



STREET MASTER PLAN

January 2011

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FUNCTIONAL ROADWAY CLASSIFICATION

Roadway classifications define a hierarchy of roadway networks which function at various levels of performance based on their ability to handle traffic. Classification systems are necessary to allow engineers, planners, administrators and other public agencies to develop plans and strategies for maintaining adequate roadway facilities for present and future use by the traveling public.

There are five types of roadways defined in the City's street master plan hierarchy. They are in order of their relative rank as to their traffic-carrying characteristics: Interstates and Freeways, Major Arterials, Minor Arterials, Collectors, and Local Streets. The City's Street Master Plan Map is shown in Appendix A.

TYPICAL SECTIONS

Typical sections depict what a given roadway classification facility would look like in terms of cross-section view. Higher classified roads such as arterials have multiple lanes and wider right-of-way widths accordingly. Local streets on the other hand are typically two lanes with curbs and gutters. Today, the right-of-way has to accommodate an increasing demand for more facilities in addition to the roadway, including public and private utilities (above and below ground), sidewalks, bicycle facilities, and streetscape. The typical sections for arterial and collector roadway classifications are shown in Appendix B.

ACCESS MANAGEMENT

Access management is an integral part of the City's Street Master Plan. Access management regulations were adopted by Middletown City Council on March 20, 2007 (Ordinance 02007-24).

FUNDING SOURCES

Funding sources are a critical component to the successful completion of this Plan's roadway projects. The different sources listed have their own set of guidelines and when and where each is applicable. The type of funding used will determine the time, local funding match, and dollars needed to accomplish any project.

These funds can be directed for use in one of two categories: 1) operational improvements, or 2) expansion improvements. Operational improvements are those made to the existing system in order to make it function more safely and efficiently without adding lane capacity or additional lane miles. Expansion improvements will add lane capacity in the form of additional lanes or a totally new roadway.

Several factors play an important role in determining the most appropriate funding sources for a project, such as the location and jurisdiction, the specific type of project, the anticipated cost, and the timeframe in which funds are needed.

FEDERAL FUNDS

LBR Local Bridge Replacement

This fund is used to replace or rehabilitate existing bridges on both local and federal routes. The projects are generally in the million dollar range but can be as much as several million dollars. The projects usually take two to five years to develop. Minimum local match = 20%. These are generally considered for operational improvements.

STP Federal Surface Transportation Program

This is a federal fund administered through OKI on a competitive project basis. Projects are usually several hundred thousand to several million dollars depending on yearly allocations. The project must be on a roadway functionally classified as at least a collector and can take approximately three to five years for development. Minimum local match = 20%. These are generally considered for operation-type improvements.

HSP Highway Safety Program

This is a federal revenue source administered through ODOT for the purpose of making safety improvements to existing highways. These funds are used for locations having high accident rates and for locations with capacity problems. Projects must meet ODOT scoring criteria and usually have a development time of six months to a year for short term projects and two to five years for more complex projects. Minimum local match = 20%. These are primarily utilized for operational improvements for short-term projects and expansion improvements on more complex, long-term projects.

TEP Transportation Enhancement Program

These federal funds are administered through ODOT for enhancements to the transportation system. Projects also require OKI Transportation endorsement.

SEF State Enhancement Funds

Eligible projects include historic site enhancements and environmental enhancements. Minimum local match = 20% which can include both planning and capital improvements. Projects include bicycle and pedestrian improvements.

CMAQ Congestion Mitigation and Air Quality

These funds are administered through OKI and are intended to provide funds for projects that relieve congestion and improve air quality. Projects include both capital and operational-type improvements. Minimum local match = 20%.

TRAC Transportation Review Advisory Council

The State of Ohio has established this council to review and select major improvement projects that have a greater impact on the highway system and generate or satisfy economic developments. These projects are typically on roadways with higher functional classifications, such as Interstate Highways and Major Arterials. Projects range in costs of \$6,000,000 or more. Projects that are eligible must go through a tiered process before final funding is approved. Tier

3 is a group of projects that do not meet the scoring requirements to move into Tier 2. They are put into a holding pattern until such time that events or circumstances might change and improve their score. Tier 2 projects are those that are approved to move forward with preliminary engineering, environmental studies, and other project development needs. Tier 1 projects are those that are approved for funding within a six-year window.

STATE FUNDS

CDBG Community Development Block Grant

The CDBG Program is utilized in a limited way for transportation improvements. The purpose is to benefit low to moderate income areas with housing and infrastructure and economic job development projects. Project costs are usually \$100,000 or less with a very short development time of six months to one year. For operational improvements only.

SED State Economic Development

This is a special economic development fund that is awarded as a competitive grant to special projects through the Governor's office. The availability of these funds is very limited. They are used to generate improvements for industrial development and are primarily utilized for expansion improvement projects.

SCIP State Capital Improvements Program

The State Bond Fund is administered through the Ohio Public Works Commission and the District 10 Integrating Committee. They are competitive funds which can be used for all types of infrastructure improvements. Agencies receive grants from the District with budgeted allocations distributed to the counties, cities, villages, and townships on a competitive basis. Project development timeframe is two years or less. Minimum local match = 20%. These are utilized for operational or expansion improvement projects.

LTIP Local Transportation Improvement Project

This revenue is generated from the increased gasoline tax and is administered by the Ohio Public Works Commission. These funds are divided among the townships and cities on a competitive project basis. Project development timeframe is two years or less. Minimum local match = 20%. These are primarily utilized for expansion improvement projects.

PUCO Public Utilities Commission of Ohio

This is a revenue source set up for the purpose of making safety improvements at railroad crossings, generally limited to lights and gates. With special assistance from ODOT Rail, safety upgrades of roadway projects at railway crossing can be funded. Funds are generally used for operational improvement projects. Minimum local match = 10%.

PROPOSED PROJECTS

Proposed projects for arterial and collector roadways are created to provide guidance and direction to engineers, planners, government officials, and developers. The conditions

considered in planning for the projects are safety, population growth, traffic counts, economic development, and current and projected levels of service. Potential funding sources are also factored into developing short-term, mid-term, and long-term projects. Timing is an essential element in the project selection process, especially with regards to major projects.

The proposed projects are divided into four categories based on need and the anticipated time it may take to proceed through the project development process. Categories of 0-5 years, 5-10 years, 10-20 years, and 20+ years are used to estimate when a given project might occur relative to its project development time, the amount of time that the respective local agencies can budget for local share, and when outside funding sources would be available. The list of proposed projects is shown in Appendix C.

LOCAL STREETS

Local streets are not eligible for the majority of outside funding sources. As a result, local streets fall into a separate category whereby programming and funding are provided at the local level.

PAVEMENT MANAGEMENT PROGRAM

The City's Pavement Management Program was established to routinely monitor, measure and evaluate the pavement condition of all streets every 3 – 5 years. The resulting pavement condition index (PCI) is factored into the street selection process to implement a long-term, cost-effective management program that seeks to provide an overall average PCI rating of 70 for all streets in the City.

STREET SELECTION PROCESS

The selection process for annual street resurfacing is primarily based on the pavement condition established by field inspections of every street in the City. The PCI methodology rates streets on a scale from 0 to 100 by visually documenting the amount and size of surface cracking, base failure, etc. Streets rated above 70 are considered acceptable and the streets rated lower are considered in need of some form of repair or replacement.

The field inspections are conducted according to national Public Works standards and give the City an objective set of criteria to manage an effective and efficient street repair and replacement program to improve the streets in the community. The street selection process, established as a component of the Pavement Management Program, places the streets into three tiers:

1. *Tier 1: Preventative Maintenance.* Streets with a PCI rating over 70 (good) will require a regular crack seal/slurry seal program to prolong their service life.
2. *Tier 2: Pavement Resurfacing.* Streets with a PCI rating between 70 and 41 (fair to poor) will require varying degrees of resurfacing, ranging from a 1" "mill and fill" up to 3" - 4" of resurfacing. An important focus of any street program is to resurface streets before they fail because it costs significantly less to resurface a street than to replace one.

3. *Tier 3: Full Pavement Replacement.* Streets with a PCI rating between 41 and 26 (very poor) will typically require replacement due to the amount of roadway base failure documented. However, there may be circumstances in the upper limit of this range where a street can be resurfaced with spot base repair. These streets will be looked at on a case-by-case basis.

Streets with a PCI rating below 26 (failed) will require full pavement replacement. Once a street has failed, the cost to replace it becomes relatively fixed, whether you address it immediately or several years later.

The Pavement Condition Index Map is shown in Appendix D.

STREET IMPROVEMENT PROGRAM

All new streets in the City of Middletown were required to be constructed with curbs and gutters since 1954. In the 1960's, the street improvement program was established to address existing streets that were built without such improvements. This policy, which still exists today, required the addition of curbs, gutters and storm sewers prior to full width paving. Typically, the abutting property owners petitioned for these improvements which were constructed as an assessment project.

In 1995, the street improvement program was modified to address a limited number of unimproved streets that would not require full improvements prior to paving. The criteria used to determine the need for full street improvements is established by the Engineering Division. This criterion includes the functional roadway classification, access, traffic volumes, zoning, land use, drainage, vehicle/pedestrian conflicts, etc. As a result, all unimproved streets in the City are divided into two categories:

1. *Category 1: Full Improvements not required.* These streets may receive full-width paving without the addition of curbs and gutters and closed drainage system.
2. *Category 2: Full Improvements required through owner petition or City initiation.* These streets require full-width paving with the addition of curbs and gutters and closed drainage system. The improvements will continue to be funded through the assessment process. These streets will not be resurfaced without such improvements.

The Street Improvement Program Map, which is shown in Appendix E, categorizes all unimproved streets within the City Corporation limits.

SIDEWALKS

The requirement for sidewalks on street improvement projects is determined by criteria established by the Engineering Division. This criterion includes traffic volumes, zoning density, proximity to schools and parks, connectivity to existing sidewalks in the neighborhood, etc. Sidewalks are required by the City in locations where circumstances warrant their construction. Sidewalks will be optional and decided through the property owner petition process where circumstances do not warrant their construction. Any abutting property owner receiving the benefit of new sidewalks is responsible for the cost of that sidewalk, regardless of whether they petitioned for it or received it by virtue of a City requirement.

This policy only addresses sidewalks for unimproved streets and does not address lots or subdivisions with existing improvements. Cases such as these will be addressed during the repaving of those streets. At that time, property owners with sidewalks are required to bear the cost of bringing their sidewalk up to current standards. The City does not force subdivisions developed without sidewalk to install new sidewalk. In rare instances, an individual lot identified without sidewalk in a subdivision or development with sidewalks will be required to install new sidewalk to match the existing neighborhood.

STREET RESURFACING ASSESSMENT PROGRAM

Property owners on any dedicated street or portion thereof, may petition for improvements to their portion of the street which abuts their property. Improvements will include resurfacing of the full width of roadway, including intersections; and repairs to defective curbs and gutters as required by the Department of Public Works & Utilities. The petition would be submitted to City Council for their consideration.

The following conditions shall be met prior to consideration by City Council:

1. Properties abutting street must not have been levied a special assessment within the past 20 years.
2. Petition for resurfacing must include:
 - a. Signatures supporting the improvements by a minimum of 60% of the front footage of all properties to be assessed that abut the street, or
 - b. Signatures supporting the improvements by a minimum of 75% of the total acreage of all the properties to be assessed that abut the street.
3. Minimum size of the project must be 500 feet and extend from block to block, beginning and ending at an intersection.

ASSESSMENT PROCESS

The following procedures shall be followed to complete a resurfacing assessment project:

1. Petition forms may be acquired in the Engineering Division or Clerk of City Council's Office (City of Middletown, One Donham Plaza Middletown, Ohio 45042).
2. Petitioner may seek engineering staff assistance in providing a general budget estimate for the amount of work, amount to be assessed and consistency with overall paving program prior to circulating petition.
3. Petitioner circulates petition among property owners. Qualifying petitioners submit a completed petition to the Clerk of City Council to be received and filed.
4. Staff reviews the petition for cost estimates, consistency with the overall paving program and the financial feasibility of the project for the city. Staff reports findings to City Council.

5. Upon staff review and report to City Council, letters will be mailed to each property owner which abuts the proposed street improvement giving thirty (30) days to submit their comments to City Council.
6. After the notice period is completed, City Council shall either refer the project to the Engineering Division to incorporate in a current or future year's capital improvement program, or reject the petition.
7. The Engineering Division will prepare plans, specifications, and engineer's estimate and associated legislation to be presented to City Council.
8. Resolution of Necessity is adopted by City Council authorizing a tentative assessment to be sent to the owners of the properties that will be benefited by the project.
9. Equalization Board is created, if necessary, to review financial and technical aspects of any objections to the assessment.
10. Ordinance to Proceed is adopted by City Council authorizing the bidding and award of a contract to perform the work.
11. Upon completion of the work by the contractor and final acceptance by the Engineering Division, the final assessments are prepared.
12. The Assessing Ordinance is adopted by City Council.

The final assessment levied to the property owner, shall be payable in cash to the City Treasurer within thirty (30) days after notification from the Engineering Division. If the Property Owner chooses to not pay in cash, the assessment will be levied against the property for the life of the improvement, up to twenty (20) years, and will be collected with the property's real estate taxes.

ASSESSMENT FINANCING

1. Improved Streets and unimproved streets (streets without curbs and gutters) not requiring full improvements according to the Street Master Plan:

The City of Middletown, by City Council policy, shall pay the complete asphalt cost of the intersections, alley approaches, and two-thirds (2/3) of the asphalt cost of the side yard of corner properties. Property owners shall pay all remaining asphalt costs. Defective concrete sidewalk, curb and gutter, and drive aprons will be assessed through the SWC&G Program.


2. Unimproved streets (streets without curbs and gutters) requiring full improvements according to the Street master Plan:

The City of Middletown, by City Council policy, shall pay the complete asphalt cost of the intersections, alley approaches, and two-thirds (2/3) of the asphalt, curb and gutter, and sidewalk costs of the side yard of corner properties. Property owners shall pay all remaining asphalt costs, curbs and gutters, drive aprons, sidewalks if required, and storm sewers.


APPENDIX


APPENDIX A Street Master Plan Map


Legend


 Proposed New Interchange


Roadways Classification


 Freeway


 Major Arterial


 Future Major Arterial


 Minor Arterial


 Future Minor Arterial

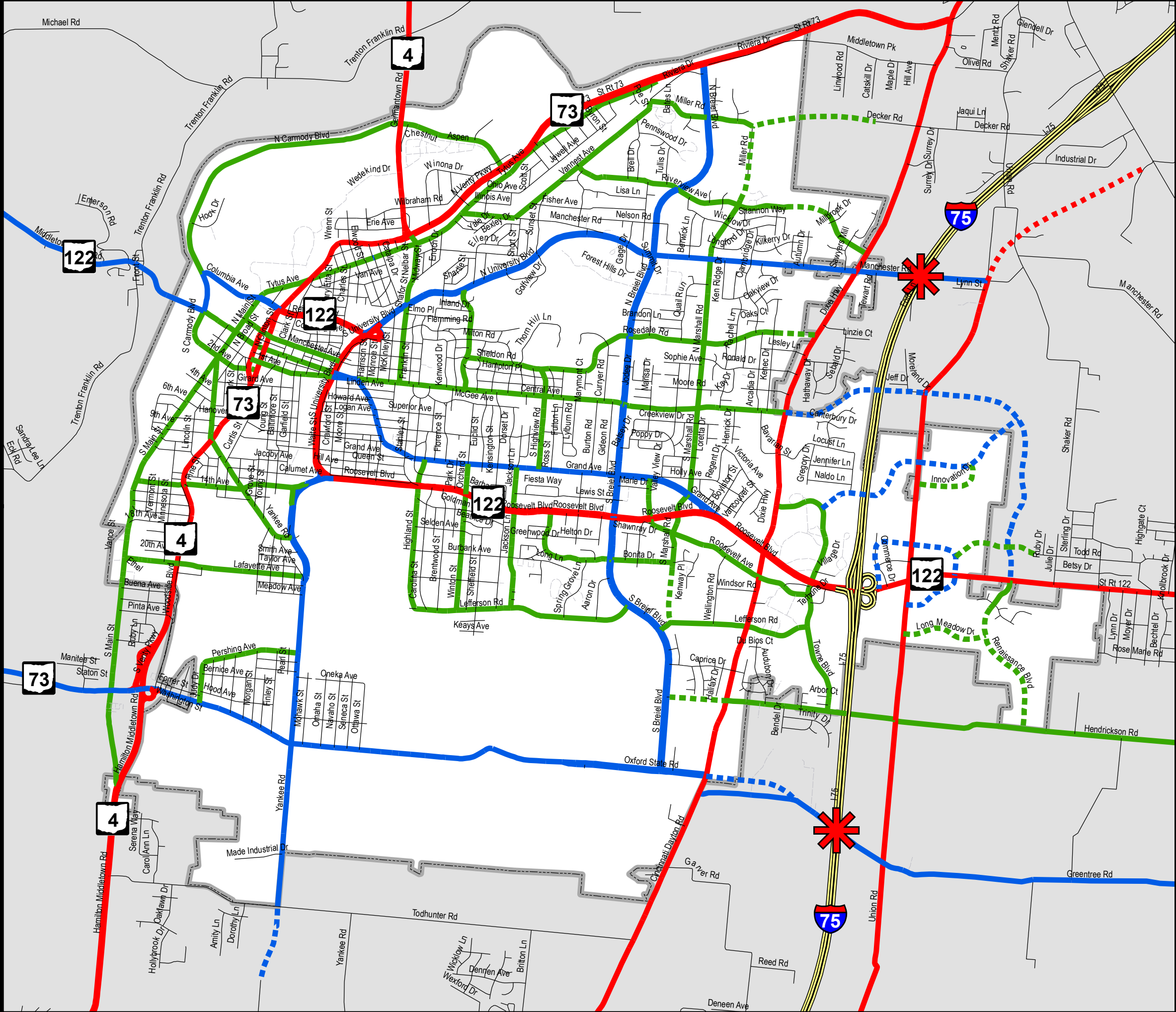
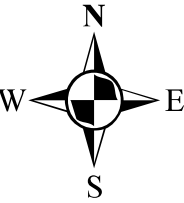
 Collector

 Future Collector

 Local

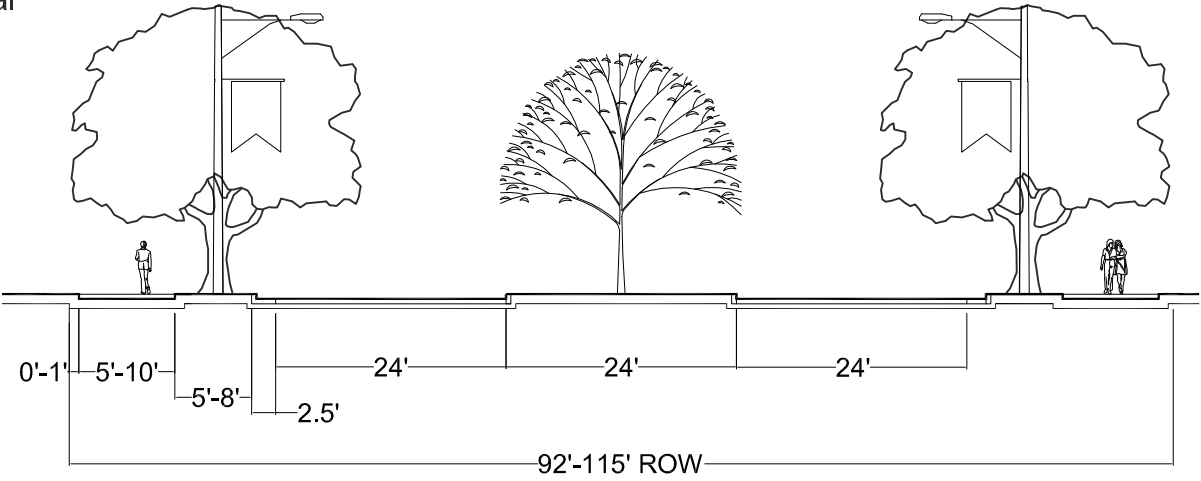
 Private

 City Limits

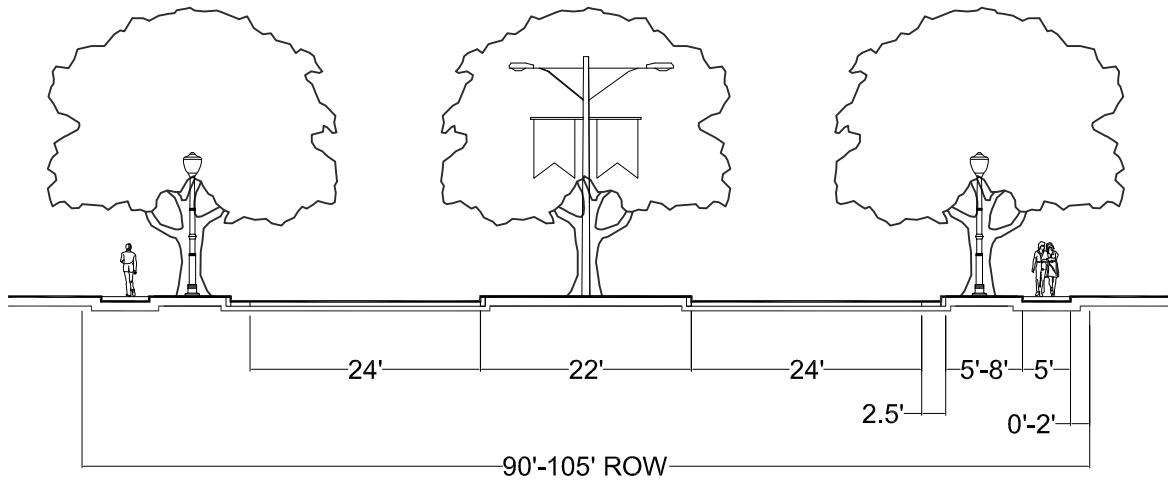


APPENDIX B TYPICAL SECTIONS

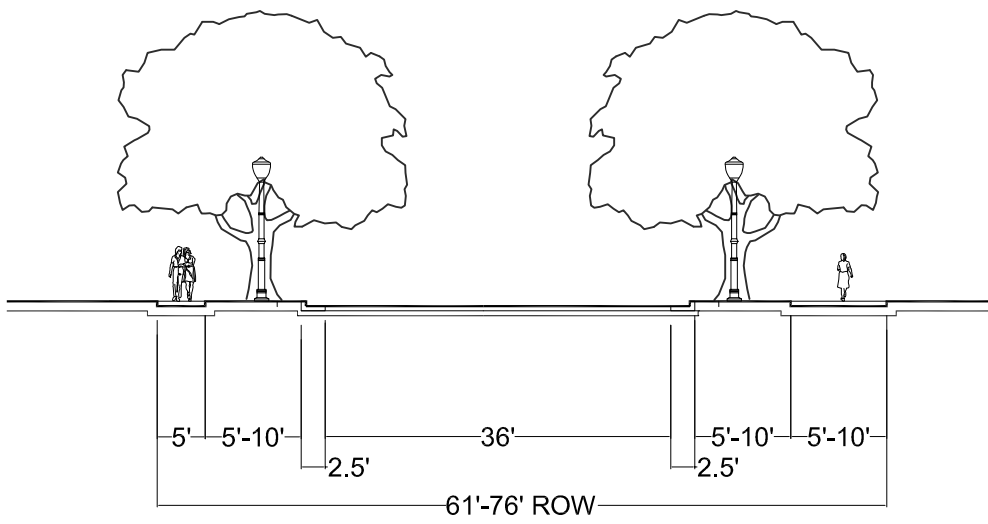
Major Arterial



Minor Arterial



Collector



APPENDIX C PROPOSED PROJECTS

May 2007

Roadway	Location	Description	Cost (\$M)	Timeframe (Yr)
Core Loop Rd NE	Union Rd - SR 122	New roadway	3.5	0-5
Core Loop Rd SE	SR 122 - Union Rd	New roadway	2.0	0-5
Lefferson Rd	Breiel Blvd - Cincinnati-Dayton Rd	Widen roadway	2.0	0-5
Towne Blvd	SR 122 - Dixie Hwy	Widen roadway	3.5	0-5
Oxford State Rd	Spurlino Way - SR 4	Widen roadway	6.0	0-5
Union Rd	Core Loop Rd - Hendrickson Rd	Widen roadway	4.0	0-5
Hendrickson Rd	Breiel Blvd - Cincinnati-Dayton Rd	Extend roadway	2.5	5-10
Hendrickson Rd	Cincinnati-Dayton Rd - Towne Blvd	Widen roadway	2.0	5-10
Highland St	Lefferson Rd - SR 122	Rebuild roadway	1.5	5-10
Main St	18th Ave - S. Corp Limits	Rebuild roadway	1.0	5-10
Marshall Rd	Riverview Ave - Miller Rd	Extend roadway	4.0	5-10
S. Marshall Rd	Bonita Dr - Lefferson Rd	Extend roadway	3.0	5-10
Central Ave I-75 Overpass	Dixie Hwy - Union Rd	Extend roadway	15.0	5-10
I-75 / Manchester Rd Interchange	Dixie Hwy - Union Rd	New interchange	27.5	5-10
Yankee Rd	Todhunter Rd - SR 63	Extend roadway	3.0	5-10
Central Ave	Marshall Rd - Dixie Hwy	Rebuild roadway	2.5	10-20
Columbia Ave	Carmody Blvd - Reinartz Blvd	Rebuild roadway	2.0	10-20
Outer Loop Rd	Union Rd - SR 122	New roadway	6.0	10-20
SR 122 Bridge (over Great Miami River)	Trenton Franklin Rd - Carmody Blvd	Widen roadway	4.0	10-20
Towne Blvd I-75 Overpass	Towne Blvd - Union Rd	New roadway	13.0	10-20
Hendrickson Rd	Towne Blvd - Union Rd	Widen roadway	14.8	10-20
Tytus Ave	Nelbar St - north street terminus	Rebuild roadway	5.0	10-20
Yankee Rd	University Blvd - Oxford State Rd	Widen roadway	7.0	10-20
Carmody Blvd	Central Ave - Germantown Rd	Rebuild roadway	4.5	20+
I-75 / Greentree Rd Interchange	Cincinnati-Dayton Rd - Union Rd	New interchange	25.0	20+
Miller Rd	Miller Rd - Decker Rd (Franklin)	Extend roadway	3.0	20+
Oxford State Rd / Greentree Rd Connection	Cincinnati-Dayton Rd - Greentree Rd	Rebuild roadway	5.5	20+
Union Rd	Manchester Rd - SR 123	Extend roadway	7.0	20+

APPENDIX D Pavement Condition Index Map

Legend

2008 Pavement Ratings

CONDITION

4 - 10 Failed

11 - 25 Serious

26 - 40 Very Poor

41 - 55 Poor

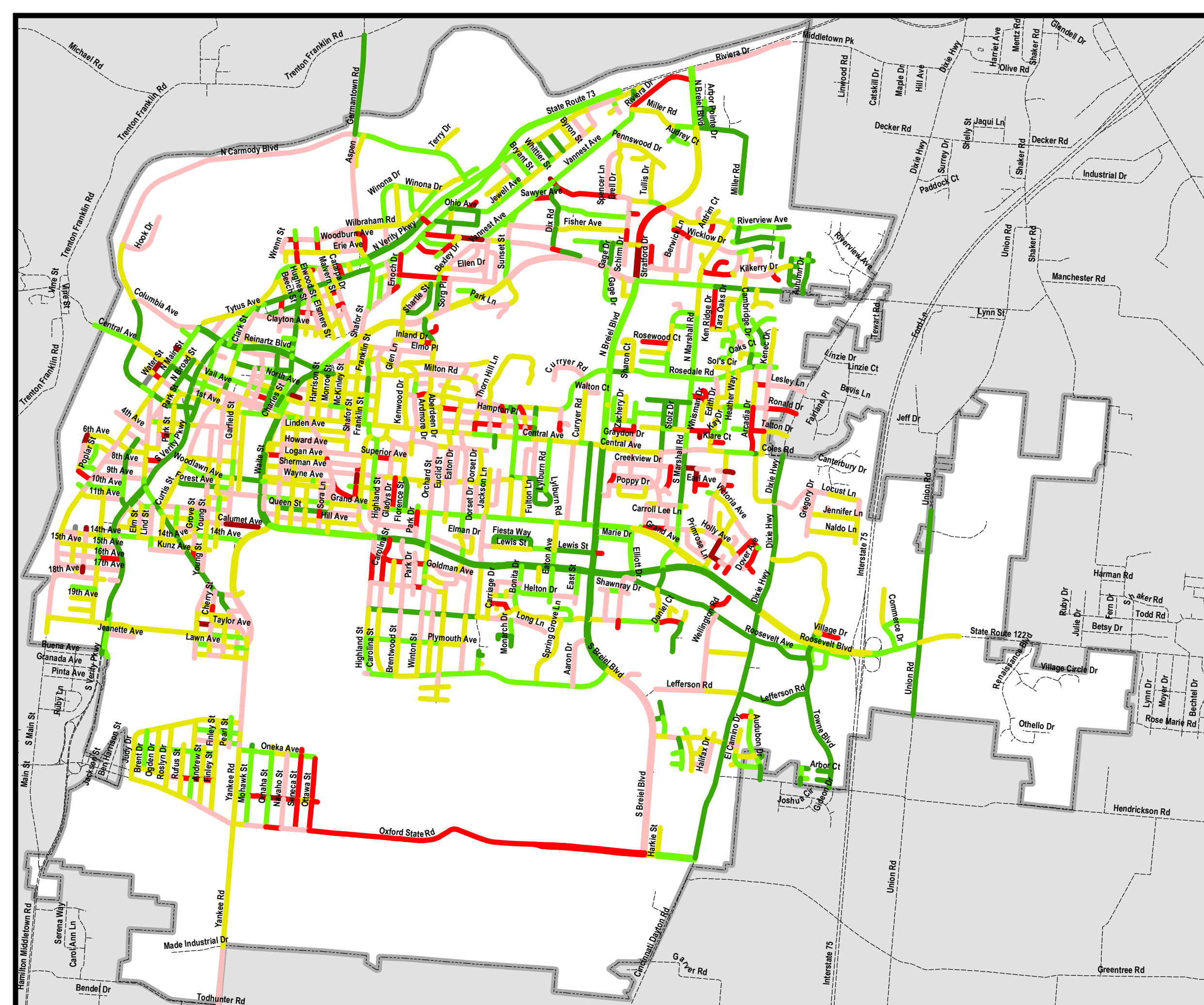
56 - 70 Fair

71 - 85 Good

86 - 100 Satisfactory




Streets

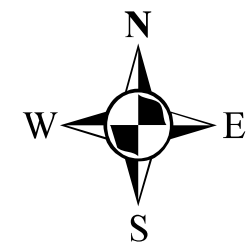
City Limits



Legend

Street Improvements

-  Category 1: Not Required
-  Category 2: Required
-  City Limits



MIDDLETOWN