

Gahanna Thoroughfare Plan

Final Report

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1.0 Executive Summary

The Gahanna Thoroughfare Plan is a comprehensive evaluation and analysis of the roadway system within the City of Gahanna. This evaluation includes an analysis of the 2017 existing conditions and 2040 Design Year roadway conditions and provides an updated Thoroughfare Plan for the City.

The key components of this Plan which will allow the City to prioritize infrastructure needs over the next 25 years include the following items:

- Safety evaluation including an assessment of crash lists and crash history of roadway segments and intersections.
- Access management assessment and recommendations.
- 2017 Existing Conditions analysis including an update in data collection, revision of roadways based on current/near-term projects, and a planning-level analysis of roadway segments and intersections.
- 2040 Design Year analysis including obtaining growth for all roadways, calculating Design Year traffic volumes, a planning-level analysis of roadway segments and intersections, and a planning-level consideration of an east-west crossing of Big Walnut Creek between US-62 and Morse Road.
- Thoroughfare Plan update including proposed roadway classification revisions and staging of improvements.

- Policy and standards updates for the Thoroughfare Plan, Access Management Guidelines, Traffic Impact Studies, and Speed Limit Evaluation.
- General summary of conclusions highlighting the overarching purpose and goal of the Thoroughfare Plan.

The improvements recommended as part of the Gahanna Thoroughfare Plan are based on current conditions and reasonable projections of 2040 Design Year conditions. If there are significant land use changes, the Thoroughfare Plan may need to be evaluated at a high level of detail.

The improvements proposed in the Thoroughfare Plan are designed to be phased to improve traffic operations in the City. The goal is to maintain safe levels of traffic operations and a high quality of life for the City's residents.

2.0 Thoroughfare Plan Update

This document represents an update to the Thoroughfare Plan developed in 2006. The 2006 Plan was an update to a previous Plan. This City of Gahanna Thoroughfare Plan Update will provide both a present-day and long-term understanding of the major transportation needs in the City so planning decisions can be made with support from analysis.

The goal of this Thoroughfare Plan Update is to provide a living document to assist the City with future roadway planning, land planning/development, and other general planning activities. The project area is shown in **Figure 1**.

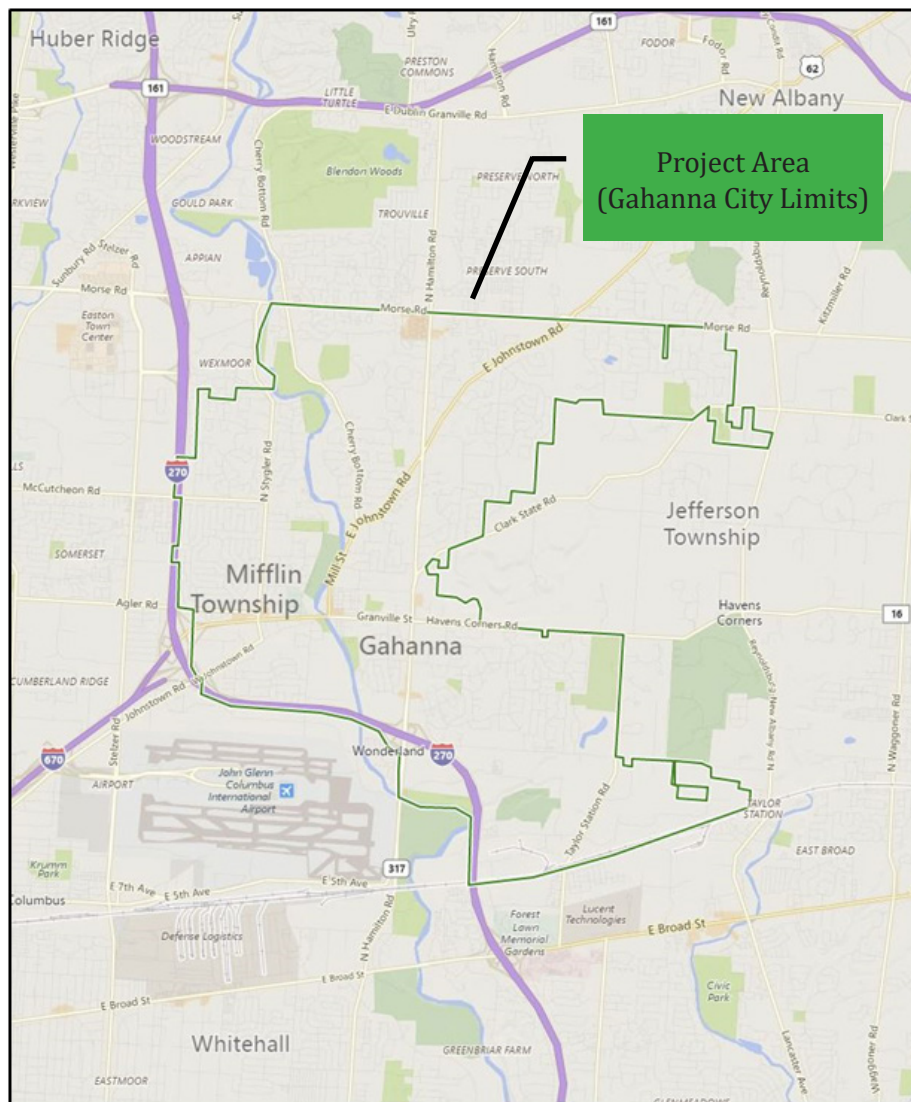
The continued population and traffic growth of the City requires a well-planned transportation network which will complement the City master plans. This Thoroughfare Plan Update has the following specific goals:

- Evaluate the existing roadway network
- Evaluate future traffic volumes and related effect on the existing roadway network
- Determine roadway changes necessary to accommodate future traffic volumes
- Determine if future traffic volumes and/or roadway changes lead to a need to reclassify a roadway
- Evaluate safety using crash data

The results of the above analysis can be used to:

- Identify future right-of-way needs so those can be protected as development or redevelopment occurs
- Manage development/redevelopment access and impacts
- Plan and prioritize future transportation improvements

Figure 1 - Project Area



This document can be used to further evaluate and update Access Management Guidelines, Traffic Impact Study Guidelines, and Speed Limit Journalization Reports developed in prior Thoroughfare Plans.

Base data was collected from the City and adjacent agencies to determine the existing area conditions. This information included:

- Planning studies, land use data, roadway classification, and information on current and near-term construction projects from the City of Gahanna
- Planning studies, land use data, and roadway classification from surrounding areas including New Albany, Rocky Fork-Blacklick, John Glenn International Airport, and Mid-Ohio Regional Planning Commission (MORPC)
- Information on current and near-term construction projects in the project area

An inventory of the main roadways in the transportation system was developed including:

- Roadway segments (arterials and collectors) and major intersections
- Number of lanes, lane uses, speed limits, traffic control devices, and other area features

2.1 Existing Area Conditions

The City of Gahanna is located in northeast Franklin County, adjacent to Columbus, New Albany, and Jefferson Township. The City has access to major destinations in Franklin County via IR-270 and IR-670. Downtown Columbus is eight miles from Gahanna and the John Glenn Columbus International Airport can be accessed from IR-670. The 2010 census estimated a population of over 33,000 within the City limits. The 2016 population estimate was around 35,000.

Roadways within the overall study area are within the jurisdictions of the City of Gahanna, City of Columbus, Village of New Albany, and Franklin County (Jefferson Township). The main roadways to be studied are within the corporate limits of the City of Gahanna. However, the other roadways will be considered as part of the current and future influence area in the City.

2.2 Land Use and Development

The City of Gahanna has continued to grow in population over the past decade, from 27,800 in 1990, to 32,000 in 2000, and then to 33,000 in 2010. The City is influenced by growth outside its borders. It should be noted that New Albany and Jefferson Township have plans for controlling growth which benefits Gahanna by locating proposed developments where they can be better served by the regional roadway system.

The City of Gahanna Department of Development provides the following information on development areas in the City:

- Land Use Plan
- Hamilton Road Corridor Plan
- Heartland Concept Plan
- North Triangle Plan
- Olde Gahanna Design Guidelines
- Olde Gahanna Vision Plan
- South Triangle Plan
- West Gahanna Development Study

3.0 Safety Evaluation

3.1 Safety Studies

Traffic safety is a critical transportation issue across the country and throughout individual communities. While education and enforcement play a key role in reducing crashes, evaluating and improving the safety of the roadway network is a necessary ongoing task. Suburban communities, such as Gahanna, often experience changes in traffic patterns as land uses and development densities change over time. This safety studies update will assist the City in future transportation and land use planning as it pertains to the safety of intersections and roadway segments.

This information will be used in conjunction with the all other information in this document and the Capital Improvement Plan to assist the City in identifying locations in need of improvement in the short-term and long-term. Early identification of safety needs will allow the City to pursue funding options through the Ohio Public Works Commission and the ODOT Highway Safety Improvement Program (HSIP).

The ODOT HSIP lists from 2010-2017 were reviewed to determine intersections and roadway segments within the City that have been ranked in the past. The ranked intersections and segments are shown in **Table 1**. Note that intersections or roadway segments listed may have had safety improvements implemented after the ranking was determined.

Table 1 - ODOT HSIP Rankings

Rank	Year	List	Segment/Intersection
157	2010	Intersection/Interchange	US-62 and MR-2458 ¹
356	2011	Urban Intersection	Granville St and N Hamilton Rd
155	2013	Urban Intersection	S Hamilton Rd and Morrison Rd
498	2013	Urban Intersection	S Hamilton Rd and Rocky Fork Blvd
488	2014	Urban Intersection	S Hamilton Rd and Morrison Rd
728	2015	Urban Non-Freeway Segment	Granville St from SLM 18.23-18.26 (just west of Hamilton Rd)
134	2015	Urban Intersection	S Hamilton Rd and Morrison Rd
556	2016	Urban Non-Freeway Segment	Granville St from SLM 18.23-18.26 (just west of Hamilton Rd)
285	2017	Urban Intersection	S Hamilton Rd and Morrison Rd
378	2017	Urban Non-Freeway Segment	Granville St from SLM 18.23-18.26 (just west of Hamilton Rd)

¹ The log point listed for this intersection lands on US-62 between Olde Ridenour Road and Mill Street, and MR-2458 does not exist in this area. This may have been a ranking mistake from years past.

The MORPC High Crash Locations lists were reviewed to determine intersections within the City that have appeared on them. No intersections within the City were ranked on the “Top 100 Regional High-Crash Intersections (2015-2017)” list. The “Top 5 High Crash Intersections by Jurisdiction (2015-2017)” list for Gahanna is provided in **Table 2**.

Table 2 - MORPC Top 5 Intersections in Gahanna (2015-2017)

Rank	Location	Total Crashes	EPDO ¹
1	Mill St / US-62 at Stygler Rd	68	1.68
2	S Hamilton Rd / SR-317 at Rocky Fork Blvd	57	1.93
3	US-62 at Olde Ridenour Rd	45	2.26
4	N Hamilton Rd at Stoneridge Ln	44	1.85
5	N Hamilton Rd at Clark State Rd	40	1.26

¹Equivalent Property Damage Only Index = the relative severity of crashes at a given intersection. Higher values represent a higher severity of crashes.

3.2 Crash Evaluation

Raw crash data was obtained from ODOT’s GIS Crash Analysis Tool (GCAT) for the entire city limits for the past 4 years of available crash data (2015-2018). Note that crashes were downloaded the first week of January 2019. All 2018 crashes may not have been available at that time, but it is expected that a majority of the crashes were available. Crash statistics were evaluated for each key roadway segment and intersection within the city limits.



3.2.1 Segments

Table 3 shows the total crashes from 2015-2018, crashes per year per mile, and crash severity percentage (total of crash severity type divided by total crashes in the study period). The top five highest total crashes, crashes per year per mile, and injury crash severity percentage are shown in red. Note that the high total crash segments are also segments with the highest traffic volumes. Traffic volumes were not available for all segments in the data set, so a comparison between crashes and volumes at each segment could not be provided.

Table 3 - Segment Crash Summary

Roadway Segment	From	To	Total Crashes 2015-2018	Crashes per Year per Mile	Injury Crash Severity Percentage
Cherry Bottom Rd	Mill St	Morse Rd	25	3.09	20%
Clark State Rd	N Hamilton Rd	Clotts Rd	4	2.38	25%
Clotts Rd	E Johnstown Rd	Clark State Rd	6	1.33	0%
E Johnstown Rd	Mill St	N Hamilton Rd	25	5.95	24%
	N Hamilton Rd	Morse Rd	48	7.23	25%
Granville St	Mill St	Hamilton Rd	92	34.33	17%
S Hamilton Rd	I-270	Granville St	193	53.02	19%
N Hamilton Rd	Granville St	Johnstown Rd	165	30.33	11%
	E Johnstown Rd	Morse Rd	163	35.43	16%
Havens Corners Rd	Helmbright Dr	Taylor Station Rd	31	7.91	10%
	Hamilton Rd	Helmbright Dr	57	19.26	21%
Mill St	Granville St	E Johnstown Rd	42	19.09	14%
Morrison Rd	S Hamilton Rd	Taylor Rd	49	20.76	10%
	Taylor Rd	Claycraft Rd	20	5.88	20%
N Stygler Rd	McCutcheon Rd	Morse Rd	32	4.71	16%
	Agler Rd	McCutcheon Rd	43	11.81	16%
S Stygler Rd	W Johnstown Rd	Agler Rd	67	111.67	13%
Taylor Station Rd	Claycraft Rd	Taylor Rd	24	8.45	42%
	Taylor Rd	Havens Corners Rd	12	3.03	25%
US 62	Stygler Rd	Mill St	90	40.18	26%

Note: Red values indicate areas for consideration.



3.2.2 Intersections

Table 4 shows the crashes per year and crash severity percentage (total of crash severity type divided by total crashes in the study period). The top five highest total crashes and injury crash severity percentage are shown in red. Note that the high total crash intersections are also intersections with the highest traffic volumes. Traffic volumes were not available for all intersections in the data set, so a comparison between crashes and volumes at each intersection could not be provided.

Table 4 - Intersection Crash Summary

Intersection		Crashes per Year				Total Crashes	Injury Crash Severity Percentage
		2015	2016	2017	2018		
Agler Rd	Imperial Dr	7	4	10	6	27	22%
E Johnstown Rd	Cherry Bottom Rd	1	1	1	0	3	33%
E Johnstown Rd	Beecher Rd	3	3	2	6	14	36%
E Johnstown Rd	Clotts Rd	1	2	1	1	5	0%
E Johnstown Rd	Riva Ridge Blvd	2	1	3	0	6	33%
E Johnstown Rd	YMCA	3	4	1	1	9	11%
Granville St	Flint Ridge Dr	0	4	1	6	11	36%
Granville St	Lincoln Circle	3	2	2	4	11	18%
Granville St	Mill St	8	20	9	11	48	19%
Granville St	Shull Ave	5	1	4	1	11	9%
Hamilton Rd	Granville St	24	15	13	21	73	11%
Havens Corners Rd	Helmbright Dr	6	7	2	4	19	37%
Mill St	Carpenter Dr	3	6	2	2	13	15%
Mill St	Walnut St	1	4	2	5	12	8%
Morrison Rd	Taylor Rd	3	4	5	8	20	15%
Morrison Rd	Tech Center Dr	4	5	6	7	22	18%
Morrison Rd	Waterbury Blvd	2	3	3	0	8	13%
Morse Rd	Underwood Farms Blvd	5	2	2	0	9	44%
N Hamilton Rd	Beecher Rd	7	7	5	10	29	17%
N Hamilton Rd	Gatsby-Bank Dr	4	4	3	2	13	31%
N Hamilton Rd	Shopping Center Dr	6	18	6	6	36	11%
N Hamilton Rd	Clark State Dr	11	12	30	21	74	7%
N Hamilton Rd	E Johnstown Rd	14	17	11	10	52	17%
N Stygler Rd	Chapelfield Rd	2	2	1	0	5	0%
N Stygler Rd	Gamewood Dr	4	5	1	0	10	10%
N Stygler Rd	McCutcheon Rd	2	6	1	5	14	21%
S Hamilton Rd	Tech Center Dr	8	12	10	4	34	18%
S Hamilton Rd	IR-270 NB Ramp	0	3	2	5	10	20%
S Hamilton Rd	IR-270 SB Ramp	5	1	9	23	38	18%
S Hamilton Rd	Kroger Shopping Center	3	5	2	7	17	12%
S Hamilton Rd	Lincoln High School	4	9	3	1	17	18%
S Hamilton Rd	Rocky Fork Dr N	18	18	25	22	83	23%
S Hamilton Rd	Morrison Rd	20	14	26	23	83	12%
N Stygler Rd	Agler Rd	11	15	12	18	56	5%
Stygler Rd	US-62	23	32	17	14	86	13%
Taylor Station Rd	Claycraft Rd	4	5	10	4	23	30%
US-62	Olde Ridenour Rd	13	22	10	6	51	29%
W Johnstown Rd	IR-270 NB Ramp	1	0	0	3	4	0%

3.3 Summary of Findings

The findings of the crash analysis for the intersections and segments within the City limits are summarized below. Intersection and segment rankings were established based on a culmination of reoccurrence on historic high crash lists, total crash rank, crashes per year per mile rank (for segments only), and crash severity rank.

The intersections in the City with the highest crash rankings are:

- South Hamilton Road and Morrison Road
- US-62 and Stygler Road
- South Hamilton Road and Rocky Fork Boulevard
- US-62 and Olde Ridenour Road
- Hamilton Road and Granville Street/Havens Corners Road

The roadway segments with the highest crash ratings are:

- US-62 from Stygler Road to Mill Street
- South Hamilton Road from IR-270 to Granville Street
- Granville Street from Mill Street to Hamilton Road
- North Hamilton Road from Granville Street to Johnstown Road
- North Hamilton Road from East Johnstown Road to Morse Road
- South Stygler Road from West Johnstown Road to Agler Road

The ODOT HSIP rankings show that of the ten intersections/segments on the list, six are on Hamilton Road and three others are close to Hamilton Road. Many of the above bulleted locations are on Hamilton Road or Granville Street. All the results are consistent with research and studies that show a direct relationship between crashes and high traffic volumes/congestion on the roadway system.

4.0 Access Management

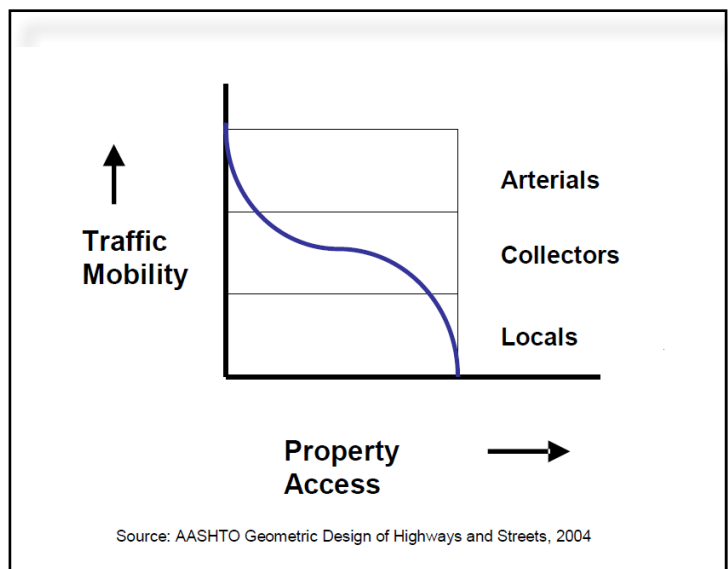
Access management is an effective way to increase capacity, manage congestion, and reduce crashes. Overall, access management improves the ability of a roadway to function as intended. FHWA states that access management is a set of tools including the following:

- Increase spacing between signals and interchanges
- Increase driveway spacing but also awareness of driveway location and design
- Use of exclusive turn lanes
- Median treatments such as two-way left-turn lanes or physical medians that prohibit turns from access points
- Use of service and frontage roads

All highways and roadways provide traffic mobility, land access, or a combination of both. The primary function of a freeway is to provide mobility with strict access control requirements. Local streets are primarily designed to provide access to properties. Arterial and collector roads fall in between these classifications and provide both traffic mobility and property access.

Figure 2 shows the change in mobility vs. access as roadway classifications change.

Figure 2 - Mobility versus Land Access



Many of the best practices from around the country are presented in the *Transportation Research Board Access Management Manual* (TRB Manual). The TRB Manual is used as a master reference in this report because it focuses many of the ideas and practices into one document. ODOT has also published the *State Highway Access Management Manual* which is generally referenced more in Ohio. Many of the practices from these manuals will be highlighted and recommendations tailored to the needs of the City of Gahanna.

Providing the appropriate level of access by roadway type allows agencies to maintain the functionality of the roadway, maintain traffic operations, and improve safety. Access management benefits many stakeholders including drivers, cyclists, pedestrians, businesses, residents, and public agencies. While many businesses equate multiple access points with more customers, surveys have found that customers often avoid high congestion areas. Proliferated access leads to congestion when volumes are high. Some of the negative impacts to a city when access is not well managed include:

- Increases in crashes at driveways, intersections, and roadway segments
- Hazardous conditions for pedestrians and cyclists
- Decreases in roadway and intersection capacity
- Increases in cut-through traffic as drivers avoid congestion
- Difficulty entering and exiting businesses due to congestion created by a high concentration of drives mixed with arterial traffic

4.1 Methods for Establishing Access Management Policies

Access management is practiced by municipal governments, counties, and state agencies. While the implementation varies by agency, the focus is on planning, regulatory, and design strategies. The TRB Manual provides some of the following methods to establish access management:

- Adopt community-wide policies, directives, and/or guidelines
- Develop local access management regulations and ordinances
- Require acquisition of access rights
- Improve/enhance land development regulations
- Foster development review and impacts assessment
- Establish geometric design criteria for drives and intersections

Agencies can develop area-wide or corridor access management plans and programs. These are typically based on roadway classification. Options for access management techniques and policies for the City of Gahanna will be detailed in later sections of this report.

Managing access in a community requires a partnership between planning, zoning, and engineering. The engineering department also needs to maintain a relationship with the local MPO to be aware of planning and project development on a regional level that affects City operations.

Local access management programs can develop standards and criteria to be applied based on the roadway classification and land uses. The following types of standards can be developed and utilized when development plans or traffic studies are reviewed or when transportation projects are planned or designed:

- Distance between intersections
- Distance between traffic signals
- Distance between driveways and the depth of a drive
- Number of drives per property
- Requirement for turn lanes
- Requirements for median treatments

All of these items are highlighted in a separate report titled *City of Gahanna Access Management Guidelines*.

4.2 City of Gahanna Access Management Criteria

The City of Gahanna has many roadways of all classifications that provide both regional and local access. All access to the interstate system is located on the west and southwest side of the City. The travel patterns for traffic accessing the regional highway system uses the major arterials within the City, such as Hamilton Road, Granville Street, and Morse Road. These roadways also serve local access within Gahanna and neighboring communities.

The recommended City of Gahanna Access Management Criteria is defined and included in a separate report titled *Access Management Guidelines* for the following roadways:

- Major Arterials
- Minor Arterials
- Collector Roads
- Local Roads (mostly in residential areas)

4.3 Corridor Access Management Recommendations

Several corridor-specific applications were described in this report as possible access management tools. The following are recommended for future implementation in the City of Gahanna.

- Median installation on sections of Granville Street and Hamilton Road
- Two-way left turn lanes – continue installation on minor arterials and collectors as warranted
- Backage roads – potential installation on parts of Granville Street and Hamilton Road. This would need to be analyzed and implemented based on future property redevelopments.
- Limit new access on Granville Street and Hamilton Road when new development occurs and reduce access when redevelopment occurs or major roadway projects occur

4.4 Intersections and Driveway Access Management Recommendations

Several intersection and driveway applications were described in this report as possible access management tools. The following are recommended for future implementation in the City of Gahanna.

- Review drive and intersection placement to minimize conflicts between left turns
- Install left or right turn lanes as warranted based on ODOT and City criteria (minimum storage length 100 feet, plus minimum approach taper of 50 feet, and minimum deceleration taper of 50 feet)
- Maintain corner clearance of drives outside the intersection functional area
- Install medians to restrict left turns onto arterial roadways
- Encourage and facilitate cross access with development/redevelopment of properties with closely spaced drives
- Limit the number of full-access drives for new development

4.5 Specific Access Recommendations

4.5.1 Granville Street

The Granville Street corridor from Mill Street to Hamilton Road is part of the City's business district, with a 25 MPH speed limit. Adjacent properties are primarily office and retail land uses with limited frontage. The existing roadway congestion combined with closely spaced drives and intersections creates safety and operational concerns. East of Hamilton Road, the roadway becomes Havens Corners Road and transitions from suburban to rural character.

The following specific access management techniques are recommended for consideration by the City as part of a long-range corridor plan for Granville Street

- Establish an access management overlay district on Granville Street from Mill Street to Hamilton Road
- Consider installing a median from Mill Street to Hamilton Road; the median can be decorative and urban in character to complement the business district style
- Develop a long-term access plan in conjunction with the median plan; this would include the installation of backage roads and driveway consolidation to reduce the number of direct access points on Granville Street
- Develop a pedestrian crossing plan to encourage safe access to all businesses

4.5.2 Hamilton Road

The section of Hamilton Road at the IR-270 interchange is a limited-access highway under ODOT jurisdiction. It quickly transitions to a suburban roadway approaching Morrison Road. The Hamilton Road corridor is currently experiencing significant congestion from south of Tech Center Drive to north of Granville Street. Even with some access restrictions on Hamilton Road, there are short driveway throats that lead to congestion within the strip shopping areas. From Clark State Road to East Johnstown Road, Hamilton Road is residential. From East Johnstown Road to Morse Road, Hamilton Road is suburban in character. The north section is a five-lane roadway with median in some areas.

The following access management techniques are specifically recommended for consideration by the City as part of a long-range corridor plan for Hamilton Road:

- Establish an access management overlay district on Hamilton Road from Morrison Road to Clark State Road
- Study and determine the appropriate areas for median installation on Hamilton Road

- Develop an access plan in conjunction with the median; this could include the installation of backage roads and driveway consolidation to reduce the number of direct access points
- Develop a pedestrian crossing plan to encourage safe access to businesses; this is recommended from Morrison Road to Clark State Road and Beecher Road to Morse Road

5.0 Existing Conditions and Analysis

5.1 Existing Roadway System and Thoroughfares

The thoroughfares within the study area consist of urban local, arterial, and collector roads. **Table 5** and **Table 6** provides a summary of the existing thoroughfares and roadway classification. The existing street network and intersection lane configurations for key corridors in the City are included in **Appendix A**.



Table 5 - Existing 2017 Roadway System Classification - North/South Roadways

Roadway Section	From	To	Classification
Hines Road	McCutcheon Road	Wendler Boulevard	Local
Lincolnshire Road	Agler Road	Wendler Boulevard	Local
Olde Ridenour Road	W Johnstown Road	Granville Street	Local
	Granville Street	Chappelfield Road	Local
Stygler Road	Johnstown Road	Granville Street	Major Collector
	Granville Street	Agler Road	Minor Arterial
	Agler Road	McCutcheon Road	Major Collector
	McCutcheon Road	Ridenour Road	Major Collector
	Ridenour Road	Morse Road	Major Collector
Mill Street	Granville Street	Carpenter Road	Minor Arterial
	Carpenter Road	Johnstown Road	Minor Arterial
Cherry Bottom Road	E Johnstown Rd	Academy Woods Drive	Major Collector
	Academy Woods Drive	Morse Road	Major Collector
E Johnstown Road	Mill Street	Hamilton Road	Minor Arterial
	Beecher Road	Riva Ridge Road	Minor Arterial
	Riva Ridge Road	Morse Road	Minor Arterial
Hamilton Road	Sawyer Road	Morrison Road	Principal Arterial
	Morrison Road	Rocky Fork Drive N	Principal Arterial
	Rocky Fork Drive N	Granville Street	Principal Arterial
	Granville Street	Clark State Road	Principal Arterial
	Clark State Road	Johnstown Road	Principal Arterial
	Johnstown Road	Beecher Road	Principal Arterial
	Beecher Road	Morse Road	Principal Arterial
Clark State Road	Hamilton Road	Clotts Road	Minor Arterial
	Clotts Road	Darling Road	Minor Arterial
Clotts Road	Clark State Road	Johnstown Road	Local
Helmbright Drive	Taylor Road	Havens Corner Road	Local
Shull Road	Headly Road	Morse Road	Local
Mann Road	Havens Corners Road	Clark State Road	Local
Morrison Road	Claycraft Road	Tech Center Drive	Local
	Tech Center Drive	Taylor Road	Major Collector
	Taylor Road	Hamilton Road	Major Collector
Taylor Station Road	Claycraft Road	Taylor Road	Major Collector
	Taylor Road	Havens Corner Road	Major Collector

**Table 6 - Existing 2017 Roadway System Classification - East/
Way Roadways**

Roadway Section	From	To	Classification
Claycraft Road	Morrison Road	Taylor Station Road	Local
Taylor Road	Morrison Road	Taylor Station Road	Major Collector
	Taylor Station Road	Eastgate Parkway	Major Collector
W. Johnstown Road	Stygler Road	Olde Ridenour Road	Local
Granville Street/US 62	Stygler Road	Olde Ridenour Road	Principal Arterial
	Olde Ridenour Road	Mill Street	Principal Arterial
	Mill Street	Hamilton Road	Principal Arterial
Havens Corners Road	Hamilton Road	Helmbright Road	Minor Arterial
	Helmbright Road	Taylor Station Road	Minor Arterial
	Taylor Station Road	Reynoldsburg - NA Road	Minor Arterial
Haven Road	Clark State Road	Mann Road	Local
Agler Road	Stelzer Road	Stygler Road	Minor Arterial
Carpenter Road	Mill Street	Hamilton Road	Local
Chappelfield Road	Stygler Road	Olde Ridenour Road	Local
McCutcheon Road	Stelzer Road	Stygler Road	Major Collector
Headly Road	Shull Road	Clark State Road	Local
Beecher Road	Hamilton Road	Johnstown Road	Minor Collector
Morse Road	IR-270	Stygler Road	Principal Arterial
	Stygler Road	Cherry Bottom Road	Principal Arterial
	Cherry Bottom Road	Hamilton Road	Principal Arterial
	Hamilton Road	Underwood Farms Dr.	Minor Arterial
	Underwood Farms Dr.	Johnstown Road	Minor Arterial
	Johnstown Road	Harlem Road	Minor Arterial
Tech Center Drive	S Hamilton Road	Morrison Road	Major Collector
	Morrison Road	Science Road	Local

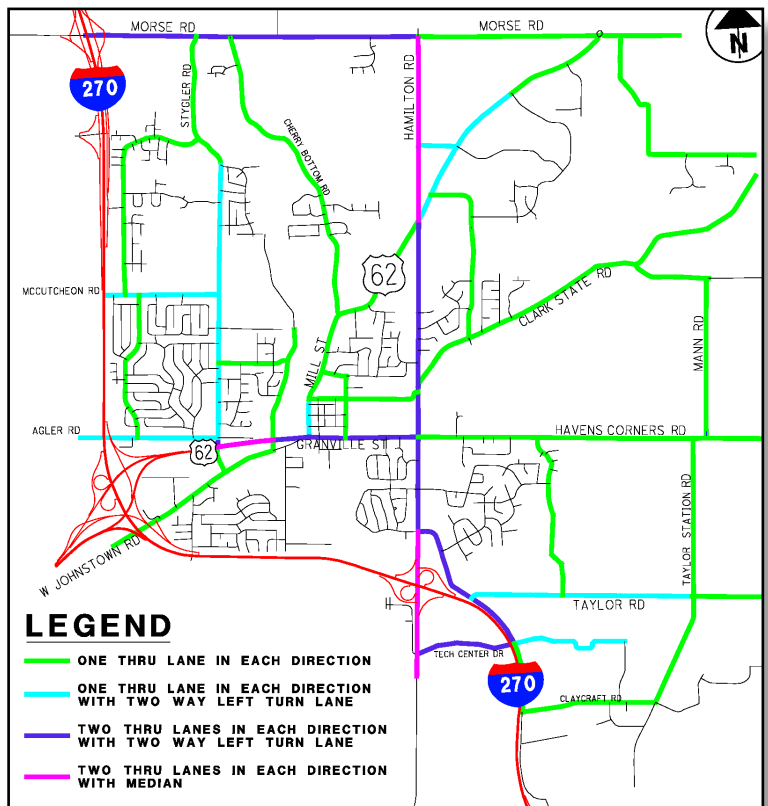
Figure 3 presents the existing City of Gahanna thoroughfare system and the number of lanes on each roadway. This represents the current lane configurations and the roadway projects scheduled for completion in 2017. The following describes the general configuration of the roadways within the City:

- 1/1 – streets with one through lane in each direction. These may include turn lanes at select locations.
- 1/1T – streets with one through lane in each direction and a center two-way left turn lane. Left and/or right turn lanes may also exist at intersections.
- 2/2T – streets with two through lanes in each direction and a center two-way left turn lane. Left and/or right turn lanes may exist at intersections and major drives.
- 2/2D – streets with two through lanes in each direction and a median. Left and right turn lanes exist at intersections. Turn lanes may also be included at major drives. This provides a higher level of access management, especially for Major Arterials.

The current roadway system has a significant number of two lane roads, especially on the east side of the City and into Jefferson Township.

The City has a limited number of roadway corridors that have sections divided by a median to provide a higher level of access management. Sections of Hamilton Road and Granville Street within the limited access area (and departing the area) currently have medians. The north section of Hamilton Road that is under construction includes a median section.

**Figure 3 - Existing Roadway System
Number of Lanes**



5.2 Current and Near-term Projects

The City of Gahanna and the surrounding areas have identified projects to be included in the short-term and long-term plans. The current projects within the Gahanna planning area are listed below, along with projects under construction.

Capital Design Projects

- Hamilton Road and Morse Road Widening project includes addressing street light needs, installing fiber conduit, and the construction of a right turn lane. This project has an estimated 2019 construction date.
- Gahanna West Side Intersection Improvement project is located in the area surrounding the Stygler Road intersections with US-62 and Agler Road. This project is currently in the alternatives analysis/feasibility study stages.
- Heil Drive Bridge Replacement project is planned for construction in 2019.

- Hamilton Road Widening construction was completed in November 2017. This includes roundabouts, multi-use trail, and sidewalk.
- Carpenter Road Bridge Replacement construction was completed in 2016.
- 2019 Street Program was estimated to have a 2019 construction date.
- Big Walnut Trail Section 8 is part of a bikeway which, upon completion, will follow the Big Walnut Creek through the length of Gahanna from Morse Road to Pizzurro Park. Section 8 alternatives are in design/planning stages. Construction will be completed in Spring 2019.
- Larry Lane and Pizzurro Park replacements were completed in 2018.

- G.A.A.P. Youth Center
- Pinnacle Pointe Villas
- Columbus Academy is currently under construction.
- Trilogy Continuum of Care, planned 2019 construction.
- Walnut Creek Medical completed in late 2018.
- Gahanna Jefferson Schools new elementary school expected to start construction in 2019.
- Buckles Court Extension completed in late 2018.

Traffic data was collected and Average Daily Traffic (ADT) was calculated for several arterials and collectors in the roadway system. Additional ADT information was obtained from ODOT's Transportation Information Mapping System (TIMS) and MORPC's Traffic Count Database System. All data is adjusted to a 2017 base year (existing conditions) using growth rates obtained from MORPC. **Figure 4** provides a summary of the existing ADT on the roadway network.

AM and PM peak hour (7:00-9:00 AM and 4:00-6:00 PM) traffic count data was obtained for several key intersections in the study area. Count data from the 2016 West Side Intersection Improvement Safety Study and 2016 Viking Commerce Center TIS were utilized and projected to 2017 volumes. Raw traffic count data, MORPC growth rates, and traffic volume calculations are provided in **Appendix B**.

This map shows the Johnstown, PA area with various streets and highways. A red line highlights a specific route, likely for a delivery or service. The route starts near the top left, goes south on a road labeled 270, then turns east onto W JOHNSTOWN RD. It continues east, passing through several residential areas, and then turns south onto a road labeled 1370. The route ends near the bottom right, close to a road labeled 270. The map includes labels for major roads such as MORSE RD, HAMILTON RD, W JOHNSTOWN RD, and HAVENS CORNERS RD. It also shows various street numbers and a north arrow in the top right corner.

5.4 Traffic Analysis at Key Intersections

Capacity analysis using Synchro Version 10 software was completed for the following intersections to determine the 2017 existing conditions operation:

- South Hamilton Road and Tech Center Drive/Swanson Avenue
- South Hamilton Road and IR-270 Southbound Ramps
- South Hamilton Road and IR-270 Northbound Ramps
- South Hamilton Road and Morrison Road
- South Hamilton Road and Rocky Fork Boulevard
- Hamilton Road and Granville Street/Havens Corners Road
- North Hamilton Road and Kroger Shopping Plaza Drive
- North Hamilton Road and Rocky Fork Shopping Plaza Drive
- North Hamilton Road and Clark State Road
- North Hamilton Road and East Johnstown Road
- North Hamilton Road and Beecher Road
- US-62 and Stygler Road
- US-62 and Olde Ridenour Road
- Granville Street and Mill Street
- Granville Street and Shull Avenue
- Granville Street and Lincoln Circle (East)
- Granville Street and Flint Ridge Drive
- Taylor Station Road and Claycraft Road/Research Road
- Morrison Road and Tech Center Drive
- Morrison Road and Taylor Road
- Johnstown Road and IR-270 Northbound Exit Ramp
- West Johnstown Road and South Stygler Road
- West Johnstown Road and Old Ridenour Road
- North Stygler Road and Agler Road
- North Stygler Road and McCutcheon Road
- East Johnstown Road and Cherry Bottom Road

Capacity analyses were performed and Levels of Service (LOS) were determined for the key intersections in the study area listed above. Key intersections are either signalized, all-way stop controlled, two-way stop controlled, or a roundabout. The concept of LOS uses qualitative measures that characterize conditions within a traffic stream and their perceptions by motorists. The descriptions of individual levels of service characterize these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic density, delay, and comfort and convenience.

Six LOS are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst. In urban areas, LOS D or higher is considered acceptable operation. Each LOS represents a range of operating conditions.

The Hamilton Road/Granville Street Network was analyzed using Synchro software. Synchro allows for the interconnection and coordination of traffic signal timing on a roadway network. The software will allow the signals in the network to be evaluated as a coordinated system and the output can be reported in the format utilizing Highway Capacity Manual (HCM) methodology. The methodology analyzes lane groups, intersection approaches, and the overall intersection approach.

The LOS for an intersection is calculated based on the average control delay per vehicle. For suburban intersections in general, a minimum overall intersection LOS of D and movement LOS of E or better is considered acceptable operation. For stop-controlled intersections, a delay less than 100 seconds for the stop approach is considered acceptable. **Table 7** shows the LOS thresholds for signalized and unsignalized intersections. LOS thresholds listed for signalized intersections were used for the roundabout analyses, as recommended in the Washington DOT Sidra parameters (currently being recommended for use by ODOT).

Table 7 - LOS Criteria

LOS	Signalized Intersection Delay (sec)	Unsignalized Intersection Delay (sec)
A	≤ 10	≤ 10
B	$> 10 - 20$	$> 10 - 15$
C	$> 20 - 35$	$> 15 - 25$
D	$> 35 - 55$	$> 25 - 35$
E	$> 55 - 80$	$> 35 - 50$
F	> 80 or $V / C > 1.00$	> 50 or $V / C > 1.00$



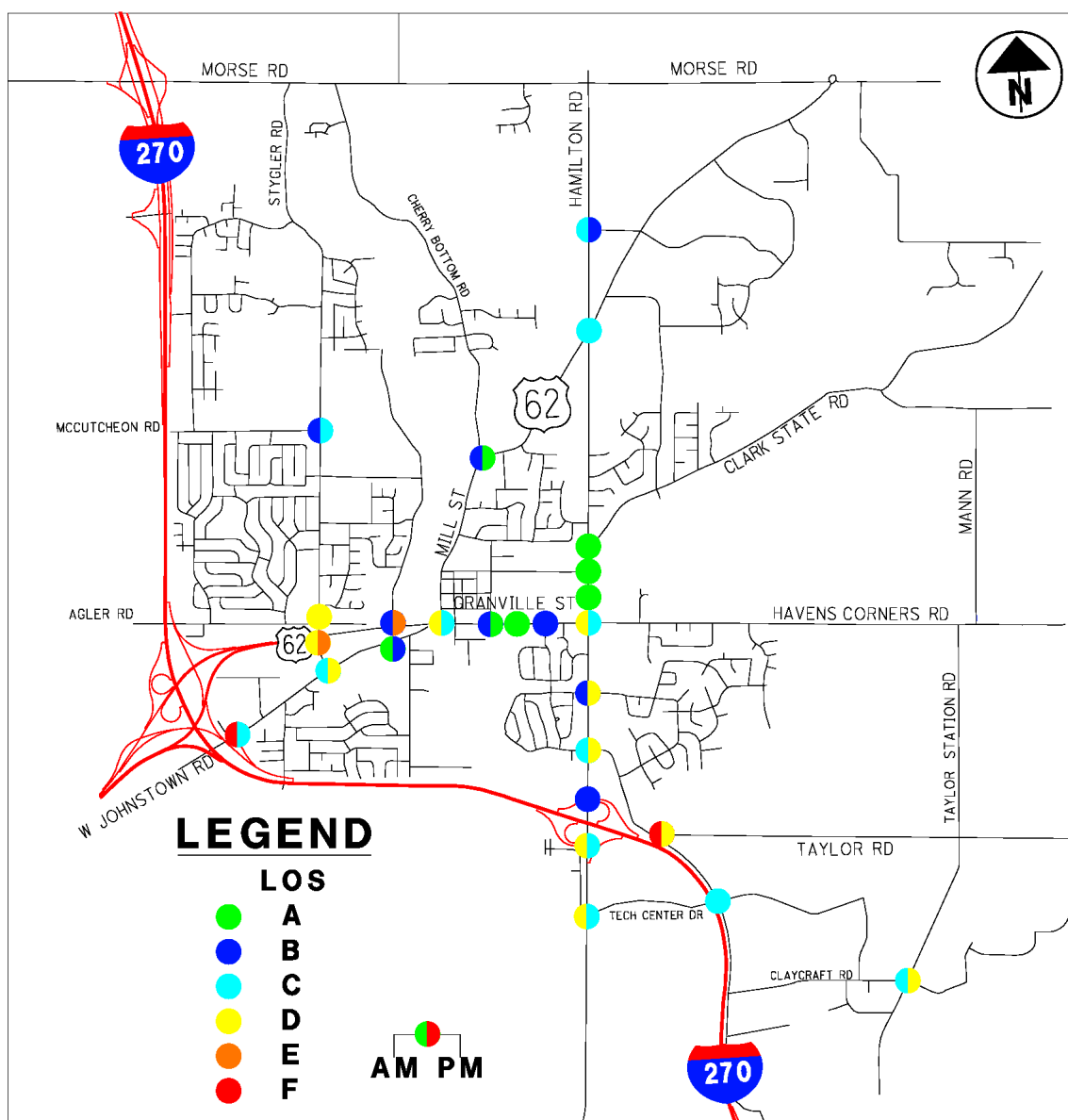
- Morrison Road and Taylor Road (LOS F)

- US-62 and Stygler Road (LOS E)

- US-62 and Olde Ridenour (LOS E)

Other intersections not listed above may have unacceptable approach or movement LOS, but the overall LOS is acceptable. These detailed results can be seen in **Appendix C**.

Figure 5 - Existing 2017 AM and PM Peak Hour Level of Service Map



5.5 Traffic Analysis at Key Roadway Segments

The existing Gahanna area roadway system was evaluated to confirm the classification, operations, and traffic volumes utilizing each segment of the existing roadway system. Speed limits within the City were confirmed and existing right-of-way on the roadway network was obtained from the Franklin County Engineer's GIS website.

The existing roadway system was evaluated based on the 2017 ADT volumes and the existing number of lanes. This evaluation uses a planning-level analysis to determine the performance of the through roadways. The evaluation is based on the daily volume to capacity (V/C) ratio for the roadway based on through lane capacity. The capacity thresholds calculated in the *2006 City of Gahanna Thoroughfare Plan Report* were utilized to calculate V/C ratios for each key roadway segment. The capacity thresholds are provided in **Table 8**.

Table - 8 - LOS Criteria

Roadway	Description	ADT Capacity
2-lane	One through lane in each direction, may include turn lanes	16,000
4-lane	Two through lanes in each direction, plus turn lanes	32,000
6-lane	Three through lanes in each direction, plus turn lanes	48,000+

Ranges of V/C ratios for roadway segments are described as follows:

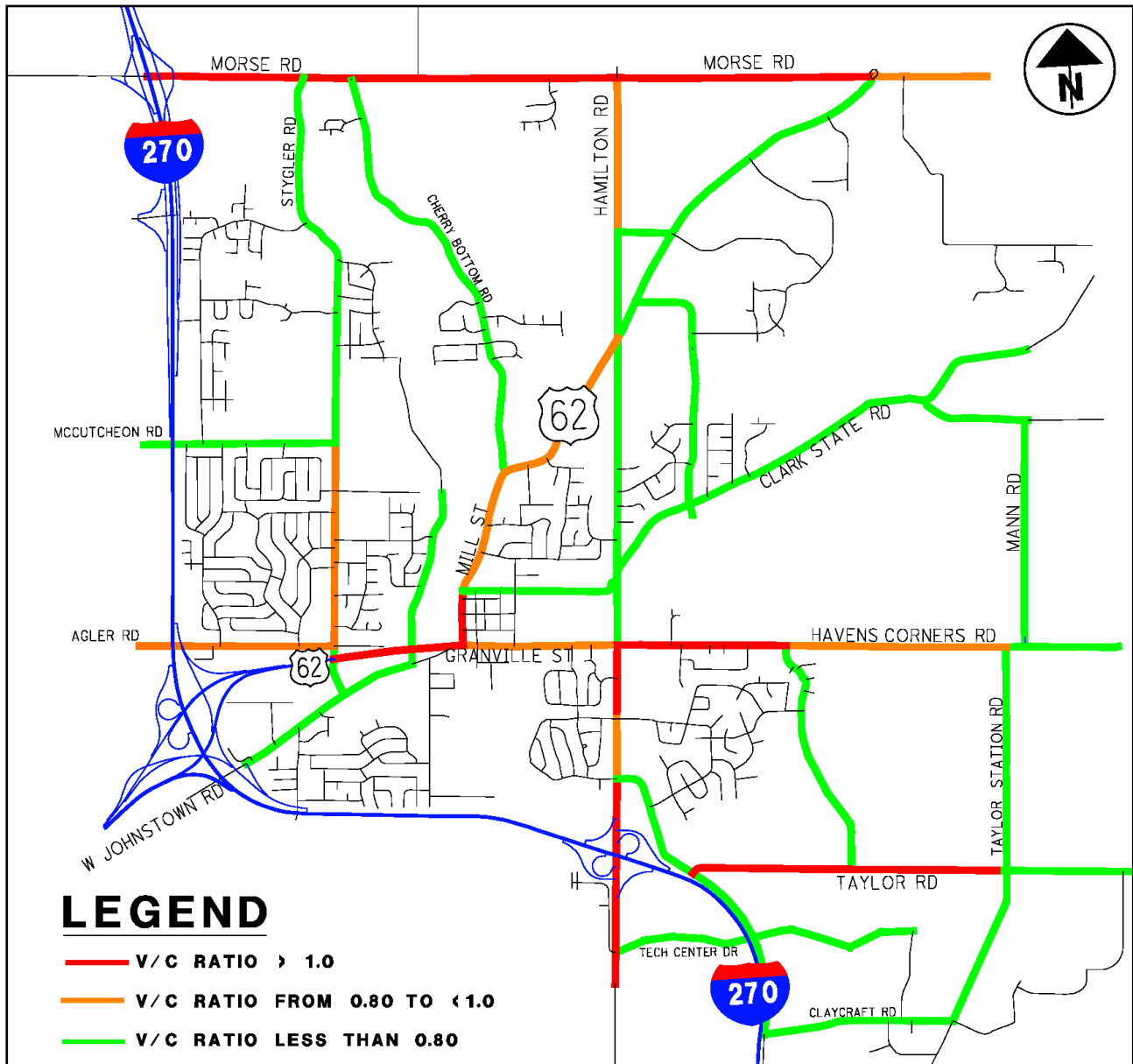
- A V / C ratio of less than 0.80 represents a roadway that operates efficiently. There may be times where roadway links and intersections experience some congestion.
- A V / C ratio of 0.80 to 1.00 represents roadways that experience increased congestion at several times throughout the day. High levels of roadway and intersection congestion are likely present during the AM and PM peak hours.
- A V / C ratio over 1.00 represents roadways that likely experience failing levels of service for segments and intersections during the peak hour and at other times of the day.

Figure 6 presents a summary of the 2017 existing area roadway network capacity.

Using the criteria above, key roadway segments determined to be over capacity under 2017 existing conditions and volumes include the following:

- Mill Street from Granville Street to Carpenter Road
- South Hamilton Road from Sawyer Road to Morrison Road
- South Hamilton Road from Rocky Fork Drive North to Granville Street
- Taylor Road from Morrison Road to Taylor Station Road
- Granville Street/US-62 from Stygler Road to Mill Street
- Havens Corners Road from Hamilton Road to Helmbright Road
- Morse Road from IR-270 to Johnstown Road

Figure 6 - Existing Congestion Map



6.0 Design Year Conditions and Analysis

6.1 2006 Transportation Plan Network

The most recent Thoroughfare Plan Update for the City of Gahanna was completed in 2006 and provided an update to the previous plan along with analysis of the current and design year roadway conditions. This Plan is an update to the 2006 Plan.

The 2006 Thoroughfare Plan included the following:

- Crash evaluation report
- Update of the Thoroughfare Plan for the City's roadway network
- Access Management Guidelines
- Traffic Impact Study Guidelines
- Speed Limit Journalization Reports

6.2 Design of Roadway Network

The Design Year roadway network used for the 2040 traffic volumes is based on the MORPC State Fiscal Year (SFY) 2018-2021 Transportation Improvement Program (TIP) and 2016-2040 Metropolitan Transportation Plan (MTP) network.

The significant changes expected to the network that are incorporated into the design year roadway network include:

- Minor widening of West Johnstown Road from a 2-lane section to a 3-lane section from South Stygler Road to Olde Ridenour Road. This improvement is included in the 2018 MTP.
- Minor widening of West Johnstown Road from Goshen Lane to South Stygler Road. This includes the addition of turn lanes and complete street facilities to the existing 2-lane roadway. This improvement is included in the MTP between 2030-2040.
- Minor widening of West Johnstown Road from Olde Ridenour Road to James Road. This includes the addition of turn lanes and complete street facilities to the existing 2-lane roadway. This improvement is included in the 2018 MTP.
- Minor widening of South Stygler Road from Johnstown Road to US-62. This includes the addition of turn lanes and complete street facilities to the existing 2-lane roadway. This improvement was included in the 2016 MTP.
- Intersection modifications of Stygler Road/Agler Road and Stygler Road/US-62 are included in the MTP between 2030-2040. This improvement includes the addition/modification of turn lanes and addition of complete street facilities. This is also known as the West Side Intersection Improvement project.
- Minor widening of Havens Corners Road from Hamilton Road to Taylor Station Road. This includes the addition of turn lanes and complete street facilities to the existing 2-lane roadway. This improvement is included in the MTP between 2030-2040.
- An extension of Tech Center Drive from Science Boulevard to Taylor Station Road is included in the MTP between 2020-2030. The proposed roadway will be one lane in each direction with complete street facilities.

6.3 Growth Rates

The growth rates for the study area were prepared and provided by MORPC. Expected population and employment in Gahanna were confirmed by the City for 2040 and MORPC updated their 2040 forecasts accordingly. Traffic count data was collected from the following sources:

- Most turning movement counts were conducted as part of this project
- MORPC conducted some ADT counts as part of their areawide count updates
- All other count data was supplemented by historical counts on ODOT TIMS and MORPC Transportation Data Management System

These traffic volumes were compiled and projected to Existing Year 2017 (if needed) and Design Year 2040. Growth rates, count data, Existing Year 2017, and Design Year 2040 for intersections and roadway segments in the study area are provided in **Appendix B**.

6.4 Design Year Traffic Volumes

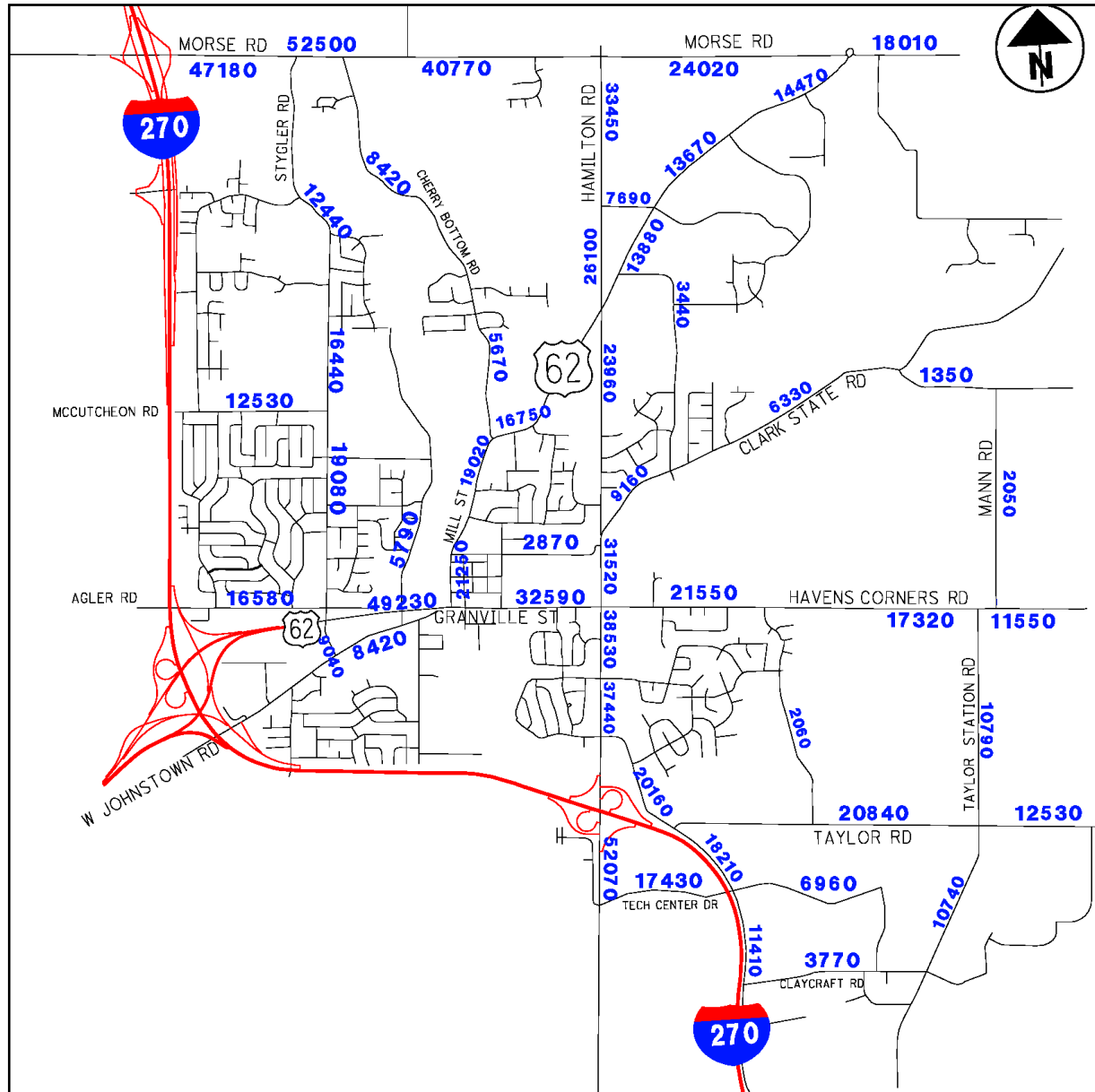
The 2040 Design Year traffic volumes were developed based on 2017 ADT volumes and growth rates provided by MORPC. Design Year ADT's are shown in **Figure 7**. These volumes were used to develop ADT volumes per lane which were the basis for determining the lane requirements for the thoroughfare plan network. This volume per lane generally indicates the capacity of that roadway which can be used to evaluate the Design Year lane needs using the capacities shown in **Table 9**. These capacities are a planning level estimate of what would be needed to provide LOS E or better operational performance.

Table 9 - Design Year 2040 Surface Street Capacities

Roadway	Description	Capacity (ADT)
2-lane	One lane in each direction, may include turn lanes.	16,000
4-lane	Two lanes in each direction, may include turn lanes.	32,000
6-lane	Three lanes in each direction, may include turn lanes.	48,000+



Figure 7 - Design Year 2040 Average Daily Traffic Volumes



6.5 Design Year 2040 Capacity Analysis at Intersections

The intersection AM and PM peak hour volumes were projected for Design Year 2040. Key intersections in the study area were analyzed using Synchro version 10 with Highway Capacity Manual (HCM) 2010 algorithms. The analysis was conducted utilizing existing timings (cycle lengths and splits). Results of this analysis are shown in **Figure 8**.

For suburban intersections in general, a minimum overall intersection LOS of D and movement LOS of E is considered acceptable. For stop-controlled intersections, a delay for the stop controlled approach less than 100 seconds is considered acceptable.

Analysis results show that several intersections in the study area have unacceptable LOS. Detailed results can be seen in **Appendix C**.

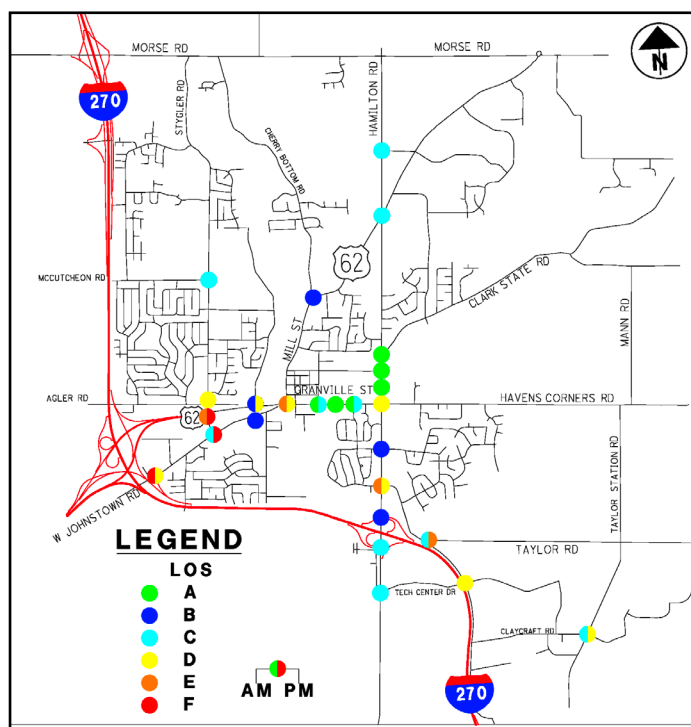
The high volumes of through traffic on Hamilton Road and portions of Granville Street contribute to the oversaturation of the intersections. Even with coordinated signal systems, high through volumes make it difficult to share green time effectively between the movements at an intersection. All closely spaced signals in the Hamilton Road and Granville Street corridors should be coordinated if possible. The coordinated system should be maintained and progression verified on a regular basis.

It should be noted that these results are based on planning level numbers as an estimate of the conditions that may be anticipated during the design year. The results cannot be substituted for actual traffic counts in the future or more detailed intersection projections that may be completed as part of a future design project. These would be needed to more accurately estimate the projected conditions as development and traffic change in the area over time.

The potential to widen any intersection is limited by the right-of-way available. In most cases within the City, it is difficult to add turn lanes without additional right-of-way. In general, this analysis can be utilized to determine which intersections may need further investigation for possible future improvements.

There are also potential impacts based on the traffic signal location, pole sizing, and pedestrian accommodations. The placement of accessible ramps, sidewalks, crosswalks, and pedestals also have a significant impact on intersection design. Additionally, widening can lead to increased speeds and/or crashes and needs to be evaluated on a case by case basis.

Figure 8 - Design Year 2040 AM and PM Peak Hour LOS Map



6.6 Design Year 2040 Year Capacity Analysis of the Roadway System

The Design Year roadway system was evaluated based on the number of through lanes on the roadways included in the regional transportation plan. The design year roadway system was evaluated using the same methodology used for the existing conditions evaluation. This created a V/C ratio for the roadway links based on the ADT volumes and the Design Year number of lanes. This evaluation uses a planning-level analysis to determine a general level of capacity for through roadways. The evaluation is based on the daily V/C ratio for the roadway based on through lane capacity.

- A V/C ratio of less than 0.80 represents a roadway that operates efficiently. There may be times where roadway links and intersections experience some congestion.
- A V/C ratio of 0.80 to 1.00 represents roadways that experience increased congestion at several times throughout the day. High levels of roadway and intersection congestion are likely present during the AM and PM peak hours.
- A V/C ratio over 1.00 represents roadways that likely experience failing levels of service for segments and intersections during the peak hour and at other times of the day.

The results of the Design Year 2040 roadway segment evaluation are shown in **Figure 9**. As with the existing conditions, this is a planning-level of evaluation of the roadway system. There are several roadway segments that are over capacity.

Figure 9 - Design Year 2040 Congestion Map

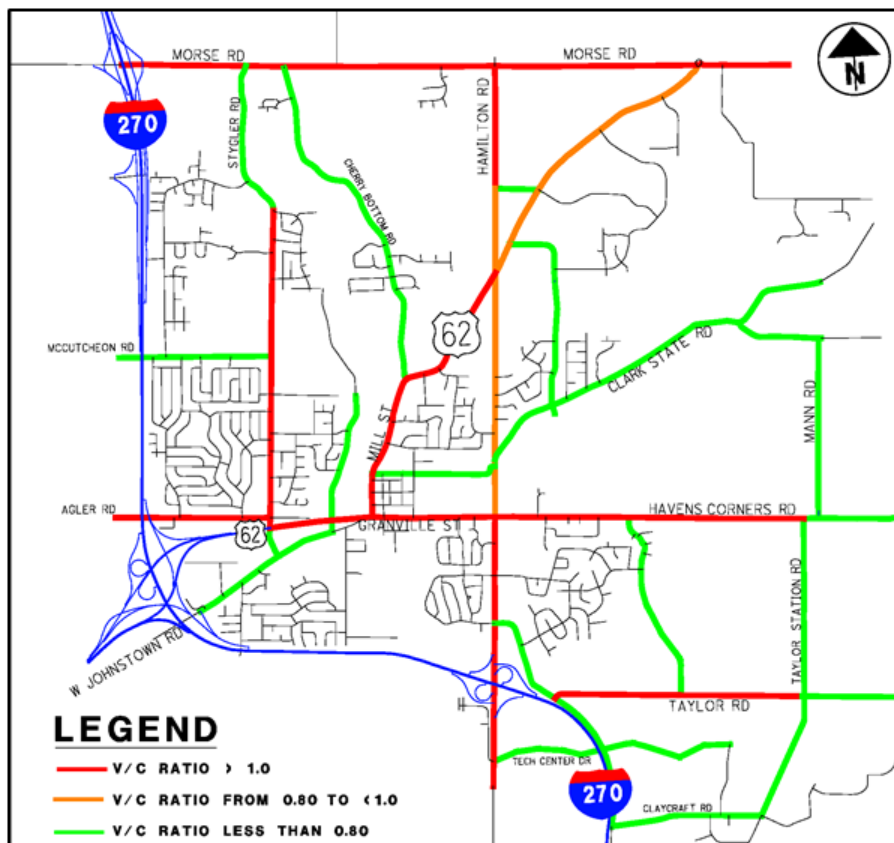


Table 10 - Road Segments with V/C Ratio Greater than 1.0 in Design Year 2040

Roadway Segment	From	To	Existing Lanes	V/C Ratio	Proposed Lanes	Proposed V/C Ratio
Stygler Rd	Granville St	Agler Rd	2/2T	1.04	2/2T	1.04
	Agler Rd	McCutcheon Rd	1/1T	1.19	2/2D	.60
	McCutcheon Rd	Ridenour Rd	1/1T	1.03	1/1T	1.03
Mill St	Granville St	Carpenter Rd	1/1T	1.33	1/1T	1.33
	Carpenter Rd	Johnstown Rd	1/1	1.19	1/1T	1.19
E. Johnstown Rd	Mill St	Hamilton Rd	1/1	1.05	1/1T	1.05
Hamilton Rd	Sawyer Rd	Morrison Rd	2/2D	1.63	3/3D	1.08
	Morrison Rd	Rocky Fork Dr N	2/2T	1.17	3/3D	0.78
	Rocky Fork Dr N	Granville St	2/2T	1.20	3/3D	.80
	Beecher Rd	Morse Rd	2/2D	1.05	3/3D	.70
Taylor Rd	Morrison Rd	Taylor Station Rd	1/1T	1.30	2/2T	0.65
Granville St/ US-62	Stygler Rd	Olde Ridenour Rd	2/2D	1.25	3/3D	0.83
	Olde Ridenour Rd	Mill St	2/2T	1.54	3/3D	1.03
	Mill St	Hamilton Rd	2/2T	1.02	3/3D	0.68
Havens Corners Rd	Hamilton Rd	Helmbright Rd	1/1	1.35	2/2T	0.67
	Helmbright Rd	Taylor Station Rd	1/1	1.08	1/1T	1.08
Agler Rd	Stelzer Rd	Stygler Rd	1/1T	1.04	1/1T	1.04
Morse Rd	IR-270	Stygler Rd	2/2T	1.47	3/3D	0.98
	Stygler Rd	Cherry Bottom Rd	2/2T	1.64	3/3D	1.09
	Cherry Bottom Rd	Hamilton Rd	2/2T	1.27	3/3D	0.85
	Hamilton Rd	Underwood Farms Dr	1/1	1.50	2/2D	0.75
	Underwood Farms Dr	Johnstown Rd	1/1T	1.66	2/2D	0.83
	Johnstown Rd	Harlem Rd	1/1	1.13	2/2D	0.56

Table 10 shows the roadway segments with the Design Year 2040 ADT volumes resulting in a V/C ratio of over 1.0.

It is recommended that these roadways be studied for:

- conversion to 2/2D or 3/3D (median divided) roadways
- application of a higher level of access management

Note that even with a 3/3D lane configuration, some of the roadway segments are still projected to be over capacity in the 2040 Design Year, as shown in **Table 10** above.

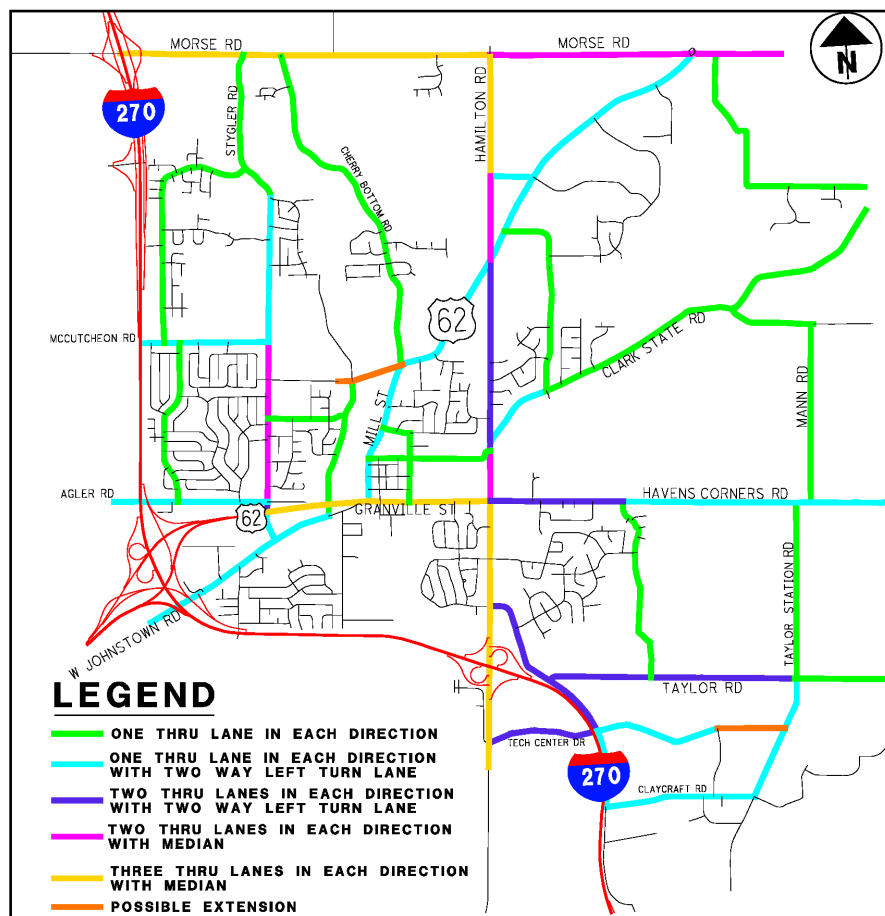
The roadway segment of Stygler Road from US-62 to Agler Road is a unique situation because of the two closely spaced intersections. Capacity on this segment is being addressed by the Gahanna West Side Intersection Improvement project.

The number of lanes proposed for the roadway system is shown in **Figure 10**. The following describes the general configuration of the proposed roadways.

- 1/1 – streets with one through lane in each direction. These may include turn lanes at select locations.
- 1/1T – streets with one through lane in each direction and a center two-way left turn lane. Left and/or right turn lanes may also exist at intersections.
- 2/2T – streets with two through lanes in each direction and a center two-way left turn lane. Left and/or right turn lanes may exist at intersections and major drives.
- 2/2D – streets with two through lanes in each direction and a median. Left and right turn lanes exist at intersections and turn lanes may also be included at major drives. This provides a higher level of access management.
- 3/3D – streets with three through lanes in each direction and a median. Left and right turn lanes are located at intersections. Turn lanes may also be included at major drives. This provides a higher level of access management.

The proposed street network and intersection lane configurations for key corridors in the City are included in **Appendix D**. This includes general, planning-level recommendations of the addition of turn lanes and reconfiguration of intersections where needed for capacity reasons. As stated before, further investigation and detailed analysis of each intersection is necessary to make more detailed, design-level recommendations.

Figure 10 - Design Year 2040 Roadway System Proposed Number of Lanes



On the streets designated as major or minor arterials, it is recommended that right turn lanes be planned for as part of any new development occurs on any quadrant of an intersection. This would require the evaluation and potential dedication of additional right-of-way. Another consideration would be for the design of pedestrian facilities to include sidewalks and accessible ramps. The intersection project itself would determine the needs for right turn lanes and pedestrian facilities based on ODOT criteria.

6.7 Planning-Level Consideration of an East-West Crossing of Big Walnut Creek Between US-62 and Morse Road

With right-of-way limitations, business and political realities, and construction costs, it may not be practical to modify all roadways that are over capacity to carry the future traffic estimated in this plan. One way to mitigate this issue is to provide new roadways to divert traffic away from over capacity roadways. A new roadway crossing of Big Walnut Creek north of US-62 and south of Morse Road is an option that has been considered and discussed in the City for decades.

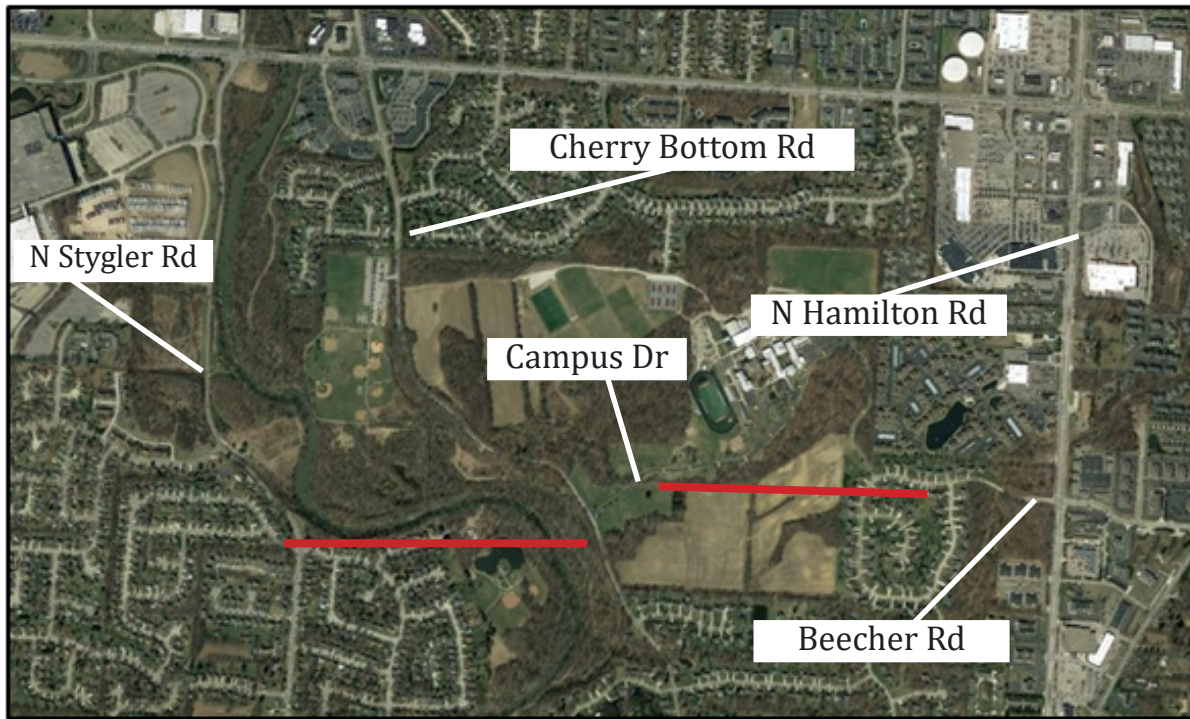
Big Walnut Creek is a major divider of the City, with only two roadway crossings: US-62/Granville Street and Morse Road. Two possible Big Walnut Creek crossings were considered after discussions with the City:

1. McCutcheon Road Connector to Johnstown Road (see **Figure 11**)
2. Beecher Road Connector to Stygler Road (see **Figure 12**)

Figure 11 - McCutcheon Road Connector to Johnstown Road



Figure 12 - Beecher Road Connector to Stygler Road



With the assistance of MORPC, a planning-level analysis of the two alternatives was conducted. MORPC modeled the two alternatives and provided 2040 volume differences for the roadway network with and without the new connector. The complete results of the analysis in which the volume difference between alternatives can be seen is provided in **Appendix E**.

The planning-level analysis results show that the Beecher Road Connector would carry more traffic (17,200 ADT) than the McCutcheon Road Connector (7,700 ADT) and would need to be a more significant roadway.

The Beecher Road Connector would decrease traffic on Morse Road and US-62/Granville Street which are over capacity in the 2040 Design Year and in the existing condition on most segments. However, the Beecher Road Connector would increase traffic on Stygler Road and Hamilton Road, which have some segments over capacity in the 2040 Design Year. Most of the benefits of this connection would occur on Mill Street and Cherry Bottom Road. Cherry Bottom Road is not over capacity in the existing condition and is not anticipated to be over capacity in the 2040 Design Year.

The McCutcheon Road Connector would decrease traffic on Morse Road and US-62/Granville Street as well. Traffic would increase primarily on East Johnstown Road, which is expected to be over capacity in the 2040 Design Year on most segments.

Based on this analysis, if a new connector is pursued by the City, it is recommended that the McCutcheon Road Connector alternative be given more detailed consideration over the Beecher Road Connector alternative. Additional analysis is recommended if the City decides to move forward with either of the listed alternatives. This planning-level analysis shows that a McCutcheon Road Connector over Big Walnut Creek may provide traffic volume reductions where desired while creating volume increases on roadways that can accommodate those increases.

7.0 Gahanna Thoroughfare Plan

7.1 Functional Classification of Roadways

Highway and street systems form an interconnected roadway network across jurisdictional boundaries to serve the transportation needs of a region. Roadway systems need to provide traffic mobility or land access, with many systems providing a combination of both. Roadways within the City of Gahanna and the adjacent municipalities are urban in character. The roadway system in Jefferson Township has maintained a rural character. The most significant difference between urban and rural is the density of land use and resulting volume of traffic. The following definitions are presented for each classification of roadway in the Gahanna Thoroughfare Plan network. The standard industry definitions have been referenced using information from ODOT and MORPC:

- **Interstate/Freeways** have full access control and limited points of entry at interchanges. The speed limits on the area interstates (IR-270 and IR-670) are 65 MPH. Gahanna has interchanges at Morse Road, Easton Way, US-62, and Hamilton Road.
- **Major Arterials** typically serve major activity centers with higher traffic volumes and longer trips. These roads serve travel within the Gahanna area and connect to regional roadway networks. Major arterials minimize access to promote a higher level of mobility. These roads also provide a critical connection to minor arterials and collector routes. Major arterials will vary in width according to traffic volume and often have four or more through lanes (with turn lanes).
- **Minor Arterials** typically have more access and provide an interconnection between major arterials and collectors. Trip length will be shorter than major arterials. Minor arterials typically are not wider than four lanes (with turn lanes).
- **Collector Roads** serve both mobility and land access within the Gahanna area network. These roads are an important link between the arterial system and local streets, and provide access to residential and commercial areas. Typically, collectors will have two through lanes (with turn lanes), but this could vary based on traffic volume.
- **Local Roads** will not be defined under this Thoroughfare Plan. These roads are designed to provide direct land access from higher level roadways and should not carry through traffic.

7.2 Proposed Gahanna Thoroughfare Plan

The roadway network for the Thoroughfare Plan Update was developed based on extensive evaluation and analysis of the Gahanna area roadway system. This included evaluation of the following:

- Review and evaluation of the 2006 Thoroughfare Plan Update
- Review and evaluation of the existing roadways and intersections within the City
- Review of the City's zoning plans and major planned developments
- Development of proposed planning year volumes and future roadway system operations
- Review of roadway classifications of adjacent agencies

A summary of the existing roadway classifications was included in **Table 5** and **Table 6**. This table represents the roadway classifications from the 2006 Thoroughfare Plan. **Table 11** presents several roadways proposed for reclassification as part of this Thoroughfare Plan update.

Table 11 - Proposed Roadway Classification Revisions

Roadway Segment	From	To	Existing Classification	Proposed Classification
Olde Ridenour Rd	W Johnstown Rd	Granville St	Local	Major Collector
Olde Ridenour Rd	Granville St	Chappelfield Rd	Local	Major Collector
Morrison Rd	Claycraft Rd	Tech Center Dr	Local	Major Collector
Morrison Rd	Tech Center Dr	Taylor Rd	Major Collector	Minor Arterial
Claycraft Rd	Morrison Rd	Taylor Station Rd	Local	Major Collector
W Johnstown Rd	Stygler Rd	Olde Ridenour Rd	Local	Major Collector
Tech Center Dr	Morrison Rd	Science Rd	Local	Major Collector

Morrison Road is proposed as a Minor Arterial due to the increase in connectivity from the Tech Center Drive extension. The other roadways are proposed to be reclassified as Major Collector instead of local roadways. This is because these roadways provide access to residential and commercial areas in addition to carrying through traffic.

The proposed Gahanna Thoroughfare Plan network is shown in **Figure 13**. A detailed breakdown of the Thoroughfare Plan roadways system is shown in **Table 12** and **13**. The table provides a summary of the functional classification, projected Design Year 2040 ADT, number of lanes, and existing right-of-way widths. This information was evaluated for the Design Year and recommendations are included under the columns for Design Year number of lanes and right-of-way width.

Additional details are included in **Appendix F**. This includes proposed typical sections by roadway classification and number of lanes. The typical sections also show recommendations for placement of multi-use paths and sidewalks.



Figure 13 - Thoroughfare Plan Map

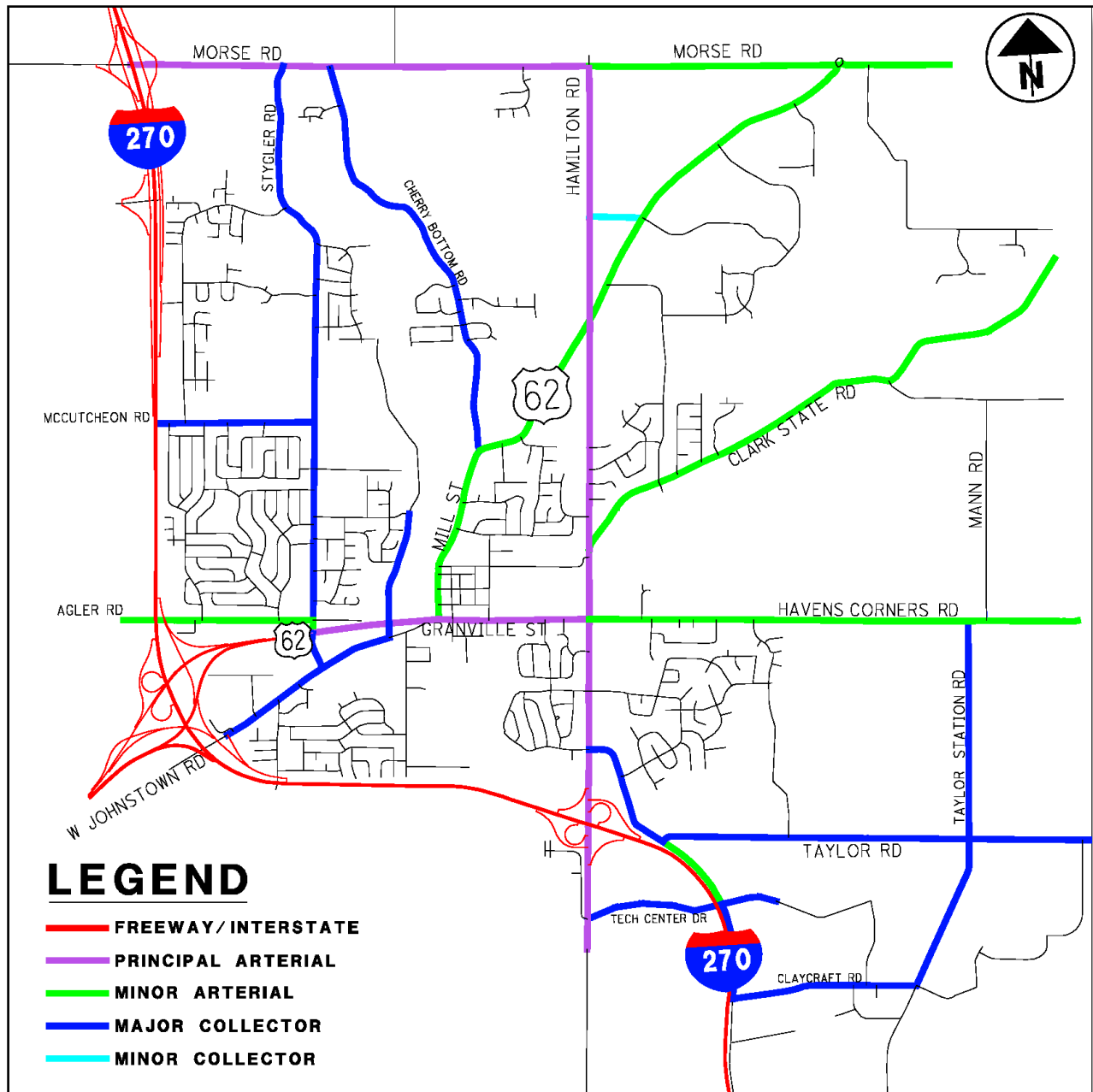


Table 12 - Design Year 2040 Thoroughfare Plan Roadways - North/South Corridors

Road Segment	From	To	Jurisdiction	Existing Lanes	Existing ROW	Proposed Classification	2040 ADT	2040 Proposed Lanes	2040 Propsed ROW
Hines Rd	McCutcheon Rd	Wendler Blvd	Gahanna	1/1	40'-50'	Local	-	1/1	60'
Lincolnshire Rd	Agler Rd	Wendler Blvd	Gahanna	1/1	50'-60'	Local	-	1/1	60'
Olde Ridenour Rd	W Johnstown Rd	Granville St	Gahanna	1/1	60'	Major Collector	10010	1/1	60'
	Granville St	Chappelfield Rd	Gahanna	1/1	60'	Major Collector	5790	1/1	60'
Stygler Rd	Johnstown Rd	Granville St	Gahanna	1/1	50'-80'	Major Collector	9040	1/1T	80'
	Granville St	Agler Rd	Gahanna	2/2T	80'	Minor Arterial	33230	2/2T	100'
	Agler Rd	McCutcheon Rd	Gahanna	1/1T	80'	Major Collector	19080	2/2D	120'
	McCutcheon Rd	Ridenour Rd	Gahanna	1/1T	80'	Major Collector	16440	1/1T	80'
	Ridenour Rd	Morse Rd	Gahanna/Columbus	1/1	80'	Major Collector	12440	1/1	80'
Mill St	Granville St	Carpenter Rd	Gahanna	1/1T	60'	Minor Arterial	21250	1/1T	80'
	Carpenter Rd	Johnstown Rd	Gahanna	1/1	60'	Minor Arterial	19020	1/1T	80'
Cherry Bottom Rd	E Johnstown Rd	Academy Woods Dr	Gahanna	1/1	80'	Major Collector	5670	1/1	80'
	Academy Woods Dr	Morse Rd	Gahanna	1/1	80'	Major Collector	8420	1/1	80'
E. Johnstown Rd	Mill St	Hamilton Rd	Gahanna	1/1	60'	Minor Arterial	16750	1/1T	80'
	Hamilton Rd	Beecher Rd	Gahanna	1/1T	75'-80'	Minor Arterial	13880	1/1T	80'
	Beecher Rd	Riva Ridge Rd	Gahanna	1/1T	75'-80'	Minor Arterial	13670	1/1T	80'
	Riva Ridge Rd	Morse Rd	Gahanna/Franklin Co	1/1	80'	Minor Arterial	14470	1/1T	80'
Hamilton Rd	Sawyer Rd	Morrison Rd	Gahanna/Columbus	2/2D	100'	Principal Arterial	52070	3/3D	130'
	Morrison Rd	Rocky Fork Dr N	Gahanna	2/2T	100'	Principal Arterial	37440	3/3D	130'
	Rocky Fork Dr N	Granville St	Gahanna	2/2T	100'	Principal Arterial	38530	3/3D	130'
	Granville St	Clark State Rd	Gahanna	2/2T	100'	Principal Arterial	31520	2/2D	120'
	Clark State Rd	Johnstown Rd	Gahanna	2/2T	100'	Principal Arterial	23960	2/2T	100'
	Johnstown Rd	Beecher Rd	Gahanna	2/2D	100'	Principal Arterial	26100	2/2D	120'
	Beecher Rd	Morse Rd	Gahanna	2/2D	100'-110'	Principal Arterial	33450	3/3D	130'
Clark State Rd	Hamilton Rd	Clotts Rd	Gahanna/Franklin Co	1/1	80'	Minor Arterial	9160	1/1T	80'
	Clotts Rd	Darling Rd	Gahanna/Franklin Co	1/1	80'	Minor Arterial	6330	1/1	80'
Clotts Rd	Clark State Rd	Johnstown Rd	Gahanna	1/1	40'	Local	3440	1/1	60'
Helmbright Dr	Taylor Rd	Havens Corner Rd	Gahanna	1/1	60'	Local	2060	1/1	60'
Shull Rd	Headly Rd	Morse Rd	Gahanna	1/1	50'	Local	-	1/1	60'
Mann Rd	Havens Corners Rd	Clark State Rd	Franklin Co	1/1	55'-60'	Local	2050	1/1	60'
Morrison Rd	Claycraft Rd	Tech Center Rd	Gahanna	1/1	80'	Major Collector	11410	1/1T	80'
	Tech Center Rd	Taylor Rd	Gahanna	2/2T	80'	Minor Arterial	18210	2/2T	100'
	Taylor Rd	Hamilton Rd	Gahanna	2/2T	80'	Major Collector	20160	2/2T	100'
Taylor Station Rd	Claycraft Rd	Taylor Rd	Gahanna/Franklin Co	1/1	50'-60'	Major Collector	10740	1/1T	80'
	Taylor Rd	Havens Corner Rd	Franklin Co	1/1	50'-80'	Major Collector	10790	1/1	80'

Table 13 - Design Year 2040 Thoroughfare Plan Roadways - East/West Corridors

Roadway Segment	From	To	Jurisdiction	Existing Lanes	Existing ROW	Functional Classification	2040 ADT	2040 Proposed Lanes	2040 Proposed Row
Claycraft Rd	Morrison Rd	Taylor Station Rd	Gahanna	1/1	60'	Major Collector	3770	1/1T	80'
Taylor Rd	Morrison Rd	Taylor Station Rd	Gahanna/Franklin Co	1/1T	50'-80'	Major Collector	20840	2/2T	100'
	Taylor Station Rd	Eastgate Pkwy	Gahanna/Franklin Co	1/1	50'-80'	Major Collector	12530	1/1	80'
W. Johnstown Rd	IR-270	Stygler Road	Gahanna	1/1	60'	Major Collector	10050	1/1T	80'
	Stygler Road	Olde Ridenour Rd	Gahanna	1/1	60'	Local	8420	1/1T	80'
Granville St/US 62	Stygler Rd	Olde Ridenour Rd	Gahanna	2/2D	90'-110'	Principal Arterial	39880	3/3D	130'
	Olde Ridenour Rd	Mill Street	Gahanna	2/2T	90'-110'	Principal Arterial	49230	3/3D	130'
	Mill Street	Hamilton Rd	Gahanna	2/2T	90'-110'	Principal Arterial	32590	3/3D	130'
Havens Corners Rd	Hamilton Rd	Helmbright Rd	Gahanna	1/1	60'-80'	Minor Arterial	21550	2/2T	100'
	Helmbright Rd	Taylor Station Rd	Gahanna/Franklin Co	1/1	60'-80'	Minor Arterial	17320	1/1T	80'
	Taylor Station Rd	Reynoldsburg-NA Rd	Franklin Co	1/1	60'-80'	Minor Arterial	11550	1/1T	80'
Havens Rd	Clark State Rd	Mann Rd	Franklin Co	1/1	60'	Local	1350	1/1	60'
Agler Rd	Stelzer Rd	Stygler Rd	Gahanna/Columbus	1/1T	50'-80'	Minor Arterial	16580	1/1T	80'
Carpenter Rd	Mill Street	Hamilton Rd	Gahanna	1/1	50'	Local	2870	1/1	60'
Chappelfield Rd	Stygler Rd	Olde Ridenour Rd	Gahanna	1/1	50'	Local	-	1/1	60'
McCutcheon Rd	Stelzer Rd	Stygler Rd	Gahanna/Columbus	1/1T	60'	Major Collector	12530	1/1T	80'
Headly Rd	Shull Rd	Clark State Rd	Gahanna/Franklin Co	1/1	60'	Local	-	1/1	60'
Beecher Rd	Hamilton Rd	Johnstown Rd	Gahanna	1/1T	60'	Minor Collector	7690	1/1T	80'
Morse Rd	IR-270	Stygler Rd	Columbus	2/2T	120'	Principal Arterial	47180	3/3D	130'
	Stygler Rd	Cherry Bottom Rd	Columbus	2/2T	120'	Principal Arterial	52500	3/3D	130'
	Cherry Bottom Rd	Hamilton Rd	Columbus	2/2T	110'-120'	Principal Arterial	40770	3/3D	130'
	Hamilton Rd	Underwood Farms Dr	Columbus/Gahanna	1/1	80'-110'	Minor Arterial	24020	2/2D	120'
	Underwood Farms Dr	Johnstown Rd	Columbus/Gahanna	1/1T	60'-80'	Minor Arterial	26500	2/2D	120'
	Johnstown Rd	Harlem Rd	Columbus/Gahanna	1/1	60'-80'	Minor Arterial	18010	2/2D	120'
Tech Center Dr	S Hamilton Rd	Morrison Rd	Gahanna	2/2T	120'	Major Collector	17430	2/2T	120'
	Morrison Rd	Science Rd	Gahanna	1/1T	60'	Major Collector	6960	1/1T	80'

7.3 Staging of Improvements

The cost and impact of infrastructure improvements can range from simple maintenance to complex roadway/bridge construction. The City of Gahanna has a Capital Improvement Plan to identify infrastructure needs in the near-term (five to ten years) and assist in developing funding sources. MORPC has both a near-term Transportation Improvement Program (TIP) and a long-range plan to identify regional needs (compiled by community).

The most significant improvement in the City that is currently under study is the West Side Intersection Improvement project. Other improvements include the planned extension of Tech Center Drive to Taylor Station Road and roadway improvements on West Johnstown Road and Havens Corners Road. A crossing of Big Walnut Creek near McCutcheon Road is also an ongoing consideration. Some of the recommended items to consider in staging improvements include:

- Maintain a division of funds between maintenance and roadway improvements. Consider a category for minor intersections improvements, such as signalization modifications or addition of turn lanes.
- Prioritize planned improvements based on capacity, safety, and economic development needs.
- Set up a matrix for phasing improvements over a number of years by category. This can be set up in five-year windows.
- Identify a list of potential funding sources by project category. Specialized funding such as ODOT HSIP funding can be pursued to assist in areas with safety problems.

8.0 Policies and Standards Updates

8.1 Thoroughfare Plan Updates and Revisions

This Thoroughfare Plan Update evaluated a variety of elements such as: the existing roadway network, land use planning, Design Year traffic volumes, and the Design Year roadway network. The plan identifies future requirements for right-of-way and preserving corridors prior to development.

The goal of this Thoroughfare Plan Update is to provide a living document to assist the City with future roadway planning and land development. As the City continues to grow, it is increasingly important to evaluate current and future needs. At this point in time, it is recommended that the City of Gahanna continue to have the Thoroughfare Plan formally evaluated every ten years and receive a general review every five years.

Items to be reviewed should include the following:

- Identify any zoning changes or proposed developments that may significantly impact the roadway network.
- Review and evaluate the MORPC long range plan and TIP for potential impacts to the City of Gahanna. This may include impacts from planned infrastructure improvements in surrounding communities.
- Evaluate the roadway classification, right-of-way, and number of lanes (based on development changes or changes in the MORPC Plan). This could include changes in travel or technology that may impact the roadway system (could include necessary increases or decreases in major roadway system capacity).
- Review Access Management policy.
- Review Traffic Impact Study policy.
- Review speed limits.
- Review thoroughfare plans of adjacent agencies.

8.2 Access Management

Access management is an effective way of dealing with traffic congestion and safety caused by vehicles turning at driveways and intersections. The goal of the access management evaluation in the City of Gahanna was to provide guidelines to assist the City in developing standard applications for placement of drives and intersections that can be applied to the roadway system. The overall goal is to balance access and mobility based on the classification of roadway.

8.3 Traffic Impact Studies

Traffic impact studies (TIS) provide the following guidance to a city when evaluating proposed development plans:

- Evaluating the traffic generated by a new development and the ability to accommodate new traffic within the existing transportation system.
- Evaluate proposed site access and driveway location for safety.
- Identifying any improvements beyond current planned projects that would need to be constructed to accommodate the new development.
- Provide guidance to City officials on a fair way to evaluate traffic impacts and determine funding participation by the developer.

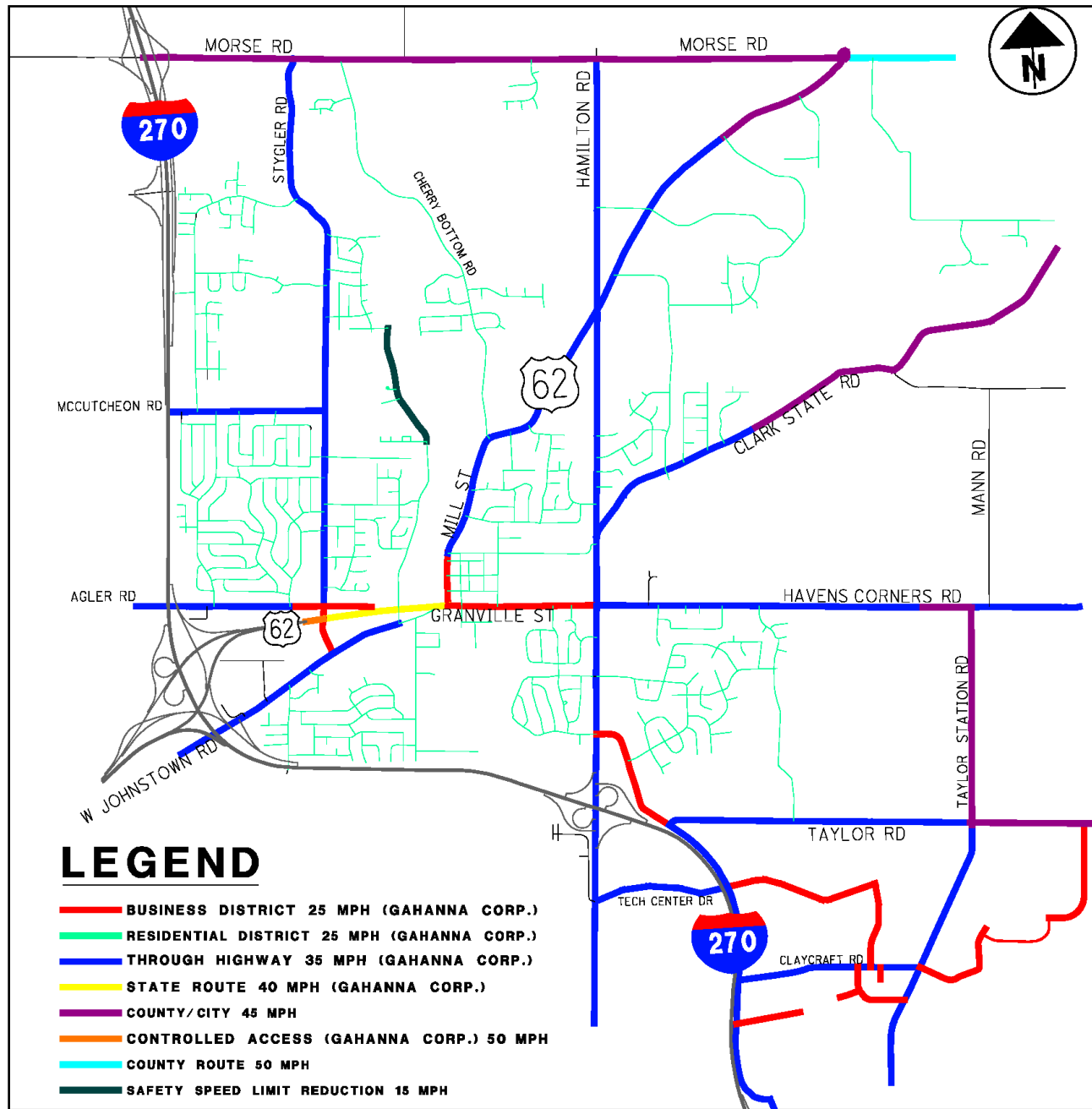
The goal of the TIS is to provide an objective evaluation of the proposed development on the adjacent roadway/intersection. The TIS Guidelines, based on recommended industry practice, provide a methodology for preparing and evaluating TIS. The TIS Guidelines includes a sample table of contents, checklist, and evaluation form for a TIS. It is recommended the City review the checklist and evaluation form on a five-year basis, concurrent with the Thoroughfare Plan review.

8.4 Speed Limit Evaluation

Most of the roadway system located within the City limits is under municipal control for determining speed limits. The City followed the Ohio Revised Code when determining the speed limits within the City street system. There are situations where the speed limits may be changed due to safety concerns. These are primarily due to potential geometric restrictions on the roadway system.

The City of Gahanna has well defined speed limits tracked in the GIS system that are appropriate and reasonable for the area roadway conditions. **Figure 14** provides the speed limits for the City of Gahanna. The speed limit map is developed for City Council approval of speed limits within the City. It is recommended the City review the speed limit map on a five-year basis, concurrent with the Thoroughfare Plan review.

Figure 14 - City of Gahanna Speed Limit Map



9.0 Summary and Conclusions

The City of Gahanna Thoroughfare Plan was designed to provide a comprehensive evaluation of the City's transportation network for current and long-term (Design Year) conditions. This evaluation confirms that traffic growth is projected to continue to a point where it is not practical to "build out" of congestion. The cost and community impacts of any future improvement projects will need to be an integral part of the City's transportation plan. The City of Gahanna will benefit from methods to maximize the operation of the current and planned roadway system. An effective way to balance these needs is to apply a toolkit of congestion management techniques, such as:

- Roadway demand management
- Roadway operational management
- Roadway capacity improvements

Roadway demand management techniques involve several potential applications that work to actively manage the demand for roadway travel. Recommended techniques for the City of Gahanna to consider include:

- Implementing the TIS Guidelines to manage developments as they interface with the street system.
- Adopting smart growth policies as part of the comprehensive plan.
- Promoting pedestrian and bicycle connectivity when possible, especially for roadway reconstruction or widening projects.
- Developing transit stops and shelters to improve accessibility and promote ridership.
- Encouraging area employers to offer alternative/flextime scheduling.

Roadway operational management focuses on maximizing the efficiency of the existing roadway network and planned network, such as the 2040 Design Year roadway system. These techniques can be applied on a citywide corridor, roadway section, or intersection. Recommended techniques for the City of Gahanna to consider include:

- Implementing the Access Management Guidelines for the City to manage corridors and promote safe and efficient access to the roadway system.
- Planning signal timing and optimization projects to improve safety and reduce operational delay.
- Designing intersection improvements at select locations for capacity and safety improvements. This could include turn lanes, pedestrian improvements, and other isolated roadway improvements.
- Designing geometric improvements with rehabilitation projects for a safer and more efficient roadway.
- Coordinating incident management policies with the Gahanna Police Department to handle crashes on the roadway system.

Roadway capacity improvements are the traditional widening, reconstruction, and new roadway projects needed to accommodate the growth and economic development needs of the City. These projects are identified as part of the Design Year 2040 network and include the following categories:

- Additional lanes and/or roadway widening
- Installation of two-way left turn lanes
- Median installation

In addition to the congestion management techniques detailed, the study produced the several recommendations that are identified by category.

Thoroughfare Plan recommendations:

- Implement proposed right-of-way widths as part of roadway modification, reconstruction projects, and as developments occur.
- While right-of-way needs are based on planned lane needs, the intersection layouts must be considered in actual design. Intersections often have additional turn lanes, ADA compliant ramps, pedestrian/bicycle facilities, traffic signal equipment, and utilities that may require additional right-of-way.

Roadway capacity and operations recommendations:

- Prepare a strategy for increased congestion on the arterial roadway by implementing transportation management techniques along with planned capacity improvements.
- The City should plan to design medians on Granville Street and Hamilton Road. This will assist with access management and improve corridor safety. The City should also work on this concept for Morse Road in coordination with the City of Columbus and Village of New Albany.

City policy and standards recommendations:

- The City Council should adopt and legislate the updated Thoroughfare Plan and associated documents.
- As part of the Thoroughfare Plan, the City should incorporate the Bike Plan as an addendum to the Thoroughfare Plan.
- The City should adopt the Access Management and TIS Guidelines to assist the engineering department in maintaining roadway operations and safety while still providing for growth and development.
- The City should adopt the Speed Limit Map as legislation. This will provide the delineation of all speed limits within the Gahanna Corporation limits. The plan also would need to be approved by ODOT.

The City of Gahanna will need to continue to develop partnerships with Franklin County, Columbus, New Albany, and Mifflin and Jefferson Townships. This will assist in developing safe and efficient roadways shared between jurisdictions.

The Gahanna Thoroughfare Plan presents a feasible plan for the long-term development of the City's roadway system. The improvements are proposed at a planning level of development. Additional engineering studies and analysis would need to be completed for the specific corridor or roadway when improvements are being considered. The improvements proposed in the Thoroughfare Plan Report will have a positive impact on traffic operation in the City and will enhance the quality of life for the City's residents.

