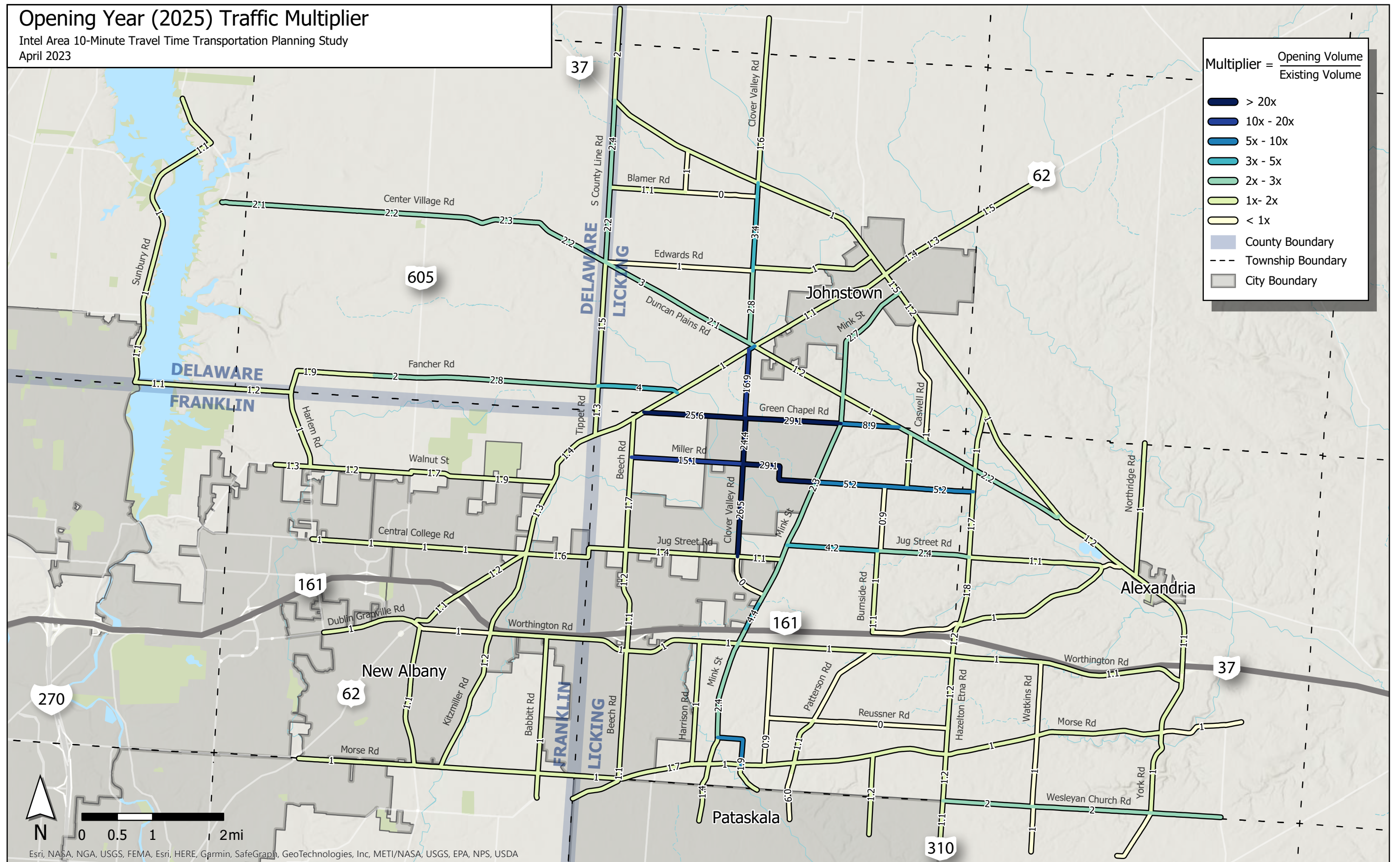


Figure 6: Opening Year (2025) Traffic Multiplier

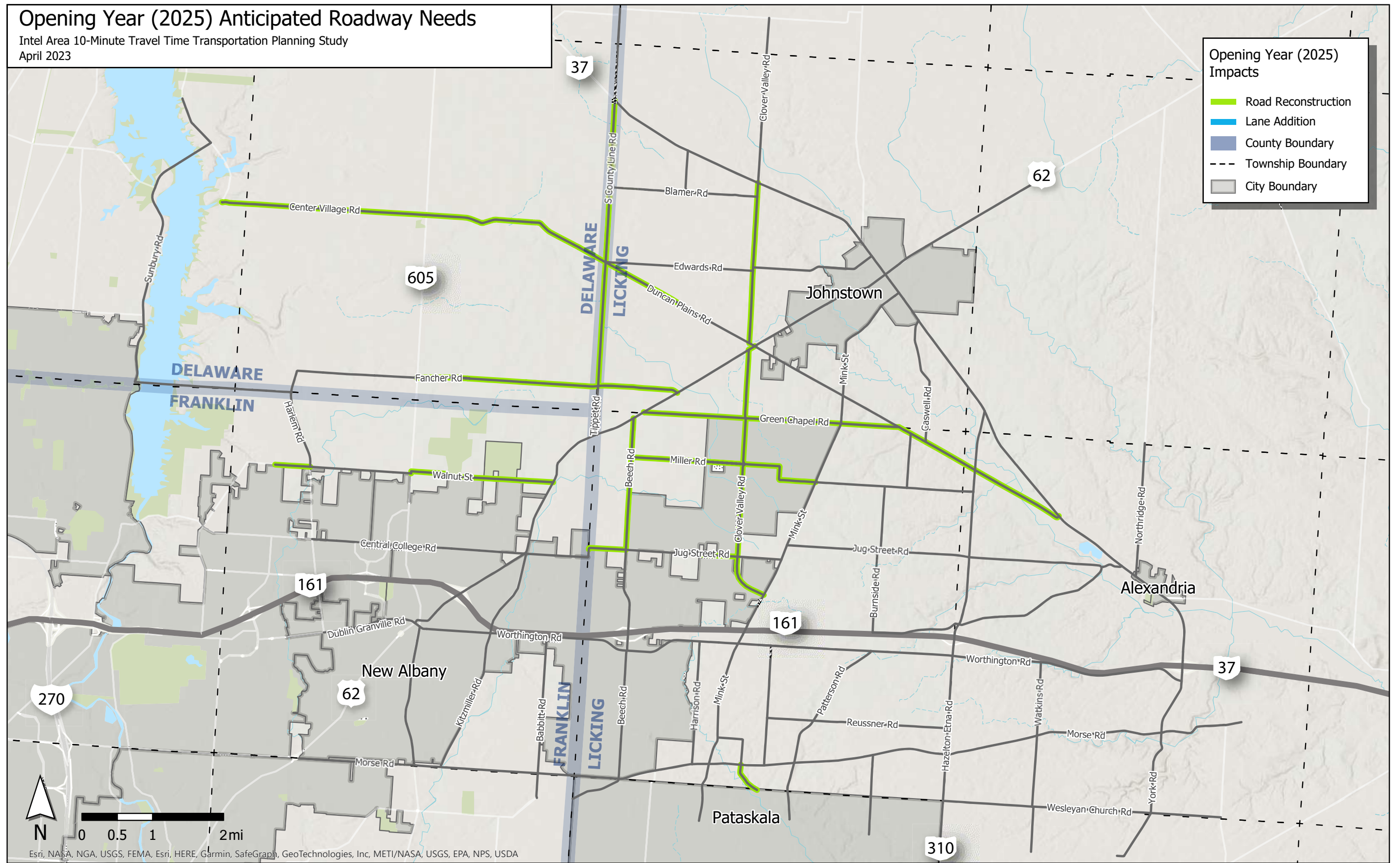


Figure 7: Opening Year (2025) Anticipated Roadway Needs

FULL BUILD (2050) CONDITION

The Full Build condition traffic volumes were obtained by adding Intel, NATMD, and future land use changes to MORPC 2050 volume projections. The MORPC 2050 traffic volume projections, which were developed prior to the Intel announcement, are shown on Figure 8. The resulting Full Build (2050) traffic projections are shown on Figure 9. In the Design Year, nearly every study area roadway is expected to see large traffic increases. Many county roads are expected to see traffic volumes 5-10 times higher than current volume levels (Figure 10).

Nearly every county road is expected to have volumes in excess of 2,000 vehicles per day, which would imply that reconstruction will be needed for facilities that are currently narrow low-volume roads. It should be noted that local land use changes, as opposed to Intel and NATMD, are responsible for most of the projected volume increases. Thus, many improvements may be constructed or paid for by private entities in conjunction with development projects. The expected increase in traffic volumes associated with Intel and NATMD traffic is shown on Figure 11.

A collector or arterial roadway, designed to current standards, can typically accommodate up to approximately 20,000 vehicles per day with just a single through lane in each direction. Daily volumes in excess of 20,000 often require two through lanes (4 or 5 total lanes) to adequately handle traffic. Based on the traffic volumes in Figure 9, it appears that the majority of county road segments would function acceptably with a single through lane in each direction, and are not expected to require widening for additional through lanes (Figure 12). However, widening for turn lanes may be needed at major intersections to obtain capacity for traffic to operate acceptably.

CONCLUSION

By Opening Year (2025) several county road segments are expected to need improvements to operate safely due to the increase in traffic. By the Design Year, nearly every county road in the study area is expected to require improvements. Figure 13 shows the Existing, Opening Year, and Full Build condition traffic volumes for each road segment in the study area.

Continued study is needed to develop Full Build improvements/priorities. Key study area intersections should be studied for long-term needs, prior to development occurring that could hinder the implementation of potential solutions. Traffic volume projections for this area will continue to be refined as MORPC updates land use projections into their regional travel demand model.

Based on the findings of this study, a list of projects recommended for implementation by Opening Year (2025) has been developed. These projects are shown on Figure 14. Implementation of these projects will help to safely and efficiently deliver traffic to/from the Intel site on the local road system.

It is recommended that several key Licking County roadways should be considered to become Federal-aid eligible routes. These roadways, highlighted in Figure 15, will see substantial increases in traffic volumes and be crucial links for mobility to/from Intel and its surrounding future job centers. Commuter traffic and truck traffic to/from the north and east of the Intel area will be reliant on the routes highlighted on Figure 15.

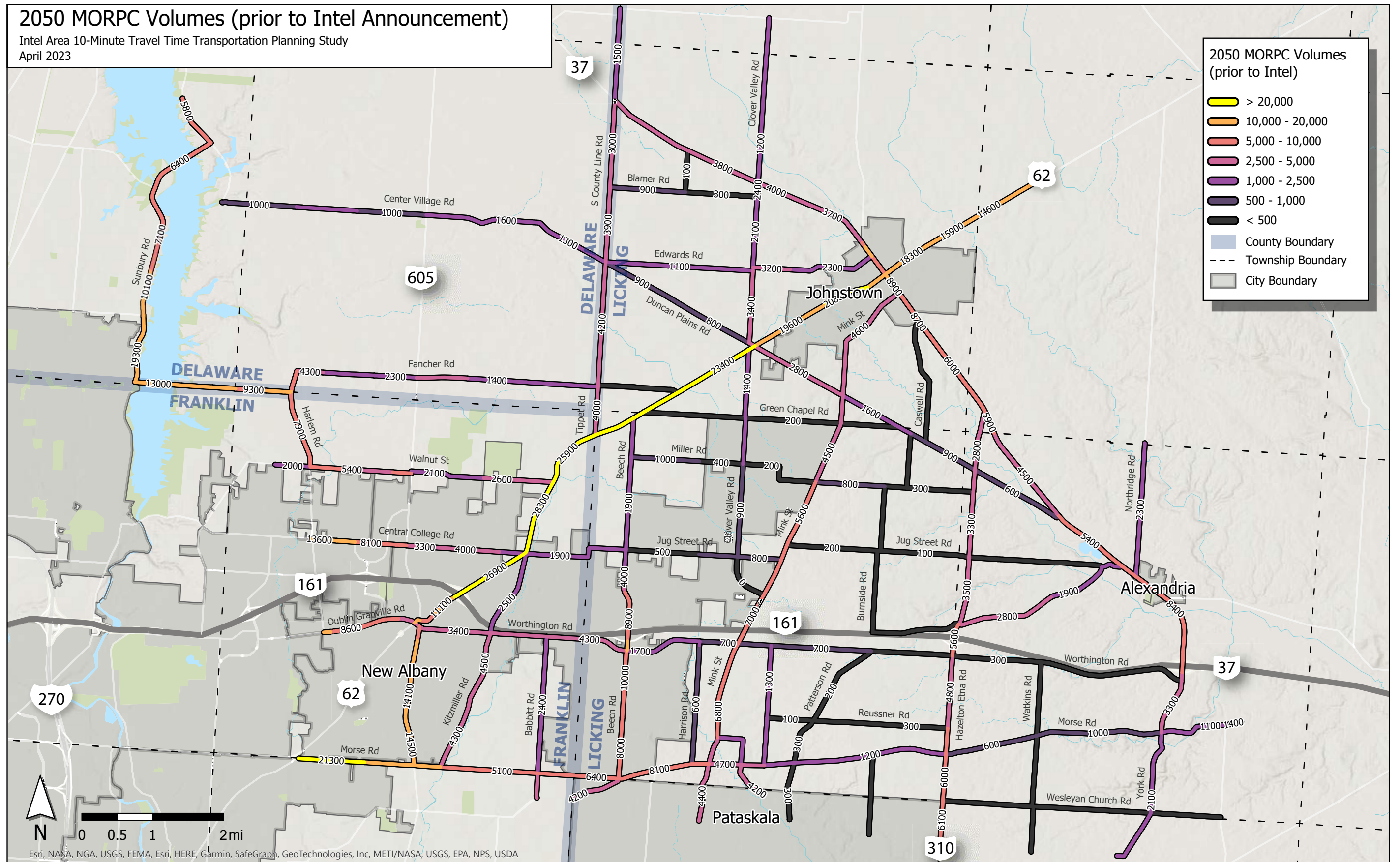


Figure 8: 2050 MORPC Volumes (prior to Intel Announcement)

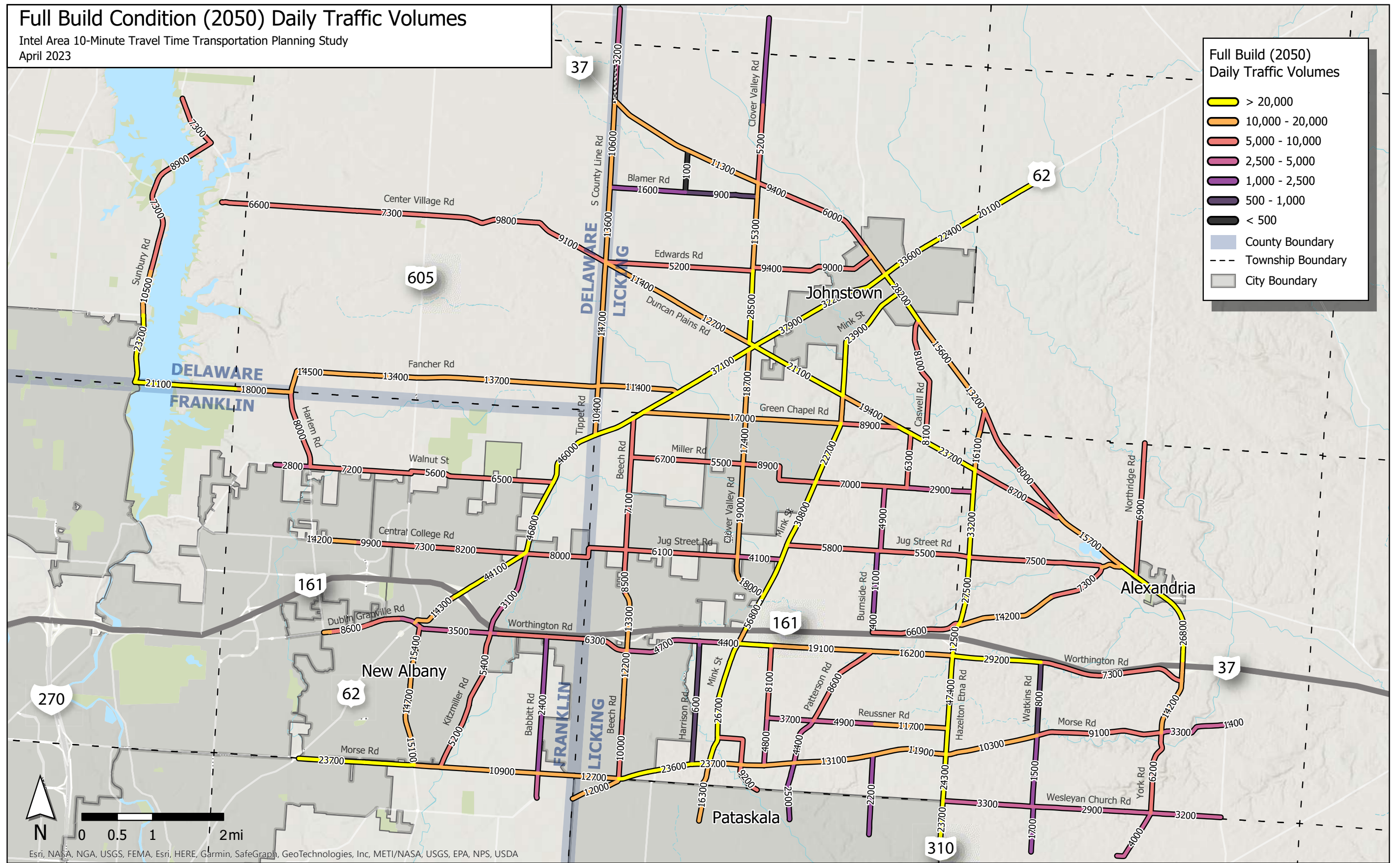


Figure 9: Full Build (2050) Daily Traffic Volumes

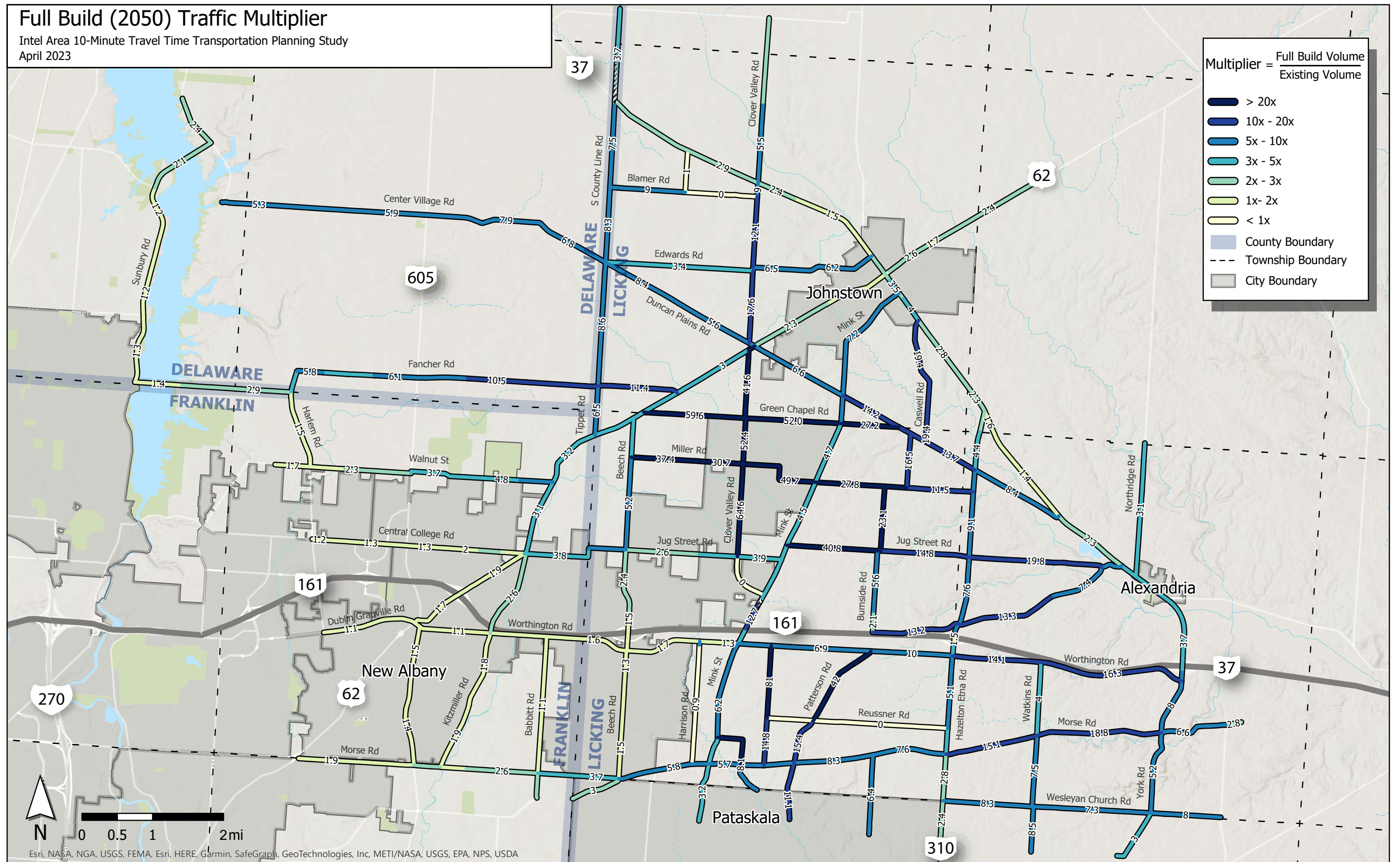


Figure 10: Full Build (2050) Traffic Multipliers

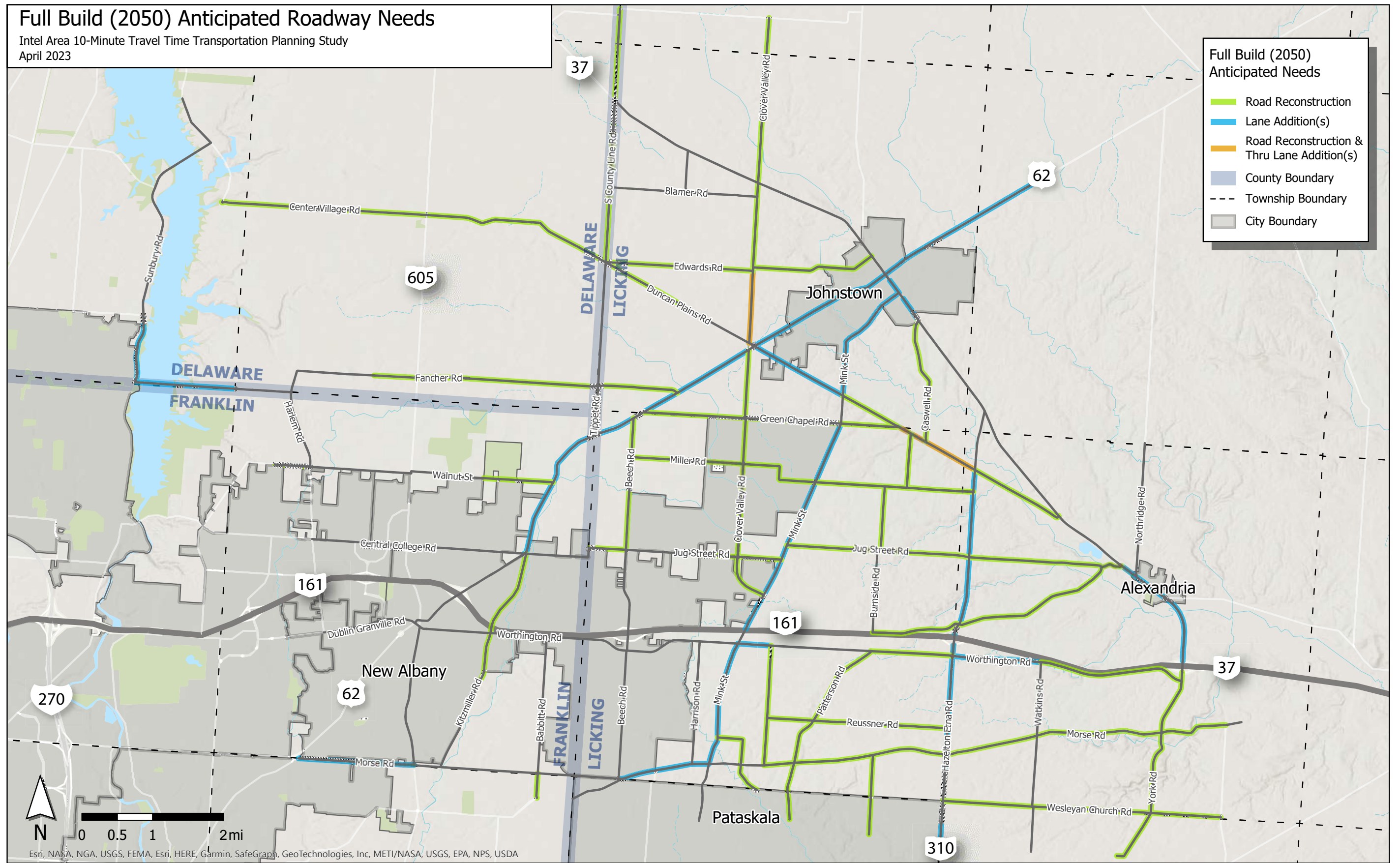


Figure 12: Full Build (2050) Anticipated Roadway Needs

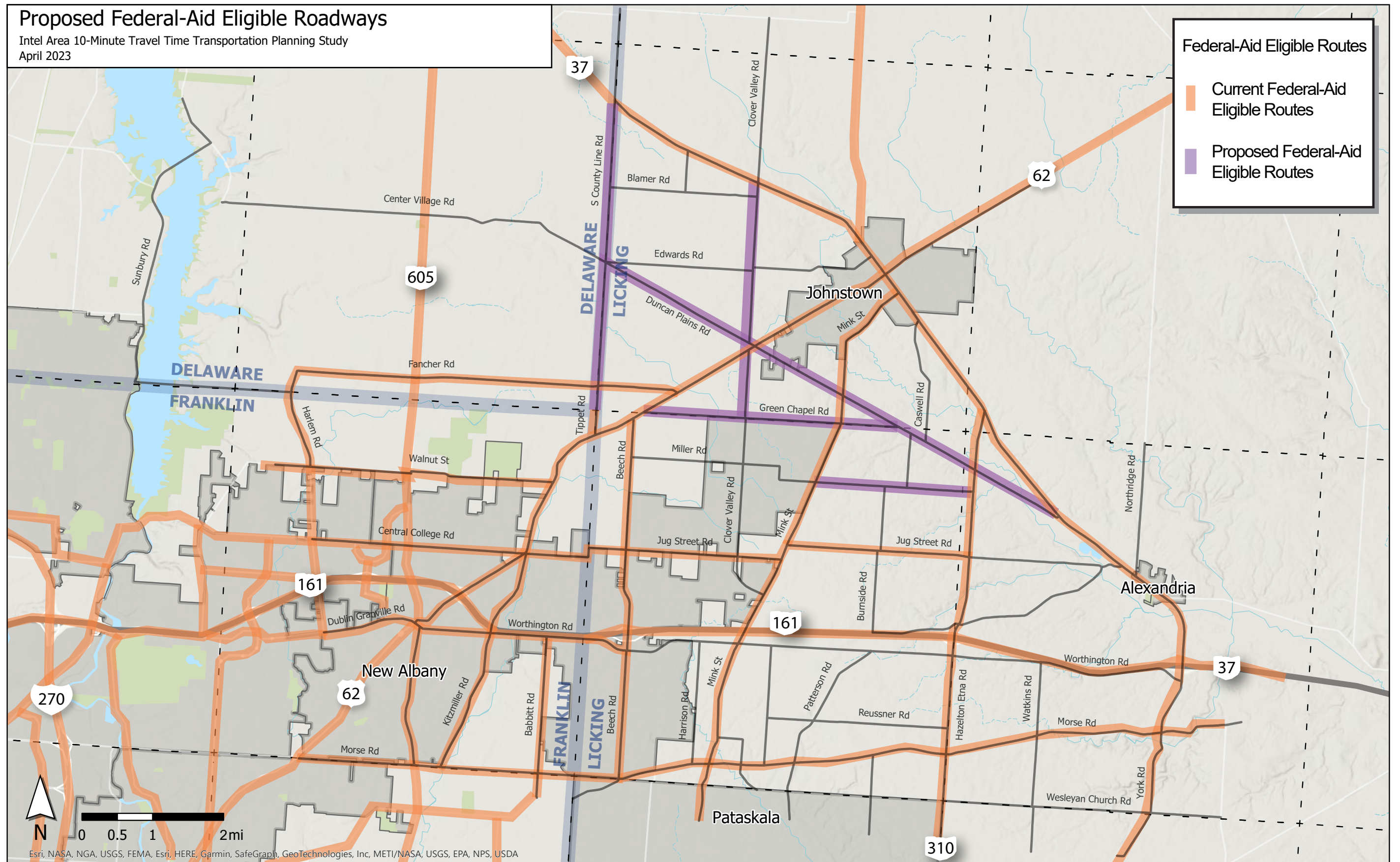


Figure 15: Proposed Federal-Aid Eligible Roadways